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Dear Bernard

HOSPITAL MORTALITY INDICATORS

Thank you for your letter of 14 February. The central issue you raise is the merit of using the Summary Hospital-level Mortality Indicator (SHMI) as the basis for the Government to publicly identify a group of hospitals for investigation.

The SHMI is intended to be the successor to the Hospital Standardised Mortality Ratio (HSMR) to which you also refer. It was introduced in 2011 following a detailed review, led by Professor Sir Bruce Keogh, NHS Medical Director, which was in turn prompted by the recommendations of the 2010 Francis Inquiry. Participants of the review agreed to adopt the SHMI in a consensus statement, signed by a range of interested parties including the Department of Health, the Health and Social Care Information Centre (HSCIC), the Care Quality Commission and the NHS Confederation.[1] The SHMI statistics are published quarterly by the HSCIC as experimental official statistics.

We have considered carefully the arguments put forward in the report of the National Review of HSMR for introducing the new SHMI index[2] and we are satisfied that this was a thorough and professional review including appropriate expert statistical input. However, the covering letter[3] does contain some strong cautionary comments, as indeed does the review report itself. The letter states:

> "We are aware of the considerable debate that has taken place within the clinical and management community about the use of HSMR, particularly around their use out of context or as a measure of quality of care. As is the case with all summary mortality calculations the SHMI on its own does not have sole face validity when considering it as a direct measure of quality of care, and should always be considered as part of a range of more detailed indicators. It is also inappropriate to place the SHMI alone into a league table to compare hospitals. However, a relatively 'poor' SHMI should trigger further analysis or investigation by the hospital Board."

This is very important advice and I would wish to endorse it on behalf of the Statistics Authority. Compound indicators of this sort are simply one way to identify possible evidence

[1] http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_121327.pdf
[2] http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_121328.pdf
[3] http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_121353.pdf

of potential problems within a hospital. They can be affected by many influences other than an excess of preventable deaths. As the review report itself says:

> "…it is not possible to say with complete confidence that a hospital with a high SHMI has worse quality of care than a hospital with a low SHMI, nonetheless the SHMI can and should be used as a trigger to ask hard questions…"

We have also looked into the background to the announcement of mortality rates in fourteen hospitals to be investigated and the reasons why the HSMR indicator was regarded as relevant rather than the SHMI alone. The key document is perhaps the announcement by Sir Bruce Keogh on 11 February 2013.[4] In this he explained that, in response to a request from the Prime Minister, there was to be an investigation into hospitals that were persistent outliers on mortality indicators. An initial list of five organisations that had been outliers for two years on the SHMI was announced on 6 February. The scope of Sir Bruce's investigation was subsequently widened and, on 11 February, it was announced that a further nine hospitals were to be added to the list on the ground that they had been outliers for two years on the HSMR. The terms of reference for the investigation[5], published on 15 February, make clear that *both* mortality indicators would be considered.

We have pursued with the HSCIC the question of why the scope for the investigation refers to two indicators when one may be regarded as being the successor to the other. They told us that:

> "It was never intended that the SHMI be the only aggregate indicator of mortality. There are others that continue to be used… both the SHMI and HSMR are based on the comparison of observed numbers of deaths with the number expected on the basis of a model which assigns a risk of death to each patient. There are however several known differences between the SHMI and HSMR. In particular the SHMI covers all deaths (in-hospital and out-of-hospital deaths) whilst the HSMR covers approximately 80% of in-hospital deaths, and does not cover subsequent out-of-hospital deaths; and the indicators use different risk adjustment variables and processes for producing the final risk model selection."

Clearly both indicators were readily available and in use (for example, the HSMR continues to be published by the Dr Foster organisation). They approach the concept of hospital mortality in slightly different ways, and of course the introduction of the SHMI is quite recent. In the light of these considerations, we are inclined to regard it as a reasonable approach in seeking to identify a list of hospitals that might reasonably be the subject of further analysis.

In reviewing this we have noted that the Dr Foster web pages[6] which explain the HSMR do not explain the SHMI or the relationship between the two. We will pursue this with the Department of Health.

Your letter has served to highlight the proper role and important limitations of these mortality indices and the Statistics Authority will do all it can to ensure that these official statistics are properly understood and used appropriately.

In response to two of the recommendations of the final report on the Mid Staffordshire Foundation Trust Inquiry (the 2013 Francis Report), the Authority is planning to undertake an independent review of patient outcome statistics – including hospital mortality indices – with a particular focus on any ways in which the published form of these statistics may be made more readily useable by the public. We will work closely with, but independently of, ONS, the Department of Health and the HSCIC on this review and aim to publish our findings in

[4] http://www.commissioningboard.nhs.uk/2013/02/11/final-outliers
[5] https://www.wp.dh.gov.uk/commissioningboard/files/2013/02/mortality-outlier-review-tor.pdf
[6] http://www.drfosterhealth.co.uk/

summer 2013. This will provide an opportunity to look again at statistical aspects of the way mortality indices are used.

I am copying this letter as yours, and to Jil Matheson, the National Statistician, and to Richard Alldritt, the Authority's Head of Assessment.

Yours sincerely

Andrew Dilnot CBE