Sheffield Teaching Hospitals
NHS Foundation Trust

Executive Summary
Report to the Board of Directors
Being Held on 29 November 2022

Subject	Learning from Deaths Report – Q4 2021/22
Supporting TEG Member	Jennifer Hill, Medical Director (Operations)
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Status[1]	A

PURPOSE OF THE REPORT

This is the quarterly report to the Board of Directors on the deaths of patients under the care of Sheffield Teaching Hospitals NHS Foundation Trust (STHFT) as required by the Learning from Deaths Guidance dated March 2017 covering Q4 of 2021/22 (1st January – 31st March 2022). It also includes current data on crude mortality, HSMR and SHMI metrics and presents key metrics on the mortality case review process for 2021/22.

KEY POINTS

There have been 2,714 deaths at the Trust between April 2021 and March 2022 and 151 of the 157 requested SJRs have been completed (96.2%).

The 12-month rolling Hospital Standardised Mortality Ratio (HSMR) from 1st July 2021 – 30th June 2022 was 108.7 (104.1-113.5) and banded statistically 'higher than expected' following Dr Foster rebasing against benchmark month March 2022.

The Business-as-Usual model for investigating any HSMR alerting groups has continued, though following review in response to the raised HSMR, data quality issues have been identified. Remedial actions have been put in place. The HSMR Working Group, working with the clinical teams, continues to investigate any underlying data issues impacting the HSMR model, including any alerting diagnosis groups.

The Trust Summary Hospital-level Mortality Indicator (SHMI) value is 0.97 for the period May 2021 to April 2022 and banded "as expected'.

The Q4 Learning from Deaths section considers deaths at STHFT in the period 1st January – 31st March 2022 as follows:

- Total no. adult deaths at STHFT: 759
- Total no. adult deaths subject to Structured Judgment Review (SJR): 41
- Of the deaths subject to SJR in Q4, the number of deaths judged more likely than not to be due to a problem in care: 0

41 of 44 referrals for SJR in Q4 have been completed and three cases scored below three.

There were no deaths identified via the SJR process, SI process or Coroner's Inquest in Q4 judged more likely than not to be due to problems in care.

Learning points/actions taken from the three SJRs reviewed by the Mortality Governance Committee (MGC) in Q4 with an overall care score of one or two involved recognition of deterioration and escalation, diagnosis and management of Diabetic Ketoacidosis (DKA), triaging of patients to the correct specialty, recording of DNACPR discussions with the patient and their family and documentation in medical records.

IMPLICATIONS[2]

Aim of the STHFT Corporate Strategy		✓ Tick as appropriate
1	Deliver the Best Clinical Outcomes	✓
2	Provide Patient Centred Services	✓
3	Employ Caring and Cared for Staff	✓
4	Spend Public Money Wisely	
5	Deliver Excellent Research, Education & Innovation	
6	Create a Sustainable Organisation	

RECOMMENDATIONS

The Board of Directors is requested to approve the content of the report.

APPROVAL PROCESS

Meeting	Date	Approved Y/N
Trust Executive Group	19th October 2022	Y
Quality Committee	21st November 2022	Y
Trust Board of Directors	29th November 2022	

[1]Status: A = Approval, A* = Approval & Requiring Board Approval, D = Debate, N = Note

[2] Against the six aims of the STHFT Corporate Strategy 'Making a Difference – The next Chapter 2022-27'

1. Number of deaths by month – Crude mortality

1.1. The data in the charts below show deaths that have been recorded since 1st April 2017 when the SJR process was first introduced. Figure 1 identifies two special cause variations (single points) in April 2020 and January 2021, which correspond with the first and second waves of COVID-19 pandemic deaths.

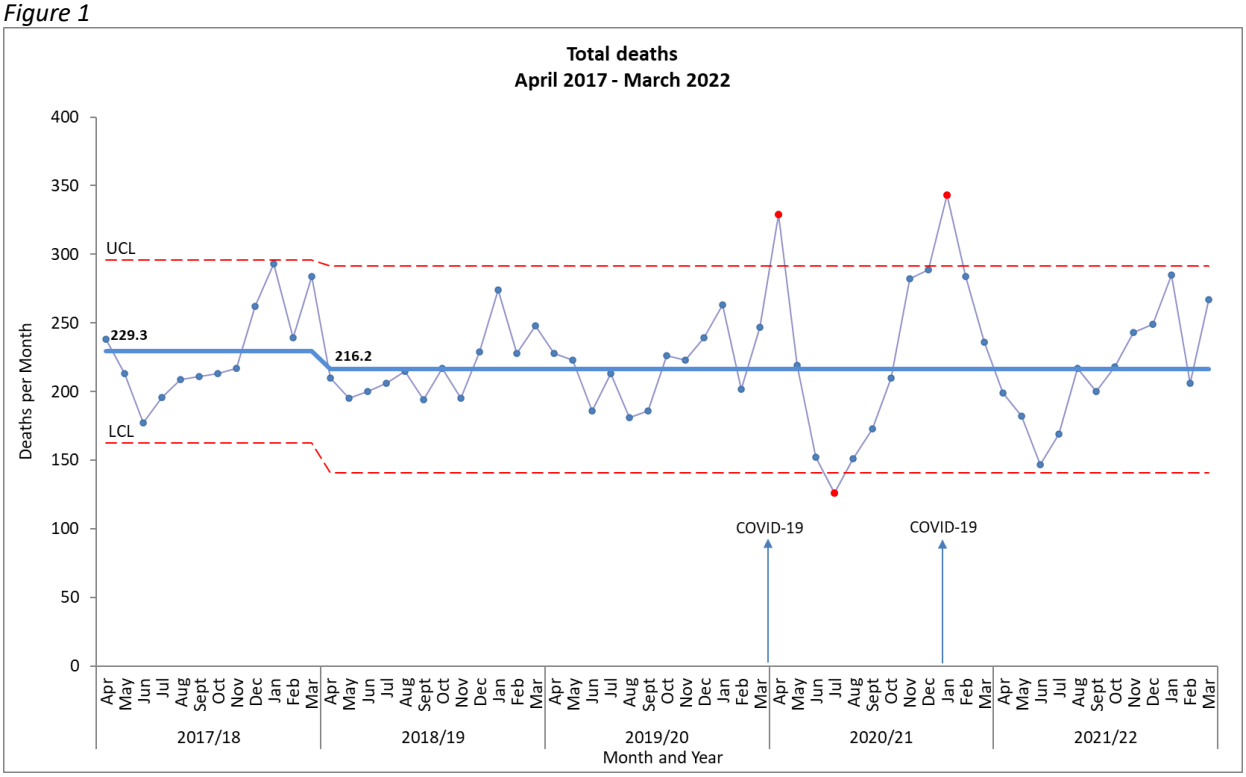
1.2. A special cause variation was identified in July 2020, indicating a reduced death rate which is in line with data reported nationally. Deaths below average in summer did not offset the high number of deaths in the previous period and were followed by another period of high excess deaths (Source: Office for National Statistics).

1.3. A pattern of normal variation has been seen since Feb 2021.

1.4. There were 2,714 deaths in Sheffield Teaching Hospitals Foundation Trust (STHFT) between April 2021 and March 2022, of which 5% (147) were in the ED and 95% (2,567) were inpatient deaths.

1.5. The crude mortality rate for STHFT was 2.3% over the 12-month period June 2021 to May 2022 when compared with 3.2% for all acute, non-specialist trusts. Split by admission method, the crude mortality is 0.1% for elective admissions and 6.2% for non-elective admissions, compared with 0.1% and 5.9% respectively for all acute non-specialist Trusts. (*Source: Healthcare Intelligence Portal, Dr Foster Intelligence).*

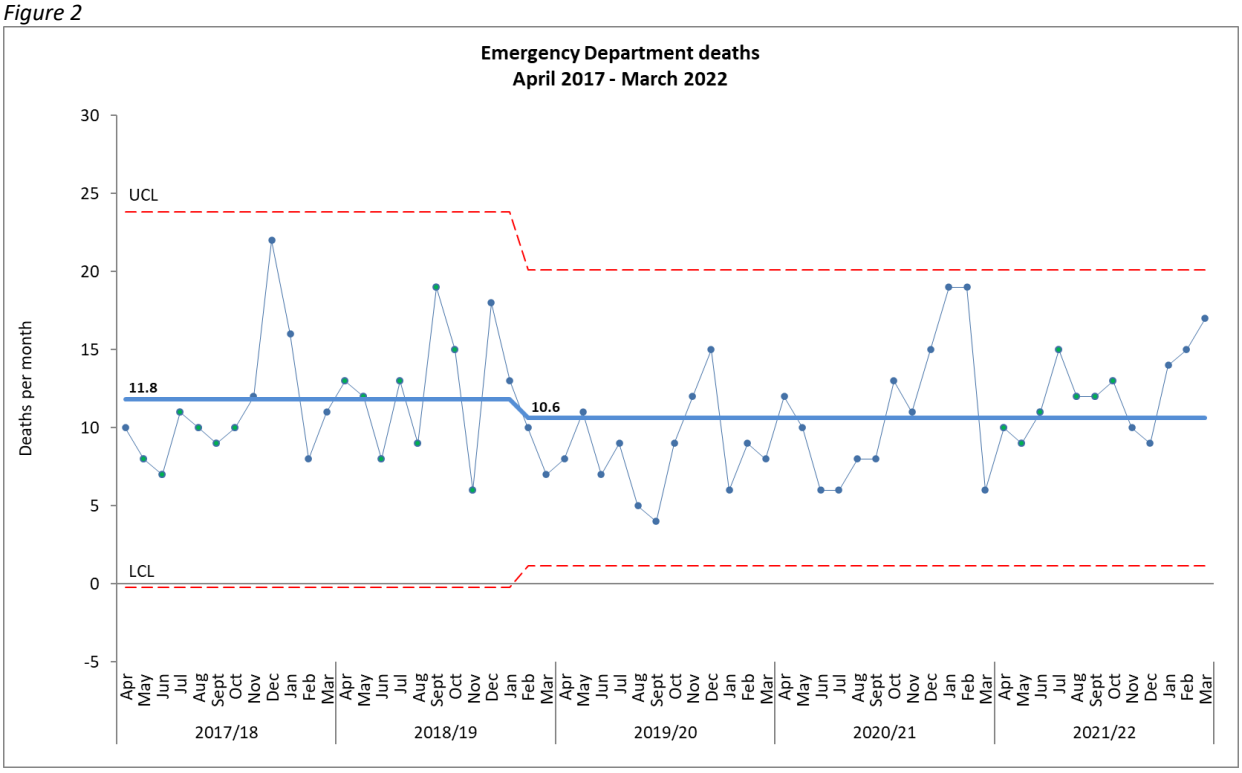
Figure 1



Source: Information Services Report 'Deaths in Hospital'

1.6. Figure 2 shows Emergency Department deaths only, from April 2017 to March 2022 in a pattern of normal variation.

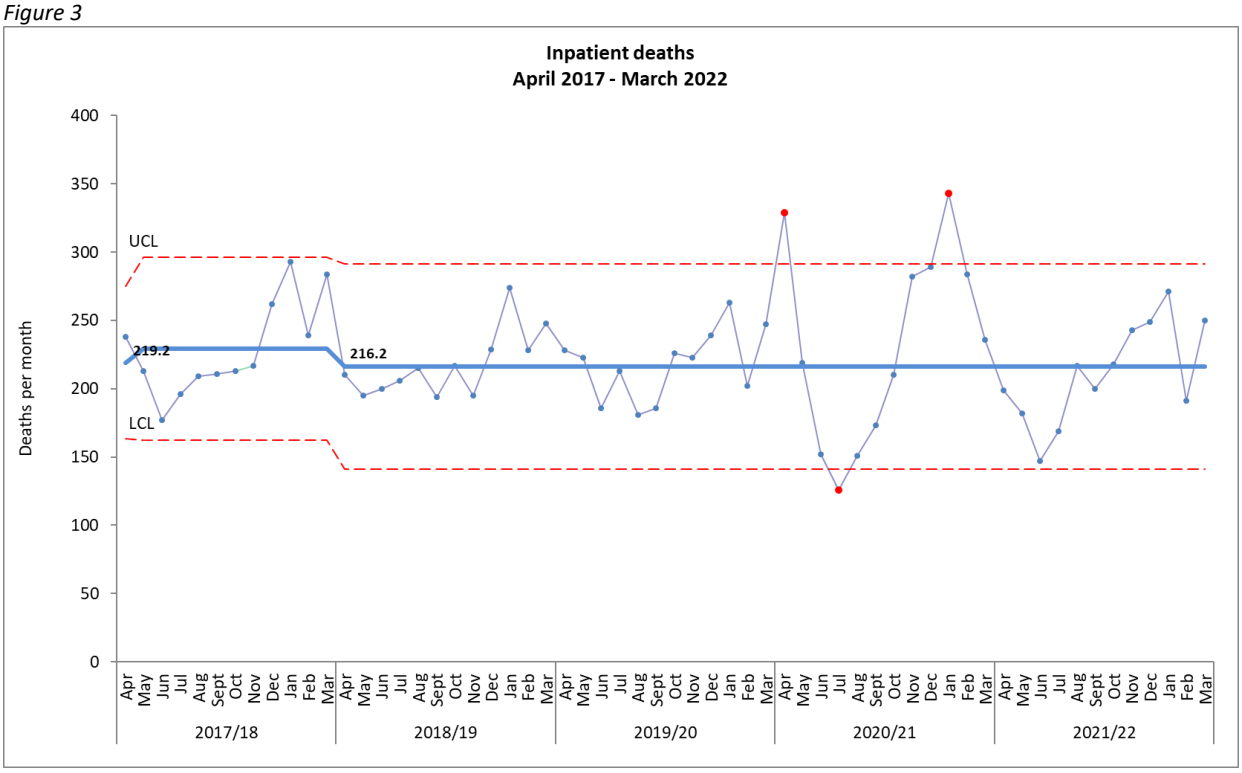
Figure 2



Source: Information Services Report 'Deaths in Hospital'

1.7. Figure 3 shows inpatient deaths only, from April 2017 to March 2022. The pattern mirrors that observed for total deaths.

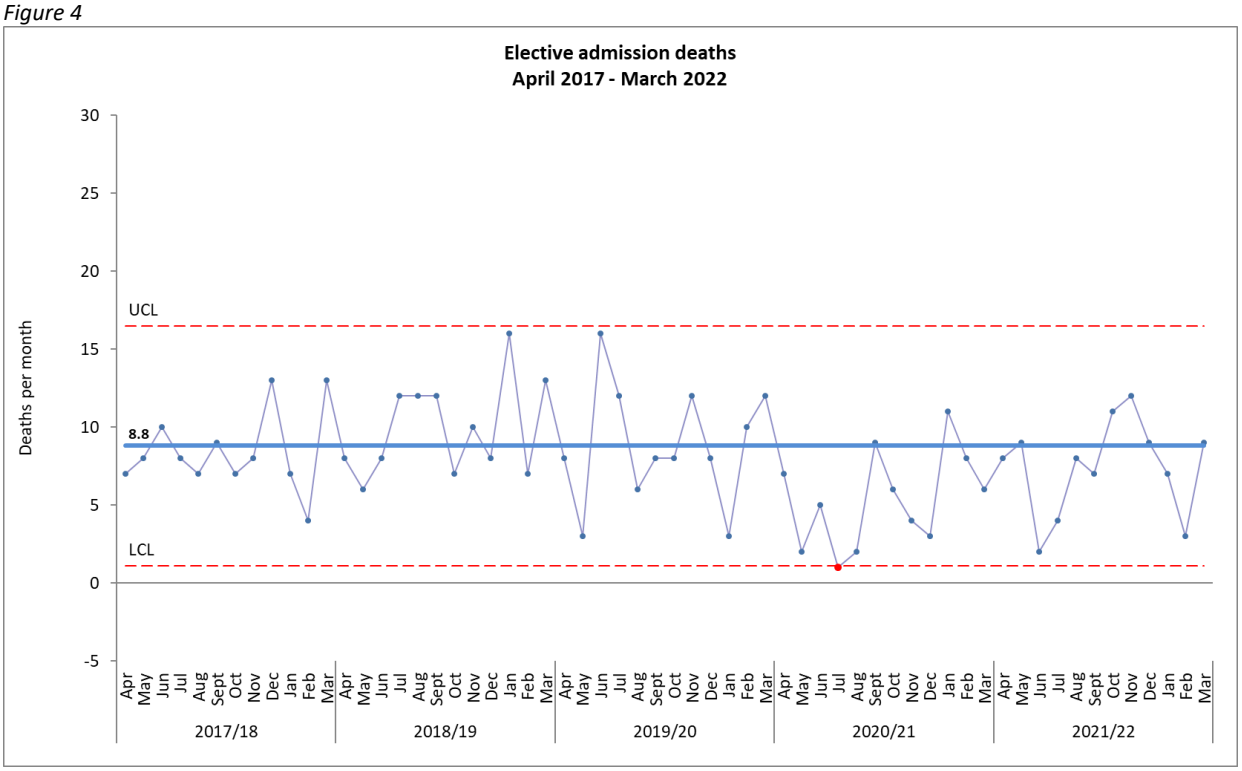
Figure 3



Source: Information Services Report 'Deaths in Hospital'

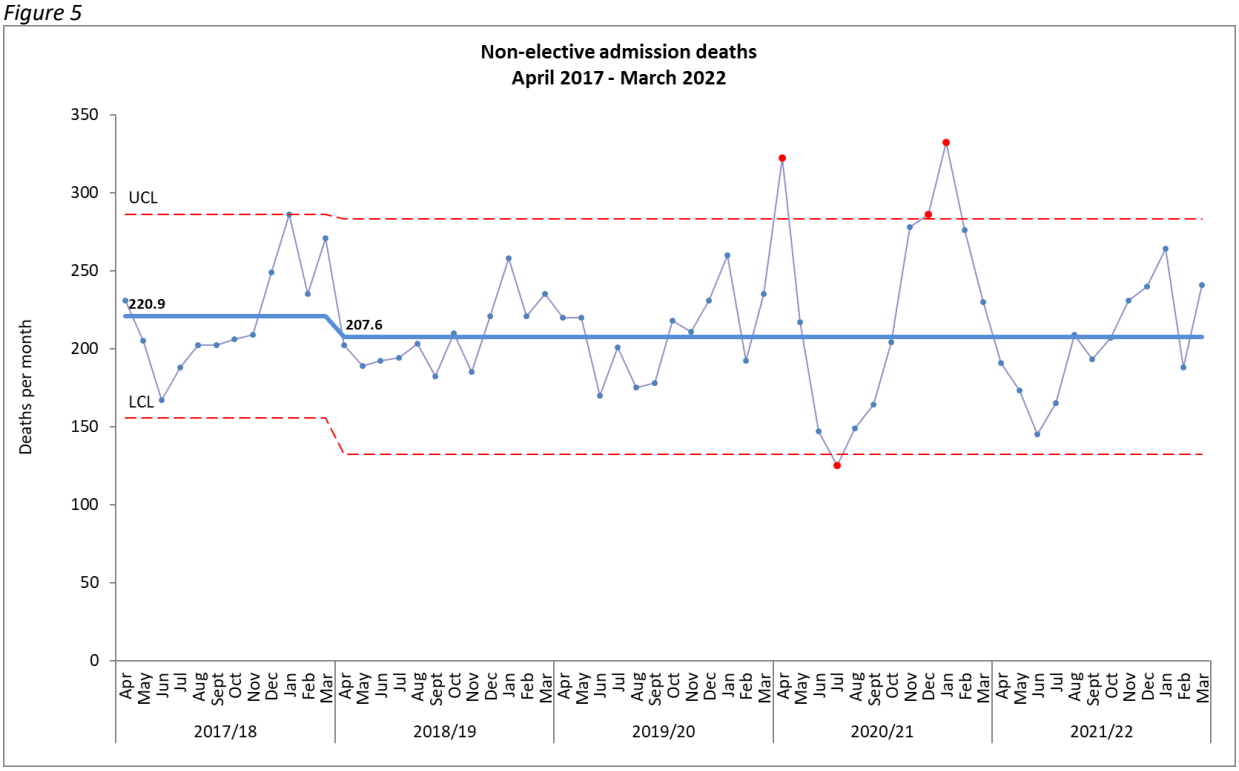
1.8. Mortality following elective admission now shows the special cause variation identified in July 2020, indicating a reduced death rate (Figure 4). Mortality following non-elective admission (Figure 5) follows a similar pattern to those seen in Figures 1 and 3 as most deaths occur following non-elective admissions.

Figure 4



Source: Information Services Report 'Deaths in Hospital'

Figure 5



Source: Information Services Report 'Deaths in Hospital'

2. Hospital Standardised Mortality Ratio (HSMR)

2.1. The 12-month rolling HSMR from 1 July 2021 to 30 June 2022 was **108.7 (104.1-113.5)** and banded statistically 'higher than expected' (benchmark month: Mar 2022).

2.2. Excluding spells with secondary COVID-19 codes the Trust HSMR for the same period was 105.7 and banded as statistically 'higher than expected'. Patients with secondary Covid-19 within the HSMR basket represented 1.4% of admissions (1,188 super-spells, 173 deaths) at the Trust.

2.3. Figure 6 shows the rolling 12-month HSMR from August 2018 to June 2022 running higher than expected prior to, during and post the Covid-19 pandemic. A task and finish group, established in September 2020, highlighted several issues that could be affecting the HSMR data model and has implemented a 'business as usual' model to validate, correct and improve data recording and clinical coding, working closely with clinical teams. This has transitioned to become the HSMR Review Group in April 2022 and meets monthly.

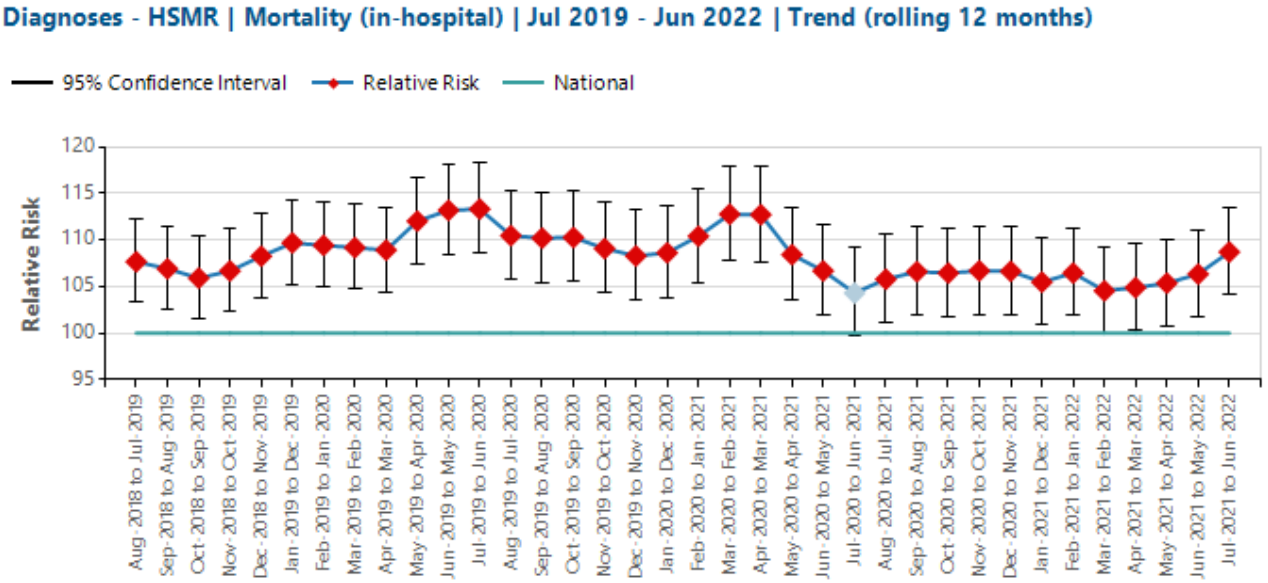
2.4. Though some progress had been made with a financial year end HSMR value within the 'as expected' range (reported in the Board of Directors Mortality Report of July 26th), the Dr Foster rebase against the February 2022 benchmark and then the March 2022 benchmark has moved STHFT into the 'higher than expected' range. The HSMR at STHFT is on the cusp of 'as expected' and 'higher than expected' bandings and this aspect of modelling has also affected a number of Trusts nationally. It is related to the calculation of the expected rate rather than crude mortality. Risk adjustment is derived from risk models based on the last 10 years of national HES data and each rebase a new month is added and the oldest month drops out of the data set. It is clear that Covid-19 has interfered with how the rebasing has worked. A detailed explanation of how the sampling from the 10-year data model is determined in order to calculate the benchmark is available from Dr Foster.

2.5. In addition to developing more understanding of the impact of rebasing, the HSMR Working Group has reviewed the BAU model in response to the raised HSMR and identified: -

- A backlog in reviewing / correcting inaccuracies with the Admission Source and Admission Method data recorded (remedial actions put in place)
- Deficits in the quality of the source documentation for coding identified from routine coding checks
- That newer Coding Clerks are not approaching clinicians when source data are lacking to ascertain the correct diagnosis for definitive coding
- Three new diagnosis groups that are not alerting but showing a trajectory on an incline (sepsis, leukaemia, and COPD) have been identified. Initial investigation has identified late presentation of very sick patients (the HSMR does not adjust for acuity), very sick patients with co-morbidities not included in the Charlson Co-morbidity index and hence not risk adjusted and coding anomalies. These areas will be further investigated.

2.6. The mortality within the diagnosis group 'Residual Codes Unclassified' is higher than expected for the month of June 2022, and this may be impacting HSMR. Correct codes will be assigned by the time of the next HSMR update on 20th October 2022.

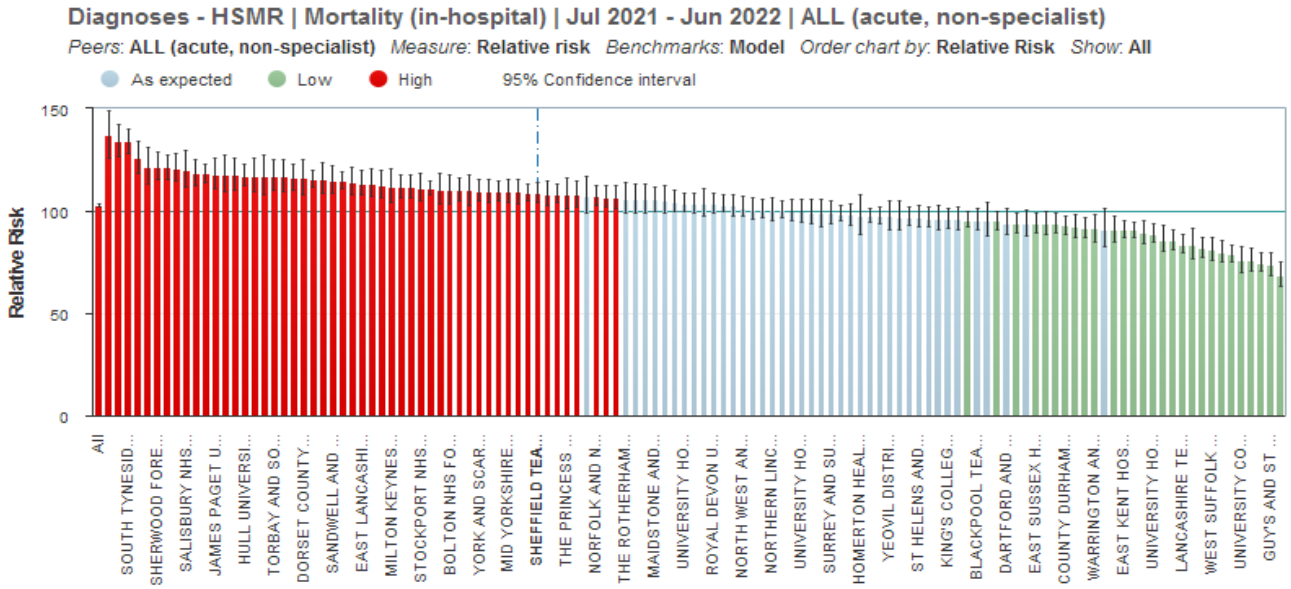
Figure 6



Source: Healthcare Intelligence Portal, Dr Foster Intelligence

2.7. STHFT is one of 13 trusts in the regional peer group with an HSMR banded as statistically 'higher than expected' over the 12-month period. Figure 7 shows the national distribution with STHFT indicated by the blue dotted line.

Figure 7



2.8. Table 1 shows the split between elective and non-elective admissions (emergency admission mortality figures are shown as a subset of non-elective admissions). The 'higher than expected' relative risk is notable for non-elective admissions.

Table 1

Sheffield Teaching Hospitals Admission Type	Superspells	Observed Deaths	Expected Deaths	Rolling 12 months HSMR
All Admissions	86,757	2,057	1891.8	108.7 (104.1-113.5)
Elective Admissions	55,042	55	58.2	94.5 (71.2-123.0)
Non-Elective Admissions	31,715	2,002	1833.6	109.2 (104.5-114.1)

Source: Healthcare Intelligence Portal, Dr Foster Intelligence

2.9. The rolling 12-month HSMR split by Admission Method (elective and non-elective) is depicted in Figures 8 and 9. The high relative risk for elective admission deaths from 2018-2019 has been resolved and the value is currently at 94.5 with fewer deaths than expected.

2.10. For the 12-month period there were 6 HSMR diagnosis groups with a relative risk banded as statistically 'higher than expected':

- Acute myocardial infarction – initial review completed by data quality staff, and a meeting is planned with directorate staff for discussion of findings.
- Other perinatal conditions – third alert in the last 12-month period which is under discussion with the directorate.
- Senility and organic mental disorders – one alerting month in Jan 2022. Meeting with clinician has identified insufficient documentation for accurate coding and 8/10 of sample has been changed. Care has been reviewed and did not highlight concerns. All patients were complex, frail, and elderly with multiple co-morbidities. Coding audit of patients with delirium in primary position is planned.
- Acute bronchitis – alerted May 2022 and clinical coding review underway.
- Fracture of neck of femur (hip) – Alerted October 2021 and review of the alerting month in progress. Dr Foster partner to carry out deep dive to indicate further areas that can be investigated to understand this group and its continuing status as 'higher than expected'. STHFT Coding Manager has arranged a coding comparison of a sample of 10 sets of notes with a colleague from a neighbouring Trust to ascertain any differences in coding practices.
- Acute and unspecified renal failure – one alerting month with all other months within expected range. Meeting with directorate planned to discuss current position.

Figure 8

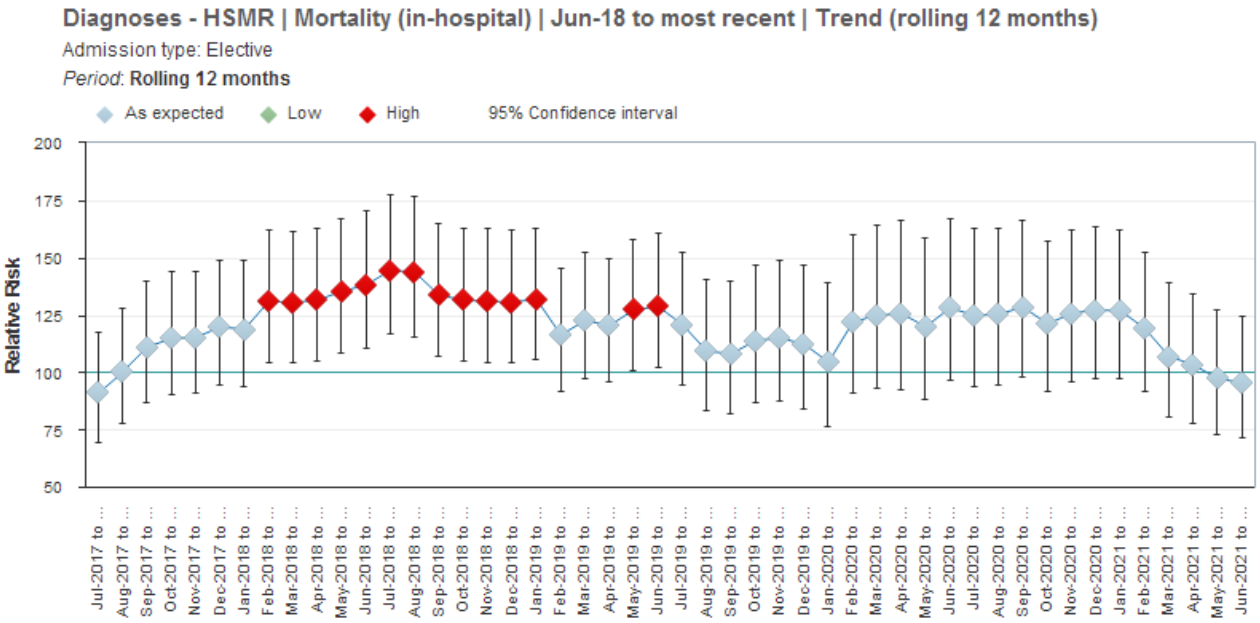
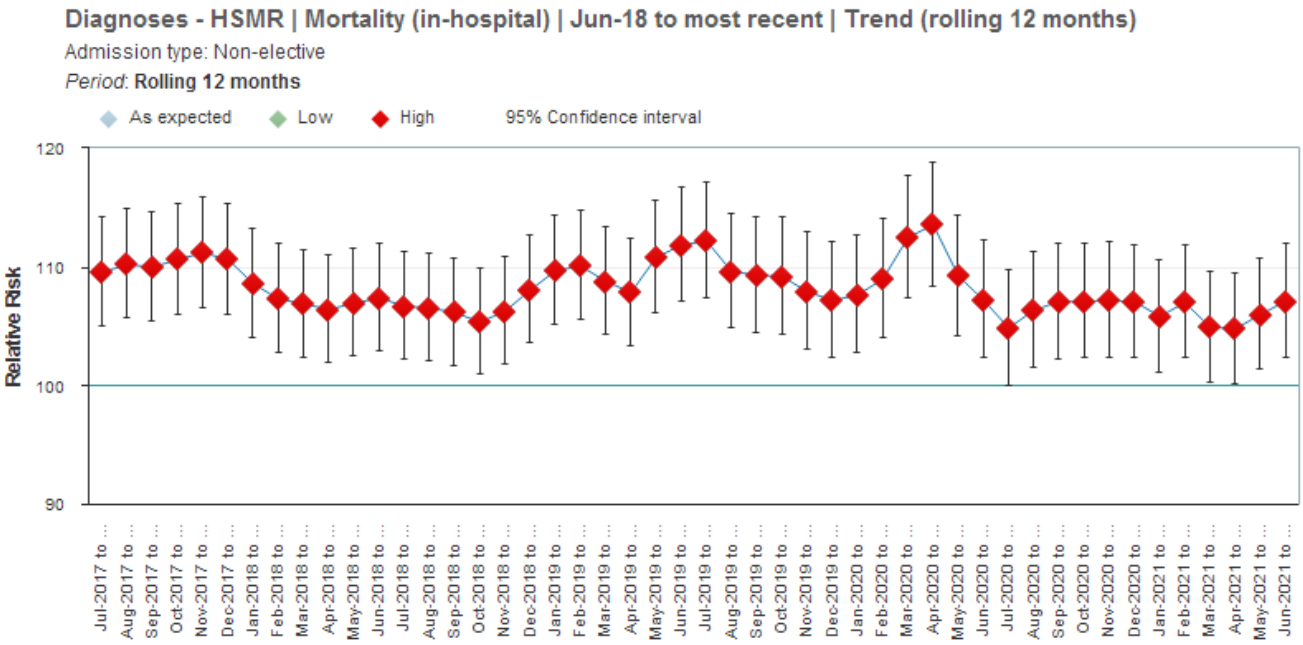


Figure 9



Source of Figures 6 to 8: Healthcare Intelligence Portal, Dr Foster Intelligence

3. Summary Hospital-level Mortality Indicator (SHMI)

3.1. The Trust SHMI value for the period May 2021 to April 2022 was **0.97 and banded "as expected'** with an expected number of deaths of 3100 versus an observed 3025. A breakdown by site shows Royal Hallamshire and Weston Park Hospitals 'lower than expected' with Northern General Hospital in the 'as expected' banding. The crude mortality rate for elective admissions, as reported, is in line with the national average at 1.0 percent. The crude mortality rate for non-elective admissions is slightly higher at STHFT compared to the national average (3.4 vs 3.3 per cent).

3.2. There has been a fall in the number of spells from March 2020 onwards due to COVID which is excluded. STHFT figure for May 2021 to April 2022 is 89 percent of pre pandemic (January 2019 – December 2019) activity compared with an England average of also 89 percent (elective spells 75 percent and non-elective spells 92 percent). 3.8 percent of STHFT activity has been coded as COVID-19 during the 12-month period and therefore excluded, slightly higher than the last quarter (national average 3.8 percent).

3.3. Palliative care coding has improved to 2.1 – slightly higher than the national average of 2.0 percent (national range varies between 0.6 and 3.6 percent).

3.4. For a subset of 10 diagnosis groups a SHMI value and banding is calculated. All are 'as expected' or 'lower than expected' (UTI) for STHFT except Fracture of neck of femur which again moved 'higher than expected' at 1.41, up from 1.34.

3.5. A greater proportion of STHFT SHMI deaths occur in hospital (71 percent) compared with the national average of 68 percent.

3.6. Sheffield has a higher than national average percentage of provider spells in *deprivation quintile 1* (most deprived, 39.7 vs 23.1) and lower representation in groups 2 to 5 and this will impact mortality rates. 38 percent of deaths at STHFT are from deprivation quintile 1 compared with a national average of 21 percent.

Mortality Case Review Process – Structured Judgement Review (SJR)

Table 2 below shows a summary of learning from deaths key performance indicators (KPIs) over the previous 12 months.

Table 2 *(Note – the figures in columns 3 and 4 do not correlate to any other figures due to the time interval between death and outcome of investigations, Inquest, etc.)*

KPI	1	2				3	4
	No. of deaths in month	No. of deaths referred for SJR	SJR completion rate	SJR overall care score 3-5	SJR overall care score 1-2	Deaths more likely than not due to problems in care *(by date of SI Group decision)*	Regulation 28 issued
Apr-21	209	15	**100%** (15/15)	**14**	**1**	0	1
May-21	191	13	**100%** (13/13)	**13**	**0**	0	1
Jun-21	158	13	**100%** (13/13)	**13**	**0**	0	0
Jul-21	184	9	**100%** (9/9)	**9**	**0**	0	0
Aug-21	229	11	**100%** (11/11)	**11**	**0**	0	0
Sept-21	212	11	**100%** (11/11)	**10**	**0**	0	0
Oct-21	231	9	**100%** (9/9)	**9**	**0**	0	0
Nov-21	253	17	**100%** 17/17	**17**	**0**	0	0
Dec-21	258	10	**100%** (10/10)	**7**	**3**	1+ *(Death from Aug-21)*	0
Jan-22	292	16	**88%*** (14/16)	**12**	**2**	0	0
Feb-22	207	13	**100%** (13/13)	**13**	**0**	0	0
Mar-22	267	15	**87%**** (13/15)	**12**	**1**	0	0

Source: Datix PALS, Datix Incidents and Datix Claims

* For January 2022, two cases are awaiting a first review and one is awaiting a second review. This delay is due to the availability of case notes and reviewer capacity.

** For March 2022, two cases are awaiting a first review. This delay is due to the availability of case notes.

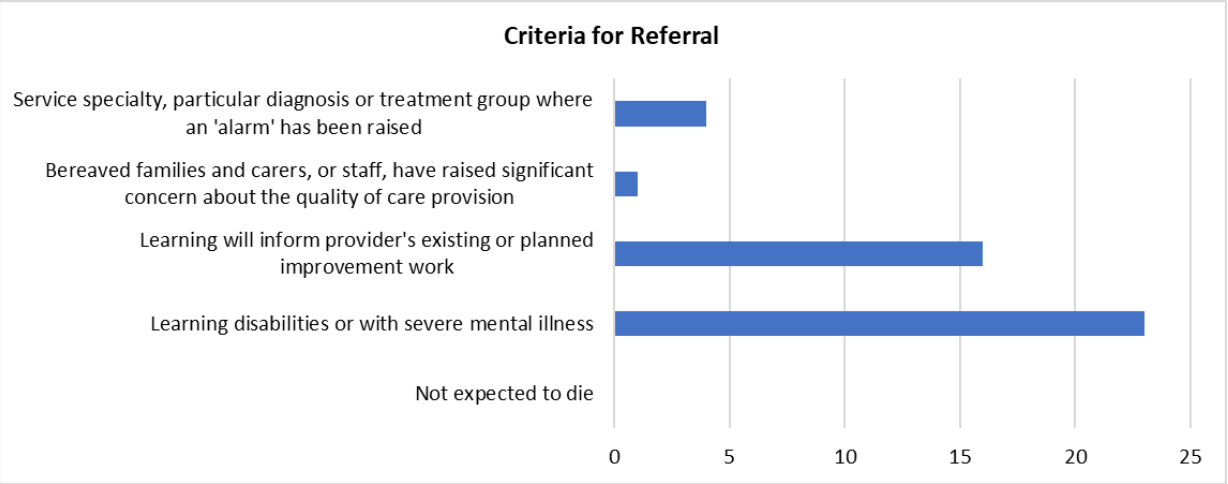
\+ Detailed in Q3 2021/22 Mortality Report

4. Structured Judgement Review (SJR)

4.1. Between January and March 2022 (Q4):

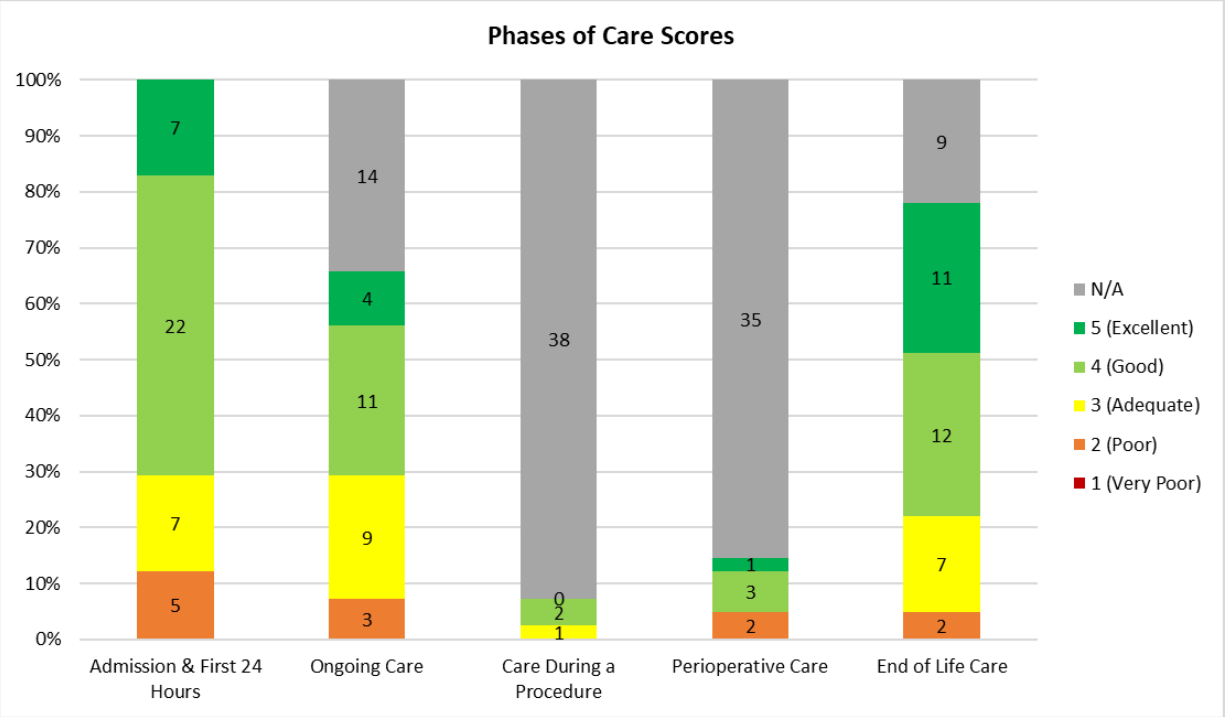
- 44/759 of inpatient deaths met the criteria for a SJR as detailed in Figure 10
- Of the 41 completed adult SJR cases (Table 2), 23 were deaths of patients with a learning disability and/or with severe mental illness
- Scores allocated to each of the SJR phases of care are displayed in Figure 11 for all completed SJRs
- Final overall scores allocated to each SJR are displayed in Figure 12 with 35/41 scores three or above

Figure 10



Source: Datix PALS

Figure 11 – Phases of Care Scores for 41 completed SJR cases



Source: Datix PALS

Figure 12 – Final Overall Care Scores (Source: Datix PALS)

Overall Care Score	Score (%)
5 (Excellent)	7 (17%)
4 (Good)	22(54%)
3 (Adequate)	9 (22%)
2 (Poor)	3 (7%)
1 (Very Poor)	0

5. Likelihood of deaths being due to problems in care

5.1. No deaths were identified by the Serious Incident (SI) process in Q4.

6. Regulation 28 Prevention of Future Deaths Reports

6.1. There have been no Regulation 28 Prevention of Future Death reports issued to the Trust between January and March 2022.

7. Learning

Learning from SJR

7.1. There have been three SJRs reviewed by the Mortality Governance Committee (MGC) with an overall care score of one or two at STHFT between January and March 2022. These are detailed below together with the learning points / actions taken from the review.

- **SJR 8122** : Delayed recognition of deterioration and escalation, delayed diagnosis of diabetic ketoacidosis (DKA), incorrect insulin infusion and delay in insulin administration. Learning around stopping certain diabetic medications on hospitalisation and correct treatment of DKA with early referral to diabetes on call medical team and Diabetes Nurse Specialist.
- **SJR 8224 :** Patient with COPD. Issues were identified in relation to DNACPR documentation which will be addressed as part of the Trustwide DNACPR audit action plan.
- **SJR 8270**: Pressures in the Emergency Department resulted in delayed treatment. Learning points relating to completion of DNACPR documentation, recording of discussions with the patient and their family and date/time on documentation.

8. Summary

8.1. There have been 2,714 deaths at the Trust between April 2021 and March 2022. 151 of the referred 157 SJRs have been completed (96.2%).

8.2. The 12-month rolling Hospital Standardised Mortality Ratio (HSMR) from 1st July 2021 – 30th June 2022 was 108.7 (104.1-113.5) and banded statistically 'higher than expected' following Dr Foster rebasing against benchmark month March 2022. The impact of the rebasing exercise has been significant and has affected several trusts who sit close to the 'as expected' and 'higher than expected' bandings.

8.3. The Business-as-Usual model for investigating alerting groups has continued. Following review quality issues have been identified and remedial actions put in place. For the 12-month period there were six HSMR diagnosis groups with a relative risk banded as statistically 'higher than expected'. The HSMR Working Group is working with clinical teams to investigate underlying data issues impacting the HSMR model.

8.4. The Trust Summary Hospital-level Mortality Indicator (SHMI) value is 0.97 for the period May 2021 to April 2022 and banded "as expected'. For the subset of 10 diagnosis groups eight are banded 'as expected', one 'lower than expected' (UTI), and one (Fracture of neck of femur) 'higher than expected' at 1.41, up from 1.34. This has been prioritised for investigation locally, with our Dr Foster partner and a coding comparison exercise is planned with a neighbouring trust.

1.1. In quarter 4 there were 759 deaths at the Trust and 41 of the 44 SJR referrals from Medical Examiner scrutiny have been completed.

1.2. No deaths in Q4 were judged more likely than not to be due to problems in care identified via the Serious Incident process.

1.3. Learning points taken from the three SJRs reviewed by the Mortality Governance Committee (MGC) in Q4 with an overall care score of one or two included recognition of deterioration and escalation, diagnosis and management of DKA, recording of DNACPR discussions with the patient and their family and records documentation.