Scottish Hospitals Inquiry

Supplementary Questions for the CNR Expert Panel

Professor Mark Wilcox

1. It appears from the Public Health Commentary authored by Dr Emilia Crighton, NHS GGC Director of Public Health and submitted to the CNR in February 2021 that she and NHS GGC then considered that it would be useful to carry out additional epidemiological analysis and specifically that:

    a. An analysis comparing infection rates within the NHSGGC Unit to the combined Aberdeen and Edinburgh Units was carried out by HPS in 2019 Bundle 7, Document 6, Page 214) should be included in the Case Notes Review; and

    b. That that the use of statistical methods (like indirect standardisation) would be more suitable to assess the chance of a real excess number or cluster to avoid the cognitive bias of “Clustering Illusion”.

    How did the Expert Panel respond to this Public Health Commentary in general and the request that additional epidemiological analysis be carried out?

A a. The brief we were given was to examine specific Gram-negative blood stream infections, i.e. those caused by bacteria that could be associated with the hospital environment. Our brief was not to determine the infection rates per se. The latter are of only indirect relevance to our focussed brief. Furthermore, it is well known that comparing infection rates between different hospitals / units is fraught with challenges relating to differences in case mix, illness severity, ascertainment of infection, and propensity to (risk factors for) infection. It is, therefore, not straightforward to interpret similarities or differences in infection across hospitals / units, and indeed is prone to missing data and assumption errors.

b. The answer to this question partly requires a knowledge of (advanced) statistical analysis that is beyond my expertise. However, I am clear that the approach we used to determine/describe clusters of infection cases (critically, in time and place) was appropriate to the brief we were given. I do not believe that this approach was subject to 'clustering illusion'.

2. Can you provide further details beyond what you stated in your earlier statements as to the role that NHS GGC or its staff had in (a) defining the remit of the Case Notes Review, (b) setting the selection criteria for cases within it and (c) the decision to include all Gram-negative bacterium in the scope of the review?

A I do not know the answer to these questions. I do not recall that the development of / input into our brief, as described in 1a. above, was described to me.

3. Why does the CNR Overview Report not contain any comparative data on infection rates?

A My answer here is essentially the same as set out in 1a. above.

4. If a comparative epidemiological analysis was to be carried out to compare the rate of infections in the patient cohort covered by your review knowing what you now know about the Schiehallion Unit and its patient group how would you go about selecting comparable hospitals to compare it with and do you have in mind any particular hospitals/units with which a comparison could be made?

A The scenario described is not the brief we were given. In short, to answer the scenario described, a propensity analysis could be used. This is a relatively complex process whereby a range of risk factors that can affect (in this case) infection rates are measured in the units being compared. The data are then adjusted to take account of any differences in the rates of these risk factors. Such analyses can part- but not wholly-overcome crucial confounding factors that can bias comparisons between groups of patients. Notably, some risk

factors for infection that differ between/across units may be unknown and/or cannot be adequately controlled for in such analyses.

5. In applying your methodology to the cases in the review what consideration did you give the possibility that any particular infection was a commensal infection arising from a colonised patient by reference either to the particular circumstances of the infection, the epidemiology of the infections observed in the hospital and any published papers about the prospect that particular bacterial was more or less likely to be arise from colonised patients?

A My answer here is contained within 4. above. It is likely that such a risk factor will not be measurable across different patient groups as systematic screening of patients will not be carried out to determine bacterial colonisation; if it is carried out, then the granularity/depth of such data will not be sufficient to determine true differences, and/or the extent/quality of screening will differ between units/patient groups.

I believe that the facts stated in this witness statement are true. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.