Sheffield Teaching Hospitals
NHS Foundation Trust

Executive Summary

Report to the Board of Directors

Being Held on 25 July 2023

Subject	Learning from Deaths Report – Q3 2022/23
Supporting TEG Member	Jennifer Hill, Medical Director (Operations)
Author	Simon Buckley, Deputy Medical Director Janet Brain, Senior Manager (Clinical Effectiveness) Rachel Honeywood, Learning from Deaths Facilitator (Clinical Effectiveness) Louise Wake, Senior Clinical Effectiveness Facilitator (Clinical Effectiveness)
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 Q2 and Q3 of 2022/23 (1st July – 30th September 2022 and 1st October – 31st December 2022). It also includes current data on crude mortality, HSMR and SHMI metrics and presents key metrics on the mortality case review process for 2022/23.

KEY POINTS

There have been 3,030 deaths at the Trust between January and December 2022.

Over the past 12 months, crude mortality shows a pattern of common cause variation for total deaths and death rate. When compared with national benchmarks, overall mortality is lower, mortality following elective admissions is equivalent, non-elective mortality is higher and is being investigated.

The 12-month rolling Hospital Standardised Mortality Ratio (HSMR) from 1 March 2022 to 28 February 2023 was 110.5 (106.1-115.1) and banded statistically 'higher than expected' following Dr Foster rebasing against benchmark month December 2022. When Covid-19 data is excluded, as is the case for the Summary Hospital-level Mortality Indicator (SHMI), this falls to 107.1, banded statistically 'higher than expected'.

The HSMR Working Group, working with the clinical teams, continues to investigate underlying data issues impacting the HSMR model, including any alerting diagnosis groups.

The Trust SHMI value is 0.99 for the period 1st February 2022 – 31st January 2023 and banded "as expected'. Two diagnosis groups are banded 'higher than expected', Fracture of neck of femur and Acute myocardial infarction.

The Q2 deaths at STHFT in the period 1st July – 30th September 2022 are:

- Total no. adult deaths* at STHFT: 734
- Total no. adult deaths* subject to Structured Judgment Review (SJR): 44
- Of the deaths subject to SJR in Q2, the number of deaths judged more likely than not to be due to a problem in care: 0
- Total number of deaths judged more likely than not to be due to a problem in care, following completion of a serious incident investigation during Q2: 3

The Q3 deaths at STHFT in the period 1st October -31st December 2022 are:

- Total no. adult deaths* at STHFT: 861
- Total no. adult deaths* subject to Structured Judgement Review (SJR): 45
- Of the deaths subject to SJR in Q3, the number of deaths judged more likely than not to be due to a problem in care: 0
- Total number of deaths judged more likely than not to be due to a problem
- in care following completion of a serious incident investigation during Q3: 1

* Over 16 years old

Learning points/actions taken from the SJRs reviewed by the Mortality Governance Group (MGG) with an overall care score of one or two involved:

- the transfer of care to the appropriate specialty;
- communication between specialties;
- management of medication in a patient with Parkinson's Disease;
- capacity assessment;
- delay in reviewing an x-ray;
- completion of DNACPR in a timely manner and confirming with patient that this is a clinical decision;
- blood tests in patients who are considered medically fit for discharge;
- transfer of a critically ill patient into the Emergency Department from an ambulance.

There is one mortality outlier status from a national audit which is the National Hip Fracture Data NHFD, which is being investigated.

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**
Quality & Safety Executive Committee	03.07.2023	
Trust Executive Group	12.07.2023	
Quality Committee	17.07.2023	
Trust Board of Directors	25.07.2023	

[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'

Sheffield Teaching Hospitals NHS Foundation Trust
LEARNING FROM DEATHS QUARTERLY REPORT 2022/23
Quarter 3

1. Deaths by month – Crude mortality January to December 2022

1.1. There were 3,030 deaths in Sheffield Teaching Hospitals Foundation Trust (STHFT) between January and December 2022, of which 6% (180) were in the ED and 94% (2850) were inpatient deaths *(Source: Information Services Report 'Deaths in Hospital').*

1.2. Figure 1 shows deaths per month and identifies two special cause concerning variations (single points) in April 2020 and January 2021, which correspond with the first and second waves of the COVID-19 pandemic. A special cause improving variation was identified in July 2020, indicating a reduced death rate which is in line with data reported nationally. The crude death rate for all STHFT deaths (inpatient and ED) from April 2018 to June 2022 is shown in Figure 2.

Figure 1

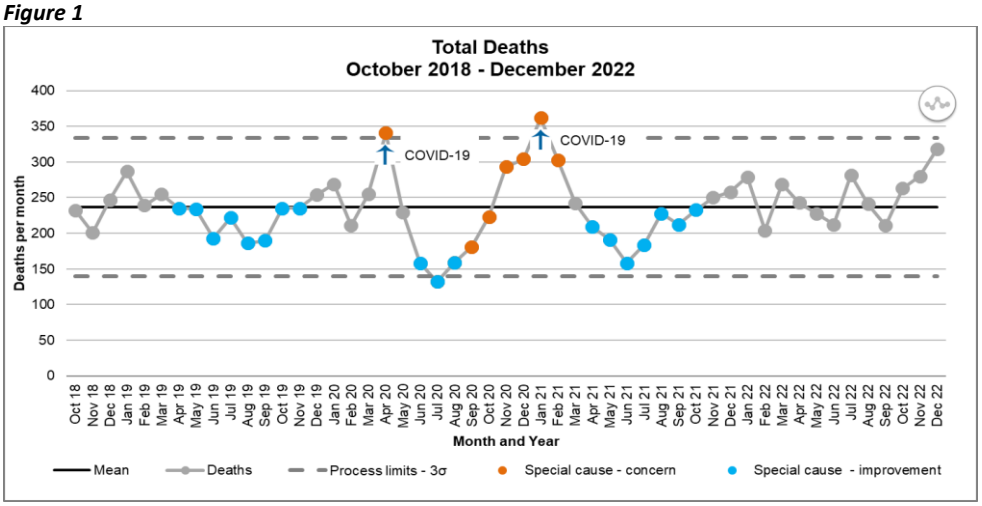
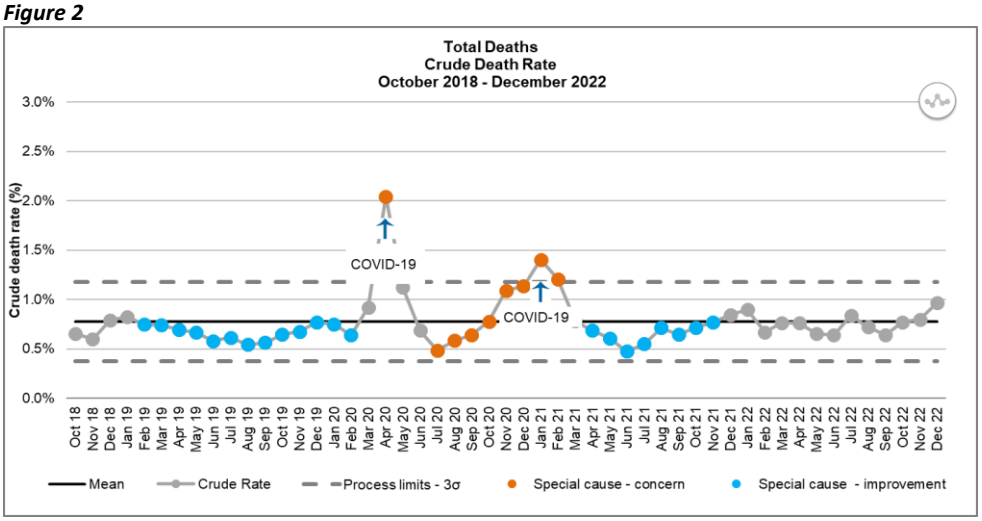


Figure 2



Source Figure 1 and Figure 2: Information Services Report 'Deaths in Hospital' (accessed 06/06/2023). Data excludes Neonatology and Well babies specialities.

1.3. The crude mortality rate for all STHFT admissions was 1.3% compared with 1.5% for all acute, non-specialist trusts *(Source: Healthcare Intelligence Portal, Dr Foster Intelligence).*

1.4. When split by admission method, the crude mortality was 0.1% for elective admissions and 3.2% for non-elective admissions, compared with 0.1% and 2.9% respectively nationally *(Source: Healthcare Intelligence Portal, Dr Foster Intelligence)*. Hence Dr Foster data indicates that non-elective crude mortality was higher than the national average.

1.5. Dr Foster data also shows the Trust was one of 11 within the regional peer group with a non-elective mortality greater than the national average of 2.9%. If the regional non-elective mortality values are ranked (lowest to highest) the Trust's non-elective mortality ranked 13 out of the 21 acute non-specialist Trusts.

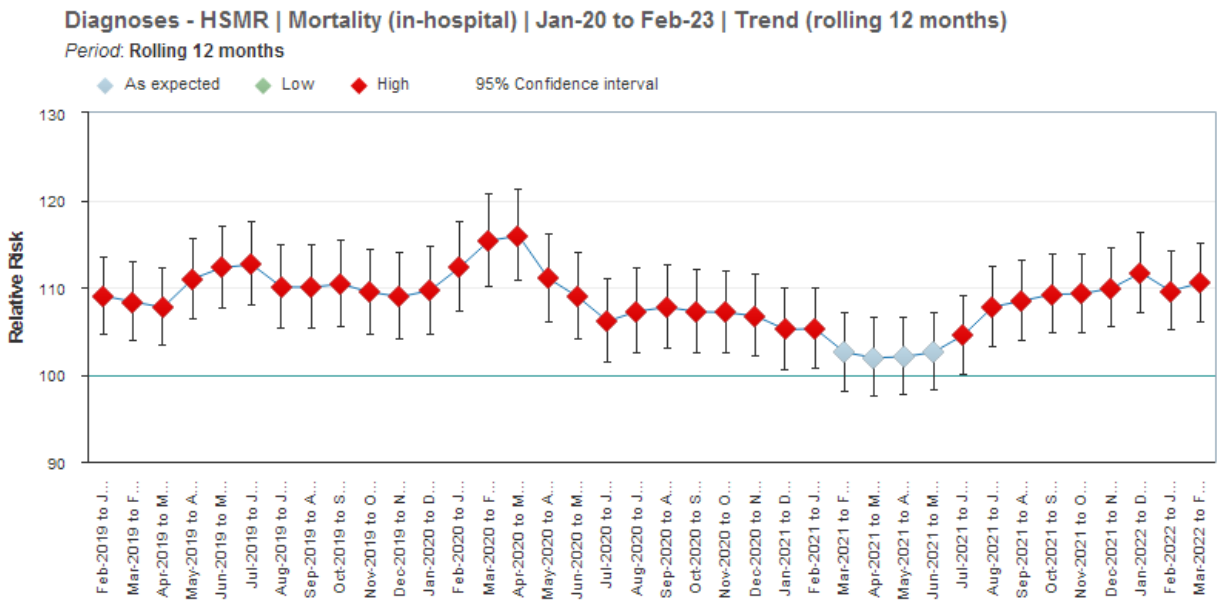
2. Hospital Standardised Mortality Ratio (HSMR) 1 March 2022 to 28 February 2023

2.1. The 12-month rolling HSMR from 1 March 2022 to 28 February 2023 was **110.5 (106.1-115.1)** and banded statistically 'higher than expected' (benchmark: December 2022). The model currently contains only circa 79% of data for March 2023 and hence the HSMR has been 'lagged' by one month.

2.2. Split by admission method, the non-elective mortality for the HSMR activity is 6.7% compared with a national average of 6.2 percent and the elective mortality rate for the HSMR basket of activity is consistent with the national average of 0.1 percent. This reflects a similar pattern to the crude mortality as described in section 1.4.

2.3. The HSMR trend for the past 38 months is shown in Figure 3. February 2022 - January 2023 shows the first decline in 12-month rolling HSMR since April 2021 – March 2022, with a slight flick up for March 2022 - February 2023 (which we cautiously anticipate will lower when the data is more accurate and the residual codes in the backlog have been coded).

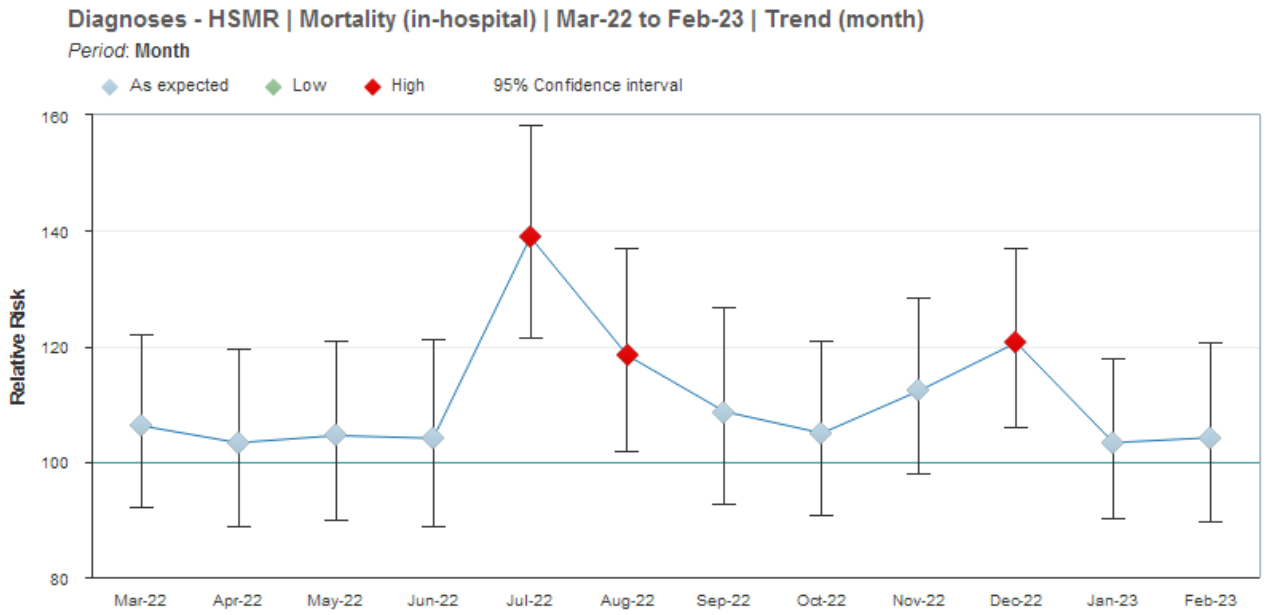
Figure 3



Source: Healthcare Intelligence Portal, Dr Foster Intelligence

2.4. Figure 4 shows the monthly relative risk values for the past 12 months with three values in the 'higher than expected' range and 12 of the 12 points above 100. This indicates that there may be a prevalent data quality issue to be resolved i.e. as the rigour around the inputs has been re-established, January and February 2023 dip back into the 'as expected' range, and an additional issue to be investigated (July and December spikes). November 2022 has fallen out of the 'higher than expected' range into 'as expected' with this update.

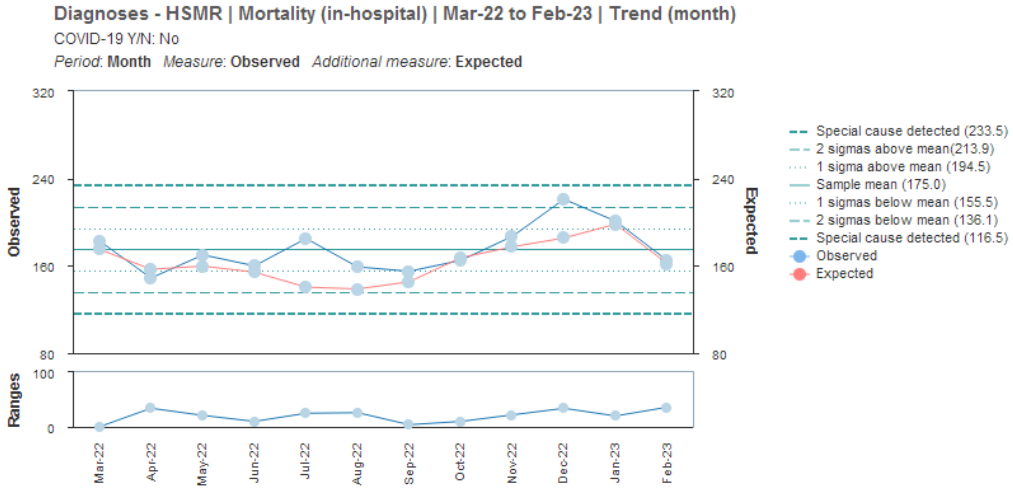
Figure 4



Source: Healthcare Intelligence Portal, Dr Foster Intelligence

2.5. If superspells with secondary COVID-19 codes are excluded from the HSMR (1718 superspells and 247 deaths), the Trust HSMR for the same period overall reduces to 107.1 (banded as statistically 'higher than expected') with only two monthly points within the 'higher than expected' range – July 2022 and December 2022. This is relevant as Covid-19 activity and deaths are excluded from the SHMI because it is considered the statistical modelling used to calculate the SHMI may not be as robust if such activity were included. The July and December 'spikes' show that the observed number of deaths for those months are not closely matched by the corresponding expected calculation (Figure 5), either because of issues with their care or a data quality issues affecting the risk adjustment and calculation of expected deaths. This is being investigated.

Figure 5



2.6. If split by 10-year age bands, the alerting groups are 0-4 years (34 deaths, 17.7 were expected), 65-74 years (444 deaths, 384.4 were expected) and 75-84 years old (775 deaths, 698.2 were expected). The relative risk for 85+ years old is 107.3 (99.7-115.4) and on the cusp of alerting. Hence the high HSMR is being driven by the very young and very old age groups. A similar pattern is observed for non-

elective admissions with the inclusion of the 25-34 years age group alerting (most deaths from intracranial injury - 5 observed vs 1.1 expected).

2.7. The HSMR Working Group meets monthly providing updates on data quality findings, clinical coding and clinical reviews and progress is fed into the Mortality Governance Group informally at every meeting and formally on a quarterly basis. Workstream updates cover data quality, clinical coding and progress with clinical reviews. The key lines of enquiry include correction of recorded admission method / admission source and short duration transfers between consultants. Inaccuracies in recording admission method and admission source continue to impact the HSMR (admission method also impacts the SHMI) and this is thought to be a contributing to the 'higher than expected' position of Acute Myocardial Infarction. Key actions involve improving training, targeting high volume users and ensuring back-office data quality processes are consistently in place. Keeping on top of the validation work ensures that the inputs into the Dr Foster model are accurate, which is critical in HSMR calculations. There is an immediate impact on the model if this validation work stops. Early progress has been made on AMU in reducing the number of erroneous short Finished Consultant Episodes (FCE's); and training is being rolled out to SAC.

2.8. Clinical coding is also a key line of enquiry with case note reviews underway and these have revealed poor quality source documentation in some cases and shown there can be conflicts between paper and electronic documentation; both can present challenges to new and inexperienced clinical coders. The model for investigating any HSMR alerting groups has continued in liaison with clinical teams.

2.9. The 'business as usual' data validation model, involves reviewing elective deaths on a daily basis and this has shown appropriate care, so far, for the cases where feedback from clinicians has been gained.

2.10. Next steps;

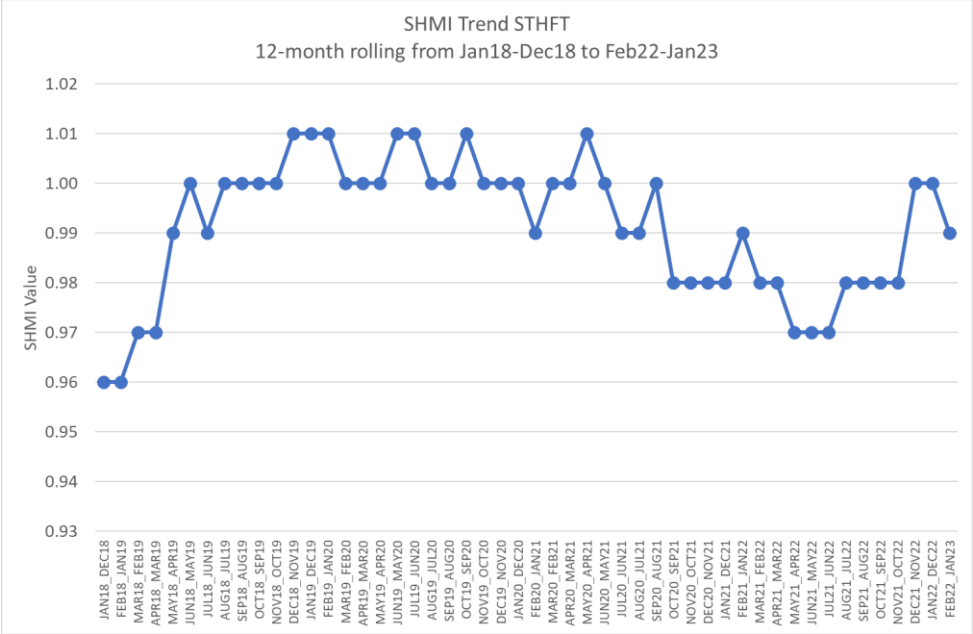
- Continue with actions underway to address admin errors which impact on the HSMR, to continue with review of clinical coding by pursuing the key lines of enquiry and investigating alerting groups.
- Consider clinical engagement to improve source documentation
- Link up the HSMR Working Group elective death review process more closely with care group governance teams to share investigation, understanding and learning about data quality and clinical impacts.

3. Summary Hospital-level Mortality Indicator (SHMI) February 2022 to January 2023

3.1. The Trust SHMI value for the period February 2022 to January 2023 was **0.99** and banded "as expected' with an expected number of deaths of 3385 versus an observed 3345. A breakdown by site shows Royal Hallamshire (0.779) and Weston Park Hospitals (0.579) 'lower than expected' with Northern General Hospital (1.102) 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 as reported by the SHMI for non-elective admissions is slightly higher at STHFT compared to the national average (3.7 vs 3.5 per cent).

3.2. Figure 5 depicts the SHMI trend since 2018. The SHMI has decreased February 2022-January 2023 as was seen for the HSMR for the same period.

Figure 6



Source: NHS England

3.3. A greater proportion of STHFT SHMI deaths occur in hospital (74 percent) compared with the national average of 70 percent. 26 percent of deaths occurred outside hospital within 30 days of discharge. This may indicate patients are staying in hospital longer than is the case in some other organisations.

3.4. The percentage of spells with palliative care (either treatment speciality or diagnosis) coding is 2.1 percent, slightly higher than the national average of 1.9 percent (national range 0.7 to 3.8 percent). The percentage of deaths with palliative care coding is 39 per cent - slightly lower than the national average of 40 percent (national range 13 to 65 percent). This confirms palliative care coding has improved and continues to be done appropriately. The Trust Coding Manager continuously reviews palliative care coding to ensure this is accurate.

3.5. For a subset of 10 diagnosis groups a SHMI value and banding is calculated. All are 'as expected' for STHFT except fracture of neck of femur and acute myocardial infarction which remain 'higher than expected' at 1.58 and 1.46 respectively.

3.6. Sheffield has a higher than national average percentage of provider spells in the deprivation quintile 1 (most deprived, 40.2 vs 23.2) and lower representation in groups 2 to 5; this will impact mortality rates. 38 percent of deaths at STHFT are from deprivation quintile 1 compared with a national average of 21 percent.

4. Data from National Audits (Outliers)

This section reports on national clinical audits where the Trust has been notified of outlier status.

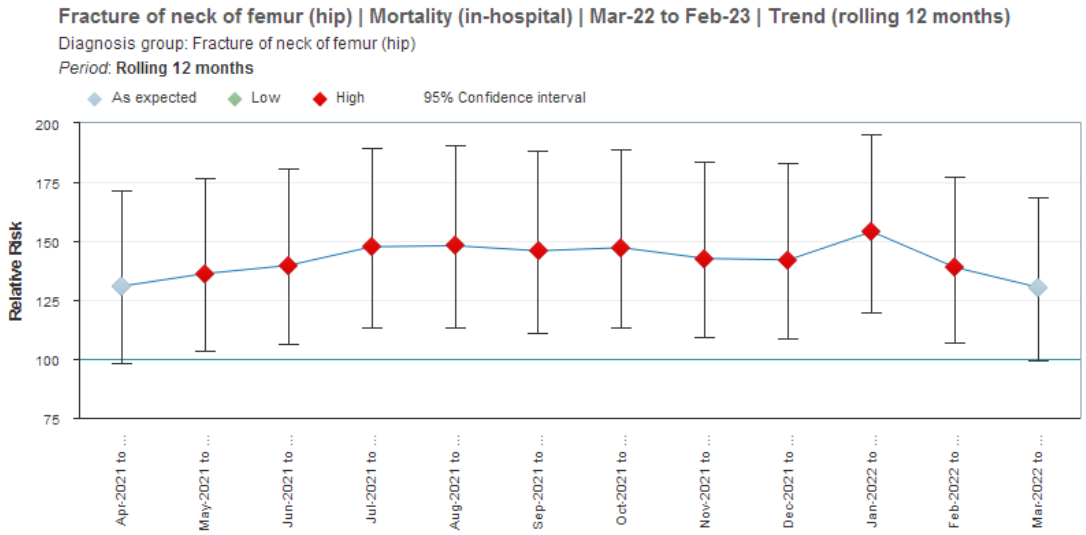
4.1. **National Hip Fracture Database -** In May 2023 the case mix-adjusted 30-day mortality and crude mortality were published on the NHFD website. Both had decreased since the outlier status was last published but increased again more recently so that both were above the upper (3 standard deviations above the mean - 99.8%) control limit for the year up to and including the final quarter of 2022 (October to December). Should the value remain above the upper control limit for a second quarter (published in autumn 2023) the Trust would be informed it is in outlier status.

The Trust NHFD Lead working with the clinical team, is developing a plan to address the concerns raised in the data with an initial focus on:

- Time spent in the Emergency Department;
- Multiple bed moves;
- Time to theatre;
- Inpatient falls.

4.2. The HSMR for Fracture of neck of femur for March 2022 - February 2023 is starting to show some improvement and is no longer alerting, decreasing to 'as expected' (figure 5).

Figure 6



5. **Mortality Case Review Process – Structured Judgement Review (SJR)** *Source: Datix PALS*

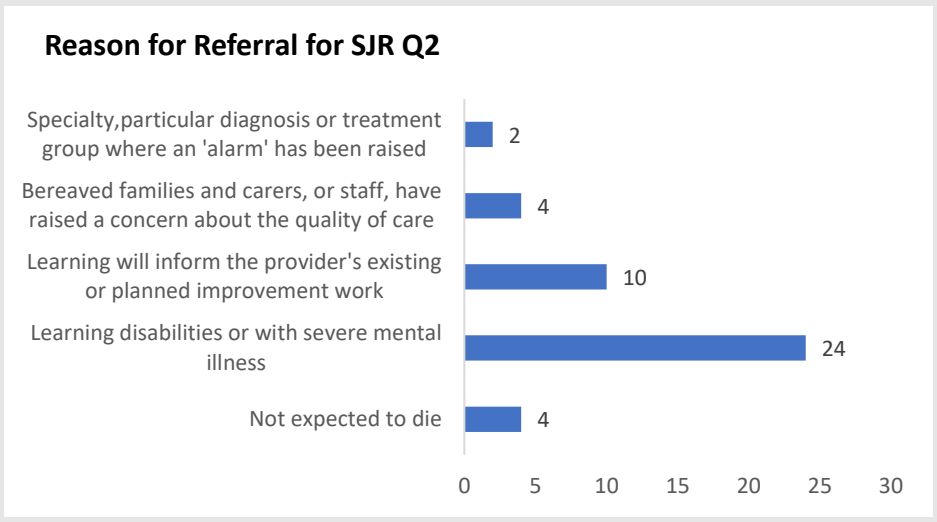
An enquiry from the Medical Examiner's Service regarding a case referred for SJR brought to light some weaknesses in our system which meant that not all SJR referrals had been picked up. The process has been strengthened and further review is planned to ensure no cases marked by a Medical Examiner as requiring SJR in 2022/23 have been overlooked. As a result, there are some discrepancies in the numbers of SJRs when compared to the Q2 report. Cases waiting to be completed are prioritised by date (where notes are available for review). In the last six months, reviewer capacity has reduced and the numbers of SJRs awaiting review have started to increase. Four new Expert Reviewers have been appointed and are scheduled to commence September 2023. The three outstanding cases from May to July 2022 highlighted in the Q2 report have been completed.

= SJR score 3-5 **= SJR score 1-2** **= SJR Rejected** **=SJR not yet complete**

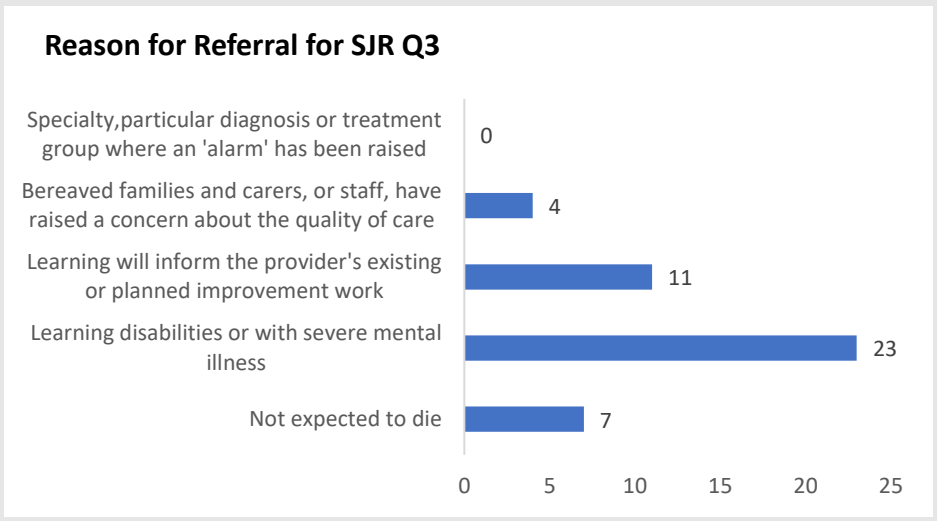
JANUARY 2022 **6%** (16/279) Deaths referred for SJR 	**FEBRUARY 2022** **6%** (13/204) Deaths referred for SJR 	**MARCH 2022** **6%** (15/269) Deaths referred for SJR 
APRIL 2022 **8%** (20/243) Deaths referred for SJR 	**MAY 2022** **10%** (22/228) Deaths referred for SJR 	**JUNE 2022** **7%** (15/212) Deaths referred for SJR 
JULY 2022 **6%** (18/282) Deaths referred for SJR 	**AUGUST 2022** **7%** (16/241) Deaths referred for SJR 	**SEPTEMBER 2022** **5%** (10/211) Deaths referred for SJR 
OCTOBER 2022 **8%** (21/263) Deaths referred for SJR 	**NOVEMBER 2022** **4%** (12/280) Deaths referred for SJR 	**DECEMBER 2022** **4%** (12/318) Deaths referred for SJR 
Total 3030 deaths: 190 referred for SJR with 6 rejected and 164/184 SJRs completed		

5.1. Structured Judgement Review (SJR) Quarterly Data

	Q2 (1st July 2022 to 30th September 2022)	Q3 (1st October 2022 to 31st December 2022)
Inpatient deaths referred for SJR	**6%** (44/734)	**5%** (45/861)
Cases rejected	**0**	**2**
Cases still awaiting review	**23%** (10)	**20%** (9)



55% cases were referred because of Learning Disabilities or severe mental illness



51% cases were referred because of Learning Disabilities or severe mental illness

Final Overall Scores for Completed SJRs Q2		
1 Very Poor	0%	0/34
2 Poor	6%	2/34
3 Adequate	18%	6/34
4 Good	47%	16/34
5 Excellent	29%	10/34

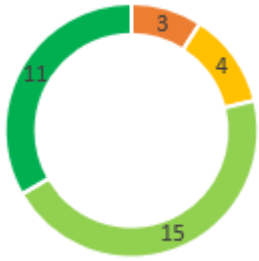
76% of the SJRs completed for inpatient deaths in Q2 have scored good or excellent.

Final Overall Scores for Completed SJRs Q3		
1 Very Poor	0%	0/34
2 Poor	3%	1/34
3 Adequate	12%	4/34
4 Good	59%	20/34
5 Excellent	26%	9/34

85% of the SJRs completed for inpatient deaths in Q3 have scored good or excellent.

Scores by Phase of Care Q2

First 24 hours
n=33
(data not complete in one case)

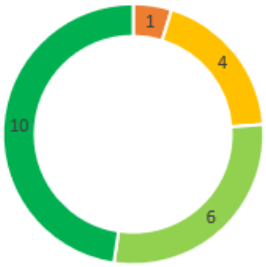


Ongoing Care
n=20

Care During a Procedure
n=3

Perioperative Care
n=3
3 cases were noted to have involved perioperative care and all scored 4 (good).

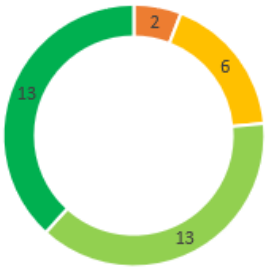
End of Life Care
n=21



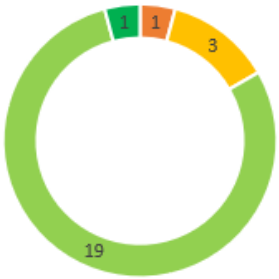
= Very poor care
= Poor Care
= Adequate Care
= Good Care
= Excellent Care

Scores by Phase of Care Q3

First 24 hours
n=34



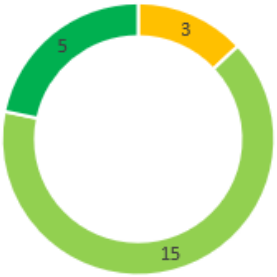
Ongoing Care
n=24



Care During a Procedure
n=6

Perioperative Care
n=4

End of Life Care
n=23



= Very poor care
= Poor Care
= Adequate Care
= Good Care
= Excellent Care

6. Learning from SJR

The Mortality Governance Committee (MGC, now the Mortality Governance Group) review all SJR's with an overall care score of one or two. Two SJRs were reviewed during Q2 and a further three were reviewed in Q3.

9140

A patient was seen in the Emergency Department (ED). There was appropriate initial assessment, investigation, and involvement of radiology, cardiothoracic surgery, general surgery, and medicine, but poor communication between specialities regarding the most appropriate admission specialty. It was considered that the outcome would not have changed as the clinical scenario was not survivable. The Professional Standards between Specialities and Emergency Medicine Policy (384) has clear guidance for such incidents but was not followed. The policy was shared with Clinical Directors.

9143

Involved a patient with worsening Parkinson's Disease (PD) treated for Pneumonia. Death was not considered more likely than not to be due to problems in care, but issues identified were:

- Inadequate dosing of PD medication because of incorrect conversion of drug doses and omission of medicine.
- Capacity assessment in relation to decisions about feeding risk not clearly documented.
- DOLS should have been in place.
- Delay in reviewing a Chest X-ray which resulted in delay in treatment.

Actions included:

- Feedback to Pharmacy, Radiology and PD Specialist Nurses.
- DOLS/best interests training for Medical Staff.
- Highlighting of appropriate admission pathway.

9129

A patient with metastatic cancer was treated for pneumonia and developed Clostridium Difficile diarrhoea. Whilst awaiting a care package for discharge, they had a cardiac arrest and resuscitation was attempted. The main issues raised were:

- DNACPR was discussed with the patient and partner, but a decision was not made. The fact that this was a medical decision should have been discussed with the patient and paperwork completed prior to the arrest.

9166

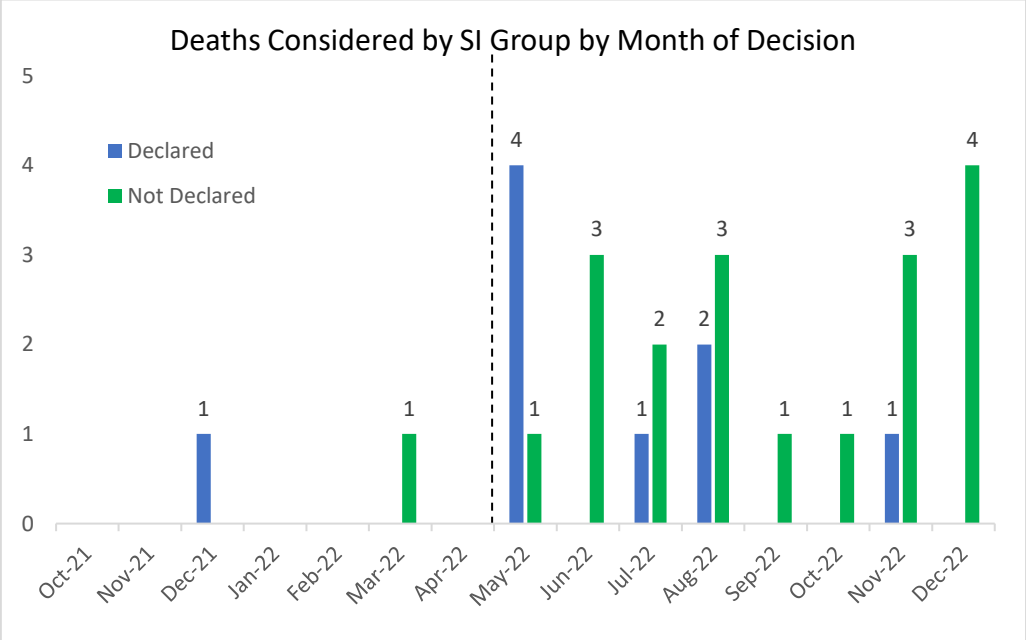
A patient with a high NEWS score remained in an ambulance rather than being brought into A&E and, was peri-arrest when admitted. It was not considered that the delay impacted on the outcome. The delay in access was put down due to departmental crowding. On review, opinion was that the patient should have been pre-alerted to the Resus room and this learning was shared with Yorkshire Ambulance Service who confirmed that their procedure is to pre-alert for patients who are critically unwell or unstable (NEWS>7). There is significant ongoing work to improve flow within A and E.

9185

A patient admitted with a suspected upper gastrointestinal bleeding and COVID pneumonitis deteriorated suddenly and died. The outcome of the inquest was natural causes. Concerns raised by the SJR were around obtaining and repeating relevant blood tests. The learning was fed back at the local M&M meeting.

6.1 Deaths Declared by the Serious Incidents Group to be More Likely than Not due to Problems in Care

Three deaths were identified by the Serious Incident (SI) process in Q2 (July 2022 – September 2022) and one in Q3 (October 2022 – December 2022) as being due to problems in care.



N.B. The process for declaring deaths by the SI Group was formalised in May 2022 (dotted line) and this accounts for the increase in numbers at this point. In July 2022, a retrospective review of all serious and internal incident investigation reports discussed SI Group since 15 February 2022 was undertaken and those where the patient had died were brought back to SI group to consider whether care had contributed to death.

6.2 Learning from the Deaths Declared by the Serious Incidents Group to be More Likely than Not due to Problems in Care

- A patient developed a category 4 sacral pressure ulcer and died from sepsis. Issues with documentation and knowledge regarding the grading of pressure ulcers and when to refer to the Tissue Viability team were identified, and actions focused on these areas.
- There was delayed diagnosis and treatment of an ocular cancer when imaging was misinterpreted, and opportunities were missed to revisit the diagnosis. This was addressed with training regarding interpretation of ophthalmic imaging and support for trainees by experienced Ophthalmic Science Practitioners.
- External images for an outpatient scan did not transfer automatically to the STH system, were not reported and therefore findings were not known when the patient presented to A&E. The patient was treated for a fast heart rate but after discharge, collapsed, and later died on the Critical Care unit. The scan confirmed extensive lung clots and the investigation showed that the notification of missing images was not actioned. A system to monitor for missing events has been established and a plan to ensure adequate staffing in the PACS team.
- A patient who had bilateral nephrostomies followed by ureteric stents did not have the nephrostomies or stents removed/changed as per usual practice and died from multi-organ failure due to sepsis. It was considered highly likely that the unchanged stents were the source of infection. Actions addressed the monitoring of ureteric stents and strengthened follow up processes.

6.3 Regulation 28 Prevention of Future Deaths Reports

No Regulation 28 Prevention of Future Deaths reports were issued to the Trust in Q2, but one was issued in Q3. This related to a patient who had private carers assisting with their care on the ward. During evidence at inquest, it became apparent that the carers were not made aware of risk assessments and care plans that were implemented by clinicians at the Trust. The Coroner raised concerns that this opened up potential risk of harm if care delivered by private carers was contrary to plans indicated by clinicians. The Trust has responded to HM Coroner that we are implementing a policy so such situations will not arise again.

7. Conclusion

In summary, there is an improving picture with regards to mortality metrics showing improvements in both HSMR and SHMI values and the SMR for Fracture of neck of femur now in the 'as expected' range. The SHMI data update lags the HSMR update and will be keenly observed in anticipation of a similar return of the Fracture of neck of femur diagnosis group to 'as expected' for the corresponding time period.

The improvement has followed on from the re-establishment of back-office data quality processes following a challenging period of competing priorities for the validation team. The key lines of enquiry put in place by the HSMR Working Group continue to be systematically followed and diagnosis group alerts continue to be investigated in collaboration with clinical teams. Early progress has been made on AMU in reducing the number of erroneous short Finished Consultant Episodes. Inaccuracies in recording admission method and admission source is thought to be a contributing to the 'higher than expected' position of Acute Myocardial Infarction. Case note reviews have further revealed poor quality source documentation and conflicts between paper and electronic documentation; both can present challenges to new and inexperienced clinical coders.

There is one mortality outlier status from a national audit which is the National Hip Fracture Data NHFD, which is being investigated.

Four SJR Expert positions have been filled and Reviewers are scheduled to commence by the end of September 2023. This should materially affect the rate of SJR throughput and contribute towards a reduction in the backlog of outstanding cases awaiting review. Approximately 5-6% of deaths in the final six months of 2022 were referred by the ME for SJR and the majority of outcomes (96%) scored 3 or above with approximately 4% scoring 2 and none scoring 1. 76% of SJR outcomes in Q2 and 85% of outcomes in Q3 showed 'excellent' or 'good' care.

Learning points/actions have been taken from;

- the five SJRs reviewed by the Mortality Governance Group (MGG) with an overall care score of one or two
- the four deaths identified by the Serious Incident (SI) process as being due to problems in care, between July 2022 and December 2022
- the Regulation 28 Prevention of Future Deaths Report issued in Q3 of 2022/23