



Health Scrutiny Panel

23 October 2018

Report title	Learning from Deaths in Wolverhampton and Steps Forward	
Cabinet member with lead responsibility	Councillor Hazel Malcolm Public Health and Wellbeing	
Wards affected	All	
Accountable director	John Denley, Director of Public Health	
Originating service	Healthy Ageing (Public Health)	
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Report to be considered by	Strategic Executive Board	23 October 2018

Recommendation(s) for action or decision:

The Scrutiny Board is recommended to:

1. Note the uses and limitations of mortality statistics at both a city-wide and hospital-level perspective and acknowledge the findings from the learning from deaths work at The Royal Wolverhampton NHS Trust.
2. Support the shift in focus from 'hospital death rates' to 'healthy life expectancy' across the city, and the significant opportunity to prevent early deaths using a community Public Health model. Support our wider ambitions around optimising End of Life care in the city.

1.0 Purpose and Outline

- 1.1 The purpose of this report is to provide a summary of data relating to hospital and city-wide deaths in Wolverhampton, the implications of this data, and the recommended next steps and key messages around the subject of deaths in Wolverhampton.
- 1.2 This report has been produced following a collaborative consensus meeting between key partners across the healthcare system in Wolverhampton. The meeting was led on 12th October 2018 by the City of Wolverhampton Council's Public Health department and attended by key stakeholders from Wolverhampton Clinical Commissioning Group (WCCG), The Royal Wolverhampton Trust (RWT) and Councillor Hazel Malcolm (Cabinet Member Public Health and Wellbeing).
- 1.3 The first part of this report provides an overview of local statistics relating to hospital (Royal Wolverhampton NHS Trust - RWT) and city-wide mortality (Wolverhampton), with a summary of how these measures are calculated, and advice around their interpretation.
- 1.4 The second part presents a summary of the findings from the ongoing Learning from Deaths work at RWT, as well as a summary of next steps and key messages from our collaborative consensus meeting on themes related to mortality across the City.

2.0 Background

- 2.1 There has been significant media, political and academic interest in hospital mortality rates over the last decade, with several hospitals being the subject of public scrutiny around their hospital death rates.
- 2.2 There remains no international or even UK-wide consensus on the utility of hospital mortality statistics, and guidelines around the use of mortality statistics warn against automatically linking hospital mortality rates with care quality or comparing mortality rates between hospitals (NHS Digital, 2018). There is a lack of evidence linking hospital mortality rates with care quality, and studies exploring hospital mortality rates have found that other factors are more important when understanding why rates may be 'high': e.g. data coding, severity of illnesses, admission/discharge pathways, end of life pathways, and local population characteristics (Hogan et al, 2015; Girling et al., 2012; Pitches et al., 2007).
- 2.3 National guidance on Learning from Deaths was published in 2017, requiring hospital care providers to employ a consistent methodology for reviewing the care records of deceased patients to facilitate more focused learning from hospital deaths. This guidance forms the basis of RWT's ongoing Learning from Deaths programme.

3.0 Discussion: Hospital Mortality Statistics

3.1 Hospital mortality statistics are essentially based on a ratio:

$$\frac{\text{observed deaths}}{\text{expected deaths}}$$

The challenge with hospital mortality statistics continues to be around how we calculate 'expected deaths'.

3.2 Calculations of 'expected deaths' for any local hospital follow some essential steps:

- What *proportion* of people admitted to hospital die *nationally*?
- If this *national proportion* is applied to the number of patients admitted locally, how many deaths would we expect to see locally?
- Therefore, what is the ratio between the number of deaths seen and expected locally?
- A ratio close to 1 implies the number of deaths observed is as expected.
- A range is given above and below 1 to allow for chance variation in deaths, and any values outside this range are considered 'higher' or 'lower' than expected.

3.3 There are a number of reasons why any local hospital may have an expected death rate which is high for reasons other than care quality, including:

Age	Gender	Method of Admission	Previous Admissions
Lower life expectancy in admitted patients	Coding practices in the hospital around cause of admission and associated conditions	Severity of illness of those admitted: e.g. admission pathways for chest pain, stroke, trauma	Bed availability

End of Life infrastructure, which can care for the dying in the community.	Admission pathways which may receive regional patients with more serious issues	Severity of illness of those admitted: e.g. non-admitting discharge pathways for patients with milder illness	Un-modelled risk factors in the population (e.g. smoking, alcohol)
Local deprivation profile	Proportion of people dying in hospital	Hospital at Home systems	Local care home provision and processes

3.4 Historically, two statistics have been used to measure hospital mortality in England:

- HSMR – Hospital Standardised Mortality Ratio
- SHMI – Summary Hospital-Level Mortality Indicator

The SHMI measure replaced HSMR as a national statistic in England and has been reported quarterly since 2011 (now by NHS Digital). However, variants of HSMR and another indicator called RAMI are used in Scotland and Wales. Internationally, there is no further consensus on the use of any given statistic, and some countries do not report hospital mortality figures at all.

Both HSMR and SHMI calculate an expected death rate using the steps outlined above, but have some key nuances:

- The SHMI ratio reports on expected deaths during admission and up to 30 days following discharge, whereas HSMR counts deaths within 30 days from the date of admission
- SHMI adjusts 'expected deaths' to account for the following patient characteristics: age, gender, method of hospitalisation (emergency or planned), primary diagnosis, associated conditions. HSMR adjusts for a few other variables, including palliative care coding in hospital records, month of admission, deprivation and the number of previous admissions.
- SHMI covers a wider range of admitted patient records (~100%) compared to HSMR (~80%)

3.5 Data on SHMI is freely available on NHS Digital (<https://www.gov.uk/government/organisations/nhs-digital>), and data on HSMR is commercially available from Dr. Foster Intelligence.

4.0 Discussion: City-wide Mortality Statistics

4.1 Data on deaths across the city is based on information recorded on death certificates, which eventually is reported by the Office for National Statistics within ONS Mortality Statistics.

4.2 The advantages of this dataset over hospital mortality data are:

- Data captured since 1837
- More reliable data on cause of death
- Less affected by local admission and discharge processes
- Clearer picture of inequalities in life expectancy by ward, to inform action
- Can more easily compare areas of the country and make international comparisons

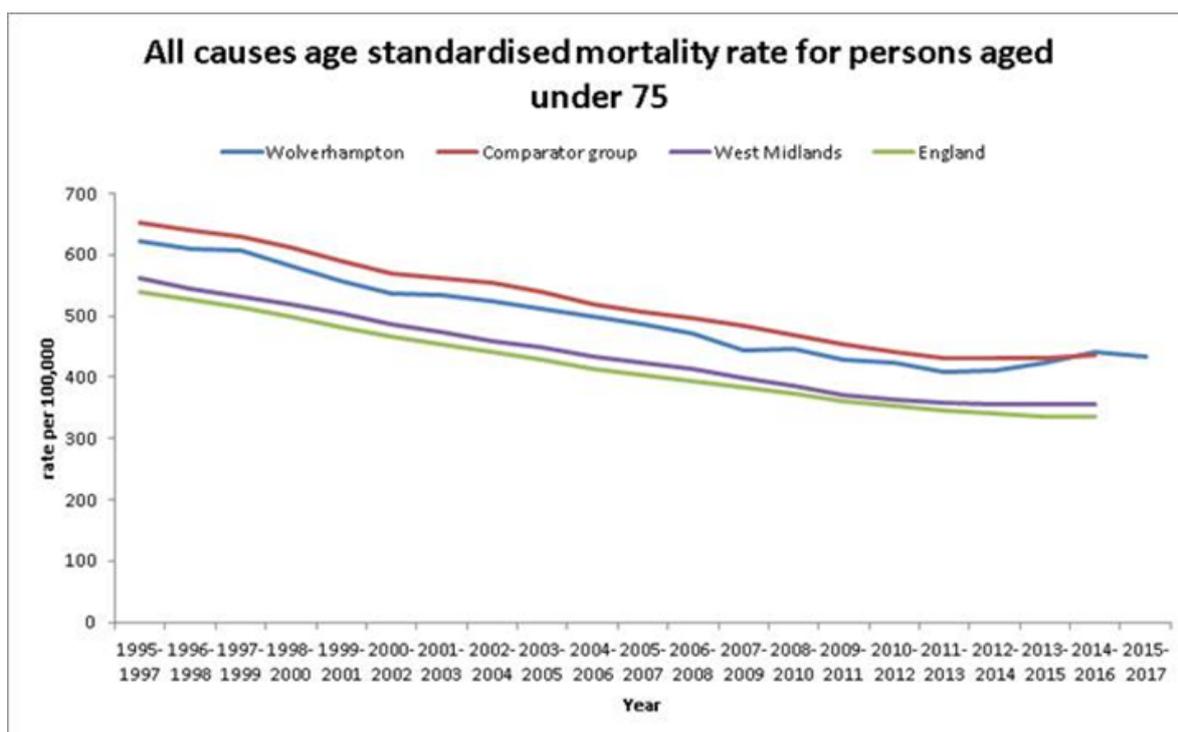
Some limitations include:

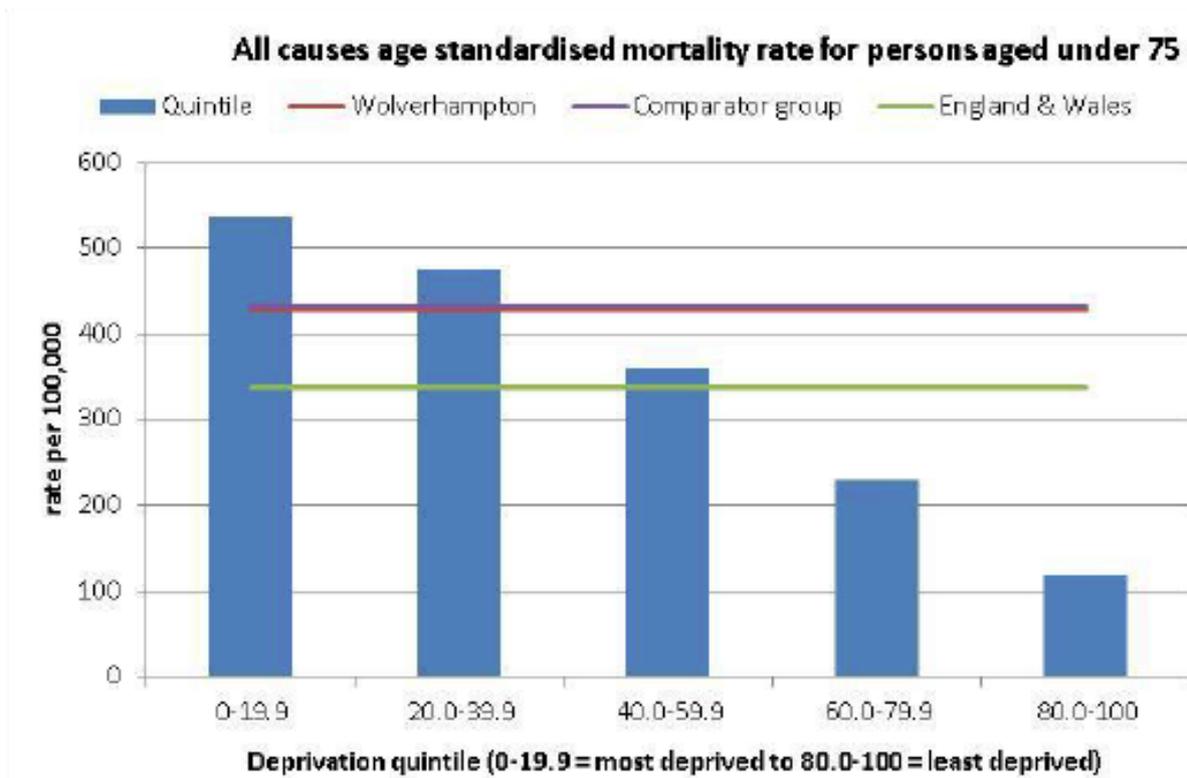
- Can be affected by population migration
- Can be affected by the presence/absence of local end of life care facilities

Overall, ONS mortality data is a more reliable and established dataset around deaths compared to hospital mortality data, and has been used by Public Health teams for many years to identify the causes of early death and disability in populations.

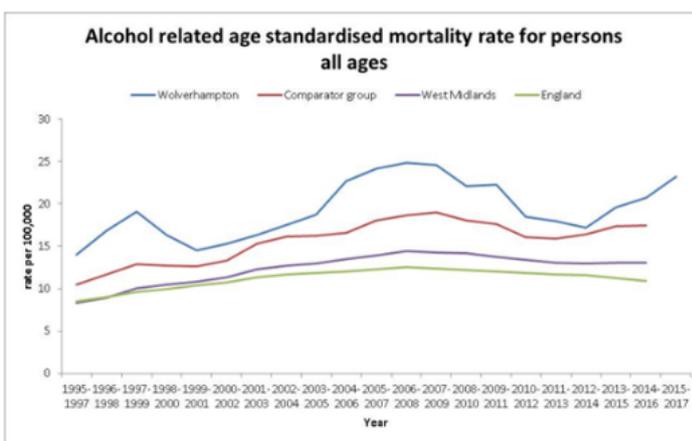
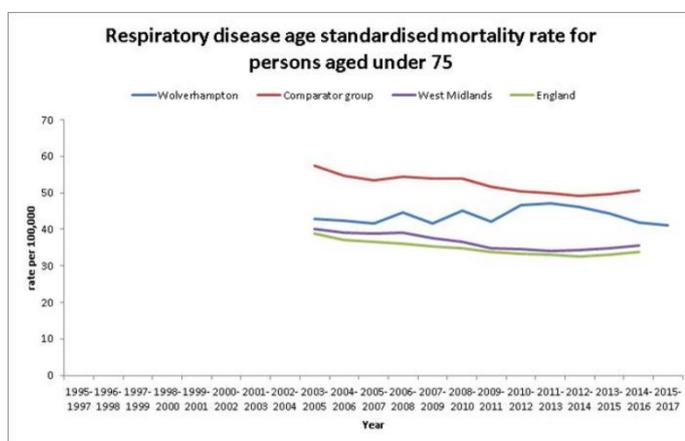
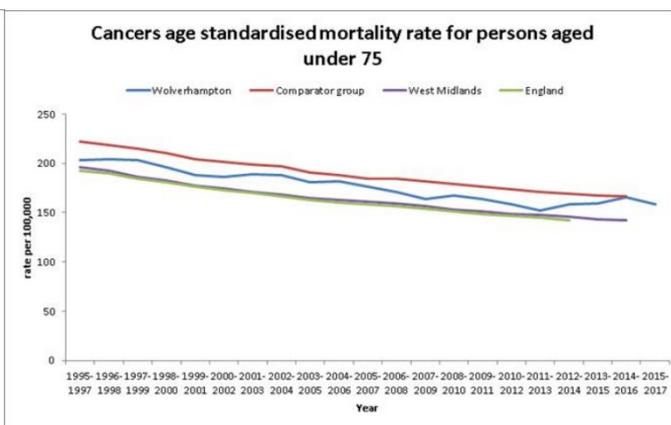
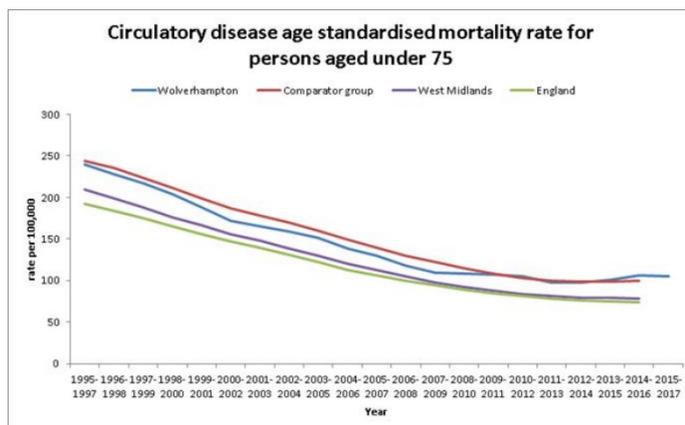
5.0 Analysis: City and Hospital Mortality data

5.1 The charts below summarise the key themes around death in Wolverhampton, and are based on ONS Mortality Statistics:

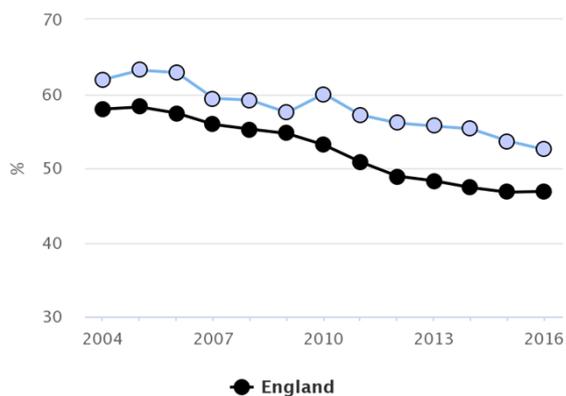




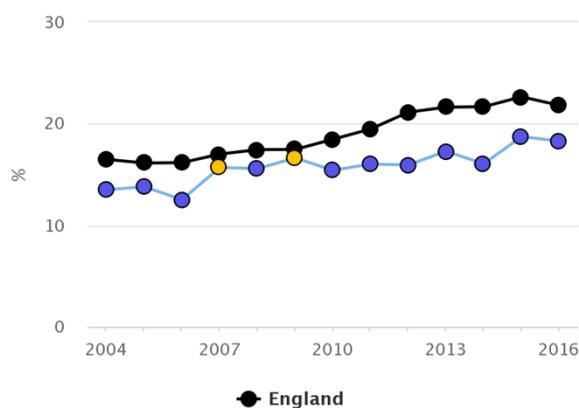
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Hospital deaths (%), Persons, All Ages. - Wolverhampton



Care home deaths (%), Persons, All Ages. - Wolverhampton



5.2 Key themes from city-wide mortality data:

- Wolverhampton, when compared to similar LAs (in terms of deprivation), has a similar overall death rate (adjusted for age). The similar LA's are part of the 'comparator group' projections in the graphs above.
- There has been some increase in deaths from circulatory diseases (such as heart disease and stroke) in recent years
- Circulatory diseases, cancers and respiratory diseases account for the top 3 causes of death in Wolverhampton, and share many essential risk factors (e.g. smoking, obesity)
- When compared to the West Midlands and the rest of England, Wolverhampton remains significantly high for overall death rates
- Wolverhampton continues to show a high rate of deaths related to alcohol, which has been a persistent theme for the city for several years
- We see a higher relative number of deaths in hospital than most of England

5.3 The table below shows the step changes in the SHMI indicator for RWT.

	2015/16	2016/17	2017/18	Trend
SHMI	105.34	116.7	121.89	↑
Expected number of deaths	2387	2190	2170	↓
Number of patients discharged who died in hospital or within 30 days	2515	2556	2645	↑
Number of mortalities occurring in the hospital	1895	1878	2015	↑
Number of total discharges	68655	68345	66662	↓
Percentage of mortalities occurring in hospital	75.35%	73.47%	76.18%	↑
Percentage of admissions with palliative care coding	1.29%	1.30%	1.50%	↑
Average comorbidity score per spell	4.22	4.07	4.23	↔
Crude mortality rate	3.66%	3.74%	3.97%	↑
Excess Deaths	128	366	475	↑

5.4 Currently, the SHMI for RWT is 122 (2017/2018 financial year).

5.5 Explanations for the raised SHMI include:

The SHMIs for RWT have increased from quarter 3 of 2015/2016, coinciding with the implementation of a new admissions model following the opening of the new Emergency Department (ED). The “Physician A” (admission avoidance) assessment model in ED has meant that significantly fewer admissions of certain low risk categories are being admitted. At the same time in England, admissions for the same categories have increased, leading to a lowering of nationally expected death rates. While SHMI adjusts for primary diagnosis on admission, it does not factor in the severity of the admitting diagnosis.

Despite a reducing number of expected deaths, local data suggests the population being admitted to the hospital is now increasingly frail and increasingly ill, suggesting that the expected death rate calculation is not adequately adjusting for patient profiles.

Other explanations for the raised SHMI at RWT include local capacity issues with palliative care teams, and the potential implications of the high proportion of people dying in hospital in Wolverhampton. Furthermore, as demonstrated by the city-wide ONS data on deaths discussed previously, there was no significant change in the local trends around city wide mortality in Wolverhampton during the period when the SHMI became elevated.

Some areas of data quality have also been identified, and work is currently underway to improve the accuracy of data, especially around the coding of the primary diagnosis and underlying conditions on admission.

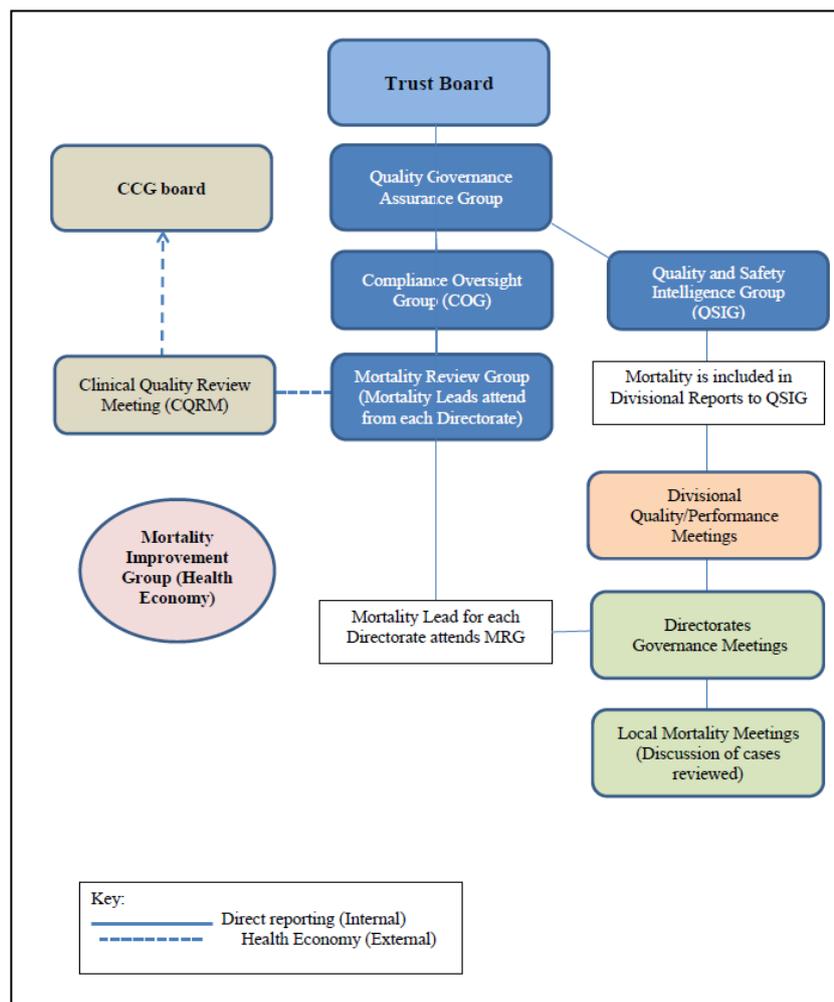
6.0 Discussion: Learning from Deaths at The Royal Wolverhampton NHS Trust (RWT)

6.1 The Royal College of Physicians (RCP) has been leading on the development of the National Mortality Case Record Review Programme, a standardised approach to mortality case record review for adult deaths in acute hospitals in England and Scotland. The method rolled out for reviewing deceased patients’ care is called the Structured Judgement Review (SJR). In addition to providing a structured approach in reviewing deceased patients’ care, guidance has been published to detail suggested approaches for clinical governance.

The main aim of undertaking the SJR process is for clinicians to learn from aspects of care that could have been improved even when death was inevitable and to identify areas of good practice as well.

6.2 Over a number of years, RWT have developed their approach to Learning from Deaths, with a focus both on understanding mortality data and on providing assurance (or otherwise) in relation to the clinical care provided to deceased patients. The Trust has a multidisciplinary Mortality Review Group which oversees case note reviews of deceased patients with senior clinical representation from all specialties, and is attended by colleagues from the CCG and Public Health for further oversight. In addition, an executive governance group meets regularly to oversee the work and provide assurance, particularly in relation to quality of care. The governance structures are represented below.

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- 6.3 The mortality review policy was amended in 2017 to align the internal processes with the national requirements. RWT was an early adopter of the SJR methodology developed by the RCP and trains clinicians in using this methodology for reviewing deceased cases. The main principles of the revised policy are as follows:

All deaths will continue to have an initial consultant led mortality review (peer review within directorate) called stage 1 review.

A stage 2 review arises where problems in care were found during a stage 1 review: an overall care score of 1 or 2 (out of 5). This will be a review undertaken by two clinicians (both trained in the SJR methodology) one of whom is a consultant – (peer review across the division), with involvement from multidisciplinary professionals as appropriate. During this stage 2 review an assessment will be made regarding the quality of care provided, and any learning points are identified and discussed within the directorate and also at the MRG. Learning is then shared through the Trust.

The assessment of avoidability of death is made through root cause analysis (RCA) of the case and not the SJR process.

Diagnostic groups with significantly elevated SHMIs are formally audited by case note review, to assess overall quality of care and review of any omissions in care. These reviews are undertaken by specialists in the diseased category. A coding review of primary and secondary diagnoses is also undertaken. Learning from audit and case note review informs quality improvement initiatives.

- 6.4 To date, internal mortality reviews and external audits have not identified systemic failures and issues with care that would result in excess mortality at RWT. Learning from deaths suggests that aspects of care could have been improved in about 3% of deaths, and themes for improvement include elements of sepsis care, management of the deteriorating patient, Mental Capacity Act, end of life processes and some areas of documentation. Areas of good practice identified (~50% of deaths) included multidisciplinary working, pressure ulcer management and emergency department assessments.
- 6.5 RWT is implementing the new Medical Examiner role, which would play a key role in the undertaking of mortality reviews in the future.

7.0 Proposals

7.1 Key messages:

- Hospital mortality statistics are rarely reliable markers of care quality in hospitals, and national guidance suggests they are used to support investigation, rather than to rank Trusts on care quality.
- Detailed case reviews provide the most reliable and actionable method of investigating care quality in relation to deaths in hospital, and form part of the Learning from Deaths programme at RWT.
- Findings from the Learning from Deaths work at RWT suggests that care quality is generally very high, and the proportion of cases where any element of care could be considered poor is low.
- RWT is collaborating with key stakeholders (including the CCG and Public Health) to ensure that processes/learning from hospital deaths is transparent and peer reviewed.
- Health and Care systems are working in partnership to develop pathways around end of life, frailty and dementia that allow early discussions around palliative care and place of death for Wolverhampton residents.
- Strategic focus around deaths data should shift from hospital mortality statistics and towards city-wide mortality statistics (ONS Mortality data), which give us a better picture of the inequality related to early death in our more deprived communities, and the underlying causes of death which lead to this inequality.

7.2 Next steps:

For RWT

- Work collaboratively to create a hospital mortality strategy
- Continue to audit case notes to learn from deaths through the nationally agreed SJR methodology, and act on findings
- Implement the Medical Examiner role
- Scale up consistent coding practices
- Involve external analytic support
- Improve IT infrastructure to streamline processes and data capture
- Implement process to review deaths within 30 days of discharge (through primary care)

For City

- Work collaboratively to create a city-wide mortality strategy, learning from city-wide deaths data as a starting point
- Expand the reach of End of Life care pathways, supporting patient choice in palliative care and place of death

8.0 Financial implications

8.1 There are no direct financial implications associated with this report
[MI/17102018/P]

9.0 Legal implications

9.1 This report is mainly for information and raises no legal implications. Strategies for the future may however do so.

9.2 The data sharing as recommended will involve only figures rather than specific individuals' circumstances so will not involve data protection.

9.3 Any IT or other purchases will involve procurement processes which will need to comply with the relevant procedures.

[LW/18102018/B]

10.0 Equalities implications

10.1 Early death (<75 years) is often the result of a lifetime of health inequality, and the following groups can be over-represented in early deaths across the city:

- Deprived Communities (7-8yr local life expectancy gap between richest and poorest)
- Men (3-4yr local life expectancy gap between men and women)

As we move strategically to consider the main causes of death in the city in detail, we will evaluate and respond to further inequalities in the distribution of these causes, as it is likely that for certain causes of death, other characteristics will be overrepresented (e.g. race, disability).

11.0 Environmental implications

11.1 None

12.0 Human resources implications

12.1 Will be system wide but within City of Wolverhampton Council will be managed within existing resources (Public Health Department)

13.0 Corporate landlord implications

13.1 None

14.0 Schedule of background papers

14.1 Health Scrutiny Panel Meeting (Public), Patient Mortality Rates. 25th January 2018.

15.0 References

15.1 Board NQ. National Guidance on Learning from Deaths A Framework for NHS Trusts and NHS Foundation Trusts on Identifying, Reporting, Investigating and Learning from Deaths in Care. First edition, 2017. <https://www.england.nhs.uk/wp-content/uploads/2017/03/nqb-national-guidance-learning-from-deaths.pdf>

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Girling AJ, Hofer TP, Wu J, et al. Case-mix adjusted hospital mortality is a poor proxy for preventable mortality: a modelling study. BMJ Qual Saf 2012;21:1052–6.
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Pitches DW, Mohammed MA, Lilford RJ. 2007. What is the empirical evidence that hospitals with higher risk adjusted mortality rates provide poorer quality care? Biomed Central Health Services Research. 7, 91.