SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2024 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Bundle 14 - Further Communications - Volume 2

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From: Milligan K (Kim)
Sent: 03 May 2022 16:19
To: Milligan K (Kim)
Subject: Teresa Inkster email of resignation dated 24 January 2018

From: GREEN, Rachel (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Sent: 24 January 2018 14:56
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Subject: RE: Resignation from lead ICD role

Hi Teresa – I am just out of clinic and picking up this email – I am dismayed
Could I have a chat to see what we can do to turn around your impressions of this as it was certainly not my intention to make you feel like this.
I am on [redacted] if you want to call or let me know a number I can call you
Let me know
BW
R

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 24 January 2018 10:43
To: Walsh Thomas (NHS GREATER GLASGOW & CLYDE); brian.jones[redacted]
Cc: Peters Christine (NHS GREATER GLASGOW & CLYDE); Neil Catherine (NHS GREATER GLASGOW & CLYDE); GREEN, Rachel (NHS NATIONAL SERVICES SCOTLAND); Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)
Subject: Resignation from lead ICD role
Importance: High

Dear Tom and Brian,

I am writing to inform you that I wish to resign from the lead ICD role. My reasons for this are delineated below;

New structure

I have returned from sick leave to be informed that I will now sit at clinical lead level and report to the Microbiology Head of Service for Infection control. This was not the role that I was appointed to . Early discussions with the BMA indicate that this is a demotion whilst on sick leave. Furthermore under the Equality Act 2010 I am entitled to come back to the roles I was in prior to going off sick.

It is disappointing that as an ICD with a decade of experience in this organisation , including the lead role that my opinion was not sought with regards to structure. A meeting was held to discuss this in my absence despite those around the table knowing I was due to return in just 4 weeks time. I was however made aware by a colleague in August that changes were to be pushed through in my absence ,therefore this has not come as a complete surprise to me.

Infection control team

In my role as lead ICD I focused on team building particulary in relation to the ICD team. Prior to me leaving I had a junior but solid team , all of whom were working well with the sector ICNs. We had regular

minuted monthly meetings to discuss ongoing issues and support each other. In addition I had ICD representation on all the specialist groups with the aim of strenghthening relationships with ICNs and providing experience for junior ICDs.

I was shocked on my return to find that only two ICD meetings had been held in my absence. Furthermore all ICD representation had been removed from specialist groups including theatre ventilation and water , areas which have always been an ICD remit.

Three of my ICD colleagues felt the need to resign during my absence leaving no ICDs in the QEUH and an on- call service only.In addition not all ICDs are attending important meetings such as SMT with an agreement that only one from each site needs to be present.
Given the Vale of Leven recommendations this is a huge concern.

It has been suggested to me that the infection control service moving forward should be nurse led. I do not agree with this model and I feel it is one which puts the organisation at risk. My vision for the infection control service is clearly very different from that of others, another reason why I cannot continue in the role of lead ICD.

HAI scribe

Whilst off sick an HAI scribe document for 4B QEUH was presented with my name as a signatory. I was absent on that day and did not sign this or attend the meeting. This was pointed out by a colleague to the ICT. However this scribe was later reproduced in an email trail as evidence of work being signed off. This is fradulent and I would like an investigation in to how this was able to happen.

Ward 4B/2A

On my return to work I have been told that the Head of Service will have oversight of these areas. It has not been explained to me why and I have been given no information on these two areas on my return to work , despite having had a huge amount of input in the last two years. Indeed, yesterday, when I pointed out an error with regards to water testing in these units , I was not thanked for this, but reminded that I have no input here now. I am aware that colleagues have raised concerns repeatedly regarding these areas in my absence and they remain concerned re the lack of communcation.

Handover

I have yet to recieve a written medical handover, three weeks after return to work. My emails to Prof Jones have gone largely unanswered. Sandra Devine has been very helpful and has forwarded me relevant minutes. This has highlighted to me that there are outstanding unfinalised minutes from as far back as September for one incident and that for some meetings no update on actions has taken place. It has been time consuming for me to contact the relevant individuals for updates. I was due to attend a meeting today for verbal handover but I do not consider this appropriate given the length of time I have been away and the importance of ongoing IC issues.

TPD role

On my first day back from sick leave I was informed by the Prof Jones that following discussions with Isobel Neil ,I would have to give us this role. No explanation was given. Again this could be considered a demotion whilst on sick leave. This was a deanery appointment and they do not seem to be aware of this decision. Training has always been an interest of mine and I wish to continue in this role meantime.

I would like it noted that I am not resigning due to health reasons. I have been declared fit for work. My Consultant [redacted] is fully aware that I have two demanding roles and has not placed any restrictions.

Teresa
Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

This email is intended for the named recipient only. If you have received it by mistake,
please (i) contact the sender by email reply; (ii) delete the email from your system; .
and (iii) do not copy the email or disclose its contents to anyone.

SBAR – Airborne infection , RHC, patient pathway
Dr T Inkster, Dr R Hague, J Rodgers, S Dodd –Feb 2018

<table>
<tr><td>Situation</td><td>There is concern re the suitability/safety of Positive pressure ventilated lobby (PPVL) isolation rooms in RHC for patients with airborne infections.</td></tr>
<tr><td>Background</td><td>PPVL rooms are situated throughout RHC. A review of these facilities in the adult hospital has suggested they are unsuitable for airborne infections. Work is ongoing with input from HPS and HFS with a view to upgrading to negative pressure facilities. These PPVL rooms are suitable for other infections not spread via the airborne route and for isolation of immunocompromised patients.</td></tr>
<tr><td>Assessment</td><td>Guidance for MDRTB is conflicting (see table below)
<table>
<tr><th>Guideline</th><th>Year</th><th>Recommendation</th></tr>
<tr><td>The Interdepartmental working group on Tuberculosis</td><td>1998</td><td>Minimum requirement for an infectious MDRTB patient is a negative pressure room</td></tr>
<tr><td>HBN 0401 Suppl 1 and SHPN 04-01 Suppl 1 Isolation facilities in acute settings</td><td>2005/2008</td><td>'Airborne infection' – no examples. Exclusion – does not describe isolation facilities required in an ID unit. Guidance will follow..</td></tr>
<tr><td>HBN 04-01 Suppl 1 Isolation facilities for infectious patients in acute settings</td><td>2013</td><td>PPVL suitable for chickenpox , measles and 'some forms of pulmonary tuberculosis'</td></tr>
<tr><td>SHTM 03-01 Ventilation for healthcare premises Part A</td><td>2014</td><td>Infectious disease isolation room – negative pressure room -5 pascals (PA), 10 air changes//hour (ACH)</td></tr>
<tr><td>NICE Tuberculosis</td><td>2016</td><td>Negative pressure room</td></tr>
</table></td></tr>
</table>

MERs- CoV

MERs- CoV is a new and emerging pathogen therefore not considered in HBNs or SHTMs.

Guideline	Year	Recommendation
Health Protection Scotland	2015	Patients should be admitted to a negative pressure isolation room. If not possible a single room with ensuite facilities should be used
CDC	2015	Patients should be placed in AIIR – single patient rooms at a negative pressure and minimum 6 ach/hour

Conclusion - There is no guidance which definitively states that PPVL rooms are suitable for airborne infection. Negative pressure rooms are the preferred option, a view supported by HPS/HFS.

Risk Assessment

The potential risks associated with use of PPVL room for airborne infection are;

1) Cross transmission or outbreaks of serious airborne infections in patients
2) Cross transmission or outbreaks of serious airborne infections in staff members who have not been adequately protected. This does not relate to staff in the room with appropriate IC precautions but staff in the vicinity (corridor) due to potential leakage of contaminated air

The risks associated with moving a paediatric patient elsewhere in the UK are;

1) The lack of specialist paediatric ID input to a serious infection where treatment may be complex.
2) The risk of travelling a considerable distance for a sick patient
3) Increased risk of transmission to staff involved with travel
4) Increased distress to patient and family if they end up far way from home.

Recommendations

1) Nurse paediatric patients with MERs CoV in one of the two PPVL rooms in CDU, RHC. Implement appropriate IC precautions as per policy.
2) Nurse patients with Chickenpox or Measles in any PPVL room in RHC (not 2A). Implement appropriate IC precautions.
3) MDRTB – individual risk assessment by paediatric ID Consultant. Older children may be transferred to MDGH or GRI as per adult pathway. Younger children should be admitted to any PPVL rooms in , RHC (not 2A) with appropriate IC

	precautions in place . 4) Consider upgrade of two PPVL rooms in RHC to negative pressure facilities. One should be in PICU.

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 07 March 2019 17:36
To: Inkster, Teresa
Subject: [ExternaltoGGC]Fw: QEUH - Conversion of 'PPVL' Isolation Suite to Negative Pressure HID suite
Attachments: Appendix 1 - 12233(57)01.pdf; QEUH and RHC Negative Isolation Suites - Description of Works - Feasibility Issue.pdf

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 09 February 2018 13:05
To: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: Fw: QEUH - Conversion of 'PPVL' Isolation Suite to Negative Pressure HID suite

FYI - this is the documentation relating to negative pressure rooms in critical care
T

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Powrie, Ian [redacted]
Sent: 06 February 2018 11:35
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE); Peters Seija (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Devine, Sandra
Cc: Kane Maryanne (NHS GREATER GLASGOW & CLYDE); alan.gallache[redacted]; Connelly Karen (NHS GREATER GLASGOW & CLYDE); Harkness Anne (NHS GREATER GLASGOW & CLYDE)
Subject: QEUH - Conversion of 'PPVL' Isolation Suite to Negative Pressure HID suite

Dear Colleague,

Please find attached for your consideration the design proposal for conversion of 4 rooms within the QEUH\ICU department to negative pressure HID isolation suites.

I would propose to set up a meeting with you as the nominated clinical, management, ICT & ICD leads, to review and fine tune the proposed design as well as identifying the preferred locations within ICU for the placement of the proposed negative pressure suites & on completion provide your final approval and sign off to allow the design to proceed progress to tender stage in preparation for submission of a capital bid for funding 2018/19 .

Can you please confirm your availability on the following dates:

Monday 12th Feb am or pm
Wednesday 14th Feb 12:00 – 2:00pm
Thursday 15th Feb am or pm
Friday 16th Feb am or pm

Regards

Ian

I. Powrie
Deputy General Manager (Estates)

Queen Elizabeth University Hospital Campus
1345 Govan Road
Laboratory Medicine & FM Centre
Glasgow
G51 4TF

[redacted]
Direct : [redacted]
Internal [redacted]
Mob: [redacted]

hulley & kirkwood
consulting engineers

Queen Elizabeth University Hospital
And the Royal Hospital for Children
Negative Isolation Suites
Description of Works

February 2018

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Prepared By:	Stephen Lafferty
Authorised By:	Peter Hinshelwood
Revision:	0
Date:	February 2018
File Location:	[redacted]

Queen Elizabeth University Hospital And the Royal Hospital for Children Negative Isolation Suites Description of Works

February 2018

REV	DESCRIPTION	PREPARED BY	DATE
Issue No. 1	Feasibility Issue	S Lafferty	February 2018

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APPENDICES 15

Appendix A – Negative Pressure Isolation Schematic 15

1.0 Introduction

Patient isolation facilities are required in healthcare premises to prevent Healthcare Associated Infection (HAI). There are two main types of patient isolation:

(a) Isolation to protect other patients and staff from a patient with an infection.

(b) Isolation to protect patients from exposure to infection.

SHPN 04: Supplement 1: Isolation Facilities in Acute Settings was published in 2008 and offers guidance on single bedroom isolation facilities including guidance on "enhanced" single rooms with positive pressure ventilated lobbies (PPVL) that offer effective isolation for both types of patient group as noted above. However clause 1.10 of SHPN 04: Supplement 1 states "This supplement does not describe the specialist facilities required in infectious disease units or on wards where severely immune-compromised patients are nursed. Guidance for these facilities shall follow in a further Supplement to SHPN 04." At the date of writing Hulley & Kirkwood are not aware of this additional guidance document being available.

Notwithstanding, this guidance does state that ***"the room can be used by both infectious patients and those at risk of infecting others"*** which intimates that the room if constructed in compliance with the guidance and clinically managed then it should be suitable for Hazard Group 3 classification. We are currently seeking guidance from both Public Health England (PHE) and the Department of Health for expert opinion on this issue as they had input to the original research.

The Health and Safety Executive document "The Approved List of biological agents", states that ***"COSHH specifies four containment levels for activities which involve working with biological agents. These correspond to the classification of biological agents into Hazard Groups 1 to 4, ie Hazard Group 2 biological agents should be handled at Containment Level 2 (see paragraph 3(4) in Part I of Schedule 3 of COSHH)."*** Therefore, for the purposes of this report it will be assumed that Containment Level 3 (CL3), as set out within HBN 15: 'Facilities for Pathology Services', is to be the benchmark.

Construction of the QEUH & RHC commenced in 2011 and the hospital became fully operational in 2016. There are a number of single bed isolation facilities throughout the facility both in the Adult and the Children's Hospitals.

Hulley & Kirkwood have been asked by Greater Glasgow & Clyde NHS Estates to review the requirements for adapting a typical PPVL isolation suite to a negative pressurised suite. This will facilitate the continued use of the suites for transplant and severely immune-compromised patients and to generate information appropriate to allow this to be competitively tendered.

2.0 Existing Systems Overview

The existing isolation rooms are single bed rooms with PPVL and en-suite.

The facilities are provided with dedicated supply air handling units partnered with dedicated extract systems. The ventilation plant configuration and duty capability is generally in compliance with SHPN 04: Supplement 1 and HBN 04: Supplement 1.

A site inspection took place on the 5th of December 2017 with a Validation Engineer from H&V Commissioning, in which a demonstration of the pressure regime, within a typical PPVL suite, was witnessed by H&K. The findings from that inspection included, but are not limited to, mechanical ventilation airflows, pressure differential between rooms, etc and have been included within this report and associated existing schematic.

The following typical items are noted as requirements that are either not evident within the installations or are contrary to the guidance in the document.

- The rooms have been provided with the majority of the extract ventilation taken from the isolation room at ceiling level with a lesser volume extracted from the en-suite at ceiling level. This is contrary to clause 4.12 which requires all extract to be taken from the en-suite unless clinical requirements determine that some extract is to be taken from low level at the bedhead.
- The rooms have no low level air transfer grilles installed within the door to the en-suite. This is contrary to clause 4.13.
- Excessive access hatches have been installed on the supply and extract ductwork. This is contrary to clause 4.15.
- There appears to be no provision for a gas tight shut off damper or spectacle plate on the extract systems prior to the extract fans. This is contrary to clause 4.14. (Note that a survey of above ceiling ductwork runs has not been undertaken due to operational issues)
- There are no audio and visual alarms located outside the room lobbies to warn staff of unsafe conditions. This is contrary to clause 4.22.
- There is no provision for a common alarm panel located at the nurse station. This is contrary to clauses 4.6 and 4.22.
- The supply and extract duct access hatches have not been identified as a bio-hazard. This is contrary to clauses 4.15 and 4.19.
- The supply and extract plant and duct systems have not been identified with the rooms that they serve. This is contrary to clauses 4.15 and 4.19.
- The existing dial pressure gauges monitoring lobby positive pressure are inappropriate for monitoring a 10Pa pressure differential. 30-0-30 Pa is preferred.
- No envelope permeability test carried out, as detailed within SHPN 04: Supplement 1 Appendix 2.

3.0 Modification from PPVL to Negative Pressure Isolation

As noted in the introduction there would not appear to be any published UK NHS guidance on the design of Negative Pressure (NP) Isolation rooms. However it is reasonable to take guidance from SHTM 03-01 and in particular the guidance pertaining to operating theatre ventilation system design.

SHTM 03-01 Part A Table A4 offers advice on air volume flows through doorways between rooms of different cleanliness in order to control cross-contamination. The table advises that an air flow of 0.28m3/s is adequate to offer protection to a single doorway between a room and another one level lower in the hierarchy of cleanliness. With reference to SHTM 03-01 Part A Table A2, if one assumes the patient bedroom to be 'Sterile', the lobby as 'Clean' and the ward corridor as 'Transitional' then it can be concluded that a cascading air flow from the ward corridor to the isolation room at a rate of 0.28m3/s is adequate to prevent cross-contamination. This is based on the premise that when the rooms are in use there will be a management procedure in place such that the 'corridor to lobby' and the 'lobby to isolation room' doors are not opened coincidentally. Furthermore it is assumed that the half door of the 'pair and a half' door sets is only used for bed transport and when the room is in use only the single door is opened.

Since the supply air plants appear to be capable of delivering at least 0.3m3/s to the rooms (as per inspection during validation), it is reasonable to allocate 0.28m3/s of this volume to the door protection leaving 0.02m3/s to the en-suite extract. While the 'en-suite' may be classed as 'dirty' in the hierarchy of cleanliness and hence requiring an air flow of 0.47m3/s for 'sterile' to 'dirty' protection, according to SHTM 03-01 Part A Table A4, it is assumed that because the en-suite is only used by the patient it does not present a risk to the patient. The extract rate of 0.02m3/s from the en-suite will maintain the room at a negative pressure with respect to the isolation room and will significantly exceed the air change rate stated in SHTM 03-01 Part A Table A1 for a single room en-suite.

As the rooms have been identified as accommodating severely immune-compromised patients and in order to create the cascade of door protection it is proposed that the existing supply system be modified to re-locate a supply terminal to the corridor (refer to Drg:12233(57)01 within Appendix A).

HBN 04: Supplement 1 notes within Appendix 2 and section 2.11, that validation of the 'negative pressure room' requires there to be a ***"negative pressure cascade from the corridor to the room."*** Therefore the mechanical ventilation and corresponding airflow needs to be modified to suit.

The existing pressure stabiliser damper installed over the 'lobby to isolation room' door shall be retained to allow air flow from the lobby to the isolation room at a 5Pa pressure differential. A new pressure stabiliser damper sized for 5Pa differential pressure shall be installed in the wall between the lobby and ward corridor. The lobby will have a negative pressure differential from ward corridor to lobby. This provision will create a continuous air flow from the corridor the isolation room with a target 10Pa negative pressure differential between the isolation room and the ward corridor.

The extract system, within the isolation room, shall be altered to include for extract at low level within the room. If this is not a clinical requirement, low level extract around bedhead, then the extract system could remain as it is presently. This will balance the supply air flow from the ward corridor and ensure that the other ventilation systems serving the ward are not adversely affected. The extract terminals shall be replaced with terminals with integrated volume control dampers that can be accessed from below through the grilles such that the existing duct mounted volume control dampers can be removed along with any associated ceiling access hatches.

The existing dial pressure gages shall be replaced with gauges with a - 30/0/30Pa scale and shall have the room side impulse tube replaced from the lobby to the isolation room to give visual indication of the maintained negative pressure within the corridor to isolation room.

Summary

Relocate primary conditioned supply currently located in lobby to corridor immediately adjacent to the proposed room, and re balance to achieve negative pressure in lobby and room in relation to corridor. Adjust set points at AHU such that conditioned air delivered is matched to that set for the nurses base / corridor areas. Introduce wall mounted 4 pipe fan coil unit (recirculation) within room to provide room temperature control of heating and cooling.

Advantage of Modifications

Some work required to ductwork alterations and ceilings etc., re-commissioning of system ventilation and controls also required. Pressure differentials and desired cascade achieved. Since air delivered to the corridor space would be at the same set point / condition suited for the corridor / nurses base then there would be no impact on the comfort control of this space. Use of FCU to recirculate air within the isolation room would assist with the fumigation process and provide user with individual control of temperature within the isolation room.

Disadvantage of Modifications

Intrusive work will be required to relocate supply ductwork, routing of LTHW & ChW pipework to serve FCU as well as condensate drain route, boxing in / sealing of pipework services would need to be considered. Additional maintenance would need to be considered for FCU eg filter cleaning replacement, frequency, standard operating procedure, etc. during decontamination / clinical clean of room. In addition fresh filtered air is not directly supplied to the isolation room; however air is entrained from the ward corridor 'make up' supply air.

4.0 Description of Works

4.1 Site Accommodation

Space shall be made available externally for a single container to facilitate site office / storage. Refer to SHFN 30: HAI-SCRIBE Questionset and Checklist.

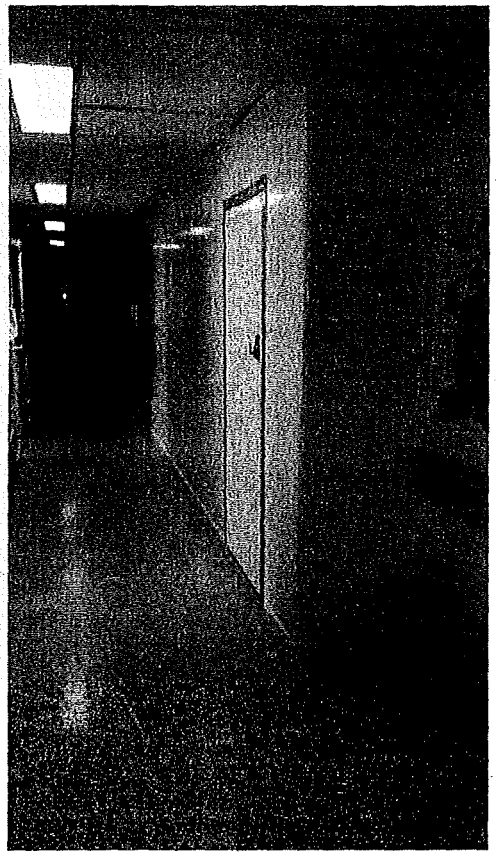
The contractor may use the 'on site' facilities for toilets and catering provided that works clothing is removed before using any catering facilities.

No materials or equipment to be stored out with the site accommodation or the works area. Works area to be secure at all times.

Working hours shall be 8am to 6pm 7 days per week or as otherwise agreed with clinical staff and the estates department.

4.2 Isolate Works Area

The contractor shall provide a supply / install and seal a solid partition HAI containment to the site that shall be effectively air tight to prevent migration of dust. Expectations of this hoarding are as indicated in the following photograph. This installation shall be by Messrs Kwik Klik (www.kwik-klik.co.uk) or equal and approved.



Example of expectation for isolating construction from Operational

A49541141

4.2/.....

Suitable signage shall be provided to indicate works area / no entry & contact details.

A magnahelic gauge shall be taken from one of the existing rooms and shall be reinstated within the temporary partition to offer visual indication of maintained negative pressure.

4.3 Create Safe Area

The existing room supply AHU plant shall be shut down and the associated dampers closed. The existing extract systems shall be maintained in operation to negatively pressurise the works area with visible indication via the magnahelic gauge installed within the works area temporary partition. The extract fan speed shall be adjusted on the existing frequency converter drives to maintain a negative pressure with the entrance door from lobby to corridor closed.

4.4 Builderswork Elements

All builderswork shall form part of the contract and shall comprise all alterations to ceilings, forming of holes in partitions, fire sealing, sealing perimeter to achieve air permeability test, making good, decoration and final clean.

Potentially supporting Multiplex access to repair / replace damaged window blinds, while rooms are out of service.

For the purposes of tender it shall be assumed that the existing solid ceilings to the isolation room, ensuite and lobby are to be down taken and reinstated in their entirety. This will be reviewed once ductwork routes are coordinated.

A hole shall be formed in the wall between the lobby and ward corridor for each room for the installation of a new pressure stabiliser.

Form new holes in walls above ceilings for diverted ductwork.

Installation of a new termination for the magnahelic impulse tube within the isolation room ceiling.

Installation of the supply diffuser within the existing tiled corridor ceiling.

Installation of the extract grilles within the isolation room ceiling, low level in the isolation room and the ensuite ceiling.

Works associated with dropping a new electrical conduit down the existing partition between isolation room and ward corridor. To support the installation of a new room condition monitor / alarm at the isolation suite entrance.

Installation of the new alarm panel at the nurses station. For the purposes of tender it shall be assumed that the existing partition shall require reinforcement for mounting the alarm panel.

Re-install all existing ceiling mounted services including but not limited to light fittings and smoke detectors.

Carry out room air leakage testing ***(Messrs Stroma Technical Services or Equal & Approved)*** in accordance with SHPN 04: Supplement 1. We would also recommend testing in compliance with BSRIA air permeability levels.

On completion of works the contractor shall provide a clinical clean of the complete works area. On acceptance of cleanliness (Visual) rooms will be handed over to the Hotel Services team for sparkling clean and Board sampling.

4.5 Ductwork and Grille Modifications

Take down existing supply diffuser from the isolation room lobbies and relocate to the ward corridor in a suitable location adjacent to the isolation suite entrance. Proposed supply diffuser with no HEPA filter required.

Divert existing 315mm diameter galvanised spiral wound supply duct from lobby into the ward corridor and connect to supply diffuser. No flexible connections to be utilised.

Supply and install supply diffuser. Provide challenge port at AHU discharge.

Modify ensuite 160mm diameter galvanised spiral wound duct to remove volume control damper. Supply and install a new ensuite extract grille suitable of 20 l/s extract and with face adjustable integral VCD and removable core.

Modify isolation room 315mm diameter galvanised spiral wound duct to remove volume control damper. Supply and install a new isolation room extract grille suitable of 280 l/s extract and with face adjustable integral VCD and removable core.

Ensure the existing pressure stabiliser damper in isolation room / lobby wall is fit for purpose, if it is found to be not suitable, then it shall be replaced with similar.

Supply and install a new pressure stabiliser damper in wall between ward corridor and lobby.

Supply and install gas tight shut off damper on inlet (suction) side of extract fan and extract branches as indicated within Appendix A.

Install proposed wall mounted fan coil unit to provide cooling to the space, depending on output and suitability of existing heating radiant panel, the fan coil unit may additionally provide heating. Pipework modifications, etc will be required above ceiling and potentially within risers.

4.6 Electrical/Controls Installations

Supply and install a new centralised alarm panel at the nurse base. This panel shall be designed, supplied and installed with capability of alarm connections to the site wide Schneider Controls or their approved contractor. The panel shall be surface mounted and stove enamel white or equal finish. The panel shall incorporate a sounder and mute for common alarm condition and green (healthy) and red (alarm) lamps for each room. For each room the panel shall monitor terminal HEPA healthy condition (where required), room magnahelic pressure healthy condition (time delay required to allow for open door conditions) and supply AHU and extract fan healthy condition. The panel shall interface with the existing building BMS for receipt of information on the plant status and relay of information for the room status. The panel supplier shall allow for graphics and software update at the head end to accommodate the alterations. Note supply and extract fans shall be interlocked and controlled as necessary.

Supply and install a new electronic gauge mounted on the corridor wall outside each isolation suite with a -30/0/30Pa scale. The gauge shall offer visual indication of the room pressure (+10Pa design) via a dial face or digital readout and a tell tale interface with the alarm/monitoring system for room low pressure.

Supply and install an individual sounder and mute alarm on the corridor wall of each room to provide local individual room specific alarm.

Supply and Install fault status indicator of main mechanical plant within the isolation, mounted adjacent to room temperature sensor / controller.

Supply and install all necessary impulse tube, cable, containment, field mounted equipment and power supply from local distribution as required to provide a fully operational installation.

4.7 Test & Commission

Pressure test the supply and extract ductwork installations to DW/143 medium pressure.

Clean supply and extract ductwork systems for all bedrooms to TR/19 PDI Level 3.

Set to work existing supply and extract systems and balance to achieve design air flows as stated on drawing 12233(57)01.

DOP test the HEPA filters.

Adjust pressure stabiliser blades as required for stability under steady state conditions.

Function check all alarm interfaces.

4.8 Validation and Demonstration

Validation to be carried out by H&V Commissioning or equal and approved.

All air sampling and microbiological sampling shall be carried out by others. This activity does not form part of this contract.

4.9 O&M Information

Obtain and modify the existing ventilation installation drawings to reflect the modifications and provide in hard copy, pdf and editable electronic format.

Provide hard copy and pdf all relevant manufacturer's literature, commissioning results and test certificates.

Supply in hard copy and pdf all electrical wiring and panel diagrams.

All hard copy information to be provided in hard backed ring binder folder complete with all contractor and sub-contractor contact details.

Demonstration shall comprise two half day sessions. One session shall be provided for the clinical staff to inform them on the operation of the rooms from a user perspective. One session shall be provided for the NHS Estates staff to inform them on the technical operation of the rooms.

4.10 Client Liaison

Prior to and throughout the works duration the contractor shall allow for daily liaison with the NHS project manager and clinical stall as required.

5.0 Proposed Cost Plan Summary

The table below is a summary of the construction work activities and associated budget costs.

Item	Description	Cost
1	Modification and strip out of existing supply ductwork / diffuser from lobby.	[redacted]
2	New supply ductwork connections with diffuser & filter in corridor	[redacted]
3	Modifcations to extract ductwork system, low level extract etc subject to clinical review.	[redacted]
4	Pressure stabilisers (300L/s 5 Pa each)	[redacted]
5	3 off gas tight shut off dampers to be installed on each extract duct (one at room and one at en-suite) with other located at inlet to exhaust fan.	[redacted]
6	2 off room electronic pressure gauges providing local indication of corridor to lobby and corridor to room pressure differentials. Gauges / indicators to be connected to BMS to allow relay of information, alarm etc to local panel located at nurses base. Audio & visual alarm indication at entrance to lobby and bedroom as indicator to staff of 'pressure alarm' condition.	[redacted]
7	Installation of wall mounted fan coil unit within room to provide local control of heating & cooling in space. Note should room have existing radiant panel then possibility of changing FCU to cooling only unit.	[redacted]
8	Chilled water connections from suitable location with existing chilled water distribution network to FCU	[redacted]
9	LTHW connections from suitable location with existing chilled water distribution network to FCU	[redacted]
10	Automatic control interface and modification as necessary and to include the following: a. Gas tight shut off dampers b. Providing local control and monitoring of FCU c. Adjustment of existing AHU set points to suit corridor / circulation space conditions. d. Monitoring of pressure gauges (corridor to lobby and corridor to room) / conditions to local alarm panel at nurses station. e. Audio & visual alarm indication. f. Interlock of supply & extract systems. g. Fault / status condition indication within isolation room of main AHU and extract fan plant.	[redacted]
11	Commissioning of ventilation, LTHW and Ch.W systems	[redacted]
12	Validation process for room	[redacted]
13	Allowance for builderswork eg alterations to ceiling system, boxing in of pipework, cutting of holes etc.	[redacted]
14	Power supplies for dampers, FCU etc	[redacted]
15	O&M Manuals	[redacted]
	Total	[redacted]

Notes

1. Typical layout, 12233(75)01 as shown within Appendix A, is indicative of the principals to be adopted. This may vary depending upon the final selection of rooms to be altered from 'PPVL' to Negative Pressurisation.

2. As-installed / fitted information will be required to further develop proposals for specific suites, which require alteration works.
3. Budget costs will be developed in coordination with client liaison / review of this feasibility report and prior to next stage i.e. tender issue.
4. The above costs are budget estimates only to provide likely magnitude of work. Market testing / tender of the works would be required to establish accurate costs.
5. Further investigation would be required to determine suitable connection points for various services
6. Cost exclude; VAT, fees, statutory applications, etc
7. Cost based upon reconfiguration of single room. Although it has been noted that there are 4 No. ICU's with the possibility of each housing 2 No. negatively pressurised isolations suites.

APPENDICES

Appendix A – Negative Pressure Isolation Schematic

Re: Worshop and meeting re PPVL rooms

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Tue 27/02/2018 12:42

To:Peters Christine (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Powrie Ian (NHS GREATER GLASGOW & CLYDE) [redacted];

Thanks. There will be a meeting to discuss at some point
T

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Christine [redacted]
Sent: 21 February 2018 18:39
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Powrie Ian (NHS GREATER GLASGOW & CLYDE)
Subject: Worshop and meeting re PPVL rooms

Dear Teresa,

I attended the workshop organised by Ian regarding PPVL rooms and then a discussion group with the designers , Malcolm Thomas and Dr Blanca Beato-Arribas from BSRIA regarding the proposed plans for PPVL change into neg pressure rooms. I attach a summary of my notes from the day for your interest.

Ian let me know if you think anything I have written is inaccurate.

What follows is my own views after this meeting , and not necessarily those of others:

[redacted]

I suggest that while it is possible to change the ITU rooms into negative pressure suites some basic questions need to be addressed first:

An overarching organisational plan for isolation of:

1. Non critically ill patients with cat 3 airborne infections – is ITU the best place for them?
2. Critically ill patients with Cat 3 organisms - negative pressure suite provision , needs clear differentiation form PPVL rooms in terms of instructions and staff training
3. Potential cat 4 patients which are non-airborne, or are potentially airborne – of course this is more a national discussion in terms of any new unit specs.
4. A+E/ Admissions unit isolation facilities
5. ID unit
6. Immune compromised patients who need critical care or rare infectious
    - These questions relate to both adult and children hospitals

- An entrance on the risk register of the shortcomings of the PPVL rooms we have with regard to air mixing (may find its ok on BSRIA testing, but dubious) need for removal of dampeners, provision of alarms , fixing of baffles, rebalancing of extract in toilet, doors being hung wrong way.
- Need for a scoping exercise for changes to ventilation for some areas -, CF, ID ? Haemonc ? renal transplant - including the cheapest and easiest option of ducts being external to the building as suggested by Malcolm
- Need for the GRI room to be replaced if it is correct that it is still one that has 2 modes

I intend to write to both Blanca and Malcolm as I have a series of questions regarding gaps in the data they provided , I will copy you both into this correspondence.

kr

Christine

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

Re: QEUH - Conversion of 'PPVL' Isolation Suite to Negative Pressure ID suite

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Mon 23/04/2018 08:21

To: Powrie Ian (NHS GREATER GLASGOW & CLYDE) [redacted]; Hague Rosemary (NHS GREATER GLASGOW & CLYDE) [redacted]; Mcneil Elaine (NHS GREATER GLASGOW & CLYDE) [redacted]; Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE) [redacted]; Peters Seija (NHS GREATER GLASGOW & CLYDE) [redacted]; Pritchard Lynn (NHS GREATER GLASGOW & CLYDE) [redacted]; Devine, Sandra [redacted]; brian.jones [redacted]; 'peter.hinshelwood [redacted]; 'a.marek [redacted]; Marek, Aleksandra [redacted]; Mcintyre Hazel (NHS GREATER GLASGOW & CLYDE) [redacted]; Russell Steven (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc: Hamilton Pauline (NHS GREATER GLASGOW & CLYDE) [redacted]; Cox, Donna [redacted]; Redfern James (NHS GREATER GLASGOW & CLYDE) [redacted]; Hendry Scott (NHS GREATER GLASGOW & CLYDE) [redacted]; neil.spenceley [redacted]; Walsh Thomas (NHS GREATER GLASGOW & CLYDE) [redacted];

Hi all - further to the meeting on Friday I am happy to sign off these plans from an Infection Control perspective

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Powrie, Ian [redacted]
Sent: 20 April 2018 16:49
To: Hague Rosemary (NHS GREATER GLASGOW & CLYDE); Mcneil Elaine (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Ic Doctor, South; Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE); Peters Seija (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; brian.jones [redacted]; 'peter.hinshelwood [redacted]'; 'a.marek [redacted]'; Marek, Aleksandra; Mcintyre Hazel (NHS GREATER GLASGOW & CLYDE); Russell Steven (NHS GREATER GLASGOW & CLYDE)

RE: RE: RE: Isolation Rooms - Phase 1 Handover Delay

Traquair Smith, Ann [redacted]

Mon 05/11/2018 10:36

To: Mills, Thomas [redacted]; Thomson Iain (NHS GREATER GLASGOW & CLYDE) [redacted]; Pritchard Lynn (NHS GREATER GLASGOW & CLYDE) [redacted]; Mcallister Paul (NHS GREATER GLASGOW & CLYDE) [redacted]; Conner Darryl (NHS GREATER GLASGOW & CLYDE) [redacted]; Macdonald, David [redacted];

Cc: Hutton Melanie (NHS GREATER GLASGOW & CLYDE) [redacted]; Redfern James (NHS GREATER GLASGOW & CLYDE) [redacted]; Dodd Susan (NHS GREATER GLASGOW & CLYDE) [redacted]; Russell Steven (NHS GREATER GLASGOW & CLYDE) </o=MAIL/ou=NHSFB10/cn=Recipients/cn=LJ6L4CSC>; Valyraki, Kalliopi [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; alison.balfou[redacted];

Thomas,

Do you have an understanding why they failed please? This obviously has a potential impact on Phase 2 starting.

Regards
Ann

From: Mills, Thomas
Sent: 05 November 2018 09:10
To: Traquair Smith, Ann; Thomson, Iain; Pritchard, Lynn; Mcallister, Paul; Conner, Darryl James; Macdonald, David
Cc: Hutton, Melanie; Redfern, Jamie; Dodd, Susie; Russell, Steve; Valyraki, Kalliopi; Inkster, Teresa (NHSmail); Balfour, Alison
Subject: RE: RE: RE: Isolation Rooms - Phase 1 Handover Delay

Dear All,

Despite the optimism on Friday with the programme dates, the contractor has since advised that the Phase 1 Isolation Rooms have failed their validation testing and are unable to be commissioned. The contractor, commissioning engineers and designers are currently discussing the options available to commission the rooms as soon as possible. At this moment in time I'm unable to advise of a date for handover however we will continue to push for a revised date as soon as possible. I will hopefully be in a position to provide a fuller update later today.

Understanding the critical nature of these rooms and the urgency required for handover we are continuing to apply pressure on the contactor to achieve handover as soon as possible. The clinical clean planned for this morning has been postponed until the rooms are in a suitable condition and the walk round scheduled for tomorrow will also be postponed until a new handover date is advised.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Mills, Thomas
Sent: 02 November 2018 15:23
To: Traquair Smith, Ann; Thomson, Iain; Pritchard, Lynn; Mcallister, Paul; Conner, Darryl James; Macdonald, David

Cc: Hutton, Melanie; Redfern, Jamie; Dodd, Susie; Russell, Steve; Valyraki, Kalliopi; Inkster, Teresa (NHSmail); Balfour, Alison
Subject: RE: RE: Isolation Rooms - Phase 1 Handover Delay

Dear All,

Further to my previous email please find below an update/confirmation of the key dates for the delivery of the Negative Pressure Isolation Rooms.

- **Phase 2 Start Date**
  - RHC (Ward 2C Rm 6 &CDU Rm 18) – Monday 5th November 2018
  - QEUH (Surg HDU Rm 4) – Wednesday 7th November 2018 (this is subject to the Phase 1 rooms handover on 6th Nov)
- **Phase 2 Completion** (no change from previous programme)
  - RHC – 7th December 2018
  - QEUH – 7th December 2018 (this is subject to Phase 2 starting by 9th Nov)
- **Phase 3 Start Date** – 14th January 2019
- **Phase 3 Completion** – 15th February 2019
- **Remedial work to Phase 1/2 rooms** – duration 1 day per room, start date to be agreed with service teams

If there are any queries on any of this please let me know.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Mills, Thomas
Sent: 30 October 2018 09:57
To: Traquair Smith, Ann; Thomson, Iain; Pritchard, Lynn; Mcallister, Paul; Conner, Darryl James; Macdonald, David
Cc: Hutton, Melanie; Redfern, Jamie; Dodd, Susie; Russell, Steve
Subject: RE: Isolation Rooms - Phase 1 Handover Delay

Hi Ann,

The contractors have confirmed this morning that the damper swap would be 1 day per room and that the work can be carried out using the existing ceiling hatches.

They are currently revising the programme to take account of the delays, this should be with me on Thursday and I'll issue the key dates accordingly.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Traquair Smith, Ann
Sent: 29 October 2018 20:29
To: Mills, Thomas; Thomson, Iain; Pritchard, Lynn; Mcallister, Paul; Conner, Darryl James; Macdonald, David

Cc: Hutton, Melanie; Redfern, Jamie; Dodd, Susie; Russell, Steve
Subject: Re: Isolation Rooms - Phase 1 Handover Delay

Hi Thomas,

Thank you for the update. Can you advise how long the swap of the installed dampers will take and whether it will mean the room is out of action .

Also what would the completion date of phase 2 work out at please?

Regards
Ann

Sent from my BlackBerry 10 smartphone on the EE network.

From: Mills, Thomas
Sent: Monday, October 29, 2018 4:47 PM
To: Traquair Smith, Ann; Thomson, Iain; Pritchard, Lynn; Mcallister, Paul; Conner, Darryl James; Macdonald, David
Cc: Hutton, Melanie; Redfern, Jamie; Dodd, Susie; Russell, Steve
Subject: Isolation Rooms - Phase 1 Handover Delay

Dear All,

The completion of the first phase of Negative Pressure Isolation Room is growing closer, however it is with regret that the first phase rooms will not be available for handover on Friday 02 November 2018 as originally planned. The contractor has experienced difficulties with the fire dampers being installed as part of the project and the initial consequence of this is that they will not complete the works on the rooms until this coming weekend. We are still awaiting full confirmation of the revised programme however in the interests of advising you as soon as possible the current plan is highlighted below:

- 02/11/18 – Contractor works completed by close of play
- 03/11/18 – Connection, commissioning and testing completed
- 04/11/18 – Contractor deep clean completed
- 05/11/18 – NHS Clinical Clean

On this basis the Phase 1 rooms will be ready for use from 06/11/18 subject to a walk round with the relevant parties once all work has been completed. The room validation documentation will also be issued within this timescale to allow the rooms to be used as negative pressure isolation spaces from the point of handover. The delay to the handover of Phase 1 will have a knock on effect to Phase 2 as the Surg HDU Room 4 will not be taken out of service until the current rooms are handed back. If agreeable there is still the potential that CDU Room 18 and Ward 2c Room 6 could still start on 05/11/18?

In addition to the delay highlighted above it has been identified that the contractor has made an error in the specification of the damper they are using. Assurance has been provided that this will not affect the use of the rooms however there will still be a requirement on the contractor to install the specified gas tight dampers in due course. As each damper has an 6 – 8 week lead time the decision was taken to proceed with the currently supplied dampers to allow the rooms to be returned for operational use (the alternative was to delay the handover of Phase 1 by 6 – 8 weeks). The contractor will then need to access the rooms at a later date (date/time to suit the Service) to carry out a swap of the installed dampers. The full impact of this along with the timescales required for the remedial work are currently being developed and more detail will be issued as and when it becomes available, it should be noted that the remedial work should not be as intrusive as the initial works and should be completed through the new access hatches

within the rooms. Currently this affects the 3 rooms in Phase 1 however there is the potential that this may have an impact on Phase 2 rooms as well – to be determined.

I trust that the above summaries where the project currently is, more detail will be provided as and when available to keep you all informed and there will certainly be the opportunity to discuss further at the next progress meeting on 7th Nov. If however you have any queries or wish to discuss further please don't hesitate to get in touch.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital
3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]
[redacted]

Re: Isolation Rooms - Phase 1 Handover

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Tue 13/11/2018 17:08

To:Mills, Thomas [redacted]; Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE) [redacted]; Thomson Iain (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Russell Steven (NHS GREATER GLASGOW & CLYDE) [redacted]; Pritchard Lynn (NHS GREATER GLASGOW & CLYDE) [redacted]; Valyraki, Kalliopi [redacted]; alison.balfou[redacted]; Conner Darryl (NHS GREATER GLASGOW & CLYDE) [redacted];

Thomas,

This is concerning. The priority is patient safety and not to get the rooms back in to use as soon as possible.

Whilst the rooms may pass commissioning it looks to me like they will deteriorate and the time-scale for this is unclear.

We are talking about the highest risk patient group in terms of infection i.e. airborne transmission and pressure differential is key.

If the rooms are going back into use in the interim I would not be recommending these patients (MDRTB, ? MERs) are placed in them

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Mills, Thomas [redacted]
Sent: 13 November 2018 14:23
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE); Thomson Iain (NHS GREATER GLASGOW & CLYDE)
Cc: Russell Steven (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Valyraki, Kalliopi; alison.balfou[redacted]; Conner Darryl (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Isolation Rooms - Phase 1 Handover

Dear All,

My apologies for the delay in this update as I had hoped to be able to confirm yesterday what needed to be done in order to commission the isolation rooms.

Currently the rooms are achieving the necessary pressure difference between the corridor and the room however at a reduced air flow rate. This results in reduced control over the heating/cooling of the rooms and reduces the number of air changes (currently ranging from 9 ac/hr to 12 ac/hr depending on the room). There is however a risk to the current setup, the extract fans are operating at their maximum output based on their current configuration and therefore as the HEPA filters become clogged over time the rooms will fail to maintain the necessary pressure difference. The timescale for this indefinable but may be a matter of weeks.

The design team are currently developing an option to adjust how the extract fans operate to reduce the risk caused by the HEPA filter clogging. This would not be a long term fix however it would be sufficient in order to achieve the criteria required to commission the rooms. This fix (if viable) should be sufficient to assure the use of the rooms through the winter pressure period. The priority is to return the rooms to service as soon as possible and the designers are working to achieve this. In parallel they are also assessing the options available to achieve a long term solution to the current issues.

I don't currently have a defined timescale for the resolution of the current issues. The option being developed would be an off the shelf solution which should minimise the time required to complete the works. We are continuing to have discussions with the design team to deliver a solution as soon as possible and to ensure that all involved are aware of the level of urgency required to re-commission the rooms.

I will provide further updates as this progresses.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 13 November 2018 11:09
To: Traquair Smith, Ann; Mills, Thomas; Thomson, Iain
Cc: Russell, Steve; Pritchard, Lynn; Valyraki, Kalliopi; Balfour, Alison; Conner, Darryl James
Subject: [ExternaltoGGC]Re: Isolation Rooms - Phase 1 Handover

Hi Thomas

Is there any update?

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Traquair Smith, Ann [redacted]
Sent: 09 November 2018 16:53
To: Mills, Thomas; Thomson Iain (NHS GREATER GLASGOW & CLYDE)
Cc: Russell Steven (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Valyraki, Kalliopi; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); alison.balfou[redacted]; Conner Darryl (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Isolation Rooms - Phase 1 Handover

Thomas,

This is very disappointing and as are approaching, if not already there, the busiest period for our department and the site..It's imperative we get these rooms back as soon as possible

I'll await Mondays update

Regards
Ann

Sent from my BlackBerry 10 smartphone on the EE network.

From: Mills, Thomas
Sent: Friday, November 9, 2018 4:44 PM
To: Traquair Smith, Ann; Thomson, Iain
Cc: Russell, Steve; Pritchard, Lynn; Valyraki, Kalliopi; Inkster, Teresa (NHSmail); Balfour, Alison; Conner, Darryl James
Subject: Isolation Rooms - Phase 1 Handover

Ann / Iain,

I've just been informed by our contractors and in particular the commissioning engineers that there appears to be a further issue with the ventilation systems serving the Phase 1 Isolation Rooms. The information is currently fairly limited at this point as the team are currently trying to establish exactly what the issue is and how it can be resolved, this email is intended to provide you with an early warning for the rooms.

As things stand the rooms are not achieving the design intended pressure difference between the corridor/lobby/room, they are however operating as a negative pressure environment albeit not to the intended scale (this was a parameter set early in the project and is not to any specific SHTM). The commissioning engineers are continuing to work on the system to achieve the best possible figures to allow this to be discussed with the designers on Monday morning to understand the impact (if any) and any additional work required. As any further work would be contained within the plant rooms the clinical clean will still take place this weekend but the rooms will not be operational on Monday.

I appreciate the frustration that this will cause and the urgent need to return these rooms to service. Following discussions with the design team on Monday I will provide a further update on what the impact of the issue is, any work required to resolve it and the associated timescale.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital

3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]
[redacted]

negative pressure rooms critical care

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Thu 15/11/2018 13:15

To: Peters Christine (NHS GREATER GLASGOW & CLYDE) [redacted]; alison.balfou[redacted]; Valyraki, Kalliopi [redacted]; Wright Pauline (NHS GREATER GLASGOW & CLYDE) [redacted]; Khanna Nitish (NHS GREATER GLASGOW & CLYDE) [redacted]; CARGILL, James (NHS GREATER GLASGOW & CLYDE) [redacted]; KHALSA, Kamaljit (NHS GREATER GLASGOW & CLYDE) [redacted]; jennagillies[redacted]; DHILLON, Raje (NHS GREATER GLASGOW & CLYDE) [redacted]; HTWE, Susu (NHS GREATER GLASGOW & CLYDE) [redacted]; FARMER, Eoghan (NHS GREATER GLASGOW & CLYDE) [redacted]; MACALISTER HALL, Sarah (NHS GREATER GLASGOW & CLYDE) [redacted];

Hi ,

Just to let you know I am not able to sign off the negative pressure rooms in critical care at this stage . They have not met the desired air change rate and are likely to deteriorate over time with the risk of a loss of pressure and further air change reduction.

The rooms are due to be released for use back to the service but should not be used for patient with airborne infections (TB, MERs, Measles, Chickenpox) or patients who require protective isolation e.g. BMT .

The existing ID diversion protocols for high risk MERs and MDR/XDRTB should continue to be followed which ID are aware of. Other airborne infection patients should be placed in PPVL rooms which are the safest option at this time.

Rooms affected by this issue are ; 24/42/43 .
It will be early next year before remedial work is complete.

Phase 2 which was to involve room 4 in HDU1 has been halted as similar issues are likely to arise

RHC rooms are part of phase 2 and will be proceeding as planned

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

RE: negative pressure rooms

Peters, Erica [redacted]

Thu 15/11/2018 13:44

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Thomson Iain (NHS GREATER GLASGOW & CLYDE) [redacted]; Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE) [redacted]; Binning Alexander (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Pritchard Lynn (NHS GREATER GLASGOW & CLYDE) [redacted]; Devine, Sandra [redacted]; Wilson, Andy [redacted];

Hi,
This is really disappointing. Are we sure that the remedial work will fix the issues?
Can I please check which rooms **are** currently PPVL that we can use for moderate risk airborne infection?
Also the current arrangement is that airborne infection is covered by the MHDU nurses. Will that still be the case if the rooms are outside MHDU?

I'll then circulate this information to my clinical colleagues and I'll need to confirm with Anne Harkness, the TBMDT for MDR TB and my ID colleagues in Lanarkshire that the existing temporary arrangement will need to continue re HCIDs.

Thanks

Erica

Dr S Erica Peters

Consultant
Infectious Diseases and General Medicine

Administrative Building
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow G51 4TF

Secretary Infectious Diseases: [redacted]
Secretary Hepatitis [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 15 November 2018 13:08
To: Thomson, Iain; Traquair Smith, Ann; Binning, Sandy; Peters, Erica
Cc: Pritchard, Lynn; Devine, Sandra; Wilson, Andy
Subject: [ExternaltoGGC]negative pressure rooms

Hi all

Just to confirm that infection control are not able to sign off the negative pressure rooms at this stage .

The rooms are due to be released for use but should not be used for patient with airborne infections (TB, MERs, Measles, Chickenpox) or patients who require protective isolation e.g. BMT .

The existing ID diversion protocols for high risk MERs and MDR/XDRTB should continue to be followed . Low risk TB/MERs, measles , chickenpox should be placed in a PPVL room.

Rooms affected by this are ; 24/42/43 .
It will be early next year before remedial work is complete.

Phase 2 which was to involve room 4 in HDU1 has been halted as similar issues are likely to arise

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Isolation Rooms - Phase 1 Rooms Commissioning

Mills, Thomas [redacted]

Wed 05/12/2018 12:04

To: Traquair-smith Ann (NHS GREATER GLASGOW & CLYDE) [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc: Russell Steven (NHS GREATER GLASGOW & CLYDE) [redacted]; Thomson Iain (NHS GREATER GLASGOW & CLYDE) [redacted];

1 attachment

RE: Isolation Rooms - Commissioning Delay;

Ann, Teresa,

I had previously advised in updates on the Phase 1 Isolation Rooms that the Estates Team had concerns regarding their use under the agreement made at the meeting on the 15 Nov 18. Please see the attached email trail highlighting Estates concerns, we would be keen to understand your views on the concerns being raised and the implications that they would have.

To be clear from a Capital Planning perspective we believe that the rooms are compliant with the agreement reached at our discussion on the 15 Nov 18 and meet the necessary guidance for their intended use for patients who do not have an airborne infection or immunosuppression. Our position is therefore that the rooms are suitable for clinical use at this time as per the previous agreement.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital
3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]
[redacted]

[redacted] 1/1

There's been a suggestion that the works were stopped on the basis the systems wouldn't comply with Building Control requirements. Can you advise on this please as we're unaware of the relevance of this under these circumstances?

Regards

Steve Russell
Principal Project Manager

Tel: [redacted]
Fax: [redacted]

From: Mills, Thomas
Sent: 28 November 2018 17:05
To: Conner, Darryl James
Cc: Wilson, Andy; Gallacher, Alan; Russell, Steve
Subject: Isolation Rooms - Commissioning Delay

Darryl,

I understand from Morris and Spottiswood that you asked them (via H&V) to stop the validation works for the Negative Pressure Isolation Rooms yesterday. From the information that I've been passed by H&V and Morris and Spottiswood I believe that the concern related to non-compliance to the building regulations. Can you confirm if this is the case and what the specific concern is that prevents us commissioning the rooms minus the filters in the extract system as agreed at the last meeting?

We are obviously keen to minimise the delay to the rooms returning to service, therefore if you are able to provide an update on what has caused the concern it would be appreciated in order that we can resolve it as soon as possible.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital
3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]

Yes it was agreed that the rooms were to be re-commissioned temporarily under this agreement but only once estates instructed H&V to remove the H14 filters when the necessary arrangements had been confirmed and were in place to remove them from site safely and legally for incineration via our specialised contractor, arrangements of which are still under finalisation.
It has come to our attention that removal of all filtration from extract systems serving Isolation rooms with a negative ventilation regime regardless of patient occupancy or application is a breach in building standards due to the extract duct being of less than 3 m in height in construction for dilution of any type of air borne contaminant. In fairness this is not something that we considered or expressed during our discussion last week and now in light of this we believe it would be best that in the interim the F7 & H14 filtration is reinstated on these extracts and the rooms are re-commissioned to a PPVL environment making them compliant for application and use for immune compromised patients at least until rectification solutions can be implemented for the negative pressure regime.

Regards
Darryl

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Russell, Steve
Sent: 28 November 2018 17:34
To: Conner, Darryl James [redacted]
Cc: Wilson, Andy [redacted]; Gallacher, Alan [redacted]; Mills, Thomas [redacted]; McIntyre, Hazel [redacted]
Subject: RE: Isolation Rooms - Commissioning Delay
Importance: High

Darryl,

We need an urgent response to this as its affecting the ability of the rooms to be handed back. As you know the rooms were to be re-commissioned as a temporary measure with the hepa filters removed in order for the rooms to be used for non infectious patients as agreed with Teresa Inkster and Ann Traquair-Smith.

[redacted]; McIntyre, Hazel [redacted];
Purdon, Colin [redacted]
Subject: RE: Isolation Rooms - Commissioning Delay

Darryl,

The 3 critical care rooms that are affected by these works were agreed to be returned to service on a temporary basis for non infectious patients. This was agreed with yourselves, Teresa Inkster and Ann Traquair-Smith on the very strict basis that we are returning the rooms for use as standard critical care beds. The only difference would be that the beds will be within a negative pressure environment however will not be identified for use as a negative pressure isolation rooms.

I fully accept that the guidance within SHPN 04 Supplement 1 states that for negative pressure isolation rooms we would need the filtration on the extract system due to the lack of a 3m extract vent. We are however only using the rooms for standard critical care patients whom are neither immunocompromised or infectious. The bed spaces provided would be an addition to the existing critical care ward they are not intended to be Infectious Diseases Isolation Rooms. The ventilation system as it is currently running achieves the air changes required to meet the guidance for critical care bed spaces and is no different in this respect to the air changes within the rest of the critical care ward. The current setup provides a balanced negative pressure system within the 3 rooms, there is no requirement to provide PPVL rooms in order for them to be used clinically.

Just to confirm that the current solution is only being provided on a temporary basis. The design work remains ongoing to provide a solution to meet the negative pressure isolation room requirement for infectious patients. This work will be delivered early next year with the exact timescale to be confirmed once a design solution for the extract system has been agreed.

If your concern relates to non compliance to a specific standard can you please advise what this is in order that we can develop a solution that meets any regulatory requirement? As it stand we believe that temporary solution being provided meets the requirements both regulatory and clinically with patient use identified above and agreed at the meeting on 15 November 2018.

Regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Conner, Darryl James
Sent: 28 November 2018 19:02
To: Russell, Steve
Cc: Wilson, Andy; Gallacher, Alan; Mills, Thomas; McIntyre, Hazel; Purdon, Colin
Subject: RE: Isolation Rooms - Commissioning Delay

Steve,

Thomas,

I agree that there is no requirement to provide PPVL rooms, but how else can we justify that they can be used for any other clinical application in their current state other than this?

Of course the clinical team can intend to use these rooms for standard use only, but is there a mitigation document in place for this acceptation and has it been approved by the AE ?

Due to the physical construction of this room and its ventilation construction and set up, I believe as a minimum the rooms should not be used for any application without the extract filtration being re installed, that is where I believe the non-compliance to exist even in a temporary condition like now. Removal of these filters does not provide huge gains in achieving the air change rate or pressure regime required especially now that the intended temporary application is for normal use only nor does it mitigate the requirement for larger fans to achieve a sustainable environment when this application is approved in the new year as we have already agreed. If the temporary solution cannot be re assessed to at least re-install the extract filtration for the adjacent stated reasons, we could look at the noise levels, after visiting bed 24 fed from 21-AHU -13 the space is now extremely noisy due to the new negative regime and removed filtration, aside for the legal requirement that extract filtration must be fitted to this construction of duct work for any application, at a bare minimum the re fitting of extract filters will provide an attenuation effect on the system and will reduce the verified noise levels from NR52/DB 57 to a compliant level of NR-30/D.B 35 or less which could then be monitored until the permanent solution and final condition of these rooms are in place.

Regards
Darryl

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Mills, Thomas
Sent: 30 November 2018 12:33
To: Conner, Darryl James [redacted]; Russell, Steve [redacted]
Cc: Wilson, Andy [redacted]; Gallacher, Alan

Sector Estates Manager (South)

[redacted]

From: Russell, Steve
Sent: 03 December 2018 14:28
To: Gallacher, Alan [redacted]; Wilson, Andy [redacted]
Cc: McIntyre, Hazel [redacted]
Subject: RE: Isolation Rooms - Commissioning Delay
Importance: High

Alan/Andy,

We need to put a stop to this and a final decision made as to whether these rooms are to be used or not. So far we've had it stated that the rooms won't meet building requirements and now that they can't be used for normal patients unless they're commissioned as PPVL with the filtration in place even although the ultimate intention is for them to be negative pressure. Estates, Capital Planning, Teresa Inkster and Ann Traquare-Smith collectively agreed the way forward with this at our meeting on the 15th November and on the understanding that the most appropriate measure was not to install the filters andnot use the rooms for any infectious patients requiring isolation. In the interim they would be deemed to be conventional clinical single rooms. Any mitigation strategy or SOPS around this during the temporary period would be for the clinical side to develop in support of this strategy.

We are all sighted on the fact the performance of the extract systems for these spaces are not operating as they should and may well never have been. Maintaining hepa filtration will only serve to reduce the air flow rates further as they deteriorate requiring their replacement at regular intervals perhaps weekly or less as well as requiring continuous monitoring, these facts were recognised and formed part of this decision. It's noted that the AE may require an input which is fine although we believe it is for Estates to drive this requirement and the question must be why if necessary this hasn't happened before now?

I'm sure everyone is aware of the clinical need to have the bed numbers reinstated as we enter the winter period and we are collectively under pressure to achieve this. That's not to say protocol or policy has to be ignored but we can't be perceived to be unnecessarily delaying the process by last minute changes to what was agreed. Can we have a decision on the way forward as a matter of urgency please?

Regards

Steve Russell
Principal Project Manager

Tel: [redacted]
Fax: [redacted]

From: Conner, Darryl James
Sent: 30 November 2018 18:21
To: Mills, Thomas; Russell, Steve
Cc: Wilson, Andy; Gallacher, Alan; McIntyre, Hazel; Purdon, Colin
Subject: RE: Isolation Rooms - Commissioning Delay

In my opinion this would be an acceptable position to take. We need to move this forward.

Regards,

Alan. G. Gallacher CEng MIMechE, BEng(Hons), DipEM
General Manager (Estates)

Queen Elizabeth University Hospital Campus
Property, Procurement & Facilities Management Directorate
Facilities Corporate Services Dept
CMB Building
Glasgow
G51 4TF

'please note my new telephone number'
Tel No: [redacted] .: Internal [redacted]
Mobile: [redacted]

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From: Wilson, Andy
Sent: 04 December 2018 16:38
To: Russell, Steve; Gallacher, Alan; Conner, Darryl James; Powrie, Ian
Cc: McIntyre, Hazel
Subject: RE: Isolation Rooms - Commissioning Delay

Hi,

I understand that Darryl and I had failed to recognise during the previous meeting we had that not having filters fitted while the room is set up as a negative pressure isolation room is against building regulations.

What Darryl proposed in his previous email (returning to previous set-up until the full install work can be completed) was an option to return them without potentially going against building regs.

Another option would be that the new HEPA filters are fitted and the isolation room pressure alarms be disabled. The only reason we didn't want the filters installed was that we knew there was a risk the pressure alarms were likely to go off as soon as the HEPA filters got dirty and restricted air flow.

Ian, do you have any comments on this. Would this also be against building regulations or do you think this would be an acceptable position?

Thanks,
Andy

Andrew S. E. Wilson | CEng MIMechE

I would therefore advise that a Risk assessment should be completed confirming that there has not been and will not be placement of a highly infectious patients in the rooms affected? As the extract duct pre-filter may already have been contaminated and removal of the filter could expose this to atmosphere. With potential to draw this back in to a supply AHU Risk assessment should include confirmation of adjacent supply AHU 's and areas fed from these.

SHTM Para 4.130, also states that:

" Extract filtration will generally only be required where heat-recovery devices are installed. There are a very limited number of specialised applications (microbiological safety cabinets and similar LEV systems) where contaminated air is required to be filtered prior to discharge to atmosphere. If it is safe for staff to work in a room without wearing respiratory protective equipment, it is safe to discharge the room air to atmosphere without filtration."

Regards

Ian

I. Powrie
Deputy General Manager (Estates)

Queen Elizabeth University Hospital Campus
Property, Procurement & Facilities Management Directorate
Facilities Corporate Services Dept
CMB Building
Glasgow
G51 4TF

[redacted]
Direct : [redacted]
Internal [redacted]
Mob: [redacted]

Think SAFE ENVIRONMENT.. ....please help cut carbon.....don't print this email unless you really have to.....and remember to recycle.....SAVE ENERGY - THE EASY WAY TO SAVE MONEY!

From: Gallacher, Alan
Sent: 04 December 2018 16:53
To: Wilson, Andy; Russell, Steve; Conner, Darryl James; Powrie, Ian
Cc: McIntyre, Hazel
Subject: RE: Isolation Rooms - Commissioning Delay

All,

Tel: [redacted]
Fax: [redacted]

From: Wilson, Andy
Sent: 05 December 2018 09:58
To: Powrie, Ian; Gallacher, Alan; Russell, Steve; Conner, Darryl James
Cc: McIntyre, Hazel
Subject: RE: Isolation Rooms - Commissioning Delay

Thanks very much for the information Ian.

If I am interpreting this correctly, what you are saying is that if we were not going to re-fit the HEPA filters we would need to either have a signed-off risk assessment showing that this cannot be used for infectious patients or that we would need to carry out a survey (drawings or physical) to confirm there is not risk of short-circuiting airflow to other AHU intakes.

I believe the other option still stands and would be acceptable as described in my previous email; re-instatement of filters with alarms disabled on the understanding this room is only to be used as a general ward room?

Thanks,
Andy

Andrew S. E. Wilson | CEng MIMechE
Sector Estates Manager (South)

[redacted]

From: Powrie, Ian
Sent: 04 December 2018 18:09
To: Gallacher, Alan [redacted]; Wilson, Andy [redacted]; Russell, Steve [redacted]; Conner, Darryl James [redacted]
Cc: McIntyre, Hazel [redacted]
Subject: RE: Isolation Rooms - Commissioning Delay

Andy,

In response to your enquiry and taking into account Alan's view, I would advise that SHTM 03-01 Part A requires section 3.66 requires:

" The discharge from an extract system must be located so that vitiated air cannot be drawn back into the supply air intake or any other fresh-air inlet. Ideally, the extract discharge will be located on a different face of the building from the supply intake(s). In any event, there must be a minimum separation of 4 metres between them, with the discharge mounted at a higher level than the intake"

This is the reason that the HEPA filters where fitted see attached system description for a typical isolation room where HEPA filters are fitted (Note these are only fitted where the above requirement could not be meet by appropriate location of the extract discharge).

Wilson, Andy [redacted];
Powrie Ian (NHS GREATER GLASGOW & CLYDE);
alan.gallache[redacted];
Conner Darryl (NHS GREATER GLASGOW & CLYDE);
Cc:
Mcintyre Hazel (NHS GREATER GLASGOW & CLYDE);
Mills, Thomas <Thomas.Mills[redacted];
This message was sent with high importance.
All,

We would advise that these rooms are available for clinical use at this time under the conditions previously agreed (no HEPA filters installed). There may be some misinterpretation of what the agreement was at the meeting on the 15th November between the clinical teams, Estates and Infection Control that informed this position Due to the urgent need to get beds back into the system, these rooms in the interim would not be used as isolation rooms but regarded as standard single room accommodation. The guidance cited relating to isolation rooms therefore largely becomes irrelevant for this interim arrangement and HEPA filtration would not be required.

The background for removing the filters was based on two main points:

1. The existing plant is not and unlikely to have ever been capable of providing long term isolation room air flow parameters. This is contrary to the information provided within the building's O&M's and original commissioning data.
2. The as fitted installations have no pre-filtration protecting of the HEPAs and there is significant concern the filters would rapidly deteriorate resulting in air flow reductions affecting a negative pressure environment causing regular alarms and necessitating the HEPAs to be replaced frequently. The regularity of this is unknown, however, it is estimated it could possibly be weekly depending on environmental conditions. Additionally, there is no spare capacity within the system to increase the air flow i.e. the fan inverters are already running at their maximum.

On this basis it was agreed the rooms, pending the final ventilation remedial solution, would not be used for patients requiring isolation but would in the interim revert to standard rooms, collectively it was agreed the HEPA filters could be removed mitigating the issues described above and facilitating conventional room use. The air changes within the rooms cannot be guaranteed should these filters be reinserted and we would have no way of knowing when critical levels have been reached if the alarms are disconnected, it would not be our recommendation to adopt this approach as we believe even Building Standards air change rates could potentially be breached under such circumstances.

Infection Control correctly will not sign off on these rooms being used for isolation and that's not the intent here, but Teresa Inkster has accepted their use for patients who do not have airborne infection or immunosuppression. **In light of this can we have confirmation of the previous instruction and resultant additional delay that will be imposed by re-installing these filters which will also necessitate a further re-commissioning of the room ventilation systems?**

Regards

Steve Russell
Principal Project Manager

Negative pressure rooms and concerns relating to other lobied rooms on QEUH RHC site

Dodd, Susie [redacted]

Wed 05/12/2018 17:55

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Devine, Sandra [redacted]; Walsh Thomas (NHS GREATER GLASGOW & CLYDE) [redacted]; Pritchard Lynn (NHS GREATER GLASGOW & CLYDE) [redacted];

Hi Teresa,

I attended a meeting this afternoon which was convened to provide update on the progress of the negative pressure rooms being developed on the QEUH and RHC site. A number of concerns were brought to the attention of the group by capital planning colleagues including;

- The fans applied to the duct work in the adult ITU rooms which allow negative pressure to be generated are working at full capacity and are not achieving the desired negative pressure requirements. Initial thoughts were that this was due to leaks in the duct work however this is seeming less likely and there is little confidence that new fans will fix the problem. Meantime, the rooms as you know, must not be used for any patients requiring TBPs.
- It was initially reported at the start of the meeting that there was a level of confidence that the RHC rooms currently closed for the same works, would meet validation requirements as the duct work appears very different. A report received during the meeting confirmed that these rooms are not achieving the desired negative pressure requirements and in fact are achieving even lower rates of negative air pressure than the adult site.
- The remaining phase of works to upgrade rooms has now been halted as clinical colleagues are not willing to close off any further beds to allow works to go ahead when the problem from the previous phases has not yet been identified.
- There are concerns that the flow of air in all other lobbied rooms in the hospital is not adequate for infectious patients and as a result it was voiced that there is a risk that infectious particles from within these rooms may have been disseminated into the main wards. Capital planning colleagues raised concern that the rooms occupied by Ebola and MDR TB patients in the adult hospital may not have provided adequate protection. Furthermore, there are concerns that the duct work is now contaminated and as a result they are keen to fog the duct work to ensure that no contamination, if any, remains.

Clinical colleagues at the meeting were understandably concerned by this report and any historical and immediate risk presented to patients. They are eager to establish what areas are safe to be occupied by patients with known infections and whether there is any look back required of high risk cases.

I have agreed that I would feed this information back to you and stressed that the IPCT can not take a view on this without the relevant validation reports of each of the rooms. I felt that whilst they were expressing real concern, there was no hard evidence to view or take from the meeting. Estates report that around 80% of the lobbied rooms have been validated recently.

Following the meeting, the GM for adults and CSM for paeds were to brief their own management teams on the findings. Estates are going to arrange for fogging of the vents to be carried out (I have not given an opinion on whether or not this is necessary or not). Capital planning and estates will liaise to collate the relevant documentation around validation reports.

Kind regards,
Susie

A49541141

Susie Dodd
Lead Infection Prevention and Control Nurse
Royal Hopsital for Children
[redacted]
[redacted]

Inkster, Teresa

From: Mills, Thomas
Sent: 24 May 2019 15:43
To: Inkster, Teresa
Cc: Dodd, Susie; Hutton, Melanie; Robertson, Lynne
Subject: RE: Isolation Rooms - Ward 2C Room 6 - Validation Report

Hi Teresa,

As with the other rooms I'll raise the missing information back to the contractor.

For this room there is no HEPA filter as it vents direct to the 3m stack on the roof.

Thanks,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Inkster, Teresa
Sent: 24 May 2019 15:22
To: Mills, Thomas
Cc: Dodd, Susie; Hutton, Melanie; Robertson, Lynne
Subject: RE: Isolation Rooms - Ward 2C Room 6 - Validation Report

Hi

This report has the schematic missing and no record of room to corridor pressure

Is the extract to the outside of the building so no HEPA required?

The reports, although from the same contractor, seem to differ from one another!

Kind regards
Teresa

From: Mills, Thomas
Sent: 23 May 2019 12:43
To: Inkster, Teresa
Cc: Dodd, Susie; Hutton, Melanie; Robertson, Lynne
Subject: Isolation Rooms - Ward 2C Room 6 - Validation Report

Teresa,

In addition to the two earlier reports for the isolation rooms in the adults hospital please find attached the validation report for RHC Ward 2C Room 6 for your approval.

As before if there are any queries please don't hesitate to get in touch.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital
3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]
[redacted]

FW: Isolation Rooms Validation Report - HDU 44 and ITU 24

Inkster, Teresa [redacted]

Thu 23/07/2020 16:40

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

From: Steele, Tom
Sent: 27 May 2019 09:55
To: Inkster, Teresa [redacted]; Devine, Sandra [redacted]
Cc: McIntyre, Hazel [redacted]
Subject: RE: Isolation Rooms Validation Report - HDU 44 and ITU 24

Thanks, I will query why there are differences, or omissions.

Tom Steele | Director of Estates and Facilities | NHS Greater Glasgow and Clyde | JB Russell House | Gartnavel Royal Hospital | 1055 Great Western Road | Glasgow | G12 0XH
t: [redacted] **| e:** [redacted]

From: Inkster, Teresa
Sent: 24 May 2019 16:02
To: Devine, Sandra [redacted]; Steele, Tom [redacted]
Subject: FW: Isolation Rooms Validation Report - HDU 44 and ITU 24

HI, I am coming under pressure to sign off the negative pressure rooms by the end of today but I am being sent reports with stuff missing! Just to make you aware in case the delay is queried.

It is the same contractor but the reports are highly variable in terms of quality and content

Kind regards
Teresa

From: Mills, Thomas
Sent: 24 May 2019 15:41
To: Inkster, Teresa
Cc: Pritchard, Lynn; Thomson, Iain; Pickering Gummer, David; Traquair Smith, Ann
Subject: RE: Isolation Rooms Validation Report - HDU 44 and ITU 24

Thanks Teresa,

I'll raise it back to the contractor as to why the report layout is different and why elements are missing.

The updated schematic is due today.

For these two rooms the extract is via a HEPA safe change unit.

Thanks,

Thomas

A49541141

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Inkster, Teresa
Sent: 24 May 2019 15:28
To: Mills, Thomas
Cc: Pritchard, Lynn; Thomson, Iain; Pickering Gummer, David; Traquair Smith, Ann
Subject: RE: Isolation Rooms Validation Report - HDU 44 and ITU 24

Hi Thomas

Again , similar to the childrens these look ok but there is stuff missing

There is no schematic or record of room to corridor pressure.

Is extract to outside of the building?

Thanks
Teresa

From: Mills, Thomas
Sent: 23 May 2019 09:44
To: Inkster, Teresa
Cc: Pritchard, Lynn; Thomson, Iain; Pickering Gummer, David; Traquair Smith, Ann
Subject: Isolation Rooms Validation Report - HDU 44 and ITU 24

Teresa,

Please find attached the validation reports for Medical HDU 44 and ITU 24 for your approval following their conversion to negative pressure isolation rooms.

If there are any questions on either report please don't hesitate to get in touch.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital
3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]
[redacted]

Inkster, Teresa

From: McIntyre, Hazel
Sent: 27 May 2019 10:47
To: Steele, Tom; Inkster, Teresa; Devine, Sandra
Subject: Re: Isolation Rooms Validation Report - HDU 44 and ITU 24

Teresa,
We apologise that the format has been changed and the missing HEPA results will be added before checking by the consultant engineers and re-issue. We do expect that to be later today. Today is the programmed day for the report issue so there is no further delay being reported.
Regards, Hazel

Sent from my BlackBerry 10 smartphone on the EE network.

From: Steele, Tom
Sent: Monday, May 27, 2019 9:54 AM
To: Inkster, Teresa; Devine, Sandra
Cc: McIntyre, Hazel
Subject: RE: Isolation Rooms Validation Report - HDU 44 and ITU 24

Thanks, I will query why there are differences, or omissions.

Tom Steele | Director of Estates and Facilities
| NHS Greater Glasgow and Clyde | JB Russell House | Gartnavel Royal Hospital | 1055 Great Western Road | Glasgow | G12 0XH
t: [redacted] **| e:** [redacted]

From: Inkster, Teresa
Sent: 24 May 2019 16:02
To: Devine, Sandra [redacted]; Steele, Tom [redacted]
Subject: FW: Isolation Rooms Validation Report - HDU 44 and ITU 24

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Subject: RE: Isolation Rooms Validation Report - HDU 44 and ITU 24

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The updated schematic is due today.

For these two rooms the extract is via a HEPA safe change unit.

Thanks,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
Tel: [redacted] Mob: [redacted]
[redacted]

From: Inkster, Teresa
Sent: 24 May 2019 15:28
To: Mills, Thomas
Cc: Pritchard, Lynn; Thomson, Iain; Pickering Gummer, David; Traquair Smith, Ann
Subject: RE: Isolation Rooms Validation Report - HDU 44 and ITU 24

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To: Inkster, Teresa
Cc: Pritchard, Lynn; Thomson, Iain; Pickering Gummer, David; Traquair Smith, Ann
Subject: Isolation Rooms Validation Report - HDU 44 and ITU 24

Teresa,

Please find attached the validation reports for Medical HDU 44 and ITU 24 for your approval following their conversion to negative pressure isolation rooms.

If there are any questions on either report please don't hesitate to get in touch.

Kind regards,

Thomas

Thomas Mills | Project Manager - Property & Capital Planning
NHS Greater Glasgow & Clyde
Gartnavel Royal Hospital
3rd Floor, Admin Building | Glasgow | G12 0XH
Tel: [redacted] Mob: [redacted]
[redacted]

Specialist Critical ventilation Steering Group

Date: Friday 24th June 2019 @ 10.00 am
Venue: Labs Room 5

AGENDA

1. Apologies
2. Approval of Minutes
3. Action Points
4. Verification report analysis
5. Asset Familiarity- PPVL, PPIR, BMT, negative pressure facilities etc.
6. SOPs for remedial actions
7. HAI Scribe discussion with relation to associated remedial works
8. Annual verification schedules
9. Plant failure contingency plans
10. Future projects
11. AOB

Actions and Updates from previous meeting

Actions for Estates to be completed by next meeting 24/06/2019 :

Submission of new critical ventilation verification schedules. Complete

Submission to IC of an accurate and inclusive isolation room list including all PPVL, PPIR, BMT, negative pressure facilities. Complete

Submission of all Adults Isolation room verification reports. Complete Apart from 2 outstanding reports.

Installation of facility ID plaks adjacent to each Mag gauge stipulating Type and Terminal HEPPA status. Infection control to Advise

Extension of group meeting invite to MRI (Mary Peary), ITU/HDU (Ian Thompson), Endoscopy (Alyson Goodwin) Interventional Radiology (Gary Gracin) HFS (Ian Storer). Complete.

Clarification of who the group should report to Tom Steel to advise.

IC have requested that estates answer the information requests stated on Appendix 1 & 2 of the attached HFS report done in 2016, with the intention of asking HFS to come back and generate a similar report based on the ever changing use of these facilities. Tom Steel has advised that this Group is not to review previous reports.

Actions for IC by next meeting 24/06/2019 :

Submission to Estates all recorded chilled beam leakage incidents for M&E analysis .Not provided yet

PPVL Plak wording to be confirmed. Not provided yet

Date of next meeting :

TBA ,

Fw: Isolation room verification reports

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Mon 26/08/2019 15:47

To:Conner Darryl (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Peters Christine (NHS GREATER GLASGOW & CLYDE) [redacted];

1 attachment

2016-06-29 QEUH isolation rooms report d0 05 (8).pdf;

Darryl - one of the outstanding actions from the ventilation group is in relation to PPVL rooms - see below.

I am trying to put a guide together for RHC as to which rooms can be used for which patient groups. We still cannot confidently state what our PPVLs can be safely used for, particulary those in a critical care setting with no en-suites. I had also suggested we invite Prof Noakes to come and do some testing with labelled CO2 to inform us as to whats happening in these rooms,

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 28 May 2019 10:10
To: Conner Darryl (NHS GREATER GLASGOW & CLYDE)
Cc: Steele, Tom; alan.gallache[redacted]; Purdon Colin (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Isolation room verification reports

Thanks Darryl

There were a few of the rooms I had concerns about, this was just the example I picked. It would be useful to spend time at the meeting going over them all. I only have reports for RHC. Is it possible to get reports for the QEUH rooms as well?

Whilst we now have negative pressure rooms for infectious patients we are still using these PPVLs for immunosuppressed patients for which there was an exclusion in the guidance . Cracks in the

fabric and holes can be an issue depending on the extent as the premise for these rooms is that they are sealed.

It would also be useful to discuss how many of the remainder were built with modifications on the orginal design and whether there is anything we can do about that. I note a latent defect in this particular report.

I have attached the HFS report into these rooms for discussion on Friday

It would also be useful for this group to review the other specialist ventilated areas such as interventional radiology, endoscopy, pacemaker rooms etc.

Ian Powrie had drafted an annual verification SOP, it would be useful to look at that also

Thanks
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Conner, Darryl James [redacted]
Sent: 23 May 2019 18:28
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Steele, Tom; alan.gallache[redacted]; Purdon Colin (NHS GREATER GLASGOW & CLYDE)
Subject: Isolation room verification reports

Hi Teresa,

Tom has asked me to contact you regarding your concerns for a particular isolation room verification report :

RHC Ward 2C - Isolation Room 5

The report itself shows the facility in a poor condition, I believe the obvious questions are:

1. Why has the room been signed off and handed back for use?
2. Is the particular patient group occupying the space at risk based on the reports poor rating of the suites condition?

To explain why the facility is fit for purpose and does meet the requirements of the SHTM04 Sup 1, the individual components of the report must be assessed and risk assessed against the current guidance which reads as follows:

Section 2 – Definition of terms
Assessment of compliance with SHPN 04 Supplement 1

Poor
Air volumes and hence air-change rate is less than 75% of the design. Room pressure differentials do not ensure a
flow from clean to less clean areas; supply or extract air diffusers are not clean; pressure stabilisers not clean and/or
not operating correctly; visible faults in the fabric of the suite; doors unable to close completely; general air of neglect.
Action: Urgent management action required.

Average
Air volumes and room pressure differentials approximate to the original design values; supply air diffusers clean but
extracts visibly fouled; most pressure stabilisers clean and operating correctly; minor faults in the fabric and décor of
the suite.
Action: Maintenance action required.

Good
Better than average.
Action: None.
Maintenance quality

Poor
More than three answers are negative.
Action: Management action required by estates/facilities department.

Average
No more than three answers are negative
Action: Maintenance action required.

Good
No answers are negative.
Action: None.

The report for this room shows a non-favourable poor grading due to " More than three answers are negative" and **not** because "Air volumes and hence air-change rate is less than 75% of the design and that Room pressure differentials do not ensure a
flow from clean to less clean areas"

This can be viewed in the adjacent abstract from the attached verification report:



Item 11 is a latent defect from building handover so automatically compromises the suites ability to achieve a good rating.
The ACH rates in two instances actually exceed design (values 14.8 & 10.6) and in the other instance for the lobby is well within 75% of design (61.9) as shown adjacent :



The other factor that caused the rating to be poor on the report was the lobby pressure being out of spec at 16pa for room 5, this was caused by the adjacent suite undergoing its negative pressure conversion (Room 6), during that period and then being returned back to PPVL when the space was not achieving design in its negative state, the outputs for these rooms where crossed over thus giving the false reading, this is now being addressed to reflect the true difference between both facility's. As a result of this and the completion of these works I expect the next verification of this space to be much more favourable as the items pulling the grading down will have been addressed.

To summarise the fundamental requirements of a PPVL room were achieved, that being 10 ACHs or more and the correct pressure cascade established to ensure patient protection for PPVL application. The report rating shows the facility in a black and white manner and is scored as per the current guidance. I believe These reports can be improved and more detailed, there for as an initiative I have now implemented the change of specialised contractor conducting these verifications on our behalf with a clear remit to address all concerns regarding these important facility's, this will contribute to faster report completion time and remedial work turn around based on any advisories stated within the report, and overall more detailed finalised reports improving our understanding of the condition of our assets.

Hopefully I have been able to highlight the interpretation of these isolation room verification reports and the classification they can be given due to the high standards that they are validated and subsequently annually verified to. These are all topics that we can discuss at our newly established Isolation room steering group (Invites out tomorrow for 31/05/2019) in the interim I am happy to assist and discuss any and all questions you may have regarding the subject.

Best

Regards

Darryl

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Bajwe, Ranjit
Sent: 13 April 2018 07:58
To: Haynes, Jennifer
Subject: FW: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Hi Jen

Please see the email below from Linda, can you please let me know if you are available today to meet Linda at 3.30pm?

Regards

Ranjit

From: de Caestecker, Linda
Sent: 12 April 2018 16:52
To: Bajwe, Ranjit
Subject: FW: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Can you get me an hour with Jen ASAP – it doesn't need to wait until I have spoken to Rachael

Dr Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde

From: Haynes, Jennifer
Sent: 12 April 2018 16:48
To: de Caestecker, Linda
Subject: RE: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Of course, I would be happy to help. Once you've spoken to Rachel do you want to arrange to meet and I can see what I can take on to help?

That would be good if you could send me the other 2 cases so I can log them – and also help you with them if that would be useful for you

Jen

Jennifer Haynes
Interim Corporate Services Manager
Phone: [redacted]
Mobile: [redacted]
Email: [redacted]

From: de Caestecker, Linda
Sent: 12 April 2018 16:44
To: Haynes, Jennifer; Hamilton, John (Admin)
Subject: RE: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Jen
Your help with this would be great. I need a call with Rachael Green and I need then time to write it all up. Are you able to help with that if I talk you through the findings?

I have had 2 other cases in and I will send on to you.

Dr Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde

From: Haynes, Jennifer
Sent: 12 April 2018 16:42
To: Hamilton, John (Admin); de Caestecker, Linda
Subject: RE: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

HI Linda

Re this case, I just wondered if there was anything I could do to help support you with it?

Jen

Jennifer Haynes
Interim Corporate Services Manager
Phone: [redacted]
Mobile: [redacted]
Email: [redacted]

From: Hamilton, John (Admin)
Sent: 13 February 2018 15:09
To: de Caestecker, Linda
Cc: Haynes, Jennifer
Subject: RE: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Thanks Linda.

Please liaise with Jen Haynes on all future communications of whistleblowing cases and updates - thanks,

John

From: de Caestecker, Linda
Sent: 12 February 2018 17:21
To: Hamilton, John (Admin)
Subject: FW: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Dr Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde

From: Redding, Penelope
Sent: 08 February 2018 19:20
To: de Caestecker, Linda
Subject: STEP 2 -Whistleblowing Policy. Ventilation at QE and RHC

Dear Dr de Caestecker.

It is with regret that I feel I need to move to Step 2 of the GG+C whistleblowing policy.
The driving force for me raising issues is one of patient safety.

I raised my concerns in relation to infection control with Jennifer Armstrong and David Stewart on the 27th September 2017.

An urgent meeting was arranged for the 4th October to discuss the issues raised in an SBAR and included several very seniors directors.
Myself and two consultant colleagues attended this meeting. The meeting was chaired by Jennifer Armstrong where most of the concerns in the SBAR were discussed within the time constraints of the meeting.

On the 6th October I put in a formal request in relation to the concerns raised about the ventilation at the QE and RHC. I only received a response to this recently, despite reminders.
Please see Attachment.

I do not feel that I have had a satisfactory answer or response to this request.
Teresa Inkster has just returned from a 6 month period of sick leave, but I do not feel that this is a reason for not making this information available sooner. Teresa is not the only person to have access to the details.

When planning a new build the ventilation standards required are; SHTM-04/01/0301
This cover all types of rooms within a hospital.

In summary my concerns are as follows;

1. The standard rooms at the QE and RHC should have 6 air changes per hour (ACH/hr). No room meets this standard. There are only 3 ACH/hr.
This is clearly a breach of the standard.

2. PPVL rooms are not suitable for the isolation of patients with air borne infections and they cannot be housed in this new hospital.

3. There are not sufficient rooms for the isolation of immunocompromised / BMT patients at RHC.

4. I am unclear where GG+C is with the management of immunocompromised adult patients at the moment.

5. Are the issues around ventilation on the GG+C Risk Register?

I know that there is some ongoing work taking place, but I have not been re-assured with the progress being made in addressing the problems.
I do understand that the solutions are not easy, but they have been known about and reported over 2 years ago. I therefore do not accept that Teresa Inkster's sick leave is an excuse for some of the problems not being actioned more promptly.

I was horrified that prophylactic Amphoterecin B has been used for children because of the concerns about air quality.

There were many other concerns raised in the SBAR, many of which could be related to the ventilation issues.

I think that GG+C also needs to understand why these challenges are being faced.
I was an infection control doctor for over 24 years.
I was involved at the very first planning stages of the new hospital and was involved at the very first stages of the ventilation engineer's involment in the project. This involved the collaboration of clinicians, engineers and infection control. This appears to have stopped at some point after these early stages. I had to give up infection control when I became Clinical Director. I do not understand why GG+C can build such a huge new facility and get this very basic requirement wrong.

My aims in following this whistleblowing process include;
1. Ensuring patient safety and patient confidence is maintained.
2.Ensuring the issues are addressed
3.That lessons are learnt so similar mistakes in the the future can be avoided

I am happy to meet with you, as are other consultant colleagues who have some of the detail that you may require.

I am due to retire at the end of March and only work two days a week. I also have annual leave to take. However I am prepared to be flexible and attend a meeting on a day when I am not scheduled to work. I consider this a high priority process that I need to follow through before I leave.

Yours sincerely

Penelope

Mobile; [redacted]
Home email; [redacted]

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 01 March 2018 12:36
To: Somerville, Emma; Hutton, Melanie; Dawes Heather (NHS GREATER GLASGOW & CLYDE); Powrie Ian (NHS GREATER GLASGOW & CLYDE); Romeo Thomas (NHS GREATER GLASGOW & CLYDE); Walsh, Tom; Devine, Sandra; Redfern, Jamie; Mathers, Alan; Hill, Kevin; brenda.gibson; Office, Press; Armstrong, Jennifer
Subject: 2A Water contamination

Importance: High

Dear all - we have a significant issue with the water supply in ward 2A RHC which is contaminated with a Gram negative organism called Cupriavidus. We had hoped to hold an IMT but due to the weather this will not be possible and we need to do this via email . The situation is documented below. Susie (lead ICN) is in regular contact with the ward. Please let me know if you have any questions or any concerns re the plans below . I will be reporting this up to HPS as a RED shortly.

Background

Cupriavidus

Rare organism , was isolated from a 2A patients blood culture in January 2018. Only 2 previous isolates in RHC - one in September 2017 and one in Feb 2016.
The February 2016 isolate was linked to a contaminated water supply in the aseptic unit which the patient had received TPN from - the isolates matched by typing. Therefore the initial focus of the January case was the aseptic unit but the water supply there is currently negative. Outlets in 2A were subsequently sampled and tested positive
Patient has responded to treatment

Pseudomonas

One case of Pseudomonas aeurginosa bacteremia in Feb 2018 (healthcare associated) The patient has had line removed and is clinically stable .

Investigations

A number of outlets in 2A have tested positive for Cupriavidus- these are in the treatment room, prep room, and patient rooms 3,6,15 and 26 affecting both showers and wash hand basins.
The source remains unclear and we are awaiting results from the main tanks and also from swabs of tap components including flow straighteners implicated in incidents elsewhere.

One outlet in 2A so far has tested positive for Pseudomonas. (room 3 WHB) - the patient above has not been in this room

All positive results will be sent for typing.

IC measures

Rather than wait for testing of more outlets we are assuming widespread contamination and Ian Powrie will arrange dosing of the the whole ward with Silver Hydrogen Peroxide. (Sanosil) We will aim to do this as soon as we can and Ian will advise on time scale but likely to be days rather than hours. This should provide rapid control and reduce the microbial burden

The highest risk to patients is from showers . We would recommend not using showers at the moment and washing patients with either bottled water or using wipes if these can be tolerated.

Hand hygiene - use sinks and apply alcohol gel after

I am in the process of trying to establish which rooms (if any) were tested and are negative

Ongoing surveillance by ICT for further patient cases

HIIAT

Propose to report as RED

Patient - moderate
Transmission - high (we have unknown source and extent)
Public health - low
Public anxiety overall - low

Comms

I will report to HPS
Propose draft statement at the moment

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

NHS Greater Glasgow and Clyde	**NHS Greater Glasgow & Clyde** **Infection Prevention and Control Team**
Purpose:	Briefing Paper
From:	IPCT
To:	Dr J Armstrong Board Medical Director
Date:	16.02.18
Subject/ situation:	Water Quality – Royal Hospital for Children & Queen Elizabeth University Hospital
Background	<u>February 2016 – Aseptic unit</u> The aseptic unit asked ICD for advice in relation to high TVC counts > 100 at 22C ICD asked for identification. GRI water lab (accredited) identified these organisms as Cupriavidus pauculus and Pseudomonas species (not aeruginosa) Two sinks within the unit tested positive (water samples). One sink was identified as a little used outlet and removed. Practice issues were noted and addressed by ICT in relation to hand hygiene. Given the rarity of the organism a lookback at patient isolates was performed. One Cupriavidus bacteraemia was noted in the preceeding 2 weeks from a child who had received TPN from the unit. Typing of patient and water isolates by Colindale revealed the same strain. Dosing took place with Sanosil and counts returned to 0. Most recent sampling of the unit was March 2018 and the counts were 0 (attached). The incident was closed. <u>September 2016 –PICU</u> Water testing was requested in PICU in relation to increased incidence of Pseudomonas and Serratia in clinical isolates. Outlets tested positive for Cupriavidus but negative for the others. Practice issues were noticed e.g. solutions being poured down sinks and plastic syringe protectors in drains. These were all cleaned out by estates, and ICT provided education . Sanosil dosing took place and repeat counts were negative. Note there were no patient isolates of Cupriavidus at this time.
The current situation	<u>Current incident – Jan 2018, onwards</u> Patient in 2A with Cupriavidus bacteraemia 26/1/08. Look back identified a further 2A patient with Cupriavidus bacteraemia in Sept 2017. Both patients had received products from the aseptic pharmacy. Given the previous history initial investigation focused on this pharmacy. Water testing was negative. The focus then shifted to 2A. Initial water samples were taken from the prep and treatment rooms where products are made up. These tested positive for Cupriavidus. Dosing with Sanosil took place.

	Sampling was then done on outlets in the rooms occupied by the positive patient case and a selection of random outlets in rooms unoccupied by the patient. There were a significant number of positives. In light of these results and the high risk patient population further testing was not recommended and system was dosed with Sanosil, assuming the issue was widespread One outlet tested positive for Pseudomonas. There was one patient on the ward with Pseudomonas bacteraemia. This patient is classed as healthcare associated as opposed to 2A acquired. One patient on the ward was noted to be colonised with Stenotrophomonas in faeces. **19.03.18** **2A – 3 patient cases of Stenotrophomonas , all developed before infection control measures were put in place. Patients are stable** **PICU – 1 patient case of Stenotrophomonas . Difficult to link epidemiologically to the water issue .** Sampling of the QEUH (4B) confirms the presence of this type of bacteria in this water supply. The actions in the following section which were put in place in the RHC have now been recommended for all high risk units in QEUH. First Incident Management Team Meeting held on 2/3/18 HIIAT assessed as RED and has been reported as red at subsequent IMTs.
Actions	• Portable sinks – these were risk assessed. The purpose of them was to provide a source of warm water for washing children and for parents to use during dosing of the system when the water supply is off for 4-6 hours. • Dosing – the system in 2A has been dosed with Sanosil 3 times followed by Chlorine. • Showerheads – disposable showerheads installed • Filters – in process of installing filters on showers and taps. • Patients have been advised not wash / be washed / drink or brush their teeth with the water from the sink or shower outlets. • All patient rooms will be kept tidy and free of clutter to allow twice daily clean of each room with Actichlor Plus (1,000 ppm dilution). • All patient rooms will be kept tidy and free of clutter to allow twice daily clean of each room with Actichlor Plus (1,000 ppm dilution). • Staff and parents can use the sinks for hand hygiene followed by usual alcohol hand rub (Diversey). • For aseptic procedures staff will wash hands at sink, then use

	Sterilium lotion (surgical rub) for 90 seconds. • Single patient use nebulisers should be rinsed out in sterile bottled water after each use rather than tap water. • Where water is required for reconstituting medicines for oral/NG route, sterile water should be used.
Recommendation	Short term measures include the use of filters , disinfection of taps and changing to disposable showerheads. These are all underway Long term measures include changing to new taps and permanent disinfection with Chlorine dioxide – discussions are already underway

Water incident ward, RHC/QEUH paper
Dr Teresa Inkster 3/5/18

Background

Water testing on QEUH/RHC site prior to incident

- Legionella testing – in accordance with water safety policy. Performed in high risk areas (Transplant units), areas with Chlorine dioxide systems (Neuro and Old Maternity) and areas where historically we have had elevated counts.
- Pseudomonas testing –NHSGGC has differed from other Scottish hospitals in that we commenced testing for Pseudomonas in 2016 in high risk units with taps that have flow straighteners i.e. PICU, NICU, BMT
- Other bacteria – in response to positive patient cases, on advice of Infection control doctor. These have included, within the past 2 years; Serratia, Acinetobacter, Pseudomonas, Stenotrophomonas , Elizabethkingia and Cupriavidus.
- Specialist testing – Aseptic units and hydropools require TVCs and analysis for E coli, Pseudomonas, coliforms, legionella (hydropool).

Exception reports

These are sent to Infection control for routine Legionella and Pseudomonas testing. All results including negatives are sent to infection control for incident investigations, aseptic units and hydropools. Bacteria in hospital water supplies are sometimes detected . Cut offs are well established for Legionella and Pseudomonas. Detection of either requires a risk assessment by ICDs, clinical and estates colleagues. Appropriate actions are defined within our water policies.

Setting

The initial focus of the incident and the area where there was highest impact was ward 2A RHC. This is a paediatric haemato-oncology ward housing patients with blood cancers, solid tumours and those undergoing bone marrow transplants. This is a high intensity unit with most patients requiring chemotherapy and other IV therapies. Many patients have central lines. Extensive quality improvement work has been undertaken in relation to line care recently.

Testing commenced elsewhere on site to look for a potential decant option for 2A following unsuccessful chemical dosing of the water supply. It became evident from further water testing that the problem with water contamination was more extensive and involved both RHC and QEUH.

Microbiology testing
Water testing is performed in GRI microbiology water lab . This is an accredited laboratory. Little is known about Cupriavidus and some of the other Gram negative organisms isolated

but given the similarity to Pseudomonas species we applied the same cut offs i.e. >10 cfu/100ml considered significant.

Whilst the initial water testing revealed the presence of Cupriavidus and Stenotrophomonas from 2A further testing revealed a range of Gram negative environmental bacteria and fungi.

The presence of such a range of bacteria and fungus indicates well established biofilm in the water system.

Testing of outlets (taps and showers) was been undertaken by the microbiology lab at QEUH . Taps and showers were deconstructed and each element was swabbed

Incident timeline

Patient in 2A with Cupriavidus bacteraemia 26/1/16. Look back identified a further 2A patient with Cupriavidus bacteraemia in Sept 2017. Both patients had received products from the aseptic pharmacy. Initial investigation focused on this pharmacy as we had seen Cupriavidus here before but successfully eradicated it. Water testing was negative. The focus then shifted to 2A.

Initial water samples were taken from the prep and treatment rooms where intravenous products are made up . These tested positive for Cupriavidus . Dosing with Sanosil (Silver hydrogen peroxide) took place. We then sampled outlets in the rooms occupied by the positive patient case and a selection of random outlets in rooms unoccupied by the patient. There were a significant number of positives. One outlet tested positive for Pseudomonas.

In light of these results and the high risk patient population we decided not to do further testing of outlets and elected to dose with Sanosil , assuming the issue was widespread

There was one patient on the ward with Pseudomonas bacteraemia. This patient is classed as healthcare associated as opposed to 2A acquired. Subsequently reference lab results have become available and this case has been excluded from the investigation as the initial water test is a different species of Pseudomonas from the patient isolate

One patient on the ward was noted to be colonised with Stenotrophomonas in faeces

Patient cases, 15/3/18 onwards

Case 1 - A 2A patient developed Stenotrophomonas bacteraemia on 11/3/18 and required central line removal

Case 2- A PICU patient developed Stenotrophomonas bacteraemia on 13/3/18. This patient has been in PICU for >40 days and is a cardiac patient.

Case 3 - A 2A patient developed Pseudomonas and Stenotrophomonas bacteraemia on 15/3/18. Note this patient had been home for 7-8 days but had been attending ward 2B (outpatients) during that time

Case 4 - A 2A patient was readmitted with a Stenotrophomonas and Serratia bacteraemia on 16/3/18. The patients line was removed and they responded to iv antibiotics.

Case 5 – A 2A patient was readmitted with a stenotrophomonas bacteraemia on 3/4/18 having attended ward 1B and ward 2B as an outpatient. Patients line was removed and they responded to IV antibiotics.

Total number of patient cases currently is 6 (1 Cupriavidus and 5 Stenotrophomonas bacteraemias)

Epidemiology

Since the opening of the RHC site in June 2015 there have been 3 cases of Cupriavidus reported. This is a very rare pathogen with only a handful of case reports. These cases were linked to water involving ECMO and dialysis water. There is a strong epidemiology link with the Cupriavidus bacteraemias and water in ward 2A.

Cases of Stenotrophomonas spiked to 4 cases during the month of March 2018 in RHC 2A. There is on average about 1 case of Stenotrophomonas bacteraemia a month in RHC . In ward 4B QEUH only one case of Stenotrophomonas has ever been reported since opening. In ward 2A it is unclear whether we could link this entirely to water as it has only been found in one shower outlet. However the counts were high at >100 and we only sampled limited outlets assuming widespread contamination with Cupriavidus . Originally it was thought the Stenotrophomonas was being transmitted through patients taking showers . The other possibility was that the index case is water related and subsequent cases were transmitted from HCW to other patients or all cases may be completely independent from the water supply. Whilst potential cross transmission is concerning ,given the issues with water supply, hand hygiene had been a challenge for staff and there were several hours where they were having to use bottled water.

Typing results may assist with interpretation of this however it is not unusual to see multiple different strains of the same organism in water related incidents such as these. A previous incident involving Cupriavidus detected up to five strains. Currently we have 5 different strains of Cupriavidus and 4 different strains of Stenotrophomonas. Typing has excluded cross transmission of Stenotrophomonas between patients but has not ruled out water as a source. One historical patient (2016) with Cupriavidus has been linked to a current water Cupriavidus strain. Numerous typing results are outstanding.

HPS and PH colleagues continue to work on more detailed epidemiology and have been supplied with details of other relevant Gram negative bacteria.

2 cases of fungal infection (1 in NICU and 1 in 2A) have been investigated by the IPCT and as yet are not related to water although results of repeat testing are awaited.

Even if there were no patient cases this is a significant water incident as hospital water should not contain bacteria at these levels .

Water results

Range of Gram negative bacteria and fungi in both hospitals , consistent with well established biofilm
Main storage tanks were initially negative but low level positives have been subsequently noted – likely contamination back the way
Renal dialysis waters are within normal limits
Aseptic pharmacy water is negative
Scottish water incoming – within normal limits

Microbiology results – outlets

Taps and showers were sent to microbiology and deconstructed. Results reveal the presence of Cupriavidus and a range of other Gram negative environmental bacteria on several tap components including flow straighteners and on shower heads. The conclusion is that there is significant biofilm present on outlets.

Hypotheses considered

- Low level contamination of incoming supply and buildup forming biofilm on high risk outlet components
- Contamination at the time of installation e.g. contaminated pipework/outlets, system filled with water long before opening with inadequate flushing, modular build leading to exposure of components to the elements.
- Backflow from drains – excluded by different microbiology results and no evidence of backflow occurring.

Immediate infection control measures

- Infection control – these have included removing showers from use, hand hygiene followed by an additional alcohol gel step, specific instructions around sterile and bottled water, cleaning children with wipes and bottled water rather than mains water, following the reinstatement of showers; covering of lines whilst showering.
- Portable sinks on ward 2A – these were risk assessed. The purpose of them was to provide a source of warm water for washing children and for parents to use during dosing of the system when the water supply is off for 4-6 hours.
- Dosing – the system in 2A has been dosed with Sanosil three times followed by Chlorine.

- Showerheads – disposable showerheads have been installed with a colour coded system indicating when change is required.
- Water was restored to all high risk areas on 22/3/18 with the exception of 2A BMT patients where additional IC measures remained in place.
- High risk patients were commenced on antibiotic prophylaxis in both hospitals – this was discontinued 22/3/18

Short term control measures

Filters have now been installed in high risk areas on taps and showers and other areas where immunocompromised patients may be present. These are considered a short term control measure only. Due to a lack of experience with the use of filters and significant contamination, evidence of filter efficacy was sought. This was done using two indicator wards -2A and 4B, sampled weekly. Filter efficacy has been demonstrated to 30 days . One filter sample failed and the filter was subject to analysis by the manufacturer. The filter integrity was not breached and the likely explanation is a dislodged filter or contamination whilst taking the sample.

Long term control measures

NHSGGC has been working closely with HPS and HFS throughout and a SLWG has been established to develop long term control measures. A site visit has been undertaken by Susanne Lee, a national and international water expert . The SLWG will produce an action plan which will include plans for chemical dosing, review of taps and flow straighteners and long term use of filters in some areas.

Moving forward the membership and remit of the water group will be reviewed to ensure all sources of water and high risk users are considered e.g. renal, hydropools, aseptic pharmacy, ECMO

What went well

- Excellent team working in what was a challenging, fast paced and complex incident with several people giving up evenings and weekends to ensure patient safety
- Excellent engagement from clinical teams and good representation at IMTs.
- Huge undertaking by estates colleagues and external company to undertake testing, tap maintenance and filter fitting/quality assurance

- Microbiology laboratory increased resource to enable processing of 100 water samples a day and reduced turnaround times to 48 hours
- Rapid procurement of portable sinks and filters
- Excellent support from HPS and HFS colleagues who also contributed to teleconferences on weekends
- Rapid production and roll out of infection control guidance by infection control nurses
- Media colleagues handled media and political enquiries very well with excellent communication in relation to this and frequent updates provided.
- Staff on wards coped well with enhanced infection control measures in addition to the pressures of dealing with anxious parents and families.
- Regular and rapid parent updates provided in person by SCNs.

Learning

- Consider water as a source when bacteraemias detected due to Cupriavidus sp, Stenotrophomonas maltophilia, Delftia Acidovorans, Elizabethkingia sp
- Consider testing water supply for fungi when dealing with an outbreak of invasive fungal infections.
- Previous water incidents and those in published literature tend to focus on the affected unit but more widespread testing should be encouraged as this will determine the most effective control measures. Local dosing will be insufficient if systemic problem
- Silver hydrogen peroxide is a powerful biocide but may not be immediately effective when heavy biofilm present. Repeat sampling is necessary.
- Silver hydrogen peroxide may not be compatible with certain materials or taps
- Point of use filters can be utilised as a rapid control measure but should not be considered a long term solution

- Portable sinks can be useful when frequent dosing of a system is required, to ensure an alternate source of warm water and when shower water is contaminated to enable a patient to wash
- Need to be aware of risks and challenges associated with portable sinks – possible stagnation , trip hazard, scalding risk, water flow, basin size, water tank size, additional cleaning
- Consider covering line sites whilst immuocompromised patients are showering as best practice.
- Communication – difficult to balance need for info vs causing unnecessary alarm
- IPCT to develop action plans after each IMT – fast paced incident and difficult to keep track of who was doing what

RE: initial report

Armstrong, Jennifer [redacted]

Fri 04/05/2018 18:39

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Kane Maryanne (NHS GREATER GLASGOW & CLYDE) [redacted];

Thanks Teresa; agree with your proposal below;
j

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 03 May 2018 21:06
To: Armstrong, Jennifer
Cc: Kane, Mary Anne
Subject: [ExternaltoGGC]Fw: initial report

Hi Jennifer,

I know Maryanne has already forwarded this report. I have had a quick scan and will work on it tomorrow as I note some inaccuracies.

I am concerned re the mention of risks/benefits of remedial approaches to be discussed in a report prepared by July. That is too long for us to wait.

Myself and Ian Powrie met with John Hood today and we all agreed the approach detailed in the attached SBAR.

Tom Meechan is another water expert who is visting next week and assisted John Hood with a Legionella issue at GRI. I think if he is in agreement with our plan we should present this SBAR to HPS and HFS as what we intend to do.

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Sent: 03 May 2018 14:04
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE)
Cc: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Subject: initial report

Hi Teresa/Mary Anne

Please find attached a draft copy of the initial report from HPS. It needs sorted re referencing, format and branding etc but would appreciate any comments on content. Could you let me have any comments asap (tomorrow.....) if thats not doable let me know

Annette

Inkster, Teresa

From: Redfern, Jamie
Sent: 01 June 2018 17:25
To: Inkster, Teresa; Dodd, Susie; Hutton, Melanie; Gibson, Brenda; Connelly, Karen
Cc: Rodgers, Jennifer
Subject: ward 2a update report week ending 1st June 2018
Attachments: ward 2a update report week ending 1st June 2018.docx

Attached report intending to send to JB/JA
Have marked in yellow those areas for specific attention to JA / JB

NHS GGC
Acute Division
Women and Children (Hospital Paediatrics and Neonatology)

Ward 2a update –Friday 1st June (period covered Friday 25th May to Friday 1st June)

Standard weekly status report for Ward 2a RHC to the Board Medical Director covering:

1. Infection Control
2. Service
3. Estates
4. Domestic
5. Corporate Reporting

1. Infection Control

- No further Stenotrophomonas bacteraemia. All are unique strains pointing towards environmental issue rather than passed via hands or kit.
- Last Enterobacter case - 24th May. Non HAI but with links to 2B.3 of the 5 are enterobacter cases are unique strains suggesting no cross transmission. One sample still awaited and one unable to be tested. HIAAT Green.
- No patients causing concern as a result of outbreak infections.
- Swab results from Chilled Beams have so far grown nothing of significance, further results awaited.
- Drains swabbed no results back as yet. Further update on this to follow in next week's report
- Hydrogen Peroxide Vapour treatment to be carried out commencing 11th June completing 17th June ward 2a and 2b inclusive.
- Three rooms will be closed to accommodate HPV cleans. Meeting held on 1st June to plan logistics around process.
- Daily visits from the Infection control team are in place supporting staff and observing practice, SCIPS and cleanliness of the ward.
- Peer reviews underway with ICP Nurses from other NHSGGC sites. Points for learning noted: consider moving ward leaflets SCN will review.
- Friday walk round with Paediatric Lead Nurse, Infection Control Lead Nurse and Domestic Services Representative. The purpose of the joint visit is to scrutinise nursing, infection control and domestic practice, equipment cleaning and patients care plan documentation. Learning points are raised with the team for action in real time as well as documented and logged. Today's walk around found staff knowledge, PPE, CVC planning and hand washing were good. Points to note, one inappropriate item on hand hygiene sink, some equipment dusty, escalated to nurse in charge and auctioned.
- Parent leaflet with infection control rules to be implemented next week.
- Parent education sessions underway.
- No update on benchmarking against other sites. Will be prioritised for next reporting week Friday 1st June 2018 to Friday 8th June 2018

2. Service

- Ward 2a has achieved a 'safe to start' status every day last week with one adjustment to nurse staffing required.
- Quality Improvement group for line associated bacteraemia rate is ongoing and demonstrating a positive shift in the data.
- Aseptic Non Touch Technique (ANTT) fully rolled out in ward 2a and 2b.
- Meeting arranged to agree SOP for parent kitchen 5th June.
- Scope project for moving ward main entrance to non BMT side of unit. Includes fitting fingerprint recognition door entry system.
- Visitor protocol successfully reinforced. Good engagement between SCN and families around de clutter of rooms. All of this being routinely monitored.

NHS GGC
Acute Division
Women and Children (Hospital Paediatrics and Neonatology)

- Discussions between service and facilities being progressed in support of additional housekeeper capacity to the ward.
- Paediatric workforce planning tool run completed Friday 25th May 2018. Data being updated and reviewed.
- Communication drafted to all clinical teams regarding limitation of staff involved in grand ward rounds etc. To be circulated Friday 1st June 2018 vis Clinical Directors in HPN.

3. Estates

- Room 11 currently closed with blocked sink. Estates aware.
- Chilled Beams to be cleaned prior to HPV.

4. Domestic

- Twice weekly audits 95%. Results now to be shared weekly with JR/ JRo
- No issues raised this week regarding access for cleaning rooms. Escalation process to SCN for problems with access to rooms in place and being used as an when appropriate by domestic staff
- Discussion with SCN during the course of the week, no further issues reported.
- Position as at Friday 1st June ward 2a reviewed as appropriately clean. Further inspection of ward 2a today planned by HPS with focus on domestic cleaning.

5. Corporate Reporting

- Weekly reporting cycle in place to Jennifer Armstrong, & Jonathan Best. Week 1 report 1st June 2018.
- Monthly update of the action plan agreed following meeting held on Thursday 24th May 2018; next updated 29th June 2018

Jamie Redfern General Manager
Jennifer Rodgers Chief Nurse

1st June 2018 Draft1

Inkster, Teresa

From: Armstrong, Jennifer
Sent: 05 June 2018 15:18
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: [ExternaltoGGC]Re:

Teresa
I am going to pass your email to mary anne kane – is that ok with you? We have met today and agreed that we need to detail and track all actions; I want these added in?
Alternative is you may wish to amend and send to her and perhaps cc me in?
j

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 05 June 2018 11:16
To: Armstrong, Jennifer
Subject: [ExternaltoGGC]Re:

I'm off today and out of the house currently so can't access all minutes etc but my main concern is regarding control of the water system.

What needs to happen;

-urgent programme of drain cleaning established for high risk areas as per Pseudomonas risk assessment. 2a/b is now in progress. 4b needs done as priority before adult BMT move back.

- we need a finalised plan for control of the water system including shock dosing. Chlorine dioxide as the agreed method should be pursued urgently as we cannot change taps until dosing has commenced. There are plans to bring experts back and dates for this well into July. We don't have time for this. I am concerned that several months down the line there has been no definitive action other than filters which is a short term measure.
The last water group met 3 weeks ago.

-the final plan should be chlorine dioxide dosing, new taps fitted, beginning in high risk areas as defined by Pseudomomas risk assessment. Armitage shanks taps with detachable components and with copper bio guard is best option. Filters remain in BMT. It was suggested we need guidance document to state filters needed in BMT. We won't get that and there is sufficient literature supporting their use in this setting

- dishwashers are growing fungus and need online filters placed before retesting, are they in place? This was an agreed action

- water coolers; status in adult hospital, have filters been fitted. This was an agreed action

- filters in outpatient areas - are they needed? This needs risk assessed by the group.

I am happy that things are proceeding quickly at the ward level. HPV is starting today with cleaning of drains and chilled beams.
Some outstanding actions which I will pick up at tomorrows IMT - moving the entrance to the unit (Jen is looking into this), removal of paper leaflets and paper stuck on walls , laminating anything that needs to be there. Also review of IV prep, limited space ? Need to convert another room.

Domestic resource - I think we need more in 2a . This is the highest risk ward so needs sufficient resource and high skill. The ward was very clean on Friday, it needs to be the same 24/7. There are a number of issues re cleaning from RHC that I have escalated to Maryanne and Karen - PICU, 1E and 3C

Annette Rankin called me to say that cabinet sec due to be briefed today and there have been some questions back to HPS particularly around cancellation of BMT patient.

Kr
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Armstrong, Jennifer
Sent: Tuesday, 5 June 2018 9:53 AM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject:

Teresa
Before midday if possible can you email me the actions which were agreed and not yet done?
Regarding ward 2 A/b. And perhaps details you thoughts on what needs to happen j

Sent from my BlackBerry 10 smartphone on the EE network.

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 05 June 2018 15:56
To: Kane, Mary Anne
Cc: Armstrong, Jennifer
Subject: water action plan

Hi Maryanne

Jennifer had asked me earlier re some of the outstanding actions and I understand you are developing an action plan for water - could we add the following;

-urgent programme of drain cleaning established for high risk areas as per Pseudomonas risk assessment. 2a/b is now in progress. 4b needs done as priority before adult BMT move back and PICU due to Acinetobacter issue.

- regular programme of drain cleaning established for high risk units - frequency to be discussed and choice of cleaning agent.

- finalised plan for control of the water system including shock dosing. Can Chlorine dioxide as the agreed method be pursued urgently as this will take some time and we can work on the decisions re taps/filters whilst this is ongoing

- dishwashers in the Cystic Fibrosis wards are growing fungus and need online filters placed before retesting

- water coolers; status in adult hospital, have filters been fitted

- filters in outpatient areas - are they needed? This needs risk assessed by the group.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

FW: Establishment of Executive Control Group

Inkster, Teresa [redacted]

Fri 24/07/2020 11:21

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

From: Hill, Kevin
Sent: 06 June 2018 12:25
To: Inkster, Teresa [redacted]; Mathers, Alan [redacted]; Walsh, Tom [redacted]; Kane, Mary Anne [redacted]; Gallacher, Alan [redacted]; Powrie, Ian [redacted]; Redfern, Jamie [redacted]; Rodgers, Jennifer [redacted]; Connelly, Karen [redacted]; Macdonald, David [redacted]
Cc: Hackett, Janice [redacted]
Subject: Establishment of Executive Control Group

Dear colleagues,
I appreciate and acknowledge your efforts and those of your respective teams in addressing the previous, current and ongoing issues mainly affecting Ward 2A and 2B at RHC.

In order to ensure governance regarding decision making and coordination of our efforts going forward I am establishing an Executive Control Group that will provide weekly updates on progress.

Therefore I request your attendance at a weekly meeting commencing from Friday 15th June 2018 at 1.00pm (venue to be confirmed via Janice Hackett) and for subsequent meetings occurring every Friday at the same time for up to 2 hours. Please confirm your attendance or if unable to attend nominate a designated deputy.

The work of your respective groups should continue covering:

1. Environment (Water/Technical Group); Chaired by Mary Anne Kane
2. Service/Clinical Practice Group; Chaired by Jamie Redfern
3. Where appropriate Incident Management Team Meeting; Chaired by Teresa Inkster

The work programme of your respective groups will be shared with the members of the Executive Control Group to ensure priorities and actions to be taken are understood and agreed.

Thank you in anticipation for your cooperation and assistance.
Happy to discuss.
Kind regards

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 25 June 2018 14:27
To: Armstrong, Jennifer
Subject: bacteraemia rates
Attachments: bacteraemias 2011-18.pdf; Gram negs only.pdf

Hi Jennifer

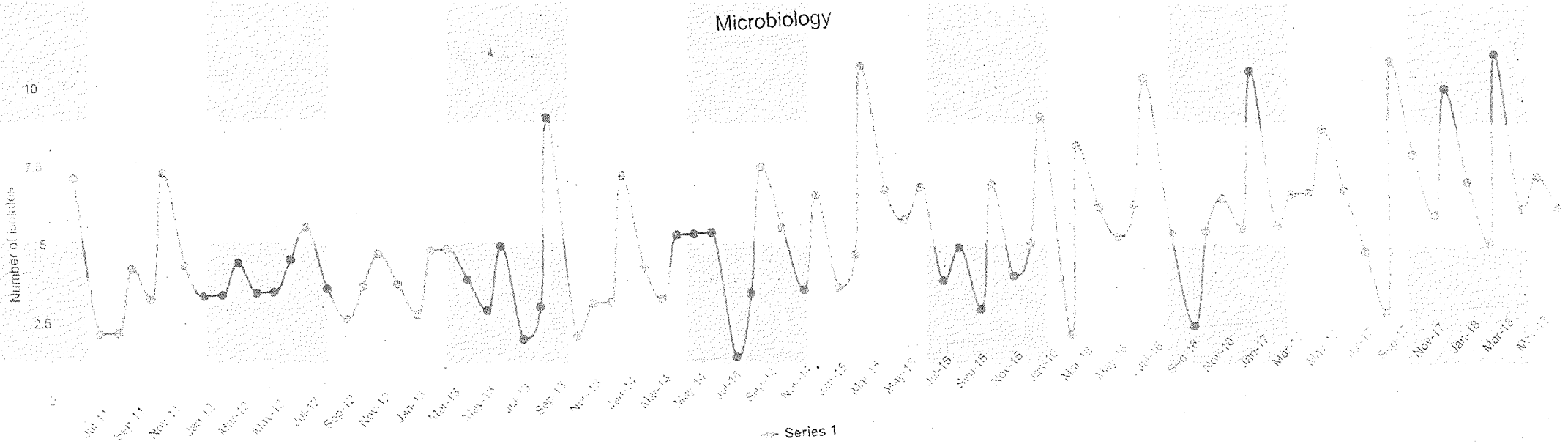
I have attached a couple of charts that may help explain. The first is all Gram negative and Gram positive bacteraemias in ward 2a/b and the old Schehallion ward in/out patients from 2011.

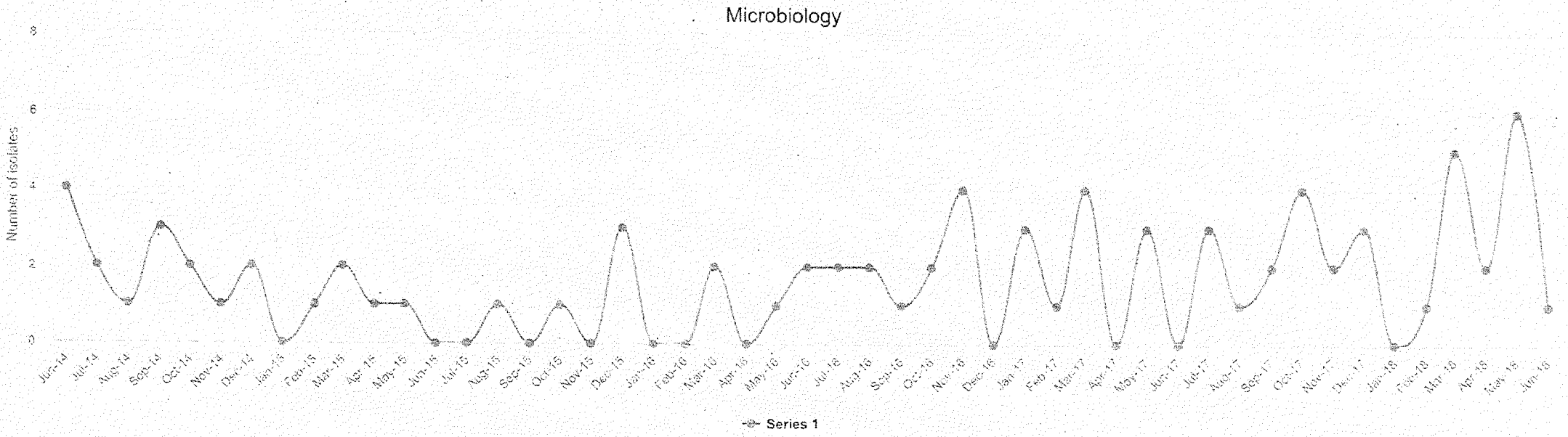
This illustrates that bacteraemias are common in this patient group and similar levels were on occasion seen in the old hospital.

What has changed is the **nature** of them ie. environmental type Gram negatives, you can see the recent increase on the 2nd graph

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]


Microbiology
Number of Isolates
10
7.5
5
2.5
0
Series 1


Microbiology
Number of isolates
Series 1

Inkster, Teresa

From: Armstrong, Jennifer
Sent: 12 September 2018 17:27
To: Walsh, Tom; Best, Jonathan; Kane, Mary Anne
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Kennedy, Iain; Archibald Grant (NHS GREATER GLASGOW & CLYDE)
Subject: RE: NHSGGC - water incident - follow up questions

All
I have discussed with Grant and Jonathan and they are both content to re-institute the group led by Kevin Hill to ensure there is a coordinated response to this further increase in infections and the need for additional actions in terms of the drains; in addition, this group can also agree the responses to SG as i think they did last time.
This group will be put back in place after a call between Kevin and Grant this evening
j

From: Walsh, Tom
Sent: 12 September 2018 14:26
To: Armstrong, Jennifer; Best, Jonathan; Kane, Mary Anne
Cc: Inkster, Teresa (NHSmail); Devine, Sandra; Kennedy, Iain
Subject: FW: NHSGGC - water incident - follow up questions

Dear all

Further very specific and detailed questions just received from SG via Annette Rankin. For info and review ahead of the Teleconference at 4pm.

Kr

Tom

Annette (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Sent: 12 September 2018 14:10
To: Walsh, Tom; Inkster, Teresa (NHSmail)
Cc: Devine, Sandra; Dodd, Susie
Subject: [ExternaltoGGC]NHSGGC - water incident - follow up questions

Hi Tom, Teresa,

Please see additional questions from SG. They have requested a response date on the by COP tomorrow (13/9/18). These incorporate the four questions asked earlier this week. I have made some responses to the questions but have highlighted in red where further input is required from GGC.

Annette

RE: Response to microbiologists

Best, Jonathan [redacted]

Mon 26/03/2018 09:09

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Jones, Chris [redacted];

Cc: Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE) [redacted]; Walsh Thomas (NHS GREATER GLASGOW & CLYDE) [redacted];

Teresa,
Many thanks for your e-mail and the response table of actions.

I have discussed with Mary Anne Kane and she is reviewing the actions in her new role and will advise.

Regards,

Jonathan.

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 12 March 2018 17:16
To: Jones, Chris; Best, Jonathan
Cc: Armstrong, Jennifer; Walsh, Tom
Subject: [ExternaltoGGC]Response to microbiologists

Dear both

I discussed the attached with Dr Armstrong earlier today. This paper was due to be tabled at the AICC last week but the meeting was cancelled due to bad weather. Would it be ok to release this paper to the microbiologists concerned? There have been concerns expressed from them re the time a response is taking. I think the next AICC meeting is scheduled for May

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Scott, Sonya [redacted]
Sent: 18 March 2018 11:51
To: MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: FW: [BlockedURL][ExternaltoGGC]Fw: cupriavidus pauculus URGENT

FYI

From: Armstrong, Jennifer
Sent: 18 March 2018 11:47
To: Inkster, Teresa (NHSmail) ; Grant, Jane [Chief Exec] ; Redfern, Jamie ; Mathers, Alan ; Kane, Mary Anne ; Powrie, Ian ; Dell, Mark ; Scott, Sonya
Subject: Re: [BlockedURL][ExternaltoGGC]Fw: cupriavidus pauculus URGENT

All
Here is a structure for today's call.

1. Update from Jamie regarding RHC situation and status of children
2. Update from Sonya regarding HPS note
3. Theresa will update on control measures
4. Estates issues Mary Anne
5. Communications issue both internal and press.

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Sent from my BlackBerry 10 smartphone on the EE network.

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To: Armstrong, Jennifer; Grant, Jane [Chief Exec]; Redfern, Jamie; Mathers, Alan; Kane, Mary Anne; Powrie, Ian; Dell, Mark; Scott, Sonya
Subject: [BlockedURL][ExternaltoGGC]Fw: cupriavidus pauculus URGENT

Ahead of the TC, please see email thread below which contains expert opinion from Suzanne Lee (water expert, former HPA).

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Sent: 18 March 2018 10:52
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: cupriavidus pauculus URGENT

From: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Sent: 18 March 2018 10:42
To: STEELE, Tom (NHS NATIONAL SERVICES SCOTLAND); MCLAUGHLAN, Edward (NHS NATIONAL SERVICES SCOTLAND); RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: FW: cupriavidus pauculus URGENT

FYI
Copy of email from Phil Ashcroft and Susanne Lee (Independent Public Health Microbiology Consultancy & Advisory Service)

Regards

Ian
Ian Storrar
Principal Engineer - Health Facilities Scotland
Procurement, Commissioning and Facilities
NHS National Services Scotland
3rd Floor
Meridian Court
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G2 6QE

Tel (direct): [redacted]
Mobile: [redacted]
Reception: [redacted]

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From: ASHCROFT, Philip (NHS IMPROVEMENT - T1520)
Sent: 17 March 2018 21:02
To: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Cc: Wilson, David (DoH); Mark Gapper; BELLAS, Michael (NHS IMPROVEMENT - T1520)
Subject: FW: cupriavidus pauculus URGENT

Hi Ian
You probably didn't receive this from Susanne as I note the e-mail address was corrupted.

I'm off for a week but please keep me copied in. Also please copy in Michael Bellas in case we get any press calls south of the border
Thanks
Phil

Sent from my Windows 10 phone

From: Susanne Lee
Sent: 16 March 2018 22:50
To: ASHCROFT, Philip (NHS IMPROVEMENT - T1520)
Cc: Ginny.Moore[redacted]; STORRAR[redacted]; NHS NATIONAL SERVICES SCOTLAND
Subject: Re: cupriavidus pauculus URGENT

Dear Phil
Sorry for the delay I have forwarded to Mike Weinbren . I agree with Ginny it is an uncommon pathogen and it would be good to have more information. I haven't had any personal experience of dealing with this but I suspect it might Be difficult to remove. If the BBC report is correct that bottled water and mobile sinks are being used I would be a little concerned about the use of bottled water with highly immunocompromised patients though , it is not the same as sterile water and and as there have been previous P. aeruginosa outbreaks in ICU associated with bottled water it is important that there has been sufficient quality assurance to ensure its safe for this patient group. I also have concerns with the use of the mobile sink units unless they have been thoroughly disinfected first. Following the Dutch lead and removing water from the highest risk areas and relying on alcohol gel and sterile water only.

Sent from my iPhone

On 16 Mar 2018, at 15:18, ASHCROFT, Philip (NHS IMPROVEMENT - T1520) [redacted] wrote:

> Hello Ginny, Susanne, Elise and Tom
>
> Have you had any experience with this particular problem and assisted Trusts in addressing it? If so any chance you could share anything you may have with Ian Storrar.
>
> I'm afraid since I left DH I don't have access to my old contacts list or I would have dropped a note to Drs Michael Weinbrein and Michael Kelsey too.
>
> Any help will be much appreciated by Ian.
>
> Kind regards
> Phil
>
> **Philip Ashcroft BEng (Hons) CEng CEnv MIMechE MIET | Principal Engineer - Senior Policy and Strategy Lead (Hard FM)**
> **NHS Estates and Facilities Efficiency & Productivity Division**
> T [redacted] | M [redacted] | E [redacted] | W improvement.nhs.uk |
> 1N11 Quarry House, Quarry Hill, Leeds LS2 7UE
> **NHS Improvement**
>
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>
> **collaboration | trust | respect | innovation | courage | compassion**
>
> We support providers to give patients safe, high quality, compassionate care within local health systems that are financially sustainable.
>
> ---
>
> **From:** STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
> **Sent:** 16 March 2018 14:20
> **To:** ASHCROFT, Philip (NHS IMPROVEMENT - T1520); 'Simon.Russel[redacted]'; Wilson, David (DoH)
> **Subject:** cupriavidus pauculus URGENT
> **Importance:** High
>
> Guys
>
> Do you have any experience in getting rid of cupriavidus pauculus
>
> Regards

Ian
Ian Storrar
Principal Engineer - Health Facilities Scotland
Procurement, Commissioning and Facilities
NHS National Services Scotland
3rd Floor
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Tel (direct): [redacted]
Mobile: [redacted]
Reception: [redacted]

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Inkster, Teresa

From: Inkster, Teresa
Sent: 03 May 2018 18:52
To: Inkster, Teresa (NHSmail)
Subject: FW: RHC water incident
Attachments: Notes from RHC teleconference 17March18 1600 v0.3 AR_TI amendments.docx

From: Scott, Sonya
Sent: 18 March 2018 10:29
To: Armstrong, Jennifer; Inkster, Teresa; Inkster, Teresa (NHSmail); Grant, Jane [Chief Exec]; Redfern, Jamie; Kane, Mary Anne; Dell, Mark; Mathers, Alan; Rodgers, Jennifer
Cc: MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); annette.rankin[redacted]
Subject: RHC water incident

Dear All,

Note from discussion with HPS/PHE yesterday afternoon. I will provide verbal summary at this afternoon's teleconference.

best wishes,
Sonya

From: Armstrong, Jennifer
Sent: 17 March 2018 13:30
To: Scott, Sonya [redacted]; Inkster, Teresa <[redacted]>; Inkster, Teresa (NHSmail) [redacted]; Grant, Jane [Chief Exec] <[redacted]; Redfern, Jamie [redacted]; Kane, Mary Anne <[redacted]; Dell, Mark [redacted]; Mathers, Alan <[redacted]; Rodgers, Jennifer [redacted]
Cc: Fenton, Lynda (NHSmail) [redacted]
Subject: Re: contact details

All
We agreed an update teleconference tomorrow (sunday) at midday.
Can you call
[redacted]
Then
[redacted]
I had jotted down few actions /observations from today. Feel free to correct.

Actions
1. Sonya will link with HPS today in order to secure expertise from them and NHS England about this incident and advise on actions to identify source and make supply safe. Theresa and Mary Anne will link as required if further information requested on actions and testing to date.
2. Linda will link Scottish Water and labs in GRI to ensure test samples received today.
3. Jamie developing contingency plans with specialties and will review a child due to come in next week for BMT with clinical teams
4. Mary Anne working with RHC wards on filters and extensive tests underway

5. Theresa reported infection control nurses on Wards to ensure all precautions are in place.
6. Theresa reported appears to be no new cases since more extensive measures put in place last week following water test results. Case reported last night probably unrelated as serratia
7. We will convene tomorrow at midday
8. Sonya will email at 3.30 if required conference at 4pm if any developments which require full group.

Thanks for joining today.
J

Jennifer
Sent from my BlackBerry 10 smartphone on the EE network.

From: Scott, Sonya
Sent: Saturday, March 17, 2018 12:56 PM
To: Armstrong, Jennifer; Inkster, Teresa; Inkster, Teresa (NHSmail); Kane, Mary Anne
Cc: Fenton, Lynda (NHSmail)
Subject: contact details

Hi All,

Contact details for Lynda and me are:

[redacted] – only on call today.

I'd be grateful for your mobile numbers.

Thanks and best wishes,
Sonya

Sonya Scott
Consultant in Public Health
NHS Greater Glasgow and Clyde
[redacted]

Summary notes from teleconference to support technical advice regarding RHC water situation 17/03/2018 1600

Chair: Sonya Scott (SS) - Consultant Public Health NHS GGC
Jim McMenamin (JM) - Consultant Epidemiology HPS
Claire Cameron (CC) – Strategic Lead Vaccine Preventable Disease HPS
Annette Rankin (AR) – Consultant nurse infection control HPS
Teresa Inkster (TI) - Lead Infection Control, Consultant Microbiologist, Chair IMT
Maryanne Kane (MK) – Interim director of Facilities NHS GGC
Ian Powrie (IP) – General Manager Estates, NHS GGC
Tom Steele (TS) – Director Health Facilities Scotland
Peter Hoffman (PH) - Consultant Clinical Scientist, PHE
Lynda Fenton (LF – action note) - Registrar Public Health NHSGGC

1. **Discussion**:
    a. **Source - what is the likely source of water contamination and clinical infections?**

Input from PH:

- Both organisms (cupriavidas and stenotrophomonas) are dedicated aerobes. As such they are unlikely to colonise remote biofilms more proximal in the water system. Most likely to colonise biofilms close to the air-water interface, within a few cm of outflow. Multiple sites of isolation of cupriavidas likely to reflect common environmental conditions and cross-contamination rather than a point source.
- Cupriavidas is a common water organism, and there is a degree to which it will always be found with sufficient testing.
- The levels of stenotrophomonas reported by TI from water samples are very high, the samples isolated from the showers may reflect the fact that shower tubing has a large air-water interface and prone to developing large biofilms. *It is unclear why this has only recently resulted in infections. No recent plumbing work, no change in patient care protocols*
- Plastic piping and flow straighteners may promote biofilm growth.
- Need to pay due attention to the routes of infection of patients from affected water, such as management of indwelling IV lines and their hubs.

Other points raised:

- AR - It is reported in the literature that cupriavidis is uncommonly found and although can be a cause of infection in the immunocompromised, this is unusual.
- AR and TI - It is still not clear, even if we accept that there is always a chance of cupriavidis and stenotrophomonas growth in water, why we are now seeing very high levels of these organisms nor why they are not resulting in patient infections. The results of further investigations including sampling, supply review and typing are awaited.
- AR – this is a clinically significant incident and we cannot lose sight of the clinical impact.
- IP -No recent work on pipes, all hard pipes except from catering area on level 4, where there is some flexible piping.

    b. **Control measures - what are the available control measures and how effective are they?**

Points raised by PH and discussed:

- Point-of-use filters are a recognised effective mechanism for preventing passage of these bacteria. Care needs to be taken to ensure correct filter fitting (no bypass). There is the potential for colonisation of filter from the environment (e.g. via cleaning cloths). Cost implications - filters only last a maximum of 60 days. Ian Storrar (HFS) is liaising with the manufacturers to establish the recommended life of the filter relating to cupriavidis as this may be shorter.
- TI emphasised that point of use filters can only be deemed a short-term control measure as per HPS Psuedomonas guidance. There is a risk that filters can become contaminated. It is crucial that we address the underlying issues with longer-term solutions.
- Biofilms may be resistant to chemical disinfection, as penetration to deeper layers cannot be achieved. We therefore may see only a reduction in load.
- TI acknowledged that chlorine dioxide might not eliminate biofilm entirely but would reduce microbial load and recommended inclusion as one of a range of control measures.
- TI reported she has had previous experience of using chlorine dioxide to treat systems with legionella and pseudomonas and has found it to be effective. There is no significant risks with using chlorine dioxide via a continual dosing approach.
- Thermal sanitisation (at very high temperatures >65 degrees) can be effective but not possible to implement via circulating water - need tap units to be removed.
- Removal and dismantling of tap units and treatment in washer-disinfecter +/- ultrasonic bath may be considered effective to remove biofilm, but likely to see recolonization eventually.
- TI highlighted the complexity of tap structure and several components conducive to biofilm growth.
- Alternative tap units, to replace existing horne taps and flow straighteners with metal flow straighteners and open outflows, are less likely to be colonised should be explored.
- Raised potential concerns about use of plastic sinks with closed plastic reservoir as these reservoirs are a potential site for biofilms also. TI reported this risk has been considered by the IMT however they are a short term control measure, being filled with bottled water and were agreed as an acceptable control measure by the IMT in addition the sinks are decontaminated in line with guidance.

2. **Recommendations**:

a. Short-term control measures

- Continue as planned with the installation of point-of-use filters in all high risk areas asap, ensuring proper fit and no bypass of water as agreed at Fridays IMT.
- Consider tap cleaning - removal in affected areas and treat for biofilm using high-temperature washer disinfecters and installation of new plastic flow straighteners. This required further discussion.
- Regular replacement of shower head and hose - using disposable units and initially change monthly. Could extend this by sampling in last few days of cycle with aim of extending period of use if negative. Care in cleaning as risk of colonisation from shower tray and cleaning cloths.
- Continue to promote best practise with care of lines. Consider the removal of portable sinks as soon as filters fitted.

Commented [a1]: Not sure about this. Teresa?

b. Longer-term control measures

- Installations of new model of taps with copper flow straightener and open ended outflow recommended. Likely time to implementation months due to need for adaptation of pipework and panels. Could trial now without filter in affected areas that aren't of clinical significance to allow testing for colonisation post-fit.
- Chlorine dioxide continuous low dosing - recommended but lead time of months due to size of system and need for bespoke injection kit.

3. **Other Actions**

- Sample portable sinks early next week to help inform the appropriateness of future use.
- Sampling to be undertaken next week on 4th floor in areas with flexible piping.
- IP and MK to consider external consultants (Hydrops) who may be able to provide expert advice on disinfection of hospital water systems.

Inkster, Teresa

From: Armstrong, Jennifer
Sent: 18 March 2018 16:51
To: Armstrong, Jennifer; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Grant, Jane [Chief Exec]; Redfern, Jamie; Mathers, Alan; Kane, Mary Anne; Powrie Ian (NHS GREATER GLASGOW & CLYDE); Dell Mark (NHS GREATER GLASGOW & CLYDE); Scott Sonya (NHS GREATER GLASGOW & CLYDE)
Subject: 18/03/18: midday call for update on RHC water incident:

All
Here are a few brief notes and actions from today's teleconference which involved GGC/HPS/HFS and Public Health England

1. Update regarding RHC
   a. All areas have correct communications in place and IC nurses have visited them with IC precautions in place.
   b. All areas have contingency plans in place and in control: no patients at present have been re-directed.
   c. Ward 2A had reported a few patients spiked temperatures with blood cultures sent to the lab.
   d. 3 cases with BC positive are **not** giving cause for concern at present.
   e. Patient due to be admitted this week for BMT from Edinburgh – **JR will link with BG to ascertain patient status and** [redacted] **if required.**
2. Update on control measure (with reference to HPS/NHS GGC/HFS and NHS E note sent out yesterday)
   a. The email from NHS E regarding bottled water and mobile sinks was discussed; it was confirmed that all BMT patients on sterile water; After some debate, it was accepted by all that a risk base assessment had been carried out by the IMT and it was agreed to retain the current arrangements.
   b. The filters are due to be fitted today and tomorrow; it was agreed that so long as these were fitted correctly, they should remove the bacteria; Although it was stressed this was a short term measure.
   c. There was discussion about further tests over the next 24 hours to give confidence that the negative results were consistent; the IMT would discuss the results further tomorrow. It was agreed that it would be better to wait an extra day or so, to be confident that the filters were working and that results were negative before resuming normal water use.
   d. There was much debate about the need to make longer term changes in terms of filters, shower heads, taps, water treatment and water testing and they would be discussed during this week to enable a clear plan to be developed.
   e. It is likely that the bacteria (aerobic) are near the end point of the distribution (outlets) rather than further back in the water supply with large air/water interfaces at risk,
3. Communication
   a. Staff and families have had adequate communication at present; it was updated at the huddle. It was felt this was sufficient for today but would have to be updated tomorrow following the IMT.
   b. Press reporting had been widespread using GGC statement with few further calls. However it was recognised that a further update maybe required tomorrow.
   c. It was suggested that the IMT could be brought forward to 12 midday if water tests were in to enable timely decisions to be made and clear messages for families and ward staff as well as press.

As always, if I have missed anything or got anything wrong, please correct.
Kind regards
Jennifer

From: Armstrong, Jennifer
Sent: 18 March 2018 11:47
To: Inkster, Teresa (NHSmail); Grant, Jane [Chief Exec]; Redfern, Jamie; Mathers, Alan; Kane, Mary Anne; Powrie,

Ian; Dell, Mark; Scott, Sonya
Subject: Re: [BlockedURL][ExternaltoGGC]Fw: cupriavidus pauculus URGENT

All
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Kind regards
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Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

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Regards

Ian

Ian Storrar
Principal Engineer - Health Facilities Scotland
Procurement, Commissioning and Facilities
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3rd Floor
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5 Cadogan Street
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G2 6QE

Tel (direct): [redacted]
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Sent from my iPhone

On 16 Mar 2018, at 15:18, ASHCROFT, Philip (NHS IMPROVEMENT - T1520) <philip.ashcroft1[redacted]> wrote:

Hello Ginny, Susanne, Elise and Tom

Have you had any experience with this particular problem and assisted Trusts in addressing it? If so any chance you could share anything you may have with Ian Storrar.

I'm afraid since I left DH I don't have access to my old contacts list or I would have dropped a note to Drs Michael Weinbrein and Michael Kelsey too.

Any help will be much appreciated by Ian.

Kind regards
Phil

Philip Ashcroft BEng (Hons) CEng CEnv MIMechE MIET | **Principal Engineer - Senior Policy and Strategy Lead (Hard FM)**
NHS Estates and Facilities Efficiency & Productivity Division
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1N11 Quarry House, Quarry Hill, Leeds LS2 7UE
NHS Improvement

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We support providers to give patients safe, high quality, compassionate care within local health systems that are sustainable.

From: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Sent: 16 March 2018 14:20
To: ASHCROFT, Philip (NHS IMPROVEMENT - T1520); 'Simon.Russell[redacted]'; Wilson, David (DoH)
Subject: cupriavidus pauculus URGENT
Importance: High

Guys

Do you have any experience in getting rid of cupriavidus pauculus

Regards

Ian
Ian Storrar
Principal Engineer - Health Facilities Scotland
Procurement, Commissioning and Facilities
NHS National Services Scotland
3rd Floor
Meridian Court
5 Cadogan Street
Glasgow
G2 6QE

Tel (direct): [redacted]
Mobile: [redacted]
Reception: [redacted]

Inkster, Teresa

From: Peter Hoffman <Peter.Hoffman[redacted]
Sent: 21 March 2018 16:32
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: filters

Hi Teresa

My view is the filters are an established technology with good production quality assurance. As long as water is not bypassing filtration (dribbling from the attachment point and around the filter) they can be taken as effective. I see no point in testing them - is this a test of the whole technology or each individual filter?

Regards
Peter

On 21 Mar 2018, at 08:55, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Hi Peter
>
> We are running a bit behind in relation to filters being fitted and testing of their efficacy. I was hoping to rely on one set of negative results from a shower and tap. Someone on the TC suggested three - I can't remember if that was yourself or someone else. Do you have a view on this ? My concern is that waiting for 3 negative results will take us into next week and will have continued impact on the clinical service
>
> Kind regards
>
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]

****
****

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Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 23 March 2018 17:30
To: Susanne Lee
Subject: Re: Glasgow water incident - request for assistance
Attachments: 2a incident BICC paper (1).docx; REPORT on Environmental Sampling of taps and showerheads on 2A and 4B (2).docx

Just trying to authorise a site visit. As a starting point see the attached paper I am taking to our Board Infection Control committee next week and a microbiology report in relation to the outlets.

I will get IMT minutes sent on as well. I need to try and get all the water reports into a single document for you so they will follow.

Will speak to estates colleagues re written schemes etc.

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 23 March 2018 16:42
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Glasgow water incident - request for assistance

Dear Teresa
I am only to happy to help, though I feel I am rather working in a bit of a vacuum , it would be helpful if you could bring me fully up to speed with the investigations to date.
There are alternatives and disinfection is never the be all and end all . The engineering needs to be optimised to ensure there is flow to all areas for any control measure to work. The biggest challenge seems to be to ensure all outlets are used on a regular basis. There are pros and cons with all treatment systems; There is no one panacea which fits all situationsI am assuming you are in a soft water area so silver / copper ionisation may be a viable alternative.
I would feel more comfortable with a site visit, advising in abstract is always a difficult job. Dr Weinbren advised me of the non water sites and he is going to send the references for me to send on to you tonight. There are now two papers now, one from the Netherlands and one from Spain. However, I would be unhappy with this approach though if there was also a C.diff problem.
If you decide to go ahead and use our consultancy services it would be useful to see the risk assessments and schemes of control, incident control team minutes etc. (I am state registered so confidentiality is ensured).
Dialysis and disinfection is always a tricky problem especially if there is not a separate mains supply to the dialysis units/ points and silver hydrogen dioxide is not an option.
Kind regards
Susanne

Dr Susanne Lee BSc.(Hons) PhD C.Biol. , FRSB, FRSPH.,FIHEEM,FWMSoc,
Director / Owner, Leegionella Ltd.
State Registered Clinical Scientist Reg. No. CS02982 (Microbiology) and
CUBS Trained Expert Witness
National and International Specialist Water Hygiene Advisory Services for the Healthcare and Travel Industry , Detection and Control of Waterborne Pathogens ; Auditing, and Training
Specialists in water safety plan development; incident / outbreak support and development of water safety guidelines at national and international level
Tel [redacted]
Mob [redacted]

For the European Technical Guidelines for the prevwntion, control and investigation of infectionctions caused by legionella see https://ecdc.europa.eu/en/publications-data/european-technical-guidelines-prevention-control-and-investigation-infections

Ltd supports Water Aid http://www.wateraid.org/uk/?gclid=COiOof3W1rYCFe3MtAod5moACQ
And
Médecin sans Frontières http://www.msf.org.uk/?gclid=CMTqoqXX1rYCFVMbtAodAVEAUg

From: "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)" [redacted]
Date: Friday, 23 March 2018 08:48
To: Susanne Lee [redacted]
Cc: "Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)" [redacted], "Kane Maryanne (NHS GREATER GLASGOW & CLYDE)" [redacted]
Subject: Glasgow water incident - request for assistance

Dear Susanne,

First of all, think you for all your advice so far in relation to the water incident we are currently dealing with , it is greatly appreciated. It is a complex and challenging incident and whilst we have brought the acute situation under control we have a lot to do with respect to future preventative measures. Following discussions with Dr Armstrong, Medical Director and Maryanne Kane, Interim Director of Facilities we would like to invite you to have a more formal role in assisting us going forward. Please let me now if you are able to help. I can put you in touch with our head of procurement to sort out the financial details.

I would envisage in the first instance we could set up some teleconferences. There are two aspects for discussion;

1) A review of the incident currently including a review of the hypothesis and is there anything more we could do in the short term
2) Longer term preventative measures focusing on tap/shower fittings and dosing perhaps with Chlorine dioxide or a different technology. I think the particular challenge will be with the dosing. I have experience of Chlorine dioxide and the Kemper system but not on this scale - we have a massive site with both our adult and paediatric hospitals affected. Do we need to consider an alternative and if so what would that be? We have emergency dialysis points coming of the mains so silver hydrogen peroxide not suitable unless we were to remove them.

If you are happy to assist please let me know what background info you require and I will send on.

As with any incident there is always learning and I am keen to do some more work locally in the future around water and BMT patients and how we minimise the risks even further . You mentioned a unit in Holland the other day who have removed water sources from patient rooms - do you have the details?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

****
****

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Yes more than happy Teresa .
Thankyou
Kind regards
Susanne

Sent from my iPhone

On 22 Mar 2018, at 18:23, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Hi Susanne. Just wondered if you would be interested in supporting us more formally moving forward. We are very keen for expert input in relation to future preventative measures. My Medical director has authorised remuneration. Let me know if you are interested and if so I will send a more formal email copying relevant colleagues in. We were thinking some teleconferences in the first instance
> Thanks
> Teresa
>
> Sent from my BlackBerry 10 smartphone on the EE network.
>
> **From:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Sent:** Wednesday, 21 March 2018 4:54 PM
> **To:** Susanne Lee
> **Subject:** Re: Water incident , Glasgow
>
> Yes they are PALL. Thanks for your help
>
> KR
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]
>
> **From:** Susanne Lee [redacted]
> **Sent:** 21 March 2018 16:24
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** Re: Water incident , Glasgow
>
> Which filters are you planning to use? If PALL their validation data is extensive and as long as you are using the sterilising grade and they fit well they are fine to go ahead.
> Best wishes
> Susanne
>
> Sent from my iPhone

On 21 Mar 2018, at 10:29, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> One final question for the moment. We were hoping to test efficacy of filters . Now we have dosed with silver hydrogen peroxide we have some counts down to zero and the outlets we have tested are 0 pre filter . Post filter results of 0 are therefore meaningless.
>
> In your experience of using point of use filters would you suggest we just fit them and allow patients to wash or should we be pursuing proof of efficacy first
>
> Kind regards
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 20 March 2018 18:29
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Water incident , Glasgow

Dear Teresa
Just a few thoughts
I've spoke to George and he is more than happy for you to call him, the taps you might want to consider are either the armitage shanks demountable taps they have a outlet shank with a screw fitting for the PALL filter and an interchangeable one without, or the Franke one which also is demountable.
ou might also consider removing TMVs (where it is safe to do) so as they readily become colonised too. I would advocate where you are changing outlets to take and replace the pipework back to the feed supply. Ensure that the fittings you use have not been tested with water by the manufacturer or (and probably a safer option) is to have a procedure for disinfecting components before they are inserted. We have a protocol in Belfast if that would be helpful I am sure George would be happy to share.
As I mentioned my expereine with silver hydrogen peroxide has not been good and I know you have had bette results in Scotland maybe because your water is softer and you don't get the scale matrix that harder waters do. Because silver hydrogen peroxide is such a good oxidising agent we have found when it is used for disinfection where there are established biofilms that it gets mopped up. Chlorine dioxide is used in many healthcare premises, as with any other system it would need a hyperchlorination before installing and the levels must be managed well to ensure that the regulatory levels (0.5 ppm total oxidants measured as CLO2) are not exceeded.
If you are looking at alternative filters look carefully to check they are sterilising grade 0.2 micron and CE marked. I would also from a due

diligence point of view check the validation data some of it is a bit vague from some manufacturers.
From a press point of view, and I'm sure George would say the same, you need to appoint someone to take the calls and manage the press who is not actively involved with investigating the outbreak so they don't become a distraction and a source of further stress.
I hope this is helpful
Kind regards
Susanne
Dr Susanne Lee BSc.(Hons) PhD C.Biol. ,
FRSB, FRSPH.,FIHEEM,FWMSoc,
Director / Owner, Leegionella Ltd.
State Registered Clinical Scientist Reg. No. CS02982 (Microbiology) and CUBS Trained Expert Witness
National and International Specialist Water Hygiene Advisory Services for the Healthcare and Travel Industry , Detection and Control of Waterborne Pathogens ; Auditing, and Training
Specialists in water safety plan development; incident / outbreak support and development of water safety guidelines at national and international level
Tel [redacted]
Mob [redacted]

For the European Technical Guidelines for the prevwntion, control and investigation of infectionctions caused by legionella see https://ecdc.europa.eu/en/publications-data/european-technical-guidelines-prevention-control-and-investigation-infections

<1417985A-AE03-4899-A8F8-5A407773FEEA[2].png>

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And
Médecin sans Frontières http://www.msf.org.uk/?gclid=CMTqoqXX1rYCFVMbtAodAVEAUg

From: "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)" [redacted]
Date: Tuesday, 20 March 2018 15:24
To: Susanne Lee [redacted]
Subject: Water incident , Glasgow

Susanne - I am leading the current investigation in Glasgow with regards to the water issue in the childrens hospital. I wondered if I could ask your advice and if there was a number I could call you on.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital

Inkster, Teresa

From: Susanne Lee [redacted]
Sent: 22 March 2018 22:14
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Microbiology results from water and taps

It is possible they have breached a pipe but all of these are Environmental orgs which have been isolated from Water before .
There are lots of questions I would like to ask you but I'm out of the office tomorrow for most of the day . Will you be around late afternoon.
Regards
Susanne

Sent from my iPhone

On 22 Mar 2018, at 21:46, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Me again! I have all the microbiology results back from water and taps. the list is below. Would you expect to be finding these in a hospital water supply? Looking at these I keep thinking soil and vegetation . A few months back we also had an increase in cystic patients with Exophilia another soil loving fungus- we traced the problem to contaminated dishwashers - water again. They have been digging up the front of the hospital to create an eco friendly pond - could they have breached a pipe?
>
> Cupariaivdus pauculus
> Sphingomonas paucimobilis
> Ochrobacterium anthropi
> Burkholderia species
> Commamonas
> Delfia Acidovorans
> Bevundimonas sp
> Rhodotorula mucalaginosa
> Fusarium sp
> Demataecious fungi
>
> KR
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]
>
> **From:** Susanne Lee [redacted]
> **Sent:** 22 March 2018 18:30
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** Re: Water incident , Glasgow

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 17 May 2018 18:56
To: Powrie Ian (NHS GREATER GLASGOW & CLYDE)
Cc: Kane, Mary Anne; Gallacher, Alan; Connelly, Karen; Purdon, Colin
Subject: Re: BMT filters

Happy to stop testing Ian.
Kr
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Powrie, Ian
Sent: Thursday, 17 May 2018 6:33 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Kane Maryanne (NHS GREATER GLASGOW & CLYDE); alan.gallache[redacted]; Connelly Karen (NHS GREATER GLASGOW & CLYDE); Purdon Colin (NHS GREATER GLASGOW & CLYDE)
Subject: RE: BMT filters

Teresa,

Do you still need to continue sampling in ward 2A, based on the guidance from Tom Makin & Susanne Lee's & the our come of the PALL failure report I would think we should now trust the accreditation details from the manufacturer, Perhaps we should discuss at tomorrow's IMT?

Regards

Ian

I. Powrie
Deputy General Manager (Estates)

Queen Elizabeth University Hospital Campus
1345 Govan Road
Laboratory Medicine & FM Centre
Glasgow
G51 4TF

PA [redacted]
Direct : [redacted]
Internal [redacted]
Mob: [redacted]

From: Powrie, Ian
Sent: 17 May 2018 16:02
To: Inkster, Teresa (NHSmail)
Cc: Gibson, Brenda (NHSmail); Redfern, Jamie
Subject: RE: BMT filters

Thanks Teresa,

I will instruct this as to follow on from last Fridays change as day 1.

Regards

Ian

I. Powrie
Deputy General Manager (Estates)

Queen Elizabeth University Hospital Campus
1345 Govan Road
Laboratory Medicine & FM Centre
Glasgow
G51 4TF

PA [redacted]:
Direct : [redacted]
Internal [redacted]
Mob: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 17 May 2018 11:13
To: Powrie, Ian
Cc: Gibson, Brenda (NHSmail); Redfern, Jamie
Subject: [ExternaltoGGC]BMT filters

Hi Ian - myself and Brenda discussed the 7 day filters in BMT and we will now move to 30 days in line with the expert opinion

Kind regards
Teresa
Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 10 June 2018 13:28
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

I agree! Thanks for your help. Will keep you updated.
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 1:26 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

I have a horrible feeling that some major replumbing may be necessary to solve this long term

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Sunday, June 10, 2018 1:24:19 PM
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Great thanks, I will call him. I found some recent literature where they used acetic acid weekly in an ICU following an outbreak of Pseudomonas.

Struggling to find anything re the commissioning process. The Scottish Govt have asked that same question and are awaiting info. Hugely concerning.

T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 1:18 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Splashing is a problem and the extent depends on the tap placement and sink design and the water pressure. The drains should be offset so that the outlet is not directly over the drain but inserting a filter will still bring the outlet closer to the drain. It's a real balance of risk. Are they cleaning the filters as in the video?
There are some Tandrup filters that can be moved to give more activity space but when I did some work for a Trust using them I discovered they were not fully validated.
There should be enough activity space to ensure hands can be washed without contaminating the filter .
Cleaning drains is a minefield and the effects tend to be only short lived. I'd recommend Talking to George about his experience using actichlor. It sounds as though there has been lots of waste disposal down the sinks (not surprising since the sluices are some distance away from some of the patient areas.
And no you should not be seeing such deterioration in such a short time. Do you know anything about the commissioning process?
Not sure if this helps
George's phone number . [redacted] and email

[redacted]

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Sunday, June 10, 2018 1:02 pm
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow
To: Susanne Lee [redacted]

OK thanks. We have a new issue with drains. Discovered after a spike in Enterobacter bacteraemias when staff reported black scum in the sink. Swabbed it and as expected lots of Gm negs. Started programme of drain cleaning but removal of drain shows thick black scum and erosion of aluminium spigot. So we need to replace. This doesn't seem right for a hospital that is three years old. The filters have led to increased splashing and im worried this is dislodging biofilm from drain and,aerosolisation. Do you have any experience of this? HFS have been talking to someone in PHE re this. I have sent memo to all staff re sink hygiene as I expect all sorts going down sinks, but worrying that they are in this state already
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 12:50 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Good but they should shock dose before continuous dosing and ensure they don't result in levels of chlorine dioxide including byproducts >0.5 ppm otherwise you will need to supply alternative drinking water . I would recommend they replace / clean and disinfect the TMVs too as these can get heavily colonised. Recent work I'm in the process of writing up has shown just replacing TMVS and outlets (no other interventions) significantly reduces the microbial load in the system.

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Sunday, June 10, 2018 11:33:43 AM
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

OK I will get back to you. Estates colleagues need to have plans finalised by Wednesday. Basically it will be continous and shock dosing with Chlorine dioxide, switching to marwick tap with copper bio guard (starting with high risk areas) and filters long term in haemonc/bmt. I will forward it to you later in the week
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 10:23 AM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Ok I'm glad you are moving forward. The earliest I could do would be the fifth of July. if they still want a meeting though I could manage a conference call before then I'm back on Thursday afternoon.

I guess it would be good to have an update so I can send a file note that there has been progress . It would help to demonstrate due diligence.
USA is all work ☺ two workshop presentations as pre APIC conference events. They are way behind here surprisingly.
Best wishes
Susanne

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Saturday, June 9, 2018 11:57:57 AM
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Hi, we had a meeting yesterday to discuss progress .I am trying to push for some decisions to be made rather than wait any longer so Im not sure visit will be needed. I think they wanted to discuss the final plan. Enjoy the USA!

Best wishes
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 08 June 2018 01:21
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Teresa I go to the USA on Saturday and then on annual Leave until the end of June [redacted]. I could make early July if that is any good for you but would like to know the purpose of the meeting. Is this with Tom senior or Junior?

Sent from my iPhone

On 4 Jun 2018, at 18:25, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> HI Susanne , hope you are well. See request below from our director of facilities .
> Kind regards
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]

From: Inkster, Teresa [redacted]
Sent: 04 June 2018 18:20
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

From: Hirst, Allyson
Sent: 04 June 2018 11:17
To: Inkster, Teresa
Subject: FW: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Teresa

I have tried to call Susanne no response and again tried to email but it keeps bouncing back as undeliverable – can you forward the email below?

Thanks

From: Hirst, Allyson
Sent: 04 June 2018 11:11
To: 'Susanne.Lee[redacted]
Subject: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Morning Susanne

I am trying to pull together a visit for yourself and Dr Tom Makin to visit Glasgow to assist further with our water issues.

I have had response from Dr Makin with the following availability and wondered if there was a date that you could be available on

- 25th June
- 26th June
- 27th June

- 28th June
- 2nd July
- 5th July
- 6th July
- 9th July
- 10th July
- 13th July

NHS staff will make themselves available should we find a date that suit you both.

Grateful if you could let me know so that I can make firm arrangements.

Kind Regards

Allyson Hirst| Admin to Interim Director of Property, Procurement and Facilities Management; Mary Anne Kane |

NHS Greater Glasgow and Clyde| JB Russell House| Gartnavel Royal Hospital | 1055 Great Western Road| Glasgow| G12 0XH

t: [redacted] **| e:** [redacted]

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Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 13 September 2018 17:46
To: Redfern, Jamie; Rodgers, Jennifer; Kane, Mary Anne; Gibson, Brenda; Kennedy, Iain; RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND); Devine, Sandra; Wilson, Andy; Dodd Susan (NHS GREATER GLASGOW & CLYDE); Connelly, Karen
Subject: Fw: drains

Importance: High

See below FYI

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 13 September 2018 17:38
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: drains

Dear Teresa
I am so sorry having to deal with this situation and concerned that, as you mentioned yesterday, the drains appear to be blocking and you are again seeing black gunge even after cleaning and disinfecting. As discussed I am aware of a few problems relating to drains in new hospital builds; in one case there was insufficient fall on the drains from sinks to the main drain (should look like a herringbone with a gradual fall), in another there was insufficient capacity, i.e the pipe size was not man enough for the job and in another builders debris left in the pipework . This is exacerbated when there is also use of disposable wipes and nappy liners which is quite likely in a children's unit with parents caring for their children. Experience with drain disinfection, is that it is only a very short term measure, it will not prevent further backflow and there is also a risk of encouraging microbial resistance.
The use of filters on small hand wash basins is also not ideal as there is insufficient activity space, and a real risk that splashback will contaminate the filters and sinks and then the hands and clothing of staff and patients.
Taking all this into account I sadly agree with you that in the interests of these very vulnerable patients that closing the unit and getting to the root cause of the problem is necessary. You have to take a precautionary approach for their sake. This will give some time to investigate the root cause; do a proper drain investigation and survey to investigate why the drains are blocking, it will also allow some time to replace drains, sinks and outlets where necessary .
I am around tomorrow in between appointments if you need further input.
Kind regards
Susanne

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 13 September 2018 17:16
To: Susanne Lee [redacted]
Subject: drains

HI Susanne

Further to our conversation yesterday we had a further IMT today. Staff continue to report issues with the drains and we now have 5 bacteraemias linked to the current incident.

I have today recommended decant of the unit as I am concerned we have not established the cause of the issue.

As per our conversation yesterday I have suggested a drain survey, use of scopes to look for blockages and continued cleaning.

This issue appears to be widespread throughout the childrens hospital

Is there anything else we should be doing ? Can you think of any reason why we might be having this issue with reflux of black material up the drains , just a few weeks after cleaning?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

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For more information and to find out how you can switch,
[illegible]

Inkster, Teresa

From: Susanne Lee [redacted]
Sent: 15 September 2018 19:42
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: drains

Yes you are right proven is the wrong word - strong association would be better. However if the patients affected went for compensation, I would be extremely surprised if the findings were not that on the balance of probabilities the drains and tap contamination would be the most likely cause. Maybe that thought might increase the willingness for the Trust to do something about it?

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Saturday, September 15, 2018 5:54:48 PM
To: Susanne Lee
Subject: Re: drains

Thanks

The difficulty with all of this is the 'proven' part. We have epidemiological links in time place and person , and positive drains swabs with issues noted. However we have yet to match any patient isolate with typing. You and me both know that in an environmental incident this does not mean there is no link and that there will be a multitude of different types but it is difficult to articulate that.

Sorry to disturb you on a weekend , Im catching up with other emails after a busy week

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 15 September 2018 15:03
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: drains

Hi Teresa
George has called me back re air handling requirements and they would expect 6-10 changes in a haematology oncology ward in line with the HTM (and SHTM). That there have been no infections in the adult wards with the same 3 changes of air handling however, suggests that this is unlikely to be the major factor in causing the HAIs. Black gunge and positive microbiology suggests there are nutrients supporting biofilm growth , if the pipework is plastic leaching of plasticisers may be contributing. I am also concerned then that there is an increased risk of microbial resistance transfer.

I still strongly advise that the Trust needs to get independent drain experts in to investigate the drains, to check for blockages, debris and to make sure the specifications are appropriate. As you have already proven a link between the drains and HAIs there is a clear risk to your very vulnerable patients . I agree with you that Patient safety has to take priority and transferring the patients whilst both the drain problem and the air handling is sorted.
I hope this helps
Susanne

Sent from my iPhone

On 15 Sep 2018, at 14:40, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Yes. I think I mentioned to you when you visited that there were ventilation issues with the new build. I was not involved but the spec was wrong. We have managed to upgrade transplant rooms but not the rest of the ward. There is a separate review of ventilation going on.
>
> Sent from my BlackBerry 10 smartphone on the EE network.
>
> **From:** Susanne Lee
> **Sent:** Saturday, 15 September 2018 2:33 PM
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** Re: drains
>
> Should have sent the shtm http://www.hfs.scot.nhs.uk/publications/1475762746-SHTM%2003-01%20V2%20Part%20A.pdf but the requirements are the same
>
> Sent from my iPhone
>
> On 15 Sep 2018, at 14:28, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:
>
> > Thanks. There are hepa filters in 8 of the 24 rooms ,where transplants take place.
> > Kr
> > Teresa
> >
> > Sent from my BlackBerry 10 smartphone on the EE network.
> >
> > **From:** Susanne Lee
> > **Sent:** Saturday, 15 September 2018 2:02 PM
> > **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> > **Subject:** Re: drains
> >
> > Teresa
> > Air handling is not my speciality but 3 seems far too low
> > see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/144029/HTM_03-01_Part_A.pdf#page97
> >
> > Whilst low air changes will not help it is not the root cause. I m sorry I don't know anything about chilled beam technology .

Re drains they need to find out if and where there is a blockage. If there was no back Up the problem would be much easier to cope with and the infectious aerosol route would be much reduced.
The Trust should have an AE ventilation who should be better qualified to advise on the HVAC side if things. I am awaiting a call back from an engineer who Might be able to update me on whether the chilled beam means less air changes are necessary. I'm assuming there are HEPA filters in these wards.

Sent from my iPhone

On 15 Sep 2018, at 11:05, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Hi Susanne
>
> We had further meetings yesterday and I just wanted to run something past you.
>
> There was a TC yesterday between estates colleagues and another water expert which I wasn't able to attend. The question of air changes in the rooms came up and there is a hypothesis that children are acquiring infections due to aerosolisation from the drains and a lack of sufficient air changes (we have 3 ach/hr in each room with chilled beam technology) to dilute the bacteria. It has been suggested that the reason we are not seeing issues in BMT patients is that the air changes in those rooms is higher.
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> We had discussed options for decant and one of the preferred options is to move general haem-onc children into a ward in the adult hospital and BMT children into the adult BMT unit. There has been concern expressed re moving patients from 3ach to a ward in the adult hospital with the same 3ach ,based on the hypothesis above
>
> For me , the major issue here is that there is a drain issue that we havent got to the bottom off and we need to establish why there is black gundge building up after cleaning and being visible in sinks. I believe the theory about aerosolisation from drains from splashing, in fact I mentioned it very early on in the investigation but reflux of material into a sink enhances the direct and indirect routes of transmission from patient and staff hands. We are not seeing this phenomenon in the adult hospital and to me there is greater risk in keeping children where they are as opposed to moving them to an adult ward with 3 air changes.
>
> There are other reasons why we are not seeing infections in BMT patients. These patients are not leaving the rooms and moving around the ward, there are extra infection control

precautions applied and they are likely to be on antibiotic prophylaxis.

Do you have a view on the air change issue ?

Call me if you need further clarification

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 13 September 2018 17:38
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: drains

Dear Teresa

I am so sorry having to deal with this situation and concerned that, as you mentioned yesterday, the drains appear to be blocking and you are again seeing black gunge even after cleaning and disinfecting. As discussed I am aware of a few problems relating to drains in new hospital builds; in one case there was insufficient fall on the drains from sinks to the main drain (should look like a herringbone with a gradual fall), in another there was insufficient capacity, i.e the pipe size was not man enough for the job and in another builders debris left in the pipework . This is exacerbated when there is also use of disposable wipes and nappy liners which is quite likely in a children`s unit with parents caring for their children. Experience with drain disinfection, is that it is only a very short term measure, it will not prevent further backflow and there is also a risk of encouraging microbial resistance.

The use of filters on small hand wash basins is also not ideal as there is insufficient activity space, and a real risk that splashback will contaminate the filters and sinks and then the hands and clothing of staff and patients.

Taking all this into account I sadly agree with you that in the interests of these very vulnerable patients that closing the unit and getting to the root cause of the problem is necessary. You have to take a precautionary approach for their sake. This will give some time to investigate the root cause: do a proper drain investigation and survey to investigate why the drains are

blocking, it will also allow some time to replace drains, sinks and outlets where necessary .

I am around tomorrow in between appointments if you need further input.

Kind regards

Susanne

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 13 September 2018 17:16
To: Susanne Lee <susannelee[redacted]
Subject: drains

HI Susanne

Further to our conversation yesterday we had a further IMT today. Staff continue to report issues with the drains and we now have 5 bacteraemias linked to the current incident.

I have today recommended decant of the unit as I am concerned we have not established the cause of the issue.

As per our conversation yesterday I have suggested a drain survey, use of scopes to look for blockages and continued cleaning.

This issue appears to be widespread throughout the childrens hospital

Is there anything else we should be doing ? Can you think of any reason why we might be having this issue with reflux of black material up the drains , just a few weeks after cleaning?

Kind regards
Teresa

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC

Training Programme Director Medical Microbiology

Dept of Microbiology

Queen Elizabeth University Hospital

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 15 September 2018 17:51
To: Peter Hoffman
Subject: Re: Question re ventilation and drains

Thanks Peter.

There is a theory that the application of filters has led to aerosolisation from the drains. There is some literature around this, By shortening the distance between the outlet and the drain with a filter in situ, there is increased splashing which it is felt disrupts biofim in the drain leading to aerosolisation of bacteria.

I have done some air sampling with taps running and not demonstrated this, but only from 3 sinks so far.

The initial cleaning of drains was done using Acitchlor plus and a brush agitation method to remove the grime . Children were removed from rooms whilst we did this The room was cleaned by domestics after , followed by HPV. We then took a drain apart and noted corroded spigots covered in black slime and replaced those with plastic. Armitage shanks have stopped making Aluminium spighots and this was a component that was not listed when the building was handed over. Patients were removed from the rooms when we did this also and it was followed by a domestic clean. That was around 8 weeks ago now. The weekly cleaning has not been established, only proposed. Although we have had to go back and reclean some of the drains in the ward due to recurrence of the issue using the Actichlor and brush method.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 15 September 2018 13:46
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Question re ventilation and drains

Hi Teresa

I think this is the start of a more extended email exchange. If it is, this is not a problem with me.

Your description is detailed - thank you. From that description I see the problem as direct and indirect dispersion from the drains but do not see aerosol spread as one of the transmission mechanisms.

I'm not sure I understand the spigots, but that's not important for this stage of things.

Ventilation: A range of particle sizes may be produced from a variety of activities related to the sinks. The larger the particle the more bacteria that particle can carry, but also the heavier it will be. It takes a lot of energy to break water up into the very particles that will go on to form aerosols - very light particles that behave almost as the gas within which they are suspended. I do not see activities related to sink use or cleaning as having the energy input to produce significant aerosols. I do see them as producing splashes and droplets, but these are heavy particles and will fall out of the air of their own accord. They do not need specialist ventilation to either contain or dilute them.

The bacteria in drains will be in profuse biofilm - thick layers of all manner of mixed microbes forming a continuous entity throughout the drainage system - lots of micro-environments. These are not susceptible to chemical disinfection (can't penetrate the slime layer) or removal - if a component such as a waste trap is cleaned or replaced, the biofilm beyond that will just grow back to colonise the cleaned/new component. This has to be addressed by containment and not elimination.

Two aspects concern me most. First, you detail drainage failures with reflux from the drainage system back into the basins. This will contain high numbers of all the microbes in the drains. Second, you refer to weekly cleaning of the drains (most probably the waste traps). This is not going to have a meaningful impact on the microbial contents of the drains but, depending on the method, is highly likely to transfer very high numbers of drain system microbes back into the clinical environment. The drains should be free flowing and not need cleaning. If a drain becomes occluded, cleaning it is a high risk procedure. How is this weekly drain cleaning done?

Perhaps be reluctant to correlate control measures and bacteraemias. These are probably more a measure of how compromised and vulnerable patients are than presence or absence of bacterial transfer

Hydrogen peroxide room disinfection will not penetrate drains and is a distraction. It may hit microbes dispersed from the drain a bit, but that is only at one time point in the week and will not prevent transmission if dispersion is constant or intermittent throughout the rest of the week. It is not a critical control measure.

Do please come back to me with your thoughts on how this applies to the local situation, corrections where I have misunderstood and details I have indicated.

Regards
Peter

On 15 Sep 2018, at 11:31, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Peter,
> Hope you are well. I have a question!
> You are aware of the water problem in Glasgow QEUH and RHC hospitals. The current issue we are dealing with is the drains in the childrens hospital. After we put the filters on we noted an increased incidence of both Enterobacter and Stenotrophomonas bacteraemias. Whilst undertaking environmental screeening nursing staff pointed out issue with the drains in the clinical wash hand basins - they were full of black gunge and in some sinks there was backflow into the sink. We grew a range of organisms from the drains as you would expect , including the aforementioned . We concluded that the drains were the likely source. On dismantling we found evidence of corrosion of the aluminium sphigot and build up of

biofilm . Drains were all cleaned out and the spighots removed and replaced. For 6 weeks we had no further bacteraemias. However over the past 2 weeks we have had further infections and staff reporting the drain issue again . It would appear that this involves not just the clinical HWB in the patients room but also trough sinks in the wards and the smaller sinks in patient bathrooms.

In addition to control measures for water and drains we implemented a range of infection control meaures including focusing on routes of transmission. Infection control practice on the ward is of a high standard and has been maintained. From an IC perspective I need an understanding of the underlying issues as we have run out of control options. It has been suggested we can carry on with weekly drain cleans and use HPV again but that does not take us to the root of the problem. At our IMT this week the recommendation was a decant of the ward to enable us to find out what the underlying issues are and conduct drain surveys, scoping etc.. I can no longer provide assurances to the clinical team that this unit is safe.

There was a TC yesterday between estates colleagues and a water expert which I wasn't able to attend. The question of air changes in the rooms came up and there is a hypothesis that children are acquiring infections due to aerosolisation from the drains and a lack of sufficient air changes (we have 3 ach/hr in each room with chilled beam technology) to dilute the bacteria. It has been suggested that the reason we are not seeing issues in BMT patients is that the air changes in those rooms is higher.

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There are other reasons why we are not seeing infections in BMT patients. These patients are not leaving the rooms and moving around the ward, there are extra infection control precautions applied and they are likely to be on antibiotic prophylaxis.

Do you have a view on the air change issue ? How likely is the hypothesis that the air changes are not providing rapid dilution of aerosolised bacteria from the drains and does this represent a risk in moving patients to an adult area with same air change rate but no reported drain issues.

Kind regards
Teresa

Dr Teresa Inkster
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Inkster, Teresa

From: Peter Hoffman [redacted]
Sent: 16 September 2018 22:12
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Question re ventilation and drains

Yes Teresa - the core approach should be to make sure that whatever is in the drains is on a one-way route out of the clinical environment and never comes back into it.

Nothing special about chilled beams - they are just a way of altering the temperature, but not the quality, of the air. (S)HTMs do not address the ventilation needed for highly immunocompromised patients. They need protecting against inhalation of fungal spores, typically originating from outdoor air. For their rooms, all air in them needs to have passed through a HEPA filter. The rooms should be at positive pressure so all gaps leak outwards, preventing the inward ingress of unfiltered air. Positive pressure without HEPA filtration is just an expensive way of channeling spores from outside to inside. The air change rate is irrelevant. You are not trying to dilute anything (just the patient's and staff normal flora - they will not give off fungal spores) but to exclude spores from outside. Three or six air changes - doesn't matter. Six air changes is the generally accepted level for temperature and odour control - no relevance to preventing infections.

Regards
Peter

On 16 Sep 2018, at 21:13, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Thanks Peter.
>
> So the most important thing here is to prevent drain contents coming back up the way in the first place...
>
> I have a question re ventilation . Outwith the BMT rooms we have chilled beam technology with 3 ACH for all our other haem-onc patients. 6 ACH are recommended in the SHTM for neutropenic rooms
>
> Is the theory behind chilled beams that you can reduce air changes but still have the same air quality?
>
> Kind regards
>
> Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 16 September 2018 20:47
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Question re ventilation and drains

Thanks Teresa. I have no problems with the Dutch and Spanish papers - yes links between multiresistant gram negs and drains but how the bacteria transfer is never clear. Lots of other papers similar.

The waste trap product: I've come across this before and it seems to be an expensive approach that, if drain contents can be prevented from coming back into the clinical environment, should not be necessary. If drainage is poor and there is reflux, then local disinfection may not help.

Would welcome the drain cleaning method, but what they do with all the equipment afterwards is very important. I still think that drains should not be cleaned routinely. I see no real benefit and only hazard.

Regards
Peter

On 16 Sep 2018, at 19:40, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Have a look at these papers and then this moveosiphon thing I was sent from a colleague.
>
> I will get back to you with the cleaning method - there is an SOP which I need to dig out
>
> KR
>
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow

Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 16 September 2018 14:55
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Question re ventilation and drains

Hi Teresa

Does the flow from the filters fall directly into the sink drains? If it does, this is unsafe. It will splash, not aerosolise, the drain contents back into the clinical environment. This would also be the case if no filters were fitted. If the flow hit the basin rather than the drain, I can't see how any drain contents would splash back, if drainage was adequate to allow flow away.

The hypochlorite used would not penetrate the biofilm so profuse contamination likely.

Could you send the the literature you refer around increased splashing and biofilm disruption so I can assess it please?

The drain cleaning worries me. Two aspects: 1 - Very substantial contamination of surfaces around the work area and possibly beyond. Cleaning this might spread it further. Hydrogen peroxide might not kill it. 2 - what cleaning equipment was used to do this (both the drain cleaning and the clear-up afterwards) and, if not single use, how was it decontaminated?

Regards
Peter

On 15 Sep 2018, at 17:50, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Thanks Peter.
>
> There is a theory that the application of filters has led to aerosolisation from the drains. There is some literature around this, By shortening the distance between the outlet and the drain with a filter in situ, there is increased splashing which it is felt disrupts biofim in the drain leading to aerosolisation of bacteria.
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Kind regards

Teresa

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Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

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Sent: 15 September 2018 13:46
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
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Kind regards
Teresa

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Glasgow
Direct dial : [redacted]

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Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 17 September 2018 20:04
To: Dodd Susan (NHS GREATER GLASGOW & CLYDE); RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND); STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND); Powrie Ian (NHS GREATER GLASGOW & CLYDE); Kane, Mary Anne; Connelly, Karen; Wilson, Andy; Gibson, Brenda; Kennedy, Iain; Somerville, Emma; Howat, Angela; Thomson, Kathleen; Rodgers, Jennifer; Armstrong, Jennifer; Redfern, Jamie; Hill, Kevin; Walsh, Tom; Joannidis, Pamela; Kerr, Liz
Subject: Fw: Question re ventilation and drains

Apologies, one of my actions from Fridays IMT was to email Peter Hoffman. We didn't have time to discuss today. There is a lengthy email trail, the conclusion is below. Happy to discuss at tomorrows IMT and full email trail at next water group meeting

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 16 September 2018 22:12
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Question re ventilation and drains

Yes Teresa - the core approach should be to make sure that whatever is in the drains is on a one-way route out of the clinical environment and never comes back into it.

Nothing special about chilled beams - they are just a way of altering the temperature, but not the quality, of the air. (S)HTMs do not address the ventilation needed for highly immunocompromised patients. They need protecting against inhalation of fungal spores, typically originating from outdoor air. For their rooms, all air in them needs to have passed through a HEPA filter. The rooms should be at positive pressure so all gaps leak outwards, preventing the inward ingress of unfiltered air. Positive pressure without HEPA filtration is just an expensive way of channeling spores from outside to inside. The air change rate is irrelevant. You are not trying to dilute anything (just the patient's and staff normal flora - they will not give off fungal spores) but to exclude spores from outside. Three or six air changes - doesn't matter. Six air changes is the generally accepted level for temperature and odour control - no relevance to preventing infections.

Regards
Peter

Inkster, Teresa

From: Loeb, Mark [redacted]
Sent: 08 October 2018 01:35
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Mertz, Dominik; Khan, Sarah
Subject: RE: Advice re drainage issue

Dear Teresa,
I am very sorry to hear about bacteraemias in your pediatric hematology unit being linked to drainage. Quite a while ago there were problems in the neonatal ICU and as I recall the traps had to be replaced. The issue we had was with pseudomonas and we had identical strains from patient samples and from the drains. I am not familiar however with the device that you are describing so I have copied Dr. Dominik Mertz who is now head of infection control, as well as Dr. Sarah Khan for insight.
All the best,
Mark

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: October-05-18 3:24 PM
To: Loeb, Mark [redacted]
Subject: Advice re drainage issue

Dear Mark

I was sent your contact details from a colleague and I hope you don't mind me contacting you

I am the lead infection control doctor and Consultant Microbiologist for the Queen Elizabeth and Sick Childrens hospitals in Glasgow

We are currently dealing with a significant incident involving bacteraemias in children in our haemato-oncology ward potentially linked to drainage issues.

I understand that you may have similar experience and in particular in the use of a device that can be fitted to drains that utilises high temperatures and vibration to minimise biofilm formation. Do you have any information that you can share with me?

Thanks

Kind regards

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Walter Kean [redacted]
Sent: 03 October 2018 13:16
To: Tom.Steele[redacted]
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Sink basin decontamination trap.

Tom see below

I do not know Mark Personally, but he would be the prime person to contact - he is a very nice man

See email below

Walt

Faculty & Staff Directory

Record ID: [redacted]

Search For: Mark Loeb

Name Mark Loeb Extension [redacted]

Title **Professor, Division Director**

Department Medicine

Sub Department Infectious Diseases Alt. Extension [redacted]

Building Michael G. DeGroote Centre for Learning Fax [redacted]

[redacted] Email [redacted]

Address 1280 Main St. W. Hamilton Ontario L8S 4K1 Web Site [redacted]

Last Update: Oct 12,2011

| [redacted] | [redacted]

Walter F Kean MBChB (Glas) MD (Glas) FRCP (Edin, Glas, C) FACR

Clinical Professor Medicine (Rheumatology)

McMaster University, Canada

On Wed, Oct 3, 2018 at 4:39 AM Steele, Tom [redacted] wrote:

Walt, do you have a contact within the Infection Control Team in Mac? My colleague Teresa Inkster is the Infection Control Doctor leading our incident and she is keen to have some discussion regarding what the clinical circumstances were.

Regards, Tom

Sent from my iPhone

On 2 Oct 2018, at 20:36, Walter Kean [redacted] wrote:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5377511/

Hi Tom

I have not found McMaster study yet but here is a parallel study

Will explore Mac study

Walt

Walter F Kean MBChB (Glas) MD (Glas) FRCP (Edin, Glas, C) FACR

Clinical Professor Medicine (Rheumatology)

McMaster University, Canada

On Tue, Oct 2, 2018 at 3:06 PM <wkean[redacted] wrote:

-----Original Message-----
From: Tom Steele
Sent: Tuesday, October 2, 2018 12:29 PM
To: Walter Kean
Subject: Sink basin decontamination trap.

Walt, I attended a meet today and the above slide was shown. I'm keen to know why this device was fitted and how it is performing in terms of controlling drain contamination.

Do you know any of the infection control staff who may have been involved?

****
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Inkster, Teresa

From: Steele, Tom
Sent: 11 October 2018 07:58
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: [ExternaltoGGC]Fw: Advice re drainage issue

Teresa thanks for sending this, I'm going to need a master class in all of this, or remedial class for one!

Could we discuss when you've got time some day?

Regards, Tom

Sent from my iPhone

On 10 Oct 2018, at 20:40, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> This is some info from Mcmaster. Fascinating work and a very aggressive approach to drain cleaning. The scenario is different from ours. These CPE organisms will originate from the patient and are likely easier to eradicate than the biofilm forming ones we are seeing. But there might be something here we could adopt moving forward
>
> Kind regards
>
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]
>
> ---
>
> **From:** Khan, Sarah [redacted]
> **Sent:** 10 October 2018 19:43
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** RE: Advice re drainage issue
>
> Hi Teresa
>
> Just attaching some info on drain cleaning (pertaining to CPE mainly). It was sent to me so I dont know some of the specific aspects but happy to put you in touch with others if needed.
>
> Thanks
> Sarah

<drain cleaning info.zip>

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 09 November 2018 13:57
To: Peter Hoffman
Subject: Re: ventilation question

Follow Up Flag: Flag for follow up
Flag Status: Completed

Thanks so much! Perfect timing, Im just about to attend a meeting to discuss. Will keep you posted
KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 09 November 2018 13:21
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: ventilation question

Hi Teresa

I'm well thanks. You too I hope?

Agree - HEPA filtration and positive pressure are precisely what this type of protective isolation are about. You are trying to protect these patients from fungal spore inhalation. These spores will be present in outdoor air. (Mould from damp in the ward is a separate and hopefully infrequent additional problem). To do this, you need to ensure that there is HEPA filtration of the supplied air and that this is the only air present in the room. This is done be supplying more air than is extracted, so the surplus air leaks out through all the gaps in the room's integrity. If clean air is passing outwards through these gaps, unfiltered air from surrounding areas cannot pass back. Job done

The air change rate determines the rate of dilution in the room, but what needs dilution? The air in the room will have mainly the patient's own microbes and a few from staff skin. Neither of these present a risk.

These rooms are about exclusion, not dilution. The pressures are not that important as long as all the airflow is out of the room.

This sorted?

Regards
Peter

On 8 Nov 2018, at 17:44, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

Hi Peter

Hope you are well
I have another question for you, ventilation related!

We recently decanted our paediatric haemato-oncology ward at the centre of the water incident to enable us to strip out sinks, taps etc . We then took the opportunity to review the ventilation .

We have a 24 bedded unit with 8 rooms designated for bone marrow transplant. We have 4 HEPA filtered with rooms with air changes of 10/hr and positive pressure of 10pa. They have anterooms but we have no HEPA filtration in the corridor . The other 4 are PPVL rooms which hopefully we will upgrade at a later date.

The rest of the ward however appears to have rooms at a slightly negative pressure with 3 ach/hr and chilled beam technology. I have asked for the pressures to be clarified by the external engineer.

On checking the adult haematology ward (non BMT) with John Hood and his micro anemometer we appear to have a similar issue.

So basically I think I have 2 haemato-oncology wards with an unsafe environment

Clearly all this needs verified but my question is , outwith bone marrow transplant what is the desired spec for haemato-oncology patient rooms?

These patients are undergoing intensive chemo and will present with neutropenic sepsis.

Do we aim for the SHTM 0301 neutropenic room spec of 10 ach/hr and 10 pa ? Increasing air changes will be a challenge but my feeling is achieving a positive pressure and HEPA filtration is more of a priority.

Any thoughts?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

****
****

Inkster, Teresa

From: Walsh, Tom
Sent: 22 November 2018 09:15
To: Powrie, Ian; Inkster, Teresa
Subject: Fw: [BlockedURL][ExternaltoGGC]RE: Whb Drainage
Attachments: PHE study (CRE dispersal from sinks).docx; Designing Out Too (GMoore).pdf

Hi Ian

Please find attached the documents from Dr Moore.

Please also note the request for restricted access below.

Kr

Tom

Sent from my BlackBerry 10 smartphone on the EE network.

From: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Sent: Thursday, 22 November 2018 08:23
To: Walsh, Tom
Cc: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: [BlockedURL][ExternaltoGGC]RE: Whb Drainage

Tom

Please provide the two documents as requested.
Dr Moore has requested that as the study is under review these should be considered as draft documents and she is happy for the documents to be read but they are not for wider or onward circulation at this time. To that end can I ask that you restrict circulation to appropriate colleagues please with a note that they should not be copied or distributed.

Regards

Ian

Ian Storrar BSc CEng FCIBSE
Head of Engineering - Health Facilities Scotland
Procurement, Commissioning and Facilities

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From: Walsh, Tom [redacted]
Sent: 20 November 2018 16:14
To: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Cc: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: FW: Whb Drainage

Hi Ian

Grateful if you could provide the update as requested below?

Many thanks

Tom

From: Powrie, Ian
Sent: 20 November 2018 16:12
To: Walsh, Tom
Cc: Kane, Mary Anne; Steele, Tom; Gallacher, Alan; Inkster, Teresa
Subject: Whb Drain age

Tom,

Can you please ask Ian Storrar to provide a formal update from Dr Ginny Moore (Public Health England) with regards to the research on our behalf into clinical Whb Drain splashing and dispersal of microbiological contamination?
I would like to utilise Dr Moores finding as a baseline for our internal proof of concept for the Whb configuration currently being installed in ward 2b, I will be supporting Dr Teresa Inkster in assessing any improvements from the adoption of the Contour 21 Plus Whb and Markwik 21 tap configuration.

I believe that Dr Moore presented findings of this research at a recent Water Management Society conference and believe that this would assist our analysis?

I have added this topic to Fridays WTG meeting and would be grateful if Ian provide an update for this meeting?

Regards

Ian

I. Powrie
Deputy General Manager (Estates)

Queen Elizabeth University Hospital Campus
Property, Procurement & Facilities Management Directorate
Facilities Corporate Services Dept
CMB Building
Glasgow

G51 4TF

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Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 December 2018 15:14
To: Peter Hoffman
Subject: Re: Cryptococcal cases

Ok I will arrange that
Thanks
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 21 December 2018 15:05
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Cryptococcal cases

Hi Teresa,

The water aspect: If it is there, it may be highly dilute. This is not an area I know much about but are there ways (filtration?) of concentrating a large water sample to look for it?

If there was a contamination event a couple of months back, it's all likely to be diluted out of existence by now. Poor covering of a water tank in a bird infected area may be all the evidence you can get. This probably means getting someone up a ladder in the plant room.

A great Christmas to you too.

Regards,
Peter

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 December 2018 14:54
To: Peter Hoffman
Subject: Re: Cryptococcal cases

Thanks Peter, I will get this all checked out. The haematology patients concerned have not been in a positive pressure room.

We have been doing a lot of water testing due to ongoing water incident , interestingly we have noted a lot of fungus - I will get them to specifically check for Cryptococcus

Hope you have a great Christmas

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 21 December 2018 14:41
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Cryptococcal cases

Hi Teresa,

Agree with your suspicions

A few thoughts:

Buildings are rarely completely sealed. Might there be gaps around the outer edges of windows? In the absence of smoke to detect those leaks, how does it feel on a windy day – any ingress of air around the windows. Are the patient rooms at any particular pressure (sure we've discussed this but I can't recall)?

There's always the possibility of dust from disintegrating droppings entering ventilation systems. Maybe ask to what level is the air is filtered and whether there is a possibility of air bypassing filtration via gaps between filters or around their edges. Does the air enter the relevant air handling unit directly from outside or is it drawn from the plant room?

You refer to evidence of birds in plant rooms. Are water tanks covered adequately to prevent any contamination from droppings or dead birds?

Regards.
Peter

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 December 2018 10:25
To: Peter Hoffman
Subject: Cryptococcal cases

Me again!

I have two cases of Cryptococcal neoformans in blood cultures , 17 days apart in haematology patients

Both inpatients for some time before positive results so considered hospital acquired.The child has been in since August and sadly passed away with PM samples confirming disseminated infection

Its classically found in bird droppings and we have had issues on the site with pigeons . We have have had to fit nets and spikes on some window sills

Walking around there are droppings on window ledges and in the rooftop plant room droppings and feathers visible. Pest control have been called recently to remove a bird from there.

I had an Incident management team yesterday to discuss. Estates colleagues tell me the building is sealed and there is no way for droppings to get in windows etc .Also that there is no way for them to enter a ventilation system.

I tend to disagree.

I have two HAIs of a rare infection classically found in bird droppings with visible evidence of a bird issue ,so at the moment a link to birds is my strongest hypothesis.

Do you have any experience of this or any thoughts?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

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Inkster, Teresa

From: Peter Hoffman [redacted]
Sent: 08 January 2019 11:01
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Hood, John
Subject: RE: ventilation question

Follow Up Flag: Flag for follow up
Flag Status: Completed

Happy new year to you too Teresa.

Forgive me if I address questions wider than your specific one (but that will be in there somewhere).

This is about protection of haematology patients. This group of patients is unusual in that it contains individuals with severely compromised immunity who require protection from infection from an unusual source – fungal spores derived from outdoor air. This is not addressed in guidance, either SHTM 03-01 or (I can't find the Scottish equivalent SHPN4 supplement 1) HBN4 supplement 1 (from executive summary "1.6 This Health Building Note does not describe the specialist facilities required in high security infectious disease units, isolation wards for cohorting groups of infectious patients, protective isolation for severely immuno-compromised patients, critical care areas and special care baby units.").

I think the recommendations you sent me may be based on what was considered the nearest "best fit" guidance rather than from first principles addressing this specific problem. It uses the figures from SHTM 03-01 part A Appendix 1 which are "recommended" air change rates but not evidence based and the applications are poorly described. I know the main author is unhappy with this section and think it is best treated as a starting point for a thought process, rather than definitive guidance in itself. There is no guidance here for isolation rooms for neutopaenic patients (oddly only for such wards).

What is necessary for these specific isolation rooms is that 100% of the air the patient breathes has passed through a HEPA filter. This can only be achieved by supplying HEPA filtered air in substantial excess to any extraction from that room (and no opening windows). That excess air passes outwards through the inevitable gaps in the integrity of the room. If air is passing outwards, it means that unfiltered air in surrounding areas cannot pass inwards, hence only fungal spore free HEPA filtered air will be present. This is a constant requirement and has to take priority.

Protection of these patient from airborne infection from other patients is a more minor consideration – most such infection will be in droplets which will fall rapidly out of the air in the room in which they are generated. If there is a truly airborne element in the very occasional infection, then each patient in a ventilated room will in effect be in their own protective positively pressured bubble. Perhaps starting afresh there could be more complex approaches but from what I read as your current position, this will provide good protection in those occasional situations.

With this patient group, there is a requirement to exclude airborne contamination; there is no requirement to dilute airborne contamination. The airborne microbes in a patient's room will be their own skin microflora and that of the staff and visitors. These are not a risk. The air change rate is for patient comfort – temperature control and dilution of odours. I do not see patient protection as a valid reason to increase air supply rates in the ward in question.

My comments on section of the report are below with passaged of interest highlighted in red and my comments [*in red in brackets*].

3.01 "Bedrooms were apparently designed and commissioned to operate under a slightly negative pressure relative to adjacent Corridors". [*This is a fundamental problem*]

3.02 (below table) "Air volumes above are related to increasing air change rates only, and are not intended to rectify any potential problems associated with the current ventilation strategies, in terms of positive/negative differential pressures" [*I see this as addressing an incidental perceived problem and not related to patient safety*]

4.01 "The AHU was manufactured in accordance with Class B leakage standard". [*The ductwork and sections of AHU will be under negative pressure before the fan and positive pressure after – it will leak inwards before the fan and outwards after. No matter what standard the AHU was manufactured to, its integrity will degrade over years of use. It is important that the final filters are located after the fan – that way any air ingress will be before the final filter. If the final filter is before the fan, there will be an AHU section under negative pressure after the final filter. I have found high fungal spore loads in the air supplied by such systems. This is of some importance with the system now, but vitally important if HEPA filters are to be installed*].

6.02 "**6.03 Enhanced Single Rooms (Positive Pressure)** In the absence of providing numerous positive pressure ventilated lobbies [*These are irrelevant and should not be considered*], and with a view to improving patient protection from infection, we recommend consideration be given to creating a positive pressure directly within each Bedroom space (i.e. all Mid-Ward & TCT). This strategy would typically involve the delivery of supply air directly into each Bedroom with air cascading into the adjacent Corridor(s), where a lower/negative pressure would be maintained, whilst also extracting a proportion of air via the associated En-Suite. This strategy would also necessitate air transfer facilities between the TCT and Ward 2A Corridors. [*This only works if the air is HEPA filtered*]
It should be emphasised that this option would not afford comprehensive Isolation Suite facilities, nor be deemed completely appropriate to provide adequate protection for use by immune-compromised patients [*I cannot follow this logic. This is an isolation requirement distinct from that in SHPN4 suppl 1*]. However, we believe it would essentially provide Enhanced Single Room (with En-Suite facilities) accommodation more appropriate for the intended purpose"

6.02 "The potential use of HEPA filters, which could be installed centrally within the AHU or locally to each supply air terminal". [*If I have understood the patient group correctly, I see this as essential rather than potential*].

Now to the thermal wheel. This is a rotating honeycomb, the material of which absorbs heat (or "coolth") from the outflowing air and passes that on to the incoming air. Reasonable background in:
https://en.wikipedia.org/wiki/Thermal_wheel "Disadvantages: Thermal wheels are not suitable for use where total separation of supply and exhaust air streams is required, since air will bypass at the interface between the air streams at the heat exchanger boundary, and at the point where the wheel passes from one air stream to the other during its normal rotation. The former is reduced by brush seals, and the latter is reduced by a small purge section, formed by plating off a small segment of the wheel, normally in the exhaust air stream."

Whilst the SHTM 03-01 part A says "4.144 For systems in healthcare premises, a plate heat exchanger or 'run-around coil' system is suitable. Thermal wheels may be used providing they are fitted with a purge sector. The small amounts of air leakage across those devices are not considered significant." my take on this is that this is for general, rather than specialist systems, which have to be considered on a case-by-case basis. There is no mention of a purge section in the existing wheel. If the wheel were located prior to the final filter, I don't think there is a problem.

If I have understood the patient group correctly, I see the requirement for HEPA filtration and positive pressure in rooms (not lobbies) to be a priority over increasing air change rates. My preference would be to have the HEPAs as a third set of filters in the AHU rather than terminal in each room. This will require a far more powerful AHU fan than is likely to be there at present. This is outline and I'd be happy to discuss detail should matters progress.

Happy to discuss further.

Regards,

Peter

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 07 January 2019 21:54
To: Peter Hoffman
Cc: John.Hood[redacted]
Subject: ventilation question

Confidential

Hi Peter, Happy New Year!

I have yet another ventilation question! The attached report is from our paediatric haemato-oncology ward. The patients have been decanted to another area until we can upgrade this ward.

At the bottom of the page 1 summary there is reference to extract ductwork distribution and an abnormal strategy. I am told that the hospital utilises thermal wheel technology which is acceptable as per HTM and that this is not a design error as such.

I am struggling to understand how this could be acceptable ? How are thermal wheels related to the ductwork distribution ? Do we have two separate issues here? I am worried this may be duplicated elsewhere within the building but have been assured this design is acceptable.. can you help?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

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Inkster, Teresa

From: Peter Hoffman [redacted]
Sent: 18 January 2019 16:15
To: Peters, Christine; Kennedy, Iain
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Steele, Tom
Subject: OFFICIAL: RE: Call to Peter hoffman

Follow Up Flag: Flag for follow up
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OFFICIAL

Hi Cristine,

Very minor changes;

1. a clear schemata of which AHUs supply which wards of interest
2. F7 filter manufacturer details re pressure norms across filter – *minimum* pressure differential values for clean filters at the flow rate used.
3. Records of pressures across f7 filters - i.e. look for pressures below manufacturer's specifications on installation (clean filters) to help assess the possibility of gaps both lowering the pressure differential and allowing preferential passage of unfiltered air through gaps
4. Records of filter changes – is this the event that may have coincided with patient exposure?
5. Are the pressures across the final filters recorded on the BMS?
6. Smoke testing of the gaps in the integrity of the rooms in which patients affected were in to assess possible in flow of air from void (assuming air from plant room is in communication with void hence a possible route from plant room into rooms of cryptococcal infectious particles)
7. SOPs for filter exchanges
8. He suggested particle counting pre and post F7 filter using "PITOT traverse access points" post filter and drilling a hole to do similar pre F7 filter in AHU
9. A risk assessment re turning off AHU for half an hour to properly visualise and assess possibility of gaps in F7 filter installation in the relevant AHUs.

Regards,
Peter

From: Peters, Christine [redacted]
Sent: 18 January 2019 15:49
To: Kennedy, Iain [redacted]
Cc: Inkster, Teresa (NHSmail) [redacted]; Steele, Tom [redacted]; Peter Hoffman [redacted]
Subject: RE: Call to Peter hoffman

Hi Ian,
I am just off the phone from Peter, to clarify information re the plant room and AHU.

I think it will be worth having a further call with him and estates when we have all the information required:

1. a clear schemata of which AHU supply which wards
2. F7 filter manufacturer details re pressure norms across filter
3. Records of pressures across f7 filters
4. Records of filter changes
5. Are the pressures recorded on the BMS?

6. Smoke testing of the rooms in which patients affected were in to assess possible in flow of air from void (assuming air from plant room is in communication with void hence a possible route from plant room into rooms of cryptococcal infectious particles)
7. SOPs for filter exchanges
8. He suggested particle counting pre and post F7 filter using "PITOT traverse access points" post filter and drilling a hole pre filter in AHU
9. A risk assessment re turning off AHU for half an hour to properly visualise and assess possibility of gaps in filters.

Peter does that seem like a fair summary ?

Kr

Christine

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

From: Kennedy, Iain
Sent: 18 January 2019 15:29
To: Peters, Christine
Cc: Inkster, Teresa (NHSmail); Steele, Tom
Subject: Call to Peter hoffman
Importance: High

Hi

Just in the IMT we were wanti.g to check qhwn/where call to Peter is, so a facilities colleague can join

Iain

Sent from my BlackBerry 10 smartphone.

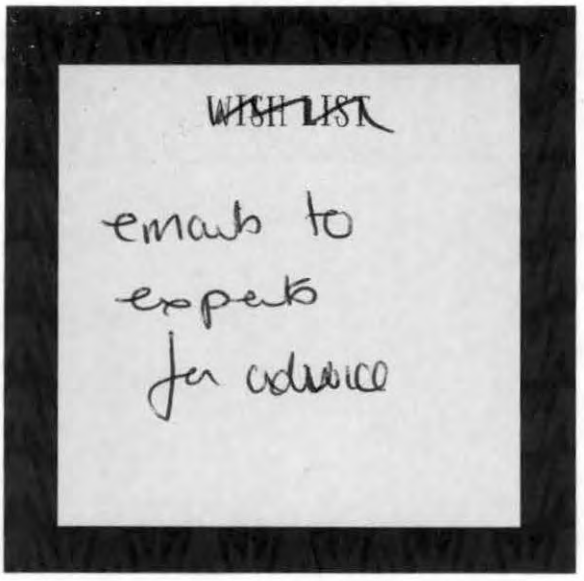
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WISH LIST
emails to
experts
for advice

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 23 March 2018 17:30
To: Susanne Lee
Subject: Re: Glasgow water incident - request for assistance
Attachments: 2a incident BICC paper (1).docx; REPORT on Environmental Sampling of taps and showerheads on 2A and 4B (2).docx

Just trying to authorise a site visit. As a starting point see the attached paper I am taking to our Board Infection Control committee next week and a microbiology report in relation to the outlets.

I will get IMT minutes sent on as well. I need to try and get all the water reports into a single document for you so they will follow.

Will speak to estates colleagues re written schemes etc.

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 23 March 2018 16:42
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Glasgow water incident - request for assistance

Dear Teresa
I am only to happy to help, though I feel I am rather working in a bit of a vacuum , it would be helpful if you could bring me fully up to speed with the investigations to date.
There are alternatives and disinfection is never the be all and end all . The engineering needs to be optimised to ensure there is flow to all areas for any control measure to work. The biggest challenge seems to be to ensure all outlets are used on a regular basis. There are pros and cons with all treatment systems; There is no one panacea which fits all situationsI am assuming you are in a soft water area so silver / copper ionisation may be a viable alternative.
I would feel more comfortable with a site visit, advising in abstract is always a difficult job. Dr Weinbren advised me of the non water sites and he is going to send the references for me to send on to you tonight. There are now two papers now, one from the Netherlands and one from Spain. However, I would be unhappy with this approach though if there was also a C.diff problem.
If you decide to go ahead and use our consultancy services it would be useful to see the risk assessments and schemes of control, incident control team minutes etc. (I am state registered so confidentiality is ensured).
Dialysis and disinfection is always a tricky problem especially if there is not a separate mains supply to the dialysis units/ points and silver hydrogen dioxide is not an option.
Kind regards
Susanne

Dr Susanne Lee BSc.(Hons) PhD C.Biol. , FRSB, FRSPH.,FIHEEM,FWMSoc,
Director / Owner, Leegionella Ltd.
State Registered Clinical Scientist Reg. No. CS02982 (Microbiology) and
CUBS Trained Expert Witness
National and International Specialist Water Hygiene Advisory Services for the Healthcare and Travel Industry , Detection and Control of Waterborne Pathogens ; Auditing, and Training
Specialists in water safety plan development; incident / outbreak support and development of water safety guidelines at national and international level
Tel [redacted]
Mob [redacted]

[redacted]

[redacted]

From: "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)" [redacted]
Date: Friday, 23 March 2018 08:48
To: Susanne Lee [redacted]
Cc: "Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)" [redacted], "Kane Maryanne (NHS GREATER GLASGOW & CLYDE)" [redacted]
Subject: Glasgow water incident - request for assistance

Dear Susanne,

First of all, think you for all your advice so far in relation to the water incident we are currently dealing with , it is greatly appreciated. It is a complex and challenging incident and whilst we have brought the acute situation under control we have a lot to do with respect to future preventative measures. Following discussions with Dr Armstrong, Medical Director and Maryanne Kane, Interim Director of Facilities we would like to invite you to have a more formal role in assisting us going forward. Please let me now if you are able to help. I can put you in touch with our head of procurement to sort out the financial details.

I would envisage in the first instance we could set up some teleconferences. There are two aspects for discussion;

1) A review of the incident currently including a review of the hypothesis and is there anything more we could do in the short term
2) Longer term preventative measures focusing on tap/shower fittings and dosing perhaps with Chlorine dioxide or a different technology. I think the particular challenge will be with the dosing. I have experience of Chlorine dioxide and the Kemper system but not on this scale - we have a massive site with both our adult and paediatric hospitals affected. Do we need to consider an alternative and if so what would that be? We have emergency dialysis points coming of the mains so silver hydrogen peroxide not suitable unless we were to remove them.

If you are happy to assist please let me know what background info you require and I will send on.

As with any incident there is always learning and I am keen to do some more work locally in the future around water and BMT patients and how we minimise the risks even further . You mentioned a unit in Holland the other day who have removed water sources from patient rooms - do you have the details?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

****
****

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Yes more than happy Teresa ,
Thankyou
Kind regards
Susanne

Sent from my iPhone

On 22 Mar 2018, at 18:23, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Hi Susanne. Just wondered if you would be interested in supporting us more formally moving forward. We are very keen for expert input in relation to future preventative measures. My Medical director has authorised remuneration. Let me know if you are interested and if so I will send a more formal email copying relevant colleagues in. We were thinking some teleconferences in the first instance
> Thanks
> Teresa
>
> Sent from my BlackBerry 10 smartphone on the EE network.
>
> **From:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Sent:** Wednesday, 21 March 2018 4:54 PM
> **To:** Susanne Lee
> **Subject:** Re: Water incident , Glasgow
>
> Yes they are PALL. Thanks for your help
>
> KR
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]
>
> **From:** Susanne Lee [redacted]
> **Sent:** 21 March 2018 16:24
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** Re: Water incident , Glasgow
>
> Which filters are you planning to use? If PALL their validation data is extensive and as long as you are using the sterilising grade and they fit well they are fine to go ahead.
> Best wishes
> Susanne
>
> Sent from my iPhone

On 21 Mar 2018, at 10:29, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> One final question for the moment. We were hoping to test efficacy of filters . Now we have dosed with silver hydrogen peroxide we have some counts down to zero and the outlets we have tested are 0 pre filter . Post filter results of 0 are therefore meaningless.
>
> In your experience of using point of use filters would you suggest we just fit them and allow patients to wash or should we be pursuing proof of efficacy first
>
> Kind regards
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology.
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 20 March 2018 18:29
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Water incident , Glasgow

Dear Teresa
Just a few thoughts
I've spoke to George and he is more than happy for you to call him, the taps you might want to consider are either the armitage shanks demountable taps they have a outlet shank with a screw fitting for the PALL filter and an interchangeable one without, or the Franke one which also is demountable.
ou might also consider removing TMVs (where it is safe to do) so as they readily become colonised too. I would advocate where you are changing outlets to take and replace the pipework back to the feed supply. Ensure that the fittings you use have not been tested with water by the manufacturer or (and probably a safer option) is to have a procedure for disinfecting components before they are inserted. We have a protocol in Belfast if that would be helpful I am sure George would be happy to share.
As I mentioned my expereine with silver hydrogen peroxide has not been good and I know you have had bette results in Scotland maybe because your water is softer and you don't get the scale matrix that harder waters do. Because silver hydrogen peroxide is such a good oxidising agent we have found when it is used for disinfection where there are established biofilms that it gets mopped up. Chlorine dioxide is used in many healthcare premises, as with any other system it would need a hyperchlorination before installing and the levels must be managed well to ensure that the regulatory levels (0.5 ppm total oxidants measured as CLO2) are not exceeded.
If you are looking at alternative filters look carefully to check they are sterilising grade 0.2 micron and CE marked. I would also from a due

diligence point of view check the validation data some of it is a bit vague from some manufacturers.
From a press point of view, and I'm sure George would say the same, you need to appoint someone to take the calls and manage the press who is not actively involved with investigating the outbreak so they don't become a distraction and a source of further stress.
I hope this is helpful
Kind regards
Susanne
Dr Susanne Lee BSc.(Hons) PhD C.Biol. ,
FRSB, FRSPH.,FIHEEM,FWMSoc,
Director / Owner, Leegionella Ltd.
State Registered Clinical Scientist Reg. No. CS02982 (Microbiology) and CUBS Trained Expert Witness
National and International Specialist Water Hygiene Advisory Services for the Healthcare and Travel Industry , Detection and Control of Waterborne Pathogens ; Auditing, and Training
Specialists in water safety plan development; incident / outbreak support and development of water safety guidelines at national and international level
Tel [redacted]
Mob [redacted]

For the European Technical Guidelines for the prevwntion, control and investigation of infectionctions caused by legionella see
https://ecdc.europa.eu/en/publications-data/european-technical-guidelines-prevention-control-and-investigation-infections

<1417985A-AE03-4899-A8F8-5A407773FEEA[2].png>

Ltd supports Water Aid http://www.wateraid.org/uk/?gclid=COiOof3W1rYCFe3MtAod5moACQ
And
Médecin sans Frontières http://www.msf.org.uk/?gclid=CMTqoqXX1rYCFVMbtAodAVEAUg

From: "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)" [redacted]
Date: Tuesday, 20 March 2018 15:24
To: Susanne Lee [redacted]
Subject: Water incident , Glasgow

Susanne - I am leading the current investigation in Glasgow with regards to the water issue in the childrens hospital. I wondered if I could ask your advice and if there was a number I could call you on.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital

Inkster, Teresa

From: Susanne Lee [redacted]
Sent: 22 March 2018 22:14
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Microbiology results from water and taps

It is possible they have breached a pipe but all of these are Environmental orgs which have been isolated from Water before .
There are lots of questions I would like to ask you but I'm out of the office tomorrow for most of the day . Will you be around late afternoon.
Regards
Susanne

Sent from my iPhone

On 22 Mar 2018, at 21:46, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Me again! I have all the microbiology results back from water and taps. the list is below. Would you expect to be finding these in a hospital water supply? Looking at these I keep thinking soil and vegetation . A few months back we also had an increase in cystic patients with Exophilia another soil loving fungus- we traced the problem to contaminated dishwashers - water again. They have been digging up the front of the hospital to create an eco friendly pond - could they have breached a pipe?
>
> Cupariaivdus pauculus
> Sphingomonas paucimobilis
> Ochrobacterium anthropi
> Burkholderia species
> Commamonas
> Delfia Acidovorans
> Bevundimonas sp
> Rhodotorula mucalaginosa
> Fusarium sp
> Demataecious fungi
>
> KR
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 22 March 2018 18:30
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Water incident , Glasgow

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 10 June 2018 13:28
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

I agree! Thanks for your help. Will keep you updated.
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 1:26 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

I have a horrible feeling that some major replumbing may be necessary to solve this long term

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Sunday, June 10, 2018 1:24:19 PM
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Great thanks, I will call him. I found some recent literature where they used acetic acid weekly in an ICU following an outbreak of Pseudomonas.

Struggling to find anything re the commissioning process. The Scottish Govt have asked that same question and are awaiting info. Hugely concerning.

T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 1:18 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Splashing is a problem and the extent depends on the tap placement and sink design and the water pressure. The drains should be offset so that the outlet is not directly over the drain but inserting a filter will still bring the outlet closer to the drain. It's a real balance of risk. Are they cleaning the filters as in the video?
There are some Tandrup filters that can be moved to give more activity space but when I did some work for a Trust using them I discovered they were not fully validated.
There should be enough activity space to ensure hands can be washed without contaminating the filter .
Cleaning drains is a minefield and the effects tend to be only short lived. I'd recommend Talking to George about his experience using actichlor. It sounds as though there has been lots of waste disposal down the sinks (not surprising since the sluices are some distance away from some of the patient areas.
And no you should not be seeing such deterioration in such a short time. Do you know anything about the commissioning process?
Not sure if this helps
George's phone number . [redacted] and email

George.McCracken[redacted]

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)[redacted]
Sent: Sunday, June 10, 2018 1:02 pm
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow
To: Susanne Lee[redacted]

OK thanks. We have a new issue with drains. Discovered after a spike in Enterobacter bacteraemias when staff reported black scum in the sink. Swabbed it and as expected lots of Gm negs. Started programme of drain cleaning but removal of drain shows thick black scum and erosion of aluminium spigot. So we need to replace. This doesn't seem right for a hospital that is three years old. The filters have led to increased splashing and im worried this is dislodging biofilm from drain and,aerosolisation. Do you have any experience of this? HFS have been talking to someone in PHE re this. I have sent memo to all staff re sink hygiene as I expect all sorts going down sinks, but worrying that they are in this state already
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 12:50 PM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Good but they should shock dose before continuous dosing and ensure they don't result in levels of chlorine dioxide including byproducts >0.5 ppm otherwise you will need to supply alternative drinking water . I would recommend they replace / clean and disinfect the TMVs too as these can get heavily colonised. Recent work I'm in the process of writing up has shown just replacing TMVS and outlets (no other interventions) significantly reduces the microbial load in the system.

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)[redacted]
Sent: Sunday, June 10, 2018 11:33:43 AM
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

OK I will get back to you. Estates colleagues need to have plans finalised by Wednesday. Basically it will be continous and shock dosing with Chlorine dioxide, switching to marwick tap with copper bio guard (starting with high risk areas) and filters long term in haemonc/bmt. I will forward it to you later in the week
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Susanne Lee
Sent: Sunday, 10 June 2018 10:23 AM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Ok I'm glad you are moving forward. The earliest I could do would be the fifth of July. if they still want a meeting though I could manage a conference call before then I'm back on Thursday afternoon.

I guess it would be good to have an update so I can send a file note that there has been progress . It would help to demonstrate due diligence.
USA is all work ☺ two workshop presentations as pre APIC conference events. They are way behind here surprisingly.
Best wishes
Susanne

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Saturday, June 9, 2018 11:57:57 AM
To: Susanne Lee
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Hi, we had a meeting yesterday to discuss progress .I am trying to push for some decisions to be made rather than wait any longer so Im not sure visit will be needed. I think they wanted to discuss the final plan. Enjoy the USA!

Best wishes
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 08 June 2018 01:21
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Teresa I go to the USA on Saturday and then on annual Leave until the end of June [redacted]. I could make early July if that is any good for you but would like to know the purpose of the meeting. Is this with Tom senior or Junior?

Sent from my iPhone

On 4 Jun 2018, at 18:25, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> HI Susanne , hope you are well. See request below from our director of facilities .
> Kind regards
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]

From: Inkster, Teresa [redacted]
Sent: 04 June 2018 18:20
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

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From: Hirst, Allyson
Sent: 04 June 2018 11:17
To: Inkster, Teresa
Subject: FW: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Teresa

I have tried to call Susanne no response and again tried to email but it keeps bouncing back as undeliverable – can you forward the email below?

Thanks

From: Hirst, Allyson
Sent: 04 June 2018 11:11
To: 'Susanne.Lee [redacted]'
Subject: Arranging a Visit to Queen Elizabeth University Hospita, Glasgow

Morning Susanne

I am trying to pull together a visit for yourself and Dr Tom Makin to visit Glasgow to assist further with our water issues.

I have had response from Dr Makin with the following availability and wondered if there was a date that you could be available on

- 25th June
- 26th June
- 27th June

- 28th June
- 2nd July
- 5th July
- 6th July
- 9th July
- 10th July
- 13th July

NHS staff will make themselves available should we find a date that suit you both.

Grateful if you could let me know so that I can make firm arrangements.

Kind Regards

Allyson Hirst| Admin to Interim Director of Property, Procurement and Facilities Management; Mary Anne Kane |

NHS Greater Glasgow and Clyde| JB Russell House| Gartnavel Royal Hospital | 1055 Great Western Road| Glasgow| G12 0XH

t: [redacted] | e: [redacted]

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Inkster, Teresa

From: Susanne Lee [redacted]
Sent: 15 September 2018 19:42
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: drains

Yes you are right proven is the wrong word - strong association would be better. However if the patients affected went for compensation, I would be extremely surprised if the findings were not that on the balance of probabilities the drains and tap contamination would be the most likely cause. Maybe that thought might increase the willingness for the Trust to do something about it?

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From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: Saturday, September 15, 2018 5:54:48 PM
To: Susanne Lee
Subject: Re: drains

Thanks

The difficulty with all of this is the 'proven' part. We have epidemiological links in time place and person , and positive drains swabs with issues noted. However we have yet to match any patient isolate with typing. You and me both know that in an environmental incident this does not mean there is no link and that there will be a multitude of different types but it is difficult to articulate that.

Sorry to disturb you on a weekend , Im catching up with other emails after a busy week

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 15 September 2018 15:03
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: drains

Hi Teresa
George has called me back re air handling requirements and they would expect 6-10 changes in a haematology oncology ward in line with the HTM (and SHTM). That there have been no infections in the adult wards with the same 3 changes of air handling however, suggests that this is unlikely to be the major factor in causing the HAIs. Black gunge and positive microbiology suggests there are nutrients supporting biofilm growth , if the pipework is plastic leaching of plasticisers may be contributing. I am also concerned then that there is an increased risk of microbial resistance transfer.

I still strongly advise that the Trust needs to get independent drain experts in to investigate the drains, to check for blockages, debris and to make sure the specifications are appropriate. As you have already proven a link between the drains and HAIs there is a clear risk to your very vulnerable patients . I agree with you that Patient safety has to take priority and transferring the patients whilst both the drain problem and the air handling is sorted.
I hope this helps
Susanne

Sent from my iPhone

On 15 Sep 2018, at 14:40, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Yes. I think I mentioned to you when you visited that there were ventilation issues with the new build. I was not involved but the spec was wrong. We have managed to upgrade transplant rooms but not the rest of the ward. There is a separate review of ventilation going on.
>
> Sent from my BlackBerry 10 smartphone on the EE network.
>
> **From:** Susanne Lee
> **Sent:** Saturday, 15 September 2018 2:33 PM
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** Re: drains
>
> Should have sent the shtm http://www.hfs.scot.nhs.uk/publications/1475762746-SHTM%2003-01%20V2%20Part%20A.pdf but the requirements are the same
>
> Sent from my iPhone
>
> On 15 Sep 2018, at 14:28, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:
>
> > Thanks. There are hepa filters in 8 of the 24 rooms ,where transplants take place.
> > Kr
> > Teresa
> >
> > Sent from my BlackBerry 10 smartphone on the EE network.
> >
> > **From:** Susanne Lee
> > **Sent:** Saturday, 15 September 2018 2:02 PM
> > **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> > **Subject:** Re: drains
> >
> > Teresa
> > Air handling is not my speciality but 3 seems far too low
> > see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/144029/HTM_03-01_Part_A.pdf#page97
> >
> > Whilst low air changes will not help it is not the root cause. I m sorry I don't know anything about chilled beam technology .

Re drains they need to find out if and where there is a blockage. If there was no back Up the problem would be much easier to cope with and the infectious aerosol route would be much reduced.
The Trust should have an AE ventilation who should be better qualified to advise on the HVAC side if things. I am awaiting a call back from an engineer who Might be able to update me on whether the chilled beam means less air changes are necessary. I'm assuming there are HEPA filters in these wards.

Sent from my iPhone

On 15 Sep 2018, at 11:05, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> Hi Susanne
>
> We had further meetings yesterday and I just wanted to run something past you.
>
> There was a TC yesterday between estates colleagues and another water expert which I wasn't able to attend. The question of air changes in the rooms came up and there is a hypothesis that children are acquiring infections due to aerosolisation from the drains and a lack of sufficient air changes (we have 3 ach/hr in each room with chilled beam technology) to dilute the bacteria. It has been suggested that the reason we are not seeing issues in BMT patients is that the air changes in those rooms is higher.
>
> We had discussed options for decant and one of the preferred options is to move general haem-onc children into a ward in the adult hospital and BMT children into the adult BMT unit. There has been concern expressed re moving patients from 3ach to a ward in the adult hospital with the same 3ach ,based on the hypothesis above
>
> For me , the major issue here is that there is a drain issue that we havent got to the bottom off and we need to establish why there is black gundge building up after cleaning and being visible in sinks. I believe the theory about aerosolisation from drains from splashing, in fact I mentioned it very early on in the investigation but reflux of material into a sink enhances the direct and indirect routes of transmission from patient and staff hands. We are not seeing this phenomenon in the adult hospital and to me there is greater risk in keeping children where they are as opposed to moving them to an adult ward with 3 air changes.
>
> There are other reasons why we are not seeing infections in BMT patients. These patients are not leaving the rooms and moving around the ward, there are extra infection control

precautions applied and they are likely to be on antibiotic prophylaxis.

Do you have a view on the air change issue ?

Call me if you need further clarification

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Susanne Lee [redacted]
Sent: 13 September 2018 17:38
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: drains

Dear Teresa

I am so sorry having to deal with this situation and concerned that, as you mentioned yesterday, the drains appear to be blocking and you are again seeing black gunge even after cleaning and disinfecting. As discussed I am aware of a few problems relating to drains in new hospital builds; in one case there was insufficient fall on the drains from sinks to the main drain (should look like a herringbone with a gradual fall), in another there was insufficient capacity, i.e the pipe size was not man enough for the job and in another builders debris left in the pipework . This is exacerbated when there is also use of disposable wipes and nappy liners which is quite likely in a children's unit with parents caring for their children. Experience with drain disinfection, is that it is only a very short term measure, it will not prevent further backflow and there is also a risk of encouraging microbial resistance.

The use of filters on small hand wash basins is also not ideal as there is insufficient activity space, and a real risk that splashback will contaminate the filters and sinks and then the hands and clothing of staff and patients.

Taking all this into account I sadly agree with you that in the interests of these very vulnerable patients that closing the unit and getting to the root cause of the problem is necessary. You have to take a precautionary approach for their sake. This will give some time to investigate the root cause; do a proper drain investigation and survey to investigate why the drains are

blocking, it will also allow some time to replace drains, sinks and outlets where necessary .

I am around tomorrow in between appointments if you need further input.

Kind regards

Susanne

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 13 September 2018 17:16
To: Susanne Lee [redacted]
Subject: drains

HI Susanne

Further to our conversation yesterday we had a further IMT today. Staff continue to report issues with the drains and we now have 5 bacteraemias linked to the current incident.

I have today recommended decant of the unit as I am concerned we have not established the cause of the issue.

As per our conversation yesterday I have suggested a drain survey, use of scopes to look for blockages and continued cleaning.

This issue appears to be widespread throughout the childrens hospital

Is there anything else we should be doing ? Can you think of any reason why we might be having this issue with reflux of black material up the drains , just a few weeks after cleaning?

Kind regards
Teresa

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC

Training Programme Director Medical Microbiology

Dept of Microbiology

Queen Elizabeth University Hospital

Inkster, Teresa

From: Loeb, Mark [redacted]
Sent: 08 October 2018 01:35
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Mertz, Dominik; Khan, Sarah
Subject: RE: Advice re drainage issue

Dear Teresa,
I am very sorry to hear about bacteraemias in your pediatric hematology unit being linked to drainage. Quite a while ago there were problems in the neonatal ICU and as I recall the traps had to be replaced. The issue we had was with pseudomonas and we had identical strains from patient samples and from the drains. I am not familiar however with the device that you are describing so I have copied Dr. Dominik Mertz who is now head of infection control, as well as Dr. Sarah Khan for insight.
All the best,
Mark

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: October-05-18 3:24 PM
To: Loeb, Mark [redacted]
Subject: Advice re drainage issue

Dear Mark

I was sent your contact details from a colleague and I hope you don't mind me contacting you

I am the lead infection control doctor and Consultant Microbiologist for the Queen Elizabeth and Sick Childrens hospitals in Glasgow

We are currently dealing with a significant incident involving bacteraemias in children in our haemato-oncology ward potentially linked to drainage issues.

I understand that you may have similar experience and in particular in the use of a device that can be fitted to drains that utilises high temperatures and vibration to minimise biofilm formation. Do you have any information that you can share with me?

Thanks

Kind regards

Teresa

Inkster, Teresa

From: Steele, Tom
Sent: 11 October 2018 07:58
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: [ExternaltoGGC]Fw: Advice re drainage issue

Teresa thanks for sending this, I'm going to need a master class in all of this, or remedial class for one!

Could we discuss when you've got time some day?

Regards, Tom

Sent from my iPhone

On 10 Oct 2018, at 20:40, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

> This is some info from Mcmaster. Fascinating work and a very aggressive approach to drain cleaning. The scenario is different from ours. These CPE organisms will originate from the patient and are likely easier to eradicate than the biofilm forming ones we are seeing. But there might be something here we could adopt moving forward
>
> Kind regards
>
> Teresa
>
> Dr Teresa Inkster
> Lead Infection Control Doctor NHSGGC
> Training Programme Director Medical Microbiology
> Dept of Microbiology
> Queen Elizabeth University Hospital
> Glasgow
> Direct dial : [redacted]
>
> ---
>
> **From:** Khan, Sarah [redacted]
> **Sent:** 10 October 2018 19:43
> **To:** INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
> **Subject:** RE: Advice re drainage issue
>
> Hi Teresa
>
> Just attaching some info on drain cleaning (pertaining to CPE mainly). It was sent to me so I dont know some of the specific aspects but happy to put you in touch with others if needed.
>
> Thanks
> Sarah

<drain cleaning info.zip>

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 22 March 2018 17:04
To: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: Fw: REPORT on Environmental Sampling of taps and showerheads on 2A and 4B
Attachments: REPORT on Environmental Sampling of taps and showerheads on 2A and 4B.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Christine
Sent: 22 March 2018 16:51
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Mallon John (NHS GREATER GLASGOW & CLYDE); REYNOLDS, Fiona (NHS GREATER GLASGOW & CLYDE); Young Janet (NHS GREATER GLASGOW & CLYDE); Sandra.Higgins[redacted]
Subject: REPORT on Environmental Sampling of taps and showerheads on 2A and 4B

Hi All,
Please see my final report for IMT tomorrow,
KR,
Christine

REPORT on Environmental Sampling on 2A and 4B

Microbiology Department QEUH – Report author Dr C Peters

Sampling carried out by Dr Peters, Dr Valyraki and Dr Sowerby

Laboratory identification on VITEK and VITEK MS and API20 NE, carried out by BMS staff

Isolates sent to Colindale by BMS staff

Background

In response to two cases of *Cuproavadis pauculus* bacteraemias in children treated on 2A (Haem onc and BMT paediatric ward) a PAG agreed to the testing of water from two outlets on ward 2A - the treatment room and prep room. These were positive for *Cupriavadus pauculus* and the IPCT instigated a number of control measures. Taps and showers were removed and a sample sent to Microbiology for environmental sampling to look specifically for *Cupriavadus pauculus* on 02.03.18 and again on 14.03.18. Further samples from detergents, lotions and wipes were sent on 20.03.18. These were processed to detect Cupriavadis and Stenotrophomonas sp .

Taps and showers are subject to routine maintenance regimes and it is unclear when the last thermal disinfection or the age of the TMV cartilages [4] which may influence the microbiological testing of the fittings.

Laboratory Processing

Standard protocols do not exist for this situation and a pragmatic approach to sampling was taken in response to a rapidly evolving situation[1].

Method appended in Appendix A.

First samples

Taps and showers from 2A 02/03/18 were processed to look for and report on isolation of *Cupriavadus pauculus* .

Taps were dismantled and each component separately sampled. The TMV was only extracted from one tap – this required Estates personnel to get an Allan key and use a substantial amount of force to open. [4]

Visual inspection of the tap components showed discolouration and slime around the rubber seals of the flow directors and flow straightener, as well as green growth on the plastic components of the TMVs.(Photos Appendix 2)

Results

Gram negative oxidase positive colonies that had a good level ID on VITEK MS were reported, but not pursued further if not Cupriavadus . None ID'd as stenotrophomonas. A single isolate of fungus was reported as this is a BMT ward and may have been relevant – ID is awaited from Bristol ref laboratory. Cupriavadus isolates have been sent for typing to Colindale.

The samples from 02/03 identified widespread Cupriavadus in shower heads as well as taps, with a propensity of Cupriavadus to grow in pure form at the air - water interface, although not exclusively at every outlet. (Photos in appendix 3). Cupriavadus required 48 hours before adequate growth for further identification.

Location	Article	Site	Culture Result
2A room 26	Shower	head inner	Cupriavadis pauculus
2A room 6	shower	, tubing	no Cup
2A room 6	shower	head inner	NG
2A room 26	TAP	cold water filter/director	Cupriavadus pauculus
2A room 15	TAP	spout exit site	Cupriavadus pauculus
2A room 24	TAP	flow straightener	Cupriavadus pauculus
2A room 26	TAP	flow director (labeled filter)	Sphingimonas pauculus + GNBOX not cup
2A room 15	TAP	Hot filter/flow director	Cupriavadis pauculus + GNBOX
2A room 15	TAP	flow straightener	Cupriavadus pauculus pure growth
2A room 15	shower	head	Cupriavadus pauculus + Fungus
2A room 1 5	TAP	cold water filter/filter	GNBOX - not cupr
2A room 26	TAP	Hot filter/flow director	GNBOX - not cupr
2A room 26	TAP	Cold filter/director	GNBOX - not cupr
2A room 26	TAP	TMV	Shingimonas pauculus , no Cup

Second Samples

The second lot of 50 or so showers from 2A were received by the Microbiology lab on 14/03/18 – we sampled only two as discussed with IPCT . Showers and Tap parts (flow straightener and flow directors) came separately from 4B – the flow directors were separately bagged and not labelled as to whether hot or cold , and NO TMVs were sent. On visual inspection, some showers were soapy with detergent bubbles on them, flow straighteners were somewhat slimy around the rubber ring and the metal mesh in one of the taps had clear debri in it and a distinct sulphourous odour (photo appendix B) .

The samples from the second batch of outlets appears to have more biodiversity, with a number of environmental gram negative organisms represented. This may be skewed by the fact that ID was pursued in all isolates beyond VITEK MS, to VITEK GNI and and API20NE, but may also reflect disruption of bio film post treatment [2].

Results

Location	Article	Site	Culture Result
4B Room 94	Shower	Head inner	Cupriavadis pauculus
4B Room 94	Shower	Head outer	Cupriavadis pauculus
4B Room 94	Shower	tubing /hose inner	Cupriavadis pauculus
4B room 94	Tap	flow straightener	Sphingimonas Paucimobilis + Ochrobactrum anthropi
4B Room 94	Tap	flow director A	Sphingimonas Paucimobilis + Ochrobactrum anthropi

4B Room 94	TAP	flow director B	Sphingimonas Paucimobilis + Ochrobactrum anthropi Brevundimonas sp
4B Room 90	Shower	Head inner	Burkholderia sp + ? Comamonas
4B Room 90	Shower	head outer	Burkholderia sp + ? Comamonas
4B Room 90	Shower	tubing inner	Burkholderia sp + ? Comamonas
4B room 90	Shower	Rinse of head	Burkholderia sp + ? Comamonas
4B room 90	TAP	Flow straightener	Shingimonas paucimobilis
4B room 90	TAP	Flow Director A	Shingimonas paucimobilis + Cupriavadis paucimobilis
4B room 90	TAP	Flow Director B	Cupriavadis pauculus + Delfia acidovorans
4B room 88	shower	head inner	Delfia acidovorans + Shingimonas paucimobilis
4B room 88	shower	head outer	Delfia acidovorans + Shingimonas paucimobilis
4B room 88	shower	tubing	Delfia acidovorans + Shingimonas paucimobilis
4B room 88	TAP	flow straightener	shingimonas paucimobilis + Serratia fonticola
4B room 88	TAP	flow director A	shingimonas paucimobilis + Serratia fonticola
4B room 88	TAP	flow director B	shingimonas paucimobilis + Serratia fonticola
4B room 84	Shower	Head inner	Shingimonas paucimobilis + Bevundimonas sp
4B room 84	Shower	head outer	Shingimonas paucimobilis + Bevundimonas sp
4B room 84	Shower	tubing inner	Shingimonas paucimobilis + Bevundimonas sp
4B room 84	Shower	Rinse of head	Shingimonas paucimobilis + Bevundimonas sp
4B room 84	TAP	Flow straightener	Shingimonas paucimobilis + Bevundimonas sp
4B room 84	TAP	flow director A	Shingimonas paucimobilis + Delfia acidovorvans
4B room 84	TAP	flow director B	Shingimonas paucimobilis + Delfia acidovorvans
2A room 13	shower	head inner	cupriavadis pauculus + rhodotorula mucilaginosa candida Guillermondii
2A room 14	shower	head outer	cupriavadis pauculus + rhodotorula mucilaginosa candida Guillermondii
2A room 15	shower	tubing inner	cupriavadis pauculus + rhodotorula mucilaginosa candida Guillermondii
2A room 9	shower	head inner	Cupriavadis pauculus + bordetella bronchisepticum
2A room 9	shower	head outer	Cupriavadis pauculus + bordetella bronchisepticum
2A room 9	shower	tubing inner	Cupriavadis pauculus + bordetella bronchisepticum

Third Group of Samples

Environmental swabs and samples of wipes, lotions and cleaning agents taken on 20/03/18 were only plated to CLED with a mero disc. SABS were not requested.

Only one sample from Disposable wipe was positive : this grew a Pseudomonas species – as yet to be speciated.

Summary

A number of different gram negative species have been isolated from the tap and shower components in 4B and 2A including *Cupriavadus pauculus* which is a rarely reported organism in water and clinical cases . It appears to be very robust and growing almost purely in some flow

directors . Of note nothing grew from the copper component of the TMV. The plastic components showed more diversity and levels of growth – although this was not quantitatively sampled and based purely on observation of single swab . Stenotrophomonas was NOT isolated from any outlet. The maintenance schedule of the complex taps (Appendix D) and showers is essential for prevention of biofilm and long term colonisation of water outlets .

Clinical Significance

All the gram negatives isolated have been described in the literature as potential pathogens in severely immunocompromised patients, particularly neutropenia in the context of BMT and most have been linked to water borne out breaks [3].

Of particular note in RHC there have been clinical cases of

- three cases of bacteraemia with Cupriavadis since the opening of the RHC
- Rhodotorulla bacteraemia
- *Candida guillermondii* has caused colonisation on 2A and infections in NICU
- *Two Breundimonas Bacteraeias in 2A in 2017*
- *Delfia acidovorans bacteraemia in 2017 in 2A*

Burkholderia gladioli is of particular importance for CF patients as it can colonise CF lungs and contribute to respiratory impairment.

Bordatella bronchospetica is more commonly a dog /cat pathogen and has very rarely caused human infections.

Further Microbiology

- It is possible that with the use of a biocide Mycobacterial colonisation of taps may increase[2] and It may be worth testing for this in the new situation.
- As suggested by Peter Hoffman if a further tap could be supplied to the lab we can attempt a quasi quantitative method of culture.
- If required by the IMT we can dig out previous Brevimonas and Delfia sp from bacteraemia isolates and send for typing. This has not been done yet.
- Waste water testing as part of an MSc project in the old ICU at QEUH site in 2015 grew Cupriavadus isolates which may be worth comparing with current isolates

References

1.Public Health England Examining food, water and environmental samples from healthcare environments Microbiological Guidelines 2013

2. Shift in the Microbial Ecology of a Hospital Hot Water System following the Introduction of an On-site Monochloramine Disinfection System Baron et al PLOS: 2014: 9:7 : 1-8

3. Healthcare Outbreaks Associated With a Waster Reservoir and Infection Prevention Strategies

CID: 2016:62 1423 - 1435

4. TAP maintainance instructions: [redacted]

Appendix A : METHODOLOGY TAPS AND SHOWER S

Cupriavadis investigation

Culture from Taps and shower heads,

- Change Gloves between handling items.
- Clean bench with Trigene between each component being handled.

1 Sterile rayon swab to be placed in fresh sterile H2O , then the area to be sampled by brushing over with swab, covering as extensive an area as possible to maximise sensitivity.

2. Swab to be plated directly on to CLED agar and SAB agar, plated out to single colonies.

SABs omitted from final environmental sampling 20/03/18 and mero disc applied to CLED to aid identification of stenotrophomonas

3. Plates incubated at 37degrees O2

4. Read at 24, 48 hours, and 5 days for fungus

5. Colonies for fungus sent to Mycology ref lab for ID

6 All colony types NLFs to be set up for ID on MALDI

7. Reports to be issued without UKAS accredited comment

Enrichment

1. Component parts small enough to be incubated in Robertson's media for 48 hours
2. If cloudy subbed onto CLED and SAB ONLY if no growth from direct culture

NOTE ALL samples grew organisms – therefore no RBM subbed

Sampled areas

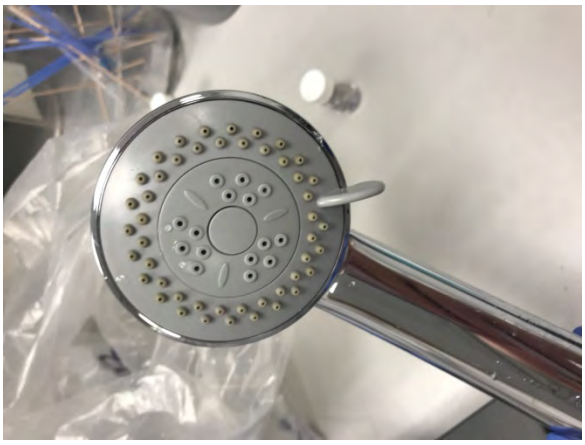
1. Shower
    - Inside shower head
    - Outside shower head
    - Inside tubing
    - Saline flush of head
2. Tap
    - Spout exit
    - Flow straightener/aerator
    - Flow directors
    - Rubber rings

- Filter/metal mesh
- TMV- plastic rings, copper rod, sieve

3. Environmental Swabs:
    - Air freshener
    - domestic trolley
    - Clinell wipes
    - disposable wipes
    - AHG
4. Samples of :
    - Achtichlor
    - magic dazzle
    - moisturiser
    - multi purpose cleaner
    - multi purpose cleaner for grease
    - Titan
    - soap

Appendix B Photos of Water Outlets samples

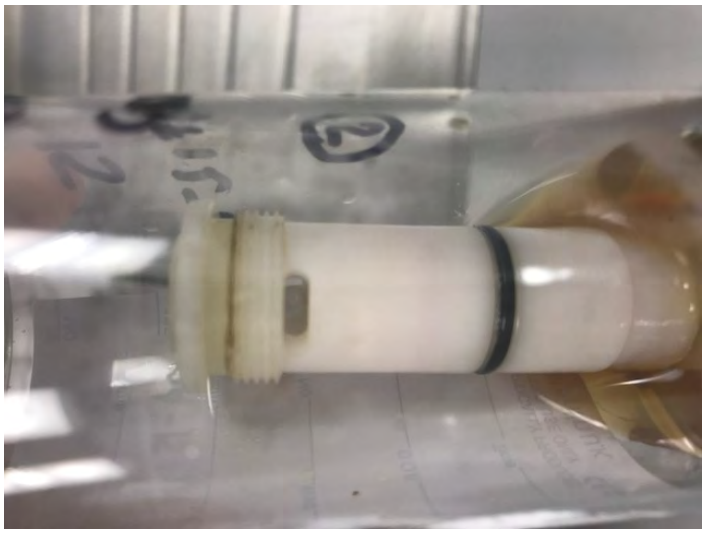
Shower head –

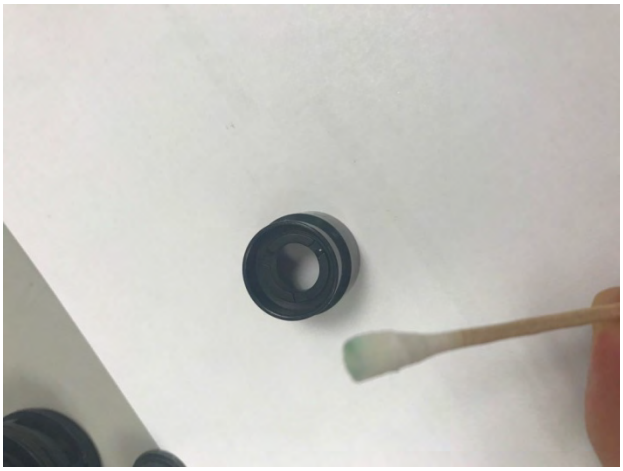


[redacted]



TAP Flow Directors

1. 
2. **TAP TMV**

3. 



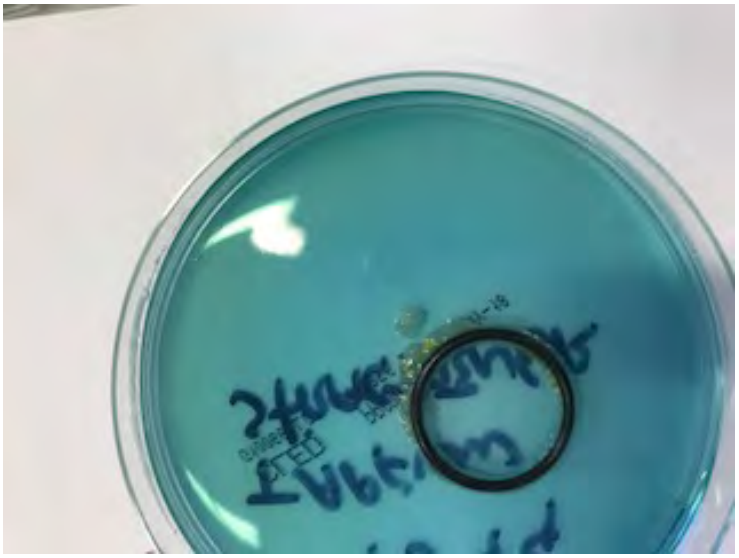


4. **TAP metal mesh – note grit**



Appendix C Photos of cultures

Ring around flow straightener



Appendix D HORNE Optitherm MAINTENANCE advice

Maintenance of all TMVs and thermostatic taps is essential. If a TMV does not operate properly, there is a risk of someone being scalded. The frequency of maintenance depends upon the condition of the water passing through the TMV. The remarks in 4.1.3 regarding in-service testing apply equally to maintenance. Generally, the thermostatic cartridge should be replaced after three years. The strainer/check-valve cartridges and ceramic disc cartridges should be replaced as necessary.

4.1 IN-SERVICE TESTING

4.1.1 Periodic testing should be carried out to check whether or not any deterioration has occurred in the performance of the Horne OPTITHERM Thermostatic Bib Tap.

4.1.2 A COLD WATER FAILURE TEST should be carried out as described in paragraph 2.7 above. If the water coming from the tap is at a temperature of more than 3°C above the mixed water temperature setting then the Horne OPTITHERM Thermostatic Bib Tap is due for maintenance.

NOTE: A TMV in need of maintenance can be undetectable in normal use and only become apparent when a disruption occurs in the hot or cold water supply pressures or temperatures.

4.1.3 The frequency of in-service testing depends upon the condition of the water passing through the tap. In-service testing must be carried out more frequently in hard water areas than in soft water areas. As a general guide, in-service testing should be carried out at least every twelve months and, where the water is hard, the interval may be less than six months. Experience of local conditions and the in-service testing record will dictate the frequency of in-service testing.

4.2 FLUSHING AND THERMAL DISINFECTION

4.2.1 Horne recommends periodic thermal disinfection in conjunction with high velocity flushing, using the Water Quality Compliance Kit (part no.6006). See paragraphs 1.3 and 1.4. The periodicity of this maintenance should be determined in conjunction with the current best practice.

4.3 CLEANING AND REPLACEMENT OF STRAINERS

4.3.1 Close the isolating valves (13,14) at the back underneath the tap spigot; open the levers and allow the residual water to drain.

4.3.2 Unscrew the main bottom cover (16) using a strap wrench.

4.3.3 Remove the strainer/check-valve cartridges (20,21) using a 12mm hex key or Horne special tool (part no. 23-5459).

4.3.4 The strainer can be removed from the top of the cartridge and cleaned or replaced as necessary.

From: STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Sent: 27 April 2018 13:22
To: MCLAUGHLAN, Edward (NHS NATIONAL SERVICES SCOTLAND)
Subject: FW: QEUH - Deficiencies Hot Water Temperatures within A&C Hospital

Regards

Ian

Ian Storrar
Principal Engineer - Health Facilities Scotland
Procurement, Commissioning and Facilities

NHS National Services Scotland
3rd Floor
Meridian Court
5 Cadogan Street
Glasgow
G2 6QE

Tel (direct): [redacted]
Mobile: [redacted]
Reception: [redacted]

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NHS National Services Scotland is the common name for the Common Services Agency for the Scottish Health Service. www.nhsnss.org <http://www.nhsnss.org/>

From: Kane, Mary Anne [redacted]
Sent: 27 April 2018 09:54
To: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND); [redacted]; STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND)
Cc: Powrie Ian (NHS GREATER GLASGOW & CLYDE); alan.gallacher[redacted]
Subject: FW: QEUH - Deficiencies Hot Water Temperatures within A&C Hospital

Please see below for discussion at todays water meeting- temp control is clearly an issue on site

From: Gallacher, Alan
Sent: 26 April 2018 16:46
To: Kane, Mary Anne; Powrie, Ian
Subject: FW: QEUH - Deficiencies Hot Water Temperatures within A&C Hospital

FYI. This is from the consultant carrying out the forensic Report on the performance of the Energy Centre and which will be included in his final report.
In summary the energy centre performance has affected the operating temperature of the DHWS within the A&C Hospital.

Regards,

Alan. G. Gallacher **CEng MIMechE, BEng(Hons), DipEM**
General Manager (Estates*)*

Queen Elizabeth University Hospital Campus
Property, Procurement & Facilities Management Directorate
Facilities Corporate Services Dept
CMB Building
Glasgow
G51 4TF

Tel No: [redacted] : Internal [redacted]
Mobile: [redacted]



Think SAFE ENVIRONMENT.. ....please help cut carbon.....don't print this email unless you really have to.....and remember to recycle.....SAVE ENERGY - THE EASY WAY TO SAVE MONEY!

From: Matthew Lambert [redacted]
Sent: 26 April 2018 16:32
To: Gallacher, Alan
Subject: [ExternaltoGGC]QEUH - Deficiencies Hot Water Temperatures within A&C Hospital

Alan,

Please find below our response in relation to your recent query with regards to the current system operation having an adverse effect on hot water temperatures within the A&C Hospital.

Originally the system was designed with the intention of varying volume flow rate within the primary MTHW distribution circuit, as necessary to suit heating demand requirements within the A&C Hospital (i.e. heat loads on the secondary side of heat exchangers). In order to achieve this variable volume strategy, record documentation indicates that the primary MTHW circuit was designed to operate on a constant temperature basis of 105°C flow, and 75°C return. These primary distribution temperatures afforded a mean water temperature at each plate heat exchanger of 90°C, and therefore, plate heat exchangers would have been designed and selected accordingly.

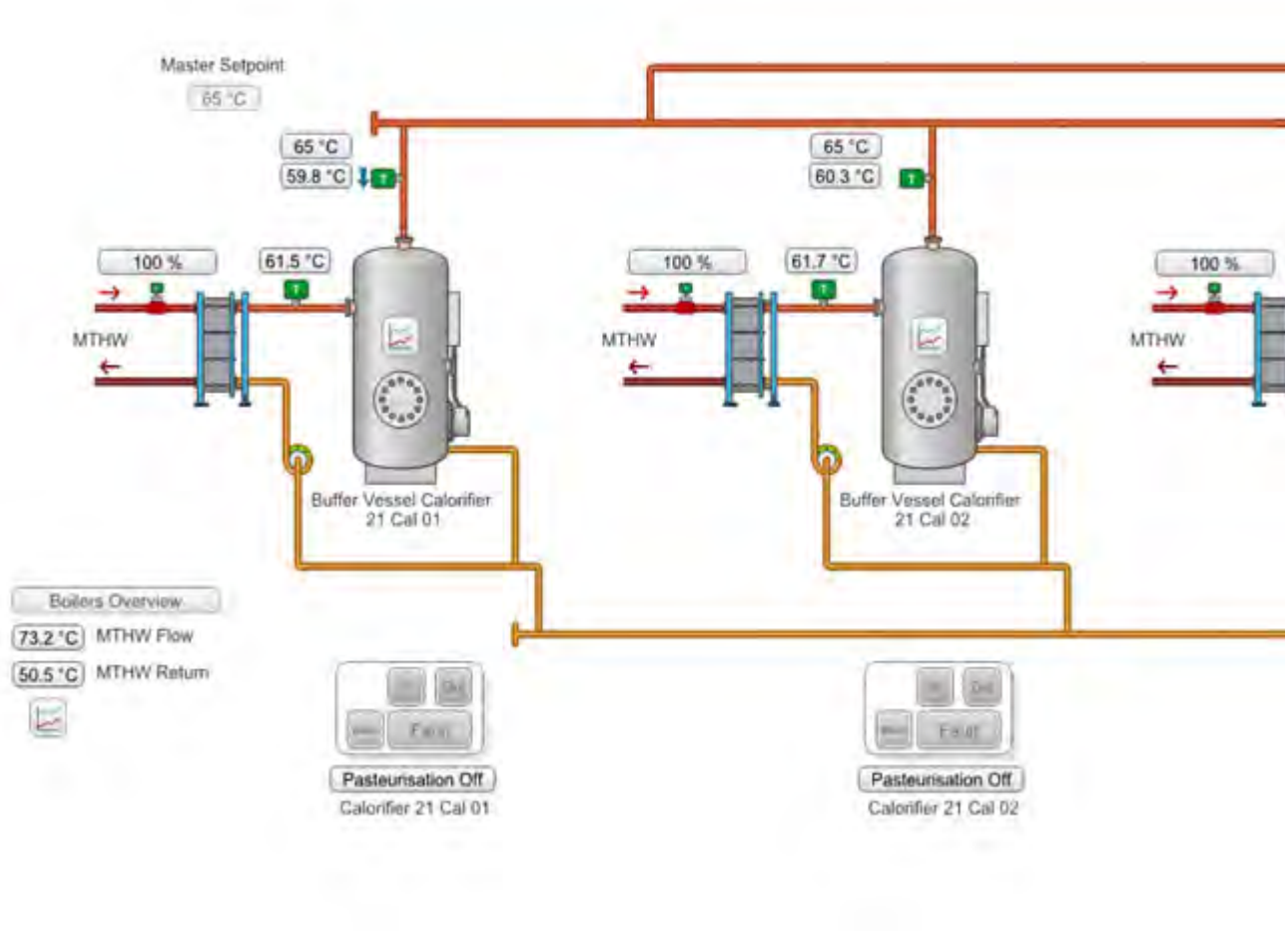
From our forensic examination of record documents to date, it would appear that the original operational strategy has been modified significantly from that initially intended (i.e. fundamental design change). System modifications have included an alteration to monitor and control the common MTHW primary circuit return temperature to the CHP units, restricting this temperature to 75°C. This alteration was deemed necessary to maintain operation of the CHP units, however, implementation does not seem to have taken any cognisance of the potential consequential effects it may have on the primary mean water temperature.

As the principle of the system has been changed to control on the basis of primary MTHW return temperature (i.e. completely disregarding original volume control method), this appears to be causing considerable variation of the primary MTHW flow circuit temperature, lowering it below the original design intent of 105°C.

The inevitable adverse effect of the current system control presents a potential for heat exchanger secondary side outputs to be reduced significantly below their intended levels. In view of the numerous heat exchangers installed, we anticipate that any heating deficiency would be unlikely perceived by the control system until a sufficient quantity of mixed lower primary MTHW temperature returns, from various heat exchangers, signalled the requirement for an increase in MTHW primary side flow temperature (i.e. thereby enabling heat generators). Unfortunately, the period for this process to occur is probably extensive (i.e. time taken for boiler(s) to fire and reach temperature), and therefore, any heat exchanger output deficit would be prolonged.

Of particular concern, the MTHW / DHWS plate heat exchangers were designed with the intention of facilitating rapid recovery, and the above may therefore result in extended recovery times and possibly increase the risks associated with legionella growth within the system.

The screenshot provided below (taken from the building management system) aids to illustrate our theories.



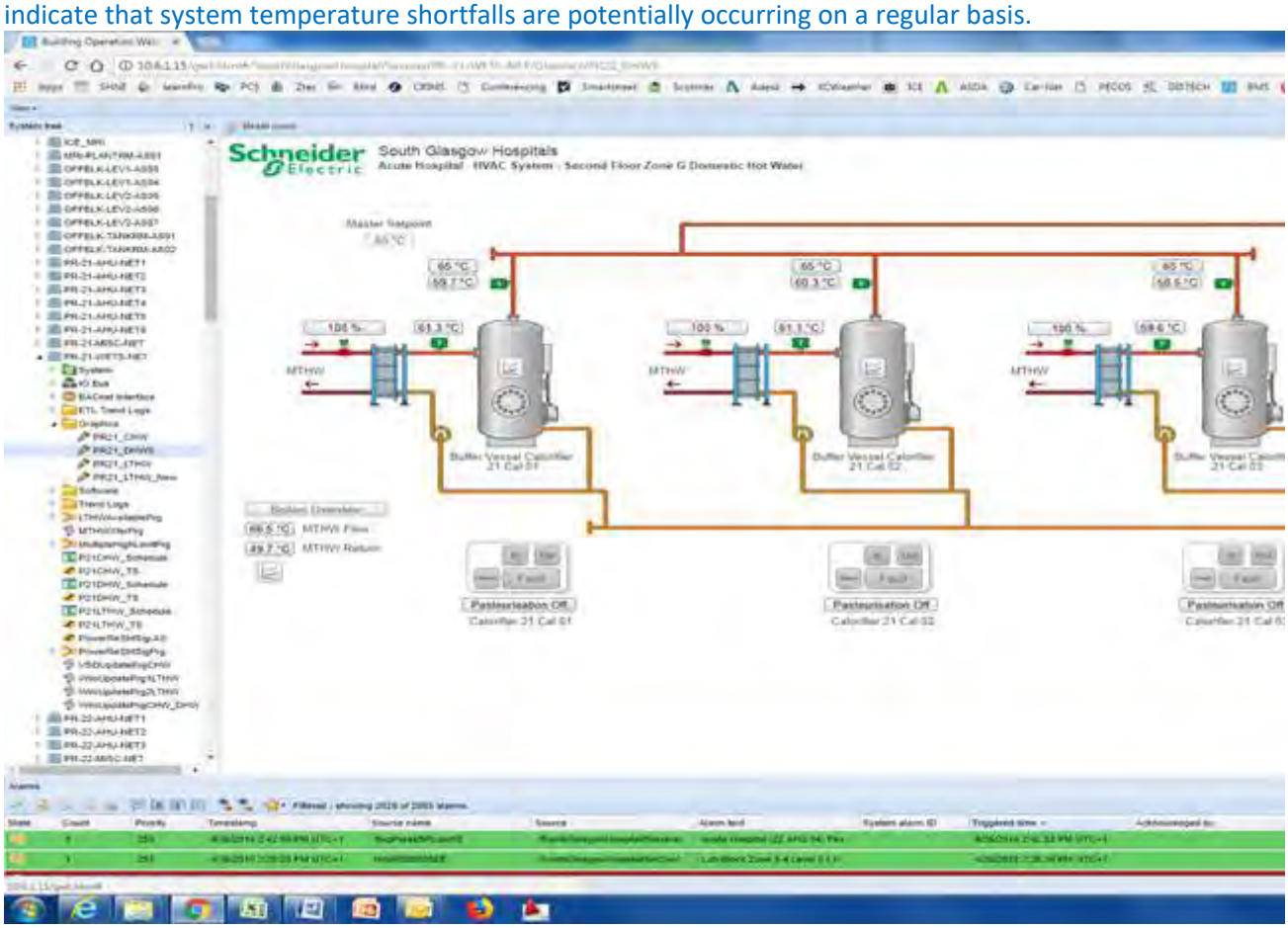
Comments on the above screenshot

Primary MTHW circuit temperatures, at this particular point in time, are shown to be 73.2°C flow, and 50.5°C return. In view of this, the resultant mean water temperature of 61.9°C is significantly lower than the intended 90°C, and therefore, effectively reduces the heat output available from the plate heat exchangers serving secondary side facilities (which, in this instance are the domestic hot water calorifiers within Plant Room 21).

The 'Master Setpoint' is indicated as being 65°C, which appears to contradict the 60°C set point temperature defined within the record documentation. Whilst the system is being controlled in order to achieve a domestic hot water flow temperature of 65°C, it is clearly unable to satisfy this desired temperature as all three calorifier outlet temperatures are approximately 5 Deg C below set point.

This inability to achieve desired set point temperature is in all probability due to the low primary MTHW temperatures, as heat exchanger outputs are unable to transfer the necessary level of heat energy into the domestic hot water service (at this particular time). This inevitably results in lower than desired domestic hot water flow and return/circulation temperatures, which is demonstrated in the above screenshot. As both domestic hot water flow and return temperatures are below 60°C, it can only be assumed that water within the buffer/calorifier is also below 60°C.

The second screenshot provided below (taken from building management system) serve to demonstrate similar system inadequacies to the above. As this screenshot was taken today (26.04.18), it would tend to indicate that system temperature shortfalls are potentially occurring on a regular basis.



In conclusion, the above identifies that the current operation of the system is resulting in domestic hot water temperatures that are not in compliance with the Health and Safety Executive Guidelines with regards to minimising the risks associated with legionella bacteria.

It should also be noted that these screenshots only demonstrate inadequacies at particular times, which could be during low draw-off periods. Therefore, secondary hot water temperatures noted could potentially be lower during any period of higher demand.

Please note, details of the foregoing will obviously be documented within our report, which we will forward in due course.

Kind Regards,

Matt

P dwwkhz #Odp ehuw# #

INNOVATED
DESIGN SOLUTIONS

From: Lang, Ann [redacted]
Sent: 21 May 2018 15:41
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); MacLeod, Calum; RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND); Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Athavale Deepa (NHS GREATER GLASGOW & CLYDE); Bicknell, Steve; Burt Elaine (NHS GREATER GLASGOW & CLYDE); Campbell Myra (NHS GREATER GLASGOW & CLYDE); Carr Kerry (NHS GREATER GLASGOW & CLYDE); Chalmers, Elizabeth; Connelly Karen (NHS GREATER GLASGOW & CLYDE); Dawes Heather (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; MCLAUGHLAN, Edward (NHS NATIONAL SERVICES SCOTLAND); Friel Patricia (NHS GREATER GLASGOW & CLYDE); alan.gallacher[redacted]; Gardner, Morag; Gibson, Brenda; GIBSON, Brenda (NHS GREATER GLASGOW & CLYDE); Gray Margaret (NHS GREATER GLASGOW & CLYDE); Hamilton Pauline (NHS GREATER GLASGOW & CLYDE); Hart Alistair (NHS GREATER GLASGOW & CLYDE); Heaney Nicholas (NHS GREATER GLASGOW & CLYDE); Howat Angela (NHS GREATER GLASGOW & CLYDE); Hutton Melanie (NHS GREATER GLASGOW & CLYDE); STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND); Jenkins Gary (NHS GREATER GLASGOW & CLYDE); Joannidis Pamela (NHS GREATER GLASGOW & CLYDE); Johnstone Sharon (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE); Kennedy Iain (NHS GREATER GLASGOW & CLYDE); Mallon John (NHS GREATER GLASGOW & CLYDE); Marek, Aleksandra; alan.mathers[redacted]; McArdle, Alyson; Mccolgan Melanie (NHS GREATER GLASGOW & CLYDE); Mcdaid, April; Morrison Anne (NHS GREATER GLASGOW & CLYDE); Murphy, Dermot; Office, Press; Pencovitch Laura (NHS GREATER GLASGOW & CLYDE); phpu[redacted]; Powrie Ian (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Purdon Colin (NHS GREATER GLASGOW & CLYDE); Redfern James (NHS GREATER GLASGOW & CLYDE); Rodgers Jennifer (NHS GREATER GLASGOW & CLYDE); Scott, Lynne; Somerville, Emma; neil.spenceley[redacted]; STEELE, Tom (NHS NATIONAL SERVICES SCOTLAND); Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Janice.watt[redacted]; Young Janet (NHS GREATER GLASGOW & CLYDE); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND)
Subject: 2018-05-21 (15:41 Ann Lang) NHS GGC Water Incident De-Brief Meeting - 15th May 2018
Attachments: Water Incident Debrief Meeting 150518.doc

Dear all

Please find attached a draft copy of the notes of the Water Incident De-Brief Meeting held on Tuesday 15th May 2018.

If you have any changes or additions to the notes can you please send them to Dr Teresa Inkster – [redacted] by Thursday 31st May 2018. This will allow Dr Inkster to complete the full outbreak report once all comments have been received.

Regards

Ann

Ann Lang
PA/Data Manager to Infection Control Manager
West Glasgow Ambulatory Care
Dalnair Street
Glasgow
G3 8SJ

Tel: [redacted]

Email: [redacted]

From: MacLeod, Calum
Sent: 01 May 2018 15:00
To: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND); Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Athavale Deepa (NHS GREATER GLASGOW & CLYDE); Bicknell, Steve; Burt Elaine (NHS GREATER GLASGOW & CLYDE); Campbell Myra (NHS GREATER GLASGOW & CLYDE); Carr Kerry (NHS GREATER GLASGOW & CLYDE); Chalmers, Elizabeth; Connelly Karen (NHS GREATER GLASGOW & CLYDE); Dawes Heather (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; MCLAUGHLAN, Edward (NHS NATIONAL SERVICES SCOTLAND); Friel Patricia (NHS GREATER GLASGOW & CLYDE); alan.[redacted]; Gardner, Morag; Gibson, Brenda; GIBSON, Brenda (NHS GREATER GLASGOW & CLYDE); Gray Margaret (NHS GREATER GLASGOW & CLYDE); Hamilton Pauline (NHS GREATER GLASGOW & CLYDE); Hart Alistair (NHS GREATER GLASGOW & CLYDE); Heaney Nicholas (NHS GREATER GLASGOW & CLYDE); Howat Angela (NHS GREATER GLASGOW & CLYDE); Hutton Melanie (NHS GREATER GLASGOW & CLYDE); STORRAR, Ian (NHS NATIONAL SERVICES SCOTLAND); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Jenkins Gary (NHS GREATER GLASGOW & CLYDE); Joannidis Pamela (NHS GREATER GLASGOW & CLYDE); Johnstone Sharon (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE); Kennedy Iain (NHS GREATER GLASGOW & CLYDE); Lang Ann (NHS GREATER GLASGOW & CLYDE); Mallon John (NHS GREATER GLASGOW & CLYDE); Marek, Aleksandra; alan.mathers[redacted]; McArdle, Alyson; Mccolgan Melanie (NHS GREATER GLASGOW & CLYDE); Mcdaid, April; Morrison Anne (NHS GREATER GLASGOW & CLYDE); Murphy, Dermot; Office, Press; Pencovitch Laura (NHS GREATER GLASGOW & CLYDE); phpu[redacted]; Powrie Ian (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Purdon Colin (NHS GREATER GLASGOW & CLYDE); Redfern James (NHS GREATER GLASGOW & CLYDE); Rodgers Jennifer (NHS GREATER GLASGOW & CLYDE); Scott, Lynne; Somerville, Emma; neil.spenceley[redacted]; STEELE, Tom (NHS NATIONAL SERVICES SCOTLAND); Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Janice.watt[redacted]; Young Janet (NHS GREATER GLASGOW & CLYDE)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Water Incident De-Brief Meeting

Good afternoon

A de-brief meeting regarding the recent water incident at the RHC and QEUH sites is being held on:

Date: Tuesday 15th May 2018
Time: 1400-1600
Venue: Seminar Room, Level 5, QEUH

An incident report will be sent out to this group later on this week by Dr Teresa Inkster.

Kind Regards

Calum MacLeod
Infection Prevention & Control Administrator
Level 2, Zone 1, Office Block
Queen Elizabeth University Hospital
G51 4TF

[redacted]

[redacted]

Water Incident Debrief Meeting

Notes of Meeting

Seminar Room,
Level 5, Queen Elizabeth University Hospital

Tuesday 15th May 2018 at 2.00pm

PRESENT

Laura Imrie	LI	Nurse Consultant, HPS
Dr Teresa Inkster	TI	Lead Infection Control Doctor
Susie Dodd	SDo	Lead Infection Control Nurse, RHC
Sandra Devine	SDe	Associate Nurse Director IPC
Lynn Pritchard	LP	Lead IPC Nurse (Adults), South Sector
Gus McKillop	GMcK	Lead Nurse, Renal
Melanie Hutton	MH	Lead Nurse, RHC
Alan Gallacher	AG	General Manager, Estates
Ian Powrie	IP	Deputy General Manager, Estates
Karen Connelly	KC	General Manager, Facilities South
Janet Young	JY	Services Manager, Microbiology
Ian Storrar	IS	Health Facilities Scotland
Annette Rankin	AR	Nurse Consultant, HPS
Jennifer Rodgers	JR	Chief Nurse, Paediatrics
Dr Jennifer Armstrong	JA	Medical Director
Angela Howat	AH	Senior Charge Nurse
Emma Somerville	ES	Senior Charge Nurse
Brenda Gibson	BG	Consultant Haematologist

In Attendance

Ann Lang	(Notes) PA, Infection Prevention and Control

Laura Imrie, HPS informed that she has been asked to lead this debrief to find out what went well or what did not go so well regarding the water incident and to concentrate on learning from this experience.

A copy of the Incident paper and Full Incident Management Team template were distributed by Dr Inkster last week and she confirmed that she received no comments on these documents.

Background - Incident Detection

A patient in ward 2A , RHC presented with a Cupriavidus bacteraemia on 1st March 2018. This is a rare clinical isolate. A previous case linked to the aseptic unit had been detected in Feb 2016 and water testing had revealed positive results.

The initial focus was on the aseptic unit and a PAG was held on 5/2/18. Following negative water results from there, water testing was undertaken on ward 2A . Outlets from 2A tested positive. Due to an uncontrolled source, the incident was assessed as a RED on HIIAT on 1st March and reported to HPS. Due to the number of positive outlets in a high risk area chemical dosing was undertaken straight away with Silver Hydrogen Peroxide. Showers were placed out of use for patients and bottled water was provided for personal hygiene. Additional hand hygiene steps were implemented and bottled water provided for drinking. Extended sampling confirmed this was a site wide contamination of the water system (QEUH & RHC).

Water Incident Debrief Meeting

Learning from Experience

Organisational Arrangements

Dr Inkster reported that the incident was recognised quickly and the first IMT took place via phone calls and emails due to the adverse weather. On the first day Jen Rodgers informed that a list of actions were agreed on 1st March 2018 and these actions were put in place immediately. It was agreed that communication with clinical teams was good. One of the challenges was that results were being received late in the day. Brenda Gibson commented that there were no complaints from the families at this time.

As the incident was ongoing an IMT was held on 23rd March with many parties attending from NHSSGC as well as HPS and HFS. Dr Inkster said it would have been better to have representatives for some groups instead of so many people attending and Annette Rankin recommended that it might have been better to have specific roles and remits for individuals. She said that HPS were involved in the incident from 23rd March and the weekend of 24th and 25th March the communication was not great as this was forwarded to the on call consultant at HPS but she said this is something HPS have learned from.

Sandra Devine stated that the feedback from Infection Control was that a rolling action plan with actions and who was responsible for each would have been useful. In addition a list of possible patient cases linked to the incident would also have been useful.

In Microbiology, Janet Young advised that there was the decision to do testing but the scale of the incident was not communicated to them and they were not fully briefed on what was required. She said there was no consultation on how many specimens could be carried out in a day and staff had to be taken off of other duties to deal with this. Extra staff were also brought in at the weekend to assist with the testing. Resource was sought from other sites but there are only a limited amount of staff that are trained to carry out water testing. Dr Inkster commented that their initial thoughts were that the incident was in Ward 2A and in future Microbiology does need to be alerted. Annette Rankin informed that when the positive case was identified in ward 4B there was an urgency to protect patients and to quickly find out what we were dealing with.

Alan Gallacher said that initially they didn't understand the volume of water testing. Ian Powrie commented that they started to look at different ways to present water results in relation to the estate to better understand where this was coming from but hundreds of samples were coming through and this process would be complex.

Investigations

It was agreed that the reporting of hospital cases and confirmed cases for patients went very well. Families were kept informed and Brenda Gibson said they would try to get results at a certain time of the day.

Control Measures

A number of control measures were put in place in the clinical areas affected. Initially the anti fungal prophylaxis had side effects for some patients. As the situation evolved Melanie Hutton stated that the control measures were changing which led to confusion on the ground floor but acknowledged that this was a fast moving and complicated situation.

Ward 2A is a very busy ward and Susie Dodd informed that at one point there were representatives from DME, Estates, ICT and sinks were being delivered. Brenda Gibson also advised that other work was already ongoing to upgrade some of the rooms so the area already had additional staff present.

She said the main concern from patients was that they could not wash properly. She also commented that there is concern in the ward regarding the environment that it is not 100% safe. Compared to the old Yorkhill site she stated that they are now receiving more positive blood cultures in the new hospital and this is causing anxiety. Sandra Devine asked why it was better and how could this be changed. Angela Howat informed that the BMT unit was at the back of the ward in Yorkhill with hepa filter rooms whereas BMT is at the front of the ward in the new hospital with a lot of traffic coming through.

Dr Inkster and Annette Rankin discussed the advice from HPE around not using portable sinks. Dr Inkster felt there was greater risk in high risk patients not being able to wash but acknowledged there were issues with trip hazards and scalding.

Dr Inkster stated that in future filters would be fitted earlier. Due to previous successful experience with Sanosil it was felt that it alone would have been effective but this was not the case.

In relation to national guidance Annette Rankin confirmed that there is no guidance available with regards to water testing during commissioning or during an event like this and that she and Ian Storrar will take this forward nationally. She said a briefing paper is being prepared for the Health Minister by the end of May and another paper is being prepared for the wider group to cover all that has happened during the incident.

UK experts were brought in for advice regarding the water and this included Suzanne Lee and Tom Machin, who both have a microbiology and facility background and PHE. Annette said they also had a couple of meetings with the manufacturers of the taps. Alan Gallagher commented that the advice from Tom Machin was very helpful as he suggested disinfection between sampling instead of following the guidance for Pseudomonas.

Communications

Patients

Most of the group felt the communication to patients was good and information was available quickly.

Melanie Hutton said the parents felt they were not getting information quickly enough and just wanted to bathe their children. Jen Rodgers said there were delays after the IMT meetings e.g. a press statement had to be written, then checked by the Communication team and signed off by an executive before any advice/information could be given to parents. She said they put an extra nurse in that only dealt with the water incident communication and they had the discussions with the parents. Susie said this was helpful to have a link person on the ward as the contact.

Media

Dr Inkster felt the support from the Communications Team went well. It was also noted that parents were briefed that a Press Statement would be issued and parents and patients were each given a printed copy of the statement.

Senior Management

In the Adult hospital Gus McKillop advised that there was a good balance of communication and was well informed what to say. Lynn Pritchard and Susie Dodd worked together to make sure the same generic information was given to adults and children hospital patients.

Melanie Hutton said they also had twice daily huddles where they could inform and update staff.

Sandra Devine confirmed that information was also communicated to the NHSGGC governance groups.

Water Incident Debrief Meeting

Policy Unit

Annette Rankin reported that as this was a red HIIAT the information was forwarded to the Policy Unit. She felt the information received that weekend was good.

On Monday when the press release was issued there were a couple of parliamentary questions and the board response to this was very good with no delay and she made sure the board had sight of any replies before being issued.

Government

HPS were updating the HAI Policy Unit, however it was noted that the unit had contacted Dr Inkster several times directly. This is out with the agreed communications policy for incidents and outbreaks.

Facilities / Estates

Karen Connelly reported that there were no issues in Facilities and found the communication to be good. She said they were there to support the control measures put in e.g. give out bottled water, put in wash hand basins etc.

Alan Gallacher advised that this was a good learning exercise for the Estates team regarding the quality checks put in and what is needed to support this. He said this put a substantial pressure on the workload in Estates and in future he would maybe have a designated person dealing with the incident and the contractors that had to come in. Laura Imrie recommended that a SOP be developed and to discuss with HFS how to share this information with other boards.

Microbiology Colleagues

Dr Inkster reported that she was criticised by Microbiology colleagues regarding communication specifically how they did not receive copies of the minutes of the IMT meetings. The communication strategy during outbreaks and incidents is contained within the IPCT Outbreak SOP and this had been followed. Consultants were also routinely briefed as required.

Actions

- Estates learning on how to plan sampling if required and present results within the context of the estate.
- Annette Rankin/Ian Storrar will be looking at national guidance regarding testing at commissioning and during incidents.
- To have roles and responsibilities for membership of IMT and the purpose of individual's attending.
- In Microbiology to appreciate the resource issue and how much testing is carried out at once. It was agreed to have a strategy for setting up testing.
- Communication to the out of hours team in HPS and Annette agreed to take this forward.

Laura thanked everybody for their attendance at this Debrief meeting and Dr Inkster wished to pass on her thanks for excellent team working.

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Public Health

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Dr Peters/Dr Redding
Consultant Microbiologist
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

Date 4 May 2018
Your Ref
Our Ref LdeC/RB- Dr Peters & Redding
Enquiries to Dr L de Caestecker
Direct Line [redacted]
Fax
E-mail [redacted]

Dear Dr Peters and Dr Redding

As you know, I have been investigating your whistleblowing allegations, and I have now concluded my report. A summary (which does not contain the full detail of the report) is outlined below:

Following receipt of Dr Redding's email in February 2018 regarding a number of concerns about ventilation at the Queen Elizabeth University Hospital (QEUH) and the Royal Hospital for Children (RHC), I initiated an investigation under the Whistleblowing Policy to consider the following points:

1. The standard rooms at the QEUH and RHC should have 6 air changes per hour (ACH/hr). No room meets this standard. There are only 3 ACH/hr. This is clearly a breach of the standard.
2. Positively Pressurised Ventilated Lobby (PPVL) rooms are not suitable for the isolation of patients with air borne infections and they cannot be housed in this new hospital.
3. There are not sufficient rooms for the isolation of immunocompromised/Bone Marrow Transplant (BMT) patients at RHC.
4. The current management of immunocompromised adult patients.
5. Query on whether issues around ventilation are on the NHSGGC Risk Register?

When we met, it was my impression that you felt the ventilation issues were only part of many concerns about infection control. You also said you felt isolated, with tarnished reputations due to raising the issues. In addition to the aforementioned key points of the complaint, you also raised concerns about sewage leaks were happening in the Institute of Neurological Sciences (INS) due to plumbing issues.

A range of colleagues with different expertise were interviewed as part of the investigation and appropriate documentation was reviewed.

Prior to you raising concerns with me, I am aware that a Situation Background Assessment Recommendation (SBAR) was sent to Dr Jennifer Armstrong, Medical Director for NHSGGC. On receipt of this, and as you are aware, a meeting was convened and the minutes, which included a full list of attendees, were reviewed as part of the whistleblowing investigation.

The notes of the meeting, the Board paper and discussions with interviewees gave me reassurance that the concerns you raised were being addressed. The RHC changes are now complete and the QEUH adaptations and new rooms are on schedule to be in place by end of October 2018. In addition, an expert in this field is being recruited on a part time fixed term basis to specifically look at ventilation in the QEUH and RHC, and to make any recommendations for improvement.

Regarding the INS, these problems will take longer to resolve although they have been acknowledged with plans in place, including replacing the pipes (over the next 2 years). Four of the 6 theatres in the INS will move to the Imaging Centre of Excellence (ICE) building. There are plans to upgrade the remaining theatres in the INS – this is currently on hold to allow further discussion on the long term capital programme for the INS. Healthcare Improvement Scotland were involved in the issues regarding the sewage ingress, asked for a number of updates and were happy with the measures taken and progress made.

There were no increased levels of infection and the recent national prevalence survey showed that RHC had lower rates than Edinburgh Children's Hospital, and for adults the rates were also under the national average. Regular communication for on call microbiologists is organised weekly by the infection control team so that those on call are up to date with any infection control issues. There are regular microbiology team meetings where issues can be raised.

notaccurate.

My conclusions:

From my investigation I am reassured that the concerns you raise are being taken very seriously and that there are processes in place to address them. I will continue to monitor progress.

Given the actions now in place, the Infection Control team need the time and space to complete their work. Continued multiple emails from those without direct responsibility for the issues asking for updates will not be helpful in achieving the actions.

My recommendations are:

- Diagnostic Management colleagues should progress the already agreed organisational development and mentoring support for Dr Peters, the senior microbiology team and the IC team regarding roles, responsibilities and behaviours;
- Follow up in 6 months time regarding progress with INS theatres moving to ICE / being upgraded
- Follow up in 6 months time progress with expert being recruited to give a view on ventilation in QEUH / RHC
- The issues raised in this complaint should be appropriately entered onto risk registers

1. Only becausse SBAR
2. Why we are wre we are.
3. Respon for raising issues professional
4. Jant re H+O Boys at meeting.
5. Is there acknow. that we were right

Sarwar.

I hope this information has assured you that I have thoroughly looked into your concerns and come to a conclusion. Thank you for bringing your concerns to my attention.

Yours sincerely

[redacted]

DR LINDA DE CAESTECKER
Director of Public Health

[redacted]

9 May 2018

Your reference; LdeC/RB- Dr Peters and Redding

Dear Dr de Caesteker,

Thank you for your reply to the whistleblowing allegations raised by Dr Peters and myself. I appreciate the amount of work you will have undertaken to investigate the issues that we raised.

I broadly agree with your findings and recommendations subject to the following specific points;

1. Following the meeting chaired by Dr Armstrong progress has been made in addressing the concerns and is on-going. This has included the recruitment of an expert in ventilation.
2. The ICT need the time and space to complete their work. While I agree that multiple emails may not be helpful, a doctor has the professional responsibility to ensure that concerns and problems are brought to the attention of those responsible. All microbiologists have infection control as part of their responsibilities.
3. The microbiologists must be fully briefed to enable them to fulfil this role safely, in particular out of hours.
4. I am delighted to hear that there is a plan in place for the INS theatres.
5. It is re-assuring that the national prevalence survey identified no problem with the level of infection. This is a point prevalence survey and we know there have been outbreaks on some of the wards at RHC. The recent contaminated water outbreak is an example. I know a lot of work is underway to resolve this. I wonder if this could have been avoided.
6. It is good to hear that the complaints raised in the whistle blowing allegations have been put on the risk register. Please confirm how have these been categorised?
7. Organisational development and mentoring support will hopefully help improve things and build a more open and appropriate infection control service.

I would like to formally request updates on the progress being made. I agree on going follow up of the progress being made is important and believe that quarterly updates that your recommendations are being implemented is essential. I assume that the issues raised in the SBAR are included in your review.

My thanks for taking our concerns seriously and ensuring that the appropriate actions are taken.

Yours Sincerely

Penelope J. Redding

email; [redacted]

[redacted]

10th July 2018

Dear Dr de Caestecker,

Further to my letter of the 9th May I am writing to request an update on the progress being made. I apologize for contacting you sooner than the three months I had requested in the letter.

[redacted]

I appreciate that some issues as more challenging than others.

I would be grateful for an update on the progress that has been made so far and a re-assurance that efforts continue to be made to resolve matters as soon as possible.

I have a difficult decision to make as to how I can ensure that resolutions have been found and appropriate measures put in place. I may not feel I am able to monitor this myself, but I still need to know someone is following this through. I cannot expect anyone within the organisation to do this.

Apologies again for contacting you so soon.

I look forward to hearing from you.

Greater Glasgow and Clyde NHS Board

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NHS
Greater Glasgow and Clyde

Private and Confidential
Dr P.J. Redding
[redacted]

Date: 21 September 2018

Enquiries to: Linda de Caestecker
Direct Line: [redacted]
E-mail: [redacted]

Dear Dr Redding

Thank you for your letter dated 10 July 2018 in which you asked for an update on issues you raised, which I took forward and concluded via the Board's Whistleblowing Policy. I apologise for the delay in responding to you.

As you know, I made a number of recommendations in my report, and this included some with follow up 6 months post the date of completion of the investigation. We are still some time away from that deadline, however, I can give you the following information by way of update now.

As you are aware, it was confirmed that an expert member of staff would be recruited to specifically consider ventilation in the QEUH and RHC sites. That person has now been appointed and is in post.

Regarding the theatres in the Imaging Centre of Excellence (ICE) building, I can confirm that outstanding works are nearing completion, and capital and clinical colleagues did a walk round of the new theatres on 29th August 2018. There are a small number of outstanding issues with the theatres, and these will be fully rectified prior to use, with the aim being to begin to utilise these in October 2018.

Following the move into the new ICE theatres, some of the existing theatre accommodation within the Institute of Neurological Sciences will be taken out of use and further capital plans developed for the upgrade of the vacated clinical space.

I do hope this letter helps satisfy you that these issues are continuing to progress. Whilst I realise this is a subject matter that means a great deal to you, my involvement from a Whistleblowing Policy perspective has now ended, and I do not have an operational role with work to do with the issues you raised. If you have any further questions about the Whistleblowing process, I would be happy to assist in any way I can, but any further information you require specific to ongoing work about infection control and ventilation at the hospital sites in question should be directed elsewhere. My colleague Dr Iain Kennedy is working closely with the infection control team on the water issues at the Royal Hospital for Children.

[redacted]

Yours sincerely

[redacted]

Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde

Julie Rothney

From: Peters, Christine
Sent: 15 May 2018 16:05
To: Bajwe, Ranjit
Subject: RE: Letter from Dr Linda de Caestecker

Dear Dr de Caestecker,

Thank you for your response to the whistle blow stage 2 and for taking the time to interview both Dr Redding and I with regard to a number of issues in infection control. This was much appreciated and it was encouraging to have a clear policy to follow and an opportunity to explain in person the patient safety concerns we had raised in good faith and in keeping with GMC advice.

As Dr Redding is no longer employed here, I have not discussed any IC developments with her since she left, and therefore we will reply separately and independently.

I am reassured by your communication regarding the issues raised in the SBAR, and the fact that these are all being taken seriously and being addressed by the organisation including entrance onto the risk register. I also hope that there is a clear understanding of what information was available to myself and my IC colleagues at different times throughout the last three years from the original point at which building issues were identified and raised, and how this had an impact on how we were able to manage IC issues.

In conclusion I am satisfied that the whistle blow process stage 2 has been helpfully followed through and that my concerns have been seriously considered.

I do not plan to take this to further stages and I would like to thank you once again for your input.

Kind regards,

Christine

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

NHS Greater Glasgow and Clyde
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J B Russell House
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Dr Peters/Dr Redding
Consultant Microbiologist
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

Date 4 May 2018
Your Ref
Our Ref LdeC/RB- Dr Peters & Redding
Enquiries to Dr L de Caestecker
Direct Line [redacted]
Fax [redacted]
E-mail [redacted]

Dear Dr Peters and Dr Redding

As you know, I have been investigating your whistleblowing allegations, and I have now concluded my report. A summary (which does not contain the full detail of the report) is outlined below:

Following receipt of Dr Redding's email in February 2018 regarding a number of concerns about ventilation at the Queen Elizabeth University Hospital (QEUH) and the Royal Hospital for Children (RHC), I initiated an investigation under the Whistleblowing Policy to consider the following points:

1. The standard rooms at the QEUH and RHC should have 6 air changes per hour (ACH/hr). No room meets this standard. There are only 3 ACH/hr. This is clearly a breach of the standard.
2. Positively Pressurised Ventilated Lobby (PPVL) rooms are not suitable for the isolation of patients with air borne infections and they cannot be housed in this new hospital.
3. There are not sufficient rooms for the isolation of immunocompromised/Bone Marrow Transplant (BMT) patients at RHC.
4. The current management of immunocompromised adult patients.
5. Query on whether issues around ventilation are on the NHSGGC Risk Register?

When we met, it was my impression that you felt the ventilation issues were only part of many concerns about infection control. You also said you felt isolated, with tarnished reputations due to raising the issues. In addition to the aforementioned key points of the complaint, you also raised concerns about sewage leaks were happening in the Institute of Neurological Sciences (INS) due to plumbing issues.

A range of colleagues with different expertise were interviewed as part of the investigation and appropriate documentation was reviewed.

Prior to you raising concerns with me, I am aware that a Situation Background Assessment Recommendation (SBAR) was sent to Dr Jennifer Armstrong, Medical Director for NHSGGC. On receipt of this, and as you are aware, a meeting was convened and the minutes, which included a full list of attendees, were reviewed as part of the whistleblowing investigation.

The notes of the meeting, the Board paper and discussions with interviewees gave me reassurance that the concerns you raised were being addressed. The RHC changes are now complete and the QEUH adaptations and new rooms are on schedule to be in place by end of October 2018. In addition, an expert in this field is being recruited on a part time fixed term basis to specifically look at ventilation in the QEUH and RHC, and to make any recommendations for improvement.

Regarding the INS, these problems will take longer to resolve although they have been acknowledged with plans in place, including replacing the pipes (over the next 2 years). Four of the 6 theatres in the INS will move to the Imaging Centre of Excellence (ICE) building. There are plans to upgrade the remaining theatres in the INS – this is currently on hold to allow further discussion on the long term capital programme for the INS. Healthcare Improvement Scotland were involved in the issues regarding the sewage ingress, asked for a number of updates and were happy with the measures taken and progress made.

There were no increased levels of infection and the recent national prevalence survey showed that RHC had lower rates than Edinburgh Children's Hospital, and for adults the rates were also under the national average. Regular communication for on call microbiologists is organised weekly by the infection control team so that those on call are up to date with any infection control issues. There are regular microbiology team meetings where issues can be raised.

My conclusions:

From my investigation I am reassured that the concerns you raise are being taken very seriously and that there are processes in place to address them. I will continue to monitor progress.

Given the actions now in place, the Infection Control team need the time and space to complete their work. Continued multiple emails from those without direct responsibility for the issues asking for updates will not be helpful in achieving the actions.

My recommendations are:

- Diagnostic Management colleagues should progress the already agreed organisational development and mentoring support for Dr Peters, the senior microbiology team and the IC team regarding roles, responsibilities and behaviours;
- Follow up in 6 months time regarding progress with INS theatres moving to ICE / being upgraded
- Follow up in 6 months time progress with expert being recruited to give a view on ventilation in QEUH / RHC
- The issues raised in this complaint should be appropriately entered onto risk registers

I hope this information has assured you that I have thoroughly looked into your concerns and come to a conclusion. Thank you for bringing your concerns to my attention.

Yours sincerely

[redacted]

DR LINDA DE CAESTECKER
Director of Public Health

FW: Cleaning concerns

Connelly, Karen [redacted]

Thu 24/05/2018 17:01

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Kane Maryanne (NHS GREATER GLASGOW & CLYDE) [redacted];

Hi Teresa,

Thank you for your email, I have noted below a number of measures we have taken over the past few weeks to address the matters you raised and also covers further matters raised over the course of the last few days.

Regards
Karen

Ward 4B

I met with Myra Campbell, David Macdonald and Pat Coyne on 14th May to discuss the return of the BMT service to the QEUH. Myra advised that there had been concerns regarding the cleaning standards within the ward before it moved back to GGH. We agreed that the domestic input into Ward 4B would be aligned to the service currently provided at GGH which Myra was happy with.

Level 4

I confirmed to Lynn Pritchard on 18th May that we would provide:

- Twice daily cleaning of all single room where patients have suspected / confirmed infections with actichlor plus (1:1000) occur as standard practice currently
- Twice daily cleaning of all corridors within 4A, 4C and 4D with actichlor plus (1:1000). Over the course of the day, 2 cleans will be carried out.

  To achieve this, we will have additional hours between 16:00 and 20:00, Monday to Sunday. This will commence from Monday 21st May 2018.
- Once daily cleaning of all other areas with actichlor plus (1:1000). The additional hours referred to above will support the back shift domestic attend to all ancillary areas cleaning.

Ward 2A RHC

We are maintaining weekly walkabouts of Ward 2A and twice weekly DMT audits.

David Macdonald requested a meeting with Jen Rodgers to discuss assistance with the cleaning of the parent beds in wards (not 2A as there are 2 domestic on throughout the day) as we feel that it is safer for this to be a 2 person task as it requires the bed to be held at a particular angle to access the frame.
We have issued a checklist for the domestic to record when each bed is cleaned.
We will continue to liaise with Susie regarding parent feedback and will respond to any issues raised.

David Macdonald/Pat Coyne have reinforced processes relating to access to clean with domestic staff and Supervisors. Facilities Duty Managers review access to clean documentation on a daily basis.

David Macdonald/Pat Coyne have met with domestic staff and Supervisors to discuss cleaning standards generally and to share details of feedback following Susie Dodd's parent education sessions.

Arrangements are being made for RHC staff (commencing with 2A) to be re-trained. This will commence 28th May. The purpose is to ensure domestic staff follow similar routines and practice.

Wards 2B,3A,3C, PICU and ED RHC

A review of cleaning practices and standards within these areas is being undertaken this week by Maureen Stewart, Facilities Duty Manager. Audits of all areas will be undertaken by the end of the week.

HPV: Estates and Facilities staff will work with IPPC to support the HPV of all rooms in 2A

Regards
Karen

-----Original Message-----
From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 May 2018 08:44
To: Kane, Mary Anne; Connelly, Karen
Subject: [ExternaltoGGC]cleaning concerns

Hi both ,

I have had a number of emails/conversations in the last few weeks regarding cleaning .

Karen - in QEUH you will be aware of the issues raised in 4B and then in the level 4 renal wards and I know you have been addressing these

In RHC we have 2 more outbreaks in 2A that we are investigating and at the meeting on Friday there were concerns raised re cleaning particularly in relation to the underside of parents beds which are dusty. There seemed to be confusion regarding whose role it was - domestic, housekeeper or both.

In PICU we have an outbreak of Acinetobacter which survives well in dust and I know Susie had a meeting with domestic staff there in relation to some concerns

Finally, I received an email about 3C raising the following concerns;

* High dust in numerous locations throughout ward i.e., Curtain rails, bed lights, backs of beds shelving , TV arms.
* Underside of parents beds dusty and debris on floors, crumbs in wardrobes.
* Hair in floor of shower in empty room, dust behind bath, urine around bases of toilets, toilet seats and side of toilets, dusty hand rails.
* Splash backs of sinks dirty and marked throughout.
* Blue linen store dusty.
* General dust and debris on the floor throughout the ward

Felt I needed to bring this all to your attention given the number of incidents we have going on currently

2A is a huge concern now and we are going to discuss using HPV with Tom who has been using it for CF rooms.

Kind regards

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology Dept of Microbiology Queen Elizabeth University Hospital Glasgow Direct dial
: [redacted]

Inkster, Teresa

From: MacGregor, Gordon
Sent: 24 October 2018 14:31
To: French, Sofie; Inkster, Teresa (NHSmail); Barmanroy, Jackie
Cc: Pritchard, Lynn; Edge, Joan; Leckie, Jill
Subject: RE: Hoovers -and disinfectant/detergent
Attachments: IMG_1022.jpg; IMG_1020.jpg

Thanks for this Sofie,

Ive attached the photos of floors I wiped with the yellow detergent wipes. Would be grateful if IC could review the advice given to facilities around preferred cleaning agents and equipment used to clean the ward, as when I ask cleaners they feel that they are not being given the best agents and tools to do their job. The cleaners are saying they are using actichlor plus (but i haven't been able to smell it and I gather that we are not requiring to much of it).

Am very concerned as we require scrupulous hygiene for people with CF, and have had to deal with 2 IMT outbreaks already.

Gordon

Gordon MacGregor MBChB FRCP PhD
Respiratory Consultant/NRS Career Research Fellow/Honorary Senior Lecturer/Visiting Professor
Department of Respiratory Medicine
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

Cystic Fibrosis Secretary - [redacted]
Respiratory Secretary - [redacted]

From: French, Sofie
Sent: 24 October 2018 13:56
To: MacGregor, Gordon; Inkster, Teresa (NHSmail); Barmanroy, Jackie
Cc: Pritchard, Lynn
Subject: RE: Hoovers -and disinfectant/detergent

This morning I met with Gordon McGregor regarding the frequency and quality of domestic cleaning within the CF wards. He stated that since he had escalated the issues there had been more domestic input this morning. However, there are still significant concerns as when I had visited the ward had been 'cleaned' but unfortunately I found the following issues:

- Large amounts of thick dust / dust balls which were present in the corridors
- Grime and dirt that had been wiped, but pushed up against the skirting instead of being lifted by the microfiber mop system
- Floors that were covered in sticky residue and dirty marks, despite being told they were cleaned with Actichlor Plus (Clean Utility a significant concern)

Gordon had also wiped areas of the floors that had previously been cleaned with Actichlor Plus with detergent wipes and you could visibly see the areas he had wiped as they were significantly cleaner than the rest of the floor. He had

expressed concerns (along with the SCN and CN of the ward) that when he escalates these concerns he feels the standard of cleaning improves for a short period and then goes back to the current state.

There is a CF patient who I have been told is writing a formal complaint regarding the standard of cleanliness within the ward as this is her 2nd admission where there have been domestic cleaning issues. There is a facilities walkround tomorrow with the Lead Nurse for this area and I have suggested that if there is not a resolution there will need to be a meeting about this.

Kind Regards
Sofie

Sofie French
Senior Infection Prevention & Control Nurse
Queen Elizabeth University Hospital
[redacted]
Ext: [redacted]

From: MacGregor, Gordon
Sent: 24 October 2018 11:24
To: French, Sofie; Inkster, Teresa (NHSmail); Barmanroy, Jackie
Subject: RE: Hoovers -and disinfectant/detergent

Sofie – is there any way you could come up to 7D this morning?

G

Gordon MacGregor MBChB FRCP PhD
Respiratory Consultant/NRS Career Research Fellow/Honorary Senior Lecturer/Visiting Professor
Department of Respiratory Medicine
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

Cystic Fibrosis Secretary - [redacted]
Respiratory Secretary - [redacted]

From: French, Sofie
Sent: 24 October 2018 11:18
To: Inkster, Teresa (NHSmail); Barmanroy, Jackie
Cc: MacGregor, Gordon
Subject: RE: Hoovers -and disinfectant/detergent

Hi Teresa,

The ward was audited on 05/07/19 and scored 89% (Green) There were issues identified with domestic cleaning and the SCN completed the action plan to say that Domestic Services were informed and rectified cleaning issues.

All acute wards are visited as a minimum once per week and if there are any IPC issues these are discussed / managed with the SCN.

As part of our weekly visits of all acute wards (including Wd 7D):

August – Checked patient equipment within all wards and no cleaning issues identified on 7th floor
September – Checked staff are familiar with how to make up and use Actichlor Plus in all ward and no issues identified on 7th floor

October – Checked that Actichlor was being used as for cleaning and no issues identified on 7th floor.

However a couple of weeks ago, we also checked if 2nd isolation cleans were taking place routinely as we suspected this was not always happening. Across the entire site it was reported that there was a deficit in Domestic staff and that those staff that were on wards were either being pulled away to help in high turnover areas or were not getting round to completing 2nd isolation cleans due to discharge cleans being prioritised.

At every facilities meeting we bring up domestic cleaning as an issue as we do not feel it is always up to standard and many staff members complain to us during weekly visits. The problem is that there aren't enough staff and those that are here are completely over worked so corners are being cut.

Kind Regards
Sofie

Sofie French
Senior Infection Prevention & Control Nurse
Queen Elizabeth University Hospital
[redacted]
Ext: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 24 October 2018 10:51
To: French, Sofie; Barmanroy, Jackie
Cc: MacGregor, Gordon
Subject: [ExternaltoGGC]Fw: Hoovers -and disinfectant/detergent

Hi both - see below from Gordon re cleanliness on the CF ward. There has also been a complaint from a patient on 7D regarding the state of her room . I understand the CF team have arranged to meet with facilities to discuss. Have we done a recent IPCAT? Can we check the ward?

Gordon - Actichlor is a disinfectant and I was under the impression it was being used . Is your feeling that it is not working?

We don't like hoovers, they can lead to aerosolisation of dust which would be undesirable for this patient group

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: MacGregor, Gordon [redacted]
Sent: 23 October 2018 17:26
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Leckie Jill (NHS GREATER GLASGOW & CLYDE)
Subject: Hoovers -and disinfectant/detergent

Hi Teresa,

Having ongoing issues with cleaning of CF ward.

Can you explain the infection control reasons why the cleaners are not allowed to use disinifectant/detergents in our CF wards? I don't think that the actichlor plus is lifting the grime from the floors – eg when I wipe floor with detergent wipe it leaves a clean mark.

Also why are hoovers not allowed? Cleaners say hoover would be better for the furballs which are rolling round the ward, as they don't seem to be being lifted by the microfiber mops. Cleaner would also prefer to use disposable mop which they could scrub floors with rather than microfibre.

Thanks

Gordon

Gordon MacGregor MBChB FRCP PhD
Respiratory Consultant/NRS Career Research Fellow/Honorary Senior Lecturer/Visiting Professor
Department of Respiratory Medicine
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

Cystic Fibrosis Secretary - [redacted]
Respiratory Secretary - [redacted]

Inkster, Teresa

From: Inkster, Teresa
Sent: 25 October 2018 09:56
To: French, Sofie
Cc: Campbell, Myra; McClintock, Wendy; McArdle, Alyson; Pritchard, Lynn
Subject: RE: cleaning

Thanks Sofie.
I have two email trails in the one day from high risk areas in QEUH expressing concerns . Can we arrange a meeting with domestic services with relevant staff from both areas to discuss. We need to ensure that the high risk wards have sufficient domestic resource allocated and appropriate skill level /consistency is also important.
T

From: French, Sofie
Sent: 24 October 2018 15:47
To: Inkster, Teresa
Cc: Campbell, Myra; McClintock, Wendy; McArdle, Alyson; Pritchard, Lynn
Subject: RE: cleaning

Good afternoon,

I have met with SCN Wendy McClintock of Ward 4C Haematology regarding the cleaning issues described in the original e-mail.

We discussed a number of issues including:

- Domestic provision – not felt to be enough domestic support in the ward
- When original domestic on annual leave they are not replaced with a consistent domestic – staff brought in as 'relief'
- Patients are now highlighting domestic issues – we are concerned they may make formal complaints
- Lack of confidence that twice daily isolation cleans are performed due to domestics being taken to fill deficit in other areas or having to prioritise discharge cleaning
- Relief domestic staff unaware of PPE required when cleaning rooms with neutropenic patients present

I note their IPCAT audit completed in March was 86% (Green). However, they were in Ward 4B at the time prior to the BMT wards moving over so not indicative of what is currently going on in Ward 4C.

I am happy to discuss this further. Wendy and I felt that having a meeting with Domestic services would be of benefit.

Kind Regards
Sofie

Sofie French
Senior Infection Prevention & Control Nurse
Queen Elizabeth University Hospital
[redacted]
Ext: [redacted]

From: Inkster, Teresa
Sent: 24 October 2018 13:11
To: French, Sofie
Subject: Fw: cleaning

Inks

From: Inkster, Teresa
Sent: 24 October 2018 13:53
To: French, Sofie
Cc: Pritchard, Lynn
Subject: Re: cleaning

Thanks Sofie. I note the issues with level 7 that Gordon reported also. We might need to meet with Karen to discuss
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: French, Sofie
Sent: Wednesday, 24 October 2018 1:45 PM
To: Inkster, Teresa
Cc: Pritchard, Lynn
Subject: RE: cleaning

Hi Teresa,

I'm really disappointed to hear this. I have been covering this area for the past 3-4 weeks since we rotated and each week when I have visited Wendy has never escalated or highlighted any cleaning issues to the IPCT. I visited on Monday but can certainly revisit again. I fully support any escalation or interventions as I don't believe the domestic cleaning within the QEUH is of an acceptable standard. Will let you know more once I've visited.

Kind Regards
Sofie

Sofie French
Senior Infection Prevention & Control Nurse
Queen Elizabeth University Hospital
[redacted]
Ext: [redacted]

From: Inkster, Teresa
Sent: 24 October 2018 13:11
To: French, Sofie
Subject: Fw: cleaning

Hi Sofie, see below. Can you have a look
Thanks
T

Sent from my BlackBerry 10 smartphone on the EE network.

From: Inkster, Teresa [redacted]
Sent: Wednesday, 24 October 2018 1:10 PM
To: Campbell, Myra; Pritchard, Lynn
Cc: McArdle, Alyson
Subject: Re: cleaning

Hi, I wasn't aware of this issue. Lynn is on leave but I will ask an ICN to visit. Yes I think you should escalate to Karen. I support what Wendy has requested.

Kinc
Teres

Sent from my BlackBerry 10 smartphone on the EE network.

From: Campbell, Myra
Sent: Wednesday, 24 October 2018 12:52 PM
To: Pritchard, Lynn; Inkster, Teresa
Cc: McArdle, Alyson
Subject: FW: cleaning

Ladies ,

I am really concerned at the apparent lack of cleaning being carried out in Ward 4C , are you aware of this issue ?

Should I escalate this directly to Karen Connelly ?

BW
Myra

From: McClintock, Wendy
Sent: 24 October 2018 12:32
To: Coyne, Patricia
Cc: Campbell, Myra; Gray, Fiona
Subject: cleaning

Hi Pat

I would like to raise an issue with you about the rooms being cleaned. I have had complaints from a few patients and their relatives about the lack of cleaning in the rooms. Our patients are very vurnable due their compromised immune systems to infection and are fully aware of this. One of the patients has just told me her room has been cleaned twice in the week she has been in and that was just the sinks, her family brought her in wipes to clean things with. Her room floor was cleaned for the first time yesterday, her toilet roll had ran out days ago and one of the nurses had given her a toilet roll used for the commodes but she ran out again before the bathroom was done on Monday. Another patient room was not cleaned either and for three days the only thing done was the bins were emptied under both the bed and the locker the dust was appalling. I want to put in writing that I feel we should have two domestics during the day one for each side so that the rooms can be cleaned properly each day both sides of the ward have high risk patients we should not be putting them at risk like this.

Wendy McClintock
SCN
Ward 4C Haemato-Oncology
Level 4
QEUH
[redacted]

FW: Establishment of Executive Control Group

Inkster, Teresa <Teresa.Inkster[redacted]
Wed 29/07/2020 13:00
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

From: Inkster, Teresa
Sent: 06 June 2018 18:50
To: Dodd, Susie [redacted]; Redfern, Jamie [redacted]
Subject: Re: Establishment of Executive Control Group

Happy with this
Thanks
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Dodd, Susie
Sent: Wednesday, 6 June 2018 5:55 PM
To: Redfern, Jamie; Inkster, Teresa
Subject: RE: Establishment of Executive Control Group

Hi Jamie,
I think you captured everything. Only small thing to note – I have done so in red font below.
Susie

Susie Dodd
Lead Infection Prevention and Control Nurse
Royal Hopsital for Children
[redacted]

From: Redfern, Jamie
Sent: 06 June 2018 16:17
To: Inkster, Teresa; Dodd, Susie
Subject: FW: Establishment of Executive Control Group

Aware there will be a minute of the IMT but as initial brief can you check for accuracy below and make any changes you think necessary?

Immediate feedback from IMT today

Jen can you review for anything I have missed
I will also send to TI, Suzie and Karen for comment and update

HCV

- Work ongoing against initial set project plan. As previously noted delay in getting started yesterday because of humidity in the ward
- Daily reports to update on progress. By close of play today expect to have 13/40 rooms completed
- Challenge to see whether vendor can meet ward 2a deadline by Friday. Might only achieve 35/40
- Failure for 2a deadline means we need to query delay 2b process starting.
- Risks to meeting deadline of Friday
  - Humidity and getting a new cubicle started (variable to date)

- Room sign off by vendor once vapour program completed on a room (variable to date)

Patient Communication

- Patient leaflet issued for why work ongoing. Need to revisit this with further updated communication. General feeling parents think we are not telling them the truth.
- Patient code of conduct in place and being implemented routinely with every new admission

Staff Communication and Support

- TI going to provide a general statement to all staff working across the campus with update on where we are / what we are doing
- Processes in place to support local staff on the floor though SCNs, Lead Nurses and GM / Chief of Nursing
- Ongoing concern with senior consultant group about confidence in the clinical environment they are admitting and treating children and young people; need to agree a process for how we monitor and remedy this
- Communication to wider clinical staff groups about necessary / unnecessary visits to Ward 2a / 2b issued via Clinical Directors

Estates / Sinks and Drains

- Original operating procedure to cleanse drains not possible to implement. The drawings for sinks for which the SOP was prepared don't match the actual specification of sinks
- Progress being made on cleansing of drains but no guarantee of total success rate until new test results received. Noted again there will always be bacteria found in sinks. It is the variety and scale of bacteria we remain interested in reducing. This will be discussed further at the Water Board meeting on Friday
- Option of doing isolated testing on an identified sink with a problem of gathered biofilm to be explored. Uses techniques from successful literature studies. Again to be discussed at the Water Board meeting. Sink/drain should not be from ward 2a/2b
- This isn't a new procedure – has always been the case. Need to reinforce it. New infection control procedures need to be followed in use of sinks. What used for / what can be disposed down them to be carefully controlled. Need to advise staff and parents. Also what is stored around sink needs to be monitored (shampoo, tooth brush etc). Nurse staff in ward 2a/b actively removing anything which should not be stored near or on top of sink
- Literature suggests that final end point might be the removal of sinks / drains where problem cannot be resolved

Patients

- Daily reporting process put in place to monitor impact on patient care during this reported incident. Focus on cancelled BMT and chemotherapy care.
- [redacted]. Also neurology assessment been carried out with need for further MRI.
- Huddle will now report daily on patient nos in ward 2a, rooms closed and boarded patients (nos and where they are)
- 1 set of parents have asked to speak to TI. [redacted]
- Escalation process in place if parents not following code of conduct
- Three patients with rotavirus in w2a presently. Arrangements in place for how these patients should be managed during current situation.
- Wider array of patients with different types of infections reported through the I MT minutes

Staffing

- Nurse staffing in place to manage workload
- SCAMPS work completed alongside professional judgement review on nurse staffing to activity in ward 2a. General position that word should increase on the floor presence by 1WTE registered nurse per shift. This would mean uplift of 5.5WTE. Additional housekeeper post should also be added to nursing establishment

- Roles and responsibilities of a 2nd housekeeper under nursing to be agreed with Facilities. Job description has been shared with the Facilities management team
- All SOPs between nursing and domestic staff agreed and clarity on roles and responsibilities for different staff groups understood

IMT and HPS

- HIIAT for IMT – Red
- Further IMT meeting scheduled for Friday 8th June 3pm
- Scope of HPS review of w2a/ 2b shared but no formal terms of reference or when report will be concluded by agreed
- Series of questions circulated by Scot govt to HPS for completion ahead of FM question time tomorrow Thursday 7th June
- Infection Control reviews will be happening routinely in the ward and reported daily. A proportion of these will be external reviews from ICT staff out with those with W&C remits .
- Results from new sink samples in wards will be discussed at the Water Board meeting on Friday 8th June
- No immediate press concerns following recent media interest.

Ongoing Governance

- Commission of an Executive Group with Director leadership explained including ongoing reporting to Board CEO and Executive Directors
- JR to continue with his tripartite group of Service, microbiology-infection control and Facilities. This will report at the end of the IMT on Friday 8th June using this draft brief and agreed action plan as aide memoir for discussions / updates
- TI will formally update to Executive group on the IMT
- MAK will formally update to Executive group on Water Board which also meets weekly on Fridays

Domestics

- To be completed by KC for Friday 8th June 2018

From: Hill, Kevin
Sent: 06 June 2018 12:25
To: Inkster, Teresa; Mathers, Alan; Walsh, Tom; Kane, Mary Anne; Gallacher, Alan; Powrie, Ian; Redfern, Jamie; Rodgers, Jennifer; Connelly, Karen; Macdonald, David
Cc: Hackett, Janice
Subject: Establishment of Executive Control Group

Dear colleagues,
I appreciate and acknowledge your efforts and those of your respective teams in addressing the previous, current and ongoing issues mainly affecting Ward 2A and 2B at RHC.

In order to ensure governance regarding decision making and coordination of our efforts going forward I am establishing an Executive Control Group that will provide weekly updates on progress.

Therefore I request your attendance at a weekly meeting commencing from Friday 15th June 2018 at 1.00pm (venue to be confirmed via Janice Hackett) and for subsequent meetings occurring every Friday at the same time for up to 2 hours. Please confirm your attendance or if unable to attend nominate a designated deputy.

The work of your respective groups should continue covering:

1. Environment (Water/Technical Group); Chaired by Mary Anne Kane
2. Service/Clinical Practice Group; Chaired by Jamie Redfern
3. Where appropriate Incident Management Team Meeting; Chaired by Teresa Inkster

The work programme of your respective groups will be shared with the members of the Executive Control Group to ensure priorities and actions to be taken are understood and agreed.

Thank you in anticipation for your cooperation and assistance.
Happy to discuss.
Kind regards

NHS GGC

Acute Division / Women and Children's (W&C) Directorate / Hospital Paediatrics and Neonatology (HPN)

Minute of meeting of the Executive Control Group (ECG) reviewing actions resulting from water and associated issues impacting upon Ward 2A/2B held at 1pm on Friday 15th June 2018 3rd floor Royal Hospital for Children (RHC)

1. Attendance, Apologies and Introductions

   Kevin Hill (KH) – Director (Chair) W&CD

   Alan Mathers (AMM) – Chief of Medicine W&CD

   Teresa Inkster (TI) – Lead Consultant Infection Control

   David McDonald (DM) – Site Facilities Manager

   Jamie Redfern (JR) – General Manager W&CD

   Mary Anne Kane (MAK) – Interim Director Facilities

   Jennifer Rodgers (JRo) – Chief Nurse W&CD

   Sandra Devine (SD) – Chief Nurse Infection Control

   Ian Powrie (IP) – Assistant General Manager Facilities

   Alan Gallagher (AG) – GM Facilities

   Apologies were noted from Tom Walsh. SD was attending in his place.

   After introductions KH welcomed everyone. He then described what the purpose of this ECG was going to be and how it would work. All noted it would be a weekly meeting, held 1pm on a Friday in RHC and he would chair. All present were expected to attend or provide a named depute.

   It was confirmed that the ECG would review three main areas of progress regarding wards 2A/2B: Incident Management Team (IMT) meeting, Water & Technical Group meeting and Service & Operational Group meeting.

   It was also confirmed that the ECG would report jointly to the Board Chief Operating Officer and Medical Director.

2. Incident Management Team (IMT) Meeting Update

   JR and TI provided update of the previous IMT held on Thursday 14th June 2018. They also noted there would be a further meeting today (Friday 15th June) at 3pm.

   The update provided briefing on patients, control measures, communication, interface with HPS / HFS, and working hypothesis. Noted HIIART remained red.

JR confirmed current plan was for wards 2A/2B to have all works completed and normal admission processes in place by 08.00 on Monday 18th June 2018. He did not anticipate any problems over the weekend. Through next week service would catch up on all delayed chemotherapy patients.

The briefing to the Scottish Government on two specific patients were noted; also acknowledged there was a 4pm conference call with Scottish Government officials on current situation.

TI updated on the review being carried out by HPS on wards 2A/2B. Concern was noted on who HPS were intending to benchmark RHC wards with as Aberdeen and Edinburgh were not true comparators and it was considered by all present that HPS needed to extend benchmarking to include comparable English units to RHC.

3. Water & Technical Board

MAK, IP and TI updated on the Water Group meeting held earlier today.

Discussion initially focussed on the plan for sanitisation and replacement of taps in high risk areas.

Timescales for this work was discussed and in due course would be finalised with clinical teams.

Confirmed Point of Use (POU) filters continued to protect the water supply as per manufacturer guarantee. Noted there was ongoing discussion that an alternative filter might be considered.

JR raised the issue of water coolers suggesting they were currently a point of confusion with staff and parents. IP/ TI / MAK explained why they had been taken out of use and referenced new legislation soon to come out. Agreed they should be removed from all ward areas. IP would make sure this had happened. Alternative supply of bottled water to high risk areas would continue.

4. Service & Operational Group

JR noted the good feedback received on wards 2A/2B through standard reports on domestic and staff compliance to infection control practice.

TI and DM confirmed there would continue to be extended monitoring on all domestic / staff practice with results shared appropriately. JR/JRo confirmed all reports would be analysed and acted on immediately.

JRo confirmed all control measures were in place and working well in the wards.

MAK confirmed she was now happy with the enhanced level of domestic support provided since the introduction of an additional 20 hours per week to both wards and that this level of domestic input compared favourably with what was planned for ward 4B QEUH and with the Beatson Oncology Unit.

JR / JRo/ TI confirmed they had met with senior staff from ward 2A/2B earlier in the day and there had been a positive discussion on the current situation. JR noted that the clinical staff were content with the progress being made and their ongoing involvement.

KH asked that a paper be provided by JRo on the benefits an additional housekeeper would provide to the ward. This needed to be considered in conjunction with registered and non-registered nurse staffing requirements on the ward. JRo advised that information on nursing workforce to wards 2A/2B was currently with Board Nurse Director for consideration.

JR/ IP agreed to provide a specification for estate work on the revised entrance to ward 2A for parents. This would include revised signage and a finger print system similar to what is in use in NICU and ward 1D (PICU).

There was further discussion on benchmarking. KH asked TI / SD to prepare a paper outlining what benchmarking had been carried out so far and what was planned by infection control colleagues in the future. AMM and JRo were asked to consider how service might input to this work.

5. Team Brief

KH agreed to prepare a specific team brief on wards 2A/2B for week beginning Monday 18th June 2018.

Date and time of next meeting:

Friday 22nd June 2018 at 1pm in Level 3 Meeting Room GWS.009 RHC.

Jamie Redfern

General Manager HPN

Draft 4 18th June 2018

FW: Executive Control Group

Inkster, Teresa [redacted]
Wed 19/08/2020 12:54
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

From: Hackett, Janice
Sent: 01 February 2019 15:05
To: Connelly, Karen [redacted]; Devine, Sandra [redacted]; Gallacher, Alan [redacted]; Hamilton, Pauline [redacted]; Inkster, Teresa [redacted]; Kane, Mary Anne [redacted]; Macdonald, David [redacted]; Mathers, Alan [redacted]; McNeil, Elaine [redacted]; Powrie, Ian [redacted]; Redfern, Jamie [redacted]; Rodgers, Jennifer [redacted]; Walsh, Tom [redacted]
Subject: Executive Control Group
Importance: High

Dear All,

Kevin has decided to reconvene the Executive Control Group meetings on Fridays at 2pm starting on Friday 8 February. This meeting will be held in Level 3 Conference Room, GWS 009, RHC.

All further meetings will be held in Level 0, A&E Seminar Room, RHC with the exceptions below:

22 February 2pm - LEVEL 9 Seminar / Education Room WS9-033
29 March 2pm - Level 0, A&E Meeting Room, 016, RHC
24 May 2pm - Level 0, A&E Meeting Room, 016, RHC
28 June 2pm - Level 0, A&E Meeting Room, 016, RHC
30 August 2pm - Level 0, A&E Meeting Room, 016, RHC
29 November 2pm - Level 0, A&E Meeting Room, 016, RHC

Janice

Janice Hackett
PA to Dr Alan Mathers, Chief of Medicine
Jen Rodgers, Chief Nurse Neonatal, Children and Young People's Services
Kevin Hill, Director
Women and Children's Directorate
Ground Floor, Zone 2
Office Block
New South Glasgow University Hospital
Glasgow
G51 4TF

Tele: [redacted]
Email: [redacted]

Draft 1 - 12/02/19

Notes from Executive Control Group (ECG) meeting held on 8th February 2019

In attendance:

Kevin Hill (KH)
Dr Teresa Inkster (TI)
Pamela Joannidis (PJ)
Tom Steele (TS)
Mary Anne Kane (MAK)
Colin Purdon (CP)
Jamie Redfern (JR)

Introduction
The group undertook a systematic review of all action lists and allocated responsibility arising from IMT minutes related to Cryptococcus. The key points are covered below:

1. Cryptococcus (Amber)

As per IMT, plan move back to Ward 6A on Monday 11 February 2019. Filters to be fitted to taps on Sunday. Mobile Hepafilter units to be provided to all inpatient rooms indefinitely. SLWG established via IMT to review prophylaxis. Once move completed IMT level will be Green.

2. Ward 7A Exophila – shower – black mould

QEUH 6A, 4C, level 7 A and D being addressed. Rest of building needs wells checked and further stripping as necessary. Require return to 'business as usual' in order to progress rest of building. Discussion regarding SCN responsibility for built environment and MAK undertook will circulate CEL. PJ asked if FM 1st could select out water damage and high risk wards as a priority – yes. It was agreed CP, MAK, TI and PJ to look at using FM 1st to 'flag up' environmental priorities.

3. Mucor

TAC mat – sample to be trialled on helipad ramp/lift access.
MAK to review and confirm arrangements for trolley wheel cleaning.
Prophylaxis would be addressed by SLWG.

TS suggested they provide an asset list regarding HEPA filter units along with life span of filter and location tracker for 120 + units now deployed. In order to provide an auditable track.

4. To remove all vegetation from the roof top garden on level 4 QEUH.

5. Plant room inspections underway every two weeks and it was agreed by TS to report any exceptions and to be shared with ECG.

6. Air handling units / ducts (350) – those serving high risk units should have higher spec F9 currently being tested as they are presently fitted with F7.

   There was no recommendation for CF patients but TI considering whether to include however JR advised this patient cohort were dispersed across to many wards in RHC – TI to discuss with HPS.

7. Air sampling frequency fortnightly in 6A and monthly in 4B QEUH.

8. Air sampling plant room 41 – sample away to Bristol – TI confirmed John to pick up. Will get fungus – not expecting any. Focus on Cryptococcus.

9. No evidence of heavy soiled boxes coming in however ongoing monitoring underway.

10. Schedule for vents – can we have a HEPA hoover for cleaning these – long arm 'Dyson' type

11. RHC and adults – hot and cold water system – chlorine dioxide – end of March 2019 for complete implementation.

12. Ward 2A ventilation system: staff need to be educated on what it is and how it functions.

13. Meeting with clinical team to be progressed following agreed joint statement on the ventilation upgrade and its efficacy between TS and TI and signed off by the ECG prior to meeting date.

Kevin Hill
12 February 2019

Julie Rothney

From: Peters, Christine
Sent: 15 June 2018 15:20
To: Balfour, Alison; [redacted]; Inkster, Teresa; Inkster, Teresa (NHSmail); Khanna, Nitish; Peters, Christine; Valyraki, Kalliopi; Wright, Pauline
Subject: Prophylaxis 2A update

Hi All,

Just back from the 2A meeting. It is clear that there is conflicting and at times confusing advice on prophylaxis use being given to the team. It would be good to get some concensus/ rules of thumb discussed. And I'd appreciate hearing everyone's views.

I hope we agree that the final advice from micro regarding antibiotics is the duty of the Paediatric microbiologist on for the day who will take into account the risks balance required in each case when advising antibiotics, including covering for the risks of environmental gram negatives.

I was told prophylaxis has been advised for clinic patients also ,and the question is for how long? Patients are also not allowed home for day pass at present in case of sepsis.

Some patients have now been on cipro for a couple weeks , and in giving advice my thoughts around the risk balance which I would value your comments on :

1. Risk of infection

Unquantifiable but currently informed by IPCT that there is a real risk of environmental gram negative infection in BMT patients - this is **all** gram negatives, not all are sensitive to cipro but it is going to give the broadest cover and is oral, and many are mero resistant (stenos in particular). Consequences of recent infections include: BMT postponed. ITU admissions, collapse and shock with sepsis, line replacement ,multiple anaesthetics, family anxiety and patient morbidity and extended admission. which organisms pose the highest likelihood of causing infections seems to vary over time as one would expect with environmetnal sources .

2. Options for mitigation
- source control - ongoing work by IMT
- chemo prophylaxis: AIM is to cover as many gram negatives as possible to prevent sepsis
- closing unit - admission have been suspended at different times

3. Risks of chemoprophylaxis
- toxicities of chosen drug (cipro or cotrimox currently first line)in patients with bone marrow supression, poor nutritoion often and loose stool issues often
- addition to other antibiotics can increase toxicities and effect on normal protective flora
- selection of other organisms : VRE, MRSA, C diff (one case), Fungal Infections, other resistant gram negatives and break through infection (one case)
- rendering samples less likely to grow organisms when infection starts

So some thought son when we are giving advice on antibiotics we need to be aware of what prophylaxis patietn is on egs
- If on co-trimox for PCP prophylaxis, don't add cipro
- if on gent/ami and mero therapy as per protocol, no need for cipro as broad gram neg cover - unless we have had a full agreement that the protocol should now in fact change in response to the situation which would need to be agreed at AMT
- if has c diff - not for cipro

- if has bactaeraemia with VRE - consider carefully the balance
- treating fungal infection - ? balance of risk
- how long is the prophylaxis to continue - if in for a number of weeks risks start to add up, and perhaps if counts recovering, the risk of infection is less
- currently we don't have risk factors to help direct the choice other than patient group and ward location. One patient became septic, but had not line .

Please document in notes what and why has been advised with regard to prophylaxis in notepad, I would only go against some-one elses choice if there was a substantive change in the situation.

Please let me know your thoughts about this topic,

kr
Christine

FW: Water systems review

Inkster, Teresa [redacted]
Wed 29/07/2020 13:03
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

1 attachments (39 KB)
SBAR Water Systems.docx;

From: Inkster, Teresa
Sent: 03 July 2018 08:55
To: Jones, Brian [redacted]
Subject: Fw: Water systems review

Confidential

Hi Brian. See email below and SBAR. Jennifer has requested an internal review of commissioning of the water system. This will be led by Tom and also requires my input. Tom has suggested one day a week or two afternoons in terms of time commitment but we will know more after the initial meeting. The micro rota is very tight due to summer hols but do you think it would be possible to get cover for me to do this from duty micro or Aleks?

Kr
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Walsh, Tom [redacted]
Sent: Tuesday, 3 July 2018 8:28 AM
To: Inkster, Teresa
Subject: Water systems review

Hi Teresa

Ann is copying the papers for you and we'll leave them on your desk.

I've also attached the SBAR I did for Jennifer and Jane.

I really need your input to the group that will pull the required info together. I know it's a busy time but wondered if you could give the background to Brian and see if there's any scope for releasing a bit of your time?. Happy for you to share the SBAR in confidence if that helps, and I'm happy to follow up with a conversation or email.

I propose to hold the first meeting of the group on Wed Pm or Thursday at 11am if either are possible for you.

Thanks

Tom

NHS Greater Glasgow and Clyde	**NHS Greater Glasgow & Clyde** **Infection Prevention and Control Team**
Purpose:	Proposed approach to the review of water systems at QEUH and RHC.
From:	Tom Walsh, Infection Control Manager
To:	Board Medical Director
Date:	29th June 2018
Subject / Situation:	NHSGGC is required to ensure that water systems are compliant with all relevant safety standards and to fully support both internal and external review of the commissioning and safety of the Water Systems in QEUH and RHC.
Background:	Recent laboratory tests were undertaken as part of the investigation into increased rates of infection within ward 2a at RHC. The test results indicated higher than normal levels of bacterial counts in the water supply which have been managed through an Incident Management Team (IMT), lead by the Lead Infection Control Doctor. Further testing in other clinical areas yielded similar results. Health Protection Scotland (HPS) and Health Facilities Scotland (HFS) were involved in the IMT process and a broader review of the water systems, including commissioning, was instigated at the request of Scottish Government. The Board has to date been responding to a number of questions on the water system and a formal external review has been commissioned from HPS. Reports relating to the commissioning of the water systems have been identified in recent days which include a number of recommendations and actions which the Board needs to review in terms of both internal and external assurance. The board recognises the paramount importance of patient safety and the need to ensure that the water systems are compliant with all relevant safety standards. It is vital that all current and retrospective information is available to fully support the internal and external review processes.
Action	• The external review of the water system is already underway with a number of services and senior managers actively contributing to the process. • The Board will additionally commission an internal review within NHSGGC to look at the commissioning process • The Board will, as a matter of urgency, review all recommendations and ensure they have been addressed with clear evidence and take urgent action to put in place actions to address any outstanding areas.
Recommendation	To provide optimum support to the internal and external review processes a structured approach to communication, review and management of documentation, and local

	coordination of resources is proposed. This could be lead by the Board Infection Control Manager, supported by a Project Manager from the NMAHP Service, a Senior Facilities Lead and admin support. The team would adopt a structured, project management based approach to the coordination of communications, documentation management and full compliance with the internal and external review processes. The Project team could act as the single point of contact for both internal and external colleagues. The Team would focus on three primary and interlinked work streams: 1. **Review and management of all relevant documentation and written communications** to support the SG commissioned external review and the GGC internal review. 2. **Ensure that the QUEH water reports have been reviewed and all actions are either completed or in the process of being enacted with clear evidence** 3. Liaison with and support to the internal review process when commissioned. Regular meetings to review progress with members of the executive team will be vital given the high priority and tight timescales.

Fw: Water reports

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

Thu 27/08/2020 13:57

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Inkster, Teresa [redacted]
Sent: 23 July 2020 19:20
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: Water reports

From: Walsh, Tom
Sent: 02 July 2018 17:15
To: Inkster, Teresa [redacted]
Subject: Water reports

Hi Teresa

I have the water reports Jennifer mentioned and she'd welcome your view. I only have hard copy unfortunately at the moment. Would you be able to come to WGACH to review them or pick them up tomorrow?

Thanks

Tom

Fw: Water Investigation.

Inkster, Teresa [redacted]
Thu 27/08/2020 15:42
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

From: Walsh, Tom
Sent: 04 July 2018 10:29
To: Inkster, Teresa [redacted]
Subject: Water Investigation.

Hi Teresa

Following discussions with Jane Grant yesterday Jonathan Best is now leading on the external review of water systems and I am the primary point of contact for HFS and HPS.

The project team approach Jennifer instigated has been deferred and I am working with Mary Anne and Jonathan on the review of current position.

Apologies if you had already approach Brian.

I am not 100% sure why things changed.

Bw

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Queen Elizabeth University Hospital
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Notes from a meeting held 10/12/18.

Date or record – 11/12/18

Present ; Dr Teresa Inkster (myself), Tom Steele (director of facilities), Ian Powrie (estates manager), Andy Wilson (estates manager), Maryanne Kane (deputy director for facilities)

I attended a meeting on 10/12/18 at 2pm to discuss the water incident.

Post meeting I was asked by the Director of Facilities, Tom Steele to stay behind to discuss ventilation with those listed above.

The key points are below. This meeting was unminuted.

I had raised a series of concerns in relation to ventilation with the medical director Dr Armstrong the week before and she had planned to speak to Tom Steele regarding these. I had also had some meetings with infectious diseases and haematology colleagues regarding patient placement and the patient environment on 7/12/18

Tom began by telling me that I should not be promising clinicians anything and that the important thing to ascertain was whether there had been a design fault or whether patients had been moved into the wrong areas. He told me he needed the facts around the ventilation plans to find out if it was the board or the contractor . I stated that I disagreed with him and that in my opinion there was an immediate need to address patient safety issues. I stated that as a clinician this was my priority and I had an obligation to alert fellow clinicians to a patient safety issue as per GMC. I made him aware of the significant clinician anxiety and lack of confidence regarding ventilation in the QEUH.

I explained that currently patients were being placed unsafely as we do not know what room pressures we have on each ward and that we are risking transmission of TB to patients and staff. I expressed concern that the email I had sent to health and safety re the issue last week had not been addressed . I highlighted that pressures in rooms on ward 5C and 5D where TB patients are placed are inconsistent and should be negative. Myself and a colleague Dr Hood confirmed that some are positive using two different testing methods. This coupled with the failure to sign of critical care negative pressure rooms gives us the immediate inability to safely place patients with TB. We discussed the failure of the negative pressure rooms to meet design criteria and the likelihood that these will not be available for some time.

Tom expressed concern re 4C haematology. I stated that these patients were the adult equivalent of the paediatric patients whose ward we have agreed to upgrade . Not reviewing or upgrading the adult ward represents an inequality of care. Furthermore

there patients were in a ward in the old hospital with HEPA filtered rooms and were therefore in a more protective environment many years ago than they are now. They were supposed to be in ward 4B designed specifically for them by my colleague John Hood but were moved from this ward to allow adult BMT to move in . The haematologists expressed concern at the time particularly in relation to Acute lymphoblastic leukaemia patients who undergo intensive induction chemo. These concerns remain.

I stated that I had two concerns re 4C. Whilst the need to improve ventilation spec overall was one of them I urgently need to know whether the issues affecting 2A are relevant to 4C. i.e is there a thermal wheel with wrongly connected ductwork pulling contaminated air into clean supply. I got a nod of the head that there is. I also stated the need to know the pressure readings as they should be positive. I was concerned that the ward above was changed to slightly negative last week , Given that the setup serves 4 floors, the likelihood is that pressures in 4C are now negative bringing contaminated air into patient rooms from that route also. Again I got a nod of the head that that was likely but I have seen nothing in writing.

I was advised by Tom Steele to stop sending emails and not to put things in writing as that meant ‘they were out there’. I stated that I did not work like that and that accurate documentation was essential. I stated I would be writing an SBAR assessment. I was told by Tom Steele not to send it via email but to print and hand to him . I stated I would not do that.

He left the meeting but we agreed that we would meet again on 12/11/18

Ian Powrie informed Maryanne Kane that [redacted] we had found a brick in the water system close to a pressure gauge. He stated that on speaking to Brookfield Mulitiplex that they stated it was likely sabotage from workmen who had been laid off at the end of the project.

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 18 December 2018 14:57
To: Purdon, Colin
Cc: Gibson, Brenda; Hart, Alistair; Dodd Susan (NHS GREATER GLASGOW & CLYDE); Pritchard, Lynn; STEELE, Tom (NHS GREATER GLASGOW & CLYDE); Powrie Ian (NHS GREATER GLASGOW & CLYDE)
Subject: pigeon issue
Attachments: pigeon2.jpg; pigeon 1.jpg

Colin,

Microbiology colleagues have referred me two patients in recent weeks with Cryptococcus in blood cultures. Both patients are high risk haemato-oncology patients (one adult, one paediatric) . Sadly the paediatric patient has passed away. This is a very unusual blood culture isolate and two in a matter of weeks in the same building is a concern.

Cryptococcus is a yeast and commonly found in pigeon and other bird droppings . Ian Powrie is checking the ventilation intakes for these wards in relation to roofs and garden space.

Can I check whether we are still having issues with pigeons and helicopters? Also, I have attached some pics from a walkround earlier - can we arrange to get this all cleaned up?- this is in the vicinity of PICU where the paediatric patient spent some time.

Thanks
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Official Sensitive Personal Data: Crytptococcus: GA: 1207456020

DELETE REPLY REPLY ALL FORWARD ...

Mark as unread

McConnell, Donna [redacted]
Wed 19/12/2018 08:58

To: Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Dodd Susan (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); French, Sofie [redacted];

Cc: CARGILL, James (NHS GREATER GLASGOW & CLYDE); Khanna Nitish (NHS GREATER GLASGOW & CLYDE);

Hi,

I have looked into the adult case below –

This patient was transferred [redacted]/11 to Ward 4C Haematology and has stayed in the same room throughout [redacted] admission (room 68). Prior to admission [redacted] was an inpatient [redacted] from [redacted]/10 – [redacted]/11.

[redacted] has received 2 doses of Gemcitabine which would have been prepared in the Aseptic Pharmacy on 12/11 and 19/11 prior to the +ve blood culture on 22/11. The only other products [redacted] has received has been red cells on 08/11 and 21/11 and platelets on 11/11, 12/11, 13/11, 14/11, 17/11 and 20/11.

[redacted] does not leave [redacted] room and has had no reported contact with pets / birds. Level 4 looks directly out onto the roof and there are numerous pigeons outside her room and on the roof but no reported issues / problems with ventilation.

The patient's condition is generally poor and the ward staff have said [redacted] has had an on-going pyrexia / sepsis. [redacted] may be for transfer to a hospice and currently there is no plan for discharge home. Let me know if you need any more information or want us to do anything else.

Kind regards,

Donna

Donna McConnell
Senior Infection Prevention and Control Nurse
Queen Elizabeth University Hospital

[redacted]
[redacted]

Cryptococcal neoformans cases

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Thu 20/12/2018 15:31

To: HPSInfectionControl (NHS National Services Scotland) [redacted];

Importance: High

1 attachment

HIIORT 201218.docx;

Please find attached a HIIORT from NHSGGC with regards two cases of Cryptococcus neoformans in blood cultures

This is a HIIAT RED

Please contact me if you require any further info - [redacted]

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

NHS SCOTLAND

The Scottish Government

Mandatory - Healthcare Infection, Incident and Outbreak Reporting Template (HIIORT)

Complete within 24 hours for all HIIAT Red and Amber;
for HIIAT Green complete only if HPS Support requested.

Section 1 :Contact Details	
NHS Board/Care organisation	NHS Greater Glasgow and Clyde
Date and time of reporting	20.12.18
Person Reporting and designation	Dr T Inkster Lead Infection Control Doctor Sandra Devine Associate Director of Nursing IPC Lynn Pritchard LNIPC Susie Dodd LNIPC
Telephone number and email	Sandra.devine[redacted]
Section 2: Infection Incident/outbreak Details	
Care facility/hospital	Queen Elizabeth University Hospital
Clinical area/ward and speciality	Heamatology
Total number of beds	N/A
Total number of beds occupied	N/A
Section 3: Initial assessment	
Type: Incident/outbreak/ data exceedance e.g. Gastrointestinal, decontamination failure	Two cases of Cryptococcus neoformans in the past week. Considered an exceptional infection
Infectious agent known or suspected	Cryptococcus neoformans
Case definition	Any patient diagnosed for clinical samples with Cryptococcus neoformans
Date of first case (if applicable)	[redacted].11.18

Total number of confirmed patient cases 2	Total number of probable patient cases 0	Total number of possible patient cases: 0	Total number of staff cases: 0

Number of patients giving clinical cause for concern as a consequence of this incident/outbreak	none
Number of deaths as a consequence of this incident/outbreak	[redacted]
Was the infectious agent cited as a cause of death on a **death certificate*** (if yes, state which part of the certificate)	[redacted]

Additional information:

Cryptococcus neoformans is an encapsulated yeast that can live in both humans and animals and is largely found in soil and pigeon excrement

Summary

2 clinical isolates within 17 days on the same hospital site. [redacted]. Summary of the two cases is as follows:

[redacted] admitted to Ward 2A of the Royal Hospital for Children (RHC) on [redacted] 2018. The patient was too unwell to mobilise out of [redacted] room or anywhere in the hospital. Ward 2A was decanted to ward 6A, Queen Elizabeth University Hospital (QEUH) on [redacted] 2018 to allow for upgrade works to take place. [redacted]. [redacted] samples reveal Cryptococcus neoformans from multiple sites

The adult case in still in hospital [redacted]. [redacted] is currently on treatment. The infection is not thought to be significantly contributing to [redacted] condition at this time.

Control Measures

Review of cases (PAG) on the [redacted].12.18 and immediate actions as follows:

- Review of drugs given to patients by the aseptic pharmacy (in progress).
- Review of PICU to review possible contamination with pigeon excrement on window ledges etc. Findings – excessive volumes of pigeon droppings have been noted outside of PICU in enclosed external atriums. There is no window or door access to the external atrium for staff or patients. Pigeons have been reported to be nesting on the sills of the external atrium throughout the summer months and as a result nets were placed overhead and spikes applied to window sills. The extensive pigeon excrement is no longer visible although some pigeon droppings do remain on the external windows and sills. The same was also visualised on overhead canopies at entrance way to the Royal Hospital for Children.
- Review of plant room on the roof of the adult hospital – evidence of pigeon droppings and feathers in the plant room. Microbiology will sample droppings from this areas and also the air with settle plates and active air sampling After this estates will decontaminate the areas as per instructions from the IMT.
- Samples of faeces will be sent for further analysis – Bristol
- Air sampling of ward areas will take place

IMT convened on the 21.12.18 actions from this;

- All high risk patients will receive prophylaxis.
- Establish if both patients received drugs from the aseptic pharmacy
- Place spikes on all areas where birds might nest in both buildings
- Review plant room daily and put measures in place to prevent further access to the areas by birds. Investigate for access points
- Vet Consultant at HPS has been contacted by Consultant Public Health Medicine to establish incidence/epidemiology.
- Epidemiology of cases will be reviewed by CPHM
- Bristol mycology – typing not routinely available but they will attempt sequencing. Advice sought re epidemiology – they have not seen hospital acquired cases before, usually sporadic community cases
- Ongoing surveillance – clinicians and microbiologists will consider as part of differential diagnosis and send serum antigen and blood cultures .

Lab contamination has been ruled out

Section 4: Healthcare Infection Incident Assessment Tool (HIIAT) (link to tool)		
Severity of illness	Minor/Moderate/Major	Major
Impact on services	Minor/Moderate/Major	Minor
Risk of transmission	Minor/Moderate/Major	Moderate
Public anxiety	Minor/Moderate/Major	Major (among this group of patients)
HIIAT Assessment	Red Amber Green	RED
Section 5: Organisational Arrangements		
PAG/IMT meeting held	Both Y /Y	Date: 18.12.18 & 20.12.18 Chair: Dr Inkster
Next planned IMT	Yes (sooner if is another case)	Date:27.12.18
Press statement (send with HIIORT or provide date for receipt)	Holding, Release Date:20.12.18	
HPS support requested	Y Vet consultant	Date..20.12.18
Other information: e.g. decisions from IMT		

Complete this update section weekly as a minimum if red or amber or as agreed with IMT and HPS for onward reporting to SGHSCD.

Section 6: Update						
On this date:						
Cumulative total of confirmed patient cases						
Cumulative total of probable patient cases						
Cumulative total of possible patient cases						
Cumulative total of staff cases						
Total number of symptomatic patients today						
Number of patients giving cause for concern						
Total number of deaths as a consequence of the incident since last HIIORT report						
Is the ward/services closed						
Is a service restricted						
HIIAT assessment						
Organisation update certification information)	*Comments (including changes to any control measures, case definition or death)*					
Date:						
Date:						
Date:						
Date:						
Date:						

ONCE COMPLETED, EMAIL TO: NSS.HPSInfectionControl@nhs.net

A49541141

advice required

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Thu 20/12/2018 14:14

To: Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE) [redacted];

Importance: High

Jennifer - we had an IMT today re two cases of Cryptococcus neoformans in blood cultures , hospital acquired in haematology patients .

I need some urgent advice re duty of candour as the [redacted] patient has sadly passed away with positive post mortem samples. Can you call me at some point on [redacted]

Thanks
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 December 2018 14:54
To: Peter Hoffman
Subject: Re: Cryptococcal cases

Thanks Peter, I will get this all checked out. The haematology patients concerned have not been in a positive pressure room.

We have been doing a lot of water testing due to ongoing water incident , interestingly we have noted a lot of fungus - I will get them to specifically check for Cryptococcus

Hope you have a great Christmas

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peter Hoffman [redacted]
Sent: 21 December 2018 14:41
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Cryptococcal cases

Hi Teresa.

Agree with your suspicions

A few thoughts:

Buildings are rarely completely sealed. Might there be gaps around the outer edges of windows? In the absence of smoke to detect those leaks, how does it feel on a windy day – any ingress of air around the windows. Are the patient rooms at any particular pressure (sure we've discussed this but I can't recall)?

There's always the possibility of dust from disintegrating droppings entering ventilation systems. Maybe ask to what level is the air is filtered and whether there is a possibility of air bypassing filtration via gaps between filters or around their edges. Does the air enter the relevant air handling unit directly from outside or is it drawn from the plant room?

You refer to evidence of birds in plant rooms. Are water tanks covered adequately to prevent any contamination from droppings or dead birds?

Regards.
Peter

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 December 2018 10:25
To: Peter Hoffman
Subject: Cryptococcal cases

Me again!

I have two cases of Cryptococcal neoformans in blood cultures , 17 days apart in [redacted] patients

Both inpatients for some time before positive results so considered hospital acquired.The [redacted]

Its classically found in bird droppings and we have had issues on the site with pigeons . We have have had to fit nets and spikes on some window sills

Walking around there are droppings on window ledges and in the rooftop plant room droppings and feathers visible. Pest control have been called recently to remove a bird from there.

I had an Incident management team yesterday to discuss. Estates colleagues tell me the building is sealed and there is no way for droppings to get in windows etc .Also that there is no way for them to enter a ventilation system.

I tend to disagree.

I have two HAIs of a rare infection classically found in bird droppings with visible evidence of a bird issue ,so at the moment a link to birds is my strongest hypothesis.

Do you have any experience of this or any thoughts?

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

****
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****

Inkster, Teresa

From: Peters, Christine
Sent: 21 December 2018 15:38
To: Purdon, Colin
Cc: [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Ventilation plant room plans

Hi Colin,

Thanks for your time this afternoon,

From our discussions I understand that all four plant rooms in level 12 which supply the whole of the QEUH building from level 4 to level 11 have had evidence of pigeon infestation. This includes the plant that supplies wards 4C and 5C (renal transplant and HIV).

It seems entirely plausible that contamination within the plant rooms may have caused ingress of Cryptococcus into the system eg at times of accessing the AHUs for maintenance etc. . Although filters are in place (G7 I think you said) , there are no HEPA filers which would be required to eliminate this risk.

We established that:

1. The water tanks are at basement level and no evidence of any birds in the area and this would be very unlikely due to the concrete ceiling and lack of access for the birds – however a visual check will be made
2. The windows in the building are sealed and there has not been evidence of water ingress which would occur if the windows lost their seal, again this will be checked
3. A list is being generated of all maintenance work on the AHU and ducting
4. As supply ducting is under positive pressure it is unlikely that ingress could occur through any small defects in the ducting
5. A summary of all areas supplied by each of the 6 AHUs in each wing of the plant room will be circulated

Currently the priority is to clean up all bird mess in all plant rooms, to block off all access points for the birds to get into the fabric of the building and to identify all at risk patient groups.

Kind regards,

Christine

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 December 2018 16:15
To: Steele, Tom
Cc: Purdon, Colin; Walsh, Tom
Subject: Re: [BlockedURL][ExternaltoGGC]article

Tom, these areas have been accessed today by microbiology consultant colleagues and a BMS. I have an email confirming that all 4 plant rooms have evidence of contamination.

We can expect to see sporadic community cases of Cryptococcus.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Steele, Tom [redacted]
Sent: 21 December 2018 04:49
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Purdon Colin (NHS GREATER GLASGOW & CLYDE)
Subject: Re: [BlockedURL][ExternaltoGGC]article

Teresa, I've not been able to open this attachment on my phone, but will look at it later.

I spoke with Colin yesterday to understand the location of plants rooms that are visibly contaminated and to be clear about which wards that they serve.

The plant room that covers 6A is not one has any contamination, and the other that shows the most doesn't cover ward 4. I have asked for photographic as well as video evidence if available of all seas.

I have also asked for a clear review of all occasions that the covers have been removed from any of the plant, or inspection hatches showing timelines of when the activities took place. In addition, I would be keen to see any SoP's that are in place prior to working on any plant.

I've spoken with Jennifer and Linda regarding the discussion that Ian led on wider cases within the community, so they may discuss this further with both of you.

Regards, Tom

Sent from my iPhone

> On 20 Dec 2018, at 21:00, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:
>
> associated

RE: Ventilation plant room plans

Peters, Christine [redacted]

Fri 21/12/2018 17:19

To: Purdon Colin (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Steele, Tom [redacted];

Thank for this information Colin. It looks like the AHU to 6A was accessed on a number of occasion over the past few months, as one might expect.

Teresa will be handing over to me actions from the IMT as I will be covering over the weekend. Please do let your team know to inform me if further evidence of pigeon ingress is identified in any other plant room in any of the hospital buildings on site.

Thanks for your help,
Kr

Christine
Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

From: Purdon, Colin
Sent: 21 December 2018 16:44
To: Peters, Christine

Inkster, Teresa

From: Purdon, Colin
Sent: 21 December 2018 16:44
To: Peters, Christine
Cc: [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Steele, Tom
Subject: RE: Ventilation plant room plans
Attachments: Level 12 AHU Inspection Records.xls; 19th DEC 18 Level 12 AHU AIR INTAKE & Pigeon Debrie Survey.pdf

Hi Christine,

I can confirm the points in your summary below.

We have checked the water tank room in the basement and there are no signs of any bird ingress or fouling in the area. The tank room is in the basement and is situated back from the outer wall boundary line therefore our view would be that birds would be unable to get anywhere close to it.
On checking with other Estates Managers there have been no reports or incidents relating to bird or vermin activity in the tank room over the history of the building. All water tanks have close fitting lids or inspection covers and have insect screens on all overflows and outlets.

I have attached a scan of a layout Darryl marked up to indicate the areas found to be contaminated with bird fouling. It also shows the position of the AHU plant and direction the air is drawn in from outside highlighted in green.

Also attached is a summary of the inspections carried out indicating the dates when the AHUs would have been shutdown and opened for inspection.

Clean up operations are still ongoing at the moment and will continue into next week if required.

Each general AHU has a G4 pre filter panel fitted and also an F7 bag filter fitted.

Regards

Colin

Colin Purdon | BSc (Hons)
Interim Sector Estates Manager (*South*)

Estates Dept
Queen Elizabeth University Hospital Campus
Laboratory Medicine and Facilities Management Bldg
1345 Govan Rd
Glasgow
G51 4TH

Mob: [redacted]

Email: [redacted]

From: Peters, Christine
Sent: 21 December 2018 15:38
To: Purdon, Colin
Cc: [redacted]; Inkster, Teresa (NHSmail)
Subject: Ventilation plant room plans

Hi Colin,

Thanks for your time this afternoon,

From our discussions I understand that all four plant rooms in level 12 which supply the whole of the QEUH building from level 4 to level 11 have had evidence of pigeon infestation. This includes the plant that supplies wards 4C and 5C (renal transplant and HIV).

It seems entirely plausible that contamination within the plant rooms may have caused ingress of Cryptococcus into the system eg at times of accessing the AHUs for maintenance etc. . Although filters are in place (G7 I think you said) , there are no HEPA filers which would be required to eliminate this risk.

We established that:

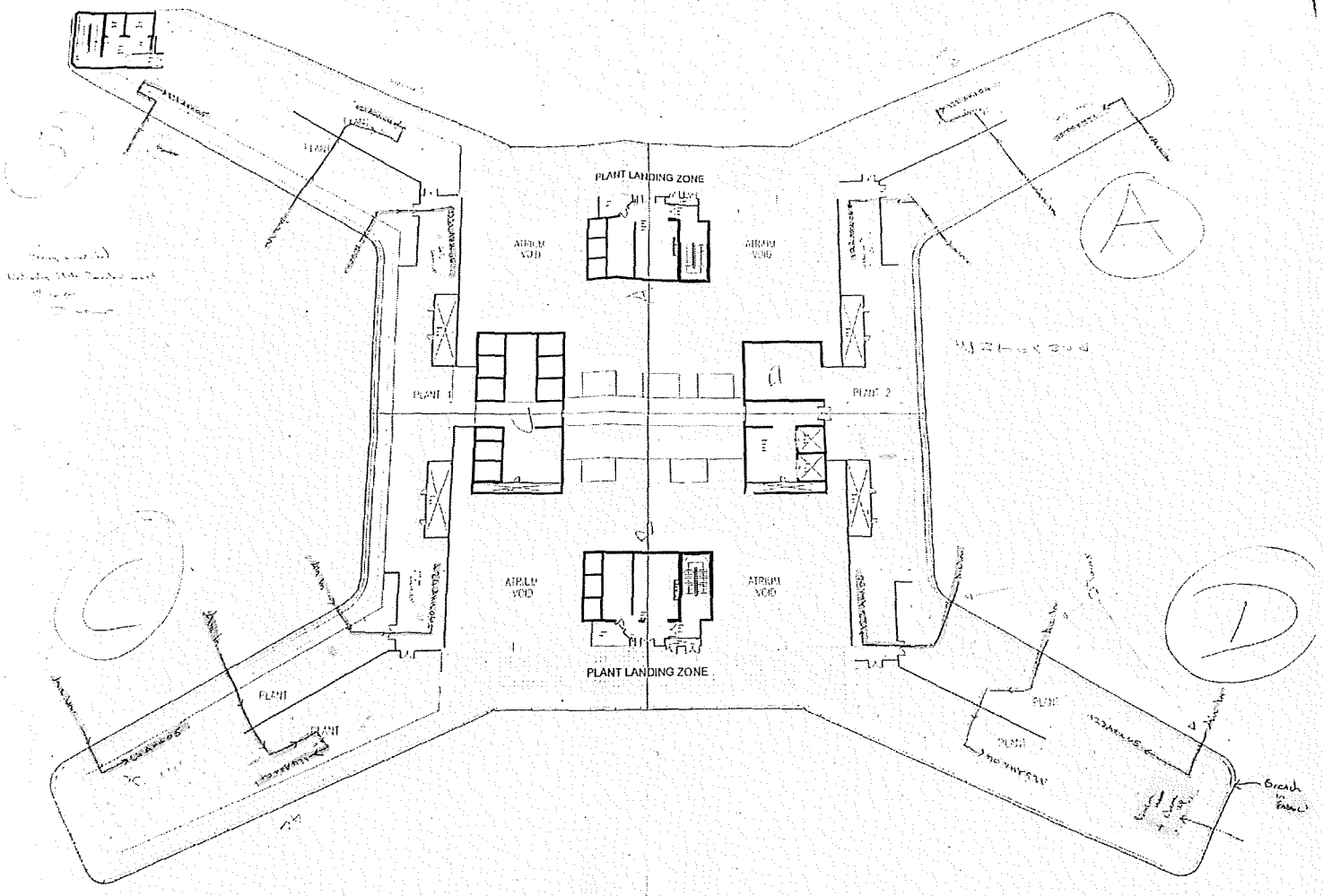
1. The water tanks are at basement level and no evidence of any birds in the area and this would be very unlikely due to the concrete ceiling and lack of access for the birds – however a visual check will be made
2. The windows in the building are sealed and there has not been evidence of water ingress which would occur if the windows lost their seal, again this will be checked
3. A list is being generated of all maintenance work on the AHU and ducting
4. As supply ducting is under positive pressure it is unlikely that ingress could occur through any small defects in the ducting
5. A summary of all areas supplied by each of the 6 AHUs in each wing of the plant room will be circulated

Currently the priority is to clean up all bird mess in all plant rooms, to block off all access points for the birds to get into the fabric of the building and to identify all at risk patient groups.

Kind regards,

Christine

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]



Scanned by CamScanner

Fw: Ventilation plant room plans

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Fri 21/12/2018 22:01

To: tom.steel[redacted]

cc: Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE) [redacted];

2 attachments

Level 12 AHU Inspection Records.xls; 19th DEC 18 Level 12 AHU AIR INTAKE & Pigeon Debrie Survey.pdf;

Tom,

Just catching up with emails from earlier today. I have been sent a pigeon survey dated 19th Dec. I am concerned that the findings were not shared with me ahead of the IMT and they appear to contradict your email from this morning. Were they not shared with you either?

Can you clarify whether there is a pigeon nest next to the fabric breach on this map? There is an extensive area highlighted in orange

My colleague [redacted] who was covering Infection control today has sent me pictures from the plant rooms with foodstuffs including a bag of popcorn up there, coffee cups etc. Presumably the pest control company will check for other vermin in light of this?

I will be on leave until Thursday, microbiology colleagues will be covering IC .

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Fw: Pest control

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Sun 23/12/2018 16:05

To:Devine, Sandra [redacted];

Cc:Walsh Thomas (NHS GREATER GLASGOW & CLYDE) [redacted];

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Christine [redacted]
Sent: 22 December 2018 10:30
To: Macer Scott (NHS GREATER GLASGOW & CLYDE)
Cc: Purdon Colin (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Pest control

Hi Scott,

As discussed on the phone I am covering infection control for the QEUH today and have requested a pest control check of all the ventilation plant rooms as a result of evidence of food in these areas (and requested by Dr Inkster as chair of the IMT dealing with cryptococcal cases).

I understand from your update that last night your staff were busy cleaning up level 12 plant rooms. Today there is a lack of staffing and you are working to get contracters to agree to come to help to complete the cleaning of all the plant rooms, including level 4 and 3. Can you confirm if the RHC plant rooms have also been checked ?

Thanks for your work on this and for the update. Please can you forward the pest control report when it is available.

kind regards,

Christine

Dr Christine Peters

Consultant Microbiologist
Clinical Lead Microbiology QEUH
[redacted]

Fw: Risk of Cryptococcus

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Sun 23/12/2018 16:05

To:Devine, Sandra [redacted];

Cc:Walsh Thomas (NHS GREATER GLASGOW & CLYDE) [redacted];

Sandra - FYI. Just forwarding email traffic from the weekend , so you are aware of whats been happening for tomorrow
T

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Christine [redacted]
Sent: 22 December 2018 10:05
To: Bell David (NHS GREATER GLASGOW & CLYDE)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); STEELE, Tom (NHS GREATER GLASGOW & CLYDE); Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)
Subject: Risk of Cryptococcus

Hi David,
As discussed on the phone, there have been two hospital acquired cryptococcal infections in QEUH /RHC.

An IMT was held on Thursday and it has come to light that the ventilation plant rooms that supply clean air to all wings in the QEUH building from floor 4 to 11 have an infestation of pigeons with heavy guano contamination . Clearly this indicates the possibility of cryptococcal contamination of the air supply to the patient rooms. Those areas are currently undergoing professional cleaning and measures are being taken to prevent further bird ingress.

As a precautionary measure those patients at high risk of cryptococcus are being advised to receive prophylaxis. As we agreed this typically includes HIV patients with low CD4 counts.

The choices are posaconazole or ambisome depending on other clinical parameters especially liver and renal function, as well as drug interactions.

Thanks for agreeing to assess the current ID inpatient for any clinical signs of cryptococcal infection as well as assessing requirement for prophylaxis.
As we discussed in terms of duty of candour Teresa as chair of the IMT has suggested the following communication:

"We are currently working with infection control colleagues to investigate an unusual fungal infection affecting two patients on the hospital site. As a precaution we are administering antifungal medication to high risk patients, until we can establish a source."

A49541141

As the on call Microbiologist I will be dealing with infection control matters until Monday when my colleague James Cargill will take over. Please do keep me updated on any cases that may emerge.

kind regards,

Christine

Dr Christine Peters

Consultant Microbiologist
Clinical Lead Microbiology QEUH
[redacted]

Fw: handover IC number 2

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Sun 23/12/2018 19:38

To: Gibson, Brenda [redacted]; GIBSON, Brenda (NHS GREATER GLASGOW & CLYDE) [redacted]; ian.macdonald[redacted];

Hi both

A handover from my microbiology colleague re Cryptococcus is below

Subsequent to Thursdays IMT we have established that all 4 plant rooms on level 12 serving QEUH floors 4-11 have a bird infestation. A breach in the building fabric has been identified. In addition there was a lot of foods and rubbish in these areas, raising concerns about other vermin

Pest control are involved and a clean up is underway , you will note from the email below that this is incomplete at this time

It is hugely concerning to find the plant room in this condition. I have emailed Jennifer Armstrong to make her aware.

In the meantime ,please continue to discuss any patients you are concerned about with the on call microbiology consultant

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Christine [redacted]
Sent: 23 December 2018 15:09
To: CARGILL, James (NHS GREATER GLASGOW & CLYDE)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: handover IC number 2

Hi James,

IC TASK no 2 RE Pigeons in Plant rooms and cryptococcus HAI

I had a verbal report today from Scott Mercer in estates (tel number [redacted]) to say that:

1. A Pest control company have been out and examined all plant rooms in the hospital today as I requested yesterday - he has promised a report will be in by 8 am tomorrow- which will be copied to Colin Purdon (estates manager on A49541141

[redacted]

tomorrow) He is the one to co-ordinate with tomorrow to ensure the report is read and any actions followed up tomorrow.

2. Cleaning efforts are still ongoing. there was a squad of 11 guys from the pest control company who helped tidy up the rubbish (there was lots) however the cleaning will take much longer I am told , therefore it seems to me that the source control measures are not complete and we have to assume the risk to patients continues

3. Re prophylaxis,I informed ID of the risk to HIV patients (I will forward the email) and the BMT teams are aware and rolled out prophylaxis. Apart [redacted] I have not had any more cases referred to discuss. The question is how long this needs to be in place which will depend on the source being eliminated.

4. **No** new cases have emerged over the weekend that I know of.

5. There is an IMT on Thursday which Teresa will chair

kr
Christine

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 07 January 2019 13:18
To: Dodd Susan (NHS GREATER GLASGOW & CLYDE); Steele, Tom
Subject: Re: IMT - Cryptococcus

Hi Tom

I have attached case studies from other hospitals. Bottom line is we should not have birds roosting in the vicinity of the hospital . We have several high risk units; BMT x 2, renal transplant and HIV

https://www.irishtimes.com/news/health/galway-hospital-patients-at-risk-from-bird-droppings-1.2299689

https://www.nbcenvironment.co.uk/project/peterborough-city-hospital/

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Dodd, Susie [redacted]
Sent: 07 January 2019 13:11
To: Steele, Tom
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: IMT - Cryptococcus

My thoughts are that it is unlikely to be brought in on footwear/clothing. Even if it is found in high numbers externally, pigeons nest and congregate extensively in cities and have always done so yet we have not seen a hospital acquired case before. If it was brought in on footwear/clothing then why not before now. And why 2 within 17 days. In addition, both patients were in areas where the control measures are higher.
Teresa, would you agree?
Susie

Susie Dodd
Lead Infection Prevention and Control Nurse
Royal Hopsital for Children
[redacted]

From: Steele, Tom
Sent: 07 January 2019 13:02
To: Dodd, Susie
Cc: Inkster, Teresa (NHSmail)
Subject: RE: IMT - Cryptococcus

Could this be brought in on clothing, or footwear?

Tom Steele | Director of Estates and Facilities
| NHS Greater Glasgow and Clyde | JB Russell House | Gartnavel Royal Hospital | 1055 Great Western Road | Glasgow | G12 0XH
t: [redacted] **| e:** [redacted]

From: Dodd, Susie
Sent: 07 January 2019 13:01
To: Steele, Tom [redacted]
Cc: Inkster, Teresa (NHSmail) [redacted]
Subject: RE: IMT - Cryptococcus

Hi Tom,
I would assume that there is potential to find it wherever pigeons gather however, neither of the patients were well enough to leave the building.
Teresa, can you answer this query? Will prevalence amongst the pigeon population be something that the vetinary expert can answer?
Susie

Susie Dodd
Lead Infection Prevention and Control Nurse
Royal Hospital for Children
[redacted]

From: Steele, Tom
Sent: 07 January 2019 12:48
To: Dodd, Susie
Subject: RE: IMT - Cryptococcus

Susie, how prevalent would this species be in the environment out with the plant rooms, that is within the courtyard areas that we know where various bird species root, or gather?

Tom Steele | Director of Estates and Facilities
| NHS Greater Glasgow and Clyde | JB Russell House | Gartnavel Royal Hospital | 1055 Great Western Road | Glasgow | G12 0XH
t: [redacted] **| e:** [redacted]

From: Dodd, Susie
Sent: 07 January 2019 12:42
To: Inkster, Teresa (NHSmail) [redacted]; Lang, Ann [redacted]; Devine, Sandra [redacted]; Walsh, Tom [redacted]; Steele, Tom [redacted]; Cook, Claire [redacted]; Purdon, Colin [redacted]; Pritchard, Lynn [redacted]; Gibson, Brenda [redacted]; Kennedy, Iain [redacted]; Macdonald, Ian [redacted]; Crookshanks, Hilda [redacted]; Redfern, Jamie [redacted]; Campbell, Myra [redacted]; Hill, Kevin [redacted]; Kane, Mary Anne [redacted]; Connelly, Karen [redacted]; Wall, Rona [redacted]; Armstrong, Jennifer [redacted]; Rodgers, Jennifer [redacted]; McArdle, Alyson [redacted]; McColgan, Melanie [redacted]; Johnson, Angela [redacted]
Cc: MacLeod, Calum <Calum.MacLeod [redacted]; Hamilton, Pauline [redacted]

Subject: IMT - Cryptococcus
Importance: High

Dear all,

Some clinicians have expressed concern around patient safety following the results below. A meeting will be held at the time and location below to discuss the results and their significance. Apologies for the short notice.

Date: Today, 7th January 2019
Time: 2.30pm
Venue: Level 1 Stroke ward Seminar Room, QEUH, STW-011

Please notify myself of any apologies.
Kind regards,
Susie

Susie Dodd
Lead Infection Prevention and Control Nurse
Royal Hopsital for Children
[redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 04 January 2019 16:40
To: Lang, Ann; Devine, Sandra; Walsh, Tom; Steele, Tom; Cook, Claire; Purdon, Colin; Pritchard, Lynn; Gibson, Brenda; Kennedy, Iain; Macdonald, Ian; Crookshanks, Hilda; Redfern, Jamie; Campbell, Myra; Dodd, Susie; Hill, Kevin; Kane, Mary Anne; Connelly, Karen; Meechan, Mandy; Wall, Rona; Armstrong, Jennifer
Cc: MacLeod, Calum; Hamilton, Pauline
Subject: [ExternaltoGGC]Update - Cases of Cryptococcus

Dear all,

Provisional air sampling results from the plant room on level 12 have shown the presence of Cryptococcus species. These samples will be sent to the Bristol mycology lab for further identification and comparison with patient isolates.

Ward air sampling results remain outstanding and should be available early next week.

Patients should remain on prophylaxis in the meantime

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 27 December 2018 17:22

To: Lang Ann (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Steele, Tom; Cook, Claire; Purdon Colin (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Gibson, Brenda; Kennedy Iain (NHS GREATER GLASGOW & CLYDE); Macdonald, Ian; CROOKSHANKS, Hilda (NHS NATIONAL SERVICES SCOTLAND); Redfern James (NHS GREATER GLASGOW & CLYDE); Campbell Myra (NHS GREATER GLASGOW & CLYDE); Dodd Susan (NHS GREATER GLASGOW & CLYDE); Hill Kevin (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE); Connelly Karen (NHS GREATER GLASGOW & CLYDE); Meechan Mandy (NHS GREATER GLASGOW & CLYDE); rona.wal[redacted]; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)
Cc: MacLeod, Calum; Hamilton Pauline (NHS GREATER GLASGOW & CLYDE)
Subject: Re: IMT - Cases of Cryptococcus

Dear all

Please find attached minutes from todays IMT.

I will be in touch regarding the need for any further meetings once I have reviewed air sampling results next week

Thanks to you all for your input over the festive period

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 27 December 2018 11:11
To: Lang Ann (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Steele, Tom; Cook, Claire; Purdon Colin (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Gibson, Brenda; Kennedy Iain (NHS GREATER GLASGOW & CLYDE); Macdonald, Ian; CROOKSHANKS, Hilda (NHS NATIONAL SERVICES SCOTLAND); Redfern James (NHS GREATER GLASGOW & CLYDE); Campbell Myra (NHS GREATER GLASGOW & CLYDE); Dodd Susan (NHS GREATER GLASGOW & CLYDE)
Cc: MacLeod, Calum; Hamilton Pauline (NHS GREATER GLASGOW & CLYDE)
Subject: Re: IMT - Cases of Cryptococcus

Documents for discussion at IMT attached;

1) Plant room survey from 19th Dec
2) Pest control report from 24th Dec
3) Pictures of level 12 plantroom

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital

cryptococcus update

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Mon 07/01/2019 20:02

To: Peters Christine (NHS GREATER GLASGOW & CLYDE) [redacted]; Wright Pauline (NHS GREATER GLASGOW & CLYDE) [redacted]; [redacted]; Valyraki, Kalliopi [redacted]; alison.balfou[redacted]; Khanna Nitish (NHS GREATER GLASGOW & CLYDE) [redacted]; CARGILL, James (NHS GREATER GLASGOW & CLYDE) [redacted];

Update;

Unfortunately the air sampling results were not read over Christmas and New Year with overgrowth of fungus on the plates. Its not possible to say whether Crypto was present in the ward samples so these will be done again on Wednesday.

We do have a Crypto species growing from 2 air samples in the plant room which will be sent to Bristol mycology

Patients will remain on prophylaxis meantime.

A broader discussion took place re air quality on 6A and presence of fungus on sampling(still to get ID) , given that patients will be there for a year. The risk mitigation measures we have available are prophylaxis and use of portable hepa units. The infection control preference is to use the Beatson however the lack of paediatric facilities is considered too high risk.

Unfortunately there have been anaphylaxis issues with Ambisome . Jamie Redfern was attending a meeting with clinicians this evening to discuss their concerns.

At the moment the ICT recommendations are prophylaxis, portable HEPA and immediate attention to the two rooms that have water damage.

Kind regards,
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Inkster, Teresa

From: Gibson, Brenda
Sent: 08 January 2019 22:16
To: Armstrong, Jennifer; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Redfern, Jamie

Follow Up Flag: Flag for follow up
Flag Status: Completed

Dear Jennifer,

You will be aware that we recently lost a [redacted] where Cryptococcus was at least a contributory factor to the death and that this infection was hospital acquired. Cryptococcus was grown from blood cultures taken prior to death and by the time that fungus is grown from blood cultures the infection is usually terminal. I met with [redacted] last week to inform them of the Cryptococcus and that it was hospital acquired.

As a consultant body we are now very concerned about the safety of our environment. We have not experienced water associated environmental organisms in blood cultures since our decant , but never had a death associated with these infections that we are aware of . We are concerned that we may have moved to an even less safe environment . We are being asked to nurse patients in rooms with portable HEPA filters and to prophylax vulnerable patients . The latter is not without risk . Only AmBisome and Posaconazole can be used . We have already experienced two serious anaphylactic reactions in patients receiving AmBisome requiring adrenaline . We are being told that prophylaxis will have to last for a year. The prolonged use of Posaconazole is not without the risk of hepatotoxicity. Are all new patients to be told that the environment carries a risk to their child which will require prophylaxis , and that in itself may carry a risk? Is that a true statement?

Securing the safety of our current environment requires action across the Directorates. In sending this e mail I am not bypassing Jamie or Kevin , but they can only control Women and Childrens Directorate. We are disappointed that air sampling in the ward is having to be repeated because that sampled before Christmas was not treated as a priority and the results may not be meaningful. This is the remit of the Diagnostics Directorate. We have two rooms on the ward out of action because of water damage with mould on the wall , which have not been dealt with because of reported difficulties in identifying a contractor over the holiday period. This responsibility lies with Estates and Facilities Directorate. Promised statements from the Press Office have not materialised and we are prophylaxing children without any agreement on what information should be given to the parents. It is hard to believe that the gravity of this situation is really appreciated by those charged with resolving it.

We need to be assured that someone to whom all Directors are answerable is managing this situation , co ordinating the necessary work and guaranteeing that timelines are met. We also need to be assured of the safety of the environment for our children and the safety of long term prophylaxis.

We have a Unit meeting at 8.30 am this Friday on ward 6A QEUH and we ask if you would be willing to use this opportunity to meet with us. If you are not the appropriate person at the Board , please let me know who is.

B.W.

Brenda

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 09 January 2019 07:11
To: Balfour, Alison; Valyraki, Kalliopi
Cc: amarek
Subject: Fw: IMT - Cryptococcus
Attachments: Cryptococcus minutes IMT 7.1.19 SD draft.doc

FYI

This has been a difficult incident and there will likely be queries while I am away.

Brenda Gibson wrote to Jennifer Armstrong last night to express concern regarding this incident and the 2 rooms out of use on the ward (6A) with water damage. I have emailed Tom Steele for an update re these rooms and you should have the separate email thread. There was an issue with getting contractors over Xmas but this should be treated as a priority now. I have yet to see completed scribe but have advised re key measures. I was told this was a minor issue and quick fix, it is not, there is visible mould on the wall between two rooms and the leak extended into the corridor . So, full scribe measures essential.

The issue with Crypto is an obvious one and moving forward estates need to provide assurances that they have implemented control measures

Air sampling from wards was problematic over the festive period as the plates were left too long and were overgrown. There was also an issue with the Maldi.

I can't confidently say there is no Crypto present on wards due to the overgrowth, so sampling is being repeated today. I have asked for them to be looked at Sat am.There is a Crypto species in the plantroom and those isolates are going to Bristol. It has ID as different from neoformans but we need them to confirm as we don't have the experience in ID. Regardless, its presence is a marker of pigeons in the area.

There is fungus on the plates from the wards, - we can expect to find that as its not a specialist ventilated area. What has changed is that two patients have had anaphylaxis to Ambisome and Pozaconazole is not attractive due to interactions. The physicians are now concerned re safety of prophylaxis

I have stated that the preferred IC option was to use the Beatson however there is huge clinical risk with this as no PICU. Therefore to stay in 6A for the next 12 months I have suggested using portable HEPA units and prophylaxis as risk mitigation measures. This is not mass prophylaxis and is for only a small subset of patients - high risk as defined by EORTC.

The decision to implement these measures is due to the recent Crypto infection , the knowledge we have fungus on the plates and the uncontrolled source of mould currently in the ward area. The intention is to implement a regular programme of air sampling once portable units are in place .

Kind regards
Teresa

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 08 January 2019 17:35
To: Dodd Susan (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Steele, Tom; Cook, Claire; Purdon Colin (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Gibson, Brenda; Kennedy Iain (NHS GREATER GLASGOW & CLYDE); Macdonald, Ian; CROOKSHANKS, Hilda (NHS NATIONAL SERVICES SCOTLAND); Redfern James (NHS GREATER GLASGOW & CLYDE); Campbell Myra (NHS GREATER GLASGOW & CLYDE); Hill Kevin (NHS GREATER GLASGOW & CLYDE); Kane Maryanne (NHS GREATER GLASGOW & CLYDE); Connelly Karen (NHS GREATER GLASGOW & CLYDE); rona.wal[redacted]; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Rodgers Jennifer (NHS GREATER GLASGOW & CLYDE); McArdle, Alyson; Mccolgan Melanie (NHS GREATER GLASGOW & CLYDE); angela.johnsor[redacted]; Mccolgan Melanie (NHS GREATER GLASGOW & CLYDE); Jenkins Gary (NHS GREATER GLASGOW & CLYDE)
Subject: Re: IMT - Cryptococcus

Please find attached minutes of yesterdays IMT.

I have a number of enquiries with regards the epidemiology and hypothesis therefore I thought it would be useful to clarify a few points;

Epidemiology

Both cases are hospital acquired and we meet the following National Manual (HPS) incident definitions;

A healthcare associated infection outbreak
• Two or more linked cases with the same infectious agent associated with the same healthcare setting over a specified time period

A healthcare infection exposure incident
• Exposure of patients, staff, public to a possible infectious agent as a result of a healthcare system failure or a near miss

A healthcare infection data exceedance
• A greater than expected rate of infection compared with the usual background rate for that healthcare location.

Hypothesis generation

Part of incident investigation is hypothesis generation and there are often several. For this incident they are the following;

1) Aerosolisation from contamination in the plant room when maintenance taking place
2) Ingress via unsealed windows
3) Contaminated supply boxes

With regards to 'proof' ,in IC we rarely get a definitive answer. Infection control incidents are usually multifactorial and resolution requires a range of measures to be put in place , often we never know which one has had the most impact

Community cases

There are always community onset cases of infections. e.g. MRSA, Group A strep. Whilst the community cases of Cryptococcus are interesting these should not detract from 2 cases of HAI. An increase in the community may reflect a changing patient population or a change in the bird population and carriage of Cryptococcus. However our role is to prevent hospital acquired cases and ensure control measures are in place on this site

Whilst the pathogen is rare, in infection control terms this incident is straightforward. Epidemiological links, source found based on our knowledge of the organism and control measures applied.

Issues with bird control in hospital settings is not new and guidelines recommend birds should not be nesting in proximity to transplant units. See below for info from elsewhere regarding control measures;

https://www.cddft.nhs.uk/news-and-media/latest-news/patient-safety-and-removal-of-pigeons-from-darlington-memorial-hospital.aspx

https://www.irishtimes.com/news/health/galway-hospital-patients-at-risk-from-bird-droppings-1.2299689

https://www.nbcenvironment.co.uk/project/peterborough-city-hospital/

https://www.scotsman.com/news/uk/dead-pigeons-in-walls-close-ward-as-hospital-patients-evacuated-1-4567749

There is an action plan at the end of the minute with allocated timescales. Can you send updates back to me
Thanks

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Dodd, Susie [redacted]
Sent: 07 January 2019 12:42
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Lang Ann (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Steele, Tom; Cook, Claire; Purdon Colin (NHS GREATER GLASGOW & CLYDE); Pritchard Lynn (NHS GREATER GLASGOW & CLYDE); Gibson, Brenda; Kennedy Iain (NHS GREATER GLASGOW & CLYDE); Macdonald, Ian; CROOKSHANKS, Hilda (NHS NATIONAL SERVICES SCOTLAND);

RE: Plant 123

David Bryden [redacted]

Wed 09/01/2019 15:28

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Hi Teresa,

Unfortunately, there are no other before photos of the plantrooms but yes, as indicated in the full report there was a problem with birds accessing the level 12 plant rooms in early December. Sorry I cannot be of more assistance.

Thanks,

DB

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 04 January 2019 12:55
To: David Bryden [redacted]
Subject: Re: Plant 123

Thanks for these

The report I have is attached. Is there anymore detail available for the findings in plant rooms level 12. Am I right in thinking that this was a recent infestation and that birds were removed from this area?

The incident will be subject to a clinical incident review so it would be useful to have more information available if possible

Thanks

Kind regards

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
A4934141141

[redacted]

Glasgow
Direct dial : [redacted]

From: David Bryden [redacted]
Sent: 28 December 2018 08:54
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Plant 123

Hi Dr Inkster

I have a couple of photos from level 12 mainly after photos though. Other technicians that are currently on holiday may have more and I will update you as soon as I know.

Sent from my Samsung Galaxy smartphone.

****
****

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GP Environmental
Pest Control, Hygiene & Industrial Cleaning

Customer	NHS GG&C	**Site Address**	QEUH
Works Requested by	Colin Purden	**Area of Works**	Pest Control and Housekeeping Inspection
Contact No.	[redacted]	**Site Contact**	Colin Purden
Date	24.12.2018	**Site Contact No.**	[redacted]
Email	[redacted]	**GP Surveyor**	A Bryden

Ref – Pest Control and Housekeeping Inspection of Various Plantrooms (31, 32, 33, 21, 22, 41 and 41A at QEUH, Glasgow

Dear Colin,

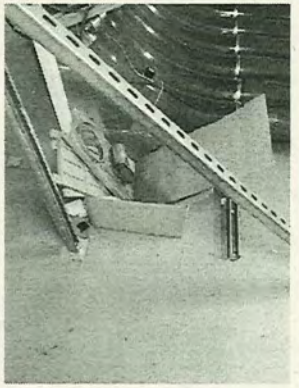
Further to my telephone conversation with Scott on the morning of Saturday 22.12.2018 I submit below our findings on and inspection carried out on 23.12.2018

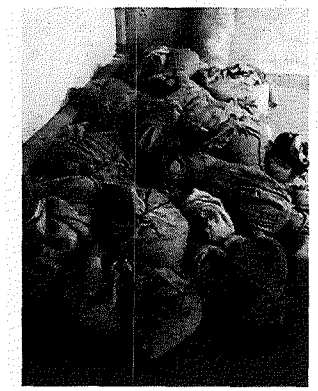
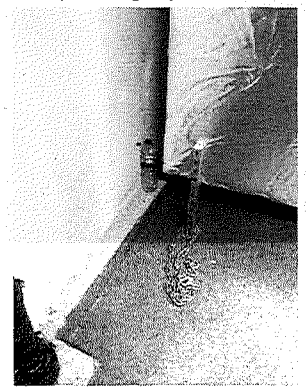
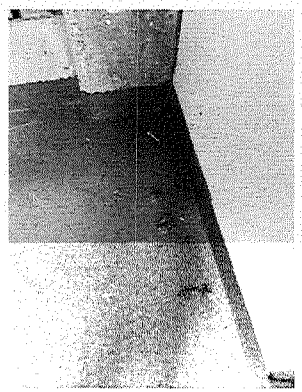
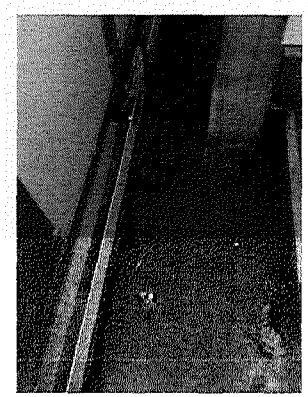
Plantroom	Findings/Photographs	Recommendation
31	No pest activity noted during the inspection. Housekeeping very poor with a build up of debris around all wall to floor edges and below units and stairs. Old pigeon dropping infrequently near fire exit door to roof. Many cardboard boxes of dirty/used air handling filters removed from the Plantroom and taken to waste disposal See Photographs:-	Intensive deep clean of floor, wall/floor edges and discarded waste build up should be implemented immediately. Following the in-depth clean a Planned Cleaning/Inspection Programme should be installed.

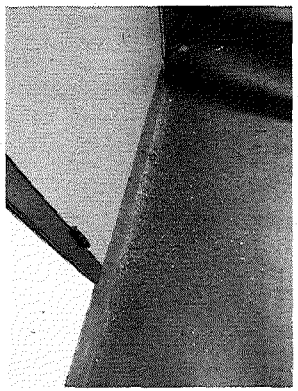
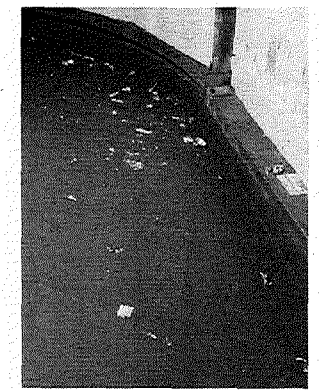
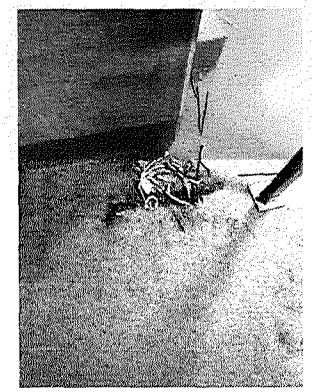
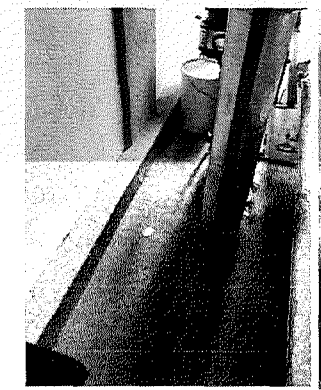


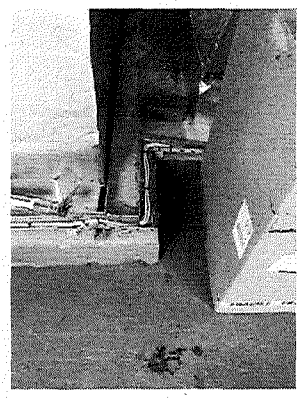
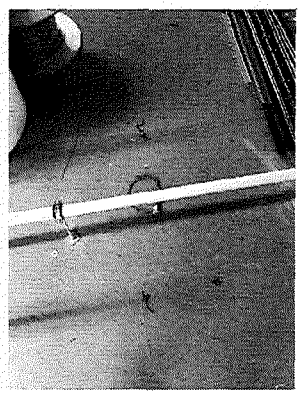
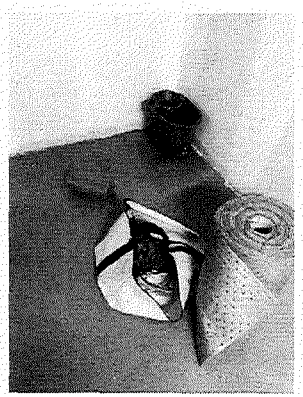
GP Environmental Ltd 16-18 Overnewton Street, Glasgow, G3 8RX.
Tel: 0845 310 5506 Fax: 0845 310 5507

A49541141

	  	
32	No pest activity noted with no previous activity recorded. Housekeeping of a poor standard with considerable debris around wall/floor edges. Hole in fabric of building poses a pest bird ingress risk. Significant number of cardboard boxes containing used filters removed. See Photographs: -   	Intensive Deep Clean of floor, wall/floor edges with discarded waste removal. Regular inspections and cleaning maintenance of area required.

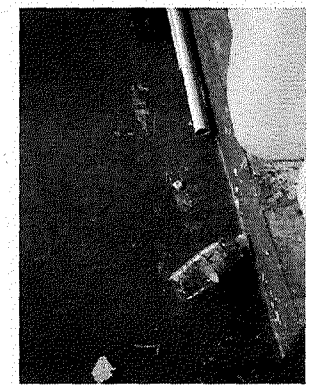
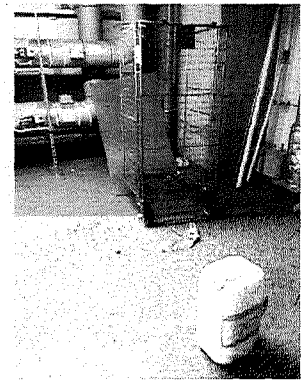
	  	
33	No pest activity noted during inspection. No past evidence of pests noted. Housekeeping and general cleanliness of a poor standard. Many dirty filters and old filter boxes cleared from area. See photographs:-   	Intensive Deep Clean of floor, wall/floor edges and discarded waste. Regular inspections and cleaning maintenance of areas required.

	  	
22	No pest activity noted during inspection. Again a significant number of used filters and old filter boxes throughout the area. These items have been removed to waste disposal. Waste disposal bins (green) were found to be full of used filters also. Insulation strewn on floor could provide pest harbourage. See photographs:-   	Deep clean of floor, wall/floor edge and removal of discarded waste. Regular inspection and cleaning maintenance required.

	    	
21	No pest activity noted during inspection. Waster bins and edges full of old and very dirty used filters. Housekeeping of a very poor standard. Disused and dirty filters removed to waste disposal. See photographs:-	Deep Clean of floor, wall/floor edges and removal of discarded waste. Regular emptying of green bins. Regular inspection and cleaning maintenance required.



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Tel: 0845 310 5506 Fax: 0845 310 5507

41	No pest issues noted during inspection. Some old pigeon droppings (small amount, very limited). No fresh evidence of pest activity. Used dirty filters found across the plant room. Some stored next to clean filter and filter boxes. Old contaminated filters removed along with disused boxes to waste disposal. See photographs:-      	Deep clean of floor, wall floor edges and removal of discarded waste. Regular inspection and cleaning maintenance required.

	These works took place over several days with daily reports being left with Estates Dept.	every two (2) weeks to ensure that pest birds are not given the opportunity to become established.

I hope the above meets with your requirements, however should you require any further information please do not hesitate to contact me on [redacted].

Best regards,

Allan Bryden B.Sc.
Operations Director
GP Environmental Ltd

Cryptococcus epi report

Kennedy, Iain [redacted]

Mon 14/01/2019 16:21

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Dodd Susan (NHS GREATER GLASGOW & CLYDE) [redacted]; Pritchard Lynn (NHS GREATER GLASGOW & CLYDE) [redacted]; *Devine, Sandra* [redacted]; *CROOKSHANKS, Hilda (NHS* NATIONAL SERVICES SCOTLAND) [redacted];

1 attachment

Review of cryptococcocus spp cases diagnosed in NHS Greater Glasgow and Clyde laboratories.docx;

Dear Teresa,

Please find attached the epi report into cases of *Cryptococcus* since 2009, which details the findings of the case review carried out by Hilda.

Happy to discuss any of the content.

Iain

Review of *cryptococcocus* spp cases diagnosed in NHS Greater Glasgow and Clyde laboratories

Background

Two cases of *Cryptococcus neoformans* were detected in inpatients at Queen Elizabeth University Hospital within 17 days in late November/early December 2018. Given the unusual nature of the pathogen, and time, place, person links between the cases, the public health protection unit undertook to review case of *Cryptococcus* in the Greater Glasgow and Clyde area.

In the absence of specific criteria for fungal infection, in this document hospital acquired (HAI) and healthcare associated (HCAI) infections definitions used are from the Health Protection Scotland SAB guidance.

Due to small numbers and inclusion of clinical details, there is a possibility of deductive disclosure, and therefore this document should not be shared outwith the IMT

Search Strategy

ECOSS, the national laboratory data system, was interrogated for all positive results for *Cryptococcus* spp. for all specimen types, detected in GRI, SGH or RAH microbiology labs, for the 10 year period between January 2009 and December 2018

Results

Unless otherwise stated, results are for *Cryptococcus neoformans.* Due to the small numbers, data should be interpreted with caution.

A total of 37 unique patients were identified.

The following exclusions were applied:

- 11 faecal samples, where patient had diagnosis of cryptosporidiosis (an unrelated parasitic gastrointestinal infection)
- 6 cases where the sample was referred from another Board area
- 1 case where the diagnosis of *Cryptococcus albidus* was later changed to *Candida albicans* following reference lab testing.

Limited additional information available in the electronic case record for some patients.

Summary (n=19)

Cases were predominantly male (14/19, 74%), and median age was 53 (range 1 year to 80 years)

Specimens were predominantly from normally sterile sites – blood and/or CSF (some cases had positive results from more than 1 sample type) – with one case having positive sample from peritoneal dialysis fluid (described further below). Two cases had samples from non sterile site – mouth swab, wound tissue.

Mortality in this patient group was 32% at 30 days and 47% at 60 days, though only a proportion of these deaths are attributable to *Cryptococcus* infection.

Epicurve

The chart below demonstrates that distribution of cases over time.

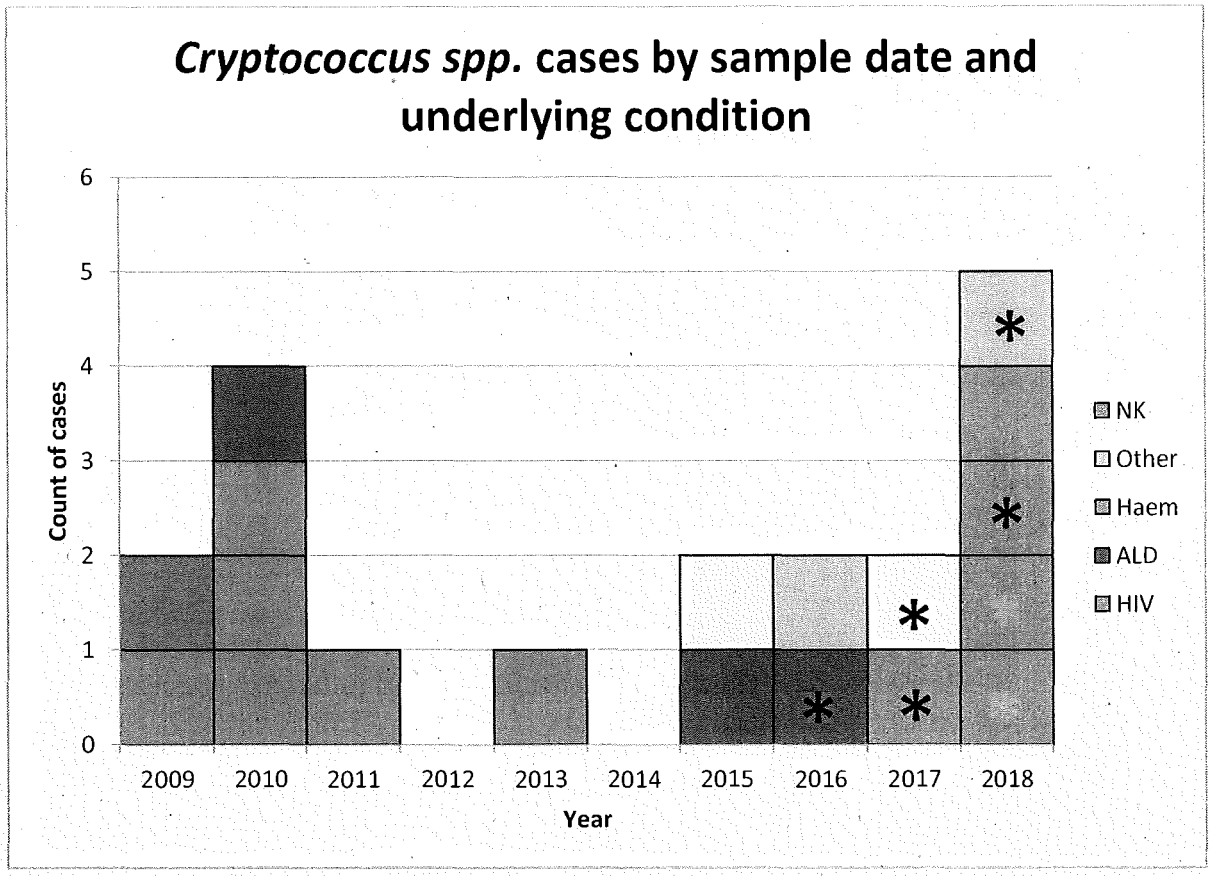


Figure 1. Each box=1 case. Lighter shaded boxes indicate species other than *C. neoformans*. Cases marked '*' meet definition for hospital acquired or healthcare associated infections. See Text for details

Case details

Two patients met criteria for HAI. Five patients meet criteria for HCAI: 3 had outpatient/community venepuncture; 2 had more significant invasive interventions.

HIV

Cryptococcus infection is a well documented infection in patients with HIV. [redacted] had venepuncture within 30 days of sample date, meeting the HCAI definition.

Haematology

The two HAI cases with underlying haematological malignancy are well known to the IMT and are not further described here. They are the only two cases with recent inpatient management in QEUH/RHC.

The other two haematology cases both had myeloprolifative disorders. Both had recently ceased treatment with hydroxyurea. The regular care of both patients was at GGC sites other than QEUH

The first of these patients had gone on to develop AML shortly prior to their *Cryptococcus* diagnosis, and had a [redacted] 24 days prior to sample date, meeting the HCAI definition.

The other patient had a [redacted] procedure ([redacted]) at QEUH approximately four months prior to sample date.

Alcoholic liver disease

One patient meets HCAI criteria [redacted]. No other relevant information for these patients in electronic record.

Other

- Paediatric renal patient, [redacted]. Recurrent peritonitis. *C. Curvatis* one of four organisms isolated from peritoneal fluid during one of the admissions for peritonitis. Meets HCAI definition.
- Patient referred for ?[redacted]. Respiratory sample positive for enterovirus. Mouth swab had light growth of *C. Lauretti* along with two candida species. Clinical significance likely to be limited.
- Adult patient, fit and well. Soft tissue from infected wound [redacted] positive for *C. neoformans*
- Patient with [redacted], but no obvious significant immunosupression. Approximately 6 weeks prior to sample date had been prescribed prednisalone for COPD exacerbation and cochineal for flare up of gout. Both have possible immunsuppresive effects. Meets HCAI criteria due to venepuncture within 30 days prior to sample date

Summary

- Disease caused by *Cryptococcus* spp. are rare, with only 19 cases over ten years.
- In the earlier part of the study period cases are dominated by patients with HIV
- In recent years the picture is mixed.
- 2018 had the highest number of cases (5), with cases clustered in the second half of the year. Second highest incidence was 2010 (4)
- In 2018 the cases were predominantly in patients with underlying haematological conditions
- As well as the two previously identified HAI cases, there were five cases attributable as HCAI. 3 of these cases meet HCAI definition due to venepuncture within 30 days of sample date.
- The limited information available to PHPU does not support a link between the current incident and any additional cases.

OFFICIAL: RE: Call to Peter hoffman

Peter Hoffman [redacted]

Fri 18/01/2019 16:15

To:Peters Christine (NHS GREATER GLASGOW & CLYDE) [redacted]; Kennedy Iain (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Steele, Tom [redacted];

OFFICIAL

Hi Cristine,

Very minor changes;

1. a clear schemata of which AHUs supply which wards of interest
2. F7 filter manufacturer details re pressure norms across filter – *minimum* pressure differential values for clean filters at the flow rate used.
3. Records of pressures across f7 filters - i.e. look for pressures below manufacturer's specifications on installation (clean filters) to help assess the possibility of gaps both lowering the pressure differential and allowing preferential passage of unfiltered air through gaps
4. Records of filter changes – is this the event that may have coincided with patient exposure?
5. Are the pressures across the final filters recorded on the BMS?
6. Smoke testing of the gaps in the integrity of the rooms in which patients affected were in to assess possible in flow of air from void (assuming air from plant room is in communication with void hence a possible route from plant room into rooms of cryptococcal infectious particles)
7. SOPs for filter exchanges
8. He suggested particle counting pre and post F7 filter using "PITOT traverse access points" post filter and drilling a hole to do similar pre F7 filter in AHU
9. A risk assessment re turning off AHU for half an hour to properly visualise and assess possibility of gaps in F7 filter installation in the relevant AHUs.

Regards,
Peter

From: Peters, Christine [redacted]
Sent: 18 January 2019 15:49
To: Kennedy, Iain [redacted]
Cc: Inkster, Teresa (NHSmail) [redacted]; Steele, Tom [redacted]; Peter Hoffman [redacted]
Subject: RE: Call to Peter hoffman

Hi Ian,
I am just off the phone from Peter, to clarify information re the plant room and AHU .

I think it will be worth having a further call with him and estates when we have all the information required:

1. a clear schemata of which AHU supply which wards
2. F7 filter manufacturer details re pressure norms across filter
3. Records of pressures across f7 filters
4. Records of filter changes
5. Are the pressures recorded on the BMS?

A49541141

6. Smoke testing of the rooms in which patients affected were in to assess possible in flow of air from void (assuming air from plant room is in communication with void hence a possible route from plant room into rooms of cryptococcal infectious particles)
7. SOPs for filter exchanges
8. He suggested particle counting pre and post F7 filter using "PITOT traverse access points" post filter and drilling a hole pre filter in AHU
9. A risk assessment re turning off AHU for half an hour to properly visualise and assess possibility of gaps in filters.

Peter does that seem like a fair summary ?

Kr

Christine
Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

From: Kennedy, Iain
Sent: 18 January 2019 15:29
To: Peters, Christine
Cc: Inkster, Teresa (NHSmail); Steele, Tom
Subject: Call to Peter hoffman
Importance: High

Hi

Just in the IMT we were wanti.g to check qhwn/where call to Peter is, so a facilities colleague can join

Iain

Sent from my BlackBerry 10 smartphone.

****
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Re: 6A

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Mon 21/01/2019 08:55

To:Steele, Tom [redacted]; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Redfern James (NHS GREATER GLASGOW & CLYDE) [redacted]; Powrie Ian (NHS GREATER GLASGOW & CLYDE) [redacted]; Purdon Colin (NHS GREATER GLASGOW & CLYDE) [redacted];

OK thanks. IMT is 11am.
Even if material is dry it should come out. Fungi are attracted to dampness but will continue to grow in dried out material. So in a huge risk area this should be removed.

Can someone send me the FOI document that the media are quoting this morning re pigeon issues last year

Thanks
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Steele, Tom
Sent: Monday, 21 January 2019 8:12 AM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)
Cc: Redfern James (NHS GREATER GLASGOW & CLYDE); Powrie Ian (NHS GREATER GLASGOW & CLYDE); Purdon Colin (NHS GREATER GLASGOW & CLYDE)
Subject: RE: 6A

Teresa, thanks for the update. The material that you are referring to is the thermal insulation between rooms. If this has become wet/damp, then I would expect that it will be removed. This insulation may not be present in all areas.

Regarding the flooring, the thin latex screed that overlays the concrete slab will be removed as part of the repair, or will require to be scored to allow for the new screed to be overlaid prior to vinyl being laid.

Do you have a time for the IMT today? I am at JBR for a few matters. Colin is on site and will visit the ward as necessary.

Regards Tom

Tom Steele | Director of Estates and Facilities
| NHS Greater Glasgow and Clyde | JB Russell House | Gartnavel Royal Hospital | 1055 Great Western Road | Glasgow | G12 0XH
t: [redacted] **| e:** [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 20 January 2019 21:32
To: Steele, Tom [redacted]; Armstrong, Jennifer

[redacted]
Cc: Redfern, Jamie [redacted]
Subject: [ExternaltoGGC]6A

Tom ,I was on 6A today and alerted to a couple of issues by Scott Macer.

Firstly he asked me about room 18. After removing plaster there was rust evident . Sitting behind the rusty metal is some sort of wool/insultation material. He asked whether it needs to come out, it does as fungi will thrive in that material. In addition the flooring had been lifted and there is mould underneath. I asked that it get stripped back to allow it to dry. So this is a second room with significant damage.

Second issue relates to vents. A staff nurse was concerned about one and we got it cleaned. The picture is attached.These were cleaned in September and I am surprised at the build up on them. Scott felt that others need to be cleaned also

We only have 4 families left in the ward and I have suggested to Jamie that it would be best to move them .This will be discussed at the IMT tomorrow. Just wanted to make you both aware.

Tom- are you or Colin free to meet me on the ward in the morning ?

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Macer, scott [redacted]
Sent: 20 January 2019 16:25
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: vent clean

From: Macer, scott
Sent: 20 January 2019 16:25
To: Macer, scott
Subject: RE: vent clean

Teresa,

Attached is an image of the chilled beam in Ward 6A room 2 as requested.

The image was taken after half the unit had been vacuumed with the HEPA back pack vacuum.

Regards, Scott.
A49541141

FW: FOR INFORMATION: regarding pigeons

Inkster, Teresa [redacted]

Thu 23/07/2020 15:16

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

4 attachments

IMG_5525.jpg; IMG_5526.jpg; IMG_5528.jpg; IMG_5529.jpg;

From: Bradnam, Michael
Sent: 21 January 2019 10:43
To: Inkster, Teresa [redacted]; Powrie, Ian [redacted]
Subject: FOR INFORMATION: regarding pigeons

Dear Teresa and Ian,

I was very sorry to hear about the recent issues with airborne infection in the hospital and the possible link to pigeon droppings.

I would like to make you aware of an issue in the ground floor courtyard in paediatric imaging with pigeons roosting within and on top of the plant equipment (heat exchangers and electrical cabinets). There are piles of pigeon droppings on the equipment and within the courtyard. The outside of the plant equipment has recently been cleaned by a subcontractor which has been a major visual improvement. However the piles of pigeon droppings on the ground and the dead pigeons on the high equipment cabinets did not appear to be addressed (photos attached). I fully appreciate that the window units overlooking the courtyard are sealed and not used for ventilation purposes but the plant is accessed for service and maintenance purposes via the main children's waiting room in paediatric imaging, RHC. Is this a concern to you? I assume that the pigeons and their droppings could be a health hazard, especially to the Estates staff and sub contractors accessing this equipment, but also potentially anything trafficked into the clinical area on boots?

If the plant equipment is affected on the ground floor I assume that other equipment on the site in other areas could also be similarly affected.

Could the roosting pigeons be removed from the plant equipment and prevented from roosting again?

I am aware that the old Southern General Hospital had environmental health issues with the pigeons in the Medical Building.

When we moved into the new hospital I noted that QEUH and RHC were already home to roosting pigeons within the plant equipment. As the old hospital was progressively knocked down I have noted that the numbers of pigeons roosting in the plant equipment in the ground floor courtyard has progressively increased, with an apparent increase last winter when the Medical Building and Management Building were demolished.

I hope that these observations are of assistance to you in your ongoing investigations and building up a picture on the pigeons.

Kind regards,
Michael A49541141

Dr Michael Bradnam
Head of Service for Imaging & Honorary Clinical Senior Lecturer
Dept of Clinical Physics and Bioengineering, Greater Glasgow Health Board & University of Glasgow
Head of Paediatric Clinical Physics, c/o Diagnostic Imaging, Royal Hospital for Children
1345 Govan Road, Glasgow G51 4TF
Tel: [redacted], **mob:** [redacted]
Email: [redacted]

RE: HSE- Pigeon Waste Meeting 24 January 2019

Walsh, Tom [redacted]

Wed 23/01/2019 20:38

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Green John (NHS GREATER GLASGOW & CLYDE) [redacted]; Fleming Kenneth (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc: Best Jonathan (NHS GREATER GLASGOW & CLYDE) [redacted]; Devine, Sandra [redacted]; brian.jones [redacted];

Thanks Teresa

As we discussed and agreed on Tuesday after the IMT you are the nominated attendee on behalf of the IPCT. We really need and value your attendance and contribution in this capacity.

Any additional supporting representation from Microbiology should have been, and hopefully was, discussed and agreed with our colleagues in Health and Safety.

Tom

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 23 January 2019 20:13
To: Walsh, Tom; Green, John; Fleming, Kenneth
Cc: Best, Jonathan; Devine, Sandra; Jones, Brian
Subject: [ExternaltoGGC]Re: HSE- Pigeon Waste Meeting 24 January 2019

Hi,

Due to my significant workload I have had to delegate tasks . Ventilation is a very specialised area and only a few microbiologists have the experience to deal with this. Christine is one of those and was available to assist. She has produced a report which has been circulated to IMT and I am happy with the content.

She has also undertaken the microbiological testing up there.

If there can only be one of us present then it will have to be Christine as she has the more detailed knowledge. However I was hoping to attend also.

KR
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Walsh, Tom [redacted]
Sent: 23 January 2019 19:16

To: Green John (NHS GREATER GLASGOW & CLYDE); Fleming Kenneth (NHS GREATER GLASGOW & CLYDE)
Cc: Best Jonathan (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; brian.jones[redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: HSE- Pigeon Waste Meeting 24 January 2019

Hi all

I have spoken with Prof Brian Jones who subsequently spoke with Dr Inkster.

My understanding is that Dr Inkster would like Dr Peters in attendance as she has undertaken a significant amount of work on this issue in her Microbiology role.

I have copied Prof Jones and Dr Inkster in for any further comments.

Thanks

Tom

Sent from my BlackBerry 10 smartphone on the EE network.

From: Walsh, Tom
Sent: Wednesday, 23 January 2019 18:25
To: Green, John; Fleming, Kenneth
Cc: Best, Jonathan; Devine, Sandra
Subject: Re: HSE- Pigeon Waste Meeting 24 January 2019

Hi John

I can confirm that Teresa Inkster is the only nominated member of the Infection Control Team attending.

Dr Peters works for Diagnostics not Infection Control.

I was trying to contact Kenneth re this as had heard from Dr Armstrong at 5:30. If its not appropriate for Dr Peters to attend this would need to go to the Microbiology Management Team.

Tom

Sent from my BlackBerry 10 smartphone on the EE network.

From: Green, John
Sent: Wednesday, 23 January 2019 18:18
To: Walsh, Tom; Fleming, Kenneth
Cc: Best, Jonathan
Subject: Re: HSE- Pigeon Waste Meeting 24 January 2019

Hi Tom

I have been advised that Christine Peters is planning to attend tomorrow's meeting with the HSE.

I am sorry but this is not possible. We have agreed that Theresa will be the sole representative from Infection Control.

I have also already advised HSE who will be attending the meeting.

Can you lease confirm that only Theresa will be in attendance.

Many thanks

John

Sent from my BlackBerry 10 smartphone.

From: Walsh, Tom
Sent: Tuesday, 22 January 2019 17:55
To: Green, John; Fleming, Kenneth
Subject: Re: HSE- Pigeon Waste Meeting 24 January 2019

Fine with me and Teresa has confirmed she can attend

Cheers

Tom

Sent from my BlackBerry 10 smartphone on the EE network.

From: Green, John
Sent: Tuesday, 22 January 2019 17:54
To: Walsh, Tom; Fleming, Kenneth
Subject: Re: HSE- Pigeon Waste Meeting 24 January 2019

I was thinking Theresa

John

Sent from my BlackBerry 10 smartphone.

From: Walsh, Tom
Sent: Tuesday, 22 January 2019 16:31
To: Fleming, Kenneth; Green, John
Subject: Fw: HSE- Pigeon Waste Meeting 24 January 2019

Hi Kenneth and John

Just checking who from the IPCT should attend on Thursday.

I note Teresa Inkster is on the distribution which is fine with me.

Let me know if you need anyone else.

Thanks

Tom

Sent from my BlackBerry 10 smartphone on the EE network.

From: McNeil, Elaine [redacted]
Sent: Monday, 21 January 2019 12:19
To: Connelly, Karen; Green, John; Kane, Mary Anne; Inkster, Teresa; Gallacher, Alan; Purdon, Colin
Cc: Fleming, Kenneth; Walsh, Tom; Clark, Andrew

Subject: FW: HSE- Pigeon Waste Meeting 24 January 2019

Dear Colleagues

Facilities Meeting Room 5, Ground Floor, Labs Building has been booked on Thursday 24 January 2019 at 10am.

Regards

Elaine McNeil

PA to Karen Connelly, General Manager Facilities South Sector, Alan Gallacher, General Manager, Estates, Ian Powrie, Deputy General Manager Estates
Queen Elizabeth University Hospital
Laboratory Medicine/FM Building
1345 Govan Road, Glasgow, G51 4TF
[redacted]

From: Connelly, Karen
Sent: 21 January 2019 12:09
To: McNeil, Elaine
Subject: Fwd: HSE- Pigeon waste.

Elaine,

Is Room 5 available on Thursday at 10.00?

If so can you let everyone in this email know

Karen
Sent from my iPhone

Begin forwarded message:

> **From:** "Green, John" [redacted]
> **Date:** 21 January 2019 at 11:36:43 GMT
> **To:** "Kane, Mary Anne" [redacted], "Inkster, Teresa" [redacted], "Gallacher, Alan" [redacted], "Connelly, Karen" [redacted], "Purdon, Colin" [redacted]
> **Cc:** "Fleming, Kenneth" [redacted], "Walsh, Tom" [redacted]
> **Subject: HSE- Pigeon waste.**
>
> All
>
> Cameron Adam, Principal Inspector HSE in the Glasgow Office, has been in touch this morning concerning the press coverage at the weekend. He is making preliminary enquiries and will be onsite with his colleague Kate Wilson, at 10 am on Thursday.
>
> I will be meeting them and they would also like to meet Infection Control and Estates colleagues. They would also like to visit the plant room.
>
> Can the appropriate individuals make themselves available for Thursday morning. We will require a room to meet in and I would be grateful if that could be arranged.
>
> I would again stress that this is only preliminary work at this point. No decision has been taken re formal investigations nor has the PF office requested anything at this stage.
> John T Green
> A49541141

[redacted]

FW: RHC-QEUH - Imaging Courtyard Pigeons

Inkster, Teresa [redacted]

Thu 23/07/2020 15:16

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

From: Bradnam, Michael
Sent: 24 January 2019 11:51
To: Purdon, Colin [redacted]
Cc: Inkster, Teresa [redacted]
Subject: RHC-QEUH - Imaging Courtyard Pigeons

Dear Colin,

I note that contractors in PPE are working in the imaging courtyard today to clean up the pigeon droppings (and pigeon carcasses) on the outside of the electrical cabinets and fans. I met Mr Forrest your sub-contractor and he advised me that he is working with you.

My observation is that the pigeons may have also roosted inside some of the electrical cabinets, which will require to be opened and checked in due course. I advised Mr Forrest that I would inform you of my observation.

I hope that this helps.

Kind regards,
Michael.

Dr Michael Bradnam
Head of Service for Imaging & Honorary Clinical Senior Lecturer
Dept of Clinical Physics and Bioengineering, Greater Glasgow Health Board & University of Glasgow
Head of Paediatric Clinical Physics, c/o Diagnostic Imaging, Royal Hospital for Children
1345 Govan Road, Glasgow G51 4TF
Tel: [redacted], **mob:** [redacted]
Email: [redacted]

Re: Cryptococcus

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Thu 24/01/2019 16:51

To:Connelly Karen (NHS GREATER GLASGOW & CLYDE) [redacted]; Steele, Tom [redacted]; Purdon Colin (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Walsh Thomas (NHS GREATER GLASGOW & CLYDE) [redacted]; Devine, Sandra [redacted];

Great thanks. As discussed at IMT we need to include this area as a hypothesis now as we have smoke testing showing ingress at the door and we have the heat exchanger causing spore dispersion close to an inlet. I have a video of the smoke but need to work out how to send it. Can we review the door se and all door access routes , the particular door was the one beside the reception desk

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Connelly, Karen [redacted]
Sent: 24 January 2019 09:18
To: Connelly Karen (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Steele, Tom; Purdon Colin (NHS GREATER GLASGOW & CLYDE)
Cc: Walsh Thomas (NHS GREATER GLASGOW & CLYDE); Devine, Sandra
Subject: RE: Cryptococcus

Hello Teresa,

Colin visited the courtyard at RHC Imaging yesterday and has instructed works to include, removal of faeces, removal of any birds found, and the installation of netting at the top of the courtyard to prevent bird access.

Samples of faeces were also taken from this courtyard yesterday.

Regards
Karen

From: Connelly, Karen
Sent: 24 January 2019 08:55
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Steele, Tom; Purdon, Colin
Cc: Walsh, Tom; Devine, Sandra
Subject: RE: Cryptococcus
Importance: High

Hello Teresa,
A49541141

[redacted]

We will gather the information required for you as quickly as possible this morning and arrange for a sample to be sent to you.

In regard to the removal of faeces in the courtyard at CDU I would confirm that the pest control company operatives were wearing the appropriate PPE, this included full white disposable boiler suits and facemasks. I was present during this clean up along with the company's director of operations so it may have been us that were spotted in the area but we were not doing any of the removal.

Regards
Karen

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 24 January 2019 07:30
To: Steele, Tom; Connelly, Karen; Purdon, Colin
Cc: Walsh, Tom; Devine, Sandra
Subject: [ExternaltoGGC]Cryptococcus

Hi,

Would it be possible for the IMT to be receive details of pest control measures to date for this incident and the action plan moving forward to control pigeons on site.

Also wanted to request that we get areas cleaned up .We will always have pigeons but need to ensure there is not build up of faeces. I have an email from a member of staff regarding a courtyard area in RHC that he is concerned about, beside radiology. Wondered if a sample of faeces could be sent to me in a specimen pot to enable further testing as we did not use the best method last time.

Also, a senior staff nurse contacted me to express concern regarding staff she saw who were cleaning up bird faeces with no PPE. I expect this was the CDU area that needed cleaned on Monday. I have discussed this with Rona Wall who will be in touch with you Tom . Can IMT be sent a copy of the PPE policy ,this was an action that Maryanne was taking forward.

Thanks
Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Inkster, Teresa

From: Connelly, Karen
Sent: 24 January 2019 17:59
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Purdon, Colin; Steele, Tom
Subject: Pest Control Remedial Work 24.01.19.xls.xlsx
Attachments: Pest Control Remedial Work 24.01.19.xls.xlsx

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Teresa,

Please find attached list of remedial actions taken in regard to pigeons since September 2018. We are adding to this on a daily basis, do you want me to send you a weekly update

Regards
Karen

DATE ORDER PLACE	SUPPLIER	DETAILS	WORK COMPLETED	COMMENTS	
14/09/2018	GP ENVIRONMENTAL	TO CARRY OUT CLEAN OF HELIPAD ON 07/09/18	07/09/2018	Complete	
19/09/2018	GP ENVIRONMENTAL	TO CARRY OUT HELIPAD CLEAN ON 18TH SEP 208	18/09/2018	Complete	
20/09/2018	GP ENVIRONMENTAL	TO CARRY OUT BIRD PROOFING WORKS AT VARIOUS COURTYARDS			
25/09/2018	GP ENVIRONMENTAL	TO CARRY OUT CLEAN OF HELIPAD 25TH & 26TH SEP	26/09/2018	Complete	
04/10/2018	GP ENVIRONMENTAL	TO CARRY OUT CLEAN OF HELIPAD ON 05/10/18	05/10/2018	Complete	
17/10/2018	GP ENVIRONMENTAL	TO CARRY OUT HELIPAD CLEAN ON 17TH OCT 18	17/10/2018	Complete	
31/10/2018	GP ENVIRONMENTAL	TO CLEAN HELIPAD AND COBBLED AREA - 30/10/18	30/10/2018	Complete	
15/11/2018	GP ENVIRONMENTAL	TO CARRY OUT HELIPAD CLEAN ON 15/11/18	15/11/2018	Complete	
23/11/2018	GP ENVIRONMENTAL	PIGEON FOULING ISSUE ON BALCONY L6 INS SANITISATION AND REPELLENT NET			
06/12/2018	GP ENVIRONMENTAL	TO CARRY OUT CLEAN OF HELIPAD ON 6TH DECEMBER 2018	06/12/2018	Complete	
08/01/2018	GP ENVIRONMENTAL	TO DEEP CLEAN HELIPAD AND COBBLED AREA 3RD AND 4TH JAN 19	04/01/2019	Complete	
09/01/2019	GP ENVIRONMENTAL	PIGEON REMOVAL AT SERVICE YARD 08.01.19	08/01/2019	Complete	
15/01/2019	GP ENVIRONMENTAL	PEST CONTROL AT LAB BLOCK / CLEANING AND NEUROLOGY 9-10TH JAN 19	10/01/2019	Complete	
16/01/2019	GP ENVIRONMENTAL	REMOVAL OF DEAD PIGEON FROM HDU3 USING SCAFFOLD TOWER - 16.01.19	16/01/2019	Complete	
21/01/2019	GP ENVIRONMENTAL	BIRD REPELLENT TO LIGHTS AT MATERNITY ENTRANCE			
23/01/2019	GP ENVIRONMENTAL	CLEAN PIGEON DROPPING AT MATERNITY AND HELIPAD CLEAN ON 23.01.19			
23/01/2019	GP ENVIRONMENTAL	SPIKING TO BE INSTALLED AND ALL FOULING CLEANED AND TREATED AT MATERNITY ENTRANCE			
23/01/2019	GP ENVIRONMENTAL	REMOVAL OF 4 DEAD PIGEONS SANITATION AND DISPOSAL AT CORE G			
23/01/2019	GP ENVIRONMENTAL	ADDITIONAL CLEANING TO MATERNITY ENTRANCE AND CONSERVATORY ROOF FOLLOWING PROOFING WORKS			
23/01/2019	GP ENVIRONMENTAL	6TH FLOOR WINDOWS AT NEUROSURGICAL			
23/01/2019	GP ENVIRONMENTAL	TO CARRY OUT CLEAN AT SIDE OF NEUROLOGY ON 23.01.19	23/01/2019	Complete	
23/01/2019	GP ENVIRONMENTAL	DAILY CLEAN OF INS / NEUROLOGY LINK BRIDGE AREA £55 PER DAY	23/01/2019	Complete	
23/01/2019	GP ENVIRONMENTAL	TO CARRY OUT INSPECTION AND CLEAN OF AREAS THROUGHOUT CENTRAL MEDICAL BLOCK			
14/01/2019	GP ENVIRONMENTAL	Detailed clean of plantrooms 121, 122, 123 and 124	25/01/2019	Ongoing	3
21/01/2019	GP ENVIRONMENTAL	Trapping (6 week programme)	08/03/2019	Commenced	
22/01/2019	GP ENVIRONMENTAL	Deep clean and sanitisation of Glass Canopy under North West Elevation of Children's	22/01/2019	Complete	
22/01/2019	GP ENVIRONMENTAL	PR41 cleaning	25/01/2019	In progress	3
25/01/2019	GP ENVIRONMENTAL	Application of pigeon spiking to North West Elevation of Children's Hospital	01/02/2019	Scheduled	2
25/01/2019	GP ENVIRONMENTAL	Application of pigeon spike to QEUH Main Building on Level 4	01/02/2019	Scheduled	2
28/01/2019	GP ENVIRONMENTAL	Detailed floor washing and sanitisation of plantrooms 121, 122, 123 and 124	30/01/2019	ongoing	3
31/01/2019	GP ENVIRONMENTAL	Plantroom sanitisation spray to 121, 122, 123 and 124 of all external surfaces (equipment, ducts, walls etc)	06/02/2019	Scheduled	3
	GP ENVIRONMENTAL	Level 12 PR123 First Pass Frank Green		Initial clean up of fouling in PR123 Complete	
	GP ENVIRONMENTAL	Maternity Canopy and Mezz level		Asbestos survey	2
	GP ENVIRONMENTAL	Carcass on top of Atruim lift cores		Complete	
	GP ENVIRONMENTAL	RCH Imaging lightwell Netting and clean up		Escalated to GP	1
24/01/2019	GP ENVIRONMENTAL	M & S COURT YARD - CLEAR PIGEON FOULING FROM ALL LEDGES / PAVED AREAS SANITISE AND APPLY REPELLENT			
24/01/2019	GP ENVIRONMENTAL	CORE G STAIRWELLS AND LANDINGS FROM L13 TO L1 PLUS LIFT HALLS - DETAILED DEEP CLEAN AND SANITISATION			
24/01/2019	GP ENVIRONMENTAL	LEVEL 12 - REMOVE PIGEON FOULING FROM LEVEL 12 AT HELIPAD			

From: Peters, Christine [redacted]
Sent: 23 September 2020 19:20
To: Inkster, Teresa
Subject: RE: Emailing: CryptococcusInBCs

HI So I make it :

2018 peak cases

Case 1 [redacted]/06/2018 – [redacted] last QEUH contact [redacted] in ENT 11B in 2015

Case 2 [redacted]/08/2018 – [redacted] – [redacted], QEUH admission in April 2018 [redacted] 11A

Case 3 [redacted]/08/2018 – [redacted], [redacted] , [redacted], QEUH admission [redacted]/11/2017 8D QEUH [redacted] during that admission chest was clear on admission and [redacted] December chest changes noted which did not resolve [redacted].

Case 4 and 5 in December [redacted], developed BC positive whilst inpatients

[redacted], all 5 have a history of inpatient stay at QEUH, [redacted],

BW
Christine

From: Inkster, Teresa
Sent: 23 September 2020 18:18
To: Peters, Christine [redacted]
Subject: Fw: Emailing: CryptococcusInBCs

From: Kerr, Ann [redacted]
Sent: 20 December 2018 10:16
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Devine, Sandra [redacted]
Subject: Emailing: CryptococcusInBCs

Your message is ready to be sent with the following file or link attachments:

CryptococcusInBCs

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

From: IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND)
Sent: 24 December 2018 08:30
To: HPSInfectionControl (NHS National Services Scotland)
Subject: FW: HIIORT - NHSGGC - Wards 2A and 4C, QEUH

For filing please

From: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 December 2018 10:34
To: SHEPHERD, Lesley (NHS NATIONAL SERVICES SCOTLAND); Melanie.Goodfellow[redacted]; Rachael.Dunk[redacted]; Jason.Birch[redacted]; IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND)
Subject: Fwd: HIIORT - NHSGGC - Wards 2A and 4C, QEUH

Please see email response from Sandra.
Kind regards,
Lisa

Sent from my iPhone

Begin forwarded message:

> **From:** "Devine, Sandra" [redacted]
> **Date:** 21 December 2018 at 09:29:20 GMT
> **To:** "RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)" [redacted]
> **Cc:** "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)" [redacted]
> **Subject: RE: HIIORT - NHSGGC - Wards 2A and 4C, QEUH**
>
> Hi Lisa
> I can confirm that the paediatric patient was not part of the water incident.
> Kind regards
> Sandra

> **From:** RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND) [redacted]
> **Sent:** 21 December 2018 09:05
> **To:** Devine, Sandra
> **Cc:** Inkster, Teresa (NHSmail)
> **Subject:** [ExternaltoGGC]Re: HIIORT - NHSGGC - Wards 2A and 4C, QEUH
>
> Thanks Sandra, could you or Teresa give me a quick call on [redacted] - I have question from SG.
> Thank you
> Lisa
>
> Sent from my iPhone
>
> On 21 Dec 2018, at 08:59, Devine, Sandra [redacted] wrote:
>
> > Hi Lisa
> > 6a and 4c not 2a.
> > Thanks
> > Sandra

From: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Sent: 21 December 2018 06:43
To: KANE, Hayley (NHS NATIONAL SERVICES SCOTLAND); Birch, Jason (SGPU); BROWN, Claire (NHS NATIONAL SERVICES SCOTLAND); CAIRNS, Shona (NHS NATIONAL SERVICES SCOTLAND); BOSWELL, Catherine (NHS NATIONAL SERVICES SCOTLAND); CHRISTIE, Katie (NHS NATIONAL SERVICES SCOTLAND); Rachael.Dunk[redacted]; Emma Watson; goodfellow, melanie; HOOKER, Emma (NHS NATIONAL SERVICES SCOTLAND); HPSInfectionControl (NHS National Services Scotland); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); LOCKHART, Michael (NHS NATIONAL SERVICES SCOTLAND); LONGSTAFF, Jenny (NHS NATIONAL SERVICES SCOTLAND); MCINTYRE, Jackie (NHS NATIONAL SERVICES SCOTLAND); Mediarelations (NHS NATIONAL SERVICES SCOTLAND); MULLINGS, Abigail (NHS NATIONAL SERVICES SCOTLAND); RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND); REILLY, Jacqui (NHS NATIONAL SERVICES SCOTLAND); Shepherd, Lesley ; SHEPHERD, Lesley (NHS NATIONAL SERVICES SCOTLAND); Syme, Margaret; THOULASS, Janine (NHS NATIONAL SERVICES SCOTLAND); UNZURRUNZAGA, Garazi (NHS NATIONAL SERVICES SCOTLAND); WALLACE, Heather (NHS NATIONAL SERVICES SCOTLAND); WILSON, Julie (NHS NATIONAL SERVICES SCOTLAND)
Cc: Inkster, Teresa (NHSmail); Devine, Sandra; Dodd, Susie; Pritchard, Lynn
Subject: [ExternaltoGGC]HIIORT - NHSGGC - Wards 2A and 4C, QEUH

Dear colleagues,

Please find attached HIIORT from NHS Greater Glasgow and Clyde reporting two cases of Cryptococcus neoformans in the Haematology unit (Wards 2A and 4C; two floors apart) at Queen Elizabeth University Hospital.

HIIAT Red

In Summary
Cryptococcus neoformans is an encapsulated yeast that can live in both humans and animals and is largely found in soil and pigeon excrement

Cases: Two clinical isolates within 17 days on the same hospital site. Both haematology patients (one adult and one paediatric)

- Case 1 [redacted] inpatient for past three weeks in Ward 4C. This patient has been commenced on antifungal treatment and is reported to be giving no clinical cause for concern.
- Case 2 [redacted] Admitted to Ward 2A on [redacted] August 2018; transferred to Ward 6A on 28th September 2018 due to facilities upgrade in Ward 2A. Patient subsequently transferred to paediatric intensive care unit (Ward 1D) on [redacted] November 2018. Blood cultures taken on [redacted] December confirmed positive for Cryptococcus neoformans. Sadly, this patient died ([redacted] December 2018). [redacted] samples confirmed Cryptococcus neoformans in multiple body sites.

Investigations:

- A two year look back at blood culture data has been undertaken by consultant microbiologists – no HAI Cryptococcus neoformans identified.
- Review of drug preparation in the aseptic pharmacy (in progress/unlikely source as more cases would potentially have been identified).
- HPS Vet. Consultant contacted by NHS GG&C CPHM to establish incidence/epidemiology. Further epidemiology of cases to be reviewed by NHS GG&C HPT.
- Environmental review of PICU - initial findings:

  - Excessive volume of pigeon droppings noted outside of unit in enclosed external atriums - there is no access to this area for staff or patients. Reports of pigeon nesting in this area throughout the summer resulted in overhead nets and spikes being installed.
  - pigeon excrement also visible on overhead canopies at entrance way to the Royal Hospital for Children
- Environmental review of roof plant room – evidence of pigeon droppings. Microbiology in discussions with public health colleagues arranging analysis of pigeon droppings. Air sampling and settle plates in progress.

Control measures:

- All high risk patients to receive prophylaxis.
- Clinicians and microbiologists to consider Cryptococcus neoformans as part of differential diagnosis.
- Environmental decontamination of areas contaminated with pigeon droppings.
- Further anti-pigeon measures to be put in place.

Next steps:

- Next IMT planned for Thursday 27th December 2018; unless the situation changes before this date.
- Next expected update, today, 21st December 2018

Teresa, Sandra, please advise of any errors or omissions in the above. Please also advise of press statements (holding or release) to SG and HPS Communications Teams.

Kind regards,

Lisa

Dr Lisa Ritchie
NHS Improvement IPC Fellow
Nurse Consultant Infection Control
Infection Control Team / HAI Group
Health Protection Scotland

NHS National Services Scotland
4th Floor Meridian Court
5 Cadogan Street
Glasgow G2 6QE
T: [redacted] / [redacted]

Scotland's National Infection Prevention and Control Manual Website

http://www.nipcm.hps.scot.nhs.uk

Fw: Airborne pathogen infection control

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Thu 31/01/2019 11:01

To: SMITH, Ian (NHS HEALTHCARE IMPROVEMENT SCOTLAND) [redacted];

Confidential info

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 08 January 2019 17:19
To: Walsh Thomas (NHS GREATER GLASGOW & CLYDE)
Cc: John.Hood[redacted]
Subject: Fw: Airborne pathogen infection control

Tom , I will be on annual leave from Wed , back on Tuesday 8th. When you meet with Tom Steele about venla tion can you raise the following outstanding issues. These were raised at a meeting myself and John a ended about venla tion on Dec 19th.

1) Clarification of pressures in 5C/D 7A/D . I now have the results for 5C/D and 7D but not for 7A. I was asking repeatedly for results of pressures in these wards and did not receive them until a meeting on 19th Dec . The reports are dated 2nd-9th November. Access to these results may have avoided some of the clinician anxiety. Also need to know how these rooms will be monitored moving forward so we are not in the same position again.

2) Feasibility study for ward 4C - do we have a timescale for this?

3) Risk assessment for endoscopy issue and update on validation reports from ACADs and QEUH endoscopy units which remain outstanding.

4) Update on negav e pressure room upgrade, what are the issues and the timescale.

I am still of the opinion that venla tion requires a group similar to the water technical group to work through these issues. I am also concerned regarding the lack of documentation of discussions relating to venla tion.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

RE: Environmental organisms in BC - 2A/B

Kerr, Ann [redacted]
Tue 22/01/2019 07:43
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];Devine, Sandra [redacted]

1 attachments (45 KB)
2A-2B env orgs in BC.xlsx;

Steno on a separate tab.
All isolates – not just healthcare associated.
Ann

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 21 January 2019 17:42
To: Kerr, Ann; Devine, Sandra
Subject: [ExternaltoGGC]Re: Environmental organisms in BC - 2A/B

Ann , do you have the raw data so I can look at the organisms . Slightly concerned that 2017 is higher

Thanks
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Kerr, Ann [redacted]
Sent: 21 January 2019 10:49
To: Devine, Sandra; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Environmental organisms in BC - 2A/B

With steno

Year	Total
2015	1
2016	9
2017	22
2018	16
Grand Total	**48**

From: Devine, Sandra
Sent: 21 January 2019 09:39
To: Kerr, Ann; Inkster, Teresa (NHSmail)
Subject: RE: Environmental organisms in BC - 2A/B

Ann

A49541141

Teresa has missed steno from the list of organisms so if you could run this again.
Thanks
Sandra

Sandra Devine
Associate Nurse Director
Infec on Preven on and Control
[redacted]

From: Kerr, Ann
Sent: 18 January 2019 13:56
To: Inkster, Teresa (NHSmail)
Cc: Devine, Sandra
Subject: Environmental organisms in BC - 2A/B

Blood cultures obtained from 2A and 2B loca on.
Organism de duplica on of 14 days

Pa ent and specimen details in a ached spreadsheet.

Year	Total
2015	1
2016	8
2017	18
2018	11
Grand Total	**38**

From: MELLOR, Dominic (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 12:54
To: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND); MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); RAMSAY, Colin (NHS NATIONAL SERVICES SCOTLAND); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Queen Elizabeth University Hospital

Follow Up Flag: Follow up
Flag Status: Completed

Categories: Blue Category

Hi,
For the record, note that I too am content with the agreed lines. Thanks.

Dom

From: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 12:51
To: MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); RAMSAY, Colin (NHS NATIONAL SERVICES SCOTLAND); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND); MELLOR, Dominic (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Queen Elizabeth University Hospital

Thanks Jim, and this will go as a generic HPS rather than Lisa Ritchie said....? I'm content either way

---

From: MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 12:47
To: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND); RAMSAY, Colin (NHS NATIONAL SERVICES SCOTLAND); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND); MELLOR, Dominic (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Queen Elizabeth University Hospital

Thanks

I am content with what you have now presented in the revised lines - Unless there is a compelling reason from evidence available to IMT I would keep the same phrase as the GGC one so that we keep a unified front.

Colin are you okay with that too?

Best wishes

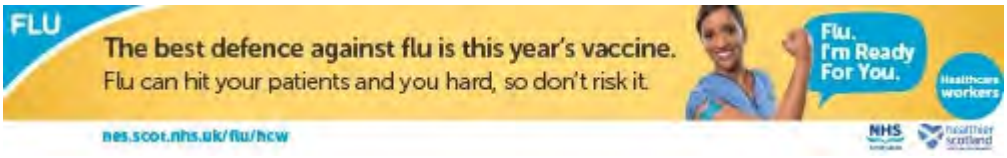
Jim

Dr Jim McMenamin
Consultant Epidemiologist
Interim Clinical Director
Respiratory Team
Health Protection Scotland

NHS National Services Scotland
4th Floor
Meridian Court
5 Cadogan Street

Glasgow
G2 6QE

T: [redacted]
F:
E: [redacted]
http://www.hps.scot.nhs.uk



Please consider the environment before printing this e-mail.

NHS National Services Scotland is the common Name for the Common Services Agency for the Scottish Health Service. www.nhsnss.org

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From: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 12:43
To: RAMSAY, Colin (NHS NATIONAL SERVICES SCOTLAND); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND); MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); MELLOR, Dominic (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Queen Elizabeth University Hospital

Thanks Laura, Jim, Colin,

Attached with track changes from Jim.

The phraseology I used was that used by NHSGGC in their press release – the 'isolated' I read to refer to the two cases being in two different wards and transmission not being person to person – but happy to change this if you think it should be changed?

Kind regards,
Lisa

From: RAMSAY, Colin (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 12:31
To: IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND); TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND); MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); MELLOR, Dominic (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Queen Elizabeth University Hospital

seem my highlighted comments below.

Colin

Please consider the environment before printing this email.

NHS National Services Scotland is the common name for the Common Services Agency for the Scottish Health Service. www.nhsnss.org

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From: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 12:07
To: TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND); MCMENAMIN, Jim (NHS NATIONAL SERVICES SCOTLAND); IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND); RAMSAY, Colin (NHS NATIONAL SERVICES SCOTLAND); MELLOR, Dominic (NHS NATIONAL SERVICES SCOTLAND)

Cc: HPSInfectionControl (NHS National Services Scotland); Mediarelations (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Queen Elizabeth University Hospital

Draft media statement (comments please):

Health Protection Scotland is providing clinical support and advice to an NHSGGC-led Incident Management Team investigating two cases of Cryptococcus at the Queen Elizabeth University Hospital.

Cryptococcus is a type of fungus that lives in the environment (primarily found in soil) throughout the world; it is a harmless microorganism to the majority of people and rarely causes disease in humans. Immune compromised individuals are however generally more at risk from all sources of infection and two isolated patient cases within the QEUH are being investigated as reported by the lead consultant of Infection Control at NHSGGC.

This phraseology seems to imply no connection whatever. Is it safe to say these are "isolated" cases if there is evidence that there might be some form of common link associated with the hospital?
I wonder if it would be safer to say something more neutral like *"two cases indentified among patients at QEUH"*

An infection with the fungus Cryptococcus is known as cryptococcosis. This can be a serious opportunistic infection among people who do not have the ability to respond normally to an infection, due to an impaired or weakened immune system.

Cryptococcosis is not contagious, meaning it cannot spread from person-to-person.

Kind regards,
Lisa

-----Original Message-----
From: HPSInfectionControl (NHS National Services Scotland)
Sent: 21 January 2019 09:51
To: Mediarelations (NHS NATIONAL SERVICES SCOTLAND); TAYLOR, Leigh (NHS NATIONAL SERVICES SCOTLAND)
Cc: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Subject: FW: Queen Elizabeth University Hospital

Forwarding on to check that comms have this enquiry.

-----Original Message-----
From: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Sent: 21 January 2019 09:18
To: HPSInfectionControl (NHS National Services Scotland)
Subject: FW: Queen Elizabeth University Hospital

Can you forward this to HPS comms please and copy me in. Thanks
Lisa

-----Original Message-----
From: HPSInfectionControl (NHS National Services Scotland)
Sent: 21 January 2019 09:11
To: RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND)
Subject: FW: Queen Elizabeth University Hospital

Forwarded onto Lisa Ritchie 9.10

-----Original Message-----
From: HPSEnquiries (NHS National Services Scotland)

Sent: 21 January 2019 08:35
To: Mediarelations (NHS NATIONAL SERVICES SCOTLAND)
Cc: HPSInfectionControl (NHS National Services Scotland)
Subject: FW: Queen Elizabeth University Hospital

Dear colleagues,

Please see the below email that came into the HPSEnquiries inbox.

Could I ask you to please respond?

Many thanks

Meg

HPS Enquiries

-----Original Message-----
From: David Cowan [redacted]
Sent: 20 January 2019 13:37
To: HPSEnquiries (NHS National Services Scotland)
Subject: Queen Elizabeth University Hospital

Hello, is there someone I can call today about the infection outbreak at the Queen Elizabeth University Hospital in Glasgow? I'm on [redacted]. Many thanks.
David Cowan
Reporter
BBC Scotland

Sent from my iPhone

Julie Rothney

From:	Peters, Christine
Sent:	21 January 2019 10:57
To:	Inkster, Teresa (NHSmail)
Subject:	crypto AHU report
Attachments:	crypto AHU report.doc

HI Teresa,
An updated report for the IMT

C

SBAR Report for Cryptococcus IMT
Ventilation and *Cryptococcus*
Dr Christine Peters

Situation

Two cases of hospital acquired *Cryptococcus neoformans* have occurred in immune compromised patients at the QEUH. Pigeons and associated guano have been found in all plant rooms supplying ventilation to QEUH. An IMT investigation required details regarding plausibility of Cryptococcus contaminating the ventilation system.

Background

Organism
Cryptococcus neoformans is a yeast type fungus that is found globally in soil and pigeon (and other bird) guano in high densities. Pigeon guano also harbours a number of other potentially pathogenic fungi including Candida , Aspergillus and Mucor species.

For the purposes of this investigation the key characteristics of *Cryptococcus neoformans* are:

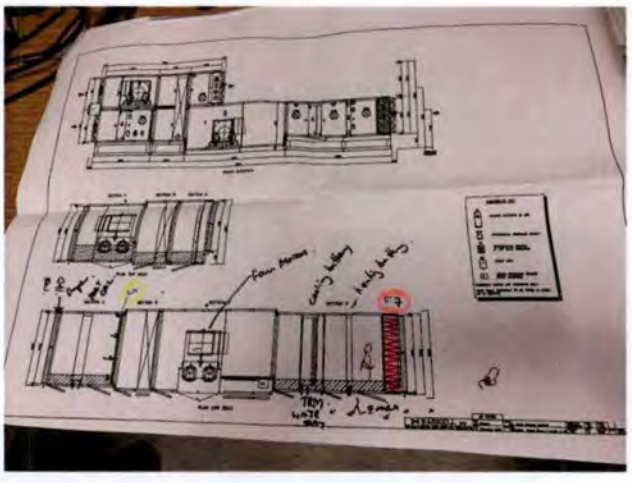
1. Infectious Particle size : various studies indicate 1-5 microns, basidiospores or desiccated yeast cells, can be airborne nuclei depending on life cycle stage and morphic form of organism as well as environmental factors such as temperature, humidity and air currents. Particles as small as 0.6 have been shown to be infectious.
2. Infectious dose: unknown, may depend on type of exposure eg yeast forms versus spores, sub species and host factors
3. Route of infection: usually inhaled into alveolar space, reports of inoculation with localised soft tissue infection
4. Incubation period: unknown , variable depending on exposure and susceptibility of host, up to months, latent infections also described
5. Disease spectrum: asymptomatic, mild pneumonitis through to fatal sepsis with pneumonia and meningitis. Severity related to underlying immune status, although severe infections also reported in immune competent exposed to high levels of guano contamination
6. Survival in environment: varies depending on water and nutrients can be months on pigeon guano which is the ideal nutritional environmental niche
7. Susceptibility to disinfectants: 0.5% chlorhexidine is fungicidal
8. Laboratory detection: grows within 24-48 hours at 37 C degrees on SAB agar. Appearance is similar to other yeast species and unless further ID test are carried out may be labelled as "yeast species" eg on air sampling plates
9. Hazard Group 2 organism
10. although most cases occur due to environmental exposure, HAI outbreaks have been described

Ventilation
The QEUH is an entirely mechanically ventilated building with plant rooms on the 12th floor covering four separate but interconnected wings which house Air Handling Units (AHU) that supply wards in the wings below to the 4th level.

Assessment

A walk around was undertaken on 18/01/19 with Dr T Inkster (lead ICD) and Colin Purdon (Estates) to inspect an AHU to answer queries from Peter Hoffman and to exam the possible routes of transmission of Crypotococcus from plant room to patient rooms. There after Dr Peters had a telephone call with Peter Hoffman (PHE) to discuss the findings.

1.Assessment of possible Route of transmission via ventilation system and ducting:
Diagram of AHU



External fresh air enters the AHU via ducting from area below helipad to plant room. These ducts have panels which can be opened for visualisation and maintenance.

Extract ducts and AHU sit on top of supply ducting and AHU. This is critical to the design as thermal wheels are used for energy efficiency of temperature control. These can theoretically provide an opportunity for dirty extract air to mix with clean supply air. The use of thermal wheels is approved in SHTM 03 however potentially pose difficulties when specialised ventilation is required for extract from infectious patients (eg VHF, MERS, measles, chicken pox and TB) and supply for immune compromised patients (BMT, transplant, HIV and others) and have not been specifically approved for such specialised ventilation systems.

Full details of AHU numbers and exact wards they supply are not available at this time.

Route of Supply air taken for external high level clean fresh air (photos below)

1. grill

2. frost coil
3. G4 filter – external pressure gauge present - changed when pressure reaches >100 (? Need to check maintenance schedules)
4. thermal wheel
5. Fan
6. cooling battery (with associated condensate trap)
7. heating battery
8. F7 filter – external pressure gauge present

There are 7 doors in the AHU to allow access for filter changes and maintenance, which involves personnel going from plant room into the inside of the AHU to carry out necessary filter changes. These cannot be opened when AHU is switched on and so while photos were taken through a window, this does not allow for full visualisation of potential gaps round filters.

9. Ducting to rooms
10. supply cooler beam at point of supply to bedroom
11. grill to bedroom
12. air entrained through cooler beam and grill

Potential for Cryptococcus and other airborne fungi to contaminate ventilation:

1. External air inlet: if there is roosting or guano contamination at the inlet this could lead to variable and wind dependant ingress of large numbers of spores. This could not be visualised but this needs to be done.

2. guano has been present in the plant room over at least a number of weeks (photos below) with reports of pigeons nesting in one area. Cryptococcus , along with other fungi can become airborne particles in dry settings when droppings are disturbed and could enter the AHU either on feet of personnel during filter changes, or via air when the access doors to the AHU are opened.

3. The F7 filter is at the terminal end of the supply AHU, so all air entering the ducting should go through this. It is impossible at this stage to determine if there are, or ever have been gaps to allow bypass of F7. Pressure records may indicate bypass, however normal pressures would not exclude this.

4. While F7 filter efficacy for 1 micron particles is 88%, HEPAs afford 100% for this range of particle size and are required for fungal airborne protection for severely immune compromised patients. There is evidence that naturally occurring infectious particles of Cryptococcus can be in the order of 1 micro and below. Numbers of particles getting through a filter will depend on the level of pre-filter contamination. As the infectious dose is not well described in this patient group the number needed to penetrate the filter to cause infection is not possible categorically determine. The infectious dose will also vary with patient susceptibility. Note those infected were severely immune compromised. While F7 filters will give considerable protection (only if installed correctly), this may not be to an adequate level for immune

compromised patients. The principle of HEPA filtration for airborne isolation of immune compromised patients is the nearly 100% elimination of fungal spores in the supplied air as per SHTM neutropenic accommodation guidance.

5. The air in the AHU will be at negative pressure upstream to the fan. Thus any breaches in the unit and/or the extract AHU including the thermal wheel could cause a continuous intake of plant room or dirty extract air. It is not possible to examine all surfaces of the AHUs to detect any such defect, but may warrant further inspection in the future.

6. The air in the AHU post fan will be under positive pressure which will safeguard against ingress from dirty areas when the fan is switched on.

2.Possible Route of transmission from building void to patient rooms

The void air could gain access to all rooms that are not under positive pressure through gaps such as the panel above sinks and electrical sockets etc. The principle of positive pressure for protective airborne isolation is primarily to prevent such ingress so that immune compromised patients only breathe supplied and filtered air.

The void air could have been contaminated with cryptococcus by:

- Communication with the contaminated plant room which has had, and continues to have gaps to the building void (clearly that is how the pigeons ingressed in the first place) and is normal in any building as water and waste pipes etc need to pass through different areas of the hospital. ie the void is not sealed off from any room in the hospital other than those specialised areas which require a determined level of seal and positive pressure (eg 4B)
- Other areas of pigeon ingress and faecal contamination which is impossible to visualise throughout the hospital
- Ingress from heavily contaminated external sources through any breaches in cladding

In terms of plausibility of infectious doses of the organism gaining access to the rooms in this manner in two different wards within a short timeframe, it seems less likely than the ventilation route but, as discussed with Peter Hoffman, cannot be ruled out.

3.Possible route of transmission from plant rooms via POD system

The POD system has a station in a plant room (need to ascertain which one) and it is plausible that due to the pressures involved in shifting the PODS through the tubes that contaminated air could be drawn into the treatment rooms where the PODS are deposited at the ward end. This requires further consideration.

Recommendations

It seems entirely plausible that cryptococcal infectious particles have been able to gain access through the ventilation system to the rooms of immune compromised patients.

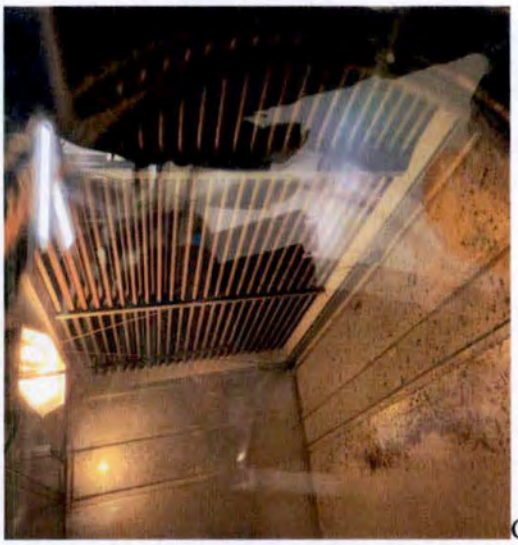
There is also the additional possibility that infectious particles could gain access to patient rooms via the void as the rooms are not positively pressured, or to the ward corridors via the pod system.

Further information is now required to further assess these possibilities not only to draw conclusions regarding the previous infections, but crucially to prevent any future infections.

1. External inlets need to be visualised and shown to be free from pigeons and droppings
2. AHUs that supply 6A and 4C and ITU should be inspected (will need 30 mins switch off):
    a. Visually for gaps in F7 filter housing
    b. air sampled inside AHU
    c. pressure records across filters compared to manufacturers minimal levels
    d. particle counts taken pre and post F7 filter
    e. filters sampled for culture on SAB agar (expect a lot of fungus, but important to identify if any Cryptococcus has challenged the filters)
3. Smoke testing of rooms of affected patients to identify level of leakage into the rooms
4. Thermal imaging report needed to rule out further pigeon roosting in the building void
5. Air sampling of the void at different points in the building to determine levels of cryptococcal contamination in comparison to wards.
6. Air sampling near POD system
7. Air sampling in laboratory block as a control – same external air , different HVAC system.

In conclusion it is important to note that in order to protect immune compromised high risk patients from exposure to airborne fungal infection including but not restricted to Cryptococcus, the well established ventilation strategies are positive pressure, HEPA filtration and adequate ACH with minimal door opening.

PHOTOS of AHU components



GRill



G4 Filter



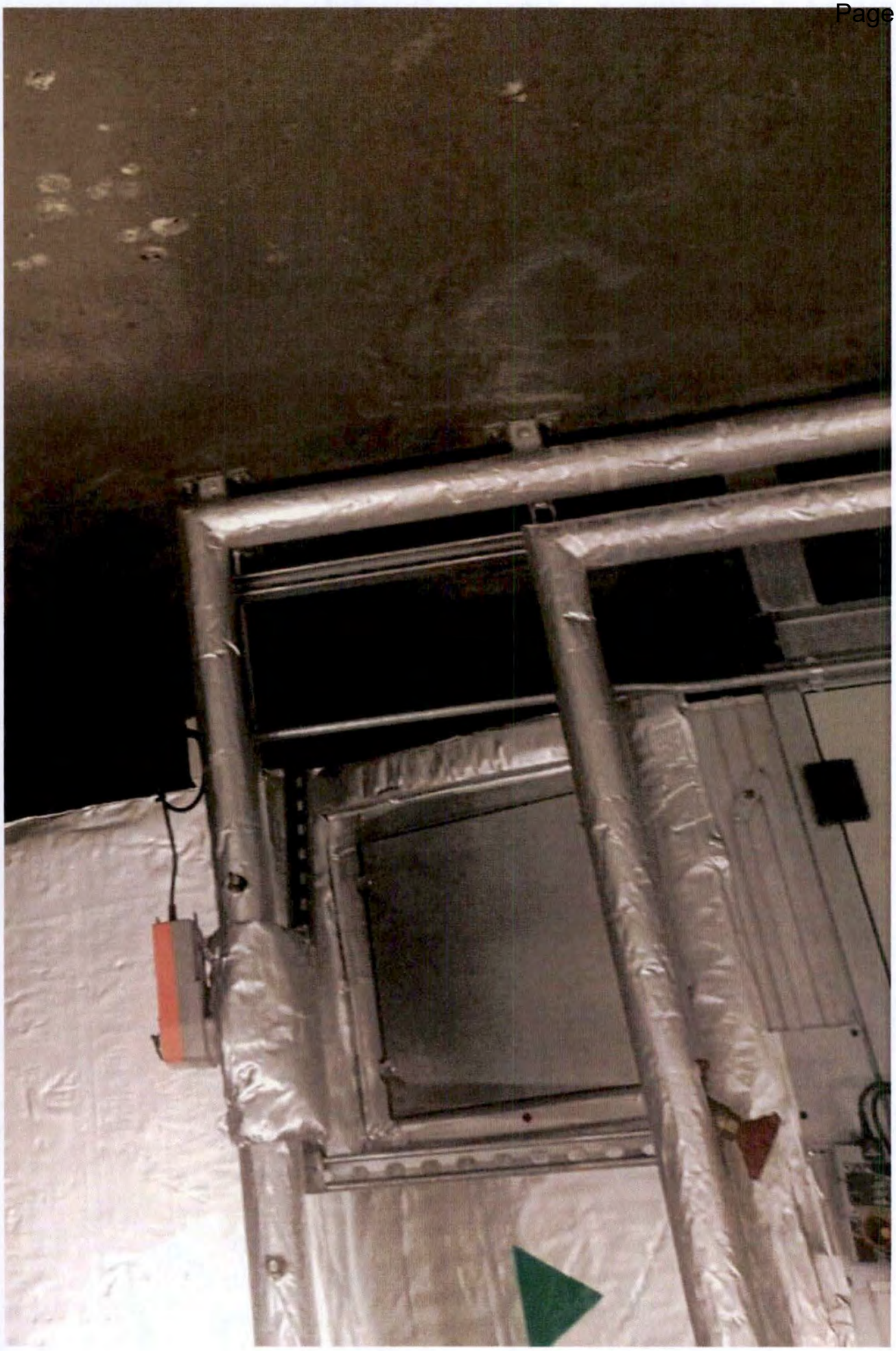
F7 Filter



Pressure gauge

PHOTOS of Pigeon guano contamination in plant rooms







References

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J B Neilson, R A Fromtling, G S Bulmer
Infection and Immunity Sep 1977, 17 (3) 634-638

Particle size of airborn Cryptococcus neoformans in a tower.
A Ruiz, G S Bulmer
Appl. Environ. Microbiol. May 1981, 41 (5) 1225-1229

Mycopathologia
January 1982, Volume 77, Issue 2, pp 117–122| Cite as
A one year study on the viability of *Cryptococcus neoformans* in nature

F Efficacy of antiseptics and disinfectants on clinical and environmental yeast isolates in planktonic and biofilm conditions

Infect Immun. 2009 Oct; 77(10): 4345–4355.

Spores as Infectious Propagules of *Cryptococcus neoformans*▽ †

Rajesh Velagapudi,[1] Yen-Ping Hsueh,[1] Scarlett Geunes-Boyer,[2] Jo Rae Wright,[2] and Joseph Heitman[1,3,4,*]

Emerg Infect Dis. 2015 Oct; 21(10): 1719–1724.
Cluster of *Cryptococcus neoformans* Infections in Intensive Care Unit, Arkansas, USA, 2013
Snigdha Vallabhaneni,☒ Dirk Haselow, Spencer Lloyd, Shawn Lockhart, Heather Moulton-Meissner, Laura Lester, Gary Wheeler, Linda Gladden, Kelley Garner, Gordana Derado, Benjamin Park, and Julie R. Harris

J Res Med Sci. 2013 Jan; 18(1): 56–60.

Isolation of *Cryptococcus neoformans* and other opportunistic fungi from pigeon droppings

Maryam Soltani, Mansour Bayat, Seyed J. Hashemi,[1] Mohammadali Zia,[2]and Nader Pestechian[3]

Miozzo, I., Aquino, V., Duarte, M., Santos, R., & Goldani, L. (2010). Cryptococcus Neoformans as a Rare Cause of Hospital Infection. *Infection Control & Hospital Epidemiology*, *31*(3), 315-317. doi:10.1086/651064

Julie Rothney

From: Peters, Christine
Sent: 21 January 2019 10:45
To: Inkster, Teresa (NHSmail)
Cc: CARGILL, James (NHS GREATER GLASGOW & CLYDE)
Subject: Re public statement Clarification required

Importance: High

Dear Teresa,

I am concerned that the press have reported that the Cryptococcus was not reported until the 20th of January.

For clarity at the IMT I would be grateful if it could be noted that the microbiology laboratory reported *Crytpcoccus neoformans* in early December from clinical isolates in both cases. This was a robust identification with MALDI and CRAG antigen positivity.

Kr

[redacted]
Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

NHS Greater Glasgow and Clyde

Core brief

Monday 21 January 2019

Introduction

This issue of Core Brief updates on the cases of Cryptococcus at the Queen Elizabeth University Hospital.

Update on Cryptococcus cases

In light of the continuing public interest in the cases of Cryptococcus at the Queen Elizabeth University Hospital, we wanted to share the latest update with all staff.

Copy of media statement issued today

The investigation remains ongoing into the cause of two isolated cases of Cryptococcus at the Queen Elizabeth University Hospital.

At present, the clinical, management and infection control teams are focussed on ensuring a safe clinical environment for our patients and are actively managing this incident.

These two cases of infection were identified in December and an Incident Management Team was formed.

A likely source was identified and dealt with immediately.

The small number of paediatric and adult patients who are vulnerable to this infection have been receiving medication to prevent potential infection and this has proved effective.

Air sampling was carried out and HEPA filters were brought in on 10 January to specific areas before conclusive results were available. Early indications suggest the filters are having a positive effect.

Results identifying the organism were obtained on 16 January.

These control measures have been effective as there have been no further cases.

The organism is harmless to the vast majority of people and rarely causes disease in humans.

Dr Jennifer Armstrong, Medical Director, said: "Our thoughts are with the families of the two patients who have sadly died. An elderly patient has died of an unrelated cause while the factors contributing to the death of the second patient are being reviewed.

"We are pursuing rigorously the root causes of this incident to ensure all measures are taken to prevent it happening again.

"Health Protection Scotland are working closely with us in the investigations.

Produced by NHS Greater Glasgow and Clyde Communications

"I must stress again that this organism is harmless for the vast majority of humans and most people who are exposed to the fungus never get sick from it.

"The control measures that we have put in to place for the small number of patients who are vulnerable to the infection have been effective and there have been no further cases since December."

Are your contact details up-to-date? Click here to check

Produced by NHS Greater Glasgow and Clyde Communications

From:	Chris ne Peters
To:	Louise Mackinnon; Lyn Bea e;
Subject:	Fwd: CEL2007_18.pdf
Sent:	24/01/2024 15:57:49

Sent from my iPad

Begin forwarded message:

From: Christine Peters [redacted]
Date: 29 January 2019 at 07:49:09 GMT
To: "Freeman J (Jeane), MSP" [redacted]
Subject: Re: CEL2007_18.pdf

Dear Jeane ,

thank you for your response and invitation. I would be very happy to meet with you along with my colleague, but if you are able to accommodate the time I would also appreciate a private conversation. I fully understand if you are too busy for that.

Kind regards

Christine

Sent from my iPhone

On 29 Jan 2019, at 07:09, Freeman J (Jeane), MSP [redacted] wrote:

> Many thanks Christine. I hope to come back to you later in the week and, if you are agreeable, arrange to meet you and your colleague. Happy to do that privately if you'd prefer.
>
> Best wishes
>
> Jeane
>
> Jeane Freeman MSP
> Member for Carrick, Cumnock & Doon Valley
> Constituency Office: [redacted]
> Parliamentary Office: [redacted]
> [redacted] | [redacted]
> FB: Jeane Freeman MSP

From: Chris ne Peters [redacted]
Sent: Monday, January 28, 2019 9:11 pm
To: Freeman J (Jeane), MSP
Subject: CEL2007_18.pdf

Dear Jeane ,

please find attached a key document that was sent to Infection control managers and chief execs in 2007 , before the QEUH was designed and built which is absolutely critical in assessing what has happened at GGC.
Regards
Christine Peters

Sent from my iPhone

****
****

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The information in this email may be confidential. If you think you have received this email in error please delete it and do not share its contents.

****
****

FW:

teresa inkster [redacted]
Thu 31/01/2019 10:41
To:Ian.Smith[redacted]

1 attachments (28 KB)
Notes from a meeting held 10.doc;

Striclty confiden al

Emailed to myself at the me

From: teresa inkster
Sent: 11 December 2018 14:48
To: teresa inkster
Subject:

Inkster, Teresa

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 01 February 2019 07:26
To: Armstrong, Jennifer
Subject: Re: Formal escalation alert from HIS

I am about today. Are you able to meet me at QEUH as difficult to leave site. I have mucor IMT at 2 but otherwise free
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Armstrong, Jennifer
Sent: Friday, 1 February 2019 6:53 AM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Formal escalation alert from HIS

Teresa
I received an urgent message from Health Improvement Scotland Nurse Director yesterday and spoke to her last night. As you may know HEI are housed in HIS. There is a protocol whereby the HEI inspectors will escalate any significant concerns to the board immediately rather than wait for report. The issue concerned the interview which you had with the inspection team and raised concerns with the team. They reported them to HIS and invoked this process.
Are you about today or early next week as it would be good to meet to discuss the issues in more detail which the nurse Director raised with me.
Kind regards
Jennifer

Sent from my BlackBerry 10 smartphone on the EE network.

Dr Rodden
Submission to Health / Sports Committee

REF NO. HS/S5/19/HHHE/A4

HEALTH AND SPORT COMMITTEE

HEALTH HAZARDS IN THE HEALTHCARE ENVIRONMENT

INQUIRY into QEUH, RCH, Neuro-sciences (South Glasgow Hospitals)

I apologize for missing the 28th February deadline. However, having read the Sunday Herald report, I felt I needed to raise my concerns with the committee directly.

I am a retired microbiologist. I am prepared to provide further detailed information to the committee should I be invited to do so.

Concerns in relation to the building specifications and infection control were first raised in 2014 with senior management. Some of the issues were addressed, many others were not.

Microbiologists continued to highlight problems and concerns in 2015. There have been resignations of infection control doctors because of the difficulties faced. These resignations resulted in the loss of experienced infection control doctor expertise.

All microbiologists have some responsibility for infection control and need to communicate with the infection control team. Their workload and contribution to the infection control service cannot be considered in isolation from the duties of the infection control doctors. The resource pressures for clinical microbiology and infection control cannot be separated. Both are under pressure and the resource implications need to be looked at as a whole.

In September 2017, three microbiologists raised an SBAR and Stage 1 of the whistleblowing process raising some of our concerns. I will not outline any details here.

It was very disappointing that we felt we had no alternative but to go down the whistleblowing route. We felt this was a last resort option as a number of issues, some of which we felt to be critical, were not being fully addressed. The driving force was our concern for patient safety.

In February 2018 some microbiologists felt the need to go to Stage 2 of the whistleblowing process. NHS GGC could not provide us with the re-assurances and feedback that the concerns were being fully addressed. This was despite numerous requests for updates. We appreciated that some of the solutions were very challenging both from a practical and resource perspective. An action plan was required, including both short term and long-term plans. I believe this is being worked on by NHS GGC and I hope all the concerns are being examined.

After reading the article, I was astonished that the infection control manager is now the GGC project manager, involved in both the inquiry and internal investigations. He does have an important contribution to make and needs to provide information to any inquiry.

However, I do not believe any person or organisation, who has been involved in the decision making process for the building specifications, commissioning, addressing the problems since the opening of the hospitals etc, can be part of the inquiry committee. I am sure that those responsible for the inquiry will not want to be open to the criticism that the inquiry was a whitewash.

I read the HPS report on the water contamination in the RCH. There were many good recommendations, but I believe the report was incomplete. It did not cover the period from the first case in 2016 until January 2018. The timeline for all cases needs to be understood. I would also have been interested to know if there were any bacteraemias with these organisms in the 12 months prior to the move into RCH. This is not difficult data to collect and analyse.

There will be many people who are frightened to speak out and raise their concerns because of the perception of the consequences that they will face. I hope that the committee will be able to re-assure staff, patients and relatives that they do not need to have any concerns. Staff have a professional responsibility to raise any concerns they might have for patient safety. Patients and their relatives have a lot of pressure to cope with but may feel it is helpful to discuss their concerns. As we know, patients sometimes feel that raising concerns may affect the treatment they receive and we must work to re-assure them.

This is a very difficult and worrying time for all involved. There are staff shortages at all levels within the organisation. This must be acknowledged. I believe that when the issues are understood it will uncover multi factorial problems across the organisation and probably not unique to NHS GGC.

While people need to understand what happened with the cryptococcal infections, this must not be at the expense of the other issues.

I hope the inquiry will be able to unravel this complex labyrinth of issues. It will be a challenge.

Patient safety and restoring public confidence needs be the primary drive of the inquiry. I hope that lessons can be learnt to ensure positive changes across NHS Scotland. The public need to understand that all hospital acquired infections cannot be prevented. Incidents do happen that have to be managed appropriately. The challenge is to have processes in place to minimize incidents with a pro-active infection control service. This reduces the number of time-consuming reactive incidents.

I hope the mistakes made during the planning, building, commissioning, maintenance etc of the QEUH and hospitals in south Glasgow will ensure that lessons are learnt and rolled out across NHS Scotland. This must also include a Board responding to concerns raised by experienced staff in a timely manner.

From: Shariff, Imran [redacted]
Sent: 12 February 2019 14:03
To: Best Jonathan (NHS GREATER GLASGOW & CLYDE); Vanhegan, Elaine; margaret.mcguire[redacted]; Steele, Tom; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Best Jonathan (NHS GREATER GLASGOW & CLYDE)
Cc: Allyson.Hirst[redacted]; Cobain Linda (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Walsh Thomas (NHS GREATER GLASGOW & CLYDE); GREEN, Rachel (NHS NATIONAL SERVICES SCOTLAND); Powrie Ian (NHS GREATER GLASGOW & CLYDE); Jenkins Gary (NHS GREATER GLASGOW & CLYDE); Mcintyre Hazel (NHS GREATER GLASGOW & CLYDE)
Subject: SBAR Action Plan- Latest version

Colleagues

Thank you for all your hard work in providing updates and comments. Couple of points to note

The SBAR action plan is based on the paper which went to Clinical and Governance Committee on the 5th December and as such we haven't altered any of the information on the first three columns of the SBAR action plan. Some of you have came back to say that the wording is incorrect and I agree, but we need to stick this version as part of audit/ governance process. As you can see, I have left this unchanged

I have though added an extra column which gives as current position as of Jan. This will probably change to February once we have the final version. All your comments have been added into this section. Some of your comments have overlapped and therefore tried to give the best summary possible

Q22- is the water section and Elaine is going to have a go at this to ensure consistency of message

There are attachments which need to embedded in the final version and these will be added. The attachments are:

Question 1- PPVL schedule for Estates/ Facilities
Question 5 –scribe examples
Question 10- Press Release
Question 13- Line Infections/ Graph/Chart

Getting some lunch and will be back 2.45pm if you need to chat through!!

Imran

Imran Shariff
Business Manager
Board Medical Directorate
NHS Greater Glasgow and Clyde
JB Russell House,
Gartnavel Royal Hospital,
1055 Great Western Road, Glasgow, G12 0XH

Tel: [redacted]
Tel: [redacted]
Email: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 12 February 2019 10:33
To: Devine, Sandra
Cc: Shariff Imran (NHS GREATER GLASGOW & CLYDE); Walsh Thomas (NHS GREATER GLASGOW & CLYDE)
Subject: Re: SBAR Action Plan

Imran, can you let me know what time this is due. Also note we are still working off an outdated version of the original action plan
Kr
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Devine, Sandra
Sent: Tuesday, 12 February 2019 10:26 AM
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Shariff Imran (NHS GREATER GLASGOW & CLYDE); Walsh Thomas (NHS GREATER GLASGOW & CLYDE)
Subject: RE: SBAR Action Plan

Jennifer back to read it this afternoon – perhaps Imran can update you on what time.

Thanks

Sandra

Sandra Devine

Associate Nurse Director

Infection Prevention and Control

[redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 12 February 2019 10:26
To: Devine, Sandra
Cc: Shariff, Imran; Walsh, Tom
Subject: [ExternaltoGGC]Re: SBAR Action Plan

What time is it required for?

T

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC

Training Programme Director Medical Microbiology

Dept of Microbiology

Queen Elizabeth University Hospital

Glasgow

Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 12 February 2019 10:24
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Shariff Imran (NHS GREATER GLASGOW & CLYDE); Walsh Thomas (NHS GREATER GLASGOW & CLYDE)
Subject: RE: SBAR Action Plan

Hi Teresa

That's fine but they need this by this afternoon.

Sandra

Sandra Devine

Associate Nurse Director

Infection Prevention and Control

07984005021

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 12 February 2019 10:22
To: Devine, Sandra
Subject: [ExternaltoGGC]Re: SBAR Action Plan

I need some time to amend some of this. Also this is the wrong version of the orgininal action plan - I alerted Imran to this week. This version is not the one sent to the doctors or the HEI

KR

Teresa

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC

Training Programme Director Medical Microbiology

Dept of Microbiology

Queen Elizabeth University Hospital

Glasgow

Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 12 February 2019 09:28
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: SBAR Action Plan

Latest version but it's not done yet.

Sandra

Sandra Devine

Associate Nurse Director

Infection Prevention and Control

[redacted]

From: Mcguire, Margaret
Sent: 12 February 2019 09:27
To: Shariff, Imran; Best, Jonathan; Devine, Sandra; Walsh, Tom; Green, Rachel; Vanhegan, Elaine
Cc: Hirst, Allyson; Cobain, Linda
Subject: FW: SBAR Action Plan

Imran, I've had a look and added a few comments, there is still a lot of detail missing. Ally is contacting Ian P but think it would help if you contacted Hazel and Rachel direct so that they are aware of our timelines. Jennifer is at home this afternoon and will be keen to look over it. The update columns needs to evidence as much as possible the improvements we have made/advice taken. I think it's still a bit weak, but once Ian and colleagues add their areas it should be stronger

Kind regards and thanks

Mags

Dr Margaret McGuire

Nurse Director

NHS Greater Glasgow and Clyde

Please note all copy messages are filed electronically and will not be read routinely. If you want to bring a matter to my attention please send directly to me.

From: Jenkins, Gary
Sent: 12 February 2019 08:48
To: Shariff, Imran; Best, Jonathan; McIntyre, Hazel; Powrie, Ian; Devine, Sandra; Walsh, Tom
Cc: Vanhegan, Elaine; Mcguire, Margaret
Subject: RE: SBAR Action Plan

I discussed this with Elaine Burt this morning and we are comfortable with the document, there is one minor change at point 24 which I have highlighted in red. Hazel or Ian may wish to comment on this further.

Thanks

Gary

From: Shariff, Imran
Sent: 11 February 2019 21:13
To: Best, Jonathan; Jenkins, Gary; McIntyre, Hazel; Powrie, Ian; Devine, Sandra; Walsh, Tom
Cc: Vanhegan, Elaine; Mcguire, Margaret
Subject: SBAR Action Plan

Colleagues, We met this afternoon and we have made some more changes to the SBAR action plan. Can you note the comments on this latest version and provide me with an update by tomorrow lunchtime. Aim is to have this a final version by tomorrow evening which gives Jane some time to review before we dispatch to HEI.

Thanks, imran

Imran Shariff

Business Manager

Board Medical Directorate

NHS Greater Glasgow and Clyde

JB Russell House,

Gartnavel Royal Hospital,

1055 Great Western Road, Glasgow, G12 0XH

Tel: [redacted] [redacted]

Tel: [redacted]

Email: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 06 February 2019 16:46
To: Shariff Imran (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)
Subject: Re: Questions from the HEI

Hi Imran

An action plan was produced following the meeting In Oct 2017, however when I returned from sick leave it was amended and information that I had was added. It was this amended version that was sent to the doctors . I can see the extra column you have been added but its on the old version and not the most uptodate one

Kind regards

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Shariff, Imran [redacted]
Sent: 06 February 2019 16:40
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Questions from the HEI

Thanks Teresa

We discussed the report and noted some additional information that was required, hence the extra column on the version I sent

Imran

Imran Shariff

Business Manager

Board Medical Directorate

NHS Greater Glasgow and Clyde

JB Russell House,

Gartnavel Royal Hospital,

1055 Great Western Road, Glasgow, G12 0XH

Tel: [redacted] [redacted]

Tel: [redacted]

Email: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 06 February 2019 16:30
To: Devine, Sandra; Armstrong, Jennifer
Cc: Shariff, Imran
Subject: [ExternaltoGGC]Fw: Questions from the HEI

Hi - this action plan that is being updated is not the most uptodate version. I have attached the one that was updated .

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC

Training Programme Director Medical Microbiology

Dept of Microbiology

Queen Elizabeth University Hospital

Glasgow

Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 06 February 2019 13:25

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Shariff Imran (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Questions from the HEI

The one that went to clinical and care governance – have attached.

Sandra

Sandra Devine

Associate Nurse Director

Infection Prevention and Control

[redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 06 February 2019 13:23
To: Devine, Sandra
Cc: Shariff, Imran
Subject: [ExternaltoGGC]Re: Questions from the HEI

HI - I have most of this and will forward but I need more info re the action plan for the first point - which one was it?

Dr Teresa Inkster

Lead Infection Control Doctor NHSGGC

Training Programme Director Medical Microbiology

Dept of Microbiology

Queen Elizabeth University Hospital

Glasgow

Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 06 February 2019 13:20
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Shariff Imran (NHS GREATER GLASGOW & CLYDE)
Subject: Questions from the HEI

Hi Teresa

HEI have come back with a lot of questions that we need to respond to ASAP.

It has in one of the action plans that we asked HPS for advice for sampling in a general ward area (2A main) did we ever get a response to this.

They are also asking for copies of e mail or correspondence for the pathways Paeds and adults for IDHC. Do you have anything re this

Lastly – the communication re the rooms that could be used to isolate patients. Need to put in some info re this.

Sorry I know you are busy. Have cc in Imran who is collating this info for Jennifer.

I'm going to IMT in RAH later today – happy to update you after.

Sandra

Sandra Devine

Associate Nurse Director

Infection Prevention and Control

[redacted]

80. email ExternaltoGGCFw SBAR Action Plan- Latest version

Julie Rothney

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 24 September 2019 16:37
To: Peters, Christine
Subject: [ExternaltoGGC]Fw: SBAR Action Plan- Latest version
Attachments: Action Plan submitted to Care and Clinical Governance Committee with updated position- MASTER as of 12th February 2.00pm.docx

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Shariff, Imran
Sent: 12 February 2019 14:03
To: Best Jonathan (NHS GREATER GLASGOW & CLYDE); Vanhegan, Elaine; margaret.mcguire[redacted]; Steele, Tom; Armstrong Jennifer (NHS GREATER GLASGOW & CLYDE); Best Jonathan (NHS GREATER GLASGOW & CLYDE)
Cc: Allyson.Hirst[redacted]; Cobain Linda (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Walsh Thomas (NHS GREATER GLASGOW & CLYDE); GREEN, Rachel (NHS NATIONAL SERVICES SCOTLAND); Powrie Ian (NHS GREATER GLASGOW & CLYDE); Jenkins Gary (NHS GREATER GLASGOW & CLYDE); Mcintyre Hazel (NHS GREATER GLASGOW & CLYDE)
Subject: SBAR Action Plan- Latest version

Colleagues

Thank you for all your hard work in providing updates and comments. Couple of points to note

The SBAR action plan is based on the paper which went to Clinical and Governance Committee on the 5th December and as such we haven't altered any of the information on the first three columns of the SBAR action plan. Some of you have came back to say that the wording is incorrect and I agree, but we need to stick this version as part of audit/ governance process. As you can see, I have left this unchanged

I have though added an extra column which gives as current position as of Jan. This will probably change to February once we have the final version. All your comments have been added into this section. Some of your comments have overlapped and therefore tried to give the best summary possible

Q22- is the water section and Elaine is going to have a go at this to ensure consistency of message

There are attachments which need to embedded in the final version and these will be added. The attachments are:

Question 1- PPVL schedule for Estates/ Facilities
Question 5 –scribe examples
Question 10- Press Release
Question 13- Line Infections/ Graph/Chart

Getting some lunch and will be back 2.45pm if you need to chat through!!

Imran
Imran Shariff
Business Manager
Board Medical Directorate
NHS Greater Glasgow and Clyde
JB Russell House,
Gartnavel Royal Hospital,
1055 Great Western Road, Glasgow, G12 0XH
Tel: [redacted]
Tel: [redacted]
Email: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 12 February 2019 12:26
To: Devine, Sandra; Best, Jonathan; Walsh, Tom; Vanhegan, Elaine; Green, Rachel (NHSmail); Shariff, Imran; Mcguire, Margaret
Cc: Hirst, Allyson; Cobain, Linda; Armstrong, Jennifer
Subject: [ExternaltoGGC]Re: SBAR Action Plan

Comments/amendments attached
Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 12 February 2019 09:28
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: FW: SBAR Action Plan

Latest version but it's not done yet.
Sandra

Sandra Devine
Associate Nurse Director
Infection Prevention and Control
[redacted]

From: Mcguire, Margaret
Sent: 12 February 2019 09:27
To: Shariff, Imran; Best, Jonathan; Devine, Sandra; Walsh, Tom; Green, Rachel; Vanhegan, Elaine
Cc: Hirst, Allyson; Cobain, Linda
Subject: FW: SBAR Action Plan

Imran, I've had a look and added a few comments, there is still a lot of detail missing. Ally is contacting Ian P but think it would help if you contacted Hazel and Rachel direct so that they are aware of our timelines. Jennifer is at home this afternoon and will be keen to look over it. The update columns needs to evidence as much as possible the improvements we have made/advice taken. I think it's still a bit weak, but once Ian and colleagues add their areas it should be stronger
Kind regards and thanks
Mags

Dr Margaret McGuire

Nurse Director
NHS Greater Glasgow and Clyde
Please note all copy messages are filed electronically and will not be read routinely. If you want to bring a matter to my attention please send directly to me.

From: Jenkins, Gary
Sent: 12 February 2019 08:48
To: Shariff, Imran; Best, Jonathan; McIntyre, Hazel; Powrie, Ian; Devine, Sandra; Walsh, Tom
Cc: Vanhegan, Elaine; Mcguire, Margaret
Subject: RE: SBAR Action Plan

I discussed this with Elaine Burt this morning and we are comfortable with the document, there is one minor change at point 24 which I have highlighted in red. Hazel or Ian may wish to comment on this further.
Thanks
Gary

From: Shariff, Imran
Sent: 11 February 2019 21:13
To: Best, Jonathan; Jenkins, Gary; McIntyre, Hazel; Powrie, Ian; Devine, Sandra; Walsh, Tom
Cc: Vanhegan, Elaine; Mcguire, Margaret
Subject: SBAR Action Plan

Colleagues, We met this afternoon and we have made some more changes to the SBAR action plan. Can you note the comments on this latest version and provide me with an update by tomorrow lunchtime. Aim is to have this a final version by tomorrow evening which gives Jane some time to review before we dispatch to HEI.
Thanks, imran

Imran Shariff
Business Manager
Board Medical Directorate
NHS Greater Glasgow and Clyde
JB Russell House,
Gartnavel Royal Hospital,
1055 Great Western Road, Glasgow, G12 0XH
Tel: [redacted]
Tel: [redacted]
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SBAR Action Plan submitted to Care and Clinical Governance Committee on 5th December with updated position as of January 2019

Item	Issue	Current Position as of 5th December 2017	Future Actions	Current Position- January 2019
1	PPVL rooms not compliant with SHTM standards Critical Care	Facilities colleagues confirmed that there are 10 air changes per hour and a positive pressure of 10 pascals in the PPVL rooms which is consistent with SHBN 04-01.	Included in item 2	PPVL Schedule attached 34 rooms on schedule across RHC/QUEH. 7 rooms being converted to Negative pressure rooms to differentiate between two types. See Table 1. **Table 1** RHC – Ward 2C – Room 6 RHC – CDU – Room 18 RHC – PICU – Room 5 QEUH – Medical HDU – Room 43 QEUH – Medical HDU – Room 44 QEUH – ITU 1 – Room 24 QEUH – Surgical ITU Unit 1 – Room 4 Work is ongoing and will recommence in April 2019. Ward 2A has had 4 rooms converted to Positive pressure at a cost of [redacted] Lead ICD confirmed with Chief Nurse (CN) that three rooms within RHC would be suitable for IDHC if needed.
2	PPVL rooms do not provide appropriate protection for patients with infectious diseases of high consequence (IDHC) e.g. MERS, SARS This issue also exists in the Royal Hospital for Children	IDHC should be nursed in negative pressure rooms. These are not available in QEUH. In order to address this issue in the short term a patient pathway has been agreed by the Infectious Disease (ID) Clinicians whereby patients will be routed either to GRI or Lanarkshire ID unit. Chief Nurse (CN) for Paediatrics discussing with clinical teams a pathway for children.	Heath Protection Scotland (HPS) have been sent information on these rooms and we await their advice on whether they can be used for patients with IDHC or if not what actions could be taken to modify these rooms to provide negative pressure. This advice was sought in 2016 & 17.	

3	Lack of isolation rooms in the emergency department.	ED was designed with input from clinical staff and observation of patients was a priority. There are single rooms in ED but not negatively pressured isolation rooms.	Property Procurement Facilities Management (PPFM) has commissioned a feasibility study to ascertain if negatively pressured rooms are technically feasible	Options were looked to consider conversion of existing PPVL to negative pressure facilities suitable for infectious patients. However there are currently no specific plans to develop isolation rooms within Emergency Department.
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
4	Rooms not built to the standard expected as a tertiary referral centre.	The transfer of the Infectious Diseases Unit was a late addition to the project and was not fully commissioned as an ID unit at the outset.	Actions as described in item 2.	Actions as described in item 2.
5	Microbiologists not aware of plans to upgrade areas.	Lead Infection Control Doctor (ICD) was aware of this proposal.	Work continues with input from the Coordinating ICD.	**Health Board Process** A process exists that any refurbishments are signed off by ICD/ IPCT in conjunction with the estates department. These are signed off at various stages through design to completion and handover. Final sign off is undertaken with reference to relevant SHTM's design criteria and commissioning/ validation data provided by an external contractor. A project manager or lead (usually Estates) will use Part B to identify, manage and record built environment infection control risks of a project within health care premises. The assessment will take into account the nature of the work to be undertaken and the adjacency to patient areas. The SHFN 30 HAI Scribe document will be put in place before work commences. This comprises sets and check lists. Both the Infection Prevention and Control Team and the lead clinical staff will be asked to review and approve the assessment before work commences. The size of the project will determine the amount of involvement by the IPCT, which may include regular review during the project and inspection at the end. The ICD would provide advice on any environmental sampling to be undertaken prior to areas handover to users.

6	HEPA filters in PICU for the protection of patients in the Bone Marrow Transplant Unit (BMTU) that might need critical care during treatment. The BMTU is ward also referred to as ward 2A.	HEPA filters were installed within PICU/Ward 2a week commencing 6 November 2017, within room numbers 12 and 17 – previously installed within room 18. HEPA filter still to be fitted in room 5 (access to be agreed with clinical colleagues). HEPA filters were also fitted into RHC Ward 3c week commencing 13 November 2017 within rooms 9 & 10.	Work commenced mid November 2017, therefore ahead of May 2018, as noted above.	PICU Room 5: Installation of HEPA filter is no longer required as the room has been converted to negative pressure accommodation for infectious patients. (as described in item 1 & 2) Planned work: £1.5 million spend and 12 months capital plan, for the upgrade of ward 2A (Haemato–oncology\TCT) ventilation system & internal building elements to provide HEPA filtered environmental conditions suitable for use by Immuno-compromised patients with Enhanced (Positive Pressure) Single Bedrooms with En-Suite facilities, providing 10ac/hr positive pressure within each Bedroom space, and ensuring the Bedrooms are at +10Pa pressure gradient relative to the adjacent Corridors. All in accordance with design principles embodied within SHTM 03-01 guidance documentation. Outline Programme: • Feasibility\Design\Tender phase - 21 weeks from ward decant. • Construction phase - 30 weeks from award of contract. The findings of the feasibility study will be extrapolated to Ward 4C.
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
7	HEPA filters in prep room	HEPA filters have not been routinely fitted (as standard) within prep rooms, however HEPA filters are fitted within QEUH Ward 4B. Instruction required to determine whether HEPA filter should be fitted into RHC Ward 2A prep room.	A feasibility study will be undertaken to ascertain if HEPA filters can be installed in the prep room.	Feasibility Study has been tendered and estimated timescale for full feasibility and design stage is 3 months from the date of the future decant of ward. The plan will take into account full HEPA filtration of all aspects of Ward 2A (including Prep room)
8	IVs prepared in treatment room.	IVs are prepared in the preparation room but not chemotherapy which is prepared in a specialist unit.	CN paediatrics confirmed that this was the standard practice.	IVs are prepared in the preparation room but not chemotherapy which is prepared in a specialist unit.
9	Outbreak of Aspergillus associated with poor air quality	There were two cases of aspergillus associated with the ward in March 2017. This was fully investigated and was possibly associated with a leak	HPS have been contacted for advice on what would be an appropriate regime for air monitoring in this area.	ICD has confirmed from HPS that there is no sampling regimen for non ventilated areas.

		into the ceiling space which was not immediately apparent. On review of cases in the new BMTU and the unit previously located in Yorkhill there is no significant increase in the number of cases of this infection. This was fully reported as per Chapter 3 of the National Infection Prevention and Control Manual to Health Protection Scotland.		
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
10	Concern that the statement issued advised that BMT services in RHC were unaffected by issues identified in the adult BMTU.	Clarification from the NHSGGC Comms Team "To the recollection of colleagues involved, the Communications team were not briefed at the time of the release about the adult BMT move of any testing underway at the Royal Hospital for Children.	Clarification issued to the meeting attendees. No further action required. This perhaps appears to be misinterpretation of the media communication.	**Clarification from the NHSGGC Communications Team** The final line of the press release of 8th July 2015 "Bone Marrow Transplant Service Temporary Relocation" was written to make clear to media that the move of the adult service did not include the paediatric service at the Royal Hospital for Children and that the latter was not moving. "
11	HEPA filters not in place in PICU	Action complete as previously agreed and noted within point 6.		Point 6 covers the action
12	Increase in the number of line infections in Ward 2A	Two years' retrospective data were analysed in May 2017 and it was noted that there was an increase in line related infection. The initial baseline infection rate per 1000 total line days was 3.25 and this had risen to 6.33. A group led by CN Paediatrics first met in **May 2017** to review this information and put actions in place to reduce this	There are currently four work streams in place to look at key initiatives to reduce line infections in BMTU, these include: • Line Insertion and access in theatre. • Access and Maintenance of lines • Staff Education	Improvement Group has been developed to reduce Central Line Associated Bacteraemia Infections. Background The CVL QI Improvement Group was formed in May 2017 comprising of key stakeholders.. This is benchmarked against Cincinnati Children's Hospital in Ohio.

		incidence. The last 4 months (July to October) have shown improvement in infection rates. CN Paediatrics presented a paper to the Board Infection Control Committee on the 27 November 2017 outlining several work streams and the most recent infection rates in this area.	• Patient and Parent engagement **Next Steps** From 1st December 2017 every CLABSI (line associated infections) will be subject to rigorous review utilising Event Cause Analysis methodology within 72 hours of a reported CLABSI	The infection control team have been working closely with the clinical team in ward 2A since April 2017. • An infection control nurse visits ward 2A between two and four times per week and provides opportunity to observe practice and work collaboratively to make improvements where required. • A series of improvement interventions have taken place which have resulted in positive outcomes which can be shown in the data and resultant low infection rates. • IPCT have met with hemato-oncology colleagues in QUEH and BOC (January 2019) and are currently piloting a surveillance programme for PICC line infections. • Graph and minutes attached showing reduced line related infection - April 2018 data- rate of 2.15
13	Increase in the number of line infections	IPCT participating in above work. Line related surveillance was subsequently picked up by the Directorate.	Ongoing assessment of surveillance activity and resource within the IPCT to enable IPCT to respond to local clinical needs.	
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
14	Dr Redding concerned that the ongoing work would not accurately pick up any concerns.	• As above work streams in place re line infections. • IPCT audit process is in place and ongoing; this includes audit of the environment, audits of line and urinary catheter care. Audits of standard Infection Control Precautions (SIPS). • IPCT twice weekly visits. • GGC compliant with the National IPCT Manual – this lists all types of infections that should be reviewed and what should be reported if an outbreak or incident occurs.	IPCT and CN Paediatrics will continue to have a clear focus on this area.	HPS have published a nationally agreed list of alert micro-organisms which should be notified to IPCTs which may require further investigation. Hospital level analysis has been carried out by HPS using the national HAI surveillance data. Hospital attributed cases of *Clostridioides difficile* infection (CDI), *Escherichia coli* bacteraemia (ECB) and *Staphylococcus aureus* bacteraemia (SAB) for 2016, 2017 and 2018 (Q1 to Q3) were compared to peer hospitals with similar patient population using funnel plot analysis. The Queen Elizabeth University Hospital (QEUH) and the Royal Hospital for Children (RHC) were not highlighted as an exception (rate above the 95% confidence limit) in any of the plots for 2016, 2017 and 2018 (Q1 to Q3). • The peer hospitals for QEUH were Aberdeen Royal Infirmary (ARI), Forth Valley Hospital (FVH), Glasgow Royal Infirmary (GRI), Ninewells Hospital (NWH), Royal Alexandra Hospital (RAH), Royal Infirmary of

		• Weekly report to Board and Acute Directors weekly on an IPC issues throughout GGC.		Edinburgh (RIE), University Hospital Crosshouse (UHC) and Western General Hospital (WGH) • The peer hospital for RHC were Royal Aberdeen Children's Hospital and Royal Hospital for Sick Children (Edinburgh) • ECB and SAB cases were hospital attributed assigned through enhanced surveillance ECOSS webtool. For CDI cases were categorised through linkage with Scottish Morbidity records (SMR01) for a patient with CDI onset on day 3 or later following a hospital admission on day one. • The denominator was hospital level 'total occupied bed days (TOBDs)' using ISD1 data. • Funnel plot analysis was based on an over-dispersed Poisson regression model. • See Q13 in response to Line Infections
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
15	Microbiologists do not have the information to advise clinical staff on where to place immunocompromised patients.	Director of Regional Services stated that this had never been raised as an issue by clinicians within his service that care for patients who are immunocompromised. Most patients who are immunocompromised are cared for within this directorate. It was agreed by the group that placement of immunocompromised patients was a decision that should be taken by the clinical team looking after the individual patients.	Dr Peters agreed to circulate a document she had used in another board area. David Loudon (Director of PPFM) agreed to send the microbiologists a list of where the PPVL rooms were in the QEUH and RHC. It was agreed that this would be reviewed at the Regional Services Governance Forum	Guidance has been provided to microbiologists and clinicians about which rooms were suitable for which patients in relation to infection control. At the time that the original guidance was issued it was thought that rooms had 3 air changes per hour with rooms at a slightly negative pressure was sufficient. The concerns about ventilation in Ward 2A/B in Royal Hospital for Children however led lead ICD to request other high risk areas on the site be assessed to see if the issues noted in point 15 were replicated elsewhere. This assessment revealed that in early December 2018, there were varying pressures in the rooms on 5C/D. This was quickly reported to the Estates teams and the pressures were rebalanced. By 20th December 2018, it was reported that all rooms in 5C were slightly negative pressure but there were still certain rooms that should not be used for sputum positive TB patients. On 3rd January, on review of information supplied by the Estates Team, the Lead ICD reported that 5D was now also slightly negative pressure.

				The problem causing the different pressures has been identified and rectified.
16	Infection rates are not being monitored.	GGC compliant with the National IPCT Manual – this lists all types of infections that should be reviewed and what should be reported if an outbreak or incident occurs. • Every patient with a notifiable infection is reviewed and monitored. • NHSGGC is fully compliant with all elements of the national Mandatory Surveillance of Infection Programme (mainly specific surgical site and blood stream infections. • Weekly report on exceptions is sent to the Board Directors. • Monthly reports are sent to Senior Management teams. • All outbreak and incidents are reviewed by the Board, Partnership and Acute Infection Control Committees. • The most recent National Point Prevalence Survey in 2016 indicated that both the QEUH and RHC were under the national average in terms of the incidence of Hospital Acquired Infections.	ICM has invited HPS to review the NHSGGC systems for surveillance and reporting of infections – this assessment took place on the 29.11.17, the initial feedback was positive but we await the full report.	**Surveillance Undertaken by the GGC Infection Prevention and Control Team (IPCT)** <u>Definition of HAI</u> All Hospital acquired infection is defined as not being present until 48 hours after admission as a national standard **NHSGGC is fully compliant with Chapter 3 of the National Manual and applies the following definitions in managing incidents/outbreaks;** **A healthcare associated infection outbreak** • Two or more linked cases with the same infectious agent associated with the same healthcare setting over a specified time period **A healthcare infection exposure incident** • Exposure of patients, staff, public to a possible infectious agent as a result of a healthcare system failure or a near miss **A healthcare infection data exceedance** • A greater than expected rate of infection compared with the usual background rate for that healthcare location. <u>Linked Cases</u> A full assessment of epidemiological links in time, place and person is undertaken. Commonalities such as equipment, procedures, environmental exposures are investigated. Some organisms can be sent to a specialist laboratory for comparison using typing techniques. The HIIAT assessment tool is used for all incidents/outbreaks <u>Alert organism reporting and investigation</u>

				The IPCT monitor all (HAI and non-HAI) CDI, *Staphylococcus aureus* bacteraemia (SAB) and *E.coli* bacteraemia and report case totals daily to the Senior Management Team for IPC. In 2018. Triggers are in place for the four most common environmental Gram negative organisms in high risk areas and the surveillance team issue reports to the ICDs and LIPCNs The Infection Prevention and Control Nurses (IPCNs) receive prospective notification of all agreed alert organisms (as per National manual) via our IPC software package (ICNet). On receipt, the IPCNs will provide advice to clinical staff on placement of the patient as appropriate and review the case to determine if it is an HAI and therefore requires further investigation. All CDI and SAB are reported to the sector management teams weekly. This report also includes incidents under investigation and outbreaks. The monthly sector reports are tabled at local sector / service clinical governance groups for discussion. The HAIRT is a national reporting template which contains all CDI, SAB, SSI surveillance, incidents and outbreaks and routinely provided to the Board at every meeting and reviewed. A bi-monthly HAIRT is presented to the Acute and Board Clinical Governance Groups as well as the Acute, Partnerships and Board Infection Control Committees.
17	There are three air changes and chilled beam technology instead of the 6 air changes recommended.	There are three air changes in the single rooms within both QEUH and RHC.	Director of Facilities agreed to take this issue forward with NHS D&G to share learning with regards to this type of technology and draw to their attention concerns regarding cleaning of the beams.	Action complete and information shared with NHSGG&C

18	Use of cleaning agents.	NHSGGC has for several years changed the cleaning regimens each winter to include a chlorine based detergent as a strategy to reduce norovirus outbreaks. This switch commences on the 1st of November and continues until the 30 April each year or longer if the season is prolonged. This is not recommended in the National Infection Control Manual because of lack of scientific evidence but is put in place in GGC based on local site knowledge.	This policy and practice will continue unless new evidence emerges	Every winter Health Protection Scotland alert boards when the norovirus season commences. Each year in response to this, the IPCT ask facilities to change all cleaning products to one that includes chlorine. Chlorine based detergents are recommended to be used during outbreaks of norovirus (HPS National Guidance). NHSGGC use them as recommended during outbreaks but also to potentially prevent outbreaks when patients with norovirus are admitted to wards and departments. This policy continues to be implemented and reviewed. We note any emerging evidence and update practice as required.
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
19	Roles and responsibilities with regards to cleaning of the dishwashers in the ward pantries was not clear.	IPCT held an Incident Management team Meeting (IMT) on 22nd of September. Dishwashers were removed from use until they could be serviced and re-sampled.	Catering staff agreed to assume the responsibility for cleaning of the dishwashers going forward.	NHSGG&C is fully compliant with the National Monitoring of Domestic Services. Point of use water filters have been installed in Dishwashers in use in the QEUH and no issues have been identified since these have been in place. As an extra precaution dishwashers have been removed from the adult Cystic Fibrosis wards and are not used and the clinical areas in the Royal Hospital for Children.
20	Issue with dishwasher not picked up during routine monitoring.	GGC fully compliant with the National Monitoring of Domestic Services	Roles and responsibilities had been clarified and a process in now in place.	
21	Cleaning of Temperature Control Values (TCVs)	TCVs are maintained in all high risk areas and plans are in place to carry this out in all areas despite this not being mandatory. Protocols are in place to manage this process.	Agreed works within QEUH-plant room 31 to sanitise TMVs is complete once the Chlorine Dioxide has embedded into the system.	Board recognises paramount importance of patient safety and the need to ensure the water systems and controls are consistently compliant with all relevant safety standards. Board water safety is in place and water systems and processes are monitored as per national guidance Plans are in place to carry out schedule of work to TMV's (where) in 2019 once the water contamination incident is concluded and chlorine dioxide residual values are within defined parameters.

22	Water testing is not as per national guidance	Board water safety is in place and water systems and processes are monitored as per national guidance.	None	Internal review commissioned by NHSGG&C to look at the commissioning and maintenance process for water systems. Structured Project Management approach is being taken to ensure clear focus with continuation of Executive oversight. See Question 25. Board Water Safety Policy is in place and water systems and processes are monitored as per national guidance. This is verified annually by the Authorising Engineer as part of the Authorising Engineer duties (copy letter) The local water safety groups review testing results and discuss by exception what has been identified. Exception reporting for Legionella was requested by the ICD's to ensure that focus was made on matters which needed addressed. This includes all counts of Legionella serogroup 1. Pseudomonas testing has been implemented in high risk areas where flow straighteners are present in taps. ICDs will also request water testing as part of an incident involving environmental Gram negative organisms The Board Water Safety Group reviews line by line the notes of the local water safety groups .Infection Control ,Microbiology and Facilities and Estates representatives are part of this Group Every time the Water Safety Policy is reviewed the contents may be changed/amended by anyone as part of the consultation process prior to ratification at the Board Infection Control Committee Water groups continue to meet and water testing regime is ongoing as are annual authorizing engineer reviews. Significant amounts of money are spent annually on the testing regimes in place Board wide by Diagnostics and estates and Facilities Health Protection Scotland (HPS) and Health Facilities Scotland (HFS) are fully involved throughout the IMT process and Water Technical Group.

				NHS GGC is compliant with SHTM 04-01 Part B – Operational Management (Page 72) testing for Legionella guidelines and with the HSE Legionnaires disease "Microbiological Monitoring". HSG 274 Authorising Engineer for the Board has reviewed this on our sites as part of the Authorising Engineers role and responsibilities and will provide a statement to this effect today to us (11/02/2019) MAK to forward
23	Sewage leaks in institute not reported to microbiologists	Leaks in any clinical areas that required advice from an ICD are reported	Ensure reporting is ongoing.	Leaks in any clinical areas that required advice from an ICD are reported. Nurse surveillance system introduced and process now exists to monitoring infection control rates. Surveillance review at infection control meetings held regularly and supported by Infection Control Team.
24	Plumbing not replaced in Neuro Surgical Block	The Director of Regional Services advised that there is ongoing work in the neuro building that would because of its complexity, take several years to complete, in the meantime the new operating theatres were due to open in January 2018.	Works are ongoing as planned.	The previous "current position" is continuing. There is a recognised investment requirement for the infrastructure, including the drainage in the Neurosurgical Block. This has been taken through the Acute Capital Committee. The Business case process supported by the EAMS data is in process. The delivery of the works will be over an extended period of time. The completion of the new operating theatres is expected to be April 2019.
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**
25	Perceived Increase in surgical site infections	Regional Services has funded 1.5 WTE surveillance nurses to carry out prospective surgical site surveillance in this area. For context, there are 3 surveillance nurses that provide this service for the rest of GGC therefore the investment in the INS to monitor SSI is significant. Although it is difficult to obtain benchmark rates for SSI in this area, continuous surveillance will pick out trends and therefore any increase.	Continue to monitor trends in surgical site infection in this area.	• Surveillance commenced in July 2016 for cranial and spinal surgery in INS and in November 2016 for major free flap surgery in OMFS. • A substantive 1.0 WTE surveillance nurse has been in post since September 2018. • Surveillance comprises in-patient and 30 day readmission to GGC hospitals. • SSI rates are reported in monthly surveillance reports and as we have now reached in excess of 25 months data , Statistical Process Control(SPC) charts are used to monitor trends. These are currently stable and within control limits.

		This is monitored via a group unique to Regional Services – the RS Surgical Site Infection Group. The group in turn reports into the Regional Service Clinical Governance Group		• The RS Surgical Site Infection Group continues to meet every quarter to discuss reports and review progress. • Surveillance was undertaken for External ventricular devices in neurosurgery and quality improvement work was undertaken. This resulted in the development of an EVD insertion care bundle and an EVD output record
26	Decontamination facilities	Most decontamination of equipment is conducted in the central Decontamination Unit or Endoscopy facilities. Respiratory equipment is easily damaged and advice from manufacturers is often difficult to implement. There should be dedicated facilities with established work flow patterns (dirty to clean). At this point in time the Decontamination group (which is a sub group of the Board Infection Control Committee) has give advice on many items of equipment and had obtained room designs which could be used if space was identified in QEUH and RHC. This has been submitted to management colleagues for consideration. In addition a list of specialist equipment that we require national advice on has been submitted to Health Protection Scotland.	Pursue HPS for advice regarding the list of equipment provided. Establish status of planning for new decontamination areas.	At this point in time the Decontamination group (which is a sub group of the Board Infection Control Committee) has given advice on many items of equipment and had obtained room designs which could be used if space was identified in QEUH and RHC. • We are currently investigating the optimum method and best equipment in line with HPS guidance which was issued in 2018. • In addition a list of specialist equipment that we require national advice on has been submitted to Health Protection Scotland. • An area for respiratory decontamination has been identified on the QEUH and RHC site and is currently awaiting sign off
Item	**Issue**	**Current Position as of 5th December 2017**	**Future Actions**	**Current Position as of January 2019**

27	Roles of IPCT have changed	The current IPCT all have Job Descriptions which have been in place for several years. There is a clear documented governance structure that has been reviewed by Price Waterhouse Cooper and approved by the Infection prevention Committees within NHSGGC. There is a clear management structure which complies with the recommendations contained within the Vale of Leven Report and the Healthcare Environment Inspectorate Standards	A review of the roles and responsibilities of the Infection Control Doctors in South Glasgow will be undertaken by the Chief of Medicine for Diagnostics. The ICM has invited HPS to undertake a review of IPC surveillance and reporting systems in place.	A review of roles and responsibilities of infection Control Doctors has taken place on the 7th December 2017 and recommendations have been taken forward. The ICD group developed an ICD job description which has been agreed by all ICDs and shared with the ICM All ICD's have Job Plans and organisation development events have taken place and continue to take place on a regular basis. Further resources are currently being identified by NHSGG&C to strengthen Infection Control team including provision of senior project management support to ensure that all of the strands of work at the QUEH including water, IC, ventilation etc is effectively coordinated. The interface between Infection Control and Estates/Facilities is also being examined with a proposal for strengthening the existing arrangements to ensure clear lines of accountability and coordination of current and future activity.

Louise Mackinnon

Subject: FW: Confidential re water incident

Begin forwarded message:

From: Christine Peters [redacted]
Date: 25 February 2019 at 13:42:36 GMT
To: Jason.Birch[redacted]
Subject: Re: Confidential re water incident

Dear Jason,

Thank you for your rapid response which I appreciate, and for offering to raise my concerns with HPS directly.

Thank you also for your time to discuss this on the phone.

On reflection I think I will rephrase my questions to be taken forward to the enquiry which will be independent and will have an opportunity to examine all the issues in context.

Therefore the new questions :
1. What is the epidemiology of environmental organism bacteraemias in the paediatric haematology /oncology patients since the opening of the RHC? In total how many patients have been affected since the unit was opened? This should include fungi , gram positives and mycobacterium.

2. Review of all the Water company (DMA)water testing and water system assessment reports, as well as GGC microbiology testing results including names of organisms isolated prior to opening of building.

3. Dates and details of all actions taken with regard to follow up of deficient water results or water system issues identified.

4. Review of all Legionella risk assessments and follow up actions and escalation through water groups. This is relevant as legionella risk mitigation overlaps with other environmental organisms.

5. What were the clinical consequences of the environmental bacteraemias with regard to:

-Days of Extended hospital admission
-Numbers of Intravenous Lines replaced
-Excess Antibiotic days
-Toxicity events associated with antibiotic use
-Days of ITU admission due to sepsis
-numbers of patients requiring Ventilation/Resuscitation due to sepsis
-Long-term morbidity and mortality compared with non bacteraemia patients

6. What was the decision making process with regard to the choice of taps with associated risk assessment and risk mitigation processes? Evidence of installation and maintenance in keeping with this risk mitigation.

7 what were the barriers to rapid incident detection?

8 what were the barriers for rapid incident management and elimination of HAI risk posed by contaminated water?

Please do not hesitate to contact me if further clarification is required.

Thanks again for your time and consideration .

Kind regards,

Christine Peters
Sent from my iPhone

On 25 Feb 2019, at 11:29, Jason.Birch[redacted] wrote:

> Dear Ms Peters,
>
> Thank you for your message to Jeane Freeman MSP, Cabinet Secretary for Health and Sport, regarding the water incident at the QEUH, I have been asked to reply on her behalf. You raise a number of detailed points in your message and I would be grateful if you could confirm that you are content for me to liaise with HPS so they can respond as soon as possible.
>
> I look forward to hearing from you.
>
> Kind regards
>
> Jason
>
> **Jason Birch** | Unit Head | Directorate for Chief Nursing Officer | Scottish Government | St Andrew's House | Regent Road | Edinburgh | EH1 3DG | T [redacted] | M [redacted] | [redacted]
>
> ---
>
> **From:** Christine Peters[redacted]
> **Sent:** Saturday, February 23, 2019 4:14 pm
> **To:** Freeman J (Jeane), MSP
> **Subject:** Confidential re water incident
>
> Dear Jeanne,
>
> I am writing to express my concerns regarding the recently published HPS led report into the water incident at QEUH/RHC. From my knowledge of the situation there are a number of critical omissions in the report:
> 1. There is an impression given that between the 2016 cupriavadis case and the January 2018 cupriavadis case , there was only one environmental bacteraemia in the paediatric oncology unit ie the September 2017 cupriavadis case. In fact there were many cases of bacteraemias with organisms mentioned in the report as well as other environmental organisms not mentioned. This is highly significant as any outbreak investigation needs to

have a phase of case ascertainment and this involves retrospective data. This may not happen immediately, but once the hypothesis of water borne infections becomes established it is a basic logical step in the investigation. I am utterly astonished that the peak in cases in 2017 particularly are not alluded to at all. I myself produced a document for the IMT which charted all the cases since 2014 . The epidemiology of environmental organisms in blood stream infections prior to jan 2018 has been ignored in the report and causes me to have serious misgivings about the validity of the inquiry as a comprehensive look into the water issues. Conclusions drawn regarding the extent of the consequences of the water contamination are significantly limited by this omission.

2. There is a reference to microbiology results of water testing which showed widespread contamination before the building opened. As ICD at the time I was not aware of the results despite asking for them. Therefore for this report to be comprehensive and informative of what has happened , the details of when these results were available, as well as the names of the organisms isolated and,critically, **evidence** of actions taken at the time (we are talking four years ago , actions should not have waited four years) are of paramount importance . If it is the case that for example cupriavadis or pseudomonas were found but remedial actions not taken, this would be the most critical and defining finding of the inquiry. This is not clear when reading the report as it stands.

3. There is only mention of gram negative organisms. A complete report would include gram positives, fungi and mycobacterium.

4. The report states that there was no mortality. What it fails to delineate is the significant morbidity - admissions to hospital, extended days in hospital, lines inserted/removed , number of extra imaging , surgery, admission to ITU, resuscitation, as well as pain and illness and anxiety. Furthermore there is no comment of the long term morbidity or quantification of the effects of delayed chemotherapy - a critical cornerstone of cancer treatment . The one line on no mortality seems superficial in this context.

5. The issues pertaining to taps with flow straighteners as well as thermal mixing valves were well known years before the 2015 iteration of the Scottish health building documents. (Post Belfast NICU Pseudomonas outbreak 2012 especially) This raises serious issues around the decision making re the tap choices that is not adequately dealt with. Furthermore the key to any decision to use taps with TMVs is the installation and maintainence . Were there deficiencies in this regard? Again a critical and defining issue not adequately dealt with.

5. There is no comment on conflict of interests. It should be stated whether any of the authors had involvement in any decisions regarding the choices of sinks, taps, water testing or the design and commissioning process of these buildings (either as GGC employees at the time or as part of advice given by HPS and HFS)in order for this to be a transparent process.

In conclusion, my own declaration of interest is that I was ICD for the first couple years of the QEUH, I cover the paediatric microbiology service, I have taken my concerns re the building including infection rates in paediatric cancer unit through a whistleblow process within GGC and I have been the

author of reports for the water incident IMT on the microbiology of the taps (as alluded to in the report) as well as the epidemiology of bacteraemias in the unit in relation to antibiotic use.

Perhaps the correct place for the report itself to be probed is the enquiry which you have set up. I look forward to being able to submit the reports I refer to to the enquiry team , but think that you should be aware of these limitations of the report in a timely manner as I think there is a serious risk of confidence in HPS being undermined by this incomplete report which would not be a good outcome .

Regards

Christine Peters

Microbiology Consultant

QEUH

[redacted]

Sent from my iPhone

****
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Tha am post-d seo (agus faidhle neo ceanglan còmhla ris) dhan neach neo luchd-ainmichte a-mhàin. Chan eil e ceadaichte a chleachdadh ann an dòigh sam bith, a' toirt a-steach còraichean, foillseachadh neo sgaoileadh, gun chead. Ma 's e is gun d'fhuair sibh seo gun fhiosd', bu choir cur às dhan phost-d agus lethbhreac sam bith air an t-siostam agaibh agus fios a leigeil chun neach a sgaoil am post-d gun dàil. Dh'fhaodadh gum bi teachdaireachd sam bith bho Riaghaltas na h-Alba air a chlàradh neo air a sgrùdadh airson dearbhadh gu bheil an siostam ag obair gu h-èifeachdach neo airson adhbhar laghail eile. Dh'fhaodadh nach eil beachdan anns a' phost-d seo co-ionann ri beachdan Riaghaltas na h-Alba.
****
**

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[redacted]

Date: 1st March 2019
Our Ref: [redacted]

Enquiries to: Jane Grant
Direct Line: [redacted]
E-mail: [redacted]

Dear [redacted]

Unannounced Inspection Report - Safety and Cleanliness of Hospitals 29-31st January 2019

Thank you for sending the draft report regarding the unannounced inspection visit which took place on the 29-31st January 2019 on the Queen Elizabeth University Hospital Site (QEUH). We have reviewed the report and would like to respond to some of the issues raised and we have also attached further information and evidence in regards to areas where we feel the report can be made more factual and accurate. We believe there are a number of factual inaccuracies within the report and have provided details of these in the attached table. We would request that these inaccuracies are amended prior to publication. In addition to the evidence submitted by GGC, we have set out evidence/information and cross referenced these to the key points in the report. There are additionally a number of areas of serious concern which I would like to discuss and have outlined these below.

Within the report there are a number of individual testimonies e.g. Point 28 which concludes with and implies "significant challenges". We fully accept that there will be concerns and challenges within any Health Board, however based on anecdotal information together with the emphasis of "significant" suggests that these challenges are widespread, on a larger scale and systemic. There is no evidence presented to us or in the report which would enable a statement to be applied across the whole QEUH site which includes the Royal Hospital for Children (RHC), the Institute for neurological Sciences (INS) and the QEUH. Indeed, this would have a significant impact on morale to many thousands of clinical and managerial staff who have worked successfully together to deliver clinical care. We would wish to reassure the HEI team that the Medical Director, following the escalation call from [redacted] at HIS, has taken the matter extremely seriously. We would suggest that any language used where individual testimonies have been referenced should either be excluded or made clear that it is one person's view. We understand that it is within your remit to cite individual experiences, however we feel the report needs to reflect a balance of opinions and views.

In respect of the issues you raise around governance, we consider that the Board has well developed governance and assurance systems in place in relation to infection prevention and there are clear lines of accountability around this. This has been evidenced in previous HIS reports, external and internal audits. We are concerned over the use of "a lack of governance' in **Point 20** in the report as this suggests that there is little or no governance around the management and prevention of infection. We are extremely concerned about this statement and would urge you to review this. We do accept however that some elements of governance arrangements within Estates and Facilities require to be strengthened and work is already underway in this regard considering the management of all aspects of the asset base including functionality and the relationship to infection control.

In relation to **Point 32**, we are extremely concerned regarding the wording of this paragraph as there has been a clear, transparent and open process since October 2017 when these issues were raised. The Health Board specifically requested in 2017 that an SBAR was produced to identify concerns and define action plans to address these. The '27 recommendations' was a paper developed by clinical and management teams after closely listening to the concerns raised. There has been extensive governance oversight across the organisation of these issues, including discussion at the Clinical and Care Governance Committee in 2017. Moreover, a further update on the progress since 2017 is scheduled for the Clinical and Care governance Committee on the 5th March 2019. Information on progress, (Action Plan report update, January 2019), was submitted to you on 15th February 2019 and provides greater detail on the issues within the report. We would request that the inspection report should be updated to reflect more accurately the context and the current and updated position as we believe this is an example of good governance and the board taking concerns seriously and acting on them.

Of note reference is made in the report to the NHS Scotland Health Boards and Special Health Boards – Blueprint for Good Governance (2019), however it is important to highlight that this was not formally published at the time of the inspection. Indeed it was published on the 1 Feb after the inspection took place.

We acknowledge that you have produced this report within a short time period and we welcome the commitment and hard work of your team. However we would like to ensure that the evidence supplied along with this letter and the key points raised in this letter are acted upon.

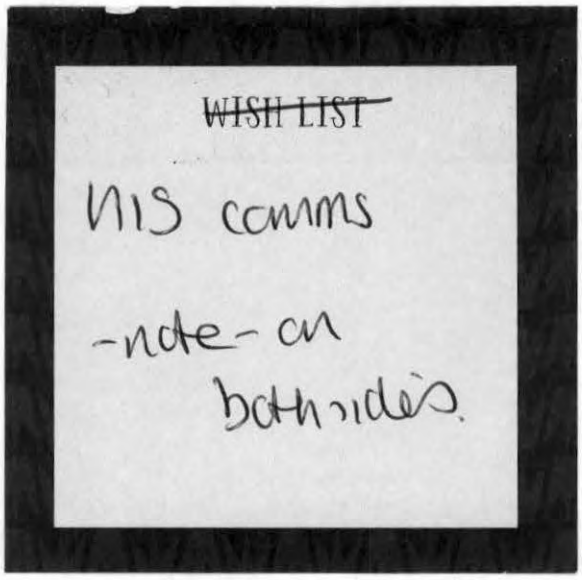
We recognise the need to provide an Action Plan, however in light of the number of comments we have on the draft report we would propose to submit this when the final report has been agreed.

We are keen to meet with you and the team early next week to provide clarity on any aspects of our response and I look forward to hearing from you.

Yours sincerely

[redacted]

Jane Grant
Chief Executive
NHS Greater Glasgow and Clyde


~~WISH LIST~~
NIS comms
-note- on
both sides.

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NHS
Greater Glasgow and Clyde

[redacted]

Date: 6th March 2019
Our Ref: [redacted]

Enquiries to: Jane Grant
Direct Line: [redacted]
E-mail: [redacted]

Dear [redacted]

Thank you for your letter of 5th March 2019 in relation to the factual accuracy of the draft report. We appreciate that you have considered the comments we provided and have made some amendments to the report to reflect a number of our concerns about factual accuracy. We are keen to ensure that the report provides a factual basis for our improvement plans in order to ensure we continue to improve the quality of service to our patients.

We remain concerned however that there are still serious factual inaccuracies in the report which do not describe the actual position and indeed present a misleading picture. Further to your consideration of this letter we would welcome the opportunity to discuss the position with the HIS Chief Executive.

I have outlined these concerns below.

Page 8 Points 31(This was point 32 in first draft report)

'We were shown a clinicians report from 2017 that detailed their concerns about 27 clinical risks within the Queen Elizabeth University Hospital and the Institute of Neurosciences"

The timeline of events is noted below setting out why this is inaccurate. On 3rd October 2017 an SBAR from [redacted], at the request of the Medical Director, was circulated to clinical and managerial teams. It set out four areas of concerns in respect of patient placement, cleaning, estates and the infection control structure.

On 4th October 2017 a meeting took place with [redacted], senior clinical and managerial teams to discuss these areas in detail.

The 27 areas which you refer to as clinical risks were in fact 27 actions within an action plan created by the clinical and managerial teams in response to the SBAR to address the issues raised on the 3rd October and discussed on 4th October 2017. This action plan was developed by the clinical team, the infection control team, the estates team together with the managerial team. It was formally presented to the Clinical and Care Governance meeting on 5th December 2017 and thereafter, throughout 2018, it was highlighted in various governance structures throughout the Board to ensure actions were taken forward as this was a wide ranging action plan.

Page 8 Point 31 continued

"We were provided with an action plan for these risks, however we were not assured that actions had been taken to resolve some of the issues".

In our factual accuracy response to you dated 1st March 2019 point 32, we detail 18 actions complete, 8 actions in progress and 1 action not technically possible. Therefore we believe the way this is characterised in the report is misleading and we provided assurance to you that we were in the process resolving all of these issues. Indeed if there is further information you require on staff communication or any other topic, we are happy to provide this to assist you with clarity.

Page 9 Point 31 bullet points

"a requirement for high efficiency particulate air (HEPA) filters was identified by clinicians for [redacted] – work has not yet begun on this".

This is absolutely untrue. In the plan we sent you as detailed as item 6 on 15th February 2019, we state clearly that HEPA filters were installed in [redacted] and 17 in November 2017 in [redacted]. The [redacted] stated yesterday on reading your report, that this was indeed false and furthermore there is no requirement for the use of HEPA filtration throughout the whole of [redacted]. It was put into two rooms for severely immunosuppressed patients and this was fitted in November 2017. We believe that there has been a misunderstanding of this issue.

The other 3 bullet points (still under Point 31) were responded to on the 1st March. For clarity in respect of the concern about the use of cleaning agents, we were setting out, as we did for the clinical teams, that we are fully compliant and indeed go beyond the requirement for cleaning products for NHS Scotland. So we believe that this concern has indeed been addressed and we were trying to provide evidence as such.

Page 7 Point 20

"our inspection has highlighted a lack of governance that teams provide to senior hospital management".

We believe this is incorrect. The governance arrangements that are currently in place have been there for many years and approximately 40 other reports have been received during that period. In addition, the sentence is not really clear as governance is not normally provided by teams in the manner suggested. We believe that further clarity is required here.

Page 8 Point 28

"We were made aware of challenges in the working relationships between senior staff in the infection prevention control team and the estates department"

We believe the proposed alteration remains factually inaccurate. Several senior members of the infection control team were interviewed and the majority of them are concerned that this statement does not reflect their discussions with the inspection team. We believe this is based on the comments of [redacted] of the team and cannot, therefore, be regarded as being reflective of the overall relationship. This requires to be reflected in a more balanced way. The inspection team did not seek to interview the [redacted] and [redacted] and only met with [redacted] at [redacted] request. This issue was not raised with [redacted] and, thus, it is difficult to see how this section is factually accurate.

Page 8 Point 29 bullet points

We believe that this remains factually inaccurate. Your response indicates that ***"this did not come from a meeting, and we have not stated this in the inspection report. The concerns were raised consistently throughout the inspection by senior [redacted]."***

Our concern remains in relation to the statement that senior management did not react to concerns and senior managers were not taking on board the concerns of clinical staff during Estates meetings. As previously indicated, there are many forums where there is active dialogue and we are concerned that the report indicates a lack of action without any evidence. On the contrary, we have provided information on a range of meetings/hospital huddles where there is active dialogue and actions agreed and we would again request evidence that senior managers have not reacted to concerns.

Page 8 Point 30

"Senior managers told us that NHS Greater Glasgow and Clyde required additional Infection Control Doctors to help with the assessment and mitigation of infection risks presented by the built environment. Infection control staff also told us that the infection prevention and control team at the Royal Hospital for Children would benefit from having more infection prevention and control nurses"

You have indicated that the [redacted] informed you of this statement. This is not [redacted] recollection of the position and [redacted], and the [redacted] who was also present, have confirmed that this is not their view. In discussion with both individuals, they are happy to speak to you directly in this regard. I would refer you back to our original comments.

These are the main issues in relation to factual accuracy which we believe require further review. We appreciate that there is limited time but it is essential that this important report is factually accurate.

We would be grateful if you could urgently consider this letter and, once again, we would be happy to discuss this matter with you, either at a meeting or on the phone, if that would assist.

I look forward to hearing from you at your earliest convenience.

Yours sincerely

[redacted]

Jane Grant
Chief Executive
NHS Greater Glasgow and Clyde

Healthcare Improvement Scotland

Factual accuracy changes

Healthcare Improvement Scotland: Safety and Cleanliness of Hospitals
Unannounced inspection to Queen Elizabeth University Hospital and Royal Hospital for Children
NHS Greater Glasgow and Clyde
Tuesday 29 – Thursday 31 January 2019

Examples of factual accuracy: correction of ward information or clarification of specific NHS board processes

Item raised by NHS Greater Glasgow and Clyde	HIS Response	Changes to report:
Page 8 Points 31(This was point 32 in first draft report) **"We were shown a clinicians report from 2017 that detailed their concerns about 27 clinical risks within the Queen Elizabeth University Hospital and the Institute of Neurosciences"** The timeline of events is noted below setting out why this is inaccurate. On 3rd October 2017 an SBAR from [redacted], at the request of the Medical Director, was circulated to clinical and managerial teams. It set out four areas of concerns in respect of patient placement, cleaning, estates and the infection control structure. On 4th October 2017 a meeting took place with the [redacted], senior clinical and	**Partial amendment to report**. Paragraph reworded and the reference to HEPA filters removed from bullet list.	**Page 8/9 Paragraph 31** We were shown a clinicians' report from 2017 that detailed 27 issues within the Queen Elizabeth University Hospital and the Institute of Neurosciences. We raised this with NHS Greater Glasgow and Clyde's senior management. We were provided with an action plan for these issues, however we were not assured actions had been taken to resolve some of the issues. We asked for further information to clarify what actions had been taken. However, we still have some concerns regarding: • the use of cleaning agents, and • the cleaning of temperature control valves.

Healthcare Improvement Scotland

managerial teams to discuss these areas in detail. The 27 areas which you refer to as clinical risks were in fact 27 actions within an action plan created by the clinical and managerial teams in response to the SBAR to address the issues raised on the 3rd October and discussed on 4th October 2017. This action plan was developed by the clinical team, the infection control team, the estates team together with the managerial team. It was formally presented to the Clinical and Care Governance meeting on 5th December 2017 and thereafter, throughout 2018, it was highlighted in various governance structures throughout the Board to ensure actions were taken forward as this was a wide ranging action plan.		

Healthcare Improvement Scotland

Page 8 Point 31 continued **"We were provided with an action plan for these risks, however we were not assured that actions had been taken to resolve some of the issues".** In our factual accuracy response to you dated 1st March 2019 point 32, we detail 18 actions complete, 8 actions in progress and 1 action not technically possible. Therefore we believe the way this is characterised in the report is misleading and we provided assurance to you that we were in the process resolving all of these issues. Indeed if there is further information you require on staff communication or any other topic, we are happy to provide this to assist you with clarity.	**As above.**	
Page 9 Point 31 bullet points ***"a requirement for high efficiency particulate air (HEPA) filters was identified by clinicians for paediatric intensive care unit – work has not yet begun on this".*** This is absolutely untrue. In the plan we sent you as detailed as item 6 on 15th February 2019, we state clearly that HEPA filters were installed in room 12 and 17 in November 2017 in PICU. The Lead Infection Control Doctor stated	**As above.**	

Healthcare Improvement Scotland

yesterday on reading your report, that this was indeed false and furthermore there is no requirement for the use of HEPA filtration throughout the whole of PICU. It was put into two rooms for severely immunosuppressed patients and this was fitted in November 2017. We believe that there has been a misunderstanding of this issue.		
The other 3 bullet points (still under Point 31) were responded to on the 1st March. For clarity in respect of the concern about the use of cleaning agents, we were setting out, as we did for the clinical teams, that we are fully compliant and indeed go beyond the requirement for cleaning products for NHS Scotland. So we believe that this concern has indeed been addressed and we were trying to provide evidence as such.	**No amendment to this bullet point.** We were clearly told and saw that the sanitary items, namely wash hand basins were not been cleaned with chlorine. What you are referring to is their winter use of chlorine. The document which we were provided with did not state what dilution rate or contact time should be used.	
Page 7 Point 20 ***"Our inspection has highlighted a lack of governance that teams provide to senior hospital management".*** We believe this is incorrect. The governance arrangements that are currently in place have been there for many years and approximately 40	**Amendment to report.**	**Page 7, Paragraph 20:** It is vital that an NHS board has good governance to assurance itself of safe patient care. This is laid out in the Scottish Government's guidance, NHS Scotland Health Boards and Special Health Boards - Blueprint for Good Governance (2019). Although there are formal meetings

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other reports have been received during that period. In addition, the sentence is not really clear as governance is not normally provided by teams in the manner suggested. We believe that further clarity is required here.		between the estates team and the infection prevention and control team, our inspection has highlighted a lack of robust communication between these teams to provide effective governance to senior hospital management. We have expanded on this in the report.
Page 8 Point 28 ***"We were made aware of challenges in the working relationships between senior staff in the infection prevention control team and the estates department"*** We believe the proposed alteration remains factually inaccurate. Several senior members of the infection control team were interviewed and the majority of them are concerned that this statement does not reflect their discussions with the inspection team. We believe this is based on the comments of [redacted] and cannot, therefore, be regarded as being reflective of the overall relationship. This requires to be reflected in a more balanced way. The inspection team did not seek to interview the Director of Estates and Facilities and only met with [redacted] at [redacted] request. This issue was not raised with [redacted] and, thus, it is difficult to see how this section is factually accurate.	**Partial amendment** This is factually accurate. To avoid this being person-identifiable, we made this more of a generic statement. [redacted]	**Page 8, Paragraph 28** We were made aware of some challenges in the working relationships between senior staff in the infection prevention and control team and the estates department. A good working relationship is essential to ensure optimal patient care. As a result of our inspection, this was brought to the attention of the Chief Executive of NHS Greater Glasgow and Clyde for action.

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Page 8 Point 29 bullet points **We believe that this remains factually inaccurate. Your response indicates that "this did not come from a meeting, and we have not stated this in the inspection report. The concerns were raised consistently throughout the inspection by senior charge nurses."** Our concern remains in relation to the statement that senior management did not react to concerns and senior managers were not taking on board the concerns of clinical staff during Estates meetings. As previously indicated, there are many forums where there is active dialogue and we are concerned that the report indicates a lack of action without any evidence. On the contrary, we have provided information on a range of meetings/hospital huddles where there is active dialogue and actions agreed and we would again request evidence that senior managers have not reacted to concerns.	**Partial amendment to report.**	**Page 8, Paragraph 29.** During our inspection, we were told of examples where it was felt that senior management have not reacted to concerns regarding the environment that can have an effect on clinical care....
Page 8 Point 30 **"Senior managers told us that NHS Greater Glasgow and Clyde required additional Infection Control Doctors to help with the assessment and mitigation of infection risks presented by the built environment. Infection control staff also told us that the infection prevention and control team at the Royal Hospital for Children**	**No amendment to report.** We had a conversation where we asked if they had enough resource. We agreed that the ICD role is ill defined and required national clarification. We were told the role of the environment and building works is increasing and that they could do with more	

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would benefit from having more infection prevention and control nurses" You have indicated that the infection control manager informed you of this statement. This is not [redacted] recollection of the position and [redacted], and the Associate Nurse Director who was also present, have confirmed that this is not their view. In discussion with both individuals, they are happy to speak to you directly in this regard. I would refer you back to our original comments.	ICD hours to cover this across the board. We were also told they felt that they were ' a bit light' on IPCNs in RCH.	

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Factual accuracy changes

Healthcare Improvement Scotland: Safety and Cleanliness of Hospitals
Unannounced inspection to Queen Elizabeth University Hospital and Royal Hospital for Children
NHS Greater Glasgow and Clyde
Tuesday 29 – Thursday 31 January 2019

Examples of factual accuracy: correction of ward information or clarification of specific NHS board processes

Item raised by NHS Greater Glasgow and Clyde	[redacted] Response	[redacted]/Changes to report:
Page 8 Points 31(This was point 32 in first draft report) **"We were shown a clinicians report from 2017 that detailed their concerns about 27 clinical risks within the Queen Elizabeth University Hospital and the Institute of Neurosciences"** The timeline of events is noted below setting out why this is inaccurate. On 3rd October 2017 an SBAR from [redacted], at the request of the Medical Director, was circulated to clinical and managerial teams. It set out four areas of concerns in respect of patient placement, cleaning, estates and the infection control structure. On 4th October 2017 a meeting took place with the [redacted] senior clinical and	[redacted] The SBAR action plan submitted as part of factual accuracy lists 27 issues not actions. There is no mention of 4 clinical risks. [redacted] I agree that these are issues identified and addressed as actions with an update that was provided to us. I am forwarding the paper that we received that was submitted to clinical care governance. At no point were these described as clinical risks and without a risk assessment, we are not on secure ground to do so. We were told of the position re HEPA filters and I had raised this earlier as i though what was written was inaccurate.	No change to report The SBAR Submitted by Greater Glasgow and Clyde (GGC) as part of factual accuracy lists 27 issues not actions, within the document there is no mention of 4 clinical risks.

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managerial teams to discuss these areas in detail. The 27 areas which you refer to as clinical risks were in fact 27 actions within an action plan created by the clinical and managerial teams in response to the SBAR to address the issues raised on the 3rd October and discussed on 4th October 2017. This action plan was developed by the clinical team, the infection control team, the estates team together with the managerial team. It was formally presented to the Clinical and Care Governance meeting on 5th December 2017 and thereafter, throughout 2018, it was highlighted in various governance structures throughout the Board to ensure actions were taken forward as this was a wide ranging action plan.		

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Page 8 Point 31 continued **"We were provided with an action plan for these risks, however we were not assured that actions had been taken to resolve some of the issues".** In our factual accuracy response to you dated 1st March 2019 point 32, we detail 18 actions complete, 8 actions in progress and 1 action not technically possible. Therefore we believe the way this is characterised in the report is misleading and we provided assurance to you that we were in the process resolving all of these issues. Indeed if there is further information you require on staff communication or any other topic, we are happy to provide this to assist you with clarity.	[redacted] **Suggest could re-word report to state:** We asked for further information to clarify what actions had been taken and whilst there has been some progress we still have some concerns. For example: (consider [redacted] response for this also for 1st bullet point) • A requirement for high efficiency particulate air (HEPA) filters was identified by clinicians for the [redacted]. [redacted] I think they have done what they can but the issue was really round the time taken to resolve issues.	
Page 9 Point 31 bullet points ***"a requirement for high efficiency particulate air (HEPA) filters was identified by clinicians for [redacted] – work has not yet begun on this".*** This is absolutely untrue. In the plan we sent you as detailed as item 6 on 15th February 2019, we state clearly that HEPA filters were installed in room [redacted] in November 2017 in [redacted]. The [redacted] stated	[redacted] Note [redacted] comment sent in, may need to remove 1st bullet point. [redacted] see my earlier point and the paper that was sent to clinical care governance. This is wrong. They had addressed this.	

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yesterday on reading your report, that this was indeed false and furthermore there is no requirement for the use of HEPA filtration throughout the whole of [redacted] It was put into two rooms for severely immunosuppressed patients and this was fitted in November 2017. We believe that there has been a misunderstanding of this issue.		
The other 3 bullet points (still under Point 31) were responded to on the 1st March. For clarity in respect of the concern about the use of cleaning agents, we were setting out, as we did for the clinical teams, that we are fully compliant and indeed go beyond the requirement for cleaning products for NHS Scotland. So we believe that this concern has indeed been addressed and we were trying to provide evidence as such.	[redacted] Cleaning agents is raised as an issue in the action plan submitted by GG&C however it gives no context why. For clarity to the board it should be mentioned that during the inspection it was identified that cleaning agents was raised as an issue for cleaning sanitary fittings in para 93 [redacted] I disagree with this. We were clearly told and saw that the sanitary items, namely wash hand basins were not been cleaned with chlorine. What GGC are referring to is their winter use of chlorine. The document which we were provided with did not state what dilution rate or contact time should be used.	

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	However, I think that the point about clarity was one from the [redacted] and relates to levels of cleaning in the high risk areas but i am not certain of this from the information that is in the paper and this was not part of what i discussed [redacted]	
Page 7 Point 20 ***"Our inspection has highlighted a lack of governance that teams provide to senior hospital management".*** We believe this is incorrect. The governance arrangements that are currently in place have been there for many years and approximately 40 other reports have been received during that period. In addition, the sentence is not really clear as governance is not normally provided by teams in the manner suggested. We believe that further clarity is required here.	[redacted] See [redacted] comments sent in earlier [redacted] Governance regarding estates and facilities matters is not clear. This is an evolving area in terms of managing infections risks and if you go to any board in Scotland this may not be clear either. However, given the incidents that have occurred I would have expected a great level of communication between teams and senior management. There have also been changes in personnel in estates that may account for some of this.	
Page 8 Point 28 ***"We were made aware of challenges in the working relationships between senior staff in the infection prevention control team and the estates department"*** We believe the proposed alteration remains	[redacted] I didn't see anything in [redacted] feedback about this but wonder if it could be worded as we were made aware that there are some challenges or perceived challenges in the working relationship It does not otherwise add anything to the	

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factually inaccurate. Several senior members of the infection control team were interviewed and the majority of them are concerned that this statement does not reflect their discussions with the inspection team. We believe this is based on the comments of one member of the team and cannot, therefore, be regarded as being reflective of the overall relationship. This requires to be reflected in a more balanced way. The inspection team did not seek to interview the [redacted] and only met with [redacted] at [redacted] request. This issue was not raised with [redacted] and, thus, it is difficult to see how this section is factually accurate.	report as you raised it but so what?? [redacted] I agree that we heard only one persons view on this and [redacted] was keen to have transparency. It is an internal matter in my view. I also thought it was broader that just the estates dept and the estates individual has left.	
Page 8 Point 29 bullet points **We believe that this remains factually inaccurate. Your response indicates that "this did not come from a meeting, and we have not stated this in the inspection report. The concerns were raised consistently throughout the inspection by senior [redacted]."** Our concern remains in relation to the statement that senior management did not react to concerns and senior managers were not taking on board the concerns of clinical staff during Estates meetings. As previously indicated, there are many forums where there is active dialogue and we are concerned that the report indicates a	[redacted] Consider changing wording to: during the inspection we were told of examples where it was felt that senior management have not reacted to concerns [redacted] The concerns raised reported to have been during and were during an incident meeting for which we never saw nor requested minutes. [redacted] said [redacted] pigeon hypothesis had been ridiculed by senior estates manager. I cannot comment what the SCNs said.	

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lack of action without any evidence. On the contrary, we have provided information on a range of meetings/hospital huddles where there is active dialogue and actions agreed and we would again request evidence that senior managers have not reacted to concerns.		
Page 8 Point 30 **"Senior managers told us that NHS Greater Glasgow and Clyde required additional Infection Control Doctors to help with the assessment and mitigation of infection risks presented by the built environment. Infection control staff also told us that the infection prevention and control team at the Royal Hospital for Children would benefit from having more infection prevention and control nurses"** You have indicated that the [redacted] informed you of this statement. This is not [redacted] recollection of the position and [redacted], and the [redacted] who was also present, have confirmed that this is not their view. In discussion with both individuals, they are happy to speak to you directly in this regard. I would refer you back to our original comments.	[redacted] I can find no evidence in the scanned in notes of where this information came from [redacted] can you shed any light on this [redacted] I had a conversation where i did ask if they had enough resource. We agreed that the ICD role is ill defined and required national clarification. [redacted] clearly said the the role of the environment and building works is increasing and that they could do with more ICD hours to cover this across the board. [redacted] was present. [redacted] also said they were ' a bit light' on IPCNs in RCH. as had [redacted] for RCH	

Meeting to discuss links between IC and estates

Armstrong, Jennifer [redacted]

Tue 12/03/2019 11:09

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]; Steele, Tom [redacted]; De caestecker Linda (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc: Bernadette.O'Brien[redacted];

All
We had a date for this meeting a few weeks ago and this had to be cancelled due to unforeseen absence; I suggest that we re-instate this meeting in the diary to enable us to discuss how to improve communication and, now that the HEI report has been published, we can perhaps pick up some of the issues raised by this report.

Can I ask that you prioritise you diary and perhaps Bernadette can look at an early date to meet?

I am happy to flex my diary and also to be flexible with the venue.

Kind regards
Jennifer

Inkster, Teresa

From: Inkster, Teresa
Sent: 22 May 2019 19:16
To: Bajwe, Ranjit; Armstrong, Jennifer; de Caestecker, Linda
Cc: Steele, Tom
Subject: RE: Note of Meeting on 14th March 2019
Attachments: Note of Meeting of 14th (2).docx

Dear all

A long time has passed since this meeting was held and the issuing of this note. I have added some info to the text as a lot of what I stated has been missed .

I also want to query some lines in the first paragraph;

Dr De Caestecker opened the meeting setting out the key purposes in the background'*There had also been a media enquiry about allegations of bullying of which corporate directors were unaware and wanted to find out if this was actually the case'.*

I am confused re this line. The meeting we had arose from concerns raised at an HEI inspection . In fact I suggested this meeting ahead of a proposed larger OD event for estates and IC. The meeting had originally been scheduled for earlier in the year but was postponed due to illness of an attendee . The newspaper article which the media enquiry related to was published just a few days before the rescheduled meeting. So I am not clear why we are stating the purpose of the meeting was to explore allegations of bullying . Also I would like it noted that whilst the corporate directors were unaware, I was unaware . I showed meeting attendees a message from a journalist saying she knew 'stuff' about me including illness and bullying. I do not know what this refers too.

On the same theme, the last line *' both clarified there was no bullying culture to be addressed.'* I was not asked to clarify this. Furthermore Im not sure a one off meeting between three directors and a lead clinician would be sufficient to reach this conclusion, if that had been the purpose of the meeting.

Kind regards
Teresa

From: Bajwe, Ranjit
Sent: 17 May 2019 11:08
To: Steele, Tom; Inkster, Teresa
Cc: de Caestecker, Linda; Armstrong, Jennifer
Subject: Note of Meeting on 14th March 2019

Dear All

Please find attached a note of the meeting which was held on 14th March 2019 from Dr Linda de Caestecker.

Kind regards

Ranjit Bajwe
PA to Dr Linda de Caestecker, Director of Public Health &
Graeme Forrester, Deputy Head of Administration
NHS Greater Glasgow and Clyde
J B Russell House

Gartnavel Royal Hospital
1055 Great Western Road
Glasgow
G12 0XH

Tel No: [redacted]
Email: [redacted]

Tracking:
A49541141

Note of Meeting of 14 March 2019

This meeting took place in the Teaching & Learning Centre, present included Dr Linda De Caestecker, Dr Jennifer Armstrong, Dr Teresa Inkster and Mr Tom Steele.

Dr De Caestecker opened the meeting setting out the key purposes in the background. Dr De Caestecker set out the recent events particularly around a series of Infection Control issues which had led to significant media attention and public concern around Estates & Infection Control. This had led to the Cabinet Secretary asking the HEI team to visit the Queen Elizabeth Campus and carry out a review of Infection Control. The report has highlighted a series of concerns around the relationship between Infection Control and Estates. There had also been a media enquiry about allegations of bullying of which corporate directors were unaware and wanted to find out if this was actually the case. The reason for this meeting was to provide a safe place to explore any issues and also to ensure that solutions to the issues were discussed with an ongoing plan to address them.

Dr De Caestecker invited Dr Inkster to highlight some of her concerns. Dr Inkster set out her concerns including:-

Historical issue around the need for more information to flow between Infection Control & Estates. Previous infection control doctors on the site reported difficulties in obtaining results and with working relationships with estates. Dr Inkster stated that she had worked in other hospitals with good relationships with estates colleagues and had been concerned to find things were different on the QEUH site. Dr Inkster gave some specific examples around issues in 2017 which were encountered by more junior colleagues [redacted] as well as more recent examples when she has requested reports that have taken time to be shared or information not shared at all .

1. Dr Inkster's view that there needed to be additional cleaning of the vents and chill beams. She also stated that she had been trying to establish a ventilation group since commencing the lead ICD role and that she had not been able to progress a respiratory decontamination facility despite escalation. Despite raising concerns about chilled beams, vent cleaning and drain cleaning programmes had not been put in place and it was unfortunate that these issues were being picked up by the HEI inspection. She also highlighted not having seen validation reports for PPVL rooms. Dr Inkster explained that for these isolation rooms she was the interface between estates and the clinicians and required to know results for safe patient placement.

2. During the recent outbreaks there had been a need for timely information in order to address some of the concerns with full list of actions for clinicians. There was a need to speed up the flow of information. Dr Inkster gave examples of IMTs in which she was developing hypothesis which would later be proven. She expressed concern that individuals at the IMT had the information required but that it was not shared. This was particularly in relation to the water incident where risk assessments from 2015/17 had been available. An email in which a clinician colleague highlighted concerns regarding overruling of Dr Inkster by an estates colleague was shared. She stated it was important that clinicians had confidence in estates and IC working closely with one another. Reports on rebalancing of ventilation systems took several weeks to be shared during which time there was clinician anxiety.

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Tom Steele then described his experiences in taking over as Director of Facilities and Estates in October 2018. He set out that there had been issues with the cladding, the windows and indeed he had worked on the water issues around the Queen Elizabeth and RHC. Tom also set out some of the issues around Cowlairs and that it has been an extremely busy time in the months since he took over. Tom had been conscious that there was a need to maintain public confidence within the building and a need to address many of the challenges and to prioritise many areas for action. Tom

was very keen to work effectively with Infection Control colleagues and to provide all of the information that was required and requested. Tom set out his belief that some of the Incident Management meetings had considerable numbers of people at them which made more focussed actions and information sharing fairly difficult. Dr Inkster agreed with this stating that on occasion there had been multiple members of the estates/facilites teams present., Tom stated that there was a need for further clarity of roles and responsibilities within the Estates team and this would take time to establish more fully. In addition, Tom highlighted the extensive media enquiries and focused attention together with multiple FOIs which he had been dealing along with all of the Estate issues. This had put significant pressure on many of the teams. Tom was also extremely distressed by some of the allegations which had appeared to have been made and mainly directed at himself and the Estates teams of which he had no knowledge and no ability to counteract them. There had then been further discussions of these allegations at a senior level within NHS Scotland and alluded to in newspaper articles without any recourse or evidence on which to comment or to refute.

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The meeting then explored what these allegations were and Dr Inkster was asked about them. Dr Inkster explained that the inspectors wished to explore culture and leadership. She was asked about concerns raised by colleagues in 2017 and about whether she felt supported by infection control , in addition to working relationships with estates colleagues. Dr Inkster detailed her conversation during which there had been a discussion around her assertion that estates colleagues did not commit issues or actions to paper and were not escalating issues. Dr Inkster had taken a reflective note of her interpretation of a conversation with Tom Steele about means of communication. Tom did not agree with Theresa's interpretation that he did not want to put important concerns in writing and stated his desire for honesty and transparency. He explained his reasoning for his response to Theresa that it is often more productive and constructive to have face to face discussion than multiple emails. His view was that it was important to document and detail agreements and be clear about the actions which are required. Tom had noted that in many of the IMTs this had not been a consistent process or a proactive one resulting in many actions being changed which had been very difficult. Dr Inkster explained that this was often the case in IMTs as hypotheses can change; infection control incidents tend to be evolving. Dr Inkster agreed to share her reflective notes with Tom Steele in order that he could review them and provide a response.

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It became very apparent both Teresa Inkster and Tom Steele were very keen to resolve the problems within the Queen Elizabeth & RHC together. Tom agreed with the establishment of the ventilation group which Teresa had suggested in order to address the various issues, not just within the Queen Elizabeth but across the sites. Tom was also keen to work with Theresa to develop dashboards and detail the operating characteristics of the hospital. Tom had asked for a prioritised list which they could jointly work on together.

Actions:-

It was agreed that there was a need for both parties to understand each other more fully and that both within Teresa Inkster and Tom Steele it would be far better for the organisation if they were to work together. To this end it was agreed that there should be one weekly meeting in the first instance with Tom Steele and his deputy together with Teresa Inkster and Sandra Devine to proactively set out all of the issues that are required to be dealt with. It would also send a good leadership message throughout the organisation to strengthen our culture and improve the working relationships at the top and as well as structures and processes.

It was also agreed that there should be joint prioritisation of the issues which were to be addressed and a methodical workplan to ensure that this happens.

Teresa Inkster would share the reflective note with Tom Steele in order to allow him to review it and determine his response. However, the key issue for the meeting was that there needed to be a productive, trusting and supportive working relationship between the Director of Estates and the Lead Infection Control Doctor for the organisation in order that they both work directly together to promote

patient safety. They both agreed that there would be no further action on either side and that this was a constructive meeting with a helpful way forward, both clarified there was no bullying culture to be addressed.

Inkster, Teresa

From: Bajwe, Ranjit
Sent: 05 June 2019 08:18
To: Inkster, Teresa
Cc: Steele, Tom; Armstrong, Jennifer
Subject: FW: meeting notes
Attachments: Note of Meeting of 14th revised.docx

Dear Teresa

Thank you for your comments on the meeting notes. I am sorry they took longer than I would have liked to be circulated. They were not meant to be a verbatim record of our discussion but to reflect our broad discussion and to record the agreed actions from our meeting. I can't remember the level of detail you have suggested as my record is Jennifer's hand-written notes. I have therefore tried to reflect your comments but in less detail. I hope that is acceptable.

At the meeting we agreed that:

- There should be weekly meetings with you, Tom and Sandra
- There should be joint prioritisation of the issues to be addressed
- You would share your reflective note with Tom.

Can you confirm that all of these have been actioned? Our aim is to ensure all matters are addressed in a prompt and sensitive way for both parties.

Thanks for your help

Best wishes

Linda

Prof Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde
Gartnavel Royal Hospital Campus |
1055 Great Western Road | GLASGOW G12 OXH
t[redacted], m[redacted] | e[redacted]
web: http://www.nhsggc.org.uk/publichealth

Note of Meeting of 14 March 2019

This meeting took place in the Teaching & Learning Centre, present included Dr Linda De Caestecker, Dr Jennifer Armstrong, Dr Teresa Inkster and Mr Tom Steele.

Dr De Caestecker opened the meeting setting out the key purposes in the background. Dr De Caestecker set out the recent events particularly around a series of Infection Control issues which had led to significant media attention and public concern around Estates & Infection Control. This had led to the Cabinet Secretary asking the HEI team to visit the Queen Elizabeth Campus and carry out a review of Infection Control. The report has highlighted a series of concerns around the relationship between Infection Control and Estates. Since this meeting had been arranged there had also been a media enquiry about allegations of bullying which had not been communicated internally. This meeting provided an opportunity to find out if this allegation was actually the case. The reason for the meeting was to provide a safe place to explore issues between Infection Control and Estates teams and also to ensure that solutions to the issues are developed with an ongoing plan to address them.

Dr De Caestecker invited Dr Inkster to highlight some of her concerns. Dr Inkster set out her concerns including:-

1. Infection control teams experienced poor information sharing with Estates staff and there was a need to improve working relationships with estates particularly on the QEUH site. Dr Inkster gave some specific examples around issues in 2017 which were encountered by colleagues when she was on sick leave as well as more recent examples when she has requested reports that have taken time to be shared or information not shared at all .

2. Dr Inkster's view that there needed to be additional cleaning of the vents and chill beams. Dr Inkster described her efforts to establish a ventilation group since commencing the lead ICD role and that she had not been able to progress a respiratory decontamination facility despite escalation. She also highlighted difficulties accessing validation reports for PPVL rooms and the importance of this type of information.

3. During the recent outbreaks there had been a need for timely information in order to address some of the concerns with full list of actions for clinicians. There was a need to speed up the flow of information for example reports on rebalancing ventilation systems which took several weeks to be shared and risk assessments of the water incident in 2015/17. Dr Inkster emphasised the importance of clinicians having confidence in estates teams and that IC and estates work closely together.

Tom Steele then described his experiences in taking over as Director of Facilities and Estates in October 2018. He set out that there had been issues with the cladding, the windows and indeed he had worked on the water issues around the Queen Elizabeth and RHC. Tom also set out some of the issues around Cowlairs and that it has been an extremely busy time in the months since he took over. Tom had been conscious that there was a need to maintain public confidence within the building and a need to address many of the challenges and to prioritise many areas for action. Tom was very keen to work effectively with Infection Control colleagues and to provide all of the information that was required and requested. Tom set out his belief that some of the Incident Management meetings had considerable numbers of people at them which made more focussed actions

and information sharing fairly difficult. Dr Inkster agreed with this stating that on occasion there had been multiple members of the estates/facilites teams present along with other staff groups. Tom stated that there was a need for further clarity of roles and responsibilities within the Estates team and this would take time to establish more fully. In addition, Tom highlighted the extensive media enquiries and focused attention together with multiple FOIs which he had been dealing along with all of the Estate issues. This had put significant pressure on many of the teams. Tom was also extremely distressed by some of the allegations which had appeared to have been made and mainly directed at himself and the Estates teams of which he had no knowledge and no ability to counteract them. There had then been further discussions of these allegations at a senior level within NHS Scotland and alluded to in newspaper articles without any recourse or evidence on which to comment or to refute.

The meeting then explored what these allegations were and Dr Inkster was asked about them. Dr Inkster explained that the inspectors wished to explore culture and leadership. She was asked about concerns raised by colleagues in 2017 and about whether she felt supported by infection control , in addition to working relationships with estates colleagues. Dr Inkster detailed her conversation during which there had been a discussion around her assertion that estates colleagues did not commit issues or actions to paper and were not escalating issues. Dr Inkster had taken a reflective note of her interpretation of a conversation with Tom Steele about means of communication. Tom did not agree with Theresa's interpretation that he did not want to put important concerns in writing and stated his desire for honesty and transparency. He explained his reasoning for his response to Theresa that it is often more productive and constructive to have face to face discussion than multiple emails. His view was that it was important to document and detail agreements and be clear about the actions which are required. Tom had noted that in many of the IMTs this had not been a consistent process or a proactive one resulting in many actions being changed which had been very difficult. Dr Inkster explained that this was often the case in IMTs as hypotheses can change, infection control incidents tend to be evolving. Dr Inkster agreed to share her reflective notes with Tom Steele in order that he could review them and provide a response.

It became very apparent both Teresa Inkster and Tom Steele were very keen to resolve the problems within the Queen Elizabeth & RHC together. Tom agreed with the establishment of the ventilation group which Teresa had suggested in order to address the various issues, not just within the Queen Elizabeth but across the sites. Tom was also keen to work with Theresa to develop dashboards and detail the operating characteristics of the hospital. Tom had asked for a prioritised list which they could jointly work on together.

Actions:-

- It was agreed that there was a need for both parties to understand each other more fully and that both within Teresa Inkster and Tom Steele it would be far better for the organisation if they were to work together. To this end it was agreed that there should be one weekly meeting in the first instance with Tom Steele and his deputy together with Teresa Inkster and Sandra Devine to proactively set out all of the issues that are required to be dealt with. It would also send a good leadership message throughout the organisation to strengthen our culture and improve the working relationships at the top and as well as structures and processes.

- It was also agreed that there should be joint prioritisation of the issues which were to be addressed and a methodical workplan to ensure that this happens.

- Teresa Inkster would share the reflective note with Tom Steele in order to allow him to review it and determine his response.

However, the key issue for the meeting was that there needed to be a productive, trusting and supportive working relationship between the Director of Estates and the Lead Infection Control Doctor in order that they both work directly together to promote patient safety. There had been the opportunity for both Tom Steele and Teresa Inkster to raise any concerns about bullying and these had not been identified between them. They both agreed that there would be no further action on either side and that this was a constructive meeting with a helpful way forward.

FW: meeting notes

Inkster, Teresa [redacted]

Thu 23/07/2020 16:40

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

From: Steele, Tom
Sent: 18 June 2019 20:52
To: Inkster, Teresa [redacted]
Cc: Bajwe, Ranjit [redacted]; Armstrong, Jennifer [redacted]
Subject: Re: meeting notes

Teresa, thanks for the email and also the personal note. I will need to take time to consider both as I do not recognise the tone, fact or sentiment of either.

I believe that the estates teams are doing their best under intense pressure and scrutiny and that this is considerably better than in the recent past about engagement across all clinical areas.

I will raise your email content as a matter of urgency with the operational and capital teams.

In regards to the negative pressure rooms, you may recall the reason for incomplete reports in some cases was due to the room being put back into use without our knowledge or sign off, you personally were sighted on this, but perhaps not the consequences on the final report.

Regards, Tom

Sent from my iPhone

On 18 Jun 2019, at 16:34, Inkster, Teresa [redacted] wrote:

> Hi Linda,
>
> I can confirm that weekly meetings have been taking place and that there has been prioritisation of issues. However there are still problems with flow of information and process , examples below;
>
> -I continue to request validation reports for critical ventilation systems and whilst I have some of these now I am still missing those for the PPVL rooms in QEUH
> - the process around the 2A upgrade is unclear. Meetings have been held without IC present and plans have only been agreed in principle via email. This is despite the guidance in SHFN 30 and also the local agreement re IC input into new builds and refurbs. There has been no meetings involving all parties including clinicians although I believe Jamie Redfern is now taking this forward
> - negative pressure room upgrades ; there was pressure to sign off quickly but the validation reports were incomplete with significant ommission re hepa filter checks
> - the ventilation group has met but the remit seemed to only be PPVL rooms . I have requested all critical ventilation systems be discussed at this group. The governance of this group is not clear and I don't know who it reports to
> - the proposed built environment group has not yet met
> -ICE theatres, I was told yesterday that the board and HFS will sign off validation reports, I am not clear what the role of the ICD is in the process.

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Dr Christine Peters

[redacted]

21 March 2019

Dear Jeanne,

Thank you for your letter dated 13 March 2019 and for your time taken to consider and respond to my correspondence with you regarding infection control and the built environment in Glasgow.

It is excellent that there is a review into the design, commissioning and maintenance of the QEUH and that chairs have been appointed and I appreciate the advice regarding submission. I will write to Elizabeth Burgess to confirm that I am content for my correspondence to be forwarded in confidence to the review committee.

I also thank you for your advice regarding current concerns that my colleague has and I have advised her of the possibility of meeting with Professor Fiona McQueen , as you have helpfully suggested. If that is something she feels she would like to take up she will follow up with your officials.

With regard to the whistleblowing service - I have availed myself of the service on a number of occasions over the past few years, as well as taking GMC, MDDUS and BMA advice and unfortunately have not found it useful in directing me to the most appropriate course of action. It is more of a listening service than a route to alert appropriate bodies of serious failings or patient safety concerns. The real nub of today's problem is that when the normal systems like line management fail, what should a doctor do to protect patients? Certainly a press bonanza does more harm than good in my opinion, and should be avoided as much as possible by having rigorous and transparent governance.

I eagerly anticipate the review and trust that this will be a learning opportunity for NHS Scotland , and I thank you for ensuring that this learning opportunity has not been missed.

Kind regards,

Christine Peters

HEALTH AND SPORT COMMITTEE

HEALTH HAZARDS IN THE HEALTHCARE ENVIRONMENT

SUBMISSION FROM [redacted]

What is the scale of health problems acquired from the healthcare environment in Scotland?

I am not aware of any current system of data collection which would answer this crucial question, therefore I think the answer is “unknown” . However, based on experience and anecdotal evidence from peers it is my view that there is a significant, as yet unquantified, contribution of the environment to HAI rates in Scottish hospitals. Examples of outbreaks where the healthcare environment in Scotland has been *implicated* (not always *proven)* as a source or route of transmission include:

- Serratia
- Pseudomonas
- Non Tuberculous Mycobacterium species
- Aspergillus species
- Acinetobacter
- ESBLS
- Environmental gram positive and gram negative bacteraemia linked to water contamination
- Surgical site infections

In order to get a rapid idea of the burden of environmental outbreaks it may be possible to glean information from data already gathered - eg assess the reports to HPS of healthcare associated infection incidents which are graded green, amber, red to identify the cases that are deemed to have had an environmental element in the route of transmission. Numbers of cases and clinical impact could be quantified and reported. This would unfortunately miss cases that are not identified as part of an outbreak or “incident”, and the detection of an outbreak relies on a high level of awareness of the importance of the environment as a reservoir by IPCTs and Estates teams; eg serratia and enterobacter may be mistaken as normal flora when they are also environmental organisms.

Unfortunately the nature of environmental source outbreaks is that they can rapidly cause infection to large numbers of patients (eg legionella) and therefore “steady state” statistics are not in themselves reassuring.

Evidence of compliance of the current NHS estate with standards that are already embedded in SHTMs and SHBN documents would be required for assurance that the

healthcare environment is being built and maintained for reduction of infection risk. To my knowledge this is not readily available or systematically collected or reviewed nationally. There is a perceived difficulty in applying the building standards as there are different iterations with updates every few years. In my experience there are misconceptions that standards have radically changed and old estate is not expected to meet new standards. In terms of theatres for example the core parameters of pressure differentials, air exchange rates and clean to dirty air flow have remained static in guidance for many years, while it is true that the size and volumes of air have changed to accommodate ever more complex procedures and increased sizes of surgical teams. Therefore the idea that old theatres do not require to meet current standards needs careful appraisal. In these circumstances it is absolutely critical that there is a clear understanding of public expectations with regard to risk mitigation in both old estate and upgrades, as well as new builds.

• **What/where are the main risks?**

Risk by Patient factors
It is important to note that patients have different levels of risk of infections based on immune status, procedures carried out, and medication, eg steroids and antibiotic use. Therefore different patients exposed to an identical environment will have different outcomes. Furthermore, minor changes to a stable environment can have large consequences depending on the setting. For example, pseudomonas colonisation of a tap in a standard ward may not cause immediate problems; however, pseudomonas at even low levels in a NICU tap could have rapid and serious consequences. Therefore strategies for prevention require a nuanced approach to risk and intervention - a purely guidelines based approach will not be sufficient for every setting. Efforts to mitigate risk should therefore be proportionate and directed to the patient specific risk status.

Main at risk patient groups requiring extra attention to risk management of the environment:

- Neutropenic and other immune suppressed states, can be stratified into very high, high and low risk groups
- Neonates
- Burns patients
- CF patients
- ITU
- Solid organ transplants
- All patients at time of surgery, especially “clean” procedures such as joint replacement

In addition patients can themselves present a risk of infection to others eg infectious TB, and the role in the environment in this setting is to prevent onward spread.

In order to understand the level of protection offered to these patient groups in NHS Scotland, evidence is required regarding patient placement policies and standards of environment for all these groups as well as audit data on infection rates in these particular patient groups.

Risks of Environmental Routes of transmission

Airborne infections

Ventilation Systems

There are very well established parameters for ventilation in the health care environment that have been in place for decades. These cover all areas of the hospital and the most relevant areas are those where contaminated air causes significant risk of infection, which is mitigated by the provision of specialist ventilation:

- Theatres, including minor procedures and ultra clean technology
- Source isolation for infectious patients (requiring negative pressure rooms, and increased Air exchange rates)
- Protective isolation for immune compromised patients (requiring positive pressure rooms, HEPA filtration and increase Air exchange rates)
- NICU, ITU,
- Endoscopy suites
- Burns units
- Treatment rooms
- Clean rooms
- Decontamination suites
- Aseptic pharmacy
- Laboratories

Any derogation from SHTM/SHBN standards has the potential to increase the risk of infection acquisition and should be documented with rationale for the derogation.

In addition there are regional type services that have no UK Building standards, but which need specialist planning and design, using international guidance and evidence based data and first principles: infectious diseases units, bone marrow transplant units, and CF units. This requires a multi-disciplinary team of experts, and Infection Control should be central to this as already outlined.

Any breakdown in the design, commissioning or validation process poses a risk that the environment does not meet standards and therefore increases the risk of airborne infections.

Building works

Building work on a hospital premise is known to pose a risk of airborne fungal infections. The HAISCRIBE process which has been in place since 2007, is a critical tool for minimising risk of infections due to building work in the health care environment. There is anecdotal evidence that this process has been inconsistently applied and therefore this remains a priority area for monitoring and should be recognised as a patient safety issue.

Waterborne infections

Standards exist for water system commissioning, maintenance and microbiological testing, especially focussed on Legionella and pseudomonas. However, many organisms can

contaminate and colonise water systems and the component parts eg taps and shower heads and piping especially if there is any stagnation, certain pipe materials are used, or if there is a contamination event due to a breach in the system.There is a body of scientific literature that can be referred to that documents the role of water system associated HAIs Any breakdown in the design, commissioning and maintenance of these complex systems will increase risks of waterborne infections.

Physical accommodation
A key to reducing infection in hospital is to have a clean and clean-able environment. The drive to “design out” infection has been ongoing for many years. Therefore choices of furnishings, fittings and materials are all crucial for minimising infection risk and a wealth of advice is readily available. Any lack of maintenance or cleaning will also increase risk. When the monitoring and management of cleanliness and the state of the environment is entirely segregated from infection control input, there is potential for risks to arise and remain unidentified.

• Are the current systems and processes in Scotland adequate for monitoring, reporting, eliminating or controlling these hazards?

My view is that the systems are NOT currently adequate, however there are resource implications for any planned measures for improvements.

Monitoring
As described there is no current system which will adequately determine epidemiology of environmental infections as a cohesive entity.

There is inconsistency in the implementation of Scottish Health Building standards and no systematic monitoring.

Possible ways to address this gap are

1. Monitoring rates of HAIs acquired from the environment.

A specific surveillance system is unlikely to be practical given that this would require every HAI to be assessed for a contributory role of the environment in transmission with clear definitions and a whole system of surveillance targeted specifically to these infections. Current surveillance targets only *C difficile*, MRSA , SABS, and *E coli* bacteraemias, and is already resource intensive. Furthermore there are complexities in setting up specific surveillance for environmentally acquired infections :

- Novel outbreaks occur and previously set up alerts will not detect them (note the recent additions to the “alert organisms” lists over past few years), initial detection often relies on alert Microbiology and infection control practitioners, as well as clinical staff, and this is not always acknowledged
- Point prevalence studies do not capture infection burden of outbreaks which are by nature episodic.

- Organisms that can be environmentally acquired can also have other routes of transmission, eg *Enterobacter sp,* and so surveillance cannot be simply organism based (indeed C diff and MRSA both have environmental components to routes of transmission)
- Proof of an outbreak source is rare in terms of matching organism typing results of clinical isolates to environmental isolates, especially for gram negative organisms. The weight of proof required in order to initiate interventions is very different from that used for research purposes in which a pre conceived hypothesis is tested and predetermined data gathered. The concept of a balance of probabilities, as well as the precautionary principle, need to be invoked in order to have effective infection prevention interventions in a timely manner.
- HAI may not present until after discharge from hospital, especially when duration of admissions is shortening, therefore point prevalence studies of inpatients will miss cases

A pragmatic monitoring system would rely on empowered local teams having good knowledge and expertise and being listened to particularly with regard to novel situations , along with HPS assessment of all reports for possible environmental sources.

2. Targeted assessment of NHS Estate with regard to compliance with Building standards and maintenance

This would be a surrogate measure for the level of risk in hospitals posed by the environment, and would have the benefit of identifying areas of actions for risk mitigation . For example ventilation and water quality are not addressed in the HAI standards, but are critical in preventing infections. Examples of numerics that could be utilised:

- Number of theatres with validation fails, and tabulated key parameters such as ACH, pressure differentials and notes on layouts of theatres being publicly reported.
- Percentages of theatres out with validation timeframe
- Percentage Planned Programmed maintenance schedule being met
- Number of negative pressure rooms available and numbers of fails in pressure differentials and reasons for fails
- Number of sewage leaks into healthcare environment, number of closures of theatres due to environmental issues,
- Number of capital projects opening without IPCT sign off, or delayed opening due to IC related concerns
- Numbers of HAISCRIBES carried out in hospitals and evidence of IPCT sign off
- Number of taps with TMVs and statistics on the maintenance programmes for these

Records of areas requiring specialist ventilation and water supplies could be examined and audit-able data presented to support a view that these are built and maintained to

standards (eg Bone marrow transplant, renal transplant, renal dialysis units, ITU, neonatal units, treatment rooms, endoscopy suites)

It should be noted that the importance of the environment design, ventilation and water standards are not new concepts, on the contrary these are very well established in literature and building standards. The current challenge is moving towards an embedded and audit-able system of governance to implement and monitor these standards.

Reporting

Mandatory reporting of outbreaks is well embedded in Scotland. However formal lessons learned and sharing of the reports is less well established.

A formal system to report building issues prior to outbreaks occurring (which would be in the spirit of prevention being better than cure) is non-existent or at least, not obvious.

In my experience there are barriers to the reporting of environmental issues that need to be addressed, lack of clarity regarding the most appropriate reporting route (HIS/HPS/HFS/SG), fears regarding publicity, financial implications of remediation, highly politicised context, and staff uncertainty that these issues pose real patient safety risks.

Eliminating/Controlling

While absolute elimination of infection risk is unlikely, there is increasing evidence that key interventions, good leadership and cultural changes can dramatically alter the rates of HAI, as NHS Scotland and UK wide data have already proved with MRSA and C diff. At the peak of these infections only a decade ago, the idea that we would see the 80% or so reductions seemed laughable. The repeated lesson in infection control is that levels of reduction are often determined by level of prioritisation and co-ordination of effort.

With regard to the environment in hospitals there is already a body of evidence regarding good practice and NHS Scotland has already invested in the production of excellent building standards and HAISCRIBE documents which has included HFS led training days in different health Boards. This excellent work needs to be consolidated and progressed to ensure patients benefit from the investment.

The importance of infection and outbreak prevention is becoming even more critical in the current age of extreme antibiotic resistance. As antibiotics run out, any breakdown in infection control will have potentially catastrophic consequences and investment in controlling these risks can be viewed as a corner stone to any strategy to fight antimicrobial resistance.

My view that there is much room for improvement in the current approach to managing risks posed by the healthcare environment is based observations including:

1. Time lag for implementation of good practice - eg TMV taps have been a known risk with warnings internationally post Belfast pseudomonas NICU outbreak in 2012, yet have been installed in new hospitals after this date including high risk areas
2. Resource implications used as a counter argument for control measures being implemented. In the age of realistic medicine, it is crucial that there are open discussions

regarding which standards are basic enough to merit uncompromising enforcement, and which, if any, can be considered desirable but not necessary. Patient and public voice is critical in this.
3. Lack of planning for cost of implementing standards, Eg the cost of putting negative pressure in place as part of an HAI scribe should be detailed as a cost by contractors at the initial stages
4. Lack of clearly defined roles for members of IPCT, Public health, and Estates and HPS and HFS in managing and advising on these issues. Note: ICD job descriptions not nationally agreed to date, although this has been the subject of much discussion
5. Lack of timetabling of IPCT involvement in capital and estates projects,
6. Cleaning methodologies need rigorously monitored with regard to the details of the evidence for the methodology and the realities of the implementation,
7. Building validation is not comprehensive: eg PPVL isolation rooms require all the detailed parameters to be correct - not a pick and mix approach .The analogy a ventilation engineer once told me was if you got a car with a wheel missing, its not going to do the job is it?
8. The disbanding of the ICNETWORK a few years ago fragmented the Scottish IC community and that useful level of peer review, networking and discussion was not replaced with an alternative as was anticipated.

Conclusion

It should be noted that these issues are certainly not unique to NHS Scotland, however by building on the IPC infrastructure already in place we have an opportunity to excel in this area of patient safety and harm reduction by developing a national approach to this issue. An approach that puts prevention at the heart of policy could seek to quantify basic parameters regarding the Scottish healthcare estate in order to drive improvements and reduce the risk of outbreaks as well as sporadic infections.

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Building Note 00-09: Infection control in the built environment

CEL 18 (2007) 13 December 2007 : HEALTHCARE ASSOCIATED INFECTION:SHFN 30 AND HAI-SCRIBE IMPLEMENTATION STRATEGY

Health Building Note 00-01: General design guidance for healthcare buildings

SHPN 04: Supplement 1: Isolation Facilities in Acute Settings

Scottish Health Technical Memorandum 03-01:Ventilation for Healthcare premises

Scottish Health Technical Memorandum 04-01 Part A Water safety for healthcare premises.

SHFN 30 Part B: HAI-SCRIBE Implementation strategy

HEALTH AND SPORT COMMITTEE

HEALTH HAZARDS IN THE HEALTHCARE ENVIRONMENT

SUBMISSION FROM [redacted]

What is the scale of health problems acquired from the healthcare environment in Scotland?

What and where are the main risks?

A. Water

The **water supply** can become contaminated due to biofilm formation on plumbing components including pipe work and taps; this is compounded by inadequate maintenance of outlets, drainage issues, failure to adequately commission the water supply and lack of chemical dosing and control measures from the outset.[1-4]

Water coolers in hospitals– these include both mains and stand alone coolers; coolers represent 'dead legs' in a system. They are not regularly cleaned and maintenance is poor. They can serve as a source of contamination to a water system.[5]

Little used outlets – there are too many sinks and showers unused by patients; this leads to inadequate flushing and quickly encourages contamination, chiefly with Legionella and Gram-negative organisms.[6]

Other water sources - dishwashers, need regular cleaning and maintenance and consideration given to inline filters; ice machines also present a risk.[7]

Taps

The design of taps in hospitals has become exceedingly complex and the array of different components is conducive to biofilm formation and retrograde contamination of the water supply.[8] In particular, flow straighteners inserted to direct flow and minimise splash cannot be decontaminated properly and offer a hidden reservoir for biofilm. IPCT involvement in tap selection is crucial, as is regular maintenance, replacement and a cleaning/disinfection regimen. Flow straighteners are associated with Pseudomonas and Stenotrophomonas infections in nearby ventilated patients.[9] The link between tap components and Pseudomonas was known as far back as 1966.[10]

Bathrooms

Bathrooms are a recognised source of mould.[11] Materials need to be water resistant, e.g. gyproc, paint and finishes need to be of sufficient quality to be able to repel repeated moisture, stagnation and erosion. Shower curtains or partitions require constant attention. Daily cleaning and decontamination is required for patient, staff and visitor facilities, with additional spot checks and a monitoring (and feedback) system in place.

Sinks and drains

Sinks and drains need to confirm to a design which minimises the risk of water splash for patients and surrounding environment.[12-14] There is evidence detailing transmission of Gram-negative organisms from these sources during, and after, use by staff, visitors and patients. This is especially likely with biofilm build-up in tap filters and sink traps.

Drains should contain non-corrosive materials which will discourage biofilm formation and should be cleaned regularly. It is not sufficient to irrigate with disinfectants since even the most powerful agents may fail to penetrate mature biofilm. There is also a risk that environmental organisms can develop tolerance to disinfectants on repeated exposure.

Sink hygiene is very important; staff should not decant anything down clinical hand wash basins and en-suite sinks as this similarly encourages biofilm formation. Emptying liquid waste down hand wash sinks is directly related to sluice access and inadequate education. Patient sinks should be kept free from clutter such as cosmetics and beauty products; this is specifically because these impede adequate cleaning.

Water damage/plumbing

There seems to be a general lack of understanding of the significance of water damage in the health care setting. The following have occurred at hospitals in which the authors have worked:

- Recurrent sewage leaks from plumbing in operating theatre and ward areas. This necessitated removal of water damaged mouldy material from the ceiling space above operating theatres.
- Removal and repair of a wall in the critical care unit as a result of a leaking dialysis point with extensive mould affecting the wall. This was in relation to (plumbing) connections not being adequately tightened.
- Removal of similar mould in the outpatient renal dialysis unit for the same reason.
- Poor plumbing design – there is a large drainage pipe with a horizontal bend situated above the first floor of a hospital. This was blocked by paper towels and leakage affected the staff canteen and main entrance, including various food outlets. This represents poor design strategy since high risk pipe work should always be diverted away from public and patient areas.
- A decontamination unit suffered mould on the ceiling void due to ingress of rainwater. Again, pipe work should be placed away from high-risk areas. A stoppage at this unit affected surgical services across the health board and further afield.
- Mould in a cardiac ward due to rainwater ingress from inadequately sealed windows and a flat roof design.

B. Ventilation systems

General comments

Inadequate ventilation systems have been installed in new build hospitals; these are not fit for purpose for the specialist patient groups they are intended for, e.g. bone marrow transplant and haematology wards.[15-17] The systems did not supply sufficient air changes, pressures and HEPA filtration. Staff are not trained to be able to adjust settings in facilities with different air delivery systems.

There is a lack of negative pressure room facilities to reduce the risk of airborne transmission from isolated patients with potential to spread to other patients. This does not just apply to Infectious disease units. All large acute sites should have sufficient negative pressure facilities. A&E departments cannot choose presenting patients and patients cannot choose their infections. This means that every hospital should be able to safely isolate patients with TB, meningococcal meningitis, exotic respiratory infections (e.g. SARS; MERS), etc. The lack of these facilities was immediately apparent when Scotland hosted an unexpected case of viral haemorrhagic fever three years ago.

Likewise, the adoption of positive pressure ventilation rooms (PPVL) room design throughout a number of Scottish hospitals is inadequate to protect isolated immunosuppressed and/or vulnerable patients against airborne contamination from both inside the unit and outside the hospital, e.g. other patients; building and renovation.

Thermal wheel technology

Thermal wheel technology, whilst energy efficient, may lead to mixing of clean and dirty air, undesirable in a healthcare setting, and especially at sites where immunocompromised patients are present.

Chilled beam technology

Chilled beam technology is hailed as energy efficient but the system reduces air changes in patient rooms to <3/hour. This increases the risk from aerosol generating procedures since fewer air changes impede the dilution of microbial contamination. Furthermore, chilled beams drip condensation directly onto patients and beds. They also collect significant levels of dust and are physically difficult to access, making cleaning impossible by domestic staff. Cleaning cannot be undertaken while there is a patient present in the room.[18]

Vents

Air vents, similarly, can be very difficult to clean particularly in ICU settings.[16] These gather dust rapidly and annual cleaning regimens are far from sufficient. Dust quickly builds up within 3 months. Clinical ward staff, domestics and estates need to coordinate services in order to introduce and embed a planned programme of cleaning and maintenance of all air vents, internal and external filters, and air ducts adjacent to clinical and non-clinical areas.

Building work

There is a constant stream of external building and repair work ongoing. This is rarely, if ever, discussed or signed off by infection control staff.[19] External building work and internal repairs can lead to generation of dust and release of fungal spores. This may necessitate re-routing of high-risk patients and administration of antifungal prophylaxis.

C. Cleaning

Current cleaning in one hospital conforms to a dynamic risk assessment for the first 3 days of a patient stay, i.e. if room appears visually clean, then cleaning is not carried out on that day. This is completely unacceptable. Visual monitoring cannot accurately gauge microbial dirt including pathogens.[20] Virtually all hospitals in the Western hemisphere, and further afield, clean patient rooms or bed spaces at least once per day.[21,22] Following recent clusters of environmentally associated HAIs it was decided to clean 'high risk' areas daily. However, once daily cleaning of frequently touched bedside sites should be done every day for **all** patients, not just those who are particularly vulnerable or where there have been infection incidents.

The current microfibre mop system for the same hospital appears to be ineffective since floors remain dirty; the mops lift the dust but then re-disperse it elsewhere.[23] The results from environmental sampling suggests that domestics have not been adequately trained in how to use mops or wipes, specifically, the 'one wipe; one site; one direction' system or frequency of use and/or management of cleaning fluids and disinfectants, as laid down by HPS decontamination guidelines.[24]

Hospitals require adequate domestic resources.[21] Cutting or failing to maintain the domestic work force increases the risk of HAI for patients, staff and visitors. It is also a highly contentious issue for patients and their visitors who will quickly comment on untidy and/or dirty healthcare wards.[25] High-risk units require extra cleaning hours and it is important that domestics work closely with ward staff and are included as part of the team. Moving domestic personnel around destroys ownership and erodes motivation.[20]

Plant rooms

Plant rooms at one hospital have become infested with pigeons and cockroaches. These areas accommodate the water and ventilation systems that serve the entire hospital and ultimately reach all patients, staff and visitors. They may not be deemed 'clinical' areas or 'high-risk' but they should still be kept clean and free from vermin, insects, etc. [25] No one seems to have been designated responsible for cleaning and/or monitoring these areas.

Pest control

Bird control is very important particularly where there are bone marrow transplant and other seriously immunocompromised patients. European haematology guidance recommends no birds should be nesting close to these units. The risks from pigeons and their droppings were documented over 50 years ago and there exist known strategies to protect buildings from roosting birds.[25]

Outcome of stated risks

Specific incidents associated with environmental deficiencies are listed beneath. This list is not exhaustive, and other examples can be given;

1) Occurrence of a large outbreak of *Serratia marcesens* (environmental Gram-negative bacillus) in the neonatal intensive care unit in part related to inadequate cleaning of the environment. Eventually the outbreak terminated following the use of hydrogen peroxide vapour;
2) A large and significant water incident resulting in paediatric patients developing Gram-negative bacteraemias. The contaminated water system likely relates to a combination of contaminated outlets and pipework, problems at the time of commissioning and lack of ongoing maintenance;
3) A significant incident with paediatric patients developing bacteraemias linked to drains and backflow into sinks;
4) Increased incidence of a fungus (Exophiala dermatidis) as a result of contaminated dishwashers and mould in showers;
5) Mucoraceous mould in intensive care patients, likely to be related to a leaking dialysis point;
6) Two cases of hospital acquired Cryptococcus relating to a pigeon infestation; this is undergoing investigation;
7) Colonisation of intensive care patients with the fungus Aspergillus and a source of water damage and mould traced to the ceiling void. The intensive care unit had to be closed for a number of weeks to facilitate safe removal and repair;
8) Colonisation of surgical patients with Aspergillus due to nearby construction work where there had been failure to implement HAI scribe and appropriate infection control measures;
9) Outbreak of Vancomycin resistant enterococci (VRE) in a renal unit related to unit design, patient flow and environmental contamination. Rates of VRE acquisition fell following a move to a new unit with single rooms;
10) Widespread contamination of a water system with Legionella pneumophila due to inadequate flushing of a ward that had been vacated and was unoccupied. This required installation of a chlorine dioxide system to provide control.

Are the current systems and processes in Scotland adequate for monitoring, reporting, eliminating or controlling these hazards?

Current systems and processes in Scotland are inadequate for managing environmental hazards; this is essentially because infection control personnel are either sidelined during design planning or advice is circumvented due to ignorance, time and resource implications. The basis of all healthcare environmental new builds should incorporate advice and comments from experienced infection prevention staff.

It is vital that infection control teams are involved from the outset at the time of planning with the architects and design team. A lot of these issues detailed above could have been ameliorated if appropriate staff had been involved at the very beginning.

It appears that the design brief for a new hospital is ‘innovation’. The design brief for another is ‘energy efficiency’. Quite simply, the design brief for any hospital needs to be ‘patient safety’ whether or not there is an ornamental pond or multiple restaurants.

For environmental incidents often patients are the ‘samplers’ and staff react to patient infections. There are robust infection control surveillance systems which will detect infections and alert organisms. The reporting structure is via the HIIAT process (as per the HPS national manual) to Health Protection Scotland (HPS) and the Scottish Government (SG) via submission of a HIIORT report.

This monitoring is designed for microbiologists and infection control teams, not estates personnel. Environmental incidents tend to be related to the estate/facility and control measures usually involve these aspects. Whilst there are clear reporting and governance structures for infection control teams, there is a paucity of governance for estates and facilities departments. There is a need to ensure all appropriate actions have been undertaken, in a timely fashion and that assurances and resources for continued maintenance are given for future prevention.

Infection prevention is a thankless task. It only becomes important once an outbreak or infection incident has hit the headlines. It is also difficult to cost because you cannot cost an outbreak or infection incident that does not happen.

Conclusion

Urgent action is required to ameliorate inadequate planning and design of the infrastructure of a hospital. Basic functions such as plumbing, ventilation and cleaning are fundamental for the safe and efficient working of all healthcare environments. There is plenty of evidence and guidance for appropriate installation, maintenance, decontamination and monitoring of all of these, so there is concern that recent new builds appear to have defaulted on vital systems. Indeed, it is likely that there are many hospitals in Scotland with these issues. The environment – air, water and surfaces- is a huge repository for potential pathogens, and with increasing concern over pan-resistance, this threat cannot be easily dismissed. The solutions lie with estates and domestic service managers in setting out a structural framework for checking, maintaining, monitoring, providing feedback and engaging with infection control. Close working between estates and infection control is imperative and the concept of prevention has to be embedded in routine protocol.

There is a danger that healthcare bosses introduce expensive novel cleaning technologies such as automated hydrogen peroxide and ultraviolet light robots. Such systems are seen to be particularly useful for high-risk units and resistant organisms such as carbapenemase-producing enterobacteriaceae (CPE) and other resistant Gram negatives such as *Acinetobacter* spp..These organisms, along with *Clostridium difficile* and vancomycin-resistant enterococci (VRE) are known to survive well in the environment.[21,26] However, sufficient, adequately trained and monitored domestic staff can be just as effective using detergent wipes and bleach for targeted sites at the correct frequencies. Why should costly automated devices be introduced to ‘sterilise’ surfaces at risk of immediate recontamination from underlying problems with cleaning, ventilation and water outlets? Should we not try to sort out basic systems first, and then model the cleaning to clinical areas? It is not cost–effective to paper over the cracks in basic infrastructural deficiencies by use of powerful decontamination technologies. It is like pouring expensive disinfectant down a toilet without

cleaning it first. These agents affect the environment in ways that we are only just beginning to understand.[27]

While management of water and air require urgent attention, cleaning remains the 'Cinderella' of infection control. As Florence Nightingale once said, 'Wet dirt is dangerous'; how right she was.[28]

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SBAR Report for Cryptococcus IMT
Ventilation and *Cryptococcus*
Dr Christine Peters

Situation

Two cases of hospital acquired *Cryptococcus neoformans* have occurred in immune compromised patients at the QEUH. Pigeons and associated guano have been found in all plant rooms supplying ventilation to QEUH. An IMT investigation required details regarding plausibility of Cryptococcus contaminating the ventilation system.

Background

Organism
Cryptococcus neoformans is a yeast type fungus that is found globally in soil and pigeon (and other bird) guano in high densities. Pigeon guano also harbours a number of other potentially pathogenic fungi including Candida , Aspergillus and Mucor species.

For the purposes of this investigation the key characteristics of *Cryptococcus neoformans* are:

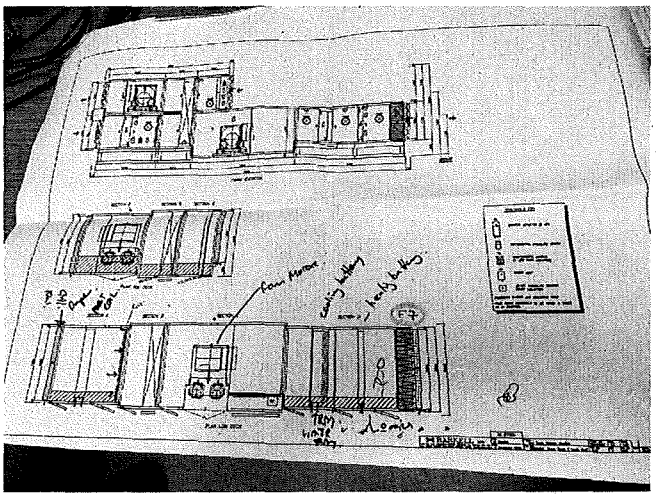
1. Infectious Particle size : various studies indicate 1-5 microns, basidiospores or desiccated yeast cells, can be airborne nuclei depending on life cycle stage and morphic form of organism as well as environmental factors such as temperature, humidity and air currents. Particles as small as 0.6 have been shown to be infectious.
2. Infectious dose: unknown, may depend on type of exposure eg yeast forms versus spores, sub species and host factors
3. Route of infection: usually inhaled into alveolar space, reports of inoculation with localised soft tissue infection
4. Incubation period: unknown , variable depending on exposure and susceptibility of host, up to months, latent infections also described
5. Disease spectrum: asymptomatic, mild pneumonitis through to fatal sepsis with pneumonia and meningitis. Severity related to underlying immune status, although severe infections also reported in immune competent exposed to high levels of guano contamination
6. Survival in environment: varies depending on water and nutrients can be months on pigeon guano which is the ideal nutritional environmental niche
7. Susceptibility to disinfectants: 0.5% chlorhexidine is fungicidal
8. Laboratory detection: grows within 24-48 hours at 37 C degrees on SAB agar. Appearance is similar to other yeast species and unless further ID test are carried out may be labelled as "yeast species" eg on air sampling plates
9. Hazard Group 2 organism
10. although most cases occur due to environmental exposure, HAI outbreaks have been described

Ventilation
The QEUH is an entirely mechanically ventilated building with plant rooms on the 12th floor covering four separate but interconnected wings which house Air Handling Units (AHU) that supply wards in the wings below to the 4th level.

Assessment

A walk around was undertaken on 18/01/19 with Dr T Inkster (lead ICD) and Colin Purdon (Estates) to inspect an AHU to answer queries from Peter Hoffman and to exam the possible routes of transmission of Crypotococcus from plant room to patient rooms. There after Dr Peters had a telephone call with Peter Hoffman (PHE) to discuss the findings.

1.Assessment of possible Route of transmission via ventilation system and ducting:
Diagram of AHU



External fresh air enters the AHU via ducting from area below helipad to plant room. These ducts have panels which can be opened for visualisation and maintenance.

Extract ducts and AHU sit on top of supply ducting and AHU. This is critical to the design as thermal wheels are used for energy efficiency of temperature control. These can theoretically provide an opportunity for dirty extract air to mix with clean supply air. The use of thermal wheels is approved in SHTM 03 however potentially pose difficulties when specialised ventilation is required for extract from infectious patients (eg VHF, MERS, measles, chicken pox and TB) and supply for immune compromised patients (BMT, transplant, HIV and others) and have not been specifically approved for such specialised ventilation systems.

Full details of AHU numbers and exact wards they supply are not available at this time.

Route of Supply air taken for external high level clean fresh air (photos below)

1. grill

2. frost coil
3. G4 filter – external pressure gauge present - changed when pressure reaches >100 (? Need to check maintenance schedules)
4. thermal wheel
5. Fan
6. cooling battery (with associated condensate trap)
7. heating battery
8. F7 filter – external pressure gauge present

There are 7 doors in the AHU to allow access for filter changes and maintenance, which involves personnel going from plant room into the inside of the AHU to carry out necessary filter changes. These cannot be opened when AHU is switched on and so while photos were taken through a window, this does not allow for full visualisation of potential gaps round filters.

9. Ducting to rooms
10. supply cooler beam at point of supply to bedroom
11. grill to bedroom
12. air entrained through cooler beam and grill

Potential for Cryptococcus and other airborne fungi to contaminate ventilation:

1. External air inlet: if there is roosting or guano contamination at the inlet this could lead to variable and wind dependant ingress of large numbers of spores. This could not be visualised but this needs to be done.

2. guano has been present in the plant room over at least a number of weeks (photos below) with reports of pigeons nesting in one area. Cryptococcus , along with other fungi can become airborne particles in dry settings when droppings are disturbed and could enter the AHU either on feet of personnel during filter changes, or via air when the access doors to the AHU are opened.

3. The F7 filter is at the terminal end of the supply AHU, so all air entering the ducting should go through this. It is impossible at this stage to determine if there are, or ever have been gaps to allow bypass of F7. Pressure records may indicate bypass, however normal pressures would not exclude this.

4. While F7 filter efficacy for 1 micron particles is 88%, HEPAs afford 100% for this range of particle size and are required for fungal airborne protection for severely immune compromised patients. There is evidence that naturally occurring infectious particles of Cryptococcus can be in the order of 1 micro and below. Numbers of particles getting through a filter will depend on the level of pre-filter contamination. As the infectious dose is not well described in this patient group the number needed to penetrate the filter to cause infection is not possible categorically determine. The infectious dose will also vary with patient susceptibility. Note those infected were severely immune compromised. While F7 filters will give considerable protection (only if installed correctly), this may not be to an adequate level for immune

compromised patients. The principle of HEPA filtration for airborne isolation of immune compromised patients is the nearly 100% elimination of fungal spores in the supplied air as per SHTM neutropenic accommodation guidance.

5. The air in the AHU will be at negative pressure upstream to the fan. Thus any breaches in the unit and/or the extract AHU including the thermal wheel could cause a continuous intake of plant room or dirty extract air. It is not possible to examine all surfaces of the AHUs to detect any such defect, but may warrant further inspection in the future.

6. The air in the AHU post fan will be under positive pressure which will safeguard against ingress from dirty areas when the fan is switched on.

2.Possible Route of transmission from building void to patient rooms

The void air could gain access to all rooms that are not under positive pressure through gaps such as the panel above sinks and electrical sockets etc. The principle of positive pressure for protective airborne isolation is primarily to prevent such ingress so that immune compromised patients only breathe supplied and filtered air.

The void air could have been contaminated with cryptococcus by:

- Communication with the contaminated plant room which has had, and continues to have gaps to the building void (clearly that is how the pigeons ingressed in the first place) and is normal in any building as water and waste pipes etc need to pass through different areas of the hospital. ie the void is not sealed off from any room in the hospital other than those specialised areas which require a determined level of seal and positive pressure (eg 4B)
- Other areas of pigeon ingress and faecal contamination which is impossible to visualise throughout the hospital
- Ingress from heavily contaminated external sources through any breaches in cladding

In terms of plausibility of infectious doses of the organism gaining access to the rooms in this manner in two different wards within a short timeframe, it seems less likely than the ventilation route but, as discussed with Peter Hoffman, cannot be ruled out.

3.Possible route of transmission from plant rooms via POD system

The POD system has a station in a plant room (need to ascertain which one) and it is plausible that due to the pressures involved in shifting the PODS through the tubes that contaminated air could be drawn into the treatment rooms where the PODS are deposited at the ward end. This requires further consideration.

Recommendations

It seems entirely plausible that cryptococcal infectious particles have been able to gain access through the ventilation system to the rooms of immune compromised patients.

There is also the additional possibility that infectious particles could gain access to patient rooms via the void as the rooms are not positively pressured, or to the ward corridors via the pod system.

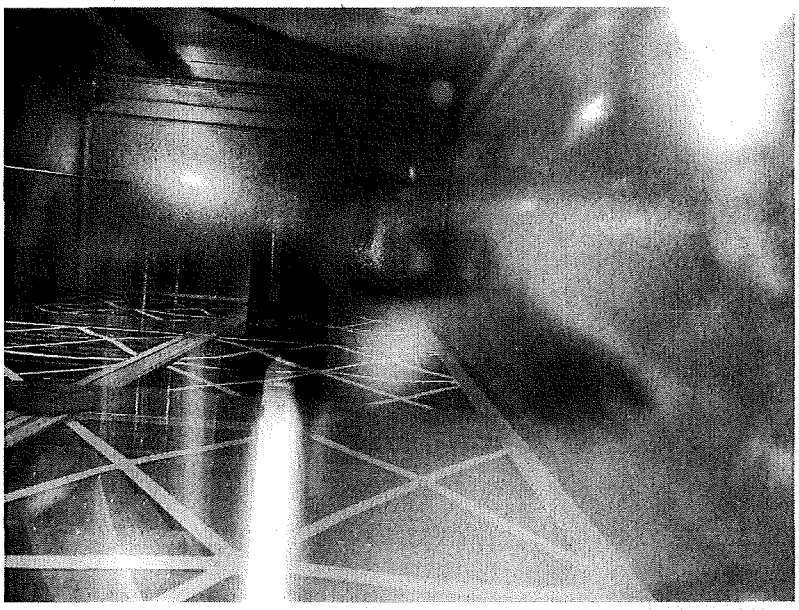
Further information is now required to further assess these possibilities not only to draw conclusions regarding the previous infections, but crucially to prevent any future infections.

1. External inlets need to be visualised and shown to be free from pigeons and droppings
2. AHUs that supply 6A and 4C and ITU should be inspected (will need 30 mins switch off):
    a. Visually for gaps in F7 filter housing
    b. air sampled inside AHU
    c. pressure records across filters compared to manufacturers minimal levels
    d. particle counts taken pre and post F7 filter
    e. filters sampled for culture on SAB agar (expect a lot of fungus, but important to identify if any Cryptococcus has challenged the filters)
3. Smoke testing of rooms of affected patients to identify level of leakage into the rooms
4. Thermal imaging report needed to rule out further pigeon roosting in the building void
5. Air sampling of the void at different points in the building to determine levels of cryptococcal contamination in comparison to wards.
6. Air sampling near POD system
7. Air sampling in laboratory block as a control – same external air , different HVAC system.

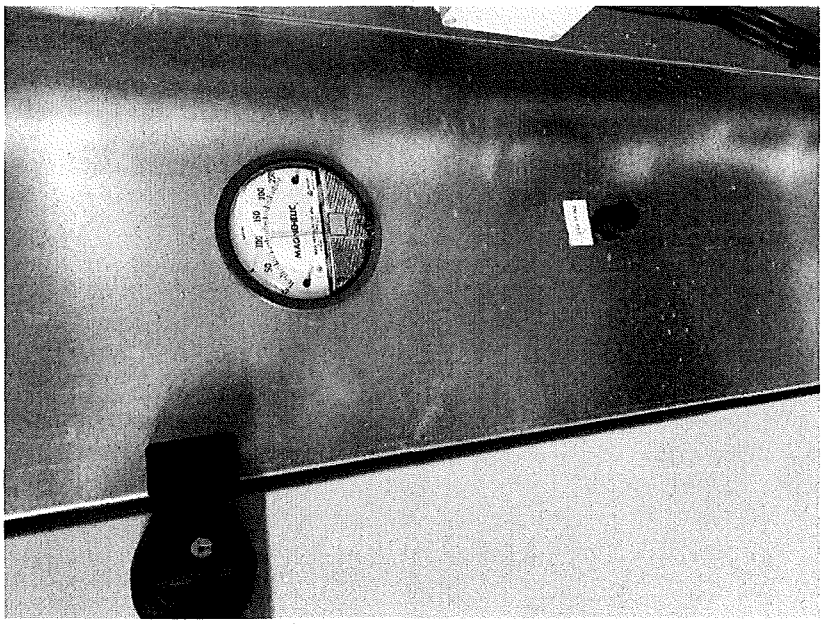
In conclusion it is important to note that in order to protect immune compromised high risk patients from exposure to airborne fungal infection including but not restricted to Cryptococcus, the well established ventilation strategies are positive pressure, HEPA filtration and adequate ACH with minimal door opening.

PHOTOS of AHU components


GRill


G4 Filter

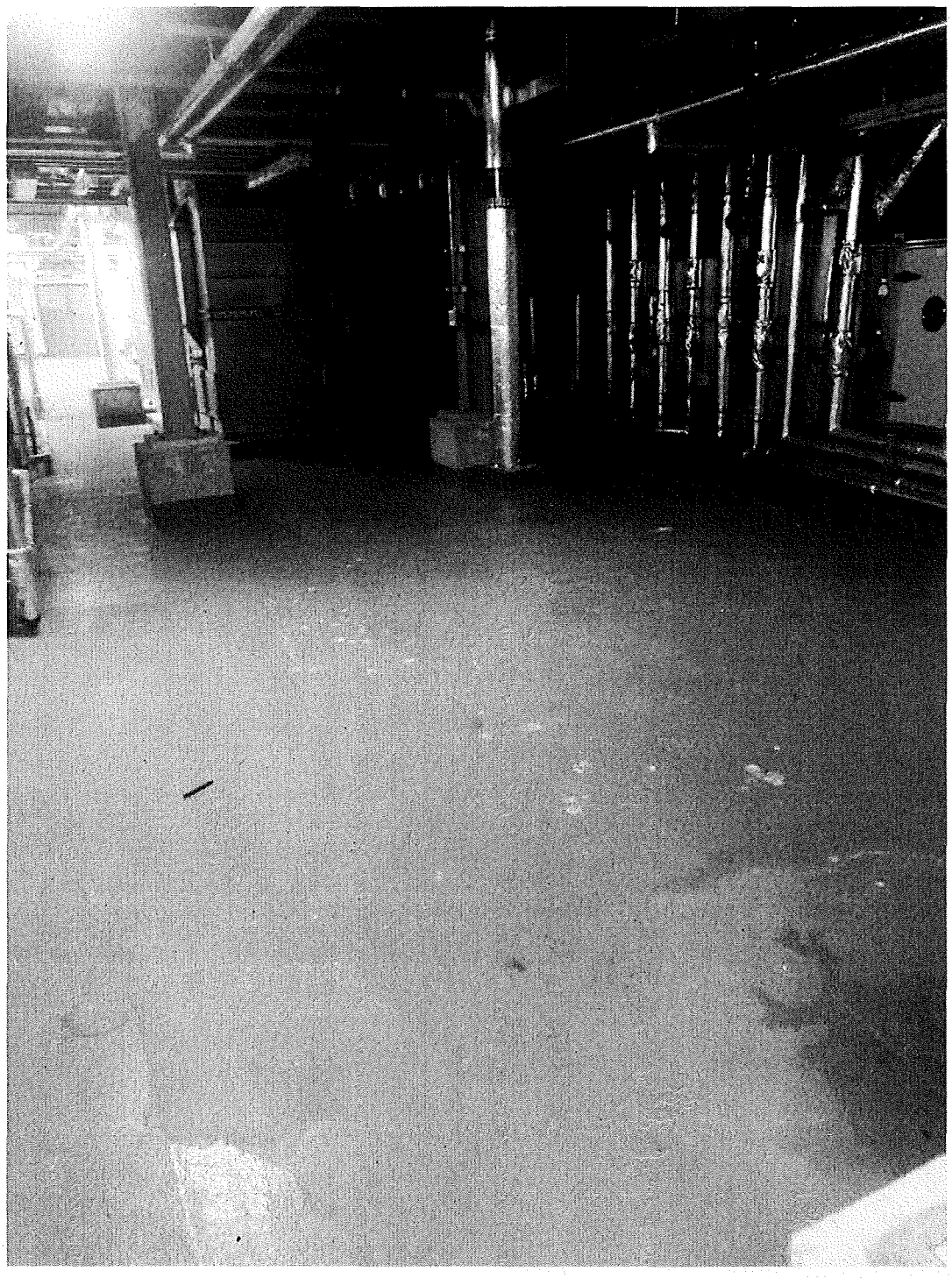

F7 Filter



Pressure gauge

PHOTOS of Pigeon guano contamination in plant rooms





References

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Infection and Immunity Sep 1977, 17 (3) 634-638

Building Fabric Report

QEUH WARD 4C Window Survey

Compiled by:

J. Materne

Interim Estates Manager

Introduction

An internal survey was carried out on all windows within the rooms of ward 4C at the QEUH.

All window frames where visually checked for any noticeable defects or damage to rubber gasket and seals. They were also inspected for any draughts penetrating through frames or gaskets from outside the building. A thermal imaging hand held camera unit was used to survey all internal window finish details for any cold spots or down drafts.

Summary of Findings

All the rubber seals and gaskets around the window frames within the ward were generally found to be intact and secure and with no visual major damage noted.

There are minor discrepancies in a number of the rubber seals forming the joint between the glass and the frame. They appear to be wrinkled in places on the inside of the window frame. This minor anomaly often occurs at installation but is mostly cosmetic and will not compromise the function of the gaskets and rubber seals.

One location was found to have a section of missing seal in consulting room E. Minor repair work will be required to address this.

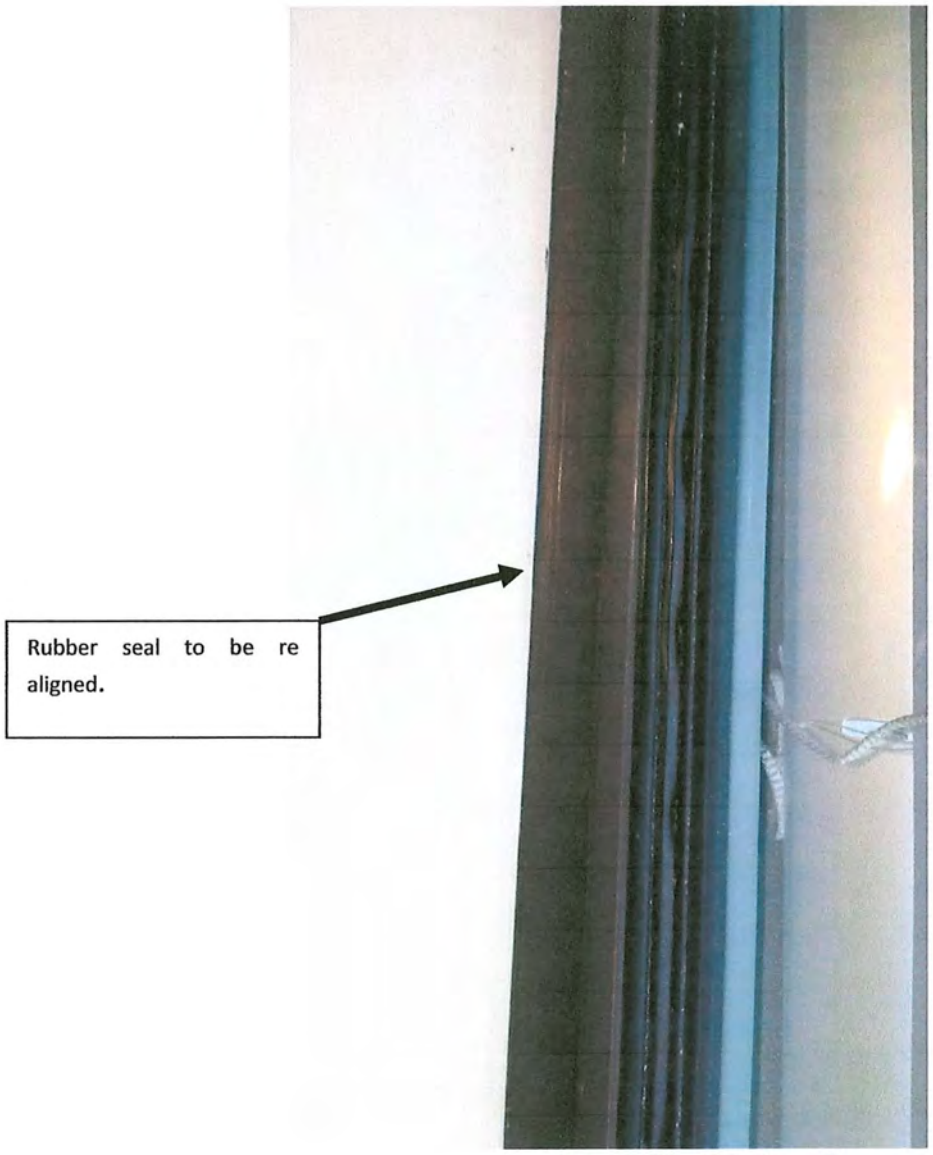
The thermal imaging survey did not identify any cold spots or down drafts from any of the windows or internal finishes.

It was noted that in room 74 the internal upper window in-goes (plasterboard finishes) appear to have been subject to minor differential movement which has resulted in the appearance of a crack between the mastic and plasterboard edging which will require minor repair. This however will not compromise the window integrity.

The main findings that were noted were related to the detailing of the grey mastic between the frame and internal walls in a number of the rooms which were not sealed properly or the mastic was poorly applied.

A spreadsheet of all window locations and findings has been submitted within this report.

Photos

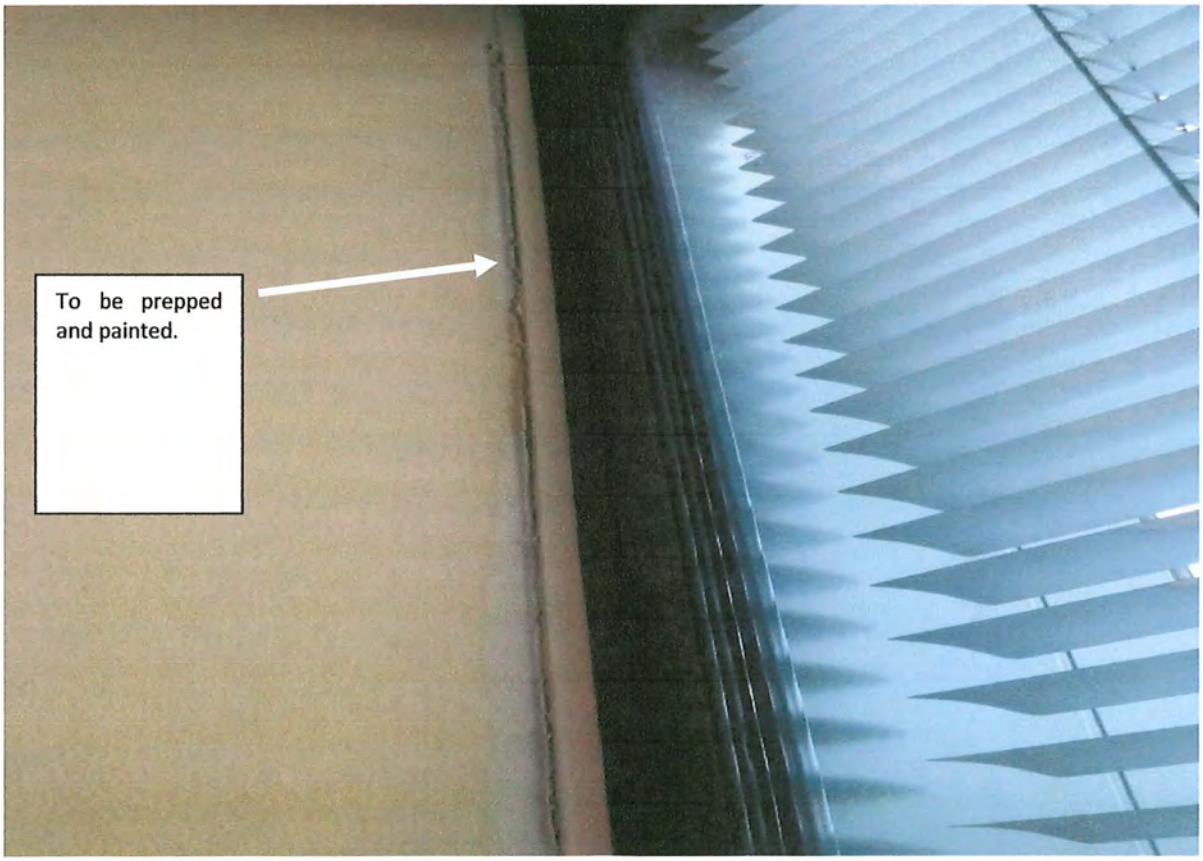


Room 61 rubber seal.

Photo



Room 53 top left hand side.



Room 74 top left hand side internal window ingle to be repaired.

Recommendations.

The recommendations are to realign the rubber seals in the locations that are affected and to supply and fit replacement seals for consulting room e and bed room 53.

The grey mastic that is not adequately applied should be removed and resealed correctly.

In bed room 74, upper internal left hand side in-goes will require to be prepped and repainted.

Inkster, Teresa

From: Hood, John
Sent: 11 April 2019 18:47
To: Devine, Sandra
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: HAIRT
Attachments: HAIRT 110419.docx

Importance: High

Dear Sandra,

Please find my ideas of positive news for the HAIRT and comments on your original email.
Happy to discuss further if required.

Kindest regards

John H

From: Hood, John
Sent: 11 April 2019 10:03
To: Devine, Sandra
Subject: RE: HAIRT

Dear Sandra,

Can you please phone me about this?

John H
[redacted]

From: Devine, Sandra
Sent: 11 April 2019 09:51
To: Hood, John; Hood, John (NHSmail); Steele, Tom; Powrie, Ian; Purdon, Colin
Subject: HAIRT

Hi
I updated Jennifer re the results yesterday which confirmed that Cryptococcus was isolated from some air sampling in QEUH in March. The HAIRT was written before this was known and states that air sampling had been negative for crypto since January. The Board meeting is on Tuesday and is a public meeting with the press in attendance so she need some positive statements to try and ensure that public confidence in the building is maintained. I have a communication from Andrew Seaton has commented that Cryptococcus albidus in ubiquitous in the environmental air and neoformans is not so this perhaps is not the best marker for the presence of neoformans. Can I therefore suggest the following:

- Air sampling continues and confirms that the ventilation in the QEUH is functioning to a level that is expected in this type of ventilation and that for the vast majority of patients this is a safe environment.
- Although the full review of ventilation is not yet complete it is unlikely that the plant room was the source of the C. neoformans.
- Although we have identified other types of Cryptococcus this is not a marker for the presence of Cryptococcus neoformas and we have never isolated this from air sampling.

This is my interpretation form the group meetings and minutes is anyone has a better form of words or some additional statements please let me know. Jennifer would like these by the end of today, sorry for the tight turnaround.

Kind regards
Sandra

Dear Sandra,

I have had a long chat (and useful) with Liz Johnson (Head of PHE Mycology Reference Laboratory in Bristol) this morning.
She confirmed that they hardly ever have grown *Cryptococcus neoformans* from air samples.
She also confirmed that *Cryptococcus albidus* has a clear association with pigeons as they eat wheat grain which it is often present in and consequently is found in their faeces.
Therefore the presumption is the presence of *C. albidus* in air is likely to be related to pigeons and their faeces and therefore a surrogate for the possible presence of *C. neoformans*.
When I asked about the other cryptococcal species that we have isolated recently - *C. uniguttulatus* and *C. diffluens* , she is not so certain, and said that we need to do more literature searching.
However, post phonecall, I noted that 18 samples of pigeon faeces sent **from here** in early March to Bristol : 2/18 grew *Filobasidium uniguttulatum* (previously known as *C. uniguttulatus).* So we do have a link from this site with the presence of *C. uniguttulatus* (*Filobasidium uniguttulatum*) in pigeon faeces (albeit in a small no of samples).
I am however not going to presently count the 3 other non-albidus strains that we have isolated since 31 January (below) due to the discussion above with Liz.

In response to Andrew's comments our advice from Bristol is the opposite. We are using *C.albidus* as a surrogate for *C. neoformans* because *C. neoformans* is very difficult to grow from air samples plus *C. albidus* is found in pigeon faeces.
I am not so sure that *C. albidus* is 'ubiquitous' in 'environmental air'.

My advice for Updating for the HAIRT

1. **Most importantly - there have been no further cases of *Cryptococcus neoformans* infections** since 11 December 2018 (and only the 2 before this).

2. There have been **no positive air samples** (since commencing in December) with ***Cryptococcus neoformans*** (well over 1000).
NB seems to be very difficult to grow from air.

3 The whole gene sequence of both case isolates was carried out. The sequence analysis suggests that these **isolates are not related** i.e. different strains.
NB We do not know what the gene sequences of *Cryptococcus neoformans* (carried in the population of pigeons around this hospital is and importantly how diverse they may be.
Probably not volunteering this. A well informed journalist may spot it quick though!

4. Air sampling has been carried out in and around the hospital since 21 December 2018.

Only one isolation of *Cryptococcus albidus* (*surrogate for C. neofomans*) has occurred, so far, since the 31st January 2019. This out of approximately 800 air samples.
This is a significant reduction in the presence of this organism in air samples taken between 21 December 2018 and 31 January 2019.
(A reduction from around 7.3% of air samples positive between 21 December and end of January to less than 0.2% positive since then). Why has this happened? Many potential reasons! May never know!

Hope that this helps?

Happy to discuss further if required.

Yours in Showbiz

John

Inkster, Teresa

From: HOOD, John (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 16 August 2019 16:38
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Fw: [BlockedURL][ExternaltoGGC]Ref:- L12 PLANTROOM WORKS SUMMARY REPORT REQUEST
Attachments: image027.jpg; image030.png; image032.png

Teresa
As promised.
John

From: Hood, John [redacted]
Sent: 15 August 2019 14:09
To: HOOD, John (NHS GREATER GLASGOW & CLYDE)
Subject: FW: [BlockedURL][ExternaltoGGC]Ref:- L12 PLANTROOM WORKS SUMMARY REPORT REQUEST

From: Purdon, Colin
Sent: 15 August 2019 11:27
To: Hood, John
Subject: FW: [BlockedURL][ExternaltoGGC]Ref:- L12 PLANTROOM WORKS SUMMARY REPORT REQUEST

John,

Please see below from GP Environmental.

[redacted]

Colin Purdon | BSc (Hons)
Interim Sector Estates Manager (*South*)

Estates Dept
Queen Elizabeth University Hospital Campus,
Room L0/B/002
Laboratory Medicine and Facilities Management Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Office: [redacted]
Mob: [redacted]

Email: [redacted]

<><><>

Cc: Allan Bryden
Subject: [BlockedURL][ExternaltoGGC]Ref:- L12 PLANTROOM WORKS SUMMARY REPORT REQUEST

Dear Colin,

Further to your recent text yesterday and our subsequent telephone conversation please see below plantroom summary works report and timelines through December 2018 and January 2019.

1. **DETAIL OF WORKS**

6th/ 7th of December – Plantroom 123 on Level 12 - Removed bird fouling, three (3) feral pigeon carcasses. Proofed apparent access points in plantroom wall. Applied biocide to area where bird fouling had been removed.

19th to 21st of December - Plant room 123 has been deep cleaned, sanitised and bird proofed where access points have been identified. Pigeons gained access through what appears to be weather damaged cladding and have been using the pipes and high beams as a roosting point. The roosting areas were mainly at the roof access point below the large roof overhang.
Following the works carried out in plant room 123 a general deep clean and sanitisation was performed on Plant room 122 as this is directly attached to 123. Plant rooms 121 and 124 were given a general clean with used duct filters cleaned from all the plant rooms.

Examples of items cleared from Plant Room 121 -124 were:- builders debris, plant maintenance debris (old filters in boxes, etc), general floor dust build-up and other rubbish.

23rd of December – Plantrooms 31, 32, 33, 21, 22, 41, 41A and Level 12 - 121, 122, 123, 124

Waste clearance comprising of (waste on floor areas)

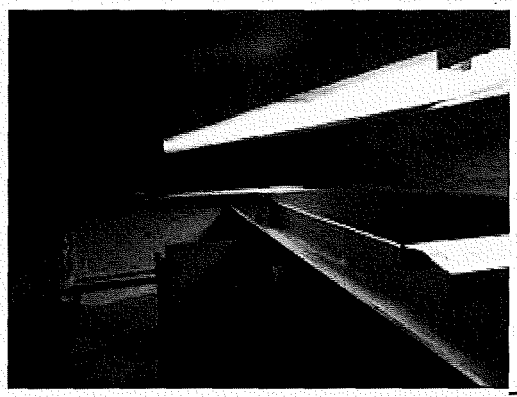
a. Builders Debris
b. Plant Maintenance (Old filters and filter containers)
c. House Keeping Waste (old water bottles, food wrappers, etc)
d. Damaged pipe insulation
e. General discarded rubbish (food wrappers, paperwork, water bottles, juice bottles etc)

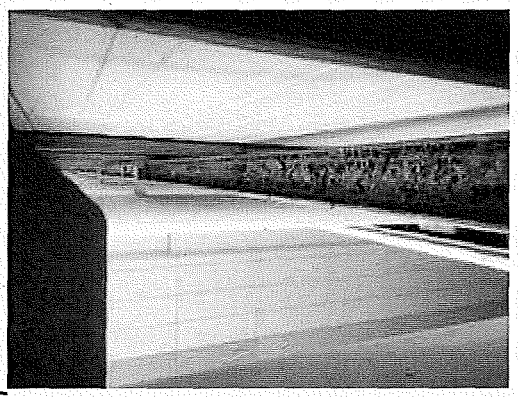
2. **TIMELINE OF L12 WORKS**

Plant Room Works	
Date (W/C or Start Date)	**Activity**

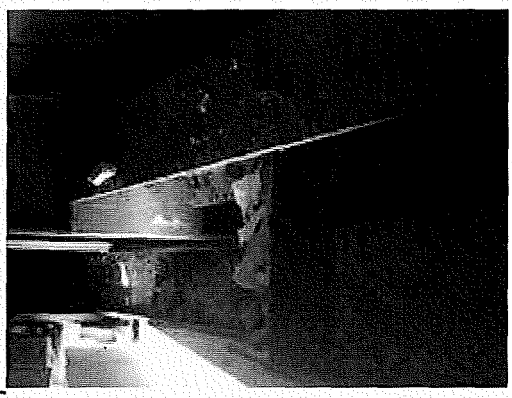
• 06.12.2018	Plantroom 123 L12 Pigeon Fouling Removal from floor area, ledges and ducts at roof access door area
• Sunday - 23.12.2018	Emergency response to remove debris and contaminated air handling filters plus Compilation of a "Pest Activity/Housekeeping Report" at Plantrooms 31, 32, 33, 23, 21, 22, 41, 41A plus L12 – 121, 122, 123, 124
• 07, 10, 19, 20, 21, 24, 27 & 31 - 12.2018 plus 03 & 04 – 01.2019	Level 12 Plantrooms Internal Areas Feral Pigeon Eradication.
• 09.01.2019-21.01.2019	Level 12 Plantrooms 121-124 commencement of High Level Cleaning Works and Sanitisation to a Pest Control Standard.

3. **PHOTOGRAPHS OF A RANGE OF FINDINGS ON L12**





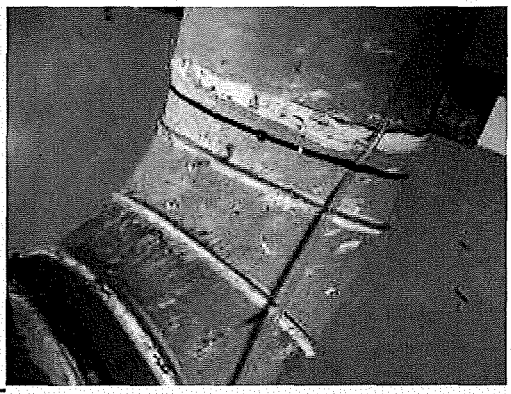


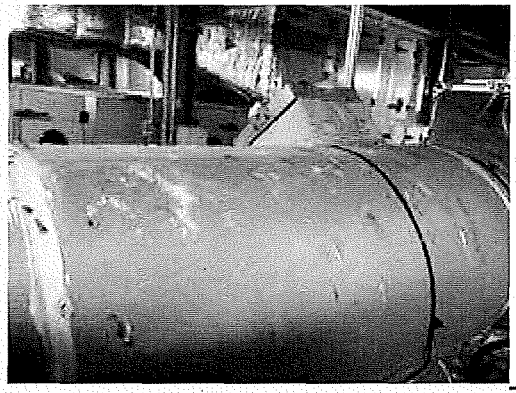


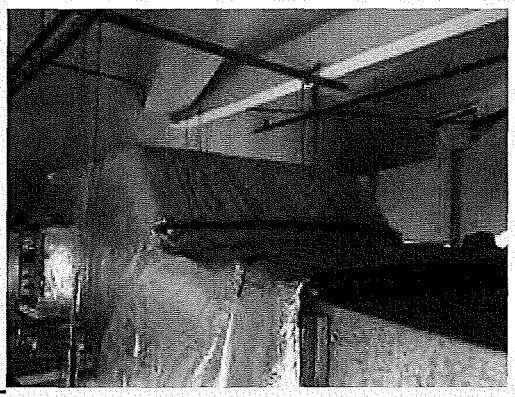




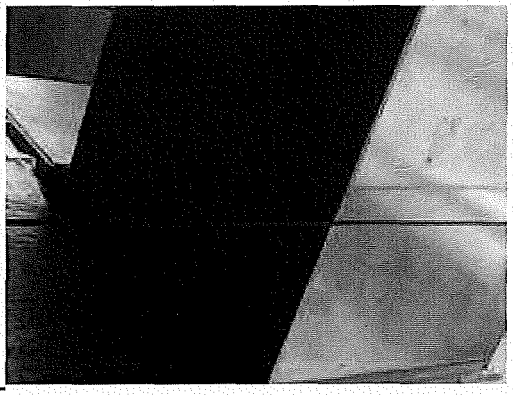
















I hope the above meets with your requirements, however you require any further information please do not hesitate to contact me [redacted].

Best regards,

Karen Caldow
Service Manager
GP Environmental Ltd

BLOCKEDgp-environmental[.]co[.]ukBLOCKED

18 Overnewton Street
Glasgow, G3 8RX
0845-310-5506

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Inkster, Teresa

From: John Hood [redacted]
Sent: 20 February 2020 12:11
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Fwd: Plant Room Pics

Sent from my iPhone

Begin forwarded message:

From: "Hood, John" [redacted]
Date: 19 February 2020 at 13:21:52 GMT
To: "john.hood[redacted]" [redacted]
Subject: FW: Plant Room Pics

From: Conner, Darryl James
Sent: 17 February 2020 13:39
To: Hood, John
Subject: Plant Room Pics

Hi John,

Here are the pictures you requested.

Best

Regards

[redacted]

Darryl James Conner MIET MIHEEM
Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

****
**
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****





195

A49541141

Emailing: L12 Dec 18 no 14, L12 PR Dec 18 no 3, L12 PR Dec 18 no 6, L12 PR Dec 18 no 8, L12 PR Dec 18 no 9, L12 PR Dec 18 no 12, L12 PR Dec 18 no 13, L12 PR Dec 18 no1, L12 PR Dec 18 no2, L12 PR Dec18 no 5, L12 Dec 18 no 4, L12 Dec 18 no 7, L12 Dec 18 no

Hood, John [redacted]

Thu 20/02/2020 17:28

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

14 attachments

L12 Dec 18 no 14.jpg; L12 PR Dec 18 no 3.jpg; L12 PR Dec 18 no 6.jpg; L12 PR Dec 18 no 8.jpg; L12 PR Dec 18 no 9.jpg; L12 PR Dec 18 no 12.jpg; L12 PR Dec 18 no 13.jpg; L12 PR Dec 18 no1.jpg; L12 PR Dec 18 no2.jpg; L12 PR Dec18 no 5.jpg; L12 Dec 18 no 4.jpg; L12 Dec 18 no 7.jpg; L12 Dec 18 no 10.jpg; L12 Dec 18 no 11.jpg;

Your message is ready to be sent with the following file or link attachments:

L12 Dec 18 no 14
L12 PR Dec 18 no 3
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L12 PR Dec 18 no 9
L12 PR Dec 18 no 12
L12 PR Dec 18 no 13
L12 PR Dec 18 no1
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L12 PR Dec18 no 5
L12 Dec 18 no 4
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L12 Dec 18 no 10
L12 Dec 18 no 11

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Fw: Papers to be presented at Board Meeting - issues

HOOD, John (NHS GREATER GLASGOW & CLYDE)

Tue 25/02/2020 10:08

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Please find reply from Marion Bain.
John H

From: BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Sent: 25 February 2020 06:55
To: HOOD, John (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Papers to be presented at Board Meeting - issues

Dear John

Many thanks. I do appreciate you sharing this ahead of the Board meeting.

More generally I would welcome meeting with you soon and I will get this put in place.

Kind regards
Marion

Professor Marion Bain
Director of Infection Prevention and Control
NHS Greater Glasgow and Clyde

Senior Medical Consultant
NHS National Services Scotland

Mob: [redacted]

From: HOOD, John (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 24 February 2020 19:20
To: BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Subject: Papers to be presented at Board Meeting - issues

Dear Prof Bain,

Please find enclosed letter re-papers (and specific wording within them) to be presented at tomorrows Board Meeting.

Kindest regards

Dr John Hood

Chair of Cryptococcal Expert Group
QEUH

A49541141

Prof Marian Bain

Director of Infection Prevention and Control

GGHC

Dear Prof Bain,

In my role as Chair of the Cryptococcus Expert Group, I would like to inform you of my disquiet (and that of others on this group) concerning the choice of wording in two of these papers which will now go into the Public Domain.
I should also point out that the Final Report of this Group has yet to be completed (let alone discussed and agreed by the Group) and may take many more weeks yet, due to the multiple complexities of both the biology of the Cryptococcus itself, the ventilation systems and movement of the air (lack of control of it) within the hospitals on this site.

Re: Board Meeting Papers for 25 Feb 2020

QEUH and RHC Update Paper No 20.04 Paragraph 3.4.5

'The hypothesis that the air from the plant rooms , via the AHU's, was the likely source of the cryptococcal spores, specifically those of *C.neoformans*, which were then breathed in by the case patients, has subsequently been categorically ruled out as it is not technically possible'.

I would certainly not use the words 'categorically ruled out', my words would be 'very unlikely'. I also feel that this statement is misleading. The insertion of 'via the AHUs' is the key. The nuance being that those reading this statement may believe that we have 'categorically ruled out' the plant rooms as the of source cryptococcal spores. This is not correct. One of the other hypotheses is that the 'voids/risers', containing services such as water, electrical power etc and running through the building vertically (serving wards and individual rooms) may open in the plant rooms and are therefore a possible source of cryptococcal spores via unfiltered air. This hypothesis has not yet been ruled out.

Minute of Finance and Performance Committee Page 4 Para 3

'Mr Steele went on to provide an overview of the work carried out in respect of Cryptococcus neoformans. He described 6 hypotheses considered and the outcomes of investigations of each of these. Mr Steele advised that that all of the hypotheses considered were ruled out due to a number of factors and it was concluded that the likely source was the spores were brought into the building from the incoming air.'

Firstly the Group has not yet definitively discussed each of the hypotheses, I believe that we have discussed and decided that the Helipad is not believed to have contributed to the problem. We also have discussed and believe that the Specimen Tube transport system (POD) is not thought to have contributed to the cryptococcal problem.

As noted above the possible role of the 'Voids/Risers' has not yet been discounted and we also have certainly **not** discounted the finding of a Gas Cylinder Room (very near PICU) with outside air, unfiltered and ingressing from the Sanctuary area (known to be a pigeon and guano issue early on). This possibly could have been the source in the child when in PICU.
Therefore the above statement that the 6 other hypotheses have been ruled out is untrue.

What is true is the statement 'it was concluded that the likely source was the spores were brought into the building from the incoming air.' I would agree with this (but the Group has still to formally discuss this and agree.

Some of the work that I have been doing since early January is comparing the fungal air counts between January 2019 and August 2019 from Wards 4C, 6A , 4B together with the BMTU beds B8 and B9 in the Beatson between 2016 and 2018. The results have yet to be shared with the Group – hopefully on Wednesday. We already know that 4B is not up to the spec of a BMTU (corridor not ventilated and air not controlled at exit/entrances) whereas the Beatson Rooms had about 80% of air samples as zero/zero (with a mean of 0.55 – as it should) 4B had only about 60% zero/zero (mean of 1.1), while 4C only 40% zero/zero counts (mean of 2.58) and 6A was the worst at only 20% zero/zero (mean of 6.33).
My belief for the last year is that the problems with 4C and 6A is that they are firstly not HEPA filtered (so air not filtered by 99.9% but only by about 80%), they also have very few air changes/hr (presence of chilled beams), so poorly (if at all positively pressurised) little dilution and therefore air does not uniformly leak outwards.....therefore they **do not** provide patients with adequate 'protective isolation'.
Therefore the lack of 'protective isolation' to at risk patients is in my view the issue.

Happy to discuss further if required.

Kindest regards

Dr John Hood BSc(Hons Bact) MBChB PhD MRCP(UK) FRCPEdin FRCP(Glas) FRCPath FSHEA (Emeritus)

Consultant Microbiologist

Environmental
Pest Control, Hygiene & Industrial Cleaning

Feral Pigeon Removal/Repellent Activities and Detailed Cleaning/Sanitisation of Plantrooms at QEUH – Glasgow (from December 2018 to 08.03.2019)

Date (W/C or Start Date to Completion)	Activity
	A. Plant Room Works
• 06.12.2018	Plantroom 123 L12 Pigeon Fouling Removal from floor area, ledges and ducts at roof access door area
• Sunday - 23.12.2018	Emergency response to remove debris and contaminated air handling filters plus Compilation of a "Pest Activity/Housekeeping Report" at Plantrooms 31, 32, 33, 23, 21, 22, 41, 41A plus L12 – 121, 122, 123, 124
• 07, 10, 19, 20, 21, 24, 27 & 31 -12.2018 plus 03 & 04 – 01.2019	Level 12 Plantrooms Internal Areas Feral Pigeon Eradication.
• 09.01.2019-21.01.2019	Level 12 Plantrooms 121-124 commencement of High Level Cleaning Works and Sanitisation to a Pest Control Standard.
• 22.01.2019 – 25.01.2019, 26.01.2019 – 27.01.2019	Plantroom 41 (Risk Assessed Redirection of Deep Cleaning Works) High Level Cleaning and Sanitisation to a Pest Control Standard.
• 28.01.2019 – 01.02.2019, 02.02.2019 – 03.02.2019	Plantroom 41 – High Level Cleaning and Sanitisation to a Pest Control Standard

• 04.02.2019 – 08.02.2019, 09.02.2019 - 10.02.2019	Plantroom 41 – High Level Cleaning and Sanitisation to a Pest Control Standard
• 11.02.2019 – 15.02.2019	Plantroom 41 – High Level Cleaning and Sanitisation to a Pest Control Standard – Completed 15.02.2019
• 16.02.2019 – 17.02.2019	Return to Level 12 to continue High Level Cleaning and Plantroom Sanitisation
• 18.02.2019 – 22.02.2019, 23.02.2019 – 24.02.2019	Level 12 Plantroom High Level Cleaning and Plantroom Sanitisation
• 25.02.2019 – 01.03.2019	Level 12 Plantroom Cleaning and Sanitisation. Commencement of Plantroom 41A as a priority based on Risk Assessment of additional findings on Plantroom Inspection (Internal)
• 02.03.2019 – 03.03.2019	Level 12 continuation of Cleaning plus Plantroom 41A completed apart from area to be made accessible by QEUH Estates Department.
• 04.03.2019 – 08.03.2019	L12 all Plantrooms Completed including link corridors and concrete link bridge. Areas all sanitised.
• 07.03.2019 – going forward	Plantroom 31 – High Level Deep Clean and Plantroom Sanitisation. Deep Clean Risk Assessed on the presence of feral pigeon fouling.
All of the above noted Detailed Cleaning and Sanitisation Works are supported by daily work reports and photographic back up.	
	B. Helipad Area
• 08.01.2019	Area below Helipad inclusive of cobbled area deep cleaned and sanitised.

GP Environmental Ltd. 16-18 Overnewton Street, Glasgow, G3 8RX.
Tel: 0141 338 6530

• 23.01.2019	Helipad walkway deep clean (every two weeks) and sanitised.
• 06.02.2019	Helipad walkway deep clean (every two weeks) and sanitised.
• 09, 10 & 11.02.2019	Complete Helipad and Access Gradle Area below Helipad Deep Clean and Sanitisation for Abseil Access Works.
• 13, 20 & 27.02.2019	Helipad Walkway Deep Clean (now on a weekly basis) and sanitised.
	C. Antimicrobial Mats
• 26.02.2019	Provision of Antimicrobial Foot Fall Mats for L12 Lift Hall Accessed from walkway below Helipad.
	D. Ins Link Bridge
• 22.01.2019 – 17.02.2019	Ins link bridge feral pigeon fouling removal (daily) and sanitisation. Carried out until link bridge under side cladding installed.
	E. Ins Link Bridge
• 20, 22, 25.02.2019 plus 02.03.2019	Four (4) sections of link bridge underside deep cleaned, sanitised and waste netting/ bird detritus removal to facilitate cladding installation.

	F. Site Feral Pigeon Control, Repellent and Eradication Works.
Date	**Activity**
• 08.01.2019	Carried out a pigeon shoot at the Service Yard of the Lab Block
• 15.01.2019	Carried out a pigeon shoot at the Service Yard of the Lab Block
• 15.01.2019	Emergency call out to remove pigeon fouling and treat with biocide at Neurology Reception.
• 15.01.2019	Emergency call out to remove pigeon fouling and treat with biocide at Lab Block
• 16.01.2019	Emergency call out to remove 3 dead pigeons at 6am at the HDU Department using specialised access
• 21.01.2019 till 03.03.2019	Daily pigeon trapping programme from 21.01.2019 to 03.03.2019
• 22.01.2019	Emergency call out remove pigeon fouling and treat with biocide at the Maternity
• 23.01.2019	Installation of bird repellent spike at Maternity Entrance and removal of pigeon fouling and treat with biocide
• 23.01.2019	Emergency call out to remove 4 dead pigeons and treat with biocide at Core G
• 23.01.2019	Emergency call out remove pigeon fouling and treat with biocide at the Maternity Entrance Conservatory Roof
• 23.01.2019	Emergency call out remove pigeon fouling and treat with biocide at Neurology

• 23.01.2019	Emergency call out remove pigeon fouling and treat with biocide at Glass Canopy North Side of Children's Hospital
• 23.01.2019	Deep clean, ledges parapet tops and internal ground area at plantroom 41 Children's Hospital and install bird repellent netting
• 23.01.2019	Repair to Link Bridge netting at Plantroom 41 and remove pigeon fouling, treat with biocide
• 24.01.2019	Emergency call out remove pigeon fouling, treat with biocide and install bird repellent spike to the tops of the lights Maternity
• 27.01.2019	Emergency call out to release trapped birds at Neurology Bridge and treat area with Biocide
• 30.01.2019	Emergency call out remove pigeon fouling, treat with biocide at Level 2 Main Hospital
• 30.01.2019	Emergency call out remove pigeon fouling, treat with biocide and install bird repellent spike to roosting sites at Neurology Link Bridge
• 06.02.2019	Repair to vandalised netting outside plantroom 41 at link corridor above Sanctuary Area
• 08.02.2019	Deep clean pigeon fouling, treat with biocide and install bird repellent netting at Children's Imaging Courtyard
• 11.02.2019 till 13.02.2019	Removal of pigeon fouling and deep clean Core G Stairwell from Level one to Level 13
• 13.02.2019 till 28.02.2019	Removal of pigeon fouling and deep clean to Level 1 at Central Medical Block followed by Biocidal Treatment
• 13.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – Ward 4B on grass roof
• 13.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate

	special disposal – Maternity Out Patients Store
• 13.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – 1st Floor Critical Care on Roof
• 14.02.2019	Emergency call out remove pigeon fouling, treat with biocide at Maternity Building
• 14.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – Institute at MRI Contractors Area
• 14.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – CDU Kids Area
• 15.02.2019	Deep clean, pigeon fouling removal and install bird repellent netting Level 6 Institute Building
• 15.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – Ward 4B Room 90
• 15.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – Small Neurology Building
• 15.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – IAU ground Floor
• 18.02.2019	Collection of Dead Pigeon and treat contaminated area with biocide, removal from site for appropriate special disposal – Courtyard 7 ground floor
• 23.02.2019	Emergency call out remove pigeon fouling, treat with biocide at Maternity
• 03.03.2019	Emergency call out remove pigeons, pigeon fouling and treat with biocide at Old Neurology Reception
• 19.02.2019	Emergency call out remove pigeon fouling and treat with biocide from the windows at Sanctuary

Inkster, Teresa

From: Inkster, Teresa
Sent: 31 January 2022 22:00
To: teresa inkster
Subject: Fw: Cryptococcus

From: Inkster, Teresa
Sent: 01 October 2020 15:11
To: Hood, John [redacted]; HOOD, John (NHS GREATER GLASGOW & CLYDE) [redacted]
Cc: Peters, Christine [redacted]; Angela Wallace (NHS Forth Valley) [redacted]
Subject: Cryptococcus

Hi John,

The meetings we have had over the past two weeks have raised more questions rather than answers re Cryptococcus;

1) Yesterday you stated to the patient's family that only one plantroom (123) had evidence of pigeon guano. The microbiologists involved at the start of the incident have photographic evidence to the contrary. Is the group not aware of this?
2) Reference to the pigeon guano only being wet. Again the photographic evidence and the guano witnessed by my own eye was dry in many places. There is also a photo from the pest control company with what looks like pressure hosing equipment in it , which we discussed previously risking aerosolisation . What was the reason for wet guano in the plant room, were they hosing it? You also mentioned the Scotland has a wet climate, given that cases have occurred in Scotland I do not understand the relevance of this statement.
3) You mentioned HAI was unlikely as renal patients unaffected. Renal patients are at less risk and we quickly implemented control measures in this group including prophylaxis and portable HEPA. Is the group aware of this? I don't think is a scientific approach, we wouldn't not attribute an environmental source just because another high risk group did not develop infections.
4) You have suggested the adult patient acquired Cryptococcus from a wide open space and you mentioned Queens park. Given that there are many lymphopenic lymphoma patients ,would we not expect to see this frequently? If we are saying there is a risk to lymphoma patients from public parks what is the public health advice to this patient group? Is there evidence of a pigeon issue at Queens park? What is the explanation for Cryptococcus in the child?
5)With respect to investigations, was a tracer gas released in the plant room? was thermal imaging employed given issues in Edinburgh with pigeons in walls? What was the outcome of the investigation into the risers and voids?
6) Is the group aware that the original epidemiology report from public health has omissions with respect to patients being admitted to the QEUH?
7) what is the theory behind the most recent case in a 2nd paediatric patient and is there any history of recurrent issues with pigeons?
8) At the start of the incident we recommended increasing the number of HEPA filtered rooms for high risk patients. Yesterday however you stated that the air quality in ward 4C is good. Given that air quality is only an assurance check, is the spec of ward 4C with less than 3 ACH in your opinion suitable for

immunosuppressed haem onc patients? (it differs from that of the equivalent Beatson ward, so the same patient group is in a unit with better spec)

Can I have a copy of the groups report as per the terms of reference. It will need to be circulated to all IMT members for comment.

kr
Teresa

RE: clinical and care governance committee

Mathew, Geraldine [redacted]

Tue 14/05/2019 11:45

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Dear Teresa,

Many thanks for your email, apologies for the delay responding.

Thank you for your comments and suggested corrections below, we have an agenda set meeting with the Chair of the Clinical & Care Governance Committee coming up so I will inform the Chair of your suggested amendments.

Kind regards
Geraldine

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 24 April 2019 18:37
To: Mathew, Geraldine
Subject: [ExternaltoGGC]clinical and care governance committee

Dear Geraldine

I attended the clinical and care governance committee mee ch

I did not get sent any dra es to comment on but wish to make some corr

Cryptococcus

ypothesis suggested a plant room could have been a source however air sampling results did not support this'

I did not state this. Rather I explained that Cryptococcus albidus was found in air sampling in the plant room and the pa t rooms and that this was being used as a surrogate marker for Cryptococcus neoformans' . The expert advisory group are looking at all possible hypotheses including the plant room.

- ' Dr Inkster noted that installa A filters had been extended

This should read *port*able HEPA filters

- 'to include c eatment which compromised the immune system within the QEUH

should read' to include haemato-oncology pa ts within the QEUH'

Mucoraceous mould
' There has been no source iden tate this.

I said ' It is possible the dialysis point was the source as mould was grown from the area. No cases have been reported since the 18 January 2019 and this source has been remedied. Alterna ely this fungus is ubiquitous and may have been present in the air a

'Mr Ritchie asked Dr Inkster if she and her colleagues were content with the progr aken to address their concerns. Dr Inkster replied that she and her colleagues were content with the good progress made on all of the areas'

I was asked if my colleagues were content. I was not present in 2017 and did not raise these concerns or attend the mee
My response was that ' one of those colleagues has re ed and I have not had contact from her. I stated that the others had not raised any further issues with me'.

I would be greatful if these ammendments could be made

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
A49541141

Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Bowman D (David)
Sent: 02 May 2019 12:31:47
To: Public Engagement Unit
Cc: Cabinet Secretary for Health and Sport, Burgess E (Elizabeth)
Subject: FW: Dr Fraser Inquiry

Attachments: Fraser Inquiry submission_.pdf

PEU

Please could you scan this on to MACCs as an OR.

Thanks

David Bowman
Deputy Private Secretary
Ministerial Private Office (Health)
St Andrew's House
Edinburgh

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From: Penelope Redding [redacted]
Sent: 02 May 2019 12:25
To: Freeman J (Jeane), MSP [redacted]; Cabinet Secretary for Health and Sport [redacted]
Cc: Burgess E (Elizabeth) [redacted]
Subject: Dr Fraser Inquiry

Dear Jeane

Please find attached a document that I have prepared for the inquiry.
I understand that there will be a call for evidence, probably on Twitter.
Unfortunately, I do not follow Twitter.
[redacted]

The document is not as perfect as I would like it to be but feel I should submit the document now and no longer worry about it. Could you please arrange for someone to forward my document to the inquiry and confirm this has been done. I have also been told that the report will be written before the evidence from whistle blowers and others have been heard. I hope that this is not the case.

I apologize for troubling you with this, but could not find another way of forwarding the document at this stage.

[redacted]

Will the evidence be made public as it was with the Health and Sports Committee inquiry?

I have copied this email to Elizabeth Burgess as she kindly replied to my earlier email.

My thanks in advance.

Kind Regards,

Penelope Redding

This email has been scanned by the Symantec Email Security.cloud service.
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INQUIRY into QEUH, RCH, Neurology services

Submission from Dr P J Redding

[redacted]

April 2019

Executive Summary

The focus of the document is written from an infection control perspective.

Patient safety has to be the driving force in understanding and resolving the issues at the QEUH campus hospitals.

Careful investigation is needed to understand the complexities of the processes followed from the first planning decisions, the building, the procurement, the construction and installation, the commissioning and handover, the maintenance, the operational management and the organisational behaviours. There are a lot of questions that need to be answered and understood as well as the complexities of how they are linked together. These questions can be found throughout this document.

Was there a risk assessment undertaken to understand having a new hospital so close to a water treatment plant? Were the concerns in raised in 2002 for "sewage nuisance" followed up? Was this and the poor rating of Glasgow's sewage works a risk to the quality of the water available to the building?

Were the right people, with the right knowledge, involved in all stages of the project?

Were the published Standards available at the planning stages met; in particular ventilation, water and drainage?

Were the appropriate checks made during the construction and commissioning phases?

What have the issues been since the hospitals opened? This would include:

1. Were there failures in meeting the Standards in place at the planning stages
2. Were there failures in the construction; for example did any of these result in leaks causing outbreaks?
3. Were there appropriate isolation facilities for all categories of patient ?
4. What outbreaks have taken place since the opening of the hospitals?
5. Hospital acquired infections
6. Impact on patient care and safety; bed pressures, waiting lists, outcomes etc.
7. Were there any failures in the monitoring processes?
8. Were there any failures in the cleaning processes?

Are there problems in the organisational behaviours, leadership and culture that have contributed to the challenges that are now faced?

Is the failure of the ICE theatres to open on schedule another example of planning / construction failures?

Have similar problems been encountered in other hospital construction projects across Scotland?

Introduction

I am a retired microbiologist who worked as an infection control doctor within NHS Greater Glasgow and Clyde (GGC) for nearly 25 years. I was aware of a number concerns in relation to infection control during my employment and these were repeatedly raised over time before and after the opening of the new hospitals. Problems in relation to the original infra-structure, such as the neurology building were also identified.

Patient safety and restoring public confidence needs be the primary drive of the inquiry. I hope that lessons can be learnt to ensure positive changes across NHS Scotland. The public need to understand that all hospital acquired infections cannot be prevented. Incidents do happen that have to be managed appropriately. The challenge is to have processes in place to minimize incidents with a pro-active infection control service. This reduces the number of time-consuming reactive incidents. **(Appendix 4).**

This document discusses the review process and have asked questions that, in my professional opinion, need to be answered. This should include the questions within **Appendix 1.**

This document concentrates on ventilation, asking questions that need to be answered. It also touches on some of the questions related to water and drainage etc.. I felt the document would become too long if I referenced all the other STHM documents. They are easily available to the committee. Obviously the Standards that should only relate to those available at the planning stages of the project.

I have quoted from and included the three anonymous submissions sent to the Health and Sports Committee **(Appendix 2-3-4).** They are clearly written by professionals who understand the infection control challenges that are being faced and their evidence should be considered. **Appendices 2 and 3** are up to date with the current position.

This paper considers the following:

1. Review process(es)
2. The Building from the inception to operational management
3. Organisational Culture and Leadership

Some of the concerns raised in the SBAR (Situation,Background,Assessment,Recommendation), written for the whistleblowing in September 2017, are touched on in this document. GGC should be able to provide the inquiry with this document and the minutes from the meeting in October 2017. (I do not have a copy of this as I am no longer employed by GGC).

I do **not** believe any person or organisation, who has been involved in the decision-making process for the building specifications, commissioning, addressing the problems since the opening of the hospitals etc, can be part of the inquiry committee. They, obviously, have to give evidence, I am sure that those responsible for the inquiry will not want to be open to the criticism that the inquiry was a whitewash **(Appendix 4).**

Statements given must be supported by evidence to ensure confidence in the accuracy of the facts being presented. The whistle blowers, in particular, need to have the opportunity to give the evidence to the inquiry. Staff and the public must be given the opportunity to present their evidence in the inquiry setting to ensure a full understanding of problems can be achieved. They must not feel that there will be consequences if they give evidence. There will obviously be differences of opinion and interpretations of the Standards. This is where all the facts and supporting evidence, if necessary with the help of external experts, will enable people to be confident in any recommendations that are made. Lessons can then be learnt for NHS Scotland and rolled out to improve patient care and safety. I believe that the challenges may not be unique to NHS GGC.

What a good outcome might look like from an Infection Control Professional's perspective.

The Queen Elizabeth University Hospital (QEUH) Glasgow opened in 2015. Several issues have arisen at the hospital since it opened including water hygiene, external cladding, the ventilation system and glazing failures which have raised concerns regarding patient safety.

From an Infection Control Professional's perspective what is required is :- a comprehensive review with recommendations implemented to improve patient safety and public confidence in patient safety through enhanced participation, engagement, ownership and accountability in areas of :

- **Building – design, commissioning and maintenance**
- **Processes and Systems -compliance, suitability, improvement**
- **Behaviours leadership and culture – listening and learning –constructive improvement versus blame and defensiveness.**

1. Review Process

Currently it appears that a series of inquiries with different scopes and activities are being instigated or in progress. These are useful in setting out the foundations for improvement and their short-term nature allows speed to implement immediate improvements and remediation measures. However, these are piecemeal and fragmented and reactive especially as new cases continue to emerge.

The Health and Safety Executive

The Health and Safety Executive is currently investigating the circumstances surrounding the outbreak of Cryptococcus infection at Queen Elizabeth University Hospital. This commenced in January 2019 to examine the range of control measures in place to reduce and mitigate the risks of such infections and will include the adequacy of ventilation systems but further on the detail of this ongoing investigation is unknown. Will the HSE investigate other more recent deaths from other infections? To what extent will HSE investigations be conjoined?

Health and Sport Parliamentary Committee

The Cabinet Secretary informed the Parliament on 22 January of the Cryptococcus Infection at the hospital and the mucoraceous mould infection. The Committee agreed on 29 January to undertake a short inquiry to identify the scale of any health problems acquired from the healthcare environment in Scotland whilst also considering the wider implications for health facilities across Scotland. An Oral evidence session on 19 March included:

- Health Facilities Scotland
- Health Protection Scotland
- Healthcare Environment Inspectorate
- Health and Safety Executive

A series of anonymous submissions were made to the Scottish Parliament, as part of an inquiry into hazards in healthcare settings. It is expected the committee, after they have considered the content of submissions, will invite the Health Board to give evidence. The committee has requested further information from the organisations giving evidence.

Healthcare Improvement Scotland

On 5 February The Cabinet Secretary indicated Healthcare Environment Inspectorate would undertake an inspection of the hospital site to provide independent assurance of the safety of the patient care environment. The HIS report, released on 8 March, will feed into the independent review into the design, commissioning, construction, handover and maintenance of Glasgow's Queen Elizabeth Hospitals

Health Facilities Scotland (HFS) position is still unclear

Health Protection Scotland (HPS)position is still unclear

Both organisations, while giving evidence to the Health and Sports committee, explained that their role was purely advisory. The advisory role played in the planning stages and the investigation of problems encountered after the opening of the hospitals needs to be understood. Concerns have been raised about the HPS report on the water contamination in the Royal Children's Hospital not being comprehensive **(Appendix 4).**

The Government states "robust measures" were in place to monitor "infections and other harm" and that Healthcare Improvement Scotland, Health Protection Scotland and Health Facilities Scotland "provide a robust mechanism to monitor and learn from outbreaks and incidents". **The adequacy and effectiveness of such measures and systems however requires to be independently tested.** Two submissions to the Health and Sports Committee, written by infection specialists, raised their concerns about the adequacy of the reporting systems **(Appendix 2 and 3).**

"Independent Expert Review"

The Cabinet Secretary set up an "independent expert review" to be jointly chaired by Dr Brian Montgomery, former medical director and interim chief executive of NHS Fife, and Dr Andrew Fraser, the director of public health science at NHS Health Scotland to look at the hospital's design, commissioning, construction, handover and maintenance, including how these matters support effective infection prevention and any other areas the chairs consider necessary.

The review's recommendations will be made public and the Scottish Government will inform the Parliament of its response to the review recommendations. The Cabinet Secretary also stated that "it is essential that all relevant information is available to the reviewers to ensure a robust, evidence-based assessment can be provided. It is expected that individuals involved in the design, construction, commissioning and maintenance of the hospital, along those providing healthcare (staff) and relevant expertise will input into the review."

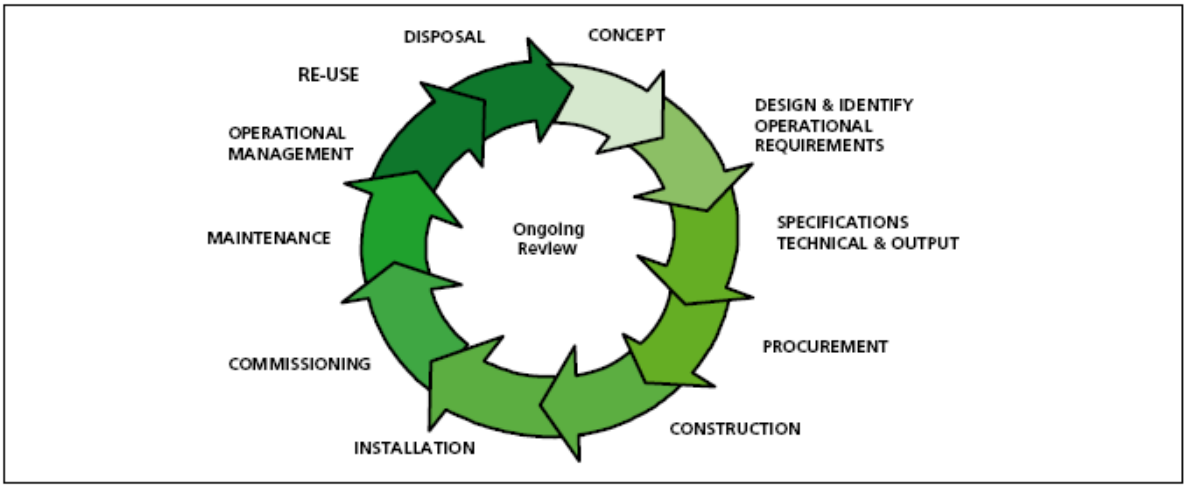
HIS inspectors, cited that "challenges in the working relationships between senior staff" must be resolved. It is reported that someone linked closely to infection control will be managing the health board's investigation into infection problems. This casts a shadow on the review being independent or balanced.

Further, while internal investigations are fully to be expected, it is good practice that this should be overseen by suitably experienced senior health professionals, not directly involved in the establishment. ***Otherwise it does NOT does constitute an "independent or expert inquiry"***. While both co -chairs are highly experienced and reputable individuals they are part of and employed by the healthcare system and ultimately answerable to the Cabinet Secretary. They can therefore never be truly independent or objective.

Conclusion: ***With continuing issues, deaths and complications involving infections linked to building issues occurring over a sustained period, even as recently as Thursday 14 March, in order to restore public confidence, I believe there must now be a full and comprehensive independent public inquiry chaired by a truly independent person such as a senior barrister/ judge or captain of industry.***

2. The Building Programme

A root and branch review is required into all aspects of the building from inception of new hospitals to its day to day operations ***to ensure the building is fit for purpose with flexibility to respond to changes and adaptability for future use.***



SHTM Healthcare building lifecycle

2.1 Site selection

General – usually an assessment of identified criteria with relevant weighting and an Environmental Impact Assessment is undertaken when choosing a site and especially if locating new large-scale hospitals in close proximity to a 'Bad Neighbour' such as industrial processes, sewage treatment works etc. The criteria would be ***assessed for potential impact on proposed use, patient safety and staff welfare.***

The impact of the proximity to the sewage works were identified in a report in 2002 (http://asrarchive.nhsggc.org.uk/Phase1/Report/11-south.htm for Glasgow NHS Board Revised 04/01/0202). –"-Sewage works nuisance being addressed by West of Scotland Water."

There are reports of 29 sewage plants across Scotland being rated as poor because of sewers overflowing, leaking and breaching environmental limits. Glasgow is included in this list. (www.robedwards.com/2014/11).

QEUH – what risk assessment and analysis was undertaken to understand the risks associated with the scale and proximity of Shieldhall WWTW when operating in optimal, normal or exceptional/ distressed conditions?

To what extent was it understood that natural ventilation might not be feasible thus increasing reliance on mechanical ventilation and the associated risks and cost when the site was selected?

2.2 Design specification

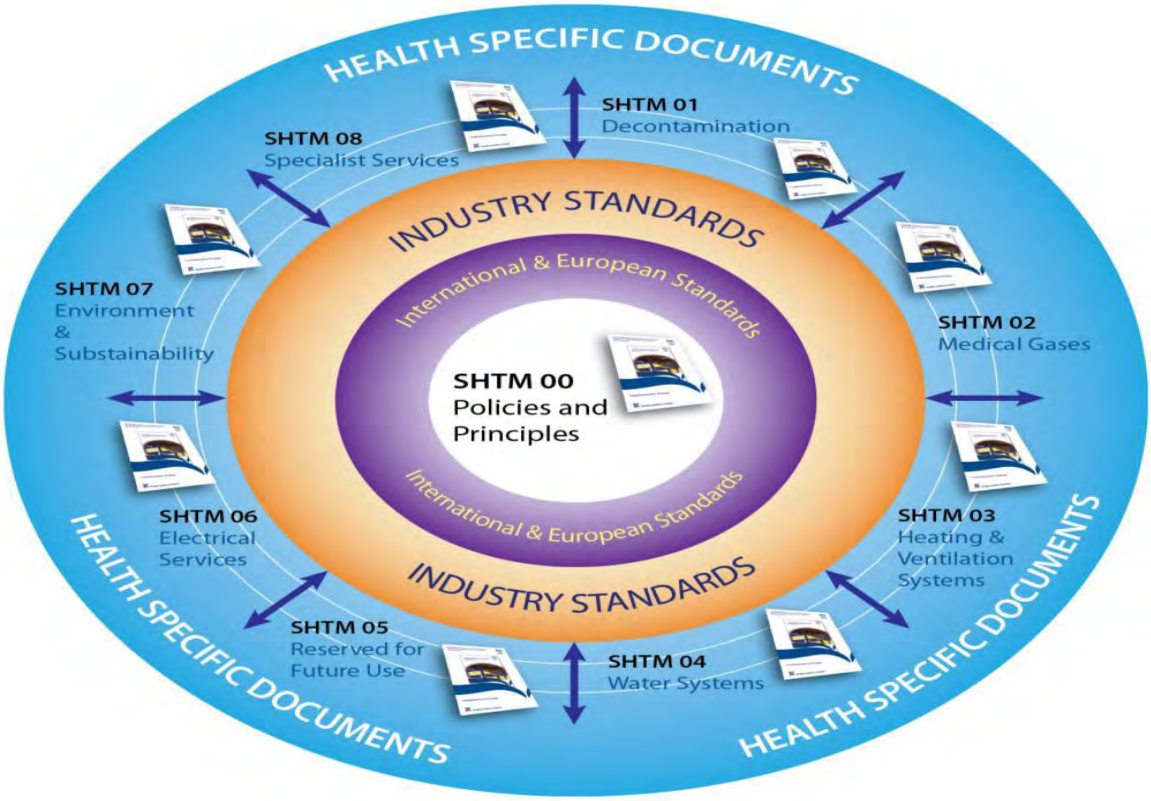
We live in an age of change. ***New buildings should be capable of adaptation to suit new technologies and changes in how the building might be used. There should be:***

- Ability to meet current known needs
- Flexibility to respond to emergency or temporary patterns in use.
- Future proofing to meet emerging and changing demands and needs from time to time.

What Design standards would the specification be expected to reflect? -

General: as a minimum Compliance with Building Standards Non-Domestic 2015 and SHTM guidelines (currently Version 2 2014)

The following process are extracted from SHTM guidelines:



SHTM 04 Water Systems 04 and SHTM 03 are particularly relevant.

Scottish Health Technical Memorandum 03-01 - Ventilation for healthcare premises
Part A – Design and validation
It is essential when undertaking the design of a specialised ventilation system that the project be considered as a whole. The process model set out below should ensure that all relevant factors are considered

Step	***Question***	***Design statement and information required***
1	*Why is the system required?*	*Healthcare applications* *Statutory elements* *Non-healthcare applications*
2	*What is the required system performance?*	*Room air flow pattern* *Air change rate* *Differential pressures* *Air quality* *Room air condition* *Noise limits*
3	*What are the constraints on the distribution system?*	*Location, Size, Materials* *Dampers, Access, Insulation* *Fire considerations* *Room terminals*
4	*What are the minimum requirements for the AHU(s)?*	*Intake / Discharge positions* *Legionella, Health and Safety* *Access, Fire, Electrical safety* *Leaks, Insulation, Cleanliness* *Filtration, Drainage*

5	*What control functions are required?*	*User control requirements* *Estates control functions* *Energy management* *Environmental conditions* *Control sequence logic* *Run, Set back, Off philosophy*
6	*How will the system performance be validated?*	*Validation methodology* *Instruments used* *Design information required* *[Design air flow rates* *Design air velocities* *Pressure differentials* *Noise levels* *Air quality* *Installation standard]*
7	*The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.*	
8	*Handover to client*	*Basic design information* *Commissioning results* *Validation report*

SHTM further states:

1.36 Ventilation will need to be provided:

- *as a requirement for patient care;*
- *in order to fulfil a statutory duty.*

1.37 In assessing the need for more specialised ventilation and the standards desired for patient care, ***managers will need to be guided by their medical colleagues and by information published by Health Facilities Scotland.***

1.38 The statutory need for ventilation falls into two categories:

- *in the first, the need for specialised ventilation and the standards to be adopted are clearly set out in specific pieces of legislation. An excellent example of this is the current legislation surrounding the manufacture of medicinal products in the European Community.* ***The managers of the departments affected by this type of legislative requirement should be aware of their needs and be able to advise on the standards to be achieved;***

- *the second type of statutory requirement arises due to the interpretation of both the Health and Safety at Work etc Act and the Control of Substances Hazardous to Health (COSHH) regulations. The person tasked with conducting COSHH assessments will be able to advise as to the need for, and standard of, ventilation in each particular case.*

QEUH : What was the extent of the consultation and engagement with relevant infection control professionals, clinicians, other health care professionals where appropriate, estates and contractors throughout the course of the design development? Was this sufficient?

Did the ventilation design meet the SHTM standard for standard patient's rooms, positive pressure ventilated lobbied rooms, negative pressure rooms?

Were HEPA filters fitted in all areas where they were required?

What additional design standards were included in the design specification from an infection control perspective?

Would an increased and more effective role for infection control professionals in the design and building of NHS facilities be an area where real improvements can potentially be made?
Should the project programme include additional time or resources to ensure adequacy of consultation of the relevant experts, including external experts where required?
Concerns about inadequate planning and design of the infrastructure of a hospital, which includes basic functions such as plumbing, ventilation and cleaning are fundamental for the safe and efficient working of all healthcare environments have been raised **(Appendix 2).** The risks of any derogation from the well established standards, such as STHM / SHBN, potentially increases the risk of infection acquisition **(Appendix 3).**

2.3 Procurement - Selection of contractor and specialist sub-contractors

General: Procurement assessments are well understood and the need for criteria and weightings to reflect the risks and desired outcomes in a project.

QEUH: To what extent was infection control expertise applied in the selection and assessment of contractors?
What weighting and thresholds were applied to the scoring of contractors and the ventilation aspects of the project?

Was there sufficient weighting attached to the importance of ventilation systems in the procurement phase?

2.4 Construction and installation phase

The lack of involvement by infection control in new medical projects was raised by BMA Scotland in submissions to the Scottish Government earlier this year, where they said:" It is an uncommon event for an infection control team to oversee a major build – although they are often consulted as the project progresses. However, there may not always be enough time and experience to optimally deliver this input despite expert knowledge clearly being needed. "Added to this, the NHS experts and the builder's experts often don't agree on points of design and how this may relate to infection risk."

General: It is not unusual for the client to instruct changes to the design in the course of construction to reflect changing requirements.

Contracts determine the transfer or retention of risk by the Client and contractor through means of input and /or output specifications and, until relatively recently, often determined the level of client supervision activity during the construction phase. The realisation that residual risk always remains with the client has meant the public sector has increased its level of oversight throughout construction to ensure that potential issues in course of construction can be identified and managed by clients more proactively. This requires the client to retain internal and external expert resources for this purpose.

QEUH: To what extent were infection control professionals and external experts, when required, actively consulted before changes were instructed which could impact of the adequacy of the ventilation system design?

How active was the Client in overseeing the requirements during the construction and installation phase? To what did extent did the client play an active role in the oversight of construction, for example checking the right size of ventilation pipes were installed to ensure the number of air changes and quality of the air met the Standards for all categories of patient?
Were the SHTM standards met for ventilation for standard patient rooms, positive and negative pressure room facilities where required?

Is the fact that the ICE theatres have not opened, after significant investment, another example of planning and construction failures?

2.5 Commissioning and handover

NHS Greater Glasgow and Clyde did not respond to specific enquiries regarding safety alarm failures or ducting being the wrong size.
SHTM states: 1.15 Records should be kept of equipment design and commissioning information. The Health and Safety Executive, Medicines Inspectorate and other interested bodies have a statutory right to inspect them at any time. All records should be kept for at least five years.

General: Commissioning and testing would normally take place over a period of time to ensure continual and consistent performance under different seasonal and other conditions.
SHTM states: *The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.*
A maintenance manual and training of maintenance staff would be made available during the commissioning phase.

QEUH: Was the testing and commissioning undertaken such that the system met the required performance standards?
What assurance was provided by the client before accepting the system?
When was it discovered that the sizing of the air ducts was incorrect? Would this be expected to have shown up at the time of commissioning?

A report into water contamination issues at the hospital site revealed there was "no documented evidence of NHSGGC Infection Prevention and Control Team involvement in the commissioning or handover process of the project" although infection control and prevention nurses had been seconded to work on the project team.

Were the risks associated with water, taps, shower heads, piping, bathrooms, sinks and drains understood? Were the Standards met? Any breakdown in design and commissioning will increase risks of waterborne infections (Appendix 2 and 3).

Were the correct taps fitted?

What processes were in place for the testing of water quality and were these adequate?

Were there testing failures during construction process of Edinburgh Children's hospital that resulted in construction being stopped? If so were they similar problems to those being identified at QEUH hospitals?

2.6 Maintenance

Systems and Processes must include inspection, sampling and maintenance regimes, audits, risk management, continuous review and compliance evidence, data and documentation.

General: The SHTM states:

Para 1.10 *Where specialised ventilation plant is provided as part of the protection measures there is a statutory requirement that it be correctly designed, installed, commissioned, operated and maintained. The local exhaust ventilation (LEV) section of the COSHH regulations requires that the plant be inspected and tested at least every 14 months by an independent organisation and that management maintain comprehensive records of its performance, repair and maintenance.*

Air Intake

*1.42 An uncontaminated air supply to the system is essential. In order to achieve this, the air intake will be positioned so that air discharged from extract systems or other dubious sources cannot be drawn in. Exhaust fumes from vehicles can present particular problems. The area surrounding the intake will need to be kept clean and free of vegetation and waste material in order to reduce the possibility of biohazards or fire**. The intake itself will be protected by a louvre and mesh screen to prevent rainwater, vermin and insects etc from entering the system***

A fully developed PPM and reactive maintenance system covering a suite of activities would be expected in all significant premises. As a minimum this would include prescribed activities to meet compliance with specific statutory requirements (eg LEV and Legionella etc) and general maintenance and inspection regimes relating to building fabric Health and Safety. It would be commonplace for ISO 9001 or other QMS standard to be met as a minimum. Specific statutory compliance regimes (eg Fire Risk, LEV, legionella and H&S) require to have a named duty holder and named responsible person(s) aimed at underpinning a culture of ownership and accountability throughout all organisations.

Building maintenance systems are becoming increasingly better developed throughout the UK in all sectors partly due to available technology to support such systems and processes and their ability to provide accurate data and reporting. More compelling however are the increased penalties and personal accountability of executives and officers in the courts for non-compliance with H&S requirements which serve to promote an enhanced conscious H&S culture nationally. Statutory regimes, with named duty holders and responsible persons, are designed that there is personal liability if resources are obstructed when risks are highlighted or where performance of maintenance processes and systems are inadequate. The plurality of persons who may be simultaneously prosecuted encourages team working between different layer of management, Board and maintenance teams.

What investigations have been undertaken by infection control since the hospitals opened, including any of the original infrastructure, such as the neurology building?
This should include both outbreaks and maintenance events. **(Appendix 2 and 3).**
Examples of any events associated with the following organisms should be investigated:

- *Serratia species*
- *Pseudomonas*
- *Non Tuberculous Mycobacteria*
- *Aspergillus species*
- *ESBLs*
- *Acinetobacter*
- *VRE*
- *Environmental gram positive and gram negative bacteraemias linked to water contamination*
- *Exophila dermatidis (a fungus)*
- *Cryptococcus*
- *Mucoraceous mould*

Examples of incidents include

- Contaminated water system resulting in bacteraemias
- Drain and backflow into sinks resulting in bacteraemias
- Fungal infections linked to contaminated showers and showers
- Water /dialysis point leaks on in intensive care linked to fungal /mould infections
- Construction work associated fungal infections
- *Legionella pneumophilla* contamination of water supply
- Sewage leaks in new and old hospital buildings

(as described in Appendices 2 and 3)

What remedial work has had to be undertaken in the new hospitals including poor installation and failure to meet Standards? In particular this should include ventilation, water and drainage.

Is there remedial work still to be undertaken?

Was has the cost been so far and what is the projected cost?

QEUH: What Building Management Systems (BMS) were put in place? Is there an overarching QMS? How are these systems and processes monitored and how frequently are they spot-checked or audited?
Is staff training adequate and are sufficient resources available?
Do statutory compliance regimes (eg Fire Risk, LEV, legionella and H&S) have named duty holders?
Is the level of accountability understood?
To what extent do the Board actively seek out maintenance data, review and seek to update associated risks?

2.7 Operational Management
Para 1.17 of the SHTM states :.

Increased health risks to patients will occur if the more specialised ventilation systems installed to supply high quality air to operating departments do not achieve and maintain the required standards. The link between post-operative infection and theatre air quality has been well established. Plants serving conventional operating departments, for instance, will be required to ensure the separation of areas within the suite by maintaining a specific direction of air flow between rooms, even when doors are opened. They will also maintain the selected operating department environmental conditions regardless of changes in the outside air conditions or activities within the space. In addition ultra-clean operating ventilation systems that are designed to provide an effectively particle-free zone around the patient while the operation is in progress, have been shown to reduce significantly post-operative infection in patients undergoing deep wound surgery. Their use for other forms of surgery may well be required.

General: risk assessments should be undertaken to determine where to locate particular categories of patients in particular areas of the building and recognising that there will be changing demands and requirements from time to time.
The escalation and reporting processes need to be understood. This will ensure that appropriate remedial and control measures are put in place without delay.
There also needs to be clear monitoring and checking systems in place. Estates, domestic services and infection control need to work closely together. There needs to be clear embedded and auditable governance for all these areas within the organisation.

QEUH: For example to what extent was a risk assessment of the air quality undertaken prior to relocating the Children from the Royal Hospital for Children into QEUH?
Why are there ongoing problems with sewage leaks in the Neurology building?

3. Organisational behaviours, leadership and culture.

NHS Education for Scotland (NES) *Developing leadership and management capabilities and capacity across NHS Scotland is a key priority in the 2020 Workforce Vision. It is an integral part of improving quality to enhance patient safety and people's experience of services, as reflected in the NES Strategic Framework for 2014-19*

Does the organisation have accountability at the right level? Or, does it operate a blame culture in which there is a climate of fear?

To what extent are ownership, support, coaching and learning role modelled by all senior staff? Are there consequences for senior staff not adopting defined behaviours?

How is the duty of candour received by Senior Management?

Healthcare Improvement Scotland inspectors picked up on the problems in their report last week, citing "challenges in the working relationships between senior staff" which they say must be resolved.

How is progress reported and what level of oversight is there by the main Board?

Difficulties are encountered within the organisation where staff feel intimidated and afraid to raise their concerns. In part this resulted in three microbiologists feeling they had no alternative but to start the whistleblowing process. There were concerns about “events” not being addressed and communication pathways within infection control. This resulted in all members of the infection control team not being kept up to date with the issues within the organisation. Stage 2 of the whistleblowing process was reached because of ongoing concerns. This required a lot of courage on the individuals part.
The reasons why microbiologists resigning from their infection control duties on three occasions, with the loss of vital expertise, needs to be understood. **(Appendix 4).**

Conclusion

This is a very complex investigation. Some questions may never be fully answered. It is possible that there are failures at different levels within the organisation and over a long period of time. This inquiry should be looking forward, learning lessons and not apportioning blame. There may be similar challenges across NHS Scotland.

Appendix 1

Suggestions on what should be included in the Inquiry?

Any inquiry should not focus on the problems and publicity that has been precipitated by the Cryptococcal infections and the Mucor infections. The inquiry needs to be wide ranging and identify all the problems relating to the South Glasgow Hospital campus. This includes the old infrastructure as well as the new hospitals. We need to understand why there are so many issues that need to be addressed.

The SBAR produced for the whistleblowing process in September 2017 includes a lot of the concerns that have been raised for some time.

A. Understand the Planning process from the beginning

1.What were the roles within GGC of?

- Facilities
- Contractors; including architects and builders.
- Clinicians
- Nursing staff
- Others as appropriate
- Infection control
- Outside Experts; e.g. ventilation

2.Were the national standards, including infection control, met?

3. Where is the evidence of commissioning checks?

Were all the required checks undertaken?
Where is the evidence that this was done?
Were standards met?
Who signed them off?
What was the involvement of infection control?

B. Understanding the issues and challenges

1. Identify ALL the problems / issues that have had to be addressed since the opening of the building; ventilation, contaminated water, leaks, mould / fungal problems, fire doors, falling panels, sewage leak at main entrance etc..

2. What has the cost been in resolving the issues so far?

3. What is the projected cost in resolving the issues?

4. Can the issues be resolved?

5. Is there an Action Plan to address the issues?

6. What is the time frame for addressing the issues?

7. What has the role of Facilities and Infection Control been in managing the problems that have arisen since the hospital opened?

8. When were the concerns in relation to ventilation and water issues first raised?

9. What was the timeline between concerns first being raised and an action plan being drawn up?

This should include listening or not to the professional concerns about patient safety

C. Outbreaks and number Resistant Organisms

1. Identify all outbreaks; including those related to Cryptococcus and Mucor.

2. Identify all resistant organisms within QEUH and RCH

3. The outbreak linked to the contaminated water in 2A and 2B must also be fully reported on. This should include how many patients were infected/ colonised.

Are the numbers above higher than those seen prior to the hospital opening?

4. What infection control investigations took place and what measures were put in place?

5. Look at HEAT Targets

D. ICE Theatres

There has been a huge investment in the ICE theatres. They were due to be opened in 2018, but have failed the commissioning process. Why has this happened and is this another failure of design or implementation or both?

SUMMARY

The inquiry must ensure that there is evidence to support all the information given.

Any inquiry needs to be independent with no cover up, understanding the involvement of all organisations involved in the planning, maintenance and outbreaks/ incidents.

What long term impact have these problems had on the patients who have had delayed chemotherapy?

Has there been an impact on waiting times, including pressures on beds resulting from the ward closures?

Staff, patients and relatives must be given the opportunity to voice their concerns. People need to re-assured that there will be no consequences of speaking out. The fear of speaking out must not be a factor in understanding the facts and getting to the truth. There is a culture and belief that speaking out will have consequences.

There may be action plans in place to address the issues. The inquiry needs to be sure that all the issues are being prioritised and actioned, as well as understanding the timeline for resolving them.

PJ Redding . March 2019

Appendix 2

REF NO. HS/S5/19/HHHE/A2
HEALTH AND SPORT COMMITTEE
HEALTH HAZARDS IN THE HEALTHCARE ENVIRONMENT
SUBMISSION FROM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

What is the scale of health problems acquired from the healthcare environment in Scotland?

What and where are the main risks?

A. Water

The **water supply** can become contaminated due to biofilm formation on plumbing components including pipe work and taps; this is compounded by inadequate maintenance of outlets, drainage issues, failure to adequately commission the water supply and lack of chemical dosing and control measures from the outset.[1-4]

Water coolers in hospitals– these include both mains and stand alone coolers; coolers represent 'dead legs' in a system. They are not regularly cleaned and maintenance is poor. They can serve as a source of contamination to a water system.[5]

Little used outlets – there are too many sinks and showers unused by patients; this leads to inadequate flushing and quickly encourages contamination, chiefly with Legionella and Gram-negative organisms.[6]

Other water sources - dishwashers, need regular cleaning and maintenance and consideration given to inline filters; ice machines also present a risk.[7]

Taps

The design of taps in hospitals has become exceedingly complex and the array of different components is conducive to biofilm formation and retrograde contamination of the water supply.[8] In particular, flow straighteners inserted to direct flow and minimise splash cannot be decontaminated properly and offer a hidden reservoir for biofilm. IPCT involvement in tap selection is crucial, as is regular maintenance, replacement and a cleaning/disinfection regimen. Flow straighteners are associated with Pseudomonas and Stenotrophomonas infections in nearby ventilated patients.[9] The link between tap components and Pseudomonas was known as far back as 1966.[10]

Bathrooms

Bathrooms are a recognised source of mould.[11] Materials need to be water resistant, e.g. Gyproc, paint and finishes need to be of sufficient quality to be able to repel repeated moisture, stagnation and erosion. Shower curtains or partitions require constant attention. Daily cleaning and decontamination is required for patient, staff and visitor facilities, with additional spot checks and a monitoring (and feedback) system in place.

REF NO. HS/S5/19/HHHE/A2

Sinks and drains

Sinks and drains need to confirm to a design which minimises the risk of water splash for patients and surrounding environment.[12-14] There is evidence detailing transmission of Gram-negative organisms from these sources during, and after, use by staff, visitors and patients. This is especially likely with biofilm build-up in tap filters and sink traps.

Drains should contain non-corrosive materials which will discourage biofilm formation and should be cleaned regularly. It is not sufficient to irrigate with disinfectants since even the most powerful agents may fail to penetrate mature biofilm. There is also a risk that environmental organisms can develop tolerance to disinfectants on repeated exposure.

Sink hygiene is very important; staff should not decant anything down clinical hand wash basins and en-suite sinks as this similarly encourages biofilm formation. Emptying liquid waste down hand wash sinks is directly related to sluice access and inadequate education. Patient sinks should be kept free from clutter such as cosmetics and beauty products; this is specifically because these impede adequate cleaning.

Water damage/plumbing

There seems to be a general lack of understanding of the significance of water damage in the health care setting. The following have occurred at hospitals in which the authors have worked:

• Recurrent sewage leaks from plumbing in operating theatre and ward areas. This necessitated removal of water damaged mouldy material from the ceiling space above operating theatres.

• Removal and repair of a wall in the critical care unit as a result of a leaking dialysis point with extensive mould affecting the wall. This was in relation to (plumbing) connections not being adequately tightened.

• Removal of similar mould in the outpatient renal dialysis unit for the same reason.

• Poor plumbing design – there is a large drainage pipe with a horizontal bend situated above the first floor of a hospital. This was blocked by paper towels and leakage affected the staff canteen and main entrance, including various food outlets. This represents poor design strategy since high risk pipe work should always be diverted away from public and patient areas.

• A decontamination unit suffered mould on the ceiling void due to ingress of rainwater. Again, pipe work should be placed away from high-risk areas. A stoppage at this unit affected surgical services across the health board and further afield.

• Mould in a cardiac ward due to rainwater ingress from inadequately sealed windows and a flat roof design.

REF NO. HS/S5/19/HHHE/A2

B. Ventilation systems

General comments

Inadequate ventilation systems have been installed in new build hospitals; these are not fit for purpose for the specialist patient groups they are intended for, e.g. bone marrow transplant and haematology wards.[15-17] The systems did not supply sufficient air changes, pressures and HEPA filtration. Staff are not trained to be able to adjust settings in facilities with different air delivery systems.

There is a lack of negative pressure room facilities to reduce the risk of airborne transmission from isolated patients with potential to spread to other patients. This does not just apply to Infectious disease units. All large acute sites should have sufficient negative pressure facilities. A&E departments cannot choose presenting patients and patients cannot choose their infections. This means that every hospital should be able to safely isolate patients with TB, meningococcal meningitis, exotic respiratory infections (e.g. SARS; MERS), etc. The lack of these facilities was immediately apparent when Scotland hosted an unexpected case of viral haemorrhagic fever three years ago.

Likewise, the adoption of positive pressure ventilation rooms (PPVL) room design throughout a number of Scottish hospitals is inadequate to protect isolated immunosuppressed and/or vulnerable patients against airborne contamination from both inside the unit and outside the hospital, e.g. other patients; building and renovation.

Thermal wheel technology

Thermal wheel technology, whilst energy efficient, may lead to mixing of clean and dirty air, undesirable in a healthcare setting, and especially at sites where immunocompromised patients are present.

Chilled beam technology

Chilled beam technology is hailed as energy efficient but the system reduces air changes in patient rooms to <3/hour. This increases the risk from aerosol generating procedures since fewer air changes impede the dilution of microbial contamination. Furthermore, chilled beams drip condensation directly onto patients and beds. They also collect significant levels of dust and are physically difficult to access, making cleaning impossible by domestic staff. Cleaning cannot be undertaken while there is a patient present in the room.[18]

Vents

Air vents, similarly, can be very difficult to clean particularly in ICU settings.[16] These gather dust rapidly and annual cleaning regimens are far from sufficient. Dust quickly builds up within 3 months. Clinical ward staff, domestics and estates need to coordinate services in order to introduce and embed a planned programme of cleaning and maintenance of all air vents, internal and external filters, and air ducts adjacent to clinical and non-clinical areas.

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Building work

There is a constant stream of external building and repair work ongoing. This is rarely, if ever, discussed or signed off by infection control staff.[19] External building work and internal repairs can lead to generation of dust and release of fungal spores. This may necessitate re-routing of high-risk patients and administration of antifungal prophylaxis.

C. Cleaning

Current cleaning in one hospital conforms to a dynamic risk assessment for the first 3 days of a patient stay, i.e. if room appears visually clean, then cleaning is not carried out on that day. This is completely unacceptable. Visual monitoring cannot accurately gauge microbial dirt including pathogens.[20] Virtually all hospitals in the Western hemisphere, and further afield, clean patient rooms or bed spaces at least once per day.[21,22] Following recent clusters of environmentally associated HAIs it was decided to clean 'high risk' areas daily. However, once daily cleaning of frequently touched bedside sites should be done every day for **all** patients, not just those who are particularly vulnerable or where there have been infection incidents.

The current microfibre mop system for the same hospital appears to be ineffective since floors remain dirty; the mops lift the dust but then re-disperse it elsewhere.[23] The results from environmental sampling suggests that domestics have not been adequately trained in how to use mops or wipes, specifically, the 'one wipe; one site; one direction' system or frequency of use and/or management of cleaning fluids and disinfectants, as laid down by HPS decontamination guidelines.[24]

Hospitals require adequate domestic resources.[21] Cutting or failing to maintain the domestic work force increases the risk of HAI for patients, staff and visitors. It is also a highly contentious issue for patients and their visitors who will quickly comment on untidy and/or dirty healthcare wards.[25] High-risk units require extra cleaning hours and it is important that domestics work closely with ward staff and are included as part of the team. Moving domestic personnel around destroys ownership and erodes motivation.[20]

Plant rooms

Plant rooms at one hospital have become infested with pigeons and cockroaches. These

areas accommodate the water and ventilation systems that serve the entire hospital and ultimately reach all patients, staff and visitors. They may not be deemed 'clinical' areas or 'high-risk' but they should still be kept clean and free from vermin, insects, etc. [25] No one seems to have been designated responsible for cleaning and/or monitoring these areas.

Pest control

Bird control is very important particularly where there are bone marrow transplant and other
seriously immunocompromised patients. European haematology guidance recommends no birds should be nesting close to these units. The risks from pigeons and their droppings were documented over 50 years ago and there exist known strategies to protect buildings from roosting birds.[25]

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Outcome of stated risks

Specific incidents associated with environmental deficiencies are listed beneath. This list is not exhaustive, and other examples can be given;

1) Occurrence of a large outbreak of *Serratia marcescens* (environmental Gramnegative bacillus) in the neonatal intensive care unit in part related to inadequate cleaning of the environment. Eventually the outbreak terminated following the use of hydrogen peroxide vapour;

2) A large and significant water incident resulting in paediatric patients developing Gram-negative bacteraemia's. The contaminated water system likely relates to a combination of contaminated outlets and pipework, problems at the time of commissioning and lack of ongoing maintenance;

3) A significant incident with paediatric patients developing bacteraemias linked to drains and backflow into sinks;

4) Increased incidence of a fungus (Exophiala dermatidis) as a result of contaminated dishwashers and mould in showers;

5) Mucoraceous mould in intensive care patients, likely to be related to a leaking dialysis point;

6) Two cases of hospital acquired Cryptococcus relating to a pigeon infestation; this is undergoing investigation;

7) Colonisation of intensive care patients with the fungus Aspergillus and a source of water damage and mould traced to the ceiling void. The intensive care unit had to be closed for a number of weeks to facilitate safe removal and repair;

8) Colonisation of surgical patients with Aspergillus due to nearby construction work where there had been failure to implement HAI scribe and appropriate infection control measures;

9) Outbreak of Vancomycin resistant enterococci (VRE) in a renal unit related to unit design, patient flow and environmental contamination. Rates of VRE acquisition fell following a move to a new unit with single rooms;

10) Widespread contamination of a water system with Legionella pneumophila due to inadequate flushing of a ward that had been vacated and was unoccupied. This required installation of a chlorine dioxide system to provide control.

Are the current systems and processes in Scotland adequate for monitoring, reporting, eliminating or controlling these hazards?

Current systems and processes in Scotland are inadequate for managing environmental hazards; this is essentially because infection control personnel are either sidelined during

design planning or advice is circumvented due to ignorance, time and resource implications. The basis of all healthcare environmental new builds should incorporate advice and comments from experienced infection prevention staff.
It is vital that infection control teams are involved from the outset at the time of planning with the architects and design team. A lot of these issues detailed above could have been ameliorated if appropriate staff had been involved at the very beginning.
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It appears that the design brief for a new hospital is 'innovation'. The design brief for another is 'energy efficiency'. Quite simply, the design brief for any hospital needs to be 'patient safety' whether or not there is an ornamental pond or multiple restaurants.
For environmental incidents often patients are the 'samplers' and staff react to patient infections. There are robust infection control surveillance systems which will detect infections and alert organisms. The reporting structure is via the HIIAT process (as per the HPS national manual) to Health Protection Scotland (HPS) and the Scottish Government (SG) via submission of a HIIORT report.
This monitoring is designed for microbiologists and infection control teams, not estates personnel. Environmental incidents tend to be related to the estate/facility and control measures usually involve these aspects. Whilst there are clear reporting and governance structures for infection control teams, there is a paucity of governance for estates and facilities departments. There is a need to ensure all appropriate actions have been undertaken, in a timely fashion and that assurances and resources for continued maintenance are given for future prevention.
Infection prevention is a thankless task. It only becomes important once an outbreak or infection incident has hit the headlines. It is also difficult to cost because you cannot cost an outbreak or infection incident that does not happen.

Conclusion

Urgent action is required to ameliorate inadequate planning and design of the infrastructure of a hospital. Basic functions such as plumbing, ventilation and cleaning are fundamental for the safe and efficient working of all healthcare environments. There is plenty of evidence and guidance for appropriate installation, maintenance, decontamination and monitoring of all of these, so there is concern that recent new builds appear to have defaulted on vital systems. Indeed, it is likely that there are many hospitals in Scotland with these issues. The environment – air, water and surfaces- is a huge repository for potential pathogens, and with increasing concern over pan-resistance, this threat cannot be easily dismissed. The solutions lie with estates and domestic service managers in setting out a structural framework for checking, maintaining, monitoring, providing feedback and engaging with infection control. Close working between estates and infection control is imperative and the concept of prevention has to be embedded in routine protocol.
There is a danger that healthcare bosses introduce expensive novel cleaning technologies such as automated hydrogen peroxide and ultraviolet light robots. Such systems are seen to be particularly useful for high-risk units and resistant organisms such as carbapenemaseproducing
enterobacteriaceae (CPE) and other resistant Gram negatives such as *Acinetobacter* spp..These organisms, along with *Clostridium difficile* and vancomycinresistant
enterococci (VRE) are known to survive well in the environment.[21,26] However, sufficient, adequately trained and monitored domestic staff can be just as effective using

detergent wipes and bleach for targeted sites at the correct frequencies. Why should costly automated devices be introduced to 'sterilise' surfaces at risk of immediate recontamination from underlying problems with cleaning, ventilation and water outlets? Should we not try to sort out basic systems first, and then model the cleaning to clinical areas? It is not cost–effective to paper over the cracks in basic infrastructural deficiencies by use of powerful decontamination technologies. It is like pouring expensive disinfectant down a toilet without

cleaning it first. These agents affect the environment in ways that we are only just beginning to understand.[27]

While management of water and air require urgent attention, cleaning remains the 'Cinderella' of infection control. As Florence Nightingale once said, 'Wet dirt is dangerous'; how right she was.[28]

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APPENDIX 3

REF NO. HS/S5/19/HHHE/A3
HEALTH AND SPORT COMMITTEE
HEALTH HAZARDS IN THE HEALTHCARE ENVIRONMENT
SUBMISSION FROM XXXXXXXXXXXXX
What is the scale of health problems acquired from the healthcare environment in Scotland?
I am not aware of any current system of data collection which would answer this crucial question, therefore I think the answer is "unknown" . However, based on experience and anecdotal evidence from peers it is my view that there is a significant, as yet unquantified, contribution of the environment to HAI rates in Scottish hospitals. Examples of outbreaks where the healthcare environment in Scotland has been *implicated* (not always *proven)* as a source or route of transmission include:
• Serratia
• Pseudomonas
• Non Tuberculous Mycobacterium species
• Aspergillus species
• Acinetobacter
• ESBLS
• Environmental gram positive and gram negative bacteraemia linked to water contamination
• Surgical site infections
In order to get a rapid idea of the burden of environmental outbreaks it may be possible to glean information from data already gathered - eg assess the reports to HPS of healthcare associated infection incidents which are graded green, amber, red to identify the cases that are deemed to have had an environmental element in the route of transmission. Numbers of cases and clinical impact could be quantified and reported. This would unfortunately miss cases that are not identified as part of an outbreak or "incident", and the detection of an outbreak relies on a high level of awareness of the importance of the environment as a reservoir by IPCTs and Estates teams; eg serratia and enterobacter may be mistaken as normal flora when they are also environmental organisms.
Unfortunately the nature of environmental source outbreaks is that they can rapidly cause infection to large numbers of patients (eg legionella) and therefore "steady state" statistics are not in themselves reassuring.
Evidence of compliance of the current NHS estate with standards that are already embedded in SHTMs and SHBN documents would be required for assurance that the
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healthcare environment is being built and maintained for reduction of infection risk. To my knowledge this is not readily available or systematically collected or reviewed nationally. There is a perceived difficulty in applying the building standards as there are different iterations with updates every few years. In my experience there are misconceptions that standards have radically changed and old estate is not expected to meet new standards. In terms of theatres for example the core parameters of pressure differentials, air exchange rates and clean to dirty air flow have remained static in guidance for many years, while it is true that the size and volumes of air have changed to accommodate ever more complex

procedures and increased sizes of surgical teams. Therefore the idea that old theatres do not require to meet current standards needs careful appraisal. In these circumstances it is absolutely critical that there is a clear understanding of public expectations with regard to risk mitigation in both old estate and upgrades, as well as new builds.

• **What/where are the main risks?**

Risk by Patient factors

It is important to note that patients have different levels of risk of infections based on immune status, procedures carried out, and medication, eg steroids and antibiotic use. Therefore different patients exposed to an identical environment will have different outcomes. Furthermore, minor changes to a stable environment can have large consequences depending on the setting. For example, pseudomonas colonisation of a tap in a standard ward may not cause immediate problems; however, pseudomonas at even low levels in a NICU tap could have rapid and serious consequences. Therefore strategies for prevention require a nuanced approach to risk and intervention - a purely guidelines based approach will not be sufficient for every setting. Efforts to mitigate risk should therefore be proportionate and directed to the patient specific risk status.

Main at risk patient groups requiring extra attention to risk management of the environment:

• Neutropenic and other immune suppressed states, can be stratified into very high, high and low risk groups
• Neonates
• Burns patients
• CF patients
• ITU
• Solid organ transplants
• All patients at time of surgery, especially “clean” procedures such as joint replacement

In addition patients can themselves present a risk of infection to others eg infectious TB, and the role in the environment in this setting is to prevent onward spread.

In order to understand the level of protection offered to these patient groups in NHS Scotland, evidence is required regarding patient placement policies and standards of environment for all these groups as well as audit data on infection rates in these particular patient groups.

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Risks of Environmental Routes of transmission

Airborne infections

Ventilation Systems

There are very well established parameters for ventilation in the health care environment that have been in place for decades. These cover all areas of the hospital and the most relevant areas are those where contaminated air causes significant risk of infection, which is mitigated by the provision of specialist ventilation:

• Theatres, including minor procedures and ultra clean technology
• Source isolation for infectious patients (requiring negative pressure rooms, and increased Air exchange rates)
• Protective isolation for immune compromised patients (requiring positive pressure rooms, HEPA filtration and increase Air exchange rates)
• NICU, ITU,
• Endoscopy suites

• Burns units
• Treatment rooms
• Clean rooms
• Decontamination suites
• Aseptic pharmacy
• Laboratories

Any derogation from SHTM/SHBN standards has the potential to increase the risk of infection acquisition and should be documented with rationale for the derogation.

In addition there are regional type services that have no UK Building standards, but which need specialist planning and design, using international guidance and evidence based data and first principles: infectious diseases units, bone marrow transplant units, and CF units. This requires a multi-disciplinary team of experts, and Infection Control should be central to this is already outlined.

Any breakdown in the design, commissioning or validation process poses a risk that the environment does not meet standards and therefore increases the risk of airborne infections.

Building works

Building work on a hospital premise is known to pose a risk of airborne fungal infections. The HAISCRIBE process which has been in place since 2007, is a critical tool for minimising risk of infections due to building work in the health care environment. There is anecdotal evidence that this process has been inconsistently applied and therefore this remains a priority area for monitoring and should be recognised as a patient safety issue.

Waterborne infections

Standards exist for water system commissioning, maintenance and microbiological testing, especially focussed on Legionella and pseudomonas. However, many organisms can

contaminate and colonise water systems and the component parts eg taps and shower heads and piping especially if there is any stagnation, certain pipe materials are used, or if there is a contamination event due to a breach in the system.There is a body of scientific literature that can be referred to that documents the role of water system associated HAIs Any breakdown in the design, commissioning and maintenance of these complex systems will increase risks of waterborne infections.

Physical accommodation

A key to reducing infection in hospital is to have a clean and clean-able environment. The drive to “design out” infection has been ongoing for many years. Therefore choices of furnishings, fittings and materials are all crucial for minimising infection risk and a wealth of advice is readily available. Any lack of maintenance or cleaning will also increase risk. When the monitoring and management of cleanliness and the state of the environment is entirely segregated from infection control input, there is potential for risks to arise and remain unidentified.

• Are the current systems and processes in Scotland adequate for monitoring, reporting, eliminating or controlling these hazards?

My view is that the systems are NOT currently adequate, however there are resource implications for any planned measures for improvements.

Monitoring

As described there is no current system which will adequately determine epidemiology of environmental infections as a cohesive entity.

There is inconsistency in the implementation of Scottish Health Building standards and no systematic monitoring.
Possible ways to address this gap are
1. Monitoring rates of HAIs acquired from the environment.
A specific surveillance system is unlikely to be practical given that this would require every HAI to be assessed for a contributory role of the environment in transmission with clear definitions and a whole system of surveillance targeted specifically to these infections. Current surveillance targets only *C difficile*, MRSA , SABS, and *E coli* bacteraemias, and is already resource intensive. Furthermore there are complexities in setting up specific surveillance for environmentally acquired infections :
• Novel outbreaks occur and previously set up alerts will not detect them (note the recent additions to the “alert organisms” lists over past few years), initial detection often relies on alert Microbiology and infection control practitioners, as well as clinical staff, and this is not always acknowledged
• Point prevalence studies do not capture infection burden of outbreaks which are by nature episodic.
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• Organisms that can be environmentally acquired can also have other routes of transmission, eg *Enterobacter sp,* and so surveillance cannot be simply organism based (indeed C diff and MRSA both have environmental components to routes of transmission)
• Proof of an outbreak source is rare in terms of matching organism typing results of clinical isolates to environmental isolates, especially for gram negative organisms. The weight of proof required in order to initiate interventions is very different from that used for research purposes in which a pre conceived hypothesis is tested and predetermined data gathered. The concept of a balance of probabilities, as well as the precautionary principle, need to be invoked in order to have effective infection prevention interventions in a timely manner.
• HAI may not present until after discharge from hospital, especially when duration of admissions is shortening, therefore point prevalence studies of inpatients will miss cases
A pragmatic monitoring system would rely on empowered local teams having good knowledge and expertise and being listened to particularly with regard to novel situations , along with HPS assessment of all reports for possible environmental sources.
2. Targeted assessment of NHS Estate with regard to compliance with Building standards and maintenance
This would be a surrogate measure for the level of risk in hospitals posed by the environment, and would have the benefit of identifying areas of actions for risk mitigation . For example ventilation and water quality are not addressed in the HAI standards, but are critical in preventing infections. Examples of numerics that could be utilised:
• Number of theatres with validation fails, and tabulated key parameters such as ACH, pressure differentials and notes on layouts of theatres being publicly reported.
• Percentages of theatres out with validation timeframe
• Percentage Planned Programmed maintenance schedule being met
• Number of negative pressure rooms available and numbers of fails in pressure differentials and reasons for fails
• Number of sewage leaks into healthcare environment, number of closures of theatres due to environmental issues,
• Number of capital projects opening without IPCT sign off, or delayed opening due to

IC related concerns
• Numbers of HAISCRIBES carried out in hospitals and evidence of IPCT sign off
• Number of taps with TMVs and statistics on the maintenance programmes for these
Records of areas requiring specialist ventilation and water supplies could be examined and audit-able data presented to support a view that these are built and maintained to
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standards (eg Bone marrow transplant, renal transplant, renal dialysis units, ITU, neonatal units, treatment rooms, endoscopy suites)
It should be noted that the importance of the environment design, ventilation and water standards are not new concepts, on the contrary these are very well established in literature and building standards. The current challenge is moving towards an embedded and auditable
system of governance to implement and monitor these standards.

Reporting

Mandatory reporting of outbreaks is well embedded in Scotland. However formal lessons learned and sharing of the reports is less well established.
A formal system to report building issues prior to outbreaks occurring (which would be in the spirit of prevention being better than cure) is non-existent or at least, not obvious.
In my experience there are barriers to the reporting of environmental issues that need to be addressed, lack of clarity regarding the most appropriate reporting route (HIS/HPS/HFS/SG), fears regarding publicity, financial implications of remediation, highly politicised context, and staff uncertainty that these issues pose real patient safety risks.

Eliminating/Controlling

While absolute elimination of infection risk is unlikely, there is increasing evidence that key interventions, good leadership and cultural changes can dramatically alter the rates of HAI, as NHS Scotland and UK wide data have already proved with MRSA and C diff. At the peak of these infections only a decade ago, the idea that we would see the 80% or so reductions seemed laughable. The repeated lesson in infection control is that levels of reduction are often determined by level of prioritisation and co-ordination of effort.
With regard to the environment in hospitals there is already a body of evidence regarding good practice and NHS Scotland has already invested in the production of excellent building standards and HAISCRIBE documents which has included HFS led training days in different health Boards. This excellent work needs to be consolidated and progressed to ensure patients benefit from the investment.
The importance of infection and outbreak prevention is becoming even more critical in the current age of extreme antibiotic resistance. As antibiotics run out, any breakdown in infection control will have potentially catastrophic consequences and investment in controlling these risks can be viewed as a corner stone to any strategy to fight antimicrobial resistance.
My view that there is much room for improvement in the current approach to managing risks
posed by the healthcare environment is based observations including:
1. Time lag for implementation of good practice - eg TMV taps have been a known risk with warnings internationally post Belfast pseudomonas NICU outbreak in 2012, yet have been installed in new hospitals after this date including high risk areas
2. Resource implications used as a counter argument for control measures being implemented. In the age of realistic medicine, it is crucial that there are open discussions

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regarding which standards are basic enough to merit uncompromising enforcement, and which, if any, can be considered desirable but not necessary. Patient and public voice is critical in this.
3. Lack of planning for cost of implementing standards, Eg the cost of putting negative pressure in place as part of an HAI scribe should be detailed as a cost by contractors at the initial stages
4. Lack of clearly defined roles for members of IPCT, Public health, and Estates and HPS and HFS in managing and advising on these issues. Note: ICD job descriptions not nationally agreed to date, although this has been the subject of much discussion
5. Lack of timetabling of IPCT involvement in capital and estates projects,
6. Cleaning methodologies need rigorously monitored with regard to the details of the evidence for the methodology and the realities of the implementation,
7. Building validation is not comprehensive: eg PPVL isolation rooms require all the detailed parameters to be correct - not a pick and mix approach .The analogy a ventilation engineer once told me was if you got a car with a wheel missing, its not going to do the job is it?
8. The disbanding of the ICNETWORK a few years ago fragmented the Scottish IC community and that useful level of peer review, networking and discussion was not replaced with an alternative as was anticipated.

Conclusion

It should be noted that these issues are certainly not unique to NHS Scotland, however by building on the IPC infrastructure already in place we have an opportunity to excel in this area of patient safety and harm reduction by developing a national approach to this issue. An approach that puts prevention at the heart of policy could seek to quantify basic parameters regarding the Scottish healthcare estate in order to drive improvements and reduce the risk of outbreaks as well as sporadic infections.

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APPENDIX 4

HEALTH AND SPORT COMMITTEE

HEALTH HAZARDS IN THE HEALTHCARE ENVIRONMENT

INQUIRY into QEUH, RCH, Neuro-sciences (South Glasgow Hospitals)

I apologize for missing the 28th February deadline. However, having read the Sunday Herald report, I felt I needed to raise my concerns with the committee directly.

I am a retired microbiologist. I am prepared to provide further detailed information to the committee should I be invited to do so.

Concerns in relation to the building specifications and infection control were first raised in 2014 with senior management. Some of the issues were addressed, many others were not.

Microbiologists continued to highlight problems and concerns in 2015. There have been resignations of infection control doctors because of the difficulties faced. These resignations resulted in the loss of experienced infection control doctor expertise.

All microbiologists have some responsibility for infection control and need to communicate with the infection control team. Their workload and contribution to the infection control service cannot be considered in isolation from the duties of the infection control doctors. The resource pressures for clinical microbiology and infection control cannot be separated. Both are under pressure and the resource implications need to be looked at as a whole.

In September 2017, three microbiologists raised an SBAR and Stage 1 of the whistleblowing process raising some of our concerns. I will not outline any details here.

It was very disappointing that we felt we had no alternative but to go down the whistleblowing route. We felt this was a last resort option as a number of issues, some of which we felt to be critical, were not being fully addressed. The driving force was our concern for patient safety.

In February 2018 some microbiologists felt the need to go to Stage 2 of the whistleblowing process. NHS GGC could not provide us with the re-assurances and feedback that the concerns were being fully addressed. This was despite numerous requests for updates. We appreciated that some of the solutions were very challenging both from a practical and resource perspective. An action plan was required, including both short term and long-term plans. I believe this is being worked on by NHS GGC and I hope all the concerns are being examined.

After reading the article, I was astonished that the infection control manager is now the GGC project manager, involved in both the inquiry and internal investigations. He does have an important contribution to make and needs to provide information to any inquiry. However, I do not believe any person or organisation, who has been involved in the decision making process for the building specifications, commissioning, addressing the problems since the opening of the hospitals etc, can be part of the inquiry committee. I am sure that those responsible for the inquiry will not want to be open to the criticism that the inquiry was a whitewash.

I read the HPS report on the water contamination in the RCH. There were many good recommendations, but I believe the report was incomplete. It did not cover the period from the first case in 2016 until January 2018. The timeline for all cases needs to be understood. I would also have been interested to know if there were any bacteraemias with these organisms in the 12 months prior to the move into RCH. This is not difficult data to collect and analyse.

There will be many people who are frightened to speak out and raise their concerns because of the perception of the consequences that they will face. I hope that the committee will be able to re-assure staff, patients and relatives that they do not need to have any concerns. Staff have a professional responsibility to raise any concerns they might have for patient safety. Patients and their relatives have a lot of pressure to cope with but may feel it is helpful to discuss their concerns. As we know, patients sometimes feel that raising concerns may affect the treatment they receive and we must work to re-assure them.

This is a very difficult and worrying time for all involved. There are staff shortages at all levels within the organisation. This must be acknowledged. I believe that when the issues are understood it will uncover multi factorial problems across the organisation and probably not unique to NHS GGC.

While people need to understand what happened with the cryptococcal infections, this must not be at the expense of the other issues.

I hope the inquiry will be able to unravel this complex labyrinth of issues. It will be a challenge.

Patient safety and restoring public confidence needs be the primary drive of the inquiry. I hope that lessons can be learnt to ensure positive changes across NHS Scotland. The public need to understand that all hospital acquired infections cannot be prevented. Incidents do happen that have to be managed appropriately. The challenge is to have processes in place to minimize incidents with a pro-active infection control service. This reduces the number of time-consuming reactive incidents.

I hope the mistakes made during the planning, building, commissioning, maintenance etc of the QEUH and hospitals in south Glasgow will ensure that lessons are learnt and rolled out across NHS Scotland. This must also include a Board responding to concerns raised by experienced staff in a timely manner.

Inkster, Teresa

From: Inkster, Teresa
Sent: 12 June 2019 14:52
To: Jones, Steven; Campbell, Myra; Pritchard, Lynn; Macdonald, Ian
Subject: RE: SCI GA
Attachments: Draft Report 560572.docx

Comments attached.
Can I have a copy of the final report
Thanks
Teresa

From: Jones, Steven
Sent: 07 June 2019 15:28
To: Campbell, Myra [redacted]; Pritchard, Lynn [redacted]; Macdonald, Ian [redacted]; Inkster, Teresa [redacted]
Subject: RE: SCI GA

Dear All,
Apologies this has taken longer than I hoped to put together, please can you have a look through and track any comments/additions back to me please,
Thank you

Steven

Inkster, Teresa

From: Campbell, Myra
Sent: 16 August 2019 15:37
To: Inkster, Teresa; Pritchard, Lynn
Subject: FW: SCI
Attachments: Draft Report 560572 V1 Amendment.docx; Draft Report 560572 V2 Amendment.docx

Are you both happy with this ? We are keen to send something to the family , thanks , Myra

From: Campbell, Myra
Sent: 15 August 2019 11:49
To: Hart, Alistair; Macdonald, Ian
Subject: FW: SCI

Hi Alistair / Ian

We have modified the response to allow us to send something to the family as we are still waiting for expert review and don't want to send anything that contradicts what is in the report.

Can you please look at V2 and let me know if you are happy with it and ok to include the 2 highlighted sentences.

Thanks
Myra

From: Burt, Elaine
Sent: 15 August 2019 11:29
To: Campbell, Myra
Subject: SCI

Myra,
1st attachment is with amendments indicated, 2nd one is with these removed.

Elaine

From: Burt, Elaine
Sent: 27 June 2019 10:13
To: McColgan, Melanie
Subject: FW: Updated SCI Final draft ward 4c Cryptococcus Patient
Importance: High

Hi Melanie,
Areas highlighted following discussion with Mags. I will share with Frances too.

Regards

Elaine

From: Burt, Elaine
Sent: 25 June 2019 09:47
To: Mcguire, Margaret
Subject: Updated SCI Final draft ward 4c Cryptococcus Patient
Importance: High

Mags,
We are running this past Jonathan and Elaine Van Hagen. This is the adult patient who died [redacted] contracted Cryptococcus [redacted]. Can I check if you have any comments on this. We are keen to finalise and keep to time this week.

Thanks

Elaine

From: Campbell, Myra
Sent: 19 June 2019 11:55
To: McColgan, Melanie; Burt, Elaine; Macdonald, Ian
Cc: Inkster, Teresa; Pritchard, Lynn; Jones, Steven
Subject: FW: Updated SCI draft GA

Hi

Latest draft of SCI , Teresa and Lynn have made changes.

Ian can you please confirm that you are in agreement or make any changes required.

Regards
Myra

Inkster, Teresa

From: Inkster, Teresa
Sent: 19 August 2019 16:59
To: Campbell, Myra; Macdonald, Ian; Hart, Alistair
Subject: RE: SCI

Hi Myra

Thanks for sending this to me.

I am not happy with this version. It does not accurately reflect the SCI process that I participated in . Almost everything I have said has been scored out. What I have stated is scientific fact and will not be contradicted by the advisory group work if that is the 'expert review'.

What has emerged recently is further photos of contamination in the plantroom , not made available to IMT, and a history of dead pigeons being retrieved. Furthermore, I sent community isolates for whole genome sequencing . This has strengthened the relationship between our two patient isolates in that the community ones are very different. So in fact, we can strengthen the hypothesis re source even further. What remains unclear is the route of entry into the building and that is what the advisory group is focusing on.

My point is we could keep holding this back to add info, but [redacted] family deserve an update. It is very concerning that we have not yet sent this report to the family . I thought the SCI process had to be complete within 3 months of the incident?

There seems to be no learning from this and the water incidents in that we are not providing families with open, transparent and timely communication. Not anyone in this emails fault!

I'm not sure who is in charge of this SCI but please feed my comments back

Kind regards
Teresa

From: Campbell, Myra
Sent: 16 August 2019 15:37
To: Inkster, Teresa [redacted]; Pritchard, Lynn [redacted]
Subject: FW: SCI

Are you both happy with this ? We are keen to send something to the family , thanks , Myra

From: Campbell, Myra
Sent: 15 August 2019 11:49
To: Hart, Alistair; Macdonald, Ian
Subject: FW: SCI

Hi Alistair / Ian

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Thanks

Issues raised regarding Infection control

GREEN, Rachel (NHS GREATER GLASGOW & CLYDE)

Fri 06/12/2019 12:07

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Gardiner Robert (NHS GREATER GLASGOW & CLYDE) [redacted]; Chris.Deighan[redacted]
[redacted];

Hi Teresa
Chris has asked me to meet with you to investigate some concerns you have raised regarding three specific issues

1. SCI process
2. Duty of candour regarding infection control incidents
3. Governance relating to specialist groups reporting to IMTs

I wonder if it would be possible for Rob and I to meet with you to go over these issues at a mutually suitable time. Could you let me know what time would suit you over the next couple of weeks. I think it might take a couple of hours
Please let me know
BW
Rachel

Rachel Green
Chief of Medicine
Diagnostics Directorate
Acute Services Division
NHS GG&C
Road Tel:
[redacted]

-

Significant Clinical Incident: Investigation Report – Confidential

NHS Greater Glasgow and Clyde

Directorate/Partnership/Sector: Regional – Haemato-Oncology

Datix ID: 560572

Date of incident: 7 January 2019

Commissioned date: 11 March 2019

Date of report:June 2019Report version: Draft

If this is a joint review, which services are involved? n/a

Is this incident a Duty of Candour Event?No

This document contains sensitive information therefore any release must be carefully considered.

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Purpose

To identify the root causes and key learning from an incident and use this information to significantly reduce the likelihood of future harm to patients.

Objectives

- To establish the background and sequence of events that led up to the incident.
- To identify underlying contributing factors in management and organisational systems.
- To identify lessons learned and develop a list of recommendations that would prevent similar incidents occurring in the future.
- To communicate any findings and recommendations across the organisation including those individuals directly affected or involved.
- To provide a means of sharing learning from the incident
- To provide a report and record of the investigation process and outcome.

It is important to note that whilst acknowledging the professional responsibility and accountability of all staff and departments involved in this incident, it is **NOT** the purpose of this report to apportion blame.

Section 1: Terms of Reference

This section should detail the specific Terms of Referenceprovided to the Investigation Team.

The SCI has been commissioned to review the care received by a patient who contracted a cryptococcal infection whilst an inpatient. ~~The review will seek to establish whether [redacted] contracting the infection was preventable, and~~ the significance of the infection in the patient's subsequent care.

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Section 2: The Investigation Process

This section should include the name and roles of members of the review team as well as a description of the data gathering process. GP as well as patient & family involvement in the review should be highlighted, as well as contact with staff. If a Duty of Candour incident, details in relation to apology and how this was communicated are to be included. A timeline of key events relating to the incident should be considered.

Review Team

Consultant Haematologist
Consultant Microbiologist
Lead Nurse in Infection Prevention & Control
Clinical Service Manager
Lead Clinical Risk Coordinator

Review Process

Review of patient records
Construction of timeline
Review of any relevant policies, procedures and literature

~~The SCI takes note of wider reviews concerning infection control at the Queen Elizabeth University Hospital site.~~

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Family Involvement

The patient's family has been notified of the SCI and will receive a copy of this report once complete

Section 3: Incident Background &Detailed Description of Events

This section should provide a brief summary of events including any relevant background information and events immediately preceding the incident, including immediate actions taken.

Patient Background

[redacted] was a [redacted] patient who was diagnosed with [redacted] in 2016. [redacted] from October 2016 to January 2017 as part of the [redacted]. [redacted] had a relapse of the disease 8 months later and was commenced on [redacted] from December 2017. This was intended to be indefinitely in order to control the progression of the disease.

[redacted] appeared to be responding well to treatment until [redacted] became unwell on a trip to see relatives in [redacted] in October 2018. [redacted] was admitted to the [redacted] October 2018 feeling generally unwell with fever and sweats. Blood results showed pancytopenia (a reduction in blood cells and platelets). [redacted]

A [redacted] biopsy performed in [redacted] on 23 October 2017 showed findings consistent with relapse of [redacted]. Steroids (prednisolone) were commenced on 26 October. It was recognised that [redacted] needed continuing inpatient care and she was transferred to the Queen Elizabeth University Hospital (QEUH) in Glasgow on [redacted] November.

Inpatient Course at QEUH

On transfer to QEUH, [redacted] remained pancytopenic with continuing fever and sweats, but was not noted to have any infection at this stage. [redacted] remained on antibiotics due to fever. On [redacted] November, [redacted] was commenced on [redacted] A CT and MRI scan were carried out on [redacted] head due to intermittent confusion, although no findings of concern were noted on these.

On [redacted] November, clinicians noted worsening LFTs (Liver Function Test) and ordered an ultrasound of [redacted] liver. [redacted] was receiving Fluconazole at this point, an antifungal drug given to patients at risk of fungal infection whilst receiving the drugs regime [redacted] was on. This medication has known side effects related to liver toxicity and as such it was stopped.

[redacted] fevers started to settle on [redacted] November and [redacted] was reporting to staff that [redacted] was feeling better. By 21 November, [redacted] fevers had returned. Blood cultures were taken over the next few days and on [redacted] November, Microbiology contacted the ward to advise that the first of these were positive for Cryptococcus neoformans. Antifungals were commenced and by [redacted] December , [redacted] blood cultures were negative.? Responded to antifungals?

Blood cultures remained negative; however, there was a positive culture for Staphylococcus epidermis, although this was not cultured on subsequent blood tests, which were all negative. [redacted].

On [redacted] December, observations showed a clinical deterioration. Antifungal medication continued although [redacted] continued to have negative blood cultures. It was agreed that treatment would move to palliation and medication was given to keep [redacted] comfortable. [redacted] remained in hospital until [redacted] January 2019 when [redacted] died peacefully.

Section 4: KeyIssues Identified& Lessons Learned

This section should detail key issues/learning relating to care and service delivery and be clear on their relation to the outcome of the incident. The findings from the accident causation model should be included here.

What was the source of the Cryptococcus infection?

This review was commissioned following the patient's death ~~after concerns were raised about~~ [redacted] was in hospital, a second patient in a different ward also contracted a Cryptococcus infection. This organism is an environmental yeast/fungus found in bird droppings and soil contaminated with bird droppings. When a patient is exposed to this organism the immune system will often respond accordingly, however in some patients the organism lies dormant and reactivates when they become immunosuppressed. Alternatively exposure can cause an acute infection which is more common in immunocompromised patients.

~~Had [redacted] infection occurred in isolation, the likely reason for it would have been a reactivation. However, given the identification of pigeons on the hospital site and a second infection in a patient on another ward around the same time, it is more likely that this infection was the result of an acute exposure.~~

Subsequent testing of cultures from both patients have suggested that they had different variants of Cryptococcus neoformans; however, the scientific methods for identifying variants of this organism are limited and cannot be considered completely reliable. ~~That said, the isolation of different variants in two patients does not eliminate a link. Cryptococcus neoformans is endemic in pigeon populations but is not homogenous, with the possibility of multiple variants or strains of that fungal species present. It is therefore a possibility that an infestation could result in multiple strains of Cryptococcus being present in the environment at a given time.~~

~~In addition to this report, there are wider reviews and remedial actions taking place at the QEUH to address the environmental issues which have been identified. This falls outside of the remit of this SCI; however this report will be made available to the wider reviews for completeness.~~

~~**Was the infection preventable?**~~

Estates and Environment Considerations

The presence of Cryptococcus in the hospital environment is again subject to wider review by the Board and Scottish Government, ~~but if as suspected, the source of the infection was the infestation, then there was an increased risk for susceptible patients.~~

~~Risks can be reduced through robust estate management, and attention to pigeons and other birds in the vicinity. Hospitals can mitigate against the risk by using filtration systems in high risk areas which reduce the chances of spore producing fungal pathogens, such as Cryptococcus spores, from infiltrating the ward environment. These would only usually be used where there are patients who are particularly at risk.~~

Clinical Care

The Review Team looked through the patient's records to see if there was anything in the clinical input which could have been done differently. It was noted that [redacted] was previously receiving Fluconazole antifungal therapy. This was a standard protocol due to [redacted] being on

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steroid medication which increased the likelihood of a fungal infection; however, for a patient such as [redacted] that risk would more likely be a Candida infection. Cryptococcus infections are rare and when they do occur, it is more likely to affect immunocompromised patients with HIV. Whilst it does occur in other groups, it is highly unusual.

It was clinically appropriate to stop the antifungal medication as [redacted] was experiencing deranged liver function tests and the correct course of action to prevent any further liver compromise would be to stop any medication which may be hepatotoxic, such as Flucanazole. The Review Team considered whether in stopping Flucanazole, another antifungal should have been considered. ~~It is only with hindsight that it can be recognised that [redacted] was at risk of a Cryptococcal infection~~. There were no indications to clinicians at the time that this was the case ~~as the environmental issues were unknown at that time~~ and the extremely low risk of such an organism infecting a patient such as [redacted] Whilst clinicians now may be sensitized to the risk of this recurring and are more likely to consider secondary antifungal cover in such circumstances, clinicians at the time could not have reasonably been able to expect that [redacted] was at risk of Cryptococcus infection and the care was appropriate.

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Recognition and Response to the Infection

The Review Team agreed that [redacted] received appropriate monitoring throughout [redacted] care and the Cryptococcus infection was recognised at the earliest possible opportunity. The subsequent response was appropriate and followed expected treatment protocols in appropriate timescales.

What was the impact of the infection on [redacted] condition?

[redacted] had a serious underlying disease with a poor prognosis. [redacted] deterioration and death followed a course that is not unusual for this disease. Whilst it could never be definitively determined whether the Cryptococcal infection affected the disease progression, the Review Team did not feel that this was likely. [redacted] health was deteriorating prior to the infection, when [redacted] blood cultures were negative, and after the cultures returned to normal. When [redacted] suffered an acute deterioration of [redacted] condition around 29 December, this was in the context of negative blood cultures. It is therefore thought unlikely that [redacted] deterioration and death were significantly influenced by the infection, rather as a result of her [redacted].

Se[illegible] onclusions
This [illegible]ion should address the findings of sections 3 and 4, as well asoutlining areas of good practice.

The SCI has concluded that [redacted] contracted a Cryptococcal infection ~~which was most likely due to spores in the ward environment which had originated from a pigeon infestation~~.

~~The infection may have been preventable if appropriate environmental safeguards were in place~~; however, clinical care was appropriate with no missed opportunities to prevent the infection and timely recognition and response to the infection from clinicians.

The infection was not thought to have made a significant contribution to [redacted] subsequent deterioration and death, which was thought to be as a result of the natural progression of [redacted] underlying [redacted]

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Investigation Conclusion Code (tick to indicate which description best applies) *This is not the patient outcome.*		
1	Appropriate care: well planned and delivered	
2	Issues identified but they did not contribute to the event	✓
3	Issues identified which may have caused or contributed to the event	
4	Issues identified that directly related to the cause of the event	

Section 6: Recommendations (if required)
*Recommendations should be written in such a way that corresponding SMART actions can be developed. **S**pecific, **M**easurable, **A**chievable, **R**ealistic and **T**imely.*

Be clear why a recommendation is being made and what the desired outcome will be.

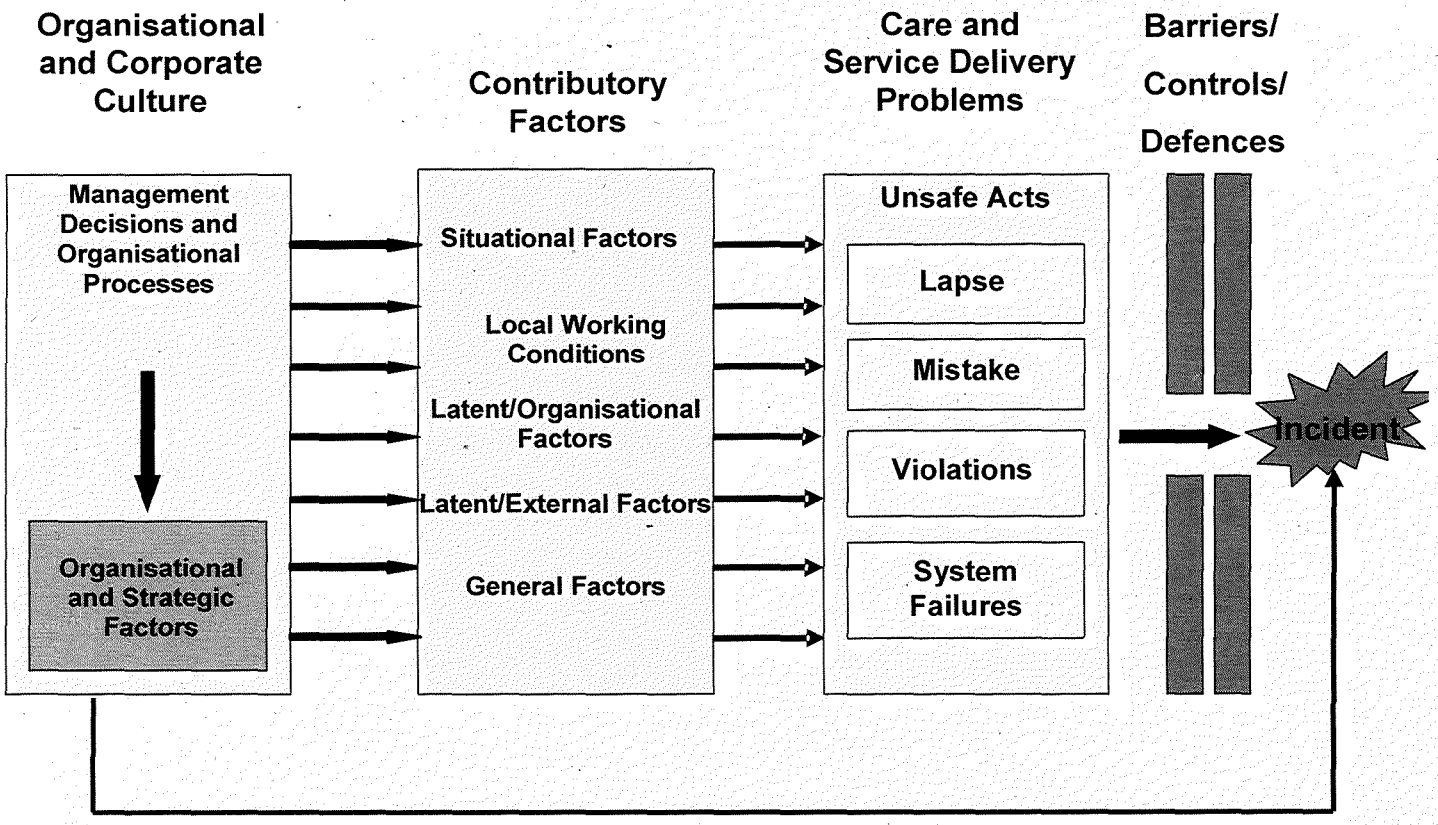
The SCI notes the on going review of the wider issues surrounding this episode which would address the likely source of the infection in this case; however, there were no specific recommendations related to the clinical care of [redacted].

Section 7: Arrangements for Shared Learning
List how the learning will be shared and the level of this i.e. Local, Directorate, Board.

A copy of this report should be tabled at the Regional Governance Committee and the Haematology Clinical Governance Forum.

A learning summary should be considered regarding consideration of alternative antifungal cover in this patient group when primary antifungal cover needs to be stopped for other clinical reasons.

Signed off by Commissioner	
Name:	**Date:**


Organisational and Corporate Culture
Contributory Factors
Care and Service Delivery Problems
Barriers/ Controls/ Defences
Management Decisions and Organisational Processes
Organisational and Strategic Factors
Situational Factors
Local Working Conditions
Latent/Organisational Factors
Latent/External Factors
General Factors
Unsafe Acts
Lapse
Mistake
Violations
System Failures
Incident

Appendix i - Cause Effect Model

Organisational and Corporate Culture	Contributory Factors		Care and Service Delivery Problems	Barriers / Controls / Defences
Building design and environmental protection	**Situational Factors** Team, Individual, Staff, Patient, Task	Highly unusual infection in this patient group; Liver complications meant reduced antifungal cover	**Lapse:** .n/a	Environmental/estate monitoring
	Local Working Conditions Workload & Staffing. Leadership, Supervision& Roles. Drugs, Equipment & Supplies	n/a	**Mistake:** .n/a	
→	**Latent/Organisational Factors** Physical environment. Support from other departments/services. Scheduling and Bed Management. Staff training/education, Polices/ Protocols/ Procedures	Infestation of pigeons No Hepa filtration protection on 4C	→ **Violations:** .n/a	→
	Latent/External Factors Design of equipment, supplies & drugs. National Policies		**System Failures:** n/a	
	General Factors Safety Culture Communication			

If no contributory factors or other problems have been identified, mark the relevant sections as 'Not Applicable'

Board C&CG (M) 19/02
Minutes: 15 - 30

GREATER GLASGOW AND CLYDE NHS BOARD

Minutes of a Meeting of the
Board Clinical & Care Governance Committee
held in the Boardroom, J B Russell House,
Corporate Headquarters, Gartnavel Royal Hospital,
1055 Great Western Road, Glasgow, G12 0XH
on Tuesday 11th June 2019 at 1.00pm

PRESENT

Ms S Brimelow OBE - in the Chair

Dr D Lyons
Mr S Carr
Mr I Ritchie
Cllr Caroline Bamforth

IN ATTENDANCE

M McGuire present for start and finish of meeting

Dr J Armstrong	Medical Director
Mr A Crawford	Head of Clinical Governance
Ms E Vanhegan	Head of Corporate Governance and Administration
Mrs D McErlean	Employee Director
Mrs P Ralphs	Planning Manager
Ms J Rodgers	Chief Nurse, Paediatrics and Neonates
Mrs G Mathew	Secretariat Manager
Mrs L Russell	Secretariat Officer

		ACTION BY
15.	**APOLOGIES & WELCOME**	
	Ms Brimelow welcomed everyone to the meeting and introductions were made. Apologies for absence were intimated on behalf of Professor Dame Anna Dominiczak and Mrs Audrey Thompson. <u>NOTED</u>	
16.	**DECLARATION(S) OF INTEREST(S)**	
	One declaration of interest was raised. Mr I Ritchie declared an interest as Chair of the Organ Donation Committee for Item 29, Board Clinical Governance Forum.	
	<u>NOTED</u>	

		ACTION BY
17.	**MINUTES**	
	The Committee considered the minute of the meeting which took place on Tuesday 5th March 2019 [Paper No. CCG (M) 19/01] and were content to approve this as an accurate record, subject to the following amendments: The Committee received correspondence from Dr Teresa Inkster, Lead Infection Control Doctor NHSGGC, in relation to information provided at the Committee meeting in March regarding the recent infections (item 6) and the report on concerns raised regarding QEUH and RHC (item 9). The Committee considered the amendments suggested by Dr Inkster, in addition to the secretaries written notes of the meeting, and, following reflection, agreed to the following amendments:- Item 6 – Cryptococcus neoformans – Paragraph 6 "Dr Inkster noted that installation of portable HEPA filters had been extended to include haemato-oncology patients within QEUH" Item 6 – Mucoraceous mould – Paragraph 1 "It is possible the dialysis point was the source as mould was grown from the area. No cases have been reported since the 18 January 2019 and this source has been remedied. Alternatively, this fungus is ubiquitous and may have been present in the air at the time". Item 9 – Report on concerns raised regarding QEUH and RHC –Updated Position – Paragraph 4 "Mr Ritchie asked if colleagues were reassured by the actions that had been taken to address the issues and if there were any further concerns raised in relation to recent events. Dr Inkster advised that one colleague had since retired; other colleagues had not raised any further issues with her" APPROVED	
18.	**MATTERS ARISING FROM THE MINUTES**	
a)	Rolling Action List	
	The Committee reviewed the items detailed on the Rolling Action List [Paper No. 19/08] and were content to accept the recommendation that 7 actions be closed. **Other Matters Arising** Paediatric Dentistry Dr Armstrong noted that an update had been given at the Committee meeting in March and the matter was subsequently closed. The Committee agreed however that a further update would be requested at a future meeting. Short Life Expert Advisory Group – Air Samples Mr Carr requested assurance of the reporting mechanisms for the above group. It was clarified that the group would report findings via the Internal Review of the QEUH/RHC structures. NOTED	

		ACTION BY
19.	**REVIEW OF COMMITTEE TERMS OF REFERENCE**	
	The Committee considered the paper 'Review of Clinical and Care Governance Committee Terms of Reference' [Paper No 19/09] presented by Head of Corporate Governance and Administration, Ms Elaine Vanhegan. Members were asked to review the current remit of the Committee and ensure it remains, at this stage, fit for purpose. Following the national process to implement 'A Blueprint for Good Governance' and the publication of the Ministerial Strategic Group (MSG) Review of Progress of Integration with Health and Social Care, the proposed amendments to the Committees Terms of Reference take account of these priorities by ensuring that the Board's corporate governance framework suitably applies a 'whole system' approach to oversight of the Board's functions. Committee members noted the inclusion of clinical governance of the West of Scotland Research Ethics Committee. Clarity has been provided on the format of the minute of a meeting and rolling action list and the addition of a Chairs Report template for providing feedback to the Board. Ms Vanhegan agreed to circulate the Scheme of Delegation following approval at the next Audit and Risk Committee meeting on Tuesday 18th June 2019. Mr Crawford suggested some amendments including the addition of Duty of Candour, and Clinical Governance Strategy. Ms Vanhegan and Mr Crawford agreed to discuss this further following the meeting. In summary, the Committee were content to endorse the revised Terms of Reference, subject to amendments as discussed by Mr Crawford and Ms Vanhegan, for submission to the Audit and Risk Committee, and final approval by the Board. NOTED	**Ms Vanhegan** **Ms Vanhegan/Mr Crawford**
20.	**OVERVIEW**	
	Dr Armstrong provided an overview of topics not included on the agenda. Interventional Neuro-Radiology (INR) Dr Armstrong provided an update on activities underway following the development of an action plan to address the recommendations made by the external review. These included ongoing discussions with colleagues in Edinburgh and Glasgow, training placements and additional locum support. Dr Armstrong was pleased with the progress made to implement improvements. In relation to INR, Dr Armstrong advised that a proposal would be presented to the Managed Service Network this week, requesting support from the Managed Service Network to support INR and establish a lead clinician to provide clinical leadership to the service. NOTED	
21.	**INTERNAL REVIEW OF QEUH/RHC – CLINICAL REVIEW**	

		ACTION BY
	The Committee considered the paper 'QEUH/RHC – Internal Review – Interim Report on Clinical Outcomes' [Paper No 19/10] presented by Head of Clinical Governance, Mr Andy Crawford. The paper provided an update on progress to date in relation to the internal review of clinical outcomes and provided further information on additional commissioned areas of review including Deanery feedback from the recent visit to QEUH in February 2019. A Programme Board was recently established to coordinate the review of the QEUH/RHC. The internal review encompasses 3 work streams: Review of the facilities and environmental issues, review of capacity and flow to assess position now against the original model and planning assumptions and review of clinical quality and outcomes. Committee members noted that the interim report focused on the latter. The internal report will be used to provide local assurance. In response to questions from the Committee in relation to cross over with the external review, Mr Crawford assured members that the team working on the external review will be updated with reports and the internal review will inform parts of the external review. Dr Armstrong informed Committee members that a review of estates was underway. Mr Jonathan Best will also carry out a review and prepare a report on whether the original capacity assumptions made remain adequate. Committee members reviewed the report and noted the following comments: • Administrative errors with the calculation of the indicators on page 5 of the report. Mr Crawford will check the calculations. • Include more detail on team working and highlight some of the different issues. Mr Crawford agreed to include more detail on SCI's and confirm if they were resolved • Broaden on tissue viability to drill down instances of pressure ulcers. Assurance was required that avoidable pressure ulcers were not occurring. In response to a question from the Committee on including accreditation of laboratories in the report, Mr Crawford agreed to discuss this with Dr Armstrong. Dr Armstrong informed Committee members that a letter was received from General Medical Council addressed to the Chairman in relation to the volume of admissions to Intermediate Assessment Unit (IAU) at the QEUH. This issue will be included in the report. The issues were mainly in relation to availability of beds and that the unit was very busy. Additional beds had been identified for use by IAU. The Committee noted that a review of the front door was carried out in March 2018 and no SCI's were noted. The report, and the full response from the Chairman, will be shared with the Committee in due course. The Committee was assured by the update provided that the internal review being carried out will offer an accurate account of developments. <u>NOTED</u>	**Mr Crawford** **Mr Crawford** **Mr Crawford**

		ACTION BY
22.	**HEI INSPECTIONS – UPDATE REPORTS**	
	a) RAH INSPECTION	
	The Committee considered the paper 'Unannounced Healthcare Associated Infection (HAI) Inspection RAH 4th – 6th Dec 18 Progress Update' [Paper No 19/11a] presented by the Director of Nursing, Dr Margaret McGuire. The paper highlighted the requirements and recommendations from the report, detailed the action plan and progress of improvements being made. Dr McGuire informed the Committee that the post inspection 16 week ward and theatre action plans were submitted to Healthcare Improvement Scotland on 23rd April 2019. Following the recommendation of removal of bladeless fans, Dr McGuire informed the Committee that in the interim suitable bladed fans, which could be cleaned, have now been sourced. The issues identified with environmental cleanliness within ED have been rectified. The gap in cleaning staff has been resolved and a 24/7 cleaning service for ED was being maintained. Following the recommendation to review storage options, in particular the stacking of sterile trays, immediate action was taken to reorganise storage to allow additional storage for sterile trays. An alternative location to store less frequently used equipment was in the process of being identified. In response to questions from Committee members in relation to continuity of domestic services, staff levels and recruitment and retention of staff, Dr McGuire informed members that this was being addressed through the healthcare quality improvement strategy. The importance of staff feeling valued at work was recognised. Mrs Dorothy McErlean informed the Committee that the Staff Governance Committee was reviewing the cultural framework to address issues. In response to questions from Committee members in relation to the reporting of broken and fatigued equipment and current backlogs, Dr McGuire assured members that work was being carried out to address this. Dr McGuire assured members that staff were more aware of prompting when actions were outstanding and working in conjunction with the Estates team. Dr McGuire informed members that the Director of Facilities and Estates, Mr Tom Steele was considering ways to manage risk associated with ensuring adequate staffing. Chief Nurse for Paediatrics and Neonates, Ms Jennifer Rodgers, informed Committee members that a successful Learning for Excellence test had been carried out. The main aims were to improve staff morale and promote excellence. Reporting good pieces of work has been very positive and was improving performance. The Committee noted completed actions and the progress made. NOTED	
	b) QEUH INSPECTION	

		ACTION BY
	The Committee considered the paper 'Unannounced Safety and Cleanliness Inspection QEUH (including Institute of Neurosciences and Royal Hospital for Children) 29th – 31st January 2019 Progress Update' [Paper No 19/11b] presented by the Director of Nursing, Dr Margaret McGuire. The paper highlighted the requirements and recommendations from the HIS report, and updates on further progress reports submitted to Healthcare Improvement Scotland (HIS) 12th April and 10th May. Dr McGuire informed the Committee that monthly update reports were being submitted to Healthcare Improvement Scotland, for onward submission to the Scottish Government. Following the recommendation to consider the use of red/amber/green indicators, these have been amended to include percentage and clear explanation of where points have been lost. In response to questions from Committee members about governance issues highlighted by the inspection, Dr Armstrong assured members that work was progressing to address these issues. A Built Environment Group was in the process of being created to provide oversight to three Sub-Groups which were theatres, ventilation and water. This group will be chaired by Director of Facilities and Estates, Mr Tom Steele. The Terms of Reference for the group were in the process of being drafted. Dr Armstrong reported that Mr Steele was also carrying out a review of all estates issues. Some concerns were noted by Committee members in relation to the timescale in addressing these issues. Ms Rodgers assured members that actions for the Royal Hospital for Children were complete within 4 weeks. Mr Donald Lyons requested that acronyms were explained in the document. Ms Brimelow thanked Dr McGuire for the assurance provided and noted the progress made and close scrutiny from the Scottish Government. The Committee expect a further report with a detailed action plan for addressing the outstanding governance issues to be presented in due course. The Director of Facilities and Estates will be invited to attend the meeting to provide an update on the report. NOTED	**Secretary**
23.	**PURSUING EXCELLENCE IN HEALTHCARE**	
	The Committee noted the paper 'Pursuing Excellence in Healthcare' [Paper No 19/12]. The Pursuing Excellence in Healthcare: NHS GGC Healthcare Quality Strategy has been revised in line with feedback received from the NHS Board on 19th February 2019, and was remitted to the Committee by the Board, for approval. The Committee noted the amendments made and were content to approve the Strategy. APPROVED	

		ACTION BY
24.	**HAND HYGIENE AUDITS UPDATE**	
	The Committee considered the paper 'Update on Hand Hygiene Audits' [Paper No 19/13] presented by Dr Armstrong and Ms Rodgers, Chief Nurse, Paediatrics and Neonates. The paper provided additional information in relation to the Hand Hygiene Audits discussed at the Committee meeting in March 2019. Ms Rodgers assured members that hand hygiene audits were carried out routinely on a number of different levels. Committee members noted the two different percentage targets, one for opportunity and one for technique. Mrs Brimelow thanked Ms Rodgers for the assurance provided and the Committee were content to note the update. NOTED	
25.	**STROKE IMPROVEMENT PROGRAMME UPDATE**	
	The Committee considered the paper 'Stroke Improvement Programme Update' [Paper No 19/14] presented by Planning Manager, Mrs Pamela Ralphs on behalf of the Clyde Sector Director. The paper highlighted progress of the NHSGGC Stroke Improvement Plan. Mrs Ralphs highlighted the key points. Scanning targets changed in January 2019 from 95% access within 24 hours to achieving 90% within 12 hours of presenting. Following this the bundle performance had improved. Mrs Ralphs reported that there have been some continuing challenges in Royal Alexandra Hospital (RAH) and work had begun to review activity against the current bed model with a view to redesigning this within the sector. Mrs Ralphs provided an update on changes to the Acute Stroke Pathway for Inverclyde residents. The proposed pathway change would see QEUH take an average of 16 direct patient admissions per month from the Inverclyde area. To date, the changes have not yet been implemented and no timescale has been agreed to implement these. Discussions remain ongoing with the Scottish Ambulance Service to agree the pathway for the repatriation of patients. The front door responsibility target is 100% in 4 hours which is challenging. Mrs Ralphs reported that GG&C was achieving 85%. Staff training continued to be rolled out and exception reporting carried out. Dr Armstrong noted that positive progress has been made on the Stroke Improvement Plan. Work was ongoing with the TIA pathway and planning for Thrombectomy. A Standard Operating Procedure for Water Swallow has been drafted and will be approved by the Stroke Improvement Group. Mrs Ralphs agreed to circulate this to Committee members following approval. Following the redesign of the South Glasgow clinic, the process was still being embedded. There was local ambition to move to a 24 hour target to prevent/reduce incidences of strokes.	**Mrs Ralphs**

		ACTION BY
	In response to a question raised by the Committee regarding adequate staffing levels for INR to provide the service, Dr Armstrong informed members that the team were not at full compliment. There was discussion about ensuring thrombolysis pathways are clearer. For this reason, the lead clinician for stroke for Clyde was working with the Chief of Medicine and the Stroke Review Group to develop this pathway. Mrs Brimelow thanked Mrs Ralphs for the report and update. Committee members requested further updates on clinical input from Professor Keith Muir, SINAPSE Professor and Consultant Neurologist. The Committee members noted the significant work being carried out to improve quality, and noted the national work being carried out to develop a national stroke Thrombectomy service. NOTED	
26.	**UPDATE ON LEARNING STRATEGY FOR CHILD PROTECTION**	
	Ms Rodgers presented the paper 'Update on the Implementation of NHSGGC Child Protection Learning and Education Strategy 2019' [Paper 19/15] which provided an update on the development and implementation of a Child Protection Learning & Education Strategy (CPLES) for 2019, to be delivered by the Child Protection Service (CPS). The Strategy aims to deliver high quality learning opportunities that meet the needs of staff protecting children. Ms Rodgers reported that the learning strategy has been well received by medical and nursing teams. Between January 2019-March 2019, 629 members of staff have received face to face training. Sessions have been well received however releasing staff from their day to day role has been challenging. Work was taking place with CPS to develop a dynamic approach to delivery of training in order for staff to attend the training course. In response to Committee member's questions seeking assurance that staff were being given the opportunity to attend training, Ms Rodgers informed members that training courses were available board wide. The courses were being delivered locally to allow more members of staff the opportunity to attend the course. The Committee noted the development and implementation of the Strategy however, the Committee requested a more detailed report on the Strategy and learning for the future. More detail was required on evaluation, in particular how the University West of Scotland (UWS) level 4/5 CP experts were being evaluated. NOTED	**Ms Rodgers**
27.	**EXTRACT FROM CORPORATE RISK REGISTER**	
	Mr Crawford presented the paper 'Extract from Corporate Risk Register' [Paper 19/16] The risk register identifies 5 key areas. Mr Ritchie sought assurance that the controls in place to mitigate the risk of failure to comply with recognised policies and procedures in relation to infection control were effective. The work done in relation to Peripheral Venous Catheter's (PVC) was recognised, however further actions were	

		ACTION BY
	required. The Committee noted that nurses do remove cannulas as soon as it is no longer required, however they do not make the decision on whether the cannula is required. Nurses are encouraged to change cannulas as quickly as possible. Mr Crawford noted that more detail will be added regarding patient standards as this does not reflect current practice. Committee members noted that a Public Protection Forum has been established for Adult and Child Protection. This will help to ensure actions were joined up however members suggested that another item around adult protection should be added to the risk register. Committee members noted that Health and Social Care Partnerships (HSCP's) were involved in the formulation of the risk register. Ms Brimelow thanked Mr Crawford for the update. NOTED	
28.	**UPDATE ON HISTORICAL CHILD ABUSE INQUIRY**	
	Committee members noted the paper 'Scottish Child Abuse Inquiry – Lennox Castle Hospital [Paper 19/17] which provided the Committee with a further update of work undertaken in relation to the Scottish Child Abuse Inquiry. Sections A & B of the response were submitted to the Scottish Child Abuse Inquiry on 1st March 2019 and Sections C & D were submitted on 31st May 2019. Directors and senior Councillors reviewed section C & D prior to submission. In summary, the Committee were content to note the report and the submission of Sections C & D. NOTED	
29.	**BOARD CLINICAL GOVERNANCE FORUM**	
	The Committee considered the minute of the Board Clinical Governance Forum Meeting held on Monday 4th February 2019' [Paper No. BCGF (M)19/01] and Monday 8th April 2019 [Paper No. BCGF (M)19/02] In response to questions from Committee members in relation to Clinical Governance Support Unit (CGSU) staffing issues, Mr Crawford informed members that the high turnover of staff was mainly due to staff moving to promoted posts, out with NHSGG&C. Nine members of staff have recently moved on to promoted roles. The team use iMatters and have team and individual sessions to ensure awareness of any staff issues. No underlying issues have been highlighted. Committee members noted that Women and Children's (W&C) Services remain below the 70% target for completed actions from closed SCI's. This has been flagged and engagement has been made with W&C Services. Committee members noted positive reports were received from the Mental Health Welfare Commission visits. Members were assured that updates from the Mental Health Welfare Commission were visible through the Board Clinical Governance Forum minutes. Any concerns can be highlighted to members and drawn as an individual action.	

		ACTION BY
	The Committee noted, as per the minute of Board Clinical Governance Forum of 8th April 2019, that there had been an increase in the number of solid organ donors in the period April to September 2018, compared with the same period of the previous year. However, concerns were raised regarding the below average performance in NHSGGC for SNOD (Specialist Nurse Organ Donation) presence when approaching families about organ donation. Mr Crawford advised that the Acute Clinical Governance Team were aware of this issue and had requested an update from Professor Rooney to the next meeting in August. Questions were raised about the most appropriate governance reporting route for organ donation matters, and Ms Vanhegan advised that this was a matter being considered as part of the recent review of governance. Mr Crawford added that the operational issues regarding organ donation remained within the remit of the Acute Clinical Governance, with Clinical and Care Governance Committee retaining oversight of this on behalf of the Board, via the Board Clinical Governance Forum. Ms Brimelow thanked Mr Crawford for the update. The Committee were content to note the minute. NOTED	
30.	**DATE OF NEXT MEETING**	
	Date: Tuesday 3rd September 2019 Venue: Boardroom, JB Russell House Time: 1.00pm The meeting concluded at 4.30pm.	

RE: Actions

Peters, Christine [redacted]
Tue 20/08/2019 11:52
To: Purdon, Colin [redacted];INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];Conner, Darryl James [redacted]

Colin,
In order for infec on control specialists to understand the infec on control risk posed by these systems it is vital that to establish what exactly occurs on each water event .From an infec on point of view neither condensa on nor leakage from hot or cold are acceptable.

We have established that leakage from the beams "closed water" systems can and does occurs. That principle is established. As to frequency we cannot comment on this as we have no wri en records and mul ple variable eye witness accounts of the nature of the leaks which I have been told have occurred "in hundreds of rooms" on the day I inspected the room in 6A. It would be useful next me there is a condensa on event for an ICD to examine the presenta on of the water into the room to compare with the established leakage pa ern of water ingress.

I am concerned that there are varia ons in the accounts regarding the beam water events over years. For example I have been told previously that the plas c pipe s cking out of the units collected condensa on so it could evaporate and therefore there was no possibility of condensa on dripping into rooms. . That is simply inaccurate as we now know.

Kind regards,

Chris ne Peters

From: Purdon, Colin
Sent: 20 August 2019 10:46
To: Inkster, Teresa (NHSmail) [redacted]; Peters, Chris ne [redacted]; Conner, Darryl James [redacted]
Subject: RE: Ac ons

Teresa,

The dates of incidents or events where loss of temperature in the hea ng system could have caused leakage from the hot circuit of the chilled beams are as follows:

3rd June 2019. Loss of pressure due leak in Energy Centre.
10th June 2019. Loss of pressure due to press unit fault.
22nd July 2019. Loss of pressure due to press unit fault.
1st Aug 2019. Boilers isolated to carry out repair to Energy Centre pipework.
5th Aug2019. Boilers isolated to carry out repair to Energy Centre pipework.

Despite the informa on from the technician whom you spoke to on Friday I would s ll state that leakage at the push fit connec ons from the chilled water circuit of the beams due to loss of pumps or pressure is unlikely. Unfortunately I cannot speak to the technician in ques on for further info as he is off sick at the moment.

We cannot find any recorded incidents of this type of failure and from my own recollec on we have only ever experienced issues historically with the hea ng circuit connec ons. I have enquired with the other supervisors

and technicians in the team and they have only referred to issues with push fit connectors on the hea ng circuit. Any leakage on the chilled circuit would be considered very rare.

Push fit connectors are less reliable than compression type connectors hence our programme to replace these in problema c areas such as Ward 6A.

Regards

[redacted]

Colin Purdon | BSc (Hons)
Interim Sector Estates Manager (*South*)

Estates Dept
Queen Elizabeth University Hospital Campus,
Room L0/B/002
Laboratory Medicine and Facilities Management Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Office: [redacted]
Mob: [redacted]

Email: [redacted]

<>

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 18 August 2019 15:52
To: Peters, Christine; Conner, Darryl James
Cc: Purdon, Colin
Subject: [ExternaltoGGC]Re: Actions

Hi Darryl

Just wondered where things were at in rela on to collec ng the dates of chilled beam leaks. I would be keen to plot these on the epi curve for the current 6A IMT

I went to take some swabs on Friday with Kerr and met a very helpful estates officer who explained to me there has been leaks from both the hot and cold arms . At IMT it had been suggested that there had only been a leak from the hot but he stated leaks from cold do occur and relate to pumps going off and loss of pressure . He also men oned issues with loose connec ons. This would certainly explain the microbiology results that we are seeing

Thanks
kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Chris ne [redacted]
Sent: 26 June 2019 14:24
To: Conner Darryl (NHS GREATER GLASGOW & CLYDE); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Ac ons

Hi Darryl,

In addi on to our records of emails re the chilled beams, I recall that on the day the 6A chilled beams were leaking there had been many calls from other wards.
I wonder of all of these have been captured in your database also?

Kr
Chris ne

From: Conner, Darryl James
Sent: 25 June 2019 10:22
To: Peters, Christine; Inkster, Teresa (NHSmail)
Subject: RE: Actions

Hi,

Can you please send over the list of the requested outstanding verifica on reports and I will get them sent over to you for review.

Best

Regards
Darryl

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Peters, Chris ne
Sent: 25 June 2019 10:18
To: Conner, Darryl James [redacted]; Inkster, Teresa (NHSmail) [redacted]
Subject: RE: Ac ons

Thanks!

From: Conner, Darryl James
Sent: 24 June 2019 16:05
To: Peters, Christine; Inkster, Teresa (NHSmail)
Subject: RE: Actions

Hi Chris ne,

No problem, please see a ached.

Regards
Darryl

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Peters, Chris ne
Sent: 24 June 2019 12:31
To: Conner, Darryl James [redacted]; Inkster, Teresa (NHSmail) [redacted]
Subject: Ac ons

Hi Darryl,

I wonder if you would be able to circulate the ac on points from the last mee ng as the print copy is hard to read,

KR

[redacted]
Dr Chris ne Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC

Ex [redacted]
Mobile: [redacted]

Louise Mackinnon

From: Christine Peters [redacted]
Sent: 24 May 2024 16:23
To: Leigh Lawrie; Louise Mackinnon
Subject: Fwd: Letter regarding Independent Review
Attachments: Letter to Independent Review Chairs.docx

The letter to the review

Kr
Christine
Sent from my iPad

Begin forwarded message:

> **From:** teresa inkster [redacted]
> **Date:** 2 July 2020 at 13:49:35 BST
> **To:** information@queenelizabethhospitalreview.scot
> **Cc:** Christine Peters [redacted], Martyn Ramsay [redacted]
> **Subject: Letter regarding Independent Review**
>
> Dear Independent Review Chairs,
>
> Please find attached a letter from myself and Dr Christine Peters.
>
> BMA copied in as an interested party.
>
> Kind regards
> Teresa

02/07/20

Dear Independent Review Chairs,

We write to you to express our concerns regarding the Independent Review process and findings/outcomes.

With regards to process;

1) Section 1.4.5 of the published report states '*The Review has discretion to express its findings as it sees fit and a person made subject to an adverse finding will be provided a fair opportunity to respond to it.'* Prior to review publication we were not afforded a right to reply. As individuals who are identifiable in the report and subject to criticism, we feel we were entitled to a right to reply. We have the potential to suffer significant career detriment as a result.

2) Prior to publication Dr Inkster received her precognition on the Friday evening before publication leaving no time to reply. Dr Peters received her precognition after publication of the review and for only her first interview. The response from the review is that the precognition is not a verbatim account of the questions and answers that took place during the statement session. Given that it is recorded can we ask why that is not the case? Can we also ask why our colleague was able to attend and spend three hours amending inaccuracies in her report months before publication date?

3) Email communications between Dr Inkster and the review have indicated that there were issues with emails being sent and received from her nhs.net account and that when the review contacted the health board, they were told she was off sick or had left; this is untrue. We understand that a key individuals IT system has been purged and no further investigation can take place. This is highly unsatisfactory. Both of these issues have impacted on Dr Inkster's interactions with the review and the subsequent findings in the report.

4) The failure of the review to re-interview Dr Inkster has led to inaccuracies in the report's findings, particularly around the circumstances of the 2019 incidents. Whilst COVID affected the ability to attend on site interviews, other interviews took place virtually. Why was Dr Inkster not given this opportunity?

With regards to findings;

1) Remit; the remit of the review did not include culture, duty of candour, whistleblowing, detailed analysis in 2019 events. As such, insufficient and in some cases no evidence was submitted from either of us pertaining to these issues.

2) Conjecture; there are examples of conjecture in the report for which there would have been no need had we been interviewed with respect to these topics e.g. IMT processes.

3) Contradictions; the review state that they cannot comment on individual cases yet they choose to comment very specifically on Cryptococcus and Mucor despite not speaking to either of us as the Chairs of these IMTs.

4) Misrepresentation; as a result of not being questioned in detail regarding the incidents in 2019 and IMT processes we have been misrepresented.

5) Duty of candour; there is implied criticism of the ICD for giving a family too much information regarding Cryptococcus yet the review chairs publicly in the media make statements with regards to Cryptococcus that are factually and scientifically inaccurate.

6) Organisational structure, accountability, roles and responsibilities; there is a failure to properly acknowledge the infection control structure, reporting mechanisms and job description for the lead ICD. Incredibly the function of the Infection Control Senior Management Meeting has been missed completely and is not present in the governance structure diagrams.

7) Utilisation of expert opinion; the external expert in microbiology spoke to facilities and clinical staff but not us or any of our QEUH microbiology colleagues. Given that one of us was the lead ICD that is astounding.

8) Inaccuracies; there are inaccuracies with respect to taps and the various incidents in 2019.

9) Interviews; there was a lack of key colleagues being interviewed

10) Omissions; there are some important omissions in the report for which evidence was submitted e.g. paediatric BMT.

We have extensive commentary (33 pages) particularly in relation to chapters 8 and 9. We would like the opportunity to submit this commentary and wish to request retraction of these chapters due to our lack of right to reply. Our contribution to the review has been significantly affected and this has impacted on the outcomes.

Yours sincerely,

Dr Teresa Inkster,

[redacted]

Dr Christine Peters,

[redacted]

RE: ICD building questions

Inverarity, Donald [redacted]

Fri 05/07/2019 13:22

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

Thank you so much. Astoundingly helpful detailed reply.
Dont have much me just now as need to convey this to several directors.
Have a great holiday. I'd only call you if absolutely dire emergency but really appreciate the number.
Thanks again
Donald

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 05 July 2019 11:35
To: Inverarity, Donald
Subject: Re: ICD building questions

Hi Donald

SHTM 0301 allows for thermal wheel technology provided they are fi. ed with a purge sector. However thermal wheels come with the risk of dirty extract air mixing with clean supply

In our paediatric haem-onc ward (non BMT pa□ents) we experienced a significant number of outbreaks over a 2 year period. These proved difficult to control despite aggressive IC measures.

As part of the inves□ga□on we asked for an external review of the ven□la□on system. What we found was air changes of < 3 (due to chilled beams), rooms at slightly nega□ve pressure to corridor, thermal wheel technology and ductwork configura□on issues.

All of this combined was felt to be a factor in these outbreaks as mixing of dirty and clean air was occurring. HPS were asked to inves□gate and the conclusion of their report was that our outbreaks were not due to prac□ce or IC issues but to the environment. Difficult to prove that retrospec□vely but it makes sense

Therefore, I would suggest that thermal wheel technology in a high risk area is reviewed, if you have it. I also would recommend getting detailed info regarding the ven□la□on spec in your haem onc ward - as I men□oned it was non BMT pa□ents affected

I have listed below for you issues that have been iden□fied as a risk in our new build since opening , I hope this helps

-Dialysis points - leaks and mould in walls due to un□ghtened connec□on points and in one case faulty plumbing with backflow from a sluice area

- Water system - contaminated at outset and no control measures implemented

- Water coolers - poor maintenance and dead legs in the system, were posi□ve for Gram negs in water incident

- dishwashers on wards - not fitted correctly and grew fungus including Exophiala in CF pa□ents , we removed them

- Taps - taps in high risk units with flow straighteners , these were not maintained and were heavily contaminated with Gram nega□ves. We have replaced with a Marwick tap with copper bioguard

- Pa□ent bathrooms in haem onc and CF- poor fittings, non water resistant gyproc, unsealed areas - significant problems with mould

- poor sink design with splash risk - we have replaced haem onc sinks with the new armitage shank shark fin model

- Drains - use of an aluminium sphigot which was heavily corroded and laden with black slime - retrograde biofilm creep into sink, resulted in Gram nega□ve bacteraemias in haem onc pa□ents

- Vents - makes sure you have a regular cleaning schedule , we had issues with dust dropping into rooms

- Air con units - not recommended for high risk areas. Again maintenance an issue and we grew Aspergillus from them

I am on leave from Monday for 2 weeks but you can call me on mobile if you need anything. [redacted]

Happy for info above to be shared

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Inverarity, Donald [redacted]
Sent: 05 July 2019 09:12
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: ICD building ques□ons

Hi Teresa,
So you have probably seen the news yesterday and are aware of events since we spoke on Tuesday.
Lothian IPCT have been asked to compile a summary of any issue in our new building that may pose an infec□on risk to pa□ents in the future which we began to pull together last night. Thank you for sharing your SBARs and experiences of PPVLs– incredibly helpful!
Could you remind me what the risks associated with thermal wheels have been for Glasgow?
I'm unlikely to be free to take calls today as I am required at mee□ngs with Health Board execs as well as more opera□onal mee□ngs trying to fix issues so e-mail may be better way to find me.
Very much appreciated.
Donald

****
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From: Peters, Christine [redacted]
Sent: 11 July 2019 09:57
To: Devine, Sandra; alison.balfour[redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: PICU Ventilation Verification

HI Sandra ,

Who is the relevant service manager to raise this with then?

Kr
Christine

From: Devine, Sandra
Sent: 11 July 2019 09:47
To: Peters, Christine; Balfour, Alison; Inkster, Teresa (NHSmail)
Subject: RE: PICU Ventilation Verification

Hi Christine
Thank you for your e mail. I note the concerns you have expressed and would advise you that the normal process would be for you to escalate your concerns to the relevant service manager or general manager.

Of course I will keep you both up to date with developments re PICU.
Kind regards
Sandra

Sandra Devine
Acting Infection Control Manager
NHS Greater Glasgow & Clyde
[redacted]

From: Peters, Christine
Sent: 10 July 2019 17:29
To: Devine, Sandra [redacted]; Balfour, Alison [redacted]; Inkster, Teresa (NHSmail) [redacted]
Subject: RE: PICU Ventilation Verification

Hi Sandra ,

Thanks , Alison is on for IC till Friday . I will be on from Friday afternoon. We are working closely together to ensure there is no information gaps while Teresa is off, so please do let us know what the next stage will be re PICU ventilation so we can best contribute to the actions going forward.

I believe Pepi discussed with you the fact that the HAISCRIBE which was being used yesterday on PICU to get positive pressure in a four bedded bay was quoted as being signed off by Teresa, however this could not be the case as Teresa has not seen the PICU validation as it was carried out on Saturday. This is reminiscent of the 4B HAISCRIBEs that had Teresa's name on them when she was off sick. I am sure this is a breach of due process and would recommend that the process is once more looked into to ensure this does not happen again.

Kr
Christine

From: Devine, Sandra
Sent: 10 July 2019 16:53
To: Peters, Christine
Subject: RE: PICU Ventilation Verification

Hi Christine
Thanks for cc me into this. I have referred this to the Directorate Management Team.
Kind regards
Sandra

Sandra Devine
Acting Infection Control Manager
NHS Greater Glasgow & Clyde
[redacted]

From: Peters, Christine
Sent: 09 July 2019 15:47
To: Conner, Darryl James [redacted]; Valyraki, Kalliopi [redacted]; Inkster, Teresa (NHSmail) [redacted]; Balfour, Alison [redacted]; Hood, John [redacted]; Rolls, Gael [redacted]; Johnson, Angela [redacted]
Cc: Connelly, Karen [redacted]; Gallacher, Alan [redacted]; Purdon, Colin [redacted]; Ian McKenzie [redacted]; Guthrie, James [redacted]; Devine, Sandra [redacted]
Subject: RE: PICU Ventilation Verification

HI Darryl,
I have now had a chance to read the information provided.

I have a number of concerns regarding rapidly putting in place a HAISCIBE to try to rectify a design feature of a critical care ventilation system.

They key question is was this clear derogation from the national standards planned with a clinical risk assessment in place ? is this recorded anywhere? If so, it would not be a good idea to over rule this without fully appreciating the reasons for it. Perhaps Sandra you would have some information on this?

I can for example envisage that the clinical teams had concerns re RSV /FLU /Other respiratory viruses being admitted in large numbers . Every year we need to cohort this patient group. In this situation positive pressure at 10 pascals would be highly undesirable.

Furthermore – any quick fixes to a unit NOT designed for 10 pascals positive pressure rooms, could have knock on undesired effects such as ceiling tiles popping up and dust in the ceiling void accessing the unit, or an impact of the pressure cascades in adjacent areas such as prep rooms especially if all on the same AHU. Im not saying this is impossible to achieve, but that it is likely to require careful consideration especially when the unit is currently functional.

Can I suggest that I meeting is arranged with ICD, ICN, Estates and Clinical teams and management to discuss this situation to ensure an informed and fully risk assessed decision can be reached before any works are carried out.

Kr

[redacted]

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

From: Conner, Darryl James
Sent: 09 July 2019 11:31
To: Peters, Christine; Valyraki, Kalliopi; Inkster, Teresa (NHSmail); Balfour, Alison; Hood, John; Rolls, Gael; Johnson, Angela
Cc: Connelly, Karen; Gallacher, Alan; Purdon, Colin; Ian McKenzie; Guthrie, James
Subject: RE: PICU Ventilation Verification

Hi Christine,

1. I have attached a layout drawing showing the layout detail for the RHC first floor and also a detailed drawing we have done showing the critical facilities located within this level of the RHC, this drawing shows the isolation room detail and the 4 bedded areas are large enough to interoperate visibly there selves.
2. There is no validation documentation only commissioning documentation. (Please see attached)
3. Regards the whole unit there are two supply AHUs and two extract AHUs that supply PICU with the adjacent already verified isolation rooms having their own designated plant for supply and extract.(Recent PPMS/service records attached for PICU 4 bedded units in question)
4. Regards the CVGs the design intention is to allow for medical gas leak dilution, however this design provides a source of potential ingress of contaminants, there is however a caveat within the SHTM which we have endorsed by our authorising engineer that if all medical gas pipe work within ceiling voids is welded as opposed to compressed then the leakage risk is significantly mitigated thus the requirement for CVGs is no longer required so we can and should remove them. This not only will contribute to a more sterile facility but improve the air permeability of the room envelope which will help when aiming to achieve SHTM03-01 compliance.

Best

Regards

[redacted]

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Peters, Christine
Sent: 09 July 2019 10:12
To: Conner, Darryl James [redacted]; Valyraki, Kalliopi [redacted]; Inkster, Teresa (NHSmail) [redacted]; Balfour, Alison [redacted]; Hood, John [redacted]; Rolls, Gael [redacted]; Johnson, Angela [redacted]
Cc: Connelly, Karen [redacted]; Gallacher, Alan [redacted]; Purdon, Colin [redacted]; Ian McKenzie [redacted]; Guthrie, James [redacted]
Subject: RE: PICU Ventilation Verification

Hi Darryl,
In addition to the lay out drawings I have some questions for more information to assist in assessing the HAISCRIBE:

1. What are the pressures and ACH in the prep room and the dirty utility and any other ancillary areas?
2. Is there associated AHU validation documentation including filters and dates of changes of these?
3. Is the whole unit supplied by one AHU?
4. What was the design intention with the grilles open to ceiling void - ? safety of medical gases has been cited previously and if these are closed off what are the consequences?

Kr

Christine

Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

From: Conner, Darryl James
Sent: 08 July 2019 17:23
To: Valyraki, Kalliopi; Inkster, Teresa (NHSmail); Peters, Christine; Balfour, Alison; Hood, John; Rolls, Gael; Johnson, Angela
Cc: Connelly, Karen; Gallacher, Alan; Purdon, Colin; Ian McKenzie; Guthrie, James
Subject: PICU Ventilation Verification

Hi Pepi,

As discussed the annual ventilation verification of PICU was carried out at the weekend for the four bedded rooms and both side rooms, unfortunately I can report that the facility has failed as per the attached report. I have contacted Gael to inform her of the non-compliances raised within the facility and as part of estates Unsuccessful verification SOP protocol. I can advise that the verification failure was not due to inadequate air change rates, all be it some rooms will require to be rebalanced to bring the facility closer to the 10 ACHs required with respect to SHTM03-01 instead of just within 75% of design in some instances, but mainly due to the recorded pressure differentials between the 4 bedded spaces and the corridor, they should be 10 Pascal's +,but instead they were recorded to be much less,1 pascal,0 pascals or in a single instance -1 pascal.

To address these non-conformances I would like to establish a program of immediate remedial works starting from tomorrow if possible?

1. I would like to close off and HAI Scribe off one four bedded bay each day (Scribe already submitted to Angela for approval via Jim Guthrie) and carry out the following tasks :
2. Removal of the CVG located within the space and replaced with a ceiling tile.
3. The balance and reduction of the bed space extract to achieve the required + pressure DP of 10 pascals.
4. Repair any flooring and fabric repairs effecting the room envelope and air permeability.
5. Deep clean the Space worked in for hand over.

I propose to subsequently repeat this process each day for each 4 bed bay and room served by the verified plant in question in order to bring this verification to a successful status pending clinical permission and any agreed contingency's. Encouragingly The 3 PPVL isolations Rooms and the 1 Negative pressure isolation room have already been verified and passed, and with the bed bay ACH rates ranging between 8-15 ACH per hour we are not far from having a compliant facility pending the successful rebalancing of the suite. I believe it's the most logical choice to do everything we can to achieve compliance before considering more intrusive remedial works such as replacement ceilings etc.

The re-verification and balancing works for NICU/SCUBU where scheduled to start this week, but in light of today's results we will push them onto next week pending success in PICU.
Can you please clarify what issues for the adults ICU and 4B?

Thanks

Regards

[redacted]

Darryl James Conner MIHEEM
Interim Site Manager Operational Estates (SMOE)
Queen Elizabeth University Hospital Campus,
Labs Bldg.
1345 Govan Rd
Glasgow
G51 4TF

Tel: [redacted]
Mob: [redacted]
Email: [redacted]

From: Valyraki, Kalliopi
Sent: 08 July 2019 11:12
To: Conner, Darryl James [redacted]
Cc: Inkster, Teresa (NHSmail) [redacted]; Peters, Christine [redacted]; Balfour, Alison [redacted]; Hood, John [redacted]
Subject:

Hi Darryl,

As you know Teresa is on annual leave, and I will need to follow up 3 issues at the moment.

1)Validation at PICU. Do you know if this was undertaken and if yes, when will we have the report?

2)Also, do we have any update regarding the investigation of the failed validation at NICU/SCBU?

3)Teresa mentioned, during the weekend, that there is an issue at adult ICU and at 4B. Do you have more information?

Thanks,
Pepi

Kalliopi Valyraki
Consultant Microbiologist
Infection Control Doctor
Queen Elizabeth University Hospital
GGC
Tel: [redacted]
Ex. [redacted]

From: Peters, Christine [redacted]
Sent: 16 July 2019 17:58
To: Devine, Sandra
Cc: ann.kerr[redacted]
Subject: RE: PICU organisms

Thanks Sandra.
Ann thanks for the data already gathered, I am wondering if it was de-duplicated ?

Re aspergillus – it never grows in blood culture – however it may be worth looking at aspergillus PCR results too – virology do these.

Finally is there a summary of all the outbreaks/ incidents on PICU since opening that we could look at to assess how the unit has been functioning with regard to HAIs?

Thanks, and sorry this is yet more work for you all,
Kr
Christine

From: Devine, Sandra
Sent: 16 July 2019 17:36
To: Peters, Christine
Cc: Kerr, Ann
Subject: Re: PICU organisms

Sure that will not be a problem - I have cc in Ann Kerr she will let me if possible and by when.
Sandra

Sent from my BlackBerry 10 smartphone on the EE network.

From: Peters, Christine
Sent: Tuesday, 16 July 2019 17:01
To: Devine, Sandra; Hood, John
Subject: RE: PICU organisms

Thanks Sandra,

Would it be possible for the data team to separate out wound swabs, sputums, BALs plus TASPs, and sterile fluids?

Thanks so much

KR
Christine

From: Devine, Sandra
Sent: 16 July 2019 15:47
To: Peters, Christine; Hood, John
Subject: Fw: PICU organisms

Fyi
Sent from my BlackBerry 10 smartphone on the EE network.

From: Kerr, Ann [redacted]
Sent: Monday, 15 July 2019 08:55
To: Devine, Sandra
Subject: PICU organisms

Hi Sandra

Please see attached.
Please note that these cannot be differentiated into HAI or non-HAI but it will display the overall burden within PICU.

Regards

Ann

.....
Ann Kerr
Lead Nurse - Surveillance
Infection Prevention & Control

Second floor, Ward 11
Dykebar Hospital
NHS Greater Glasgow & Clyde

[redacted]

[redacted]

From: Peters, Christine [redacted]
Sent: 16 July 2019 14:46
To: Devine, Sandra
Subject: RE: PICU ventilation meeting

Thanks

From: Devine, Sandra
Sent: 16 July 2019 14:45
To: Peters, Christine
Subject: Re: PICU ventilation meeting

I don't have any other documents

Sent from my BlackBerry 10 smartphone on the EE network.

From: Peters, Christine
Sent: Tuesday, 16 July 2019 14:30
To: Devine, Sandra; Hood, John
Cc: Conner, Darryl James; Purdon, Colin; Jones, Brian; Williams, Arwel
Subject: RE: PICU ventilation meeting

Hi Sandra,

John and I can phone in together from my office. Are there any more reports from HFS or is it just the ventilation verification from 10 days ago?

Kr
Christine

From: Devine, Sandra
Sent: 16 July 2019 09:59
To: Peters, Christine; Hood, John
Cc: Conner, Darryl James; Purdon, Colin; Jones, Brian; Williams, Arwel
Subject: PICU ventilation meeting

Hi
Would you both be able to attend/teleconference into a meeting this afternoon re PICU? Tom Steel has manged to get some advice from HFS and hopefully Peter Hoffman will be on the line. Time is 3pm, location to be confirmed.
Kind regards
Sandra

Darryl/Colin could you send John/Christine all relevant reports please.
Thanks

Sandra Devine
Acting Infection Control Manager
NHS Greater Glasgow & Clyde
[redacted]

From: Peters, Christine [redacted]
Sent: 22 July 2019 16:46
To: ann.kerr [redacted]
Cc: Devine, Sandra; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); alison.balfour [redacted]
Subject: RE: PICU- specimen breakdown

Thanks Ann

That is really helpful. At first glance Looks to me like a substantial number of Acinetobacter , pseudomonas and Enterobacter in BALS which probably warrants a closer look .

I do think it is worth considering what denominator data can be used as well as comparisons with old yorkhill and perhaps pre and post water treatment to see if we can control for the water sources separate from ventilation (though its all linked)

Kr
Christine

From: Kerr, Ann
Sent: 22 July 2019 08:07
To: Peters, Christine
Cc: Devine, Sandra
Subject: PICU- specimen breakdown

As requested

01/01/2016-30/06/2019 **First isolate from patient**	**Wound swab**	**Sputum**	**BAL/ Blind BAL**	**Tracheal aspirate**	**Sterile site** Blood Culture Peritoneal Fluid Pleural fluid
Acinetobacter baumannii/complex	4	0	24	0	0
Aspergillus fumigatus/species	1	1	2	0	1
Enterobacter cloacae/ ssp cloacae	6	2	17	0	1
Pseudomonas aeruginosa	5	4	14	0	5
Serratia marcescens	1	4	5	1	4
Stenotrophomonas maltophilia	1	0	5	2	1
TOTAL	**18**	**11**	**67**	**3**	**12**

From: Peters, Christine [redacted]
Sent: 22 July 2019 15:16
To: Devine, Sandra; Steele, Tom; Conner Darryl (NHS GREATER GLASGOW & CLYDE)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); alison.balfour[redacted]; Valyraki, Kalliopi; John.Hood[redacted]
Subject: SBAR PICU Ventialtion Vaidation
Attachments: SBAR PICU Ventialtion Vaidation.docx

Hi Sandra, Tom , Darryl,

Please find attached an SBAR regarding the PICU validation as promised at the meeting last week.

I have not received any data from the service manager to date re patients flows and the additional data from Ann Kerr came through this morning and I have not had a chance to assess it. I have also been gathering data from the laboratory records which I think can only be interpreted with denominator data.

I think that looking at the infection rates data will take some time and Teresa may have a view on how best to take this forward.

Please let me know of any inaccuracies or misunderstandings in the SBAR so I can correct it before wider circulation.

As you know I will be away on Annual leave from this evening and Teresa is due to be back on Thursday and Alison is on as ICD on Wednesday,

Kr

Christine
Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

(No subject)

Gibson, Brenda [redacted]

Sat 27/07/2019 13:33

To: Mathers, Alan [redacted];Mathers, Alan (NHSmail) [redacted]

Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];Inkster, Teresa [redacted];Redfern, Jamie [redacted]

Dear Alan and Teresa,

We meet a number of months ago to discuss the positive blood cultures in the Unit in 2017. I attach the file with the outcome for these patients. This was done by Shahzya Chaudhury who wasn't a consultant at that time and therefore it is truly independent . I am sorry for the delay but there has been a lot going on.

You will see that there are 3 deaths.

[redacted] - died a long time after stenotrophomonas was isolated from blood cultures and [redacted] death was not related to this infection in anyway. That is not to say that [redacted] didn't suffer morbidity. [redacted] died from disease progression [redacted]

[redacted] extremely unwell [redacted]. The cause of death was multifactorial and I don't think that the Stenotrophomonas was the prime cause , but one of many factors, and [redacted] was unlikely ever to survive the other factors .

[redacted] died [redacted]. [redacted] Stenotrophomonas was isolated from blood cultures the day that [redacted] was due to go for the procedure , which was cancelled and because [redacted] was fasted , [redacted] went for immediate line removal. Immediately post line removal [redacted] collapsed , presumably from a shower of organisms into the blood stream as the line was pulled. [redacted] was reviewed by PICU in recovery but not taken to PICU because [redacted] was considered by them to be manageable on the ward. [redacted] came back to the ward in several litres of oxygen and never recovered. Over the course of a number of days [redacted] developed heart failure . Everything was done including ECMO but [redacted] didn't survive . I can't see a letter on the system , but Stenotrophomonas has to be considered in the cause of death. Her deterioration certainly followed isolation of this organism and the line was very promptly removed.

I wonder if MM should be independently reviewed .I will leave this decision with you . I don't think that the others need to be . I don't know who is best to do this review, but presumably it should be independent . I am confident that once the organism was isolated that everything that could be done was done.

B.W.
Brenda

Purpose:	Briefing Paper
From:	
To:	Dr J Armstrong Board Medical Director
Date:	12/08/2019
Subject/ situation:	Non-tuberculosis mycobacteria in water supplies
Background	A case of cutaneous disease caused by *Mycobacterium chelonae* in a patient in RHC was detected in early 2019. A previous case of the same organism occurred 12 months previously. This is a rare infection. Water samples from the QEUH campus have also tested positive for *M. chelonae.* Investigation and management of this case has been included as part of the broader incident management of infections linked to the environment in haematology-oncology populations. The *M. chelonae* aspect of the incident was closed by NHS GGC and HPS on 8th August 2019. This note has been prepared to provide more general background information on non-tuberculous mycobacteria in water systems, and does not contain specific detail related to the aforementioned cases.
Microbiology	Mycobacteia can be considered in three broad groups: • *Mycobacterium tuberculosis* complex - cause of TB • *M. leprae* - cause of leprosy • Non-tuberculous mycobacteria(NTM) NTM are a large group (150+) of mycobacteria, of which only a small number (~15) have been shown to be pathogenic in humans. NTM are divided by the Runyon classification. Class IV (including *M. chelonae)* are fast growing (~5-7 days). The other three classes of NTM are divided based on development of pigment, and are slow growing (~3 weeks). NTM are rarely transmitted human to human, and most cases are due to environmental exposure. Cases are often affected by an underlying condition, such as cystic fibrosis, HIV, or immunosuppressive disease, though cases can also occur in immunocompetent individuals. Clinical presentations can include disseminated and respiratory disease (which can resemble TB), as well as skin lesions and ulcers, wound infections, lymphadenitis, and line infections. *M. Chelonae* is associated with skin lesions, wound and line infections. AS well as variation in clinical presentation, they are distinct from one another in terms of host risk factors , routes of transmission, and sources NTM can from biofilms. In keeping with other organisms the standard process of biofilm development : bacterial adhesion, surface attachment, sessile growth, matrix synthesis, and dispersal. However, the nature of the biofilm, its structure and growth properties vary between species and even strains of NTM. There are therapeutic implications of biofilm grown NTM, as they are more likely to develop antimicrobial resistance.
Epidemiology	Data globally indicates an increasing incidence and prevalence of NTM infections, with the majority being pulmonary. Prevalence appears to be higher in North America compared to Europe. A small retrospective study carried out in NHS Borders demonstrated an increase in incidence from 1.92/100000 in 1993 to 4.48/100000 population in 2010, with 84% of cases being pulmonary. It

should be noted that this study had very small numbers, though the increase in recent decades is in keeping with experience elsewhere.

A study carried out using data from the Scottish Mycobacterial Reference Laboratory between 2003 to 2012, demonstrated that *M. chelonae* was the second most common cause of cutaneous mycobacterial infections after tuberculosis itself. There were only 27 cases across Scotland in that time period. Six of those where from NHS GGC, a proportion in keeping with the GGC population share, giving an incidence of *M. chelonae* cutaneous infections of 0.33 per 100 000 population (Scott-Lang 2014).

NTM are prevalent in peat rich soils and run off water, costal swamp areas, natural water courses, water distribution systems, buildings such as hospitals and care facilities, equipment with water reservoirs, refrigerator water, taps, ice, shower heads, hot tubs and spa baths.

As they are resistant to common disinfection methods in water treatment plants, and the nutrient content of ordinary tap water is sufficient for them to grow, the can readily colonise water systems due to limited competition.

Generally, the consensus on the evidence suggests that NTM are more prevalent in water treated with monochloramine, compared to traditional chlorination, however the evidence base is not entirely consistent on this point.

NTM have been identified in a number of different parts of plumbing systems, including storage water heaters, baths, and shower heads, as well as pipework. For example, a case series of 37 residences of 31 patients with NTM in USA showed 59% of domestic water supplies had an NTB present (Falkinham 2011).

Similarly, they are multiple studies on findings of NTM in hospital water systems. A non-systematic search of EMBASE and MEDLINE databases produced 28 articles of various types published in the last five years describing NTM outbreaks, pseudo-outbreaks, incidents and nosicomial infections, and a further five articles relating to the *M. chimerea* heater-cooler unit global cluster.

One key source of mycobacteria in hospital settings are shower heads, this having been shown in a number of studies including Jaubert (2015) and

Control	General control measures, as used for legionella reduce NTM risk, such as flushing and temperature control. Other measures suggested by one author include: replacing shower heads for those with larger bore holes, monthly disinfection of shower heads, regular maintenance of water storage heaters including draining down and removal of sediment, remove humidifiers, remove aerators form taps, reduce bathroom aerosols, and installing microbiological filters. NTM, especially in biofilms are highly resistant to most disinfection methods, and are not removed by low levels of chlorine dioxide dosing. Laboratory investigation has shown that chlorine at 1 microgram per ml, can reduce NTM, but at 6 hour contact time 5% of cells may remain, and that cells released from biofilm have a transient intermediate resistence level, resulting in a risk of detached cells seeding pipework downstream (Steed 2006) Chlorine dioxide has been demonstrated to be a better disinfectant than chlorine or sodium hydroxide (Taylor 2000, Nishiuchi 2015). However, in vitro tests still required very high doses to kill NTM in biofilm (100mg/l for 30 minutes) (Nishiuchi 2015). 1mg/l chlorine for minimum of 2 hours is suggested as being necessary for disinfection (Taylor 2000). A longitudinal study in an Italian hospital (Casini 2014) of first chlorine dioxide, and subsequently monochloramine dosing, following multiple legionella incidents, showed an increase in the presence of NTB in both water and biofilm samples following the switch from chlorine dioxide to monochloramine at dose of 2mg/l, however there were no further detections following an increase to 3mg/l. Thermal disinfection should be effective against NTM (indeed they are destroyed by boiling). However the size and complexity of the system, and the significant risk of scalding of patients, visitors and staff during the process, make this an impractical option for disinfection. Other novel, innovative and experimental control measures are mentioned in the literature, though some appear more hypothetical than currently in practice. Use of agents based on the hydrophobic nature of the biofilm (such as paraffin coated filters or chemical products injected into the water)has been suggested. Antibiofilm agents used alone or in combination with antimicrobial agents have been suggested for treatment/disinfection in treating biomaterials. A novel antibiofilm approach, which focuses on *Methylobacterium sp.*, which disrupts biofilm formation and preformed biolfilm, reducing NTM, has been studied and further publications are awaited. None of these measures appear to be currently viable in use in a large scale distribution system.

Casini B, Buzzigoli A, Cristina ML, et al. Long-Term Effects of Hospital Water Network Disinfection on Legionella and Other Waterborne Bacteria in an Italian University Hospital. *Infection Control & Hospital Epidemiology*. 2014;35(3):293-299. doi:10.1086/675280

Esteban J and García-Coca M. Mycobacterium Biofilms.;2018; *Front. Microbiol*. 8:2651. doi: 10.3389/fmicb.2017.02651

Falkinham, III, J. (2009), Surrounded by mycobacteria: nontuberculous mycobacteria in the human environment. *Journal of Applied Microbiology*, 107: 356-367. doi:10.1111/j.1365-2672.2009.04161.x

Falkinham JO. Nontuberculous Mycobacteria from Household Plumbing of Patients with Nontuberculous Mycobacteria Disease. *Emerging Infectious Diseases*. 2011;17(3):419-424. doi:10.3201/eid1703.101510.

Falkinham, J.O. Current Epidemiologic Trends of the Nontuberculous Mycobacteria (NTM) *Curr Envir Health Rpt* 2016 3: 161. https://doi.org/10.1007/s40572-016-0086-z

Heymann, D. L (ed); *Control of Communicable Diseases Manual*; 19th edition; APHA Press; 2008

Jaubert J, Mougari F, Picot S, et al. A case of postoperative breast infection by Mycobacterium fortuitum associated with the hospital water supply. *Am J Infect Control* 2015; 43:406–8.

Kauppinen J, Nousiainen T, Jantunen E, Mattila R, Katila ML. Hospital water supply as a source of disseminated Mycobacterium fortuitum infection in a leukemia patient. *Infect Control Hosp Epidemiol 1999*; 20:343–5.

McCallum AD, Watkin SW, Faccenda JF. Non-tuberculous mycobacterial infections in the Scottish Borders: identification, management and treatment outcomes--a retrospective review. *J R Coll Physicians Edinb* 2011; 41:294–303

Nishiuchi Y, Tamaru A, Totani T, Bactericidal Effect of Sodium Hypochlorite and Chlorine Dioxide against Mycobacteria and Mycobacterial Biofilm, Japanese Journal of Infection Prevention and Control, 2015, Volume 30, Issue 4, Pages 243-248 [abstract only – original in Japanese]

Prevots DR, Marras TK. Epidemiology of human pulmonary infection with nontuberculous mycobacteria: a review. *Clin Chest Med*. 2015;36(1):13–34. doi:10.1016/j.ccm.2014.10.002

Scott-Lang, V. , Sergeant, A. , Sinclair, C. , Laurenson, I. , Biswas, A. , Tidman, M. , Doherty, V. , Kavanagh, G. and Holme, S. (2014), Cutaneous Mycobacterium chelonae infection in Edinburgh and the Lothians, South-East Scotland, U.K.. Br J Dermatol, 171: 79-89. doi:10.1111/bjd.12901

Steed KA, Falkinham JO 3rd. Effect of growth in biofilms on chlorine susceptibility of Mycobacterium avium and Mycobacterium intracellulare. *Appl Environ Microbiol*. 2006;72(6):4007–4011. doi:10.1128/AEM.02573-05

Taylor RH, Falkinham JO, Norton CD, LeChevallier MW. Chlorine, Chloramine, Chlorine Dioxide, and Ozone Susceptibility of *Mycobacterium avium Applied and Environmental Microbiology* Apr 2000, 66 (4) 1702-1705; doi: 10.1128/AEM.66.4.1702-1705.2000

(No subject)

Gibson, Brenda [redacted]

Mon 12/08/2019 08:56

To: Mathers, Alan [redacted];Mathers, Alan (NHSmail) [redacted];INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];Inkster, Teresa [redacted];Redfern, Jamie [redacted]

Dear Alan,

I sent you a list of outcomes for pa ents with posi ve blood cultures in 2017 a few weekend s ago , but haven't heard. There were three deaths- one totally unrelated , one probably where the posi ve culture was one of a number of factors ,, but one almost certainly related to the death . I did ask if this case should be externally reviewed but have had no response.

I have to a end an interview with HSE tomorrow and could be asked when we first became concerned about the environment on ward 2A . It certainly was as early as 2017 , if not earlier.

Brenda

Re: HAIRT

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Mon 12/08/2019 14:58
To: Devine, Sandra [redacted]
At the IMT we have discussed 11 cases and we have reported 11 in the HIIORT and to SG so I am uncomfortable not repor ng this in a HAIRT

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 12 August 2019 14:10
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: HAIRT

We have spoken about three cases at IMT and that's what has gone out via the press releases. Iain has said that the numbers are not up in themselves it's the unusualness of these last couple that there are concerns about.

Is this ok?
Sandra

Sandra Devine
Ac ng Infec on Control Manager
NHS Greater Glasgow & Clyde
[redacted] (PA Ann Lang)

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 12 August 2019 14:05
To: Devine, Sandra [redacted]; Inkster, Teresa [redacted]
Subject: [ExternaltoGGC]Re: HAIRT

Couple of changes

There seems to be an issue with spacing but I have not sorted it as it might by my out dated version of word.

Why are we repor ng 3 unusual cases versus the total number we are inves ga ng i.e. 11

T

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Devine, Sandra [redacted]
Sent: 12 August 2019 13:32
To: [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: HAIRT

Hi Teresa
Can you have a look and comment on the HAIRT – I delayed it going out but it has to go end of today.
Thanks
Sandra

Sandra Devine
Ac ng Infec on Control Manager
NHS Greater Glasgow & Clyde
[redacted] (PA Ann Lang)

RE: non-tuberculous mycobacteria briefing note

Kennedy, Iain [redacted]
Wed 14/08/2019 17:36
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];Devine, Sandra [redacted];Steele, Tom [redacted]

Hi,

An updated version a ached.

Iain

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 14 August 2019 17:07
To: Kennedy, Iain; Devine, Sandra; Steele, Tom
Subject: [ExternaltoGGC]Re: non-tuberculous mycobacteria briefing note

Thanks.

I agree its not possible to determine whether there are 8 HAI which is why I used the word 'poten al'

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Kennedy, Iain [redacted]
Sent: 14 August 2019 12:43
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Devine, Sandra; Steele, Tom
Subject: RE: non-tuberculous mycobacteria briefing note

HI Teresa,

Thanks for the feedback.

I would hesitate to call it a report. It is intended as a background briefing note for Jennifer, in case there were any ques ons on it at the Board mee ng next week, though I think this perhaps less likely given the infec on is no longer named in the HIART. It has been produced at specific request from Jennifer for public health to produce background informa on on mycobacteria in water supplies. It is not intended as a commentary on the specific cases, inves ga on or management, and I can make that clearer in the document.

I am also happy to add in more informa on on epi of *M. Chelonae* in clinical cases.

I have men oned showerheads, and can strengthen that comment and add in the suggested references.

In terms of the Lothian paper, I don't think it can be stated that 8 are possible HAI. Whilst some are clearly HCAI, there is not sufficient informa on in the paper to determine if any were HAI, and at least one of those is

definitely not.

Happy to discuss further this a. ernoon, and will do a further draft once i'm back in the office after the IMT.

See you this afternoon

Iain

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 14 August 2019 09:19
To: Kennedy, Iain; Devine, Sandra; Steele, Tom
Subject: [ExternaltoGGC]Re: non-tuberculous mycobacteria briefing note

Some comments below. I was not at BICC so Im not sure what the background is and where this report is going

Background

The IMT were inves□ga□ng two cases. The cases are not linked to each other but there is further typing ongoing with respect to water samples.

The tes□ng was not part of rou□ne monitoring , I was tes□ng in response to cases.

We have not men□oned that the organism was found in water and the WGS indicated an HAI for case 2

Microbiology/Epidemiology

NTM are a large group of bacteria and taken together are 'common' . However they are very dis□nct from one another in terms of host risk factors , routes of transmission,sources . A bit like 'coliforms' ,very common ,but Citrobacter braaki for example which would fall into this group, is not

Should we not therefore be more specific re the epidemiology of M chelonae. It is rare and we have our local data and info from HPS

In the Borders paper quoted only 5 of the 38 cases were M chelonae. The Edinburgh paper discussed at the IMT is not referenced. When you drill down the data they had 12 cases of M chelonae in Lothian over 4 years. The epidemiology is skewed by an outbreak linked to a tatoo parlour. If you remove those 4 , then they have 8 poten□al HAI in 4 years

Two important references are those rela□ng to single cases of M fortuitum and the subsequent inves□ga□on by ICTs where showers heads/water in pa□ent hospital bathrooms were the source- Jaubert J *et al*, Am J Inf control 2015 43;406-8 and Kauppinen J *et al* Infect control hosp epidemiol 1999;20:343-5

The point that I am trying to make is that M chelonae is rare and that tes□ng of the water and iden□fica□on of the source on the basis of a small number of cases was an appropriate ac□on. An ac□on which enabled further control measures to be implemented preven□ng further cases. That is not depicted anywhere. Rather the impression is given that this situa□on is common and to be expected

Kind regards

Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Kennedy, Iain [redacted]
Sent: 13 August 2019 16:23
To: Devine, Sandra; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Steele, Tom
Subject: non-tuberculous mycobacteria briefing note

Hi,

As discussed at BICC, I have produced the a□ached briefing note. Would be grateful for your comments prior to it going to Jennifer.

Thanks in advance

Iain

FW: Epidemiology

Inkster, Teresa [redacted]
Fri 14/08/2020 20:13
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 06 April 2020 12:46
To: Inkster, Teresa [redacted]
Subject: [ExternaltoGGC]Fw: Epidemiology

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 19 August 2019 21:12
To: Peters, Chris ne; Kennedy Iain (NHS GREATER GLASGOW & CLYDE)
Cc: Devine, Sandra; Deighan, Chris
Subject: Re: Epidemiology

Thanks both
We have spoken about the difficulty in obtaining data from other UK centres and we are working on that within microbiology
In the mean me the papers a ached from elsewhere provide a useful illustra on of the nature of the organisms seen in this pa ent group. The tables in these papers are very helpful in that they list the Gram nega ves over the mespan of the studies.
You will note what the most common organisms are and they are not the environmental Gram nega ves we are seeing. This is what is causing concern amongst the microbiology team.
The paper which is most akin to what we are seeing is one from Ethiopia (a ached), likely rela ng to unhygienic condi ons there
If you let me know when you are mee ng I will try to join

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Peters, Chris ne [redacted]
Sent: 16 August 2019 10:14
To: Kennedy Iain (NHS GREATER GLASGOW & CLYDE)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: RE: Epidemiology

HI Iain thanks for this,

It is unfortunate that your data was being used at the IMT to imply that there is no issue at present, which I am sure had you been present you could have clarified the posi on regarding the limita ons of your data.

My main concern is that your report is not actually an outbreak epidemiology report and therefore was not the most relevant data to be discussed at the IMT as it was neither up to date nor inclusive of cases ascertained through other laboratories. The difficulty with including a search based on previously iden fied organisms is that new novel isolates are poten ally missed . Fundamentally the acceptance level for these types of organisms in blood cultures is zero. Any case merits at least inves ga on at the discre on of the ICD. Teresa has the data and epi curve already from ICNET and I am sure you would agree that it is her data which is the most relevant for the IMTs as it is real me.

In the context of a previously contaminated water system, rather than trying to formulate baseline acceptable levels, the approach should be alertness for any new cases and rapid concerted ac on to iden fy possible sources, which is exactly what Teresa is doing.

With regards to the details of denominators used, as well as cross checking the cases, I am happy to collaborate and discuss in person . With regard to 2017, I am happy to discuss previous records I have of discussions of the rates and nature of bacteraemias on the unit at the me.

Is there a good day of the week for you to meet ?
Kr
Chris ne

From: Kennedy, Iain
Sent: 15 August 2019 16:10
To: Peters, Chris ne [redacted]
Cc: Inkster, Teresa (NHSmail) [redacted]
Subject: RE: Epidemiology

Hi Chris ne.

The report is a ached, it is an update of the dra. report you previously saw in October.

As to conclusions, I would categorise it more as since the decant to 6A, there has been a significant reduc□on in the number of the cases, and a reduc□on of the number of polymicrobial cases, with the 3 monthly rolling count being at similar levels to second half of 2016, and close to those in the old hospital, though with more month-to-month variability. That this improvement has occurred does not remove the need to monitor and inves□gate when addi□onal or unusual cases occur. In par□cular, there does not appear to be the same improvement in enterobacter, and I comment on the need to inves□gate that further in the report.

There are a couple of points to note though, in par□cular that the report only includes data up to June, and will not include cases where isolates were processed in non-GGC labs. Other limita□ons are included in the report.

I am not sure what happened with the examina□on of the data in 2017, as I was not involved at that □me.

In terms of aggrega□on, the data is based on the list of organisms which were involved in the situa□on, either from clinical, water or drainage samples at the □me. As such, the repor□ng does cover “outbreak organisms”. There would be a number of sub group examina□ons that would be valid, including environmental v non-environmental that we have discussed before. I have a□ached an addi□onal epi curve that have drawn up today, split on that basis, with July and data so far in August, as that may help the discussion.

I would be happy to discuss on the phone or face to face, or to jointly review any of the lab data, just let me know.

Best wishes

Iain

From: Peters, Christine
Sent: 14 August 2019 16:58
To: Kennedy, Iain
Cc: Inkster, Teresa (NHSmail)
Subject: Epidemiology

Hi Ian,
I am rather astonished that there is a report re epidemiology on 6A gram nega□ves that implies no increase in numbers of cases over the last few months as this does not chime with my reading of the laboratory data, or indeed the existence of an IMT, or closure of the ward with a huge number of ac□ons to solve environmental issues.

I think it’s important that we understand the detail of what is happening and not be “chunking” data and merging very different organisms, as happened at the start in 2017 when the significance of the nature of the gram nega□ves was perhaps not appreciated.

Would you be happy to share your report with me so I can iden□fy why we have such very different interpreta□ons of the current situa□on?

Kr

[redacted]
Dr Chris□ne Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex[redacted]
Mobile: [redacted]

FW: Hemato-oncology- Assessment of current position and understanding additional support requirements

Bajwe, Ranjit
Fri 16/08/2019 11:35

To: Armstrong, Jennifer [redacted];Bajwe, Ranjit;Best, Jonathan [redacted];de Caestecker, Linda [redacted];Deighan, Chris [redacted];Devine, Sandra [redacted];Green, Rachel [redacted];Inkster, Teresa;Kennedy, Iain [redacted];Mcguire, Margaret [redacted];Redfern, Jamie [redacted];Rodgers, Jennifer [redacted];Shariff, Imran [redacted];Steele, Tom [redacted]
Cc: Shariff, Imran [redacted]

Dear Colleagues

As you will be aware, there are a number of issues regarding the Hemato-oncology unit at QEUH and I would like to take this opportunity to invite you to a mee ng to discuss these issues. The aim of this mee ng is to set out the current posi on and discuss addi onal support to address current issues. I am aware that this is short no ce for this mee ng and would ask if you are able to flex your diaries to accommodate this mee ng. I will chair the mee ng. The mee ng will take place a. er the Board mee□ng on:

Date: Tuesday 20th August

Time: 3.00pm to 5.00pm,

Loca□on: Teaching and Learning Centre, Room L1022

I would be grateful if you could please confirm your a□endance by return to Imran Shariff.

Many thanks

Linda

Dr Linda de Caestecker
Director of Public Health
NHS Greater Glasgow & Clyde
Tel no: [redacted]

Email: [redacted]

78. Email CP to Laura Imrie 16 August 20196a. FW Meeting re Ventilation (2)

Louise Mackinnon

Subject: FW: Confidential

SharePointLocationUrl: [redacted]
SharePointAbsoluteFileUrl: [redacted]

From: Christine Peters [redacted]
Date: 16 August 2019 at 13:47:19 BST
To: Laura.imrie [redacted]
Subject: Confidential

hi Laura,

further to my phone call I am writing to raise my concerns formally as an anonymous whistleblower regarding my real concerns about the situation in GGC infection control.

I have seen first hand evidence of the real lack of support , and indeed undermining of Dr Teresa Inkster as Lead I CD as she tries to manage a number of very complex and high consequence situations. She has expressed to me this afternoon that she is not able to face anymore meetings where she is unsupported. She does not wish me to raise this within the organisation for fear of consequences. I have already previously raised this through occupational health and line management . There is no perceptible change in attitudes or behaviours. Her over riding concern is that she is unable to do her job in protecting patients from infections due to the culture and organisational failings.

Of particular note critical information has been denied to her, or false accounts given by high level managers eg the chilled beams leaking, her judgement regarding the fact that there is a real issue with unusual environmental pathogens in Haematology paediatric patients is being continuously questioned even by the ICM. It is patently clear that senior management has distanced itself from the water incident and there is a "nothing to see here attitude" with key agreed actions from the IMT not carried out without discussion with the chair of the IMT.

She feels unsupported, bullied and was even asked to tell a false account of the situation to a parent.

I am not aware of all the details of the current incident, however I am convinced that this organisation required a task force to come in and sort out the situation .

And this while there is external reviews ongoing!

Please do ask the relevant authorities to speak directly with Teresa rapidly and get external support both for her sake but also for the sake of patient safety. She is aware that I have spoken to you and am sending this email.

I have no confidence in internal systems of escalation.

Regards

Christine
Sent from my iPhone

Untitled

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)

Fri 23/08/2019 17:13

To: Devine, Sandra [redacted];

Dear Sandra

I am confused regarding the reasons I have had to demit as IMT chair

Last Friday when you asked me about support I stated that the chairing was the least of my worries . I highlighted that it was a difficult meeting and that there was a lot of changes to the minutes. I suggested recording IMTs to avoid this in the future. We also discussed support for environmental screening amongst other things

On Monday morning I was informed by you that everyone in the room had given feedback that the meeting was awful and that there was no team work. I was informed by you that Scott Davidson would take over . We did discuss an operational chair as some of the actions were incomplete.

I was surprised today to hear that Emilia was chairing as I was off sick, this is not correct as the decision was relayed to me on Monday. I went off sick on Tuesday.

It was then stated that it was to provide me with support, again this was not the case. I am very concerned that Dr Pepi Valyraki who is a relatively junior ICD with limited ICD experience was asked to chair in my absence.

It was very clear from todays meeting that not everyone provided feedback that the meeting was awful. HPS acknowledged the meeting was 'tricky' but that there were no issues with the chair. The clinicians in the room did not provide feedback as such and neither did microbiology colleagues.

I would appreciate the reason in writing

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

RE: peer review

Peters, Christine [redacted]
Mon 26/08/2019 11:19
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Cc: KHALSA, Kamaliit (NHS GREATER GLASGOW & CLYDE) [redacted];Balfour, Alison [redacted];Inkster, Teresa [redacted];Khanna, Nitish [redacted];Peters, Christine [redacted];Valyraki, Kalliopi [redacted];Wright, Pauline [redacted]

Dear Teresa ,
Thanks for your email and as discussed at the handover mee ng this morning we are agreed that we will divide up the work so that Pauline and Ni sh will look at the water incident and Kam and I will look at Cryptococcus.

I suggest Alison joins with Crypto , Pepi with gram nega ves, and [redacted] can choose !

I suggest we arrange a mee ng to discuss the outcomes and record as CPD for all of us, perhaps Wednesday a. ernoon 3pm .

Kr
Chris ne

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 26 August 2019 11:05
To: Peters, Christine
Subject: [ExternaltoGGC]peer review

Dear Chris ne

I have recently been involved in chairing and advising on 2 fairly complex incidents in my role as lead ICD. These are the Cryptococcus neoformans incident and the ongoing Gram nega ve bacteraemias /Mycobacterium chelonae in 6A

Sec on 29 of the GMC guide to CPD states ;

You should participate in peer-based learning in your specialty or field of practice. There are many ways to do this, such as peer reviews and peer tutoring.

Due to the complexity of these incidents I am reques ng internal peer review of them from microbiology colleagues at QEUH. I will supply minutes, melines, and anything else that is required.

In addi on I am looking for colleagues to each a consensus opinion on the following

1) The role of environmental sampling in incidents/outbreaks, to include advantages/disadvantages

2) Hospital drains as a source of HAI

3) Interpreta on of typing results in environmental incidents

I will task the clinical fellows with literature reviews in these areas.

I appreciate this is addi onal work for colleagues but I am sure the learning will be beneficial to all.

Kind regards
Teresa

Dr Teresa Inkster
Lead Infection Control Doctor NHSGGC
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Whistleblowing

de Caestecker, Linda [redacted]

Mon 26/08/2019 18:07

To: Inkster, Teresa [redacted]

Dear Teresa

I was informed via Jennifer about an anonymous whistleblowing complaint about the IMT about ward 6A. The concern was raised with HPS and escalated to SG. The concerns were:

- The chair is unable to do her job in protec ng pa ents from infec ons due to the culture and organisa onal failings, ci ng lack of support from management
- Cri cal informa on has been denied to the chair, or false accounts given by high level managers
- Microbiology/Clinical judgement regarding the fact that there is a real issue with unusual environmental pathogens in Haematology paediatric pa ents is being con nuously ques oned
- Lack of transparency re communica on

Would you be willing to meet with me to help me to inves gate these complaints? The whistleblower wishes at this point to remain anonymous so I am unable to contact him/her directly to get more informa on.

I realise you were unable to a end our mee ng last week to discuss how the IMT is opera ng. Separately or as part of the same discussion, it would be good to discuss with you ac ons resul ng from that mee ng.

Kind regards
Linda

Prof Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde
Gartnavel Royal Hospital Campus |
1055 Great Western Road | GLASGOW G12 OXH
t [redacted], m [redacted] | e [redacted]
web: h p://www.nhsggc.org.uk/publichealth

RE: SBAR Relating to Ward 6A :

Peters, Christine [redacted]
Fri 27/09/2019 11:35
To: Peters, Christine [redacted];Crighton, Emilia [redacted]
Cc: Green, Rachel (NHSmail);Williams, Arwel [redacted];'KHALSA, Kamaljit (NHS GREATER GLASGOW & CLYDE)' [redacted];Balfour, Alison [redacted];Inkster, Teresa;Inkster, Teresa (NHSmail) [redacted];Khanna, Nitish [redacted];Valyraki, Kalliopi [redacted];Wright, Pauline [redacted]

Hi Emelia,

I hope this finds you well, and I am sure you are very busy par cularly with the con nuing 6A situa on.

As a follow up to the email below:

1. I understand that there is a response to the SBAR that is being referred to at the IMTs .I am therefore wri ng to request that we, as the authors of the SBAR, are able to see the response and respond in kind.
2. Please could you update us on the GOSH visit that had been agreed and clarify how those involved in the earlier IMT process will be able to feed into the external assessment

All the best,
Kr

[redacted]
Dr Chris ne Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

From: Peters, Christine
Sent: 13 September 2019 10:23
To: Crighton, Emilia
Cc: Green, Rachel (NHSmail); Williams, Arwel; 'KHALSA, Kamaljit (NHS GREATER GLASGOW & CLYDE)'; Balfour, Alison; [redacted]; Inkster, Teresa; Inkster, Teresa (NHSmail); Khanna, Nitish; Peters, Christine; Valyraki, Kalliopi; Wright, Pauline
Subject: FW: SBAR Relating to Ward 6A :

Dear Emelia,

Thank you for your response to our joint SBAR. We are glad that you found the SBAR helpful as that was its intent. We are aware that remedial works had been planned for some me and work ongoing. The risks were

recorded as current at the me of the SBAR document and in response to the proposal to reopen the ward.

As with all risk assessments condi ons change, some me rapidly in infec on situa ons, and careful reassessment is mandatory. In our experience this would normally be the role of the ICD chairing the IMT who would be trained in infec on risk and preven on , with access to all the results and be managing any environmental sampling and in this context an exper se in ven la on and environmental threats. Therefore how microbiology input occurs going forward is a ma er for discussion within our directorate hence Rachael Green and Arwel are copied in.

Please could you further clarify for us the IMT's response to the specific recommenda ons with par cular reference to the visita on from GOSH as none of us have been informed of when and how this will happen, and we consider it essen al for fair due process that Teresa Inkster is included in any appraisal of the IMTs and the scien fic input into decisions made.

I am sure we are all united in a common aim of ensuring pa ent safety is not compromised and that basic expecta ons of accommoda on standards are met, par cularly in the light of the recent Edinburgh NSS report.

Kr

ON behalf of QEUH Microbiology Consultants

[redacted]
Dr Chris ne Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex[redacted]
Mobile: [redacted]

From: Peters, Christine
Sent: 13 September 2019 09:03
To: 'KHALSA, Kamaljit (NHS GREATER GLASGOW & CLYDE)'; Balfour, Alison; [redacted]; Inkster, Teresa; Inkster, Teresa (NHSmail); Khanna, Nitish; Peters, Christine; Valyraki, Kalliopi; Wright, Pauline
Subject: FW: SBAR Relating to Ward 6A

FYI for discussion

From: Kennedy, Mary
Sent: 12 September 2019 16:36
To: Peters, Christine
Subject: FW: SBAR Relating to Ward 6A

Please see below Chris ne.

Thanks

Mary McKenzie

From: Crighton, Emilia
Sent: 03 September 2019 18:20

To: Kennedy, Mary
Cc: Steele, Tom; Devine, Sandra
Subject: FW: SBAR Relating to Ward 6A

Dear Mary
Please pass on my thanks to all the QEUH Microbiology consultants for taking the me to compile the SBAR.

The SBAR is a very helpful summary that will be included as part of a holis c risk assessment of the care of Haem-oncology pa ents, which will also include considera on of the mi ga ons in place or planned, as well as risks of the alterna ves. Based on the discussions in the IMT mee ng, I am aware that some of the issues raised have already been dealt with or are in the process of being dealt with, such as toilet seats, DSR sink, leaks from chilled beams and that some of the issues were previously listed as acceptable mi ga ons; the con nuous advice of the Microbiology colleagues is therefore essen al.

As part of the risk assessment there needs to be considera on about differences in risk between different sub-groups of the Haem-oncology pa ent popula on as BMT pa ents are looked a. er elsewhere.

I look forward working with the Microbiology colleagues,

With kind regards,

Emilia

Dr Emilia M Crighton
Caldico Guardian
Deputy Director of Public Health
NHS Greater Glasgow and Clyde
West House
1055 Great Western Road
Glasgow, G12 0XH

tel [redacted]
email: [redacted]

From: Kennedy, Mary
Sent: 29 August 2019 15:42
To: Crighton, Emilia
Subject: SBAR Relating to Ward 6A

Please see a ached document, this is an SBAR rela ng to ward 6A QEUH from all consultant Microbiologist at QEUH.

Mary McKenzie

Medical Secretary
Microbiology, Level 4
Laboratory Medicine &
Facili es Management Building
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF
Tel: [redacted] (Direct)
Email: [redacted]

From: Peters, Christine [redacted]
Sent: 15 May 2020 18:10
To: Christine Peters
Subject: FW: Response to Conocerns raised by WHistleblowers in 2017

Importance: High

From: Peters, Christine
Sent: 30 August 2019 12:52
To: Armstrong, Jennifer [redacted]
Cc: Inkster, Teresa (NHSmail) [redacted]; de Caestecker, Linda [redacted]
Subject: Response to Conocerns raised by WHistleblowers in 2017
Importance: High

Dear Dr Armstrong,

I am writing to you to formally enquire if there is a final document being circulated regarding the organisation's response to the issues raised by Drs Redding, Dr [redacted] and myself in 2017 as step 1 of a whistle blow. Teresa sent me a version of a document that is a list of 27 points and a summary and update of position in January 2019. She informed me that the document was going out for comment from BICC and that the final version was not available. Of note none of the whistleblowers were aware of the circulation of this document with their names on it and have not been asked to comment on it.

I have many comments to make on the interim document that I have seen with regard to :

1. Inclusion of the names of the whistleblowers
2. The accuracy of the representation of the whistleblowers concerns (which was the basis for going to step 2 of the whistle blow as Linda may recall)
3. The accuracy of the summary of the position in January 2019
4. The discrepancies with the previous document sent to us in 2018 with particular regard to the Aspergilllus cases on 2A

   However I do not wish to jump the gun and respond to a draft/outdated document therefore I respectfully request that the whistleblowers who are still employed by the organisation are given the opportunity to respond to the final version of the document .

Regards,
[redacted]
Dr Christine Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

Dear Jennifer,

I am writing to inform you that I have decided to resign from both the Lead and sector ICD role

Concerns were raised by clinical colleagues last year with regards to my workload and observations were made at IMTs on my work environment, such that my Consultant haematologist advised that I must give up the role if issues were unresolved. I have emailed and spoken to both infection control senior management and diagnostics regarding workload with no resolution. Despite the suggestion of a deputy this was for a very short term 10 days only.

A consultant colleague recently referred to me as doing the work of 4 people; another senior colleague has told me my situation is unsustainable and that few people could work at the intensity I am expected to. This has nothing to do with underlying illness.

During recent incidents/IMTs I have experienced undermining, a lack of respect and I have felt unsupported and undervalued by members of my infection control team and management. Despite being chair my comments on Comms have been disregarded. I have previously discussed these issues with senior medical staff but they persist and recent events have added additional stress. I have been excluded from discussions and requests for environmental results for the review and a colleague has informed me of plans for a Great Ormond Street visit for which I am not included.

Last week I was asked to demit chair of the IMT with four different reasons cited by the ICM, three of those in public and all of which were untrue. I was informed individually by the ICM that the feedback from IMT was dreadful and that everyone –this was stressed- in the room stated this and that therefore I would have to demit.

Minutes from a meeting to discuss issues with the IMT used words such as “transparency” and “independent” suggesting I have not been either while my professionalism has undoubtedly been called into question. There is reference to behaviours by individuals in diagnostics and since there were only two of us present one must therefore be myself. It would be useful to have feedback on what these behaviours were. Feedback from ward 6a clinician colleagues is very contrary to this and I note none of them were present. I would suggest any further discussion regarding the structure of IMT requires relevant clinician input and adherence to GMC guidance that focuses on patient safety. It was also very disappointing to read that there was no action to discuss the future running of IMTs to the IMT Chair, especially given my 12 years of experience in managing outbreaks and my roles as Chair of the national consensus group and module lead for the MSc outbreak management course.

I have also had to refer a serious concern regarding duty of candour to the GMC and they have advised me to whistle blow while my contributions to a recent SCI report were removed.

It is important to note that these perceptions are not just my own. I was contacted by HPS recently to inform me of a whistle blow in relation to conduct towards me at the IMT and that some of the observations have been independently corroborated resulting in HPS treating this very seriously.

Furthermore, in recent months I have had two separate issues with not being paid correctly, queries over my level of output, a sudden request to change my sick leave reporting structure, a request for details of sick leave after 3 days of a viral illness with a view to OH referral despite not triggering any breach, demands to attend meetings despite diary conflicts, questioned regarding my priorities due to attending one meeting over another, and a request that all communications from HPS to myself

must be copied in to an ICM. This is all very intimidating and stressful and has contributed to my decision.

[redacted]

I am on annual leave from Friday for 2 weeks. I will do my best to prepare a handover of issues for whoever will take over the role.

[redacted]

Kind regards

Greater Glasgow and Clyde NHS Board

JB Russell House
Gartnavel Royal Hospital
1055 Great Western Road
GLASGOW
G12 0XH
Tel. [redacted]
Fax. [redacted]
Textphone: [redacted]
www.nhsggc.org.uk

Date: 05/09/2019
Our Ref: JA/TI
Enquiries to: Jennifer Armstrong
Direct Line: [redacted]
E-mail:
mailto:[redacted]

Dear Teresa,

In response to your letter to me on the 2nd September 2019, I note that you wish to demit from your role as Lead/ Sector Infection Control Doctor for NHS Greater Glasgow and Clyde.

On a personal note, I would like to thank you for your contribution and your hard work to provide Infection Control advice during a very difficult and complex period.

[redacted] Therefore I accept your resignation from your Lead ICD and IC post and will take this to be effective from Friday 6th September 2019 when you finish for annual leave.

I have not shared your letter, however I am keen that the range of issues you have raised are fully considered and properly investigated where appropriate in line with the Board's governance processes and policies. As you note in your letter, concerns have also been raised through Health Protection Scotland (HPS) and due diligence is now required by the

Board to carry out a full investigation under the Board's Whistleblowing Policy (copy enclosed).

A number of these issues have been raised previously and we attempted to put in place measures to address them and it is disappointing that you feel these issues persist

As you know, we have discussed the need for effective team working where all members are treated fairly and their skills and experience respected. This promotes collective leadership and effective decision making. In addition, there have been concerns raised from other members of the organisation and I therefore consider it important that the matters you and others have raised are investigated and that any available evidence is reviewed to ensure these matters are concluded in an appropriate matter.

I wanted to take this opportunity to provide a synopsis of the key points in your letter in order to assess my understanding of the issues which I would propose are taken forward as part of the above investigation. I have asked Dr Linda de Caestecker in her role as a designated senior manager for Whistleblowing concerns to review this on receipt of your response.

In addition, I have asked the Director of Human Resources and Organisational Development to identify an external Human Resources Director to work with Dr de Caestecker to assess the issues you have raised more fully and provide advice to the Board. I have summarised the areas of concern set out in your letter together with the key points raised to HPS from a whistleblower from NHS Greater Glasgow and Clyde. HPS have advised me of these concerns and also that the whistleblower declined to raise them locally. However as they are significant issues, I have asked that they also be reviewed. I would appreciate if you can review what I believe to be the issues and provide any clarity on these.

Synopsis of Key Issues

1. Workload and immediate work environment.
2. Involvement and discussions within wider IC team
3. Lack of involvement in the forthcoming visit to Great Ormond Street.
4. Issues relating to Leadership Role and chair of IMT
5. HR/Payroll related issues

6. Issues reported to HPS including:
    a. Support from Management
    b. Information flow within IMT and to Chair
    c. Microbiology and Clinical Judgements
    d. Issues relating to communication

I am aware that you will be going on annual leave soon for two weeks and would be grateful if you can add anything to the key areas identified prior to this, so that Dr de Caestecker together with the external HR Director begin the process of investigating and addressing the issues raised.

In relation to your resignation from the Lead and sector ICD role, we would like to discuss this further as this role forms a substantial part of your job plan. We will review your job plan in order that we are able to provide a future supportive environment [redacted]

[redacted]

Yours Sincerely

[redacted]

Dr Jennifer L Armstrong
Board Medical Director

FW: Water Technical Group

Inkster, Teresa [redacted]
Thu 10/10/2019 10:58
To: Gardiner, Robert [redacted];Findlay, Bernadette [redacted]
Cc: Peters, Christine [redacted]

Example of issue with minutes. Some very important discussion at this meeting. Despite a minute taker huge gaps and relying on participants memory of what was said many weeks ago. I have not seen a final version for these
KR
Teresa

From: Hirst, Allyson
Sent: 01 October 2019 08:44
To: Inkster, Teresa
Cc: Kennedy, Iain
Subject: RE: Water Technical Group

Thanks Teresa

I have pointed out that these are incomplete minutes but I wasn't at the meeting so happy to take you input and add these to the notes and if Iain has any input – I will complete these and send them out again for record

Ally

From: Inkster, Teresa
Sent: 27 September 2019 15:27
To: Hirst, Allyson [redacted]
Cc: Kennedy, Iain [redacted]
Subject: RE: Water Technical Group

Thanks

There are some important points missing from these minutes. I have copied in Iain as well as the meeting was some time ago now. We discussed the following ;

Chlorine dioxide dosing - we discussed whether we should increase further to 0.7. There was discussion about the presence of Mycobacterium chelonae in the water and its presence at > 100 cfu at some outlets. This was linked to the recent IMT and a patient case with whole genome sequencing establishing relatedness of the patient isolate to a water isolate (13 snps apart). We discussed the work of Falkenham at Virginia tech relating to atypical mycobacteria in pipework and I expressed concern that low does chlorine dioxide might be encouraging proliferation of atypical mycobacteria in the system

Under AOCB I highlighed concerns reagarding governance. Decisions were being made between the local team and experts outwith the IMT and water technical group meetings and I was concerned about the lack of documentation and flow of information.

Iain might have further stuff to add - I do recall some discussion around the coliforms that were present also .

Kind regards
Teresa

From: Hirst, Allyson
Sent: 23 September 2019 16:03
To: Inkster, Teresa
Subject: RE: Water Technical Group - Friday 13th September 2019

I assume it's this one you mean?

From: Inkster, Teresa
Sent: 23 September 2019 16:00
To: Hirst, Allyson [redacted]
Subject: Re: Water Technical Group - Friday 13th September 2019

Hi Alison, I missed this meeting due to annual leave. Can you send me the minutes from the previous meeting as I might need to make some additions still
Thanks
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Hirst, Allyson
Sent: Thursday, 12 September 2019 2:36 PM
To: 'denniskelly[redacted]'; Gallacher, Alan; Hood, John; Inkster, Teresa; Kane, Mary Anne; Kennedy, Iain; Mallon, John; McNeil, Elaine; Powrie, Ian; Purdon, Colin; Riddell, Mark
Cc: 'Tom Makin'
Subject: Water Technical Group - Friday 13th September 2019

Dear All

Please find attached the papers I have been forwarded for inclusion in tomorrow's discussion. Please note that the previous notes are not completed and will need to be ratified at tomorrow's meeting to ensure an accurate record of the discussions is created

I have received apologies from

Mary Anne Kane
Alan Gallacher
Dennis Kelly and
Ian Kennedy

Dial in details are available for anyone wishing to dial in please let me know if you wish to participate via this route. Please note that the meeting will commence at 1.30 instead of the usual 1pm start time – this is to accommodate the IMT which is to be held prior to this meeting

Regards

Allyson Hirst | Admin to Director of Estates and Facilities – Tom Steele | NHS Greater Glasgow & Clyde
Board HQ | J B Russell House | Gartnavel Royal Hospital
1055 Great Western Road | Glasgow | G12 0XH
e: [redacted] **t:** [redacted] **w:** www.nhsggc.org.uk

Incident Management Team meeting
Gram Negative Bacteraemia (GNB) – Paediatric Haem Onc
Wednesday 18th September 2019, 14:00
Level 9 Seminar Room, QEUH

Present: Dr Emilia Crighton, Dr Lisa Ritchie, Annette Rankin, Sandra Devine, Mark Dell, , Pamela Joannidis, Dr Iain Kennedy, Prof Brian Jones, Dr Alan Mathers, Kevin Hill, Jenn Rodgers, Sandra Higgins, Dr Scott Davidson, Jamie Redfern, Sharon Johnstone, Dr Shahzya Chaudhury, Anne Clark, Kirsteen Meikle, Calum MacLeod (minutes)

Apologies: Colin Purdon, Dr Kalliopi Valyraki, Dr Chris Deighan, Gael Rolls, Angela Johnson, Gillian Bowskill, Dr Jairam Sastry, William Hunter, Dr Alison Balfour, Alan Gallagher

Actions

Welcome, Apologies, Introductions

Dr Crighton welcomed everyone to the meeting, introductions were made and everyone was reminded of the confidentiality surrounding IMTs.

Minutes of the last meeting

Minutes from the previous IMT held on 13th September were disseminated to the group and the following amendments were requested:

Page 2, Incident Update, 1st para - To date there has been 12 confirmed cases of gram negative bacteraemia with 1 possible case under investigation.

Page 2, epidemiology, 1st para - Dr Kennedy introduced his epidemiology data with commentary from Prof Brian Jones and Prof Alistair Leanord.

Page2 : epidemiology, 3rd para, final sentence - The graph demonstrates a downward trend over the last few years of CLABSI rates.

Page 2, 5th para , 2nd line - There have been no patient cases linked to any environmental sampling undertaken in relation to this gram negative incident that have been identified in any patient isolates.

Page 2, epidemiology, 2nd para - compared to the counts when the ward was at the old Yorkhill hospital

Page 2, epidemiology, 4th para - in their opinion Ward 6A, QEUH was microbiologically safe

Page 2, Incident Update, 1st para - 12 confirmed cases and 1 possible case under investigation.

Page 2, Other relevant Reports, 1st para – Since the introduction of biocide to the cold water system of the chilled beams all water samples have been negative/clear.

Page 3- hypothesis update 2nd section – 1st sentence – add in it was clarified there are two hypothesis

Page 3 hypothesis - The group clarified that the following two hypothesis are

1. Exposure to unfiltered water out with Ward 6A where there isn't a point of use filter
2. The chilled beams either leaking or dripping condensation onto patients.

Page 3, Further Investigations Required, 3rd para - Discussion regarding if a Hydrogen Peroxide Vapour Clean (HPV) to be included for every discharge clean/terminal clean for all Ward 6A rooms. There is no requirement for a HPV clean to be undertaken as no evidence showing it would be effective for this incident.

Page 4, Advice to Professionals – Dr Ronghe, Consultant Oncologist was the only clinician who attended the IMT from Ward 6A for a period of time. It was agreed that a separate meeting will be held with clinicians from Ward 6A on Monday 16th September where they can go over the evidence regarding the ward.

Update on Actions:

Please see separate action plan.

Incident Update – Patient Report

To date there has been 12 cases of gram negative bacteraemia with 1 case under investigation. All 12 confirmed cases are clear of their gram negative bacteraemia infection.

All patients are stable and none are giving any cause for concern.

The last case reported was a positive Serratia marcescens from a blood culture on 3rd September 2019 which was non Hospital Acquired Infection.

Incident Update – Microbiology Report

Prof Brian Jones stated that the median rate of CLABSI is now lower than it has ever been before as detailed in the documents issued for the meeting.

Prof Brian Jones reported that the organisms found in Ward 6A were also found in the Schiehallion Ward at Yorkhill hospital. In 2018 there were 24 patients with positive gram negative organisms from blood cultures. In 2019 so far there have been 11 cases.

The position of the IMT is that Ward 6A is microbiologically safe and the safety of patients being moved to other health boards needs to be discussed.

Epidemiology

The group asked about the rates of all bacteraemia's within RHC and if these are found in any other areas. Prof Brian Jones commented that these organisms will be present throughout the environment.

Further analysis of the epidemiology will be carried out by splitting the cases of gram negative and gram positive bacteraemia over the past 5 years. This data along with the CLABSI data being used as a denominator will enable Prof Brian Jones to compile an analysis. If the data presented comes back different the decision to re-open the ward will be revoked. **IPCT**

HPS SBAR

The SBAR distributed by HPS was discussed and comments were received regarding the clarity of the data. The graph Figure 3 within the report refers to count of blood positive cultures; the figure is followed by narrative about comparisons in the rate of infection. It was felt that it would be useful to have the rates data displayed as well. Lisa Ritchie will speak with her colleagues regarding the addition of the rate data within the report and re-issue an updated report. **HPS**

Risk Management/Control Measures - Patients

2 new patients who are scheduled for admission to Ward 6A will be discussed tonight with Aberdeen and Lothian health boards regarding possible transfer. The clinical decision regarding the safety of these patients being transferred to another health board was discussed whether to keep them in GG&C or transfer the patients. There is the potential of sending patients to other health boards who may not have the same facilities which are present in GG&C.

Risk Management/Control Measures - General

Lisa Ritchie requested what assurance will be put in place within Ward 6A until Ward 2A/2B, RHC is re opened. Sandra Devine informed her that enhanced supervision is to be continued by the Infection Control team once a week. Central line infection triggers have been put in place so that if these are reached then appropriate action will be taken. Also there is a development of Standard Operating Procedures with regards to future testing regimes of water, air handling and chilled beams with the help of HPS colleagues, in order to monitor the patient environment.

Access to a disabled toilet within an OPD clinic which has been highlighted in Ward 6A patient pathway requires a point of use filter fitted to the tap. **Estates**

The IMT confirmed that all work within the ward is complete apart from the installation of the en-suite HEPA filters which we are currently awaiting delivery.

Healthcare Infection Incident Assessment Tool (HIIAT)

Severity of illness – MINOR
Services – MINOR (chair has recommended that we are ready for new admissions depending on confirmation of the data that has been circulated to the IMT)
Risk of transmission – MINOR
Public anxiety – MODERATE

The group agreed on an HIIAT score of GREEN.

Communications

Advice to Public

Ongoing advice given to patients and relatives.

Advice to Professionals

After Mondays meeting with the clinicians there was no consensus to accept the information to reopen Ward 6A to new admissions.

A meeting to discuss prescribing antifungal and other relevant prophylaxis for patients is to be arranged where Prof Jones will attend for Microbiology along with a representative from BMT, Haematology and an oncology clinician. Prior to this meeting background information surrounding this IMT will be shared. **J Redfern**

HPS

Pamela Joannidis will complete the HIORT and send onto HPS.

AOCB

A teleconference will arranged for Friday morning to discuss the progress of the actions agreed from today's meeting and confirm the decision to reopen ward 6A for the care of new admissions and high risk patients.

NHS
Greater Glasgow and Clyde

DRAFT Incident Management Team meeting
Gram Negative Bacteraemia (GNB) – Paediatric Haem Onc
Tuesday 8th October 2019, 16:00
Level 4 Seminar Room (WS4-027), QEUH

Present:

Dr Emilia Crighton	Head of Health Service, Public Health
Lorraine Dick	Senior Press Officer
Gillian Bowskill	Lead Infection Control Nurse, Paediatrics
Jenn Rodgers	Chief Nurse, Paediatrics
Jamie Redfern	General Manager, Women & Children's
Kevin Hill	Director, Women & Children
Pamela Joannidis	Acting Associate Nurse Director, Infection Control
David MacDonald	Facilities Manager
Dr Dermot Murphy *(attended meeting to 16:55)*	Consultant Oncologist
Emma Sommerville *(attended meeting to 1830)*	Senior Staff Nurse
Sandra Devine	Acting Infection Control Manager
John Mallon *(attended meeting to 2005)*	Technical Services Manager, Diagnostics
Dr Jairam Sastry	Consultant, Paediatric
Dr Chris Deighan	Deputy Medical Director
Dr Iain Kennedy	Consultant, Public Health
Tom Steele	Director of Facilities/Estates
Annette Rankin	Nurse Consultant, HPS
Dr Lisa Ritchie *(attended meeting to 1905)*	Nurse Consultant, HPS
Angela Howat	Senior Charge Nurse
Prof Alistair Leanord	Consultant Microbiologist
Prof Craig White *(attended meeting to 1920)*	Divisional Clinical Lead in the Healthcare Quality and Improvement Directorate
Lesley Shepherd	Professional Adviser, Scottish Government

In Attendance
Calum MacLeod (minutes)

Apologies received:

William Hunter	Dr Alan Mathers	Prof Brian Jones	Dr Scott Davidson
Sandra Higgins	Dr Valyraki Kalliopi	Prof Brenda Gibson	

		Actions
1.	**Introduction**	
	Dr Emilia Crighton welcomed everyone to the meeting, introductions were made and apologies were received from the above mentioned. Dr Alistair Leanord will be acting as the Infection Control consultant during this meeting.	
2.	**Reminder of Confidentiality**	
	The group were reminded of the need for patient confidentiality.	
	Minutes of Previous Meeting	
	Amendments have been received from Annette Rankin in relation to the notes from the teleconference held on 20th September 2019. These notes will be updated and re-circulated to the group. Amendments have been received from HPS in relation to the minutes of the last IMT held on 13th September 2019. These minutes will be updated and re-circulated to the group.	

		Actions
3.	**Action Plan Update**	
	Please see separate action plan.	
4.	**Incident Update**	
	Dr Iain Kennedy spoke briefly about the IMT process regarding the water, drain and increase in gram negative bacteraemia rates. This was to inform Prof Craig White, who has been appointed by Ms Freeman Cabinet Minister for Health and Sports, to review families concerns and act as a single point of contact for families about issues in relation to:- 1. Infection Control Measures 2. Work underway in haematology/oncology areas of the hospital 3. Intended outcome and timeline of the enhanced safety measures which the board has put in place. Dr Christine Peters and Dr Teresa Inkster have proposed changes to the case definition. They suggested that we use renal medicine approach for haematology/oncology patients when labelling Hospital Care Associated Infections (HCAI) and Hospital Acquired Infection (HAI). Dr Chris Deighan discussed the following problems with this proposal: 1. Hospital Haemodialysis patients are attending dialysis units three times per week. As a result they will rarely have been out with a healthcare facility with use of their dialysis access (fistula or line) for longer than 72hrs and twice a week it will be less than 48hrs. Dr Deighan understanding is that although the haematology/oncology population are frequent attendees, they are not attending as frequently as this. 2. They are also very different populations in terms of co-morbidities and level of immune-suppression with the paediatric haematology/oncology patients having a much greater level of immune-suppression and therefore infection risk (including from their gut) compared with a hospital haemodialysis cohort, where very few will not be on any active immunosuppressant. 3. Dr Deighan does not think this IMT or GG&C should be classifying HAI or HCAI differently from other Health Boards otherwise it will be impossible to benchmark / compare rates with other units across the country. Any change in definition would need to be agreed nationally and at the same time otherwise there would be a clear risk of a unit being an outlier purely on definition rather than due to infection rates or infection control issues. Dr Kennedy informed the group that there was an agreed case definition at an IMT on the 23rd August 2019 which read • Any patient with a bloodstream infection from an organisms whose source is water or soil i.e. environmental organisms. • Patients who have a positive Blood Culture as described above and have contact with Ward 6A or supporting services (excluding Ward 4B) in the past month. This broad case definition was used to enable the IMT to try and capture everything. It was discussed that the case definition may need to get refined for this incident moving forward. It's a recommendation nationally that further the work on revision of Chapter three of the National manual and the Pseudomonas guidance to include other environmental Gram negatives associated with biofilm and potential water sources, including triggers for actions from IPCTs	HPS

The IMT were sent an updated patient timeline where Gillian Bowskill went over the 3 new possible cases to get an agreement if they fit the case definition.

Case 14 was admitted on [redacted]/09/19 with a history of pyrexia at home. Patient was reported to have a cough and sore arms/legs 3 days prior to admission. Blood culture was taken on admission and came back positive with *Achromobacter spp.* The IMT agreed this fits the case definition.

Case 15 was admitted on [redacted]/09/19 for [redacted]. On the [redacted]/09/19 the patient dad reported their child had felt nauseas and vomited twice that day. Their CVL site was reported to be clean and dry. Blood culture was taken on [redacted]/09/19 and came back positive for *Stenotrophomonas maltophila.* The IMT agreed that this case fits the case definition. It was noted that case 15 is the same patient as Case 10 who had previous positive blood culture on [redacted]/07/19.

Case 16 is a new diagnosis [redacted]/10/19. Parents of patient felt their child was unwell at home following treatment and gave them Calpol. Patient was admitted to ward 6A day care that afternoon with no pyrexia and a temperature of 36.4. Patient face was flushed and shivering. Patient was on steroids sometimes do not spike a temperature. Patient commenced on Tazocin and blood cultures were taken from a lumen (line inserted [redacted]/09/19, Theatre 6, RHC). *Delftia acidovorans* identified Patient has since not had any pyrexia and was discharged later that day. Patient is continuing to attend the Beatson where their line is being accessed daily. The IMT agreed that this is a possible case.

Dr Sastry reported that patients 14 and 15 are still in-patients and reported they are well, and causing no concern.

The IMT discussed that all these patients had received ciprofloxacin antibiotic which is used to prevent gastro/gut organisms translocation and not to prevent infections related to the environment as the ciprofloxacin blood levels are too low.

The root cause analysis of 12 confirmed and 1 possible case has not been completed. Pamela Joannidis suggested that one of the previous cases should be taken off the timeline as they had not been in the hospital in the 30 days prior. Dr Kennedy informed the group it was agreed that this was not a case at a previous IMT. — P Joannidis

There was a fourth patient which was reported to HPS where Annette Rankin brought up but the IMT agreed this case would be discounted due to patient being in Ward 4B and having an organism that was out with the case definition.

Prof Craig White asked if these 2 new cases and 1 possible case will be included in the cohort of parents/guardians who will be receiving correspondence from the Scottish Government. Kevin Hill confirmed that these will be included in the communications sent out. All families that are active within the service will be communicated with.

Lesley Shepherd said it would be useful for a Multidisciplinary Team (MDT) to carry out the root cause analysis of all new cases. Pamela Joannidis to make a formal request for MDT to be set up with clinicians from Haematology/oncology to carry out root cause analysis (RCA) of all the confirmed/possible cases related to this IMT. The main focus would be origin of infection, route of entry and routes of transmission. — P Joannidis

The result of RCA carried out to date show the most common factors to be:

1. patient received an episode of healthcare within the last 30 days
2. the patient have a line in situ

Pamela confirmed the RCA proforma has been agreed with HPS and a copy would be sent to HPS. — P Joannidis

Jenn Rodgers informed the group that Ward 6A had been trialling new line caps from the 19th August 2019 for one month. Feedback from the trial has been positive and the new caps have been ordered and will be implemented for patient line care within Ward 6A.

		Actions
	Patient Report	
	Pamela Joannidis reported it is proving very difficult going back to check patient notes for RCA as they are fragmented. Pamela Joannidis is to complete RCA with the narratives of lessons learned. Pamela will discuss with consultants going forward and meet with clinicians to discuss any new cases moving forward. Iain Kennedy informed the group that there had been one previous case of *Delftia acidovorans* in 2017 where the blood culture was taken in Ward 2B. so what?	P Joannidis
	Microbiology report	
	Annette Rankin will ask Laura Imrie from HPS to contact Dr Kennedy regarding providing the data used to generate a paper sent to them from Dr Teresa Inkster and Dr Christine Peters. Dr Iain Kennedy has yet to look at the numbers/data used for this report. Dr Alistair Leanord will request sequencing of all blood cultures positive for enterobacter as this is the highest number of infections numerically (approximately 50 in total). This will enable to see if they any are related to each other and could lead to possibly identifying evidence of clusters. The Labs will check their freezers where some samples dating back to 2016 may also be available. The sequencing can take about a month to 6 weeks until results will be available. Dr Kennedy spoke about the recent water sampling results which gets reported through the Water Technical Group. These water samples are taken throughout the two main hospitals (QEUH & RHC) to see if the chlorine dioxide solution is correct and also to check for any organisms. Dr Kennedy noted he had not received the full details of the results, but was reviewing an update of the Facilities results tracker. In August water sampling showed a small number of outlets positive for of coliforms. There were no ecoli present, demonstrating that the water was not contaminated with human waste. Some of the coliform counts were extremely small, but others were higher. There was a mix of locations including adult estate and facilities, as well as in one of the recovery areas within RHC Theatres. All outlets have since been re-sampled and have had multiple negative samples There were two further outlets testing positive in September, re-sampling results not yet on the results tracker. Dr Kennedy said that in public water supplies you get very low coliform results with no e-coli present, which usually demonstrate either a dirty tap or sampling error, and these situations are not indicative of poor water quality. Dr Iain Kennedy will link with Pamela Joannidis to see if there was any cross over from positive water samples to any of the patients. Tom Steele asked if we could carry out routine swabbing of the chilled beams before the 6 week clean period to see if anything has grown. Dr Leanord said this would change the existing hypothesis as you would be saying this is airborne and not water borne as there is no leakage from the chilled beams. Environmental testing of the chilled beams will be carried out consistently in a specific area over a period of time to give reassurance and confidence that the 6 weekly cleans are not required. Nothing in the cooling system apart from the cool water supply at the start has came back positive. System has since received biocide which has been tested and coming back negative. Tom Steele reiterated that nothing grown from the chilled beams has ever been found on any of the patients. Initial testing of the chilled beams occurred due to a positive of pseudomonas olivarans which could lead to potential growth. Dr Leanord said that as microbiology will not be looking for anything specific within the environmental testing it will be harder to identify anything. He said there will always be organisms throughout the environment as we do not work in sterile environment. We are trying to normalise this and bring it back to the IMT saying there has been a run of negative environmental results and to check if the 6 weekly cleaning of chilled beams should still be required and if a less frequent cleaning schedule could be implemented.	I Kennedy Labs I Kennedy P Joannidis

		Actions
	icrobiology report	
	Dr Leanord spoke about the recent results of air sampling within Ward 6A bathrooms which look fine. Dr Sastry asked about the high counts reported from the nurses' station as when previously speaking to Dr Teresa Inkster this was considered a high count. Dr Leanord informed the group that you have to take into account what was happening at the nurses' station when these tests were undertaken. Dr Leanord's point of view is that any air sampling taken within a general area shouldn't be taken. When air samples are being taken it has been requested that a running commentary of what was happening within an area at the time the sample was being taken i.e. there was 10 people at the nurses' station. Lesley Shepherd asked if we are discounting the counts at nurses station why are we testing the area in the first place. We are not discounting the counts but we are sampling to test the HEPA filters within the patient rooms and also the patient en-suites. It was agreed that air sampling at the nurses' station will be re-tested as portable HEPA filters are placed throughout the corridors.	Labs
5.	**Hypothesis Update**	
	Before the IMT can move onto another hypothesis prior hypothesis require to be closed. It was agreed that the hypothesis surrounding the chilled beams can be closed as all control measures were addressed and put in place. Ongoing regular air sampling and swabs of the chilled beams in keeping with IPCT drawn up procedures were added. Conditions required to reopen the ward had been previously been met and the recommendation to re-open the ward to new admissions and high risk cases has not been implemented as clinicians obtained an agreement from CEO for a peer review. HPS have been commissioned following a meeting with SG/CNO and a report would be ready as soon as possible once data available. Annette Rankin asked the IMT should we not be looking at new hypothesis as there has been 3 cases that fit the case definition since the last IMT. A further hypothesis could be that there has been a break in IPC precautions put in place Dr Kennedy asked that the root cause analysis of the three new patients should be complete before any new hypothesis can be explored. Another possible hypothesis discussed was • Patient exposure to organisms may occur when a patient is not within the QEUH campus in which we cannot control Annette Rankin asked why are we not seeing these unique organisms within other vulnerable patient groups like Cystic Fibrosis patients if it is external. Dr Crighton advised that such organisms are diagnosed across a variety of settings in NHSGGC as demonstrated at previous meeting and an Excell spreadsheet data is available demonstrating that. Dr Deighan raised that a paper from HPS showing that the overall number of infections compared to other health boards was relatively similar although the pattern of organisms might be different. Could the reason the pattern of organisms is different is due to the prophylaxis patients are given which will select out organisms and kill off other organisms. Dr Leonard said that this is not a typical outbreak and it is looks like a pseudo-outbreak – possible the first described in the world. It would be helpful if HPS could carry out a literature review of looking for described incidents with multiple gram negative/ environmental organisms	HPS

	.esley Shepherd said that clinicians seem not to feel confident as despite the Infection Control measures put in place, we are still seeing new cases and there is a dichotomy in the microbiology opinion. Dr Crighton said that there is agreement that a number of infections that are not related and do not have a common source are seen; and their rate was comparable to the other Scottish Units. Dr Crighton advised of a new hypothesis related to biofilms proposed by Dr Inkster and Dr Leonard advised of the great difficulties separating sources originating in biofilm or the general environment (like picking organisms when walking outside). The group agreed to await the outcome of RCA before generating other hypothesis.	
6.	**Risk Management/Control Measures**	
	Dr Sastry requested an update on the kitchen status in Ward 6A which was reported on the 27th September by Dr Christine Peters. The kitchen remains out of use since a leaking tap was found within the kitchen. The leak was found by a staff member when water was spotted on the floor in front the fridge. The following actions were immediately put into place: Fridge removed Damp area cleaned with Actichlor Any soft material/uncovered items in the kitchen were thrown out Room was sealed off with signage to prevent entry Room was put under negative pressure HAI Scribe was undertaken on Tuesday to get the broken tap replaced and all wet wall materials removed New components have been ordered for the kitchen (Kick plate, units, chipboard) that will take about 2 weeks to arrive. Jenn Rodgers was to agree communications with relatives. Upon further inspection the leak was from a tap that was fitted to the kitchen on the 30th August. The suspected corrosion of the pipe work was sawdust that had stuck to the pipe from the water leak. This tap was replaced so that it was compatible with a point of use filter to be fitted. Annette Rankin raised that in previous IMT's the only water source exposure to patients without a point of use filter had been the DSR, chilled beams and out with Ward 6A. Annette Rankin asked what reassurances do we have that no other taps are leaking. Tom Steele informed Annette that they rely on visual inspection of any leaking taps. As for leaks behind IPS panels it would be a major undertaking in checking behind the IPS panels for leaks as there is about 120 water outlets in every ward. If the integrity of the wall is fine then what risk is there. There is no evidence of water seepage through the water ingress. This will be confirmed when the new chipboard is replaced to the wall. Estates already carry out a weekly walk round of Ward 6A which also allows them to see/be informed of any possible leaks from taps within Ward 6A. Tom Steele would like to ask IPCT colleagues to see how the kitchen can be put back into use as soon as possible. This kitchen is used to store patient food but since the leak a patient room is being used to store the fridge. Angela Howat reported of a new stain appearing on the floor of the kitchen floor was reported. Dr Sastry raised that there have been numerous incidents every week since moving to Ward 6A. Tom Steele advised that the maintenance work is proactive and the increased frequency of cleaning and upgrading of ward facilities leads to the perception of problems. There is a meeting with clinicians on Thursday 10th October to discuss the current use of Prophylaxis within the patient population of Ward 6A.	

	sk Management/Control Measures	Action
	esley Shepherd commented that patients are uncontrollable within their environment as it is difficult to confine them to their rooms as they are children and want to play. Exposure to patients in the last 30 days when staying at Clic Sergeant or Ronald McDonald house is to be included in the Root Cause Analysis. IPCT are to continue their weekly enhanced supervision and weekly hand hygiene audits. Monthly hand hygiene audits are also carried out locally by ward staff. Peer audits relating to line access have also been carried out Gillian Bowskill discussed today's enhanced supervision visit which highlighted a seal that needs replaced within a patient en-suite, small amounts of dust present within the prep area and some areas of the ward flooring required cleaning. Angela Howat informed the group that one of their domestics had left and not been replaced. Angela Howat also informed the group that their domestic was having trouble in obtaining a T3 floor cleaning machine. David MacDonald will look into the domestic cleaning hours and also the use of the T3 machine. Gillian Bowskill also reported that hand hygiene was 100%. Jenn Rodgers informed the group that staff have also been monitoring patients' parents hand hygiene as well as the majority of care is given by parents.	D MacDonald
7.	**Further Investigations Required**	
	It was suggested to not look into any new hypothesis until RCA has been complete – by next IMT. Each patient receives a booklet on how to care for their lines at home. Jenn Rodgers will look into the contents of this booklet to see if it is worth reviewing based on lessons from RCA. Jamie Redfern gave a briefing on the service since the last IMT on 18th September 2019:- - Working out of 5 cubicles instead of 4 within Ward 4B BMT. This is not permanent. - Last weekend Edinburgh Children's Hospital was full and had to admit a patient into PICU who currently are under a lot of pressure due to the start of RSV season. - A patient being admitted tonight is likely being sent to Edinburgh Royal Infirmary. - Jamie Redfern informed the group that bed pressures continue throughout health boards in Scotland. There is a consideration that new patients may be sent to England for health care. This in turn, may mean that other solutions which were drafted by the Executive team may need looked into. Mr Kevin Hill advised of the early signs of winter pressures affecting the hospital (RSV infections), that would be present elsewhere too.	J Rodgers
8.	**Healthcare Infection Incident Assessment Tool (HIIAT)**	
	The situation was assessed using the Hospital Infection Incident Assessment tool (HIIAT) and was classified as AMBER. Severity of illness – MINOR Services – MODERATE Risk of Transmission – MODERATE Dr Chris Deighan and Dr Leanord said it should be minor as three potential new cases all being different organisms, assuming all transmission is within QEUH environment. Annette Rankin & Lesley Shepherd think it should be moderate as the route of transmission is still unknown. The IMT agreed that if this was marked as minor or moderate the outcome will still be an amber score. Public Anxiety- MODERATE	

		Actions
9.	**Communications**	
	• Advice to public	
	Due to the current time of the meeting (20:00) Lorraine will create a holding statement with her colleagues for the media. Key messages: we are investigating 3 new cases; all patients well and causing no concern; different organisms and there we no links identified to the hospital environment. The holding statement will be agreed via email. A Facebook update will also be required for Ward 6A Facebook page used by families of patients who have children being treated at Ward 6A.	L Dick
	• Duty of Candour	
	Jenn Rodgers will speak to the three families who have been confirmed as new cases.	
	• Advice to professionals	
	Jamie Redfern and Jenn Rodgers will update staff tomorrow morning with the outcomes of this IMT.	
	• HPS/SG HAI Policy Unit (HIIORT)	
	Pamela Joannidis will complete the HIIORT tomorrow morning and send onto HPS.	
10.	**AOCB**	
	Nothing was raised.	
11.	**Date time of next meeting**	
	The next meeting will take place on Friday 11th October 2019 at 1.00pm.	

Re: [ExternaltoGGC]IMT minutes - ammendments requested

Crighton, Emilia [redacted]

Fri 25/10/2019 10:52

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:Peters, Christine [redacted]; Devine, Sandra [redacted];

Thank you Teresa
Kind regards,
Emilia

Sent from my iPad

On 24 Oct 2019, at 19:20, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

Dear Emelia,

A colleague showed me minutes for the IMT held on Tuesday 8th October as our names were mentioned several times.

We would like to request the following ammendments;

Page 2 - we are not proposing changes to the outbreak case definition . Case definition and case classification are not the same thing. Our point pertains to case classification and the recommendation is for national discussion .We have not suggested IMT do this differently from other Scottish hospitals. A (very recent) paper from the scientific literature on the subject can be found here

https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/classification-of-bloodstream-infections-in-patients-recently-discharged-from-acutecare-facilities-hospital-acquired-or-healthcareassociated-community-onset/91D8726FA0174988B1C0E2EC27D86FA8

Page 5- Microbiology report -' Dr Leanords point of view is that air sampling taken within a general area shouldn't be undertaken'

There were a number of reasons why the corridor was being sampled;

1) The children are using the corridor as a play area as they have no other facility and we are reliant on portable HEPAs , to improve air quality

2) The air con unit at the nurses station had previously grown Aspergillus from surface swabs so air sampling was to investigate whether there was evidence of dissemination into the corridor

3) Dr Hood has been testing the corridor as part of his work on the Cryptococcal incident. We understand from this work that the corridor appears to be at negative pressure pulling in contaminated air. I was told at times, when doors are open, it is as low as -10Pa. If correct then this is very concering and represents a significant risk to immunosuppressed children . We trust IMT are aware of this information

Can I request that if there are queries as to why I have done something previously that an action is taken to find out the reasons why . I am happy to explain .

Its not really our place to comment on other parts of the minute however we note reference to 'pseudo-outbreaks' and the worlds first?? Has no-one read the literature on pseudo-outbreaks.... these patients had clinical symptoms of infection. in some cases requiring line removal and PICU admission

Lastly a useful link to an outbreak of more than one pathogen linked to water and biofilm ;

https://onlinelibrary.wiley.com/doi/abs/10.1111/hdi.12722

Kind regards

Teresa and Christine

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Whistleblowing Investigation

Carmichael, Rosalind [redacted]

Thu 19/09/2019 17:03

To: Inkster, Teresa [redacted]

Cc: Haynes, Jennifer [redacted];Gail Duncan (NHS Forth Valley) [redacted]

SENT ON BEHALF OF LINDA DE CAESTECKER – DIRECTOR OF PUBLIC HEALTH

Dear Teresa

Within the Board's whistleblowing policy (a ached), I am one of the directors who inves gates the concerns of whistleblowers. Through Health Protec on Scotland, concerns have been raised by an anonymous whistleblower in NHS Greater Glasgow and Clyde about behaviours and issues within the current IMT for ward 6A. Related concerns have also been raised by others in rela on to the working of the IMT and support for the chair. A summary of the issues is given below

- The IMT chair is unable to do her job in protec ng pa ents from infec ons due to the culture and organisa onal failings, ci ng lack of support from management
- Cri cal informa on has been denied to the chair, or false accounts given by managers
- Microbiology/Clinical judgement regarding the fact that there is a real issue with unusual environmental pathogens in Haematology paediatric pa ents is being con nuously ques oned
- Lack of transparency re communica on

I am undertaking this ini al inves ga on along with an experienced HR Director from another Board, Barbara Anne Nelson to give independent advice and also to bring HR exper se to the review of the concerns.

We would like to meet with you to gain your perspec ve on these issues including poten al ac ons required. I should emphasise that this mee ng is not to go into detail about the actual infec on control or estates issues but to look into support, conduct and behaviours around the IMT mee ngs and processes.

I realise you are very busy but we have set aside mes to meet with relevant people at a mee ng room at the Teaching & Learning Centre, Queen Elizabeth University Hospital. The mee ng is scheduled to last for one hour. Please advise if any of the following dates or mes are suitable for you by return email to rosalind.carmichael[redacted]

Wednesday 9th October 2019: 10.30am – 3.30pm
Friday 11th October 2019: 10.30am – 3.30pm

I also realise this is a difficult and busy me with many different enquiries and mee ngs but the issues raised are very important for the effec ve func oning of the Infec on Control team and for the management of current incidents so I hope you will make the me to meet.

Kind regards
Linda

Prof Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde
Gartnavel Royal Hospital Campus |
1055 Great Western Road | GLASGOW G12 OXH
t [redacted], m [redacted] | e [redacted]
web: h p://www.nhsggc.org.uk/publichealth

RE: Whistleblowing concerns

Inkster, Teresa [redacted]
Thu 26/09/2019 16:30
To: de Caestecker, Linda [redacted]

Hi Linda

I agree that they would be best dealt with through normal processes as I have not ini ated a whisteblow concern myself . Chris ne Peters and Al Leanord are my line manager and CD but these issues relate to infec on control so Im not sure how appropriate that route would be . They are of a medical nature so perhaps Dr Armstrong herself is the best person to take these forward with. Happy to discuss further when we meet

Kind regards
Teresa

From: de Caestecker, Linda
Sent: 24 September 2019 16:17
To: Inkster, Teresa
Subject: Whistleblowing concerns

Teresa
I hope you had a good break.

Jennifer let me know that you added some key issues to the synopsis she had put together from the whistleblowing communica on to HPS and also from your own resigna on le er. They are:

- SCI process
- Duty of candour regarding infec on control incidents
- Governance rela ng to specialist groups repor ng to IMTs

I am happy to discuss these when we meet about the whistleblowing concerns. However they may be be er dealt with through normal processes through your line manager, clinical director or governance structures rather than as a whistleblowing concern. Are you happy that we explore the appropriate processes to resolve these issues when we meet? Happy to discuss in advance if helpful.
Kind regards
Linda

Prof Linda de Caestecker
Director of Public Health
NHS Greater Glasgow and Clyde
Gartnavel Royal Hospital Campus |
1055 Great Western Road | GLASGOW G12 OXH
t [redacted], m [redacted] | e [redacted]
web: h p://www.nhsggc.org.uk/publichealth

RE: Water Technical Group

Inkster, Teresa [redacted]
Fri 27/09/2019 15:26
To: Barclay, Allyson [redacted]
Cc: Kennedy, Iain [redacted]

1 attachments (37 KB)
44 - Water Review Meeting 16th August 2019.docx;

Thanks

There are some important points missing from these minutes. I have copied in Iain as well as the mee ng was some me ago now. We discussed the following ;

Chlorine dioxide dosing - we discussed whether we should increase further to 0.7. There was discussion about the presence of Mycobacterium chelonae in the water and its presence at > 100 cfu at some outlets. This was linked to the recent IMT and a pa ent case with whole genome sequencing establishing relatedness of the pa ent isolate to a water isolate (13 snps apart). We discussed the work of Falkenham at Virginia tech rela ng to atypical mycobacteria in pipework and I expressed concern that low does chlorine dioxide might be encouraging prolifera on of atypical mycobacteria in the system

Under AOCB I highlighed concerns reagarding governance. Decisions were being made between the local team and experts outwith the IMT and water technical group mee ngs and I was concerned about the lack of documenta on and flow of informa on.

Iain might have further stuff to add - I do recall some discussion around the coliforms that were present also .

Kind regards
Teresa

From: Hirst, Allyson
Sent: 23 September 2019 16:03
To: Inkster, Teresa
Subject: RE: Water Technical Group - Friday 13th September 2019

I assume it's this one you mean?

From: Inkster, Teresa
Sent: 23 September 2019 16:00
To: Hirst, Allyson [redacted]
Subject: Re: Water Technical Group - Friday 13th September 2019

Hi Alison, I missed this mee ng due to annual leave. Can you send me the minutes from the previous mee ng as I might need to make some addi ons s ll
Thanks
Teresa

Sent from my BlackBerry 10 smartphone on the EE network.

From: Hirst, Allyson
Sent: Thursday, 12 September 2019 2:36 PM
To: 'denniskelly[redacted]'; Gallacher, Alan; Hood, John; Inkster, Teresa; Kane, Mary Anne; Kennedy, Iain; Mallon, John; McNeil, Elaine; Powrie, Ian; Purdon, Colin; Riddell, Mark
Cc: 'Tom Makin'
A49541141

Subject: Water Technical Group - Friday 13th September 2019

Dear All

Please find a ached the papers I have been forwarded for inclusion in tomorrow's discussion. Please note that the previous notes are not completed and will need to be ra fied at tomorrow's mee ng to ensure an accurate record of the discussions is created

I have received apologies from

Mary Anne Kane
Alan Gallacher
Dennis Kelly and
Ian Kennedy

Dial in details are available for anyone wishing to dial in please let me know if you wish to par cipate via this route. Please note that the mee ng will commence at 1.30 instead of the usual 1pm start me – this is to accommodate the IMT which is to be held prior to this mee ng

Regards

Allyson Hirst | Admin to Director of Estates and Facilities – Tom Steele | NHS Greater Glasgow & Clyde
Board HQ | J B Russell House | Gartnavel Royal Hospital
1055 Great Western Road | Glasgow | G12 0XH
e: [redacted] **t:** [redacted] **w:** www.nhsggc.org.uk

Re: Incident leakage 6A

Joannidis, Pamela [redacted]

Fri 27/09/2019 19:19

To: Peters, Christine [redacted];Redfern, Jamie [redacted];Hill, Kevin [redacted];Conner, Darryl James [redacted];Chaudhury, Shahzya [redacted];Rodgers, Jennifer [redacted]

Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];Gibson, Brenda [redacted]

Thank you Chris ne

Sent from my BlackBerry 10 smartphone on the EE network.

From: Peters, Christine
Sent: Friday, 27 September 2019 6:40 PM
To: Redfern, Jamie; Hill, Kevin; Conner, Darryl James; Chaudhury, Shahzya; Rodgers, Jennifer
Cc: Joannidis, Pamela; Inkster, Teresa (NHSmail); Gibson, Brenda
Subject: Incident leakage 6A

Situation

ICD Dr Peters on call alerted at 5.08 pm regarding a leaking tap in 6A kitchen and an immediate HAISCRIBE was requested

Background

6A is a ward that has 15 beds open for Haematoncology paediatric pa ents. This ward has been undergoing a number of estates interven ons to improve the environment and is subject to an ongoing IMT regarding infec ons
A water leak had been detected by the fridge under the work top in the kitchen on ward 6A. The kitchen is not accessed by pa ents or parents, and houses a fridge which contains special feeds . Food and drink for rela ves and pa ents is prepared in this room.

Assessment

Dr Peters, Dr Inkster, Dr Chaudhury, SN on ward, Jen Rodgers, Jamie Redfern, Darryl and Kerr (Estates) convened to assess the situa on and agree control measures

The understanding was that the hot tap had been leaking for some me –noted today and alerted to estates early a. ernoon. Hot water had been isolated so dripping was no longer apparent

On inspec□on:

There was clear evidence of a long standing leak behind the kitchen cabinets, (photos a□ached) with old bits of paper in situ , wet to the touch and covered with corrosive material.

There was also a clear dead leg with a filter a□ached ? had been connected to a previous water cooler or other device. Dead legs pose a significant risk in a water system due to stagna□on , and there was evidence of wet material immediately below the filter.

There is a clear risk of this being a source of mould and may have contributed to posi□ve air samples on the ward in the past.

Two swabs of black material taken to lab for culture.

Recommendations

- Remove fridge, clean with ach□chlor wipes, to be placed in empty room with signage to prevent entry
- Throw out any soft material/ uncovered items in kitchen
- Seal off room , put under nega□ve pressure by closing off supply
- HAISCRIBE to be undertaken on Tuesday to get both dead leg and all wet materials removed
- Jen Rodgers to agree communica□on with rela□ves

Please do not hesitate to contact me if any further queries
Kr

Christine

Dr Chris□ne Peters
Consultant Microbiologist
Queen Elizabeth University Hospital,
GGC
Ex [redacted]
Mobile: [redacted]

Notes from meeting on 2/10/19

Chair: Robert Gardiner (RG): General Manager Diagnostics
Christine Peters
Kam Khalsa
Alison Balfour
Teresa Inkster
Nitish Khanna
Pepi Valyraki
[redacted]
Rachel Greene (RGr)
Alistair Leonard

RGr: No formal agenda, meeting to discuss how past week has gone since last meeting. Note lots of emails have been circulated regarding IC issues

CP: Handout circulated to all attendees
We thought best way to illustrate issues is via powerpoint slides which you have
Our take away from last meeting were:

- QE IC Complexity is huge issue
- Training is secondary issue
- Cultural issues within IPCT is main pressing problem
- IPCT problems have knock on effect to micro

TI: Numerous reasons why lead role at QE is different

- Complexity and Workload
- Weekly occurrence to have clashing commitments. Example given:
- John Hood asking for advice re Cyptococcal investigation
- Linda Bagrade asking for help to sign-off RAH ICU ASAP only to find the build is not to standard. For these issues, ICD needs info to make rational discussion, and should not be forced into making a decision by 5pm
- Aleks Marek asking for advice on NICU MSSA outbreak
- These are 3 critical areas all requiring high level input
- IMT called regarding NICU as this was prioritised.
- John helps Linda with RAH – Peter Hoffman contacted for advice
- Alison and Pauline help showing that there is a high degree of teamwork at QE site
- So 3 experienced ICDs needing advice from me
- Was then asked to attend a TC at 9am on Saturday to discuss RAH – refused
- Under pressure to make decisions from managers, namely, Tom Steele, Kevin Hill, Jonathan Best

Other examples given (6A showers for example)

RGr: Can you give managers info & advice and leave them to make their decisions?
TI: Managers don't take advice if it's not what they want to hear. Eg: Called into a meeting with Jane Grant and Jennifer Armstrong, with 12 managers. Become a me vs JG. I go through science again, but no backing from senior IC team. If you make decisions that they politically don't like, you are undermined

TI: moving on, documentation of meetings is poor. Minutes inaccurate. Work apparently assigned off by me when I was on sick leave!

RGr: Can you not ask for a corporate decision to be made based on your recommendations?

CP: No, as they won't sign off. ICD required to sign work off.
AL: Was an electronic signature used?
TI: No, my name was typed into document
CP: Estates + Sandra Devine said that TI had signed off. AD also told work was signed off by TI
We have real concerns about this

AD: Agree, there was a report from JH that was kept from me when asked to sign off

CP. [redacted] essentially bullied into signing off which is when I had to jump in. Similar problem last week:

AD: Pt transferred from Aberdeen for Neurosurgery with bone marrow failure. Escalated clinician query regarding patient placement to ICT during day. AB then received a call OOH from ICN asking for advice for a query which should have been dealt with during day

RGr: Do we not have a patient placement policy?

CP: No. I have asked for on since 2017 as part of whistleblowing exercise. Agreed action plan inaccurate.

TI: Moving on to page 3, TI tried to action this in May 2019. Was told by estates Tom Steele that group was not to review previous reports! Therefore not possible to provide patient placement policy without the report data. Reports might be fine but we need to know.

RGr: Can we do in house?
TI: No, need radiolabelled CO2
CP: So, told that rooms built to standard but evidently not, and therefore at an impasse. Pamela Joannidis tasked with getting necessary info re rooms.

PV: Ludicrous that ICN in charge of that when TI, who has trained the ICNs, has the expertise. Unbelievable that TI can't make these decisions.

RGr: Other hosp have policies?
CP: Yes, I circulated other hosp policies in 2017
RGr: What about BOC?
TI: Yes, BOC has policy. Difficulty here is we have 3 types of room and when a room goes out of spec, estates do nothing

RGr: Need policy ASAP, and need to look at culture

CP: They're punting calls to OOH. Eg: I've been contacted OOH about a dripping tap on 6A. I have photographic evidence that the extent of contamination does not suggest this to be an acute issue. Obvious misinformation "just occurred". I put in immediate precautions, SBAR & asked to sign HAI scribe

AB: Problem is that OOH advice not represented accurate at following day IMT
CP: This is a worry as don't have time to check all of the minutes

RG: Solution?

CP/TI: Problem re minutes is with estates and IC, not MM. Same problem with ICD meeting minutes when CW was here

CP: We need clarification of process for daytime and OOH. Who is filling the 5 session IC gap? BJ off for a month or is he still here? He has said anything "controversial" should be forwarded to him – pt placement fits this category.

As an aside, we have been told that Laura Cottom will be taking BJ 2 sessions to cover Adult BMT – this has not been discussed with anybody at QE.
AD: Shows inequity North V South

RG: I was not party to that and was unaware. How can we protect you moving forward? If bullying part of problem, we can do something.

CP: We are trying to raise major pt safety concerns, and tried not to prioritise bullying over patient safety. We have d/w BMA regarding moving on to a grievance, but will It actually achieve anything? Probably not. We want an IC solution, however if it feels like no solution is forthcoming, we may have to go down this route.

RG: How is relationship between ICNs and ICDs?

TI: Upper echelon of IC, there is problems. Inf Control Manager and AND are problem. ICNs need more support and get put in difficult position if Sandra involved.
Culture amongst senior IC is to stifle any pro-activity amongst ICNs and ICDs. Eg: PCP renal issue. ICNs would not support TI. If organism not in national manual then any work related to it is squashed.

RG: How do we provide a service?

PW: We can't and these are reasons why we can't
AW: Is everything "not routine"
PW: Comes back to complexity of issues with built environment at south. That is our routine now.

AD: Was discussion about looking at GGC wide solution – is this an option?

AL: Mileage in looking at this. I will d/w North

PW: If system involves parachuting into IC now and again, this won't work as need good relationships with ICNs. We tried using the inbox and it didn't work. As complexity is so high, you need to work in teams and have consistency. Professional role of ICD is not being recognised currently.

TI: Note GRI complexity much less as no issues with built env compared to QE. If asked for help, I would help but organisation doesn't acknowledge there is a problem. They bury head in sand

RGr: IC structure being discussed at higher level, may involve bringing it under diagnostics. Culture won't change overnight. My take away are 3 issues:

- Culture
- Pt placement
- Record keeping/minutes accuracy

AL: How can we bring new generation of ICDs up to required standard – why does all the IC expertise reside here? How to expose others to IC, and how to share knowledge. Knowledge transfer can help.

TI: ICD monthly meeting to share ideas with consultants from north and south. There is cross cover but north cons won't cover at QE due to complexity.

AL: accept that but there is no resilience in system – how do we put this in

PW: Similar issue with GJ and cons backed into not covering. Why different here?
TI: Similar issues with estates and management however not as complex
PW: There is support for GJ cons but not here. Were seen as bad team
AL: there is IC input to GJ by GRI micro cons as far as I'm aware
CP: As far as I'm aware, there is strong support from GGC management to not do GJ IC

PW: I think we are perceived as a "difficult" but we're unhappy and it's very difficult to work in this environment.

RG: We're not saying that
AB: Critical thing is that we are a team

RG: We're on your side
TI: What is JA impression of this?
RG: Don't know
CP: As she is HAI exec lead, lead ICD should have direct access, but not in this organisation

RG: This will all be looked at
AB: As of today, I'm not sure what IC looks like ICD wise
RGr: We need to discuss with north colleagues
AL: I will have that conversation

CP: Short term, the big problem is 6A. Two different opinions have been given – can we meet and talk about this?
AL: I attended 1 meeting where data was presented, and don't have handle on longevity of issue

CP: These issues were raised in 2015
AL: I gave an opinion based on data presented

TI: Did you see SPC Charts?
AL: There were 2 things:

- Clancy rates
- Histogram of environmental orgs vs non-environmental orgs
- Presumed data was direct from LIMS

TI: We have a case definition – SPC charts should not be used for outbreaks

CP: There is obvious communication problems here. Has advice been given regarding prophylaxis, as clinicians now saying that they have been given different advice.
TI chaired meeting for months, and the reputation of QE microbiology has been affected by conflicting advice.

RGr: Big issues are culture and IC issues

CP: We need a swift resolution as there are so many other areas we could focus on eg: TI could do renal/haem-onc ward rounds as we agreed as part of RIE output. We have a plan regarding utilising sessions but need clarity about IC before moving on.

AL: Ill speak with North
RGr: How do PAGs/IMTs work
CP: Can be very rapid, usually called by ICD and need to be able to drop all other duties to cover – maybe difficult if based at North

RG: Meet again next week

End

NHS Greater Glasgow and Clyde	**NHS Greater Glasgow & Clyde**
Purpose:	Briefing Paper: Ward 6a (Haematology/Oncology)
From:	Incident Management Team
To:	Clinical team ward 6A
Date:	2 October 2019
Subject/ situation:	Since the middle of April there has been a potential increase in gram negative bacteraemia possibly caused by an environmental source (11 cases from the 13 of April until 2 August). The list of organisms included in this increase was based on the organisms found in water or drains during 2018 investigations and the HPS 2A/2B situational report. Defined as: Environmental': [*Achromobacter*], *Acinetobacter, Aeromonas, Brevundimonas , Burkholderia ,* [*Cedecea*] , *Chryseobacterium,*[*Commamonas*], *Cupriavidus , Delftia, Elizabehtkingia, ,*[*Morganella*], *Pantoea,* [*Paracoccus*], *Pseudomonas,*[*Pseudoxanthomonas*],[*Ralstonia*], *Rhizobium, Serratia,* [*Shewanella*], *Sphingomonas, Stenotrophomonas* 'Non-environmental': *Citrobacter, Enterobacter, Klebsiella*
Background	On 20 June 2019 GGC reported to HPS an increased Incidence of Gram Negative Bacteraemia (GNB): Five cases over an 8-week period (April 13 until June 12 2019) and two cases of Mycobacterium chelonae, the second of which was a cutaneous case, in 12 months. Typing linked the second case of mycobacteria to water in the hospital. The first case was also typed; no link to the hospital water supply was confirmed (NB novel typing technology). Of the five cases of GNB identified between April and June; one was considered by clinicians to be gut translocation; two were considered to be hospital acquired (one of these was a patient with gut translocation); the remaining three cases were considered to be healthcare associated. **Case definitions were as follows** *(based on a precautionary principle)*: Any patient in Ward 6a with a laboratory confirmed bloodstream infection from an environmental organism(s) associated with the QEUH or RHC since 2017. *Previous Definition-GNB: any patient with an HAI due to an organism previously*

linked to water or drains.

M.chelonae: any patient who had contact with QEUH or RHC testing positive for M chelonae (in any sample not exclusively BC) from 2017. There were no further cases of M.chelonae.

Two key Hypothesis were proposed during this incident:

Hypothesis 1

Patients were exposed to unfiltered water outside of Ward 6a but within the hospital environment, for example in theatre, in school (RHC) or when visiting either of the main atriums with families.

As of September 2018 PoU filters were fitted to all tap outlets in Ward 6a and this was extended to include the Domestic Services Room (DSR) and Kitchen during this incident.

Hypothesis 2

In July 2019 the outside temperature increased significantly for several days. It was hypothesised that during this time the 'hot' circuit in the chilled beams temperature reduced to a level where there was a contraction of the metal which reduced the seal of the circuit at the end of the unit, which in turn lead to a leak from the beam. The water in the chilled beam system is circulated at 75 degrees so it is considered unlikely to be harbouring microorganisms. The cold chill beam circulates at a constant 15 degrees so is not prone to extremes of temperature and therefore constriction and leakage.

Need to put a bit in about the boiler failure (Tom would you mind having a look at this section).

The route of transmission was proposed that water (leaks / condensate) from the beams was falling directly into the patient care environment leading to direct contact with the patient, or indirectly from the patient's immediate care environment e.g. into the patient's bloodstream possibly via central lines.

Healthcare Associated BSI Definition – Health Protection Scotland

Positive blood culture obtained from a patient within 48 hours of admission to hospital and fulfils one or more of the following criteria:

Was hospitalised overnight in the 30 days prior to the positive blood culture being taken
OR
Resides in a nursing home
OR
IV, or intraarticular medication in the 30 days prior to the positive blood culture

being taken, but excluding illicit drug use
OR
Regular user of a registered medical device
OR
Underwent a medical procedure which broke mucous or skin barrier in the 30 days prior to the positive blood cultures being taken
OR
Underwent care for a medical condition by a healthcare worker in the community which involved contact with non-intact skin, mucous membranes or the use of an invasive device 30 days prior to the positive blood culture being taken

Summary

From 13th April to date, 12 GNB have met the case definition i.e. any patient in Ward 6a with a bloodstream infection from an environmental organism associated with the QEUH or RHC and were included in the time line. It should be noted that admission restriction has been in place since 2nd August 2019. One case has been included since 2nd August 2019.

- 12 cases of GNB
  - 4 considered to be hospital acquired (48hr rule – one of these was considered by clinicians on the unit to be due to gut translocation); 8 were considered to be healthcare associated.
  - Of those able to be typed all are unique.

A review of data has established:

- Current numbers of bacteraemia are consistent with historical norms; the split between environmental and gram negative BSI and has also been broadly consistent over time (appendix 1).
- Incidence of Central Line Associated Blood Stream infections is at the lowest level ever recorded (appendix 2) and is consistent with those recorded by Great Ormond Street Hospital (appendix 3).
- All organisms considered to be unusual have been isolated previously in this patient group in the Royal Hospital for Sick Children, Yorkhill.
- Since 2016, patient acuity has increased as has occupancy (appendix 5).
- There has been no identified link between clinical isolates and results from environmental sampling in Ward 6A except for the case of M. chelonae which was isolated from pre filtered water.

A SBAR report from HPS concluded that following the move in September 2018 the rates of positive blood cultures for both gram negative and environmental bacteria in Glasgow Unit were no different when compared to the rates of the combined Lothian & Aberdeen Units. This provides additional independent evidence (appendix 4 – To be inserted after update – this was previously

	submitted HPS SBAR).
Actions/Assurance	These actions have been split into those linked to proposed hypothesis and those which should provide assurance going forward. **Hypothesis 1** Patients were exposed to unfiltered water outside of the ward environment. **Actions** • Additional point of use filters (POU) were installed in all areas (except clinic 2 and nuclear medicine – taps being sourced which would enable a POU filter to be added) where this cohort of patients may attend. • Point of use filters were installed in the DSR and the kitchen areas within ward 6A. • Toilet seat covers were fitted to patient en-suites in ward 6A. **Hypothesis 2** Leaking chilled beams were contaminating the patients' environment and leading to colonisation of patients and resulting in infection. **Actions** • Biocide dosing introduced to the chilled beam water system. • Push fittings replaced with mechanical fittings for all chilled beams in Ward 6A. • Increase cleaning of chilled beam outer grilles from 3 monthly to 6 weekly. • A new algorithm regarding the functionality of chilled beams was implemented. This should eliminate the problem experienced during fluctuations in outside temperatures. **Additional actions taken** • HEPA filtration units to be installed in all en-suites in Ward 6A. • Water pipes to/from the Arjo bath were capped. • New shower hoses procured to ensure that shower heads could not reach the drain if left out of the holder. • Review of line care by practice development was carried out in all areas. • Commencement of antibiotic and antifungal prophylaxis **Further actions agreed to provide ongoing assurance:** • A root cause analysis review to be completed for all clinical cases identified in this incident • Appraisal of options for this cohort of patients will be completed. • A closed NHSGGC face book page developed for parents and carers. • An environmental pathogen SOP will be developed with reset triggers as

	before; in addition to this, a multidisciplinary review will be conducted for all new positive BC with any gram negative or environmental organism going forward. • An air/environmental sampling regimen will be developed with agreed parameters that would trigger additional action. NB there is no agreed standards for air quality in non-ventilated areas so this will be a local SOP. The previously issued HPS SBAR for adult BMT services will be reviewed and will inform this SOP. • Water sampling will continue as per the Water Technical Group recommendations; and ICD can trigger additional water sampling in order to investigate a cluster or trigger. • An external peer review - still being actively pursued by Acute Medical Director. • Enhanced supervision of practice will continue at intervals agreed by Chief Nurse and IPC.
Recommendations	The IMT is asked to note the above, and support the recommendation of the IMT from Friday 13th September 2019 that the ward is re-opened to new admissions. The Senior Management Team Women and Children will be kept informed of all results, triggers and reports. It is anticipated that they will liaise with clinical staff as appropriate SCRIBE documents and an installation plan for the additional HEPA filters will be forwarded to HPS for information.

data, 6a Incident

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

Mon 07/10/2019 10:26

To: RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND) [redacted];RITCHIE, Lisa (NHS NATIONAL SERVICES SCOTLAND) [redacted]

Cc: IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND) [redacted];Peters, Christine [redacted]

1 attachments (272 KB)

SBAR 6A incident data.doc;

Dear Anne e and Lisa,

Chris ne and myself recently a ended a subgroup of the 6A IMT to discuss Ciproxin prophylaxis. At that mee ng there was a request for data from microbiology. We understand that HPS are now taking over the data analysis from GGC with respect to this incident.

Please find a ached a copy of an SBAR we have produced containing the relevant data and some other points that we consider per nent to the discussions moving forward.

Please get back to me if you have any ques ons or require further informa on. Happy for this email and SBAR to be shared.

Kind regards
Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

Re: [ExternaltoGGC]Re: [ExternaltoGGC]query re IMT investigation

de Caestecker, Linda [redacted]
Tue 15/10/2019 11:57
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

Teresa
I have invited Brenda, Jamie, , Jennifer already and thanks for the other sugges ons.
Kind regards
Linda

Sent from my BlackBerry 10 smartphone on the EE network.

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: Tuesday, October 15, 2019 11:39 AM
To: de Caestecker, Linda
Subject: [ExternaltoGGC]Re: [ExternaltoGGC]query re IMT investigation

Hi, the people who were regular a enders ;

John Mallon (lab manager)
Clinicians - Brenda Gibson, Dermot Murphy, Jairam Sastry
Jamie Redfern
Jen Rodgers
Anne e Rankin
Susie Dodd (previous lead ICN)

Also Kathleen Harvey Wood, microbiology clinical scien st

Kind regards
Teresa
Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: de Caestecker, Linda [redacted]
Sent: 14 October 2019 19:02
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Re: [ExternaltoGGC]query re IMT inves ga on

Teresa
This is the internal review not a full inves ga on so I chose members of the IMT. If we recommend an HR process there would be a wider group. However even at this stage, I'm happy to hear your sugges ons of key people to speak to.
Kind regards
Linda

Sent from my BlackBerry 10 smartphone on the EE network.

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: Monday, October 14, 2019 4:27 PM
To: de Caestecker, Linda

A49541141

Subject: [ExternaltoGGC]query re IMT investigation

Hi Linda,

Can I ask how individuals have been selected for interview with respect to the IMT whistleblow. I am aware of colleagues who have been present at almost all IMT mee ngs who are not being spoken to .I think it would be important for them to be included.

Kind regards

Teresa
Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

85. Re ExternaltoGGCIMT minutes - ammendments requested

Julie Rothney

From: Crighton, Emilia
Sent: 25 October 2019 10:53
To: Inkster, Teresa (NHSmail)
Cc: Peters, Christine; Devine, Sandra
Subject: Re: [ExternaltoGGC]IMT minutes - ammendments requested

Thank you Teresa
Kind regards,
Emilia

Sent from my iPad

On 24 Oct 2019, at 19:20, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

Dear Emelia,

A colleague showed me minutes for the IMT held on Tuesday 8th October as our names were mentioned several times.

We would like to request the following ammendments;

Page 2 - we are not proposing changes to the outbreak case definition . Case definition and case classification are not the same thing. Our point pertains to case classification and the recommendation is for national discussion .We have not suggested IMT do this differently from other Scottish hospitals. A (very recent) paper from the scientific literature on the subject can be found here

https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/classification-of-bloodstream-infections-in-patients-recently-discharged-from-acutecare-facilities-hospital-acquired-or-healthcareassociated-community-onset/91D8726FA0174988B1C0E2EC27D86FA8

Page 5- Microbiology report -' Dr Leanords point of view is that air sampling taken within a general area shouldn't be undertaken'

There were a number of reasons why the corridor was being sampled;

1) The children are using the corridor as a play area as they have no other facility and we are reliant on portable HEPAs , to improve air quality

2) The air con unit at the nurses station had previously grown Aspergillus from surface swabs so air sampling was to investigate whether there was evidence of dissemination into the corridor

3) Dr Hood has been testing the corridor as part of his work on the Cryptococcal incident. We understand from this work that the corridor appears to be at negative pressure pulling in contaminated air. I was told at times, when doors are open, it is as low as -10Pa. If correct then this is very concering and represents a significant risk to immunosuppressed children . We trust IMT are aware of this information

Can I request that if there are queries as to why I have done something previously that an action is taken to find out the reasons why . I am happy to explain .

Its not really our place to comment on other parts of the minute however we note reference to 'pseudo-outbreaks' and the worlds first?? Has no-one read the literature on pseudo-outbreaks.... these patients had clinical symptoms of infection. in some cases requiring line removal and PICU admission

Lastly,a useful link to an outbreak of more than one pathogen linked to water and biofilm ; https://onlinelibrary.wiley.com/doi/abs/10.1111/hdi.12722

Kind regards

Teresa and Christine

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

comments on paediatric haemato-oncology data

INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]

Thu 07/11/2019 14:44

To: IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND) [redacted]

Cc: Leanord, Alistair [redacted];Crighton, Emilia [redacted];Peters, Christine [redacted]

Dear Laura,
Please find a ached comments on the HPS review of paediatric haem-onc data . This is an impressive document turned around in a short space of me and my comments below are to generate further discussion , not cri cism

Page 7
What is the sta s cal opinion on the use of SPC charts for organisms that are not endogenous flora and considered non endemic?
Page 12

The SPC chart is not iden fying outbreaks. During Feb- Sept 2018 there was a significant water/drain contamina on incident with 23 cases and typing results linked to environmental isolates. However at no point is the UCL breached.
There are several other episodes whereby the defini ons in Chapter 3 of the na onal manual are met yet not detected by these charts

There are no charts provided for individual organisms, again meaning that outbreaks can be undetected. These would however likely be too sensi ve due to the non-endemic nature of these organisms. UCLs are likely to be frequently breached.
I would be worried about using SPC charts moving forward as they may lead to a false sense of security and the concept of preventable HAI is lost in them.

Page 17
The QEUH 6a/4b chart does not appear to contain all the cases from the current incident therefore the diverity is not captured
There is huge diversity within the Pseudomonas genus , therefore the species should be separated out . Some of these cases are Ps pu da which is much rarer than Ps aeruginosa

Page 19
'it is difficult to ensure that the blood cultures are true clinical cases of bacteremia' . Gram nega ves are always treated by microbiologists as clinically signficant especially in such an immunosuppressed pa ent group , all of these were classed as true cases.

Page 20

Triggers for environmental Gram nega ves have been in place in GGC since 2016 and were adapted from Barat Patels work on neonatal outbreaks The triggers for inves ga on are ;
- a single case of bacteraemia
- two infec ons in a 2 week period
- three colonisa ons in a 3 week period
- a general increase in environmental Gram negs at the discre on of an ICD - **relevant to current incident, and acknowledges that more than one organism may be involved when there is an environmental source**

General comments

There is no commentary on the nature of the bacteria and how they differ from other units . We have previously highlighted that these environmental bacteria are out of keeping with elsewhere. I don't think we can benchmark against Yorkhill which is an old building and based on Legionella results, one which has poor water quality. I don't recall Gram nega ves being looked for.
There is no commentary on the period from Sept 2018-March 2019 where there were no cases - that is key in understanding the hypothesis, a prolonged period with not a single case. It is likely due to environmental control and all the measures that were put in place prior to 6A.

Similarly there have been no new cases since the start of October, is this because there is now source control ie. removal of wet material from kitchen. At the me I chaired the IMT we did not have this info but observing the water damage, it would appear to be a long standing drip. This ,coupled with other water leaks on the ward and what is emerging from John Hoods ven la on work could be the explana on i.e. airborne dispersal of bacteria made even more effec ve by a subop mal ven la on strategy.

Lastly, clinical data is collected rou nely by microbiologists for all cases and RCAs undertaken with iden fica on of risk factors and poten al source. What would be more useful and should be part of any outbreak inves ga on is a case control study to iden fy why some and not other children are developing bacteraemias
Kr
Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]



Thursday, November 14, 2019

NHS GREATER GLASGOW AND CLYDE STATEMENT

When a patient dies in our care, our clinical teams discuss with family members the cause of death and the factors that have contributed to this, where they are known.

Patients who are very sick are prone to infections and we closely monitor all infections to ensure patients are appropriately cared for. In 2017, we investigated two individual cases of Stenotrophomonas which were not linked. We reported these cases both to the national expert body, Health Protection Scotland and to our Board.

These cases were also reviewed again in July 2019 when the clinical view was that no further action was required.

At the time of the initial investigation into these cases, national guidance did not include a requirement for health boards to test for Stenotrophomonas in the water supply.

Stenotrophomonas is widespread and is present throughout the general environment. As no tests were carried out at the time, it is not possible to conclude that these infections were connected to the water supply. It is extremely disappointing therefore that a whistle-blower has made this claim causing additional distress to families and to other families of cancer patients.

ENDS

For further information either telephone **0141 201 4429** or email press.office@ggc.scot.nhs.uk

From: IMRIE, Laura (NHS NATIONAL SERVICES SCOTLAND)
Sent: 15 November 2019 13:53
To: Josephine.Ives[redacted]
Cc: Jason.Birch[redacted]; Lesley.Shepherd[redacted]; HPSINFECTIONCONTROL (NHS NATIONAL SERVICES SCOTLAND); RANKIN, Annette (NHS NATIONAL SERVICES SCOTLAND)
Subject: NHSGGC

Dear Jo

Following our conversation I can confirm that no deaths associated with *Stenotrophomonas* infection were reported by NHSGGC to HPS during 2017 and therefore no information would have been reported to the HAI Policy Unit from HPS.

As discussed following the initial information provided by NHSGGC, in response to our request for information yesterday, it would appear there were 3 cases of *Stenotrophomonas* during 2017 all of which were very complex cases and have all sadly passed away. HPS have requested details for all 3 cases including the cause of death and the information shared with families. Normally HPS would wait until we had all the information however given the sensitivity of this case I feel it is paramount that SG are aware there may be more than one case being referred to in the recent media coverage.

We will share the information as soon as it becomes available.

Many thanks

Laura

Laura Imrie
Nurse Consultant Infection Prevention & Control
Interim Lead Consultant ARHAI Group

NHS National Services Scotland
Health Protection Scotland
4th Floor Meridian Court
5 Cadogan Street
Glasgow
G2 6QE

Direct Dial: [redacted]
HPS Reception: [redacted]
Web page: www.hps.scot.nhs.uk

STEP 3 Whistleblowing NHS Greater Glasgow and Clyde

I am a retired employee of GGC. I worked as consultant microbiologist, infection control doctor and clinical director. Before I retired, I followed Step 1 and Step 2 of the whistleblowing policy.

After the publicity in the papers last week I feel I have no alternative to, reluctantly, go to Step 3 of the whistleblowing policy.

I have no need or desire to be involved in what is happening. My concerns and worries continue to relate entirely to Patient Safety.

As part of Step 1 of the whistleblowing stage in September 2017 (one month after the sad death of [redacted]), the issues with the GGC infection control structure were raised and I believe these may still be a major concern.

I am , obviously, not up to date with everything that is happening, at the moment, within GGC to resolve the problems identified by staff.

However, I believe that some of the statements issued by GGC are inaccurate. In particular, one of the issues raised in Step 1 of the whistle blow was that an infection control doctor had requested water testing on a number of occasions as they were concerned that water could be a source of the outbreak being investigated. I think this contradicts one of GGC's statements.

I am also concerned that the Independent Review is going to accept reports of investigations carried out within GGC. I believe this could be a conflict of interest.

Another example of concerns in reports being written for outside scrutiny is the HPS report on the water associated bacteraemias. Despite the first case being in 2016 only the cases in 2018 were included in the report, and this was presented to the Health and Sports Committee in March 2019. If the newspaper reports are correct there were at least 26 other cases in 2017. I assume [redacted] was one of these.

It cannot be helpful for GGC's credibility when these things become public either during the review or the Public Inquiry. I do not believe that this helps restore public confidence.

We cannot begin to understand the stress and upset being caused to the families, who are already in a very fragile state. Some of their worries may be unjustified and they need to feel able to trust any re-assurances they are given.

At present the most experienced and knowledgeable infection control microbiologists are not involved in infection control. This should be of concern for GGC with all the present challenges that are faced. The reasons why they are not involved needs to be examined and understood. The numerous resignations of infection control doctors may have a common theme. What they have to say may not be what GGC want to hear, but their opinions, some after years of experience, should not, in my opinion be ignored. Perhaps GGC would not have the present challenges if they had been more open to accepting the concerns.

As I no longer have access to the documents linked to Step 1 and 2 of the whistle blow, as I no longer have my GCC email. I am sure they are available within GGC so please also refer to them.

Dr Penelope Redding [redacted]

[redacted]

From: Haynes, Jennifer [redacted]
Sent: 02 December 2019 14:31
To: 'Penelope Redding'
Subject: RE: Stage 3 Whistleblowing report

Dear Penelope

Further to our emails below, we have considered the report you sent through. Under our Whistleblowing Policy, it notes that Step Three investigations should be considered by a Non-Executive Director of the NHS Board, who will receive appropriate professional support from any relevant Corporate Director. For this reason, we would propose that Mr Ian Ritchie, Non-Executive Director, considers your concerns, with support from Mr William Edwards, Director of eHealth, who is a Stage Two investigator, and experienced in handling whistleblowing allegations.

In the first instance, we would therefore propose that you meet with Mr Ritchie and Mr Edwards (and myself, as I will provide support to the meeting, including taking notes), so that we can further understand the specifics of your concerns, before deciding on how to proceed.

I hope this email is helpful, and if you are agreeable to having a meeting in the first instance as described above, please could you provide an indication of your availability, and I can then cross check diaries to identify a suitable date / time? It would also be helpful if you could let me know if JB Russell House(Board HQ) would be acceptable for you, and whether you intend to bring anyone with you, so that I can ensure I make suitable arrangements for the meeting.

Many thanks

Jen

Jennifer Haynes
Board Complaints Manager
Phone: [redacted]
Mobile: [redacted]
Email: [redacted]

From: Penelope Redding [redacted]
Sent: 26 November 2019 16:25
To: Haynes, Jennifer [redacted]
Subject: [ExternaltoGGC]Re: Stage 3 Whistleblowing report

Dear Jen
Thank you for your acknowledgment.
I look forward to hearing from you.
Kind Regards
Penelope

Sent from my iPad

On 26 Nov 2019, at 15:33, Haynes, Jennifer [redacted] wrote:

Dear Dr Redding

Thank you for your email. This note from me is to acknowledge safe receipt, and to confirm we will be back in touch with you in the near future to discuss how this will be progressed.

Kind regards

Jen

Jennifer Haynes
Board Complaints Manager
Phone: [redacted]
Mobile: [redacted]
Email: [redacted]

From: Penelope Redding [redacted]
Sent: 21 November 2019 12:16
To: Haynes, Jennifer [redacted]
Cc: Sweeney, Rona [Board] [redacted]
Subject: [ExternaltoGGC]Stage 3 Whistleblowing report

Dear Ms Haynes,

Please find attached my report escalating to stage 3 of the Whistleblowing policy.

Kind Regards,

Dr Penelope Redding

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NHSGG&C Disclaimer

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Thursday, November 28, 2019

NHS GREATER GLASGOW AND CLYDE STATEMENT

The safety, wellbeing and confidence of our patients and our staff is, was and always will be our absolute priority. We apologise to patients for the distress and anxiety caused and are focused on addressing their concerns.

We fully acknowledge that there have been issues at this site and senior managers sought to take robust action to address these issues when they became aware of them.

We led, and asked for expert help, to investigate and resolve these issues and reports about these incidents are available to the public.

In response to ongoing issues, we commissioned a further comprehensive independent technical review in 2018 which we believe can help inform the Cabinet Secretary's wider external independent review into design, construction and maintenance of the QEUH/RHC.

The potential link between the water supply and cases of infection in 2018 has already been fully reported. The Health Protection Scotland report highlights all the actions that were taken by the Board – together with an acknowledgement that patient safety is at the forefront of our considerations.

This has now resulted in a safe and effective water supply.

Responding to the points raised in turn:

1. 2015 and 2017 water services reports

In 2018 we carried out a full investigation into the handling of the routine water risk assessment reports. Key changes have been implemented and the water system is safe, wholesome and well maintained. We have a robust monitoring structure to keep it safe.

All the reports have been acted on and were shared with Health Protection Scotland and Health Facilities Scotland when the independent review of the water contamination issue in 2018 was carried out.

Routine water sampling was carried out from the time the hospital opened. Specific tests were also carried out at the request of infection control doctors when investigating possible infections.

Our electronic records, available from April 2017, show that we tested 542 water samples from the Royal Hospital for Children water system until December that year.

None of the samples tested were positive for Stenotrophomonas. This includes 40 samples taken during the month of August - none of these were positive for Stenotrophomonas. This is the period that investigations were ongoing into two possible cases of linked Stenotrophomonas.

2. March 2017

In March 2017 concerns raised by hospital staff about line infections were taken extremely seriously and an expert clinician group with surgeons and oncologists and other clinical experts was set up with the result that over the following months the rates reduced significantly. We also involved international experts from Cincinnati to advise on the latest scientific evidence on how to protect our vulnerable patient population.

The result of this was that we currently have the lowest rates of gram positive infections in this group of patients in Scotland. We have some of the most vulnerable patients in the country as we provide a number of highly specialist national services and so these results are very encouraging.

3. August 2017 investigation into Stenotrophomonas

The investigations into two possible linked cases of Stenotrophomonas in August 2017 were carried out by an experienced infection control doctor and infection control nurse and the clinical team. This was reported to Health Protection Scotland at the time. In October 2017, this investigation was reported in public to the Board.

4. 2018 report into limited knowledge of the water systems

This issue around understanding the risks in the water system was addressed when we trained staff to become specialists in managing domestic water systems. This has now been completed and independently validated with our staff formally being appointed as authorised persons (AP water) in accordance with SHTM 04-01 Part B.

ENDS

For further information either telephone **0141 201 4429** or email press.office@ggc.scot.nhs.uk

STRCITLY CONFIDENTIAL

2/12/19

Dear Cabinet Secretary ,

We write to you in response to calls in Parliament last week for individuals with information regarding the QEUH to come forward. We are both currently Consultant Microbiologists in the QEUH .We have previously been in the roles of Infection Control Doctor for the site and the Lead ICD There are a number of issues we wish to bring to your attention ;

When referring to hospital acquired infection it is important to differentiate between endogenous (own patient flora) and exogenous (environmental) sources of infection. Whilst we acknowledge that' zero tolerance' is unlikely to be achieved particularly in immunosuppressed patients both types of infection are preventable, employing different strategies. To benchmark against older hospitals or other units when there are clear environmental risks present is not commendable.

1) Ward 6A

We note with interest recent media statements which refer to the QEUH being 'safe'. In the large part we do believe that to be the case. The clinical care provided at the QEUH is indeed world class and for the vast majority of patients the environment does not pose a risk. However, for a small subset of immunosuppressed paediatric patients we do believe there is current risk remaining despite all remedial measures put in place to date.

We enclose in our Appendix details of an SBAR signed by all QEUH microbiologists delineating current environmental risks in ward 6A, which was sent to the Incident team. It is important to differentiate between no evidence of an environmental link versus evidence of ongoing environmental risk. The pitfalls of environmental screening are well documented (CDC, Atlanta) and reliance on surface swabs to prove environmental safety in the presence of obvious risks is not recommended. Evidence from our own laboratory and that of an external lab demonstrate that in fact there have been positive swabs (email in Appendix). Whether these have been discussed in an open and transparent fashion at the Incident Management Meetings is unclear.

Furthermore we are aware of air sampling results that indicate poor air quality in ward 6A , again there has been no transparency in relation to these or adequate explanation given to parents as to why their children are on antifungal prophylaxis.

Reference has been made to similar rates in units elsewhere; in fact what is important here is the 'type' of infection not the rate. The predominant bacteria are environmental organisms and not those considered part of normal flora.

Ward 2A patients were moved to ward 6A on a temporary basis last year to enable remedial works to begin on the water system. However that move became more permanent following reports on the 2A ventilation system which demonstrated it to be suboptimal and a risk for this patient

group. Due to the requirement for a retrofit of 2A the 6A move became more permanent. Requests by the lead ICD for a repeat options appraisal as to the safest place to house these at risk children were not undertaken and the suggestion of a temporary portable unit ignored.

2) Paediatric Intensive Care Unit (PICU)

We note yesterdays media reports regarding the death of a child last week. The cause of death has yet to be elucidated however this child did have a hospital acquired bloodstream infection from Serratia marsecens an organism linked to the environment. We are aware of additional patient deaths in the PICU setting within the last few weeks, both with the same water related organism (Pseudomonas aeruginosa). In one of these patients 'Pseudomonal sepsis' is reported on the death certificate, in the 2nd the result was positive after the death certificate issued. We do not believe these cases have been reported in an open and transparent fashion and have ongoing concerns regarding the current environmental burden in PICU (email in Appendix)

3. Ventilation/Water

We do not believe that all issues that have been raised since 2015 have been adequately dealt with, contrary to the repeated claims in the public statements both from NHS GGC and SG .

Ventilation

1) There are outstanding issues in relation to ventilation and particularly with regard to patient placement. While negative pressure rooms have now been implemented (April 2019) there was confusion just last week regarding whether they are fit for use when an XDRTB case required admission .This is not an area where there should be any dubiety whatsoever regarding suitability of accommodation given the serious health and safety risks posed to both staff and patients.

2)PPVL isolation rooms have not been built to specification and remain unvalidated to the SHTM – this has been brought up repeatedly following confirmation of these findings in an HFS report.They have yet to be addressed .

3) Validation for PICU was undertaken for the first time in 2019, with a failure to meet SHTM standards and remedial work required.

4) Ongoing issues with air quality and specifications in adult haematology wards including bone marrow transplantation.

Water

In 2015 site infection control doctors were requesting access to water results from the time of opening. Despite repeat requests to managers these were ignored and referred to as having been 'dealt with'.

Despite risk assessments being on the agenda and for discussion at local water groups reports from external companies were never made available.

During 2017 several microbiologists raised concerns regarding the number of bloodstream infections in ward 6A children and had difficulty obtaining water sampling including specific requests

for stenotrophomonas testing prior and after a child's death from Stenotrophomonas sepsis. There had been 6 cases of stenotrophomonas bacteraemia within 4 months, when previously one per year was the norm in this patient group.

In October 2017 water testing was one of the issues raised by three Consultant Microbiologists as part of Stage 1 of a whistleblowing process. They highlighted the difficulties encountered in both requesting and accessing results of water tests, in addition to raising concerns regarding infection rates.

Following a case of Cupriavidus bacteraemia in Feb 2018, the lead ICD chaired the Incident management teams whereby various different hypotheses were shared. Details of the external risk assessment reports were not made available. Details only emerged in a subsequent Health Facilities Scotland report at the end of Dec 2018. In this HFS report reference was made to high TVCs in water at the time of opening and the presence of bacteria detected subsequently. This report also gave a detailed technical analysis of the water system.

It is our belief that had these water results and external risk assessments been made available to ICDs in 2015 the decision would have been to defer opening of the hospital or at the very least not move immunosuppressed patients across. The clear course of action at that point would have been to install a chlorine dioxide dosing system. As such we consider many of the subsequent bloodstream infections in children to have been preventable.

We note with interest comments that all actions identified in these external risk assessments have been put in place .The water technical group continues to meet with input from external experts but has not yet completed all actions .For example regarding the decision to replace taps in other high risk areas , this work has not yet been undertaken.

Whilst the water continues to be described as 'wholesome' the presence of fungi and atypical mycobacteria which persist after chlorine dioxide and are difficult to eradicate represent an risk to immunosuppressed patients, hence why filters must remain.

4) Whistle Blowing Process

GGC have claimed that the internal whistleblowing process is robust and confidential. Three Microbiologists wrote an SBAR delineating long standing concerns regarding infection control in September 2017.

This was far from a confidential process, with a meeting organised to respond to the issues with a very wide group of senior managers, some of whom the whistle blowing attempt was pertinent to. The process was intimidating and there was no opportunity to input into the assessment of the issues, while those who were responsible for the situation requiring the i WB oversaw all investigations and continue to do so. The whistle blowers were not informed that their names would be circulated to the Board and the Acute Infection control committee. Certainly it is not a process that has inspired confidence or one that could be recommended as a safe process.

Two Microbiologists took the whistle blow to stage 2 in February 2018 as the response that was sent regarding all the issues did not reflect accurately the issues raised, nor was it accurate in terms of

actions taken for resolution of the issues. They were then told that the issues were on the risk register and would be sorted – with no evidence provided to back this.

There is a culture in GGC that whistleblowers should “be hounded” and the statements made to press reiterated our impression that whistle blowers are considered to be the real problem, being referred to frequently as “trouble makers”, while the evidence based problems they point to are belittled.

We have no confidence in the stringency, confidentiality or transparency of the Board to undertake and manage internal whistle blows. From our experience the external whistle blowing routes approved by GMC also inevitably lead back to the board to resolve. The internal reviews on several matters, including the Cryptococcus case has excluded entirely the expertise and views of the ICDs involved throughout and we have no confidence in the process at all.

We have raised many issues over the last 4 years, for the purpose of this letter, we have chosen to focus on the most pertinent and current risks. The priority in all of this must be patients and their families as well as public confidence in what is largely an excellent hospital. There is a need for infection control to become an open and transparent process with duty of candour at the very heart of it. We feel that you need to know the full information in order to inform families and the public of the facts.

Kind regards,

Dr Christine Peters, MBChB, BSc, DTMH, FRCPath,

Dr Teresa Inkster, MBChB, BSc, FRCP, DTMH, MPH, FRCPath

Chief Nursing Officer Directorate
Fiona McQueen, Chief Nursing Officer

Scottish Government
Riaghaltas na h-Alba
gov.scot

T: [redacted] F: [redacted]
E: [redacted]

Dr Teresa Inkster
By email: [redacted]

3 December 2019

Dear Dr Inkster,

Thank you again for helpfully sharing with me your views on infection prevention and control at the Queen Elizabeth University Hospital (QEUH) campus when we met on 4 September 2019.

As you will know, on 22 November 2019 NHS Greater Glasgow and Clyde (NHS GGC) was escalated to Stage 4 of the Scottish Government's performance framework for issues around the systems, processes and governance in relation to infection prevention, management and control at the QEUH and the Royal Hospital for Children (RHC) and the associated communication and public engagement issues.

Stage 4 is defined as 'significant risks to delivery, quality, financial performance or safety; senior level external transformational support required'. The intention of the escalation is to ensure that appropriate governance is in place to increase public confidence and strengthen current approaches that are in place to mitigate avoidable harms.

I am now chairing the Oversight Board which will steer this process of transformational support to NHS GGC. The Oversight Board will focus on three key areas: Infection Prevention and Control, Clinical Governance and Patient/Family Communication.

In my capacity as Oversight Board chair, I would like to request another meeting with you to review the insights which you are able to contribute to this process.

I would be grateful if you could contact my office to arrange a suitable time for a meeting.

Kind regards,

[redacted]

Professor Fiona McQueen
Chief Nursing Officer

Inkster, Teresa

From: GREEN, Rachel (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 10 December 2019 14:53
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Gardiner, Robert
Subject: Re: Issues raised regarding Infection control

Categories: Green Category

Thanks Teresa - I am sorry but I am a bit squeezed for these days as I am currently locuming in Clyde on Fridays - would you mind if we postponed to the first week in January - would either the pm of the 6th, pm of the 8th or pm of the 9th suit you? I think Rob and I are both free on those dates?
Bw
R

Rachel Green
Chief of Medicine
Diagnostics Directorate
Acute Services Division
NHS GG&C
Road
Tel: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 09 December 2019 15:49
To: GREEN, Rachel (NHS GREATER GLASGOW & CLYDE)
Cc: Gardiner Robert (NHS GREATER GLASGOW & CLYDE); Chris.Deighan[redacted]
Subject: Re: Issues raised regarding Infection control

Hi Rachel

This week I am free either Thursday or Friday mornings from 9-11am. Does either suit? The week after my only availability is Friday 20th 1-3pm

Kind regards
Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: GREEN, Rachel (NHS GREATER GLASGOW & CLYDE)
Sent: 06 December 2019 12:07

To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Cc: Gardiner Robert (NHS GREATER GLASGOW & CLYDE); Chris.Deighan[redacted]
Subject: Issues raised regarding Infection control

Hi Teresa
Chris has asked me to meet with you to investigate some concerns you have raised regarding three specific issues

1. SCI process
2. Duty of candour regarding infection control incidents
3. Governance relating to specialist groups reporting to IMTs

I wonder if it would be possible for Rob and I to meet with you to go over these issues at a mutually suitable time.
Could you let me know what time would suit you over the next couple of weeks. I think it might take a couple of hours
Please let me know
BW
Rachel

Rachel Green
Chief of Medicine
Diagnostics Directorate
Acute Services Division
NHS GG&C
Road
Tel: [redacted]

90. email RE Pseudomonas bacteraemias

Julie Rothney

From: Shepherd L (Lesley)
Sent: 06 January 2020 12:07
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); PETERS, Christine (NHS AYRSHIRE AND ARRAN); BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Pseudomonas bacteraemias

Hi Theresa/Christine,

Thanks for both of your emails. Think it would be good to speak further as you outline many of my concerns also.

Could arrange a call, however, think I'm meeting you on Thursday when you meet with Marion. Are you happy to speak then or happy to speak beforehand?

Kind regards,

Lesley

Lesley Shepherd
Professional Nurse Advisor, HAI AMR Policy Unit
Chief Nursing Officer's Directorate | The Scottish Government
St. Andrew's House | Regent Road|Edinburgh | EH1 3DG
Telephone: [redacted] | Mobile [redacted] | Email: [redacted]

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Sent: 06 January 2020 10:45
To: Shepherd L (Lesley) [redacted]; PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted]; BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Subject: Re: Pseudomonas bacteraemias

Hi Lesley , it would be good to catch up . Free Tuesday afternoon or Wednesday if either suit.

The child had a normal CXR on admission with changes developing post op which progressed to consolidation on the 23rd.

I also note media coverage yesterday regarding Stenotrophomonas in 2017 and I note inaccuracies in the GGC response. I was off sick then but I do know that the lab did not take 6 weeks to develop a test for Stenotrophomonas. We were testing for this organism before this time and had isolated it in from the water in 2016, along with rarer Gram negatives such as Cupriavidus and Elizabethkingia sp.

I note that there is continued emphasis in media responses regarding different strains of organisms isolated , translated to mean no problem or source. We know from environmental incidents that this is not in fact the case .All this tells us is that there is no patient to patient cross transmission . I have stated this many times over the past decade and have this opinion supported in writing by water experts . Despite this the local IPCT refuses to acknowledge this point, which is most frustrating.

Kind regards
Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Lesley.Shepherd[redacted]
Sent: 05 January 2020 21:58
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); PETERS, Christine (NHS AYRSHIRE AND ARRAN); BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Subject: RE: Pseudomonas bacteraemias

Hi Theresa/ Christine

Sorry I haven't got back to you but have been off work. Back tomorrow.

This is really helpful and I would also agree that case one from PICU is an HCAI however GGC are refuting that as the child had changes on the chest xray on admission apparently.

Would be good to catch up next week if possible? Are you meeting with marion this week?

Kind regards,

Lesley

Lesley Shepherd
Professional Advisor
Scottish Government

From: "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)"[redacted]
Sent: 30 Dec 2019 15:50
To: "PETERS, Christine (NHS AYRSHIRE AND ARRAN)"[redacted]; "Shepherd L (Lesley)"[redacted]; "BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)"[redacted]
Subject: Re: Pseudomonas bacteraemias

Hi,

Agree with all of that.

I remain confused as to why one is classed as community onset;

Patient 1 was admitted [redacted] Sept and positive on BAL [redacted] and blood culture [redacted] Sept. No prior colonisation. Clear HAI by definition. Typing clustering with an appendicectomy case, further evidence of a hospital strain

Patient 2 - inpatient since birth, blood culture and peritoneal fluid positive [redacted]/11. HAI by definition

Also, I note on authorising lab results two possible environmental sources, the drains and water from a recent leak ? from sprinkler system. I'm not sure why these would not be sent for typing but that has been the instruction from IPCT.

Kr
Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: PETERS, Christine (NHS AYRSHIRE AND ARRAN)
Sent: 30 December 2019 12:41
To: Lesley.Shepherd[redacted]; BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Pseudomonas bacteraemias

Hi Lesley

I had a quick look at pseudomonas bacteraemia cases last week. The data I have from Telepath has been gathered by new IT staff so I am not 100% confident in it but Kathleen Harvey wood said it didn't sound far out, and she keeps her finger very much on the pulse.

I did a gather on pseudomonas from all sites and sample types since July 2015 - September 2019 from laboratory LIMs system. This excludes the recent 3 cases which were all deaths.

Interestingly since the childrens hospital opened there have been only 9 patients with Pseudomonas aeurginosa bacteraemias ie rare.

1 was the NICU death in 2015
3 were part of 2A/ 6A water incidents
5 were PICU cases

All have been HAIs to date as far as I can briefly deduct. With only one death with sepsis as noted in NICU.

My conclusions - if this data is verified, :

1, PA bacteraemia is NOT common in any patient group
2. Death from PA bacteraemia has been rare till september 2019 in-fact one death in 4.5 years in a neonate which triggered a red HIATT and SG intervention in the serratia outbreak.
3. All have been HAI till September 2019

Of note 2 of the 5 in PICU were also isolated from BAL , and 3 were post cardiac patients.
Therefore the three deaths with PA bacteraemia recorded since then would represent the first 2 PA bacteraemias classified as non HAI, and include the first deaths with Pseudomonas aeruginosa since 2015. This clustering also represents an increase in frequency and occurs at a time of other environmental gram negative cases very similar to the patterns previously experienced in NICU, PICU and haem onc.

I would interested if HPS have looked atthe PA epidemiology in RHC and come up with similar numbers.

Again just to reiterate this is a very quick and inbetween calls kind of look at the data.
kr

Christine

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Inkster, Teresa

From: PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted]
Sent: 06 January 2020 11:24
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); Shepherd L (Lesley); BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Subject: Re: Pseudomonas bacteraemias

Hi Lesley ,

Hope you had a great festive holiday.

I agree with Teresa re the first case . There is also a third death in a patient seen in ED around the same time whose isolate type linked to a Cf isolate of pseudomonas . That could also be classed as an HCAI. Is there a reason for it being dismissed as a case ?

I was also struck by the inaccuracies in what appeared to be GGC statements re stenotrophomonas in the Sunday Herald yesterday .

1. It was not the lead ICD who asked for water testing - it was Dr [redacted] as the local ICD and he requested before August due to a spike in cases - as per the SPC chart we discussed with Fiona McQueen
2.There were 6 stenotrophomonas bacteraemias, not 2
3. I have no idea what the 6 week scientific endeavour refers to re the testing as Teresa points out steno had been adequately grown from water previously .
4 one of the primary drivers in the whistleblow action of [redacted], Penelope and I was due to the fact that repeated requests for water testing by [redacted] specifically for stenotrophomonas and pseudomonas were not followed by estates and then results were not forthcoming. It is striking to me that at no point till I read the claim re the 6 week delay was this ever cited as a reason for the delay.

7 the water tests in September 2017 were not all for steno , legionella and pseudomonas were also tested for. From the data I received at the time there were not 100 samples specifically for stenotrophomonas . If there were these were not shared with the ICDs at the time. We know from [redacted] mother that shower heads were changed . In terms of reaching any informed conclusions re the case of [redacted] it would be scientifically imperative to identify what measures were taken with regard to water treatments and outlet cleaning/changes before the water testing was eventually undertaken and map the sites of the water tests in relation to her admission as well as a detailed account of the methodology used.

The case cannot be considered in isolation from the overarching situation regarding the contaminated and non maintained complex water system and all the data available subsequent to the case.

8. The narrative around the red and green HIATS makes no sense to me and when [redacted] comes back from AL I will check the details of how he graded and communicated at the time as it does not fit with my understanding.

9. I would reiterate the misuse of typing data that Teresa points out as it is a non scientific approach to infection control .

I am very concerned for the family and the confusion and inconsistencies regarding the investigation and management from an IC point of view.

I very much hope that in the coming days we will see a change in how IC issues are assessed in the light of data and evidence based practice, and how this is communicated accurately as well as sensitively to families and the public.

Kr

Christine

From: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Sent: 06 January 2020 10:44:41
To: Lesley.Shepherd[redacted]; PETERS, Christine (NHS AYRSHIRE AND ARRAN); BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Subject: Re: Pseudomonas bacteraemias

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Kind regards
Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: Lesley.Shepherd[redacted]
Sent: 05 January 2020 21:58
To: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE); PETERS, Christine (NHS AYRSHIRE AND ARRAN); BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
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Lesley Shepherd
Professional Advisor
Scottish Government

From: "INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)" [redacted]
Sent: 30 Dec 2019 15:50
To: "PETERS, Christine (NHS AYRSHIRE AND ARRAN)" [redacted]; "Shepherd L (Lesley)" [redacted]; "BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)" [redacted]
Subject: Re: Pseudomonas bacteraemias

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Teresa

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
Direct dial : [redacted]

From: PETERS, Christine (NHS AYRSHIRE AND ARRAN)
Sent: 30 December 2019 12:41
To: Lesley.Shepherd[redacted]; BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Pseudomonas bacteraemias

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kr

Christine

****

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Director of Infection Prevention and Control
NHS Greater Glasgow and Clyde

Senior Medical Consultant
NHS National Services Scotland

Mob: [redacted]

RE: Meeting on Thursday

BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)

Tue 25/02/2020 16:44

To: PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted];

Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Thanks Christine

I think we are in the same place – it has been very helpful for me to understand the situation better but we are now definitely at the stage where we need to move to action. I can update you on the plans I have now put, and am in the process of putting, in place and progress against these on Thursday, and will welcome your thoughts too. I hope that will give you some of the reassurances you are seeking too.

Kind regards
Marion

Professor Marion Bain
Director of Infection Prevention and Control
NHS Greater Glasgow and Clyde

Senior Medical Consultant
NHS National Services Scotland

Mob: [redacted]

From: PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted]
Sent: 25 February 2020 11:30
To: BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND) [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Subject: Re: Meeting on Thursday

Thanks Marion,

While I do not underestimate the impact of the past 4.5 years , my current concerns are very much focused on the present . I would be keen to explore where the analysis of the Micro situation is sitting and and what and how conclusions have been reached specifically in regard to 6A IMTs and then around the entirety of the GGC and SG stance on what is being called "the whistleblowers" . While The Cabinet Secretary made it very clear to us in person and to Parliament that our actions of raising concerns are welcome and that our input is essential in bringing about resolutions , I do not find this to be a position shared by GGC. In order to progress, that is the key discussion I think we need to have.

I very much appreciate your time taken to meet with us and I am taking part in discussions in good faith that GGC do wish to learn lessons from the past and implement changes . However following the release of the Board papers, particularly the comments on whistleblowing , the continuing breakpoint in staffing at QEUH as well as lack of local management engagement With QEUH consultants , has led me to have doubts, suspecting that we have infact been further sanctioned rather than taken seriously as anything other than a problem that needs managed . I hope I am mistaken .

Kr
Christine

From: BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)
Sent: 25 February 2020 09:34:16
To: PETERS, Christine (NHS AYRSHIRE AND ARRAN); INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE)
Subject: Meeting on Thursday

Hello Christine and Teresa

When we meet on Thursday can I suggest a couple of particular areas to cover please. And we can of course add anything else that you'd want to discuss.

Firstly I'd like to consider a way to address the range of concerns you have been raising with me around things that have happened over the last year or so and the effect that has had on you both. I have a suggestion around this that I'd value your thoughts on.

Secondly, can we have a further chat about the answers to the families questions and, in particular, practical ways to move this forward. Again I have some further thoughts on this that I'd want to discuss further with you.

Look forward to catching up with you both again on Thursday.

Kind regards
Marion

Professor Marion Bain
Director of Infection Prevention and Control
NHS Greater Glasgow and Clyde

Senior Medical Consultant
NHS National Services Scotland

Mob: [redacted]

Re: Thurdsay meeting

BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)

Tue 25/02/2020 19:27

To:INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Cc:PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted];

Thanks Teresa, and it will be good to work through these in our discussion.

On one specific we did cover the Crypococcus hypothesis reference (3.4.5) at the Board today (following John Hood's message to me) and there will be an amendment to the QEUH and RHC Update in the minute.

Kind regards
Marion

On 25 Feb 2020, at 10:22, INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted] wrote:

Hi Marion, thanks for your email. In addition to what you suggested can we discuss the board papers on Thursday. We noted the following;

Paper No 20/04 (attached)

Section 3.3 Facilities and Estates

Section 3.3.2 states that the opportunity was taken to upgrade the ventilation. In fact this upgrade is essential due to the external ventilation report highlighting major concerns with the ventilation strategy which puts patients at risk. This is supported by the HPS situational assessment published in relation to wards 2A/B and concern that the number of outbreaks experienced was due to inadequate ventilation.

Section 3.3.3. Again states the opportunity is to be taken to upgrade shower rooms. Again essential due to the presence of extensive black mould behind IPS panels which presents a risk to immunosuppressed patients (some of the pictures attached)

Section 3.4. This section and subsections that follow summarise findings from the Cryptococcal advisory group. This group is a sub group of IMT and reports to IMT. We have previously highlighted the governance failure and the fact that the IMT has not had a chance to consider and comment on findings which are now already in the public domain. We have previously raised concern that the chair of the IMT was requested not to sit on this group as it had to be independent but note that there are several other members of the IMT on the group

Section 3.4.2 Should state 'one of the hypotheses at the time' as there were several considered

Section 3.4.5 States that the plant room has been categorically ruled out. It is not possible to categorically rule out any hypotheses on a retrospective basis. There is a strong epidemiological link to the plant room and given the emergence of new photographs just last week taken in November which show contamination with bird faeces and dead birds, this investigation is not concluded. The chair of the group has in fact arranged to revisit the plant room in light of this new evidence. It is of huge concern that these photographs and a subsequent set from the first week in December were not shared with the IMT at the time or the expert advisory group until now. (pictures and email below)

There is no mention in this section of the fundamental issue which is a lack of suitable accommodation for immunosuppressed patients

This leads us on to part 5.0 HSE investigation and ward 4C.

Section 5 HSE investigation

It states that haemato-oncology patients do not require specialist ventilation . This is in fact not the case and this ward does not meet the SHTM 03-03 standards for either neutropenic rooms or a general medical ward (given the low air change rate). Information pertaining to this including an SBAR has already been sent to SG

Minutes of the meeting of finance , planning and performance committee 3/12/19 (attached)

Section 99

Again this relates to Cryptococcus and information from the advisory group. It states that the likely source was Cryptococcal spores entering the building from the outside air. There is no evidence of Cryptococcal spores coming in from outside air, it has not been found in either internal or external air samples. This phenomenon should it be occurring would be a constant and therefore we would expect to see cases of Cryptococcus in hospitals country wide given the increasing number of susceptible individuals.

Again regardless of what actually took place in terms of a transmission event the key is that there are insufficient rooms for immunocompromised patients and again this is not described.

There are comments in another paper regarding whistleblowers not going via appropriate channels and it would be good to understand what is meant be that.

We would welcome further discussion

Kind regards

Teresa and Christine

Dr Teresa Inkster
Consultant Microbiologist, QEUH
National Training Programme Director Medical Microbiology
Dept of Microbiology
Queen Elizabeth University Hospital
Glasgow
A49541141

RE: Summing up

BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND)

Sun 01/03/2020 17:25

To: PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted]; INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted];

Many thanks for doing this Christine, it's really helpful. I have added a few comments (in blue) to your notes below.

Both Angela and Jenny are keen to get meetings with you over the next week or so (possibly together for the first meeting might be more efficient for you both?). I will send an introduction email so that they have your contact details.

As you know I will be away from Wednesday and back w/c 16 March. If you both can let me know suitable times for you it will be good to get a catch up set up for that week.

Kind regards
Marion

Professor Marion Bain
Director of Infection Prevention and Control
NHS Greater Glasgow and Clyde

Senior Medical Consultant
NHS National Services Scotland

Mob: [redacted]

From: PETERS, Christine (NHS AYRSHIRE AND ARRAN) [redacted]
Sent: 28 February 2020 16:56
To: BAIN, Marion (NHS NATIONAL SERVICES SCOTLAND) [redacted]
Cc: INKSTER, Teresa (NHS GREATER GLASGOW & CLYDE) [redacted]
Subject: Summing up

Hi Marion,
I thought it may be useful to summarise where I think we have got to with all the discussions and actions around IPCT .

1. Patient placement policy:

We have both had input into commenting on draft policy and the
most recent iteration was circulated last Friday, with come comments taken on board. I have not sent further comments as I still think my previous comments are valid. It is not clear if the policy has been widely circulated given that ITU manager was querying yesterday.
One critical piece of information this week has been the recognition of GGC that there are issues with the PPVL design and building that the court summons refers to this . In the light of this my comments pertaining to the acceptability of PPVL for airborne infection is even more important.
Furthermore although there is no reference to the AHUs themselves in the court summons, it is important for anyone making the risk assessment on patient placement to fully understand the status of these AHUs.

Angela is now actively taking forward the additional areas. She has the outstanding requirements and I know that progress is being made. She will be keen to cover this and update you when she meets with you.

2. Water damage policy

Teresa submitted her draft policy and this week there is clearly a need for this implementation in light of court summons as already agreed and this has already been taken forward by IPCT

A SOP has been prepared (based on Teresa's work) and is with various colleagues for comments by end of this coming week. Again it is part of what Angela is ensuring progress and completion around.

3. Water actions
No mention of taps in court summons, however outstanding actions from the water technical group included replacement of all taps in critical care areas - incomplete. This overlaps with our comments on the public statements and outstanding actions

I wasn't aware of this – let me bring it to Angela's attention too.

4. Communications from IPCT
To be highlighted as an area for improvement. This continues to be a problem with chicken pox incident and contacts requiring VZIG not highlighted to clinical team from IPCT, and damage and leaks to rooms in critical areas- this important for diagnostic alertness and choices of therapy for non ICDS

Agree – and it will be one of my recommendations around IPC systems and processes in GGC. In the shorter term I am discussing this with Angela and we will both consider what can be done.

5. Staffing in Microbiology QEUH
to be taken forward under OD work - this continues to be a significant limiting factor for the QEUH team in terms of ability to deliver a service. As mentioned the Consultants post at QEUH which is being advertised is to include 6 sessions of ICD, and is likely to deter applicants and cannot be seen as a solution to the IPCT problems, rather this will exacerbate significantly the already toxic atmosphere in Microbiology .

Agree – important to consider within the OD work. And it will also feature in my recommendations around IPC systems and processes in GGC - workforce planning in its widest sense.

6. Governance issues

Cryptococcal group reporting and actions in the light of significant air sampling findings
SCI process
Duty of candour
Whistleblowing management - no update on the 6A IMT process

This is all to be taken forward under OD we understand.

Yes, that's right. I have also highlighted your whistleblowing process concerns again with Fiona McQueen and she has indicated she will also be raising this with GGC.

7. Cultural issues
We do not feel there has been progress in this regard, with our situation continuing to be difficult however we understand Bullying and dysfunctionality of team which has affected the safe practice of infection control is to be explored as part of OD

The cultural aspects will be key in the OD work. I have outlined this in general terms with Jenny Copeland but you will have the opportunity to expand on this when you meet with her.

8. Accuracy of Public statements

Raised multiple times and you are planning to put together proposed statement updates that we can review.

At our last meeting we briefly discussed how to do this in the most constructive way for families and patients, hopefully building on how we were able to work together to shape the recent GGC response to the Summons document - and also potentially positioning the additional information in the context of the Summons. I have asked for some drafts to be prepared which we can discuss together when I am back w/c 16 March.

9. PICU
I have submitted an SBAR to HPS and AL regarding this and Angela will take forward continuing actions

I am now chairing a regular PICU IPC Review Meeting, and Angela is ensuring the required actions are being progressed. We both welcomed the rigour of your SBAR that you prepared for HPS.

10. Case note review
I put in comments to the tool to the group and submitted all the cases identified through the LIMS system.

Many thanks for that.

That's all I can think of just now,

The other matter which I have looked into was the HSE matter that Teresa raised around 4C. I have been told that there has been a more recent meeting which involved the Haematology CD and the lead clinician to discuss the suitability of the rooms for the full spectrum of patients. As you know GGC have appealed against the HSE decision – but the outcome of that is of course still to come. We can pick this one up again when we next meet.

hope you have a good weekend,

kr
Christine

RE: [redacted]

Deighan, Chris [redacted]
Fri 03/01/2020 11:07
To: Inkster, Teresa [redacted]
Cc: Haynes, Jennifer [redacted]

Hi Teresa
Thanks for this.
Will review in light of your comments
HNY
BW
Chris

From: Inkster, Teresa
Sent: 03 January 2020 10:52
To: Deighan, Chris
Cc: Haynes, Jennifer
Subject: RE: [redacted]

Hi Chris,

Page 2 para 3

In terms of factual accuracy I cannot comment on the 2018 results as I s ll havent seen these and there is a possibility they were post filter

'This was part of water testing after the low does of chlorine dioxide was introduced into the water supply to ensure penetration and circula on ' This statement is factually inaccurate . To ensure chlorine dioxide penetra on and circula on you test for chlorine dioxide levels at the outlet and not bacteria . Atypical mycobacteria tes ng was requested as I specifically asked for it.

Extract from HAIRT

The AE describes the water suppy as wholesome. For immunosuppressed pa ents it is not as it contains significant counts of atypical mycobacteria and fungi such that we cannot remove the filters. So post filtra on the water is wholesome.

Page 2 para 7

This paragraph doesn't make sense and contradicts. It states that [redacted] case is separate from the 2018 and 2019 IMT case series then goes on to say her case was discussed as part of the 2019 IMT , which it was.

Kr
Teresa

From: Deighan, Chris
Sent: 03 January 2020 09:29
To: Inkster, Teresa
Cc: Haynes, Jennifer
Subject: FW: [redacted]
Importance: High

Hi Teresa
Have you had a chance to review
Can you get back to me today please
Thanks
Chris

From: Deighan, Chris
Sent: 31 December 2019 13:38
To: Leanord, Alistair; Inkster, Teresa
Cc: Haynes, Jennifer
Subject: FW: [redacted]
Importance: High

Dear Al / Teresa
I enclose, what I hope, is the final dra. of the reply to [redacted]
Grateful for your final review re factual accuracy
Jane / Jennifer are keen for this to go out today so If I could ask you to get back to me by close of play today that would be very much appreciated
Kind Regards
Chris

SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2024 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Bundle 14 - Further Communications - Volume 2

A49541141