360 ASSURANCE

# Hospital Standardised Mortality Ratio

*Sherwood Forest Hospitals NHS Foundation Trust*

5 August 2022

2122/SFH/15

Final Report

## Contents



## Distribution

| Name, Job Title | For action | For information |
|---|---|---|
| David Selwyn, Medical Director | ✓ | |
| Nigel Marshall, Medical Examiner and Project Advisor to the Medical Director | | ✓ |
| John Tansley, Consultant Anaesthetist and Clinical Director for Patient Safety | | ✓ |

*The report has also been shared with the organisation's standard distribution list for internal audit reports.*

# Executive summary

## Introduction and background

We have completed a review in respect of the Hospital Standardised Mortality Ratio (HSMR). We examined the effectiveness of controls in place in accordance with the Public Sector Internal Audit Standards. We performed our review to provide an objective and unbiased opinion.

Monitoring and understanding mortality rates can help clinicians, clinical teams, internal and external patient quality care assessors, Trust Boards and hospital leaders identify areas of potential concern in the care provided to patients. The Hospital Standardised Mortality Ratio helped to identify poor care in Mid-Staffordshire. HSMR data is produced by Dr Foster® and monitored by the Trust, but also scrutinised by external bodies including the Care Quality Commission (CQC), NHSE/I and previously CCGs.

The process of measuring hospital mortality is complex, and although it draws on many factors and complex algorithms, it is not a precise science. Clinical coding can reflect patients' conditions (eg a patient has had a stroke) but the coding cannot necessarily distinguish the severity of each condition (eg a condition such as stroke has a wide spectrum of severity and consequential outcome that is not captured by a simple diagnostic code). Indicators that count deaths suffer from uncertainty and the rate of confidence (even within 10 percentage points) requires 1,000 deaths in a dataset. Information relating to different trusts might have varying levels of precision arising from the volume of deaths recorded, which in itself might make it difficult to compare between organisations on a reliable basis.

Where the calculated HSMR indicates a level of deaths that is above the expected level, this will naturally be of concern to clinicians and the Trust's leadership. It is, however, important to understand whether an increase is indicating areas of clinical concern, or whether the figures stem from poor data quality and consistency in coding and data inputs, or whether the changes are normal variation, or arise from anomalies or unexpected factors in the complex algorithms used to determine the indicator.

Our risk assessment process aligns with the ISO 31000 principles and generic guidelines on risk management. The risk matrix we use, along with definitions of different opinion levels, is available on our website. We consider elements of governance, risk management, control and culture in compliance with PSIAS and findings have been categorised in accordance with this.

## Audit objective

The overall objective of our review has been to help the Trust to understand the key reasons for the sustained change in HSMR, in particular focusing on the increase prior to the initial reporting months of 2020 (pre-Covid-19).

# Executive summary

## Audit opinion

| | |
|---|---|
| **Significant** assurance | As a result of this audit engagement we have concluded that, except for the specific weaknesses identified by our audit in the areas examined, the risk management activities and controls are suitably designed, and were operating with sufficient effectiveness, to provide reasonable assurance that the control environment was effectively managed during the period under review.<br><br>Our opinion is limited to the controls examined and samples tested as part of this review. |

## Summary findings and actions

We have reviewed the available information relating to the observed increase in the Hospital Standardised Mortality Ratio prior to COVID-19. We have confirmed that the HSMR is an outlier, with no obvious correlations with other mortality metrics which would indicate a quality concern.

The consistently high rate of HSMR for the Trust will be affected by a range of factors, although a key driver is potentially the particular way in which palliative care is managed within the Trust. Through discussions with the Medical Examiner, and the Trust's representative from Dr Foster, it is apparent that the Trust is an outlier with low coding of patients to specialist palliative care services. The reasons for this may relate to how end of life care is both managed by existing teams and then captured through documentation and coding.

The Trust needs to understand the impact on HSMR of the palliative care coding rate, how it compares with other organisations in terms of provision of care, documentation and coding, and opportunities for improvement.

**Intended developments in the use of HSMR**

The Trust uses a range of mortality indicators and intelligence to obtain a rounded picture of deaths in the Trust and identify areas for investigation and improvement.

Although HSMR is now back to within a more stable range, concerns have been raised by a range of sources, including the Medical Examiner and Project Advisor to the Medical Director and the Quality Committee, about whether HSMR is being used effectively, recognising that there is always a delay in reporting by at least four months. The Trust is looking into how processes can be improved to allow both feedback from clinicians, and mortality data to be more immediate, allowing for 'live' intelligence on issues which may need investigation. The Trust has been connected with a matched Peer Trust (through Dr Foster) to understand how it approaches its data and addresses intelligence in a more proactive and informative manner. The Trust hopes to encourage the use of HSMR alongside other measures to validate whether concerns have been addressed and actions have had the desired impact, rather than focus on initially highlighting areas for investigation.

# Executive summary

**Key governance, risk management, control, and cultural issues**

| | |
|---|---|
| Control | Palliative care activity coding by the Trust may not accurately reflect the type of care given to end of life patients. |

**Summary of actions**

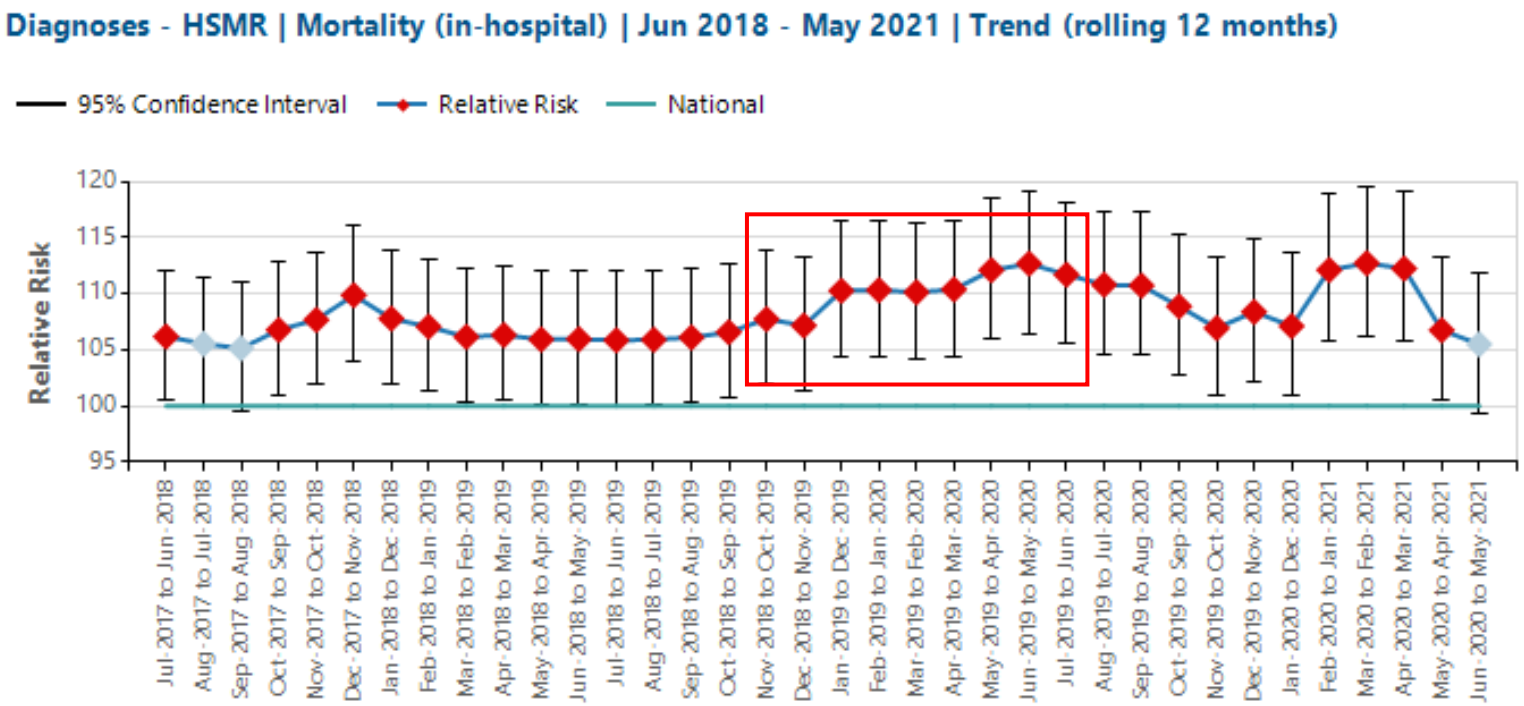
| | High | Medium | Low | Total |
|---|---|---|---|---|
| Proposed actions | 0 | 1 | 0 | **1** |
| Agreed | 0 | 1 | 0 | **1** |

**Follow up**

The action from this review will be followed up via the online tracker. This will include obtaining documentary evidence to demonstrate that the action agreed as part of this review has been implemented.

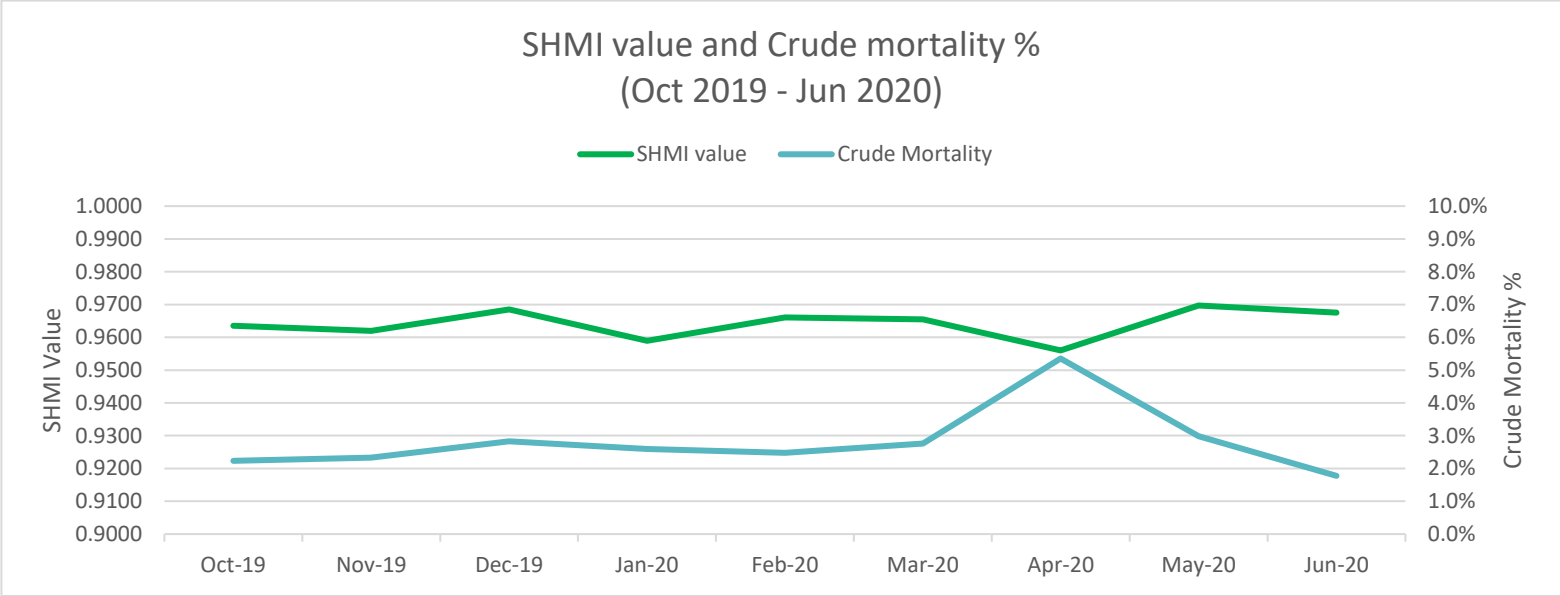
## Comparison of HSMR, SHMI and Crude Mortality

The graph below shows the HSMR rates for the Trust between June 2018 and May 2021. The variance which is the focus of this report is highlighted in red. This graph was presented by the Trust to the Quality Committee in November 2021.




We have compared the HSMR figures with other mortality indicators, to identify whether the increased HSMR is reflected as a trend within other mortality indicators.

Comparison of the HSMR period in question to the Summary Hospital-level Mortality Indicator (SHMI) and Crude Mortality show no correlation between the increase in HSMR and a sustained increase in observed mortality within the Trust.




*Source data: Trust*

The SHMI and Crude Mortality indicators have remained relatively stable, and do not show a corresponding consistent rise during the same period as HSMR. This indicates that specific anomalies in how HSMR is calculated for SFH will likely be a primary factor of the adverse trend.

## Coding and Data impacts on HSMR

Reliability of the HSMR is dependent upon good quality data, including:

- full patient data fields recorded in the coding
- an accurate primary diagnosis on admission
- all co-morbidities being recorded
- palliative care being recorded accurately.

This can only be achieved through a combination of accurate patient notes, and consistent coding.

Through discussions with the senior coding manager, we confirmed that there have been no changes in the coding processes during the period. However, this should be understood within the context that the notes used by the coding team may not always be complete and accurate, dependent as they are on the accuracy and completeness of detail included by the clinicians.

In addition, in order to be useful, the HSMR requires accurate and consistent coding from all NHS organisations which submit data. The Trust has no formal way to assure itself that the coding of peer organisations is also complete and accurate.

## Variables affecting HSMR

From discussions with the Trust's Dr Foster representative, it is apparent they considered that palliative care activity and coding by the Trust could be a potential key driver affecting the difference in HSMR between SFH and other peer organisations. The Trust has been identified by Dr Foster as having one of the lowest rates of palliative care coding nationally.

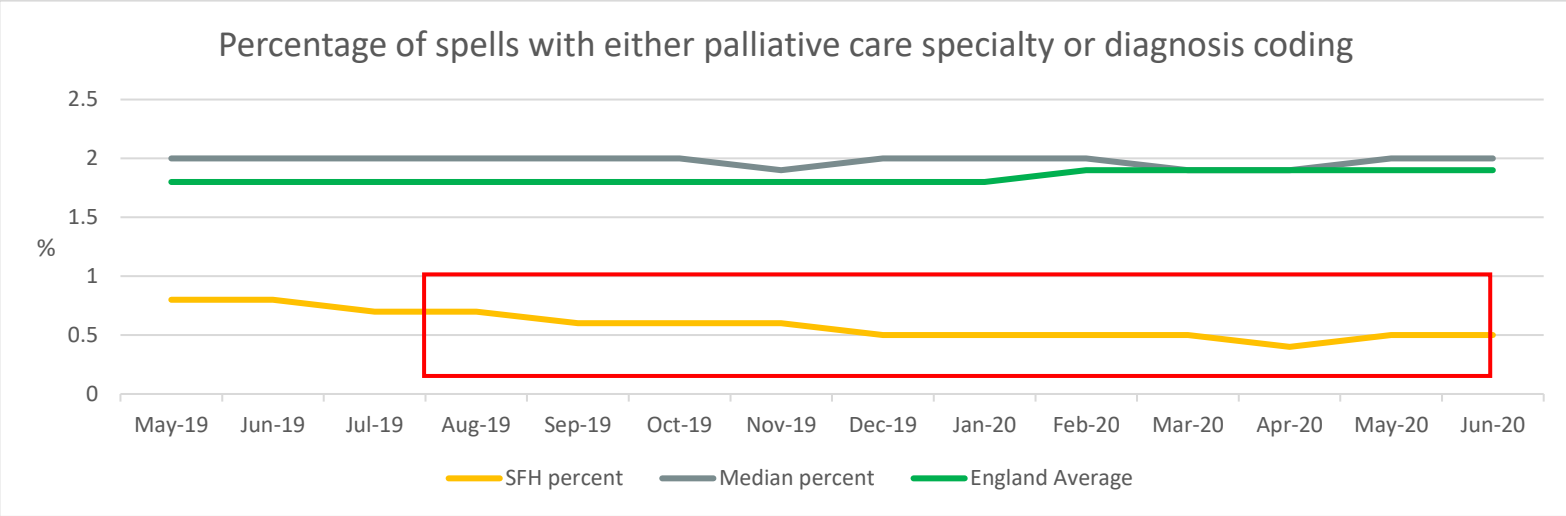
Advice from Dr Foster has suggested that if the palliative care coding for the Trust was in line with the national average, the reported HSMR rate would be lower, although they have not provided a formal re-analysis of the Trust's HSMR data based on an adjusted palliative care coding rate and we recognise that this infers that other Trusts code all palliative care accurately and consistently which we cannot be assured of. In addition, as the Dr Foster algorithm is subject to periodic adjustments and improvements, it is not known whether the HSMR rate for the period concerned would change were it to be re-run using the most up to date HSMR model.

This difference in palliative care coding is due to distinctive ways in which the patient pathway at the Trust is managed. Patients may not be transferred to the specialist palliative care service where they can continue to be treated by their existing consultant led services which will provide end of life care. This difference in coding has an impact on how high palliative care activity compares with peer organisations. This has been recognised by the Trust and highlighted within its own report to the Quality Committee in November 2021.

The Trust is continuing to develop its understanding of the factors, especially in relation to whether there are:

- gaps in how the capture of activity is being accurately recorded and coded
- opportunities to improve the way care is delivered to ensure a more streamlined and holistic approach.

However, it is not clear that palliative care coding is the only factor impacting the abnormally high HSMR. Review of Hospital Episode Statistics data (source: NHS Digital) from 2017/18 to 2020/21 shows that coding to palliative care was low prior to the period under review, although there was a decrease in palliative care coding from 0.7% to 0.4% between August 2019 and April 2020 which would correlate to the observed rise in the HSMR rate.




*Source data: NHS Digital*

## 1 Root analysis of factors affecting HSMR (Control issue)

**Finding**:

The Hospital Standardised Mortality Ratio (HSMR) can be affected by many variables. Advice from Dr Foster, and understanding within the Trust, indicates that activity and the particular way in which the Trust codes palliative care could be potential key drivers of the increased HSMR rate.

The Trust does not know the exact impact of palliative care coding on the overall HSMR. Until the Trust can model this impact the Trust cannot identify if the HSMR is significantly impacted by other factors as well. This analysis would need to be provided by Dr Foster, as the Trust is unable to quantify the impact of a palliative care coding rate comparable to peer organisations on its HSMR.

The Trust has recognised palliative coding as an area for review. The Trust plans to engage with other NHS organisations which perform well within the palliative care coding of HSMR, to understand whether there are differences in patient care, or just differences in how pathways are being recorded. The Trust can then reflect on its own practices.

| 1 Root analysis of factors affecting HSMR (Control issue) | |
|---|---|
| **Risk**: If the impact of palliative care coding on the HSMR is not understood and taken into account, then the Trust may not be able to identify potential quality concerns arising from the HSMR. | **Medium**<br>(Impact x likelihood)<br>3 x 3 |
| **Action:**<br>The Trust to develop regular reporting of palliative care data into the Learning from Deaths Group. | **Responsible officer**:<br>David Selwyn, Medical Director<br>**Implementation by date**:<br>30 November 2022 |
| **Evidence required to demonstrate implementation of action:**<br>• a report on palliative care data produced and reported to the Learning from Deaths Group<br>• regular reporting of palliative care data added to the Learning from Deaths Group work plan or as a standing agenda item. | |
| **Management response**: Agreed. In reviewing the HSMR, the Trust's focus should always be on providing high quality care through appropriate patient pathways. A key factor will be understanding the Trust's relative position over time and in comparison to others, as well as ensuring best practice identified elsewhere is taken into account. | |

# Appendix A: Audit scope

| Scope area | Audit testing |
|---|---|
| Compare the Trust's HSMR and SHMI rates during the period October 2019 to June 2020, assessing the differences (recognising that they have different methodologies).<br><br>Review core data (HES) relating to Trust deaths during this period, to understand the relationship between data input and the calculated indicators.<br><br>Explore with clinicians and coding staff, areas of ambiguity or inconsistency, that could impact on the quality and consistency of reported mortality indicators.<br><br>Explore (subject to cooperation from Dr Foster) the model used to determine HSMR and the variables likely to have most impact. | Compared HSMR, SHMI and Crude Mortality data over the period October 2019 to June 2020 to identify potential correlations between the increased HSMR and other mortality indicators.<br><br>Reviewed data available from NHS Digital to understand changes in Trust's coded activity over the period, including a focus on palliative care, as recommended by Dr Foster.<br><br>Held meetings with the Medical Examiner, Senior Coding Manager, the Trust's Dr Foster representative and others to understand the processes in place for reporting and responding to HSMR. |
| *Limitations of scope:*<br><br>The scope of our work is limited to the areas identified in the Terms of Reference. Our review has not assessed the accuracy of clinical coding relating to deceased patients. | |

# Appendix B: 360 Assurance standing information

## Risk matrix and opinion levels

Risks contained within this report have been assessed using a standard 5x5 risk matrix. The score has been determined by consideration of the impact the risk may have, and its likelihood of occurrence, in relation to the system's objectives. The two scores have then been multiplied in order to identify the risk classification of low, medium, high or extreme.

The audit opinion has been determined in relation to the objectives of the system being reviewed. It takes into consideration the volume and classification of the risks identified during the review.

Our risk matrix and audit opinions are available to view in full on our website.

## Contact details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| **Leanne Hawkes, Director** | |
| leanne.hawkes@nhs.net | 07545 423040 |
| **Claire Page, Client Manager** | |
| claire.page9@nhs.net | 07342 079846 |