Paper ref:	TB (12/18) 014

Sandwell and West Birmingham Hospitals NHS Trust

Report Title	Mortality: Big Six Delivery Milestones		
Sponsoring Executive	David Carruthers, Medical Director		
Report Author	David Carruthers, Medical Director		
Meeting	Trust Board	**Date**	6th December 2018

1. Suggested discussion points *[two or three issues you consider the Trust Board should focus on]*

This report looks at progress in addressing elevated Trust mortality rates. The areas of work are:

1) Increasing the understanding and influences on mortality data, with new information provided on the likely effect of reduced admissions on increasing mortality ratios, as well as developments in improving documentation for more accurate coding.
2) Developments in the first 2 components of the quality plan, looking at sepsis and VTE prophylaxis. There is increased engagement by staff in recording sepsis screening assessments, while data analysis of sepsis mortality data has been undertaken and delivery of the quality improvement projects for both sepsis and VTE are progressing. National quality data for stroke and MI are awaited to feed into QI work in these areas.
3) There is improvement in mortality reviews now to 70% with development of the medical examiner role. Importantly the reporting and learning outcomes from these mortality reviews and the Learning from Deaths Committee are being reviewed.

2. Alignment to 2020 Vision *[indicate with an 'X' which Plan this paper supports]*

Safety Plan	**x**	Public Health Plan		People Plan & Education Plan	
Quality Plan	**x**	Research and Development		Estates Plan	
Financial Plan		Digital Plan		Other *[specify in the paper]*	

3. Previous consideration *[where has this paper been previously discussed?]*

Clinical leadership executive and Quality and safety committee

4. Recommendation(s)

The Trust Board is asked to:

a.	**NOTE** the factors that may influence mortality data and the possible impact of future service change on these ratios
b.	**REVIEW** the update on the quality plan, particularly with respect to sepsis and VTE
c.	**NOTE** the plan to improve documentation

5. Impact *[indicate with an 'X' which governance initiatives this matter relates to and where shown elaborate]*

Trust Risk Register								
Board Assurance Framework	x	BAF 3						
Equality Impact Assessment	Is this required?	Y		N	x	If 'Y' date completed		
Quality Impact Assessment	Is this required?	Y		N	x	If 'Y' date completed		

Sandwell and West Birmingham Hospitals Report

Report to Trust Board: 6th December 2018

Mortality: Big Six Delivery Milestones

Introduction

1. The Trust is an outlier in terms of its mortality data, a worsening position over the last 2 years. Some of the process factors behind this have been previously discussed while those clinical areas of greatest concern were identified within the Quality Plan as needing further investigation. This report looks at progress in understanding and improving mortality indices in five main sections:

    1) Understanding Trust specific mortality data
    2) Quality Improvement to address specific issue
    3) Approaches to getting the basics right
    4) Governance around mortality
    5) Next steps within Quality plan

2. Understanding Mortality Data

a. Indices for Mortality

The Learning from Deaths committee produces a regular report looking at Trust mortality rates for SHMi, RAMI and HSMR. These continue to show an elevated position over the last 12 month period for RAMI (104), SHMI (113) and HSMR (128). Site differences persist (Sandwell RAMI 111, City 95) as do higher mortality rates at the weekend v weekday admissions (RAMI weekend 119 v weekday 99) (appendix 1 – Learning from Deaths).

b. Specialty specific ratios

In addition, specialty specific data are looked at which identify areas where additional focus may be needed. Of note, recent data for gastroenterology and respiratory are higher than expected while high rates are also seen for trauma and orthopaedics, paediatrics (report pending) and critical care. Outliers are discussed at monthly learning from deaths committee with further reports requested where indicated.

c. Diagnosis specific ratios

This allows clinical disease groups to be identified where a greater focus may be needed in understanding if there are performance issues. In respect of the quality plan the actual v expected deaths for the most recent time period available (July 2017 – June 2018) are Sepsis (actual: 152 v expected: 126), Thromboembolism (4 v 3), MI (45 v 43), CVA (93 v 87), NOF (34 v 30), Pneumonia (337 v 307).

This supports the importance of focus on infective causes of increased mortality while consideration is continued to be given to both local and national outcome data for the other disease specific areas in the quality plan.

d. Influences on mortality indices

i. Palliative care

Influences HSMR and to a lesser extent RAMI data and is reported directly onto system to confirm all patients requiring a palliative care code.

ii. Depth of Coding

Influences all indices to some degree and is felt to be under recorded for SWBHT patients. An increase in depth of coding may influence SHMi value by upto 4 points and will improve accuracy of data.

iii. Change in admission profile

A change in hospital admissions will also adversely affect mortality data as a fall in admissions will reduce the number of expected deaths but the sickest patients will still be admitted, thus not affecting the actual number of deaths. This will lead to a rise in mortality ratios (actual/expected). An increase in patients seen in ambulatory areas who would previously have been admitted to acute units may be one of the factors leading to this fall in SHMI spells, fall in zero hour admissions and subsequent fall in expected deaths (appendix 2). This may account for a rise in SHMI data by 4 or 5 points.

3. Quality Improvement to address identified issues

The quality plan identified 6 areas to focus on to improve mortality. Infective causes and septicaemia in particular is the main area to focus on, supported by the above data. VTE assessments and prophylaxis is an important safety area. Several approaches have been taken in these 2 areas to improve management of these clinical areas.

a. Sepsis

i. Ward engagement

- **Actions for NEWS>5**

Flow chart for reminder of actions for NEWS>5 and what to do for those where sepsis screen negative (appendix 3+4)

- **Patient sepsis screening reporting using eBMS flags**

Using eBMS system to record that sepsis screening taking place on wards for patients with NEWS>5. Process settling in as staff get used to new system. Regular visits to wards

to embed recording system, daily sepsis report showing where screenings occurred and recorded allowing real time feedback to staff where appropriate escalation may not have happened (and positive feedback when it does happen). Screening being reported as done now in 1:1.9 patients with NEWs>5 as opposed to 1:9 originally.

- **Alert/action cards**

Credit card sized cards for ward staff as reminder for actions for sepsis screening and sepsis 6.

ii. Sepsis Data

Data analysed for 115 sepsis deaths in last 12 months (both RAMI and SHMI analysed) (appendix 5). Trends or areas that require renewed focus were screened for. Support is provided from this data for analysis of sepsis pathways on medical wards at Sandwell but no weekend admission effect identified.

- **Patient groups**

No significant differences in patient demographic between hospital sites.

M:F 65:55, mean age 77

- **Patient specialty**

Higher number of deaths within medical specialities at Sandwell (elderly care, respiratory and gastroenterology) but no weekend effect for sepsis based on day of admission.

- **Patient diagnosis**

Within this septicaemia group the most frequent infection sources were respiratory, skin and urine.

- **Associated medical conditions**

Acute renal failure was an associated comorbidity in 75% of patients with sepsis. Underlying cancer and dementia were other highest comorbidities.

32 out of 133 patients had a diagnosis of palliative care

- **In/out of hospital**

Within SHMI data 25 sepsis deaths were out of hospital in a variety of locations but mainly at home. There were fewer deaths during the summer months in the sepsis diagnostic group.

b. VTE

Undertaking and documenting compliance with VTE assessments is an important measure of safety in the Trust. UNITY will provide a single source solution to this, improving compliance, monitoring and patient safety. However, it is not appropriate to continue to hold on for UNITY and changes need putting in place now to improve safety by reducing the risk of this complication.

i. Assessment compliance

Compliance has been running at a rate of 93% for 4 months, rising to 94.33% last month. One area for improvement has been around identification of those patients who should be classed as day-cases and thus not included in this in-patient data. In addition, improving compliance is being addressed by communication to junior staff, work with chief registrar, pre-weekend messages to on-call teams (senior and junior) to make sure checks are done and visits to board rounds to encourage undertaking of uncompleted checks. Deeper understanding of current IT limitations in recording of data is being obtained (eBMS v iCM v CDA reports and A+E v AMU recording of assessment) and modifications in these systems sought pre UNITY to facilitate junior staff recording of assessment.

ii. Recording and assessment of Hospital Acquired VTE (HAVTE)

The process for reporting and investigation of HAVTE is under review (see Quality Improvement plan later).

c. Fracture NoF

Data analysis completed of 33 deaths of patients with #NoF during 2017. When the final review of this data is undertaken, the NoF pathway will be reviewed and presented to WMQRS visit in February 2019 (date and agenda to be defined after data analysis complete).

Data to date: Fracture NOF – little change in mortality data over a 2 year period:

June 16 – July 17 (29/27 actual/expected deaths) v June 17 – June 18 (34/30)

However Safety alert 2017 – 18 when midyear mortality ratio increased.

Data collection undertaken:

- complete for 31 patients (average age = 85, 14 male, 17 female).
- 52 data fields completed including info on day of admission, delay to surgery, Nottingham fracture score, specialist falls assessment and assessment by geriatrician within 72 hours
- Review from anaesthetics also undertaken: identified learning in the following areas ;
    - **Preoperative assessment (**Poor preoperative medical assessment, Consent and Medical capacity & DNA CPR decision, Medical assessment and Risk assessment)

- **Use of cement: Cemented arthroplasty;**
- **Documentation**
- **Ward care**
- **Team communication**
- **Risk Management.**

- Learning alerts produced for anaesthetics department from 2 cases.

The full report is awaited later this month; WMQRS #NOF formative review date booked for 6th February 2019.

d. MI

This is one of quality plan items based on high mortality rates which have remained stable based on recent SHMI data (45 actual v 43 expected deaths – same for 2016 – 17 and 2017-18).

Data from this period has examined and is to be cross referenced with national audit data from cardiology (to identify if patients are miss coded or never reached the cardiology service when they should have).

- 41 patients in recent reference range: RAMI similar data at SHMi.
    - Demographics 26 male, 15 female. Average age = 75 (male = female).
    - Average in patient stay prior to death = 4.5 days (no link of duration of stay and death with specialty they were under).
    - Type of ischaemia: 21 transmural, 20 subendocardial infarction
    - 33 died at City, 3 at Sandwell, 2 at home, I at Rowley
    - Host team: Cardiology 21 (20 of these had a revascularization procedure), General medicine 12, Gastro 2, Geriatrics 3, Respiratory 2.

  Many non-cardiology patients were on critical care (4) at some time and those who died and were not under cardiology had a variety of other problems – e.g. out of hospital cardiac arrest, surgery for ischaemic bowel with mention of MI on death certificate.

  These data will be compared with the recently published national audit data on performance for cardiology from NICOR (National Institute for Cardiac Outcomes Research) report periodically. The reports for 2016-17 (there are always long delays in obtaining national mortality data) were published on 22 November. For the first time, this will include all 6 national cardiac audits - we don't do cardiac surgery, or congenital heart disease here, but there will be data on the 4 audits we contribute to - PCI, heart

rhythm (pacemakers and devices), heart failure and MINAP (Myocardial Ischaemia National Audit Project).

- Initial analysis of cardiac ischaemia data shows:
    - MINAP (Myocardial Ischaemia National Audit Project) – The most important data is 30 day mortality data. For City in 16-17, reported as 11.40% (unadjusted) vs national average 11.66%. The average is for all hospitals, PCI centres average 9.39%. All these data are raw figures, not adjusted.
    - Data on times are good (93.66% call to balloon time <150 mins, national average 72.25%) and also figures for use of medications (dual antiplatelets, statins etc) are excellent.
    - BCIS (Intervention): the overall 30 day survival figures for all PCI procedures look good – 97.89% (predicted 97.80%).

Meeting arranged for mid december to review plans for whether further work is needed in this diagnostic group, particularly around previous data suggesting higher weekend mortality in myocardial ischaemia as a subset. However, overall mortality data currently reassuring.

e. CVA

Current SHMI data for CVA shows some excess mortality (95 actual v 87 expected). National audit data from Sentinel Stroke National Audit Programme (SSNAP) for 2016-17 provides mortality at SWBHT for Stroke at 13.5% which is the national average for stroke admissions and comparable to other units in the region. The same data for 2017-18 should be available soon.

- Specific patient details for stroke deaths in last 1 year are reviewed here;
    - Includes broad group of cerebral injury – Sub arachnoid haemorrhage, subdural bleed, intracerebral bleed, cerebral infarction, stroke (not specified) and 'other cerebrovascular disease'
    - Some year on year variability in outcomes for SHMI data: June 16 – Jul 17 (Actual/expected deaths = 94/97) compared with July 17 – June 18 (93/87)
- Data analysis: (April – March 2018)
    - 97 deaths, 87 expected (RAMi); 101 v 92 (SHMI = 109)
    - 93 died In hospital (86 at Sandwell, 11 at City). 3 at home, 2 at nursing home, 3 unrecorded location. Gender; Male 40, women 57. Average age = 77 (34 – 102). Average duration of stay 11 days .

- Cared for under a variety of specialties (surgery, T+O, A+E, critical care). 67 in general medicine of which 53 were under stroke medicine. GI had 7, rehab 2, respiratory 4 and elderly care 8.
- Type of acute cerebral vascular disease: 5 SAH, 5 subdural, 29 intracranial haemorrhage, 52 cerebral infarction, 6 not specified

- Secondary diagnoses:
  - Cancer 23, hypertension 63, cardiac ischaemia 24, atrial fibrillation 28, pneumonia 40
- **Messages from this data are**: hypertension important to be managed, AF controlled and anti-coagulated. Pneumonia appears a common terminal event.

f. Surgery

The project as set out by the surgical team last year was that all high risk surgical patients must undertake mortality risk assessment, inclusive of clear documentation and clear informed patient engagement and consent to ensure most appropriate pre and post operative care.

Aims:

- To reduce Mortality rates within national averages.
- To improve patient outcomes inclusive of morbidity.
- To facilitate best use of resources.

Review of progress on the aims of the project is being undertaken, including upto date mortality and performance data and review of current pathway where change has occurred. (appendix 6).

4. Maintain Focus on doing basics of care well

Getting the basic areas right is key to management of the acutely unwell patient. Working with clinical teams (medical and nursing staff) is important to highlight the importance of these areas of clinical care. Outputs from the Medical Examiners need to feed into learning in these areas.

a. The 4 main areas:

These focus on management of sepsis, the deteriorating patient, acute renal failure and VTE prophylaxis. These areas are covered in aspects of the quality improvement project and the Trust data on sepsis showing the high incidence of co-existent renal failure in sepsis patients

(appendix 5) reaffirms the importance of management of fluid balance during septic episodes. This will be part of the quality improvement work in sepsis.

b. Mortality reviews and role of ME

Recruitment to the role of Medical Examiner and re-establishing the process for mortality reviews is starting to take place with an improvement in mortality reviews from ~43% over last few months to close to 70%. A further improvement on this should be seen with a focus on (manual) allocation of non-ME cases to other consultant staff for review and an improved recruitment (3 more medical examiners) to the role.

The need now is to establish the reporting process so that information from these ME reviews and LfD committees get out to specialties and that any general learning will be shared by all groups (at EQC). Some of the areas to focus on after a review visit by NHSi are:

- The Committee should consider strengthening its mortality summary report and other reports presented to include key learning from the mortality reviews and actions being taken to drive improvements, including clear timescales for the completion of actions.
- To ensure that following each paper presented, clear actions are agreed, including their timescales and ownership.
- The Committee should be systematically sighted on any learning being taken forward by individual specialties and develop a governance process to ensure this takes place.

A process for improving actions and learning from mortality reviews and the LfD committee is being developed as is a restructure of how the Groups report into the committee having reviewed relevant cases. Summary report for shared learning and confirmation that actions are undertaken will be via EQC.

5. Governance around mortality

Regular review of quality plan progress at Quality and Safety committee with Board updates 3 monthly and monthly learning from Death committee, developing report to EQC to oversee actions from the mortality reports.

6. Next steps in mortality work

The following areas will be of importance over next few months to understand data quality, actions needed and on-going over sight of mortality data.

a. Predict changes in mortality data that occur with service developments

Multiple factors impact on mortality data, but as illustrated earlier, a fall in in-patient admissions with a shift to more ambulatory care appears to have a negative impact on mortality data. This is illustrated by the likely impact that the increase in activity within

ambulatory medical units over the last 2 years has had with the same likely to occur in ambulatory surgical units where progress is being made in moving patients form in-patient to out-patient (ambulatory) activity. By minimising hospital admission with these service improvements there appears to be a negative impact on mortality data, hence the increased importance of a focus on improving those aspects that are within our control (improved documentation to aid accuracy and depth of coding) and quality plan (The Big 6 - See below).

b. Maintain Focus on doing basics well

Sepsis/VTE/deteriorating patient/renal failure – all aspects covered within the quality plan (see section 5.3)

c. Improve documentation (improve coding accuracy and depth of coding)

Many chronic comorbidities will be recorded in UNITY and available for coding for subsequent admissions. This will reduce the need for repeat transcription of these diagnoses. It is possible to identify those comorbidities that will be possible to pull through into UNITY and also to use that process to identify where current documentation of these comorbidities has been omitted by the clerking doctors. This auto-coding will improve depth of coding and move us closer to how coding practice will work with UNITY (appendix 7).

Coding is dependent on how information is recorded within the medical record. A focus on clinical documentation and terms to be used (and those avoided) can lead to an improved depth of coding and avoidance of signs and symptoms (R codes) within coding data. An information document for medical staff is prepared and ready for distribution (appendix 7) with a summary available for quick reference in clinical areas.

d. Quality plan progress

i. Sepsis

There are 3 main phases to the project which are getting underway:

Ward teams are working hard to identify and act appropriately for all patients with a NEWS>5. This is now based on the record in eBMS that sepsis screening has occurred when NEWS>5 on VITAL pac. Flow charts and alert cards have been distributed to wards to help with this (appendix 2+3). The project now is to examine

- Patients with NEWS>5 who were sepsis screen positive.
    - Did they get the sepsis 6 (all components) within 1 hour? Which areas of the sepsis 6 were not completed? Identify reasons for this.
    - Patients with NEWS>5 who were sepsis screen negative – were appropriate escalations in place including repeat observations as indicated on VITAL pacs as part of escalation policy for sick patients?

    - Review patient demographics and clinical features for each group as well as source of infection, identified organisms and risk factors
    - Identify common clinical themes that might allow earlier identification of patients at risk
    - Was fluid balance appropriately managed in first 24 hours to avoid ARF
- Patients who die from sepsis will have their records reviewed by medical examiners and outputs from these first stage reviews will be analysed to establish identifiable improvements in care. This will be done in conjunction with the learning from deaths committee.
- Educational material for sepsis given to patients on admission and on discharge. What information is currently available to inform patients of what to look out for and how to reduce the risk of infection in the different clinical areas. Wider training for staff in sepsis (multi-disciplinary simulation) will be considered.

Next steps: trainees to attended quality improvement training session 21/11/18 and then develop a proforma for data collection for patients with NEWS>5 that need reviewing, allocation of specialty/ward areas to trainees to allow these reviews to occur (using the 'ticks and crosses' daily report for sepsis screening). Link in with the output from Medical Examiner work. Review specialty based information on sepsis.

ii. VTE

There are 3 main phases to the project:

- Risk reduction: review of reasons for patients missing the VTE assessment being recorded. This is a retrospective look at why VTE assessments may not be recorded.
    - Review of healthcare records of patients in previous month with no VTE assessment recorded. Was it:
        i. not done
        ii. done but not recorded on trust systems (recorded in records and prophylaxis prescribed or identified as not needed)
        iii. on alternative form of anti-coagulation and assessment not done
        iv. if assessments done after 24 hours was prophylaxis needed/not needed or already prescribed
    - Consider reasons why VTE assessment not undertaken and approach to improve.
        i. Relationship to IT issues (most recording done using eBMS, though iCM also an option but the 2 systems aren't necessarily linked to allow a VTE assessment undertaken on iCM to be added to the record on eBMS, though both feed into the central CDA record. iCM assessment can be done in ED, eBMS cannot until patient admitted to a ward area).
        ii. Subconscious factors identified from analysis in stage 1 above
        iii. Volume of work and loss of focus on doing assessments.
- Examine patient records who have a hospital acquired VTE (HAVTE).

- Retrospective look at patients with PE/DVT hospitalised in last 3 months.
    i. Based on ICD10 codes having identified cases (~30/month) look at imaging reports/records and identify those patients from this group with HAVTE (including within hospital in last 90 days)
    ii. examine in more detail using established RCA (root cause analysis) form to look for avoidable factors
- Prospective examination of cases on a month by month basis
    i. identified by Incident form completion for all HAVTE and cross referenced by thrombosis lead from ICD10 discharge codes.
    ii. All will require attending clinician to complete the RCA form and return to thrombosis lead. Incident tool to be changed and reporting requirement to be notified to all clinicians.

- Educational information provided to patients
    - Review of material available to patients/carers on admission and on discharge about risks of VTE and how to minimise that risk.
    - Consider if a generic information sheet can be produced +/- specialty specific section
    - Consider asking patients/carers for their views/understanding.

Next steps: QI training sessions 21/11/18, list of patients with missed VTE assessment allocated to individuals, Month worth of cases with VTE to analyse whether Hospital acquired or not (from Dr Sivaram) and subsequent in depth RCA analysis, review of information available in different clinical areas for patients on VTE.

Summary and points for discussion:

- Mortality data has many factors that may have an influence and we have identified the role of palliative care, coding and here also discuss the effect of reduced admissions.
- Changes in pathways in the future may further influence mortality data so we need to be aware of this but focus on areas that we can improve both from the process (improve documentation for coding of complexities and comorbidities) as well as those clinical areas where data indicates that improvement in care may be needed.
- Focusing on getting the basics right in acute care, particularly around sepsis as well as the learning from mortality reviews is key and something that is a major focus over the coming months.
- There has been progress in sepsis recognition and improved mortality reviews while the training in good documentation should have an effect prior to after introduction of UNITY
- Mortality data for stroke and cardiac ischaemia is being looked at with reference to national data but outcome differences are not as great as those suggested with sepsis.

David Carruthers
Medical Director
November 2018

Appendix 1 LfD pdf

Appendix 2 zero stays data

Appendix 3 flow sheet for NEWS > 5

Appendix 4 chart for actions with NEWS > 5

Appendix 5 RAMI sepsis data April 2017 – March 2018

Appendix 6 Surgery plan

Appendix 7 Coding paper

LEARNING FROM DEATHS COMMITTEE

DOCUMENT TITLE:	Monthly Mortality Report
SPONSOR (EXECUTIVE DIRECTOR):	Medical Director
AUTHOR:	Mumtaz Goolam, Clinical Effectiveness Lead- Mortality
DATE OF MEETING:	22nd Nov. 2018

EXECUTIVE SUMMARY:

The report is designed to inform the Learning from Deaths (LfD) Committee of the summary mortality data for the most recent month and 12-month cumulative period.

The Trust's **RAMI** for the most recent 12-month (July 2018) cumulative period is 104, which is marginally outside statistical confidence limits and an increase to that of the National HES Peer which is at 88. The City site RAMI is within statistical confidence limits (95), with the Sandwell site RAMI (111), outside statistical confidence limits. There were 1591 deaths at the Trust when 1525 was expected, calculating a total of 66 excess deaths.
The in-month RAMI for Trust is at 104, the City site is at 106 and the Sandwell site is at 103, all within statistical confidence limits.

The CHKS RAMI value is due to be rebased in December 2018 as part of the annual rebasing and refresh programme and will be reporting 2018 RAMI values.

Specialty-specific RAMI data:

- The **in- month** (July 2018) RAMI value for the **Nephrology Specialty** for the Trust is at 627, outside upper statistical confidence limits and the City site is 623, also outside upper statistical confidence limits. The Sandwell site value is at 0, below statistical confidence limits. There was 1 patient death in this period when 0.161 was expected, calculating a total of 0.84 excess patient deaths.

- The **in- month** (July 2018) RAMI value for the **Critical Care Medicine Specialty** for the Trust is at 938, outside upper statistical confidence limits. The City site value is at 1806 and the Sandwell site value is at 634, also outside upper statistical confidence limits. There were 2 patient deaths in this period when 0.213 was expected, calculating a total of 1.79 excess patient deaths.

- The **in- month** (July 2018) RAMI value for the **Ophthalmology Specialty** for the Trust is at 333, outside upper statistical confidence limits. The City site value is at 335, also outside upper statistical confidence limits and the Sandwell site value is at 0, below statistical confidence limits. There was 1 patient death in this period when 0.301 was expected, calculating a total of 0.70 excess patient deaths.

- The **in- month** (July 2018) RAMI value for the **Obstetric Specialty** for the Trust is at 2451.1, outside upper statistical confidence limits. There was 1 patient death in this period when 0.041 was expected, calculating a total of 0.96 excess patient deaths. This was a perinatal death, born before arrival.

- The **12 month** (July 2018) RAMI value for the **Cardiology Specialty** for the Trust is at 103 within statistical confidence limits. The Sandwell site is 61, within statistical confidence limits. The City site value is at 122, outside statistical confidence limits. There were 76 patient deaths in this period at the City site when 63 was expected, calculating a total of 13 excess patient deaths.

- The **12 month** (July 2018) RAMI value for the **Gastroenterology Specialty** for the Trust is at 115 and the Sandwell site is 124, both outside statistical confidence limits. The City site value is at 99, within statistical confidence limits. There were 196 patient deaths in this period when 171 was expected, calculating a total of 25 excess patient deaths. Trust investigation in progress, report due to the LfDC in Dec. 2018.

- The **12 month** (July 2018) RAMI value for the **Nephrology Specialty** for the Trust is at 515.4 and the City site is 515.4, both outside statistical confidence limits. The Sandwell site value is at 0, within statistical

confidence limits. There was 1 patient death in this period when 0.194 was expected, calculating a total of 0.81 excess patient deaths.

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- The **12 month** (July 2018) RAMI value for the **Gynaecology Specialty** for the Trust is at 118 and the City site is 66, both within statistical confidence limits. The Sandwell site value is at 542, outside statistical confidence limits. There were 2 patient deaths in this period when 0.37 was expected, calculating a total of 1.63 excess patient deaths. Following review, both the patients have been coded to the wrong Specialty.

- The **12 month** (July 2018) RAMI value for the **Obstetric Specialty** for the Trust is at 1116, outside upper statistical confidence limits. There were 3 patient deaths in this period when 0.269 was expected, calculating a total of 2.73 excess patient deaths. There was 1 maternal death, and is being investigated as part of the HMC process and the Trust's Serious Incident Review process. This death has also been submitted to the MBBRACE study. The other 2 deaths were perinatal deaths at Day 0.

- The **12 month** (July 2018) RAMI value for the **Paediatric Specialty** for the Trust is at 130 and the Sandwell site is 45, both within statistical confidence limits. The City site value is at 146, outside upper statistical confidence limits. There were 34 patient deaths in this period when 23.2 was expected, calculating a total of 10.8 excess patient deaths. Trust investigation in progress, report due to the LfDC in Nov. 2018.

CQC-CCS Diagnoses Groups

The RAMI value (July 2018) in the **Ophthalmology Specialty in the CQC-CCS Diagnoses Groups** is 931, which is outside upper statistical confidence limits. There was 1 patient deaths in this period when 0.107 was expected, calculating a total of 0.89 excess deaths.

Mortality rates for the **Low Risk Diagnoses Groups** is within statistical confidence limits.

Weekend and Weekday Mortality

The **12-month Weekend** RAMI value (July 2018) for the **Trust** is 119, which is **outside** statistical confidence limits, and the **Sandwell site** value is at 133 which is **outside** statistical confidence limits. There were 448 patient deaths in this period, when 375 was expected, calculating a total of 73 excess patient deaths. The **City site** value for **Weekend** mortality is 98, which is **within** statistical confidence limits.

The **12-month Weekday** RAMI value (July 2018) for the **Trust** is 99, **within** statistical confidence limits. The **Sandwell** site and **City** site values are also **within** statistical confidence limits, at 94 and 103 respectively.

The **in-month Weekend and Weekday** RAMI values for the Trust, City and Sandwell sites are within statistical confidence limits.

The **Weekend-Weekday** mortality indicator values are being monitored at the monthly meetings of the Learning from Deaths Committee. The Trust Board have been informed via a Paper specifically analysing Weekend and Weekday Mortality in March 2018, June 2018 and September 2018. There is ongoing scrutiny and analysis of the Weekend effect on mortality data at SWB NHS Trust, as part of the Quality Plan and the Mortality Improvement Plan.

The report includes data derived from *HED* for the **Summary Hospital-level Mortality Indicator (SHMI)**.
Due to difficulties with accessing ONS data, NHS Digital were not able to release the SHMI values for a 4 month period to HED, Mortality intelligence provider to SWB NHS Trust. Data is now available and this report will include data for March 2018. Data for January 2018 and February 2018 has been updated in this Report- November 2018. No new outlier diagnoses groups have been identified.

The SHMI includes all deaths up to 30-days after hospital discharge and is currently 113 for the Trust for the most recent period (March 2018) for which data is available. The SHMI value for the Trust is outside statistical

confidence limits. There were 2167 deaths in this period when 1912.64 were expected, calculating a total of 254.36 excess deaths.

The **SHMI** value for all Diagnoses groups are **within** statistical confidence limits, except for the Gastroenterology Respiratory Medicine and the Critical Care Specialty.

The **SHMI** value for the **Gastroenterology Specialty** is 124, which is outside statistical confidence limits. There were 269 patient deaths when 216.66 was expected, calculating a total of 52.34 excess patient deaths.
The **SHMI** value for the **Respiratory Medicine Specialty** is 126, which is outside statistical confidence limits. There were 336 patient deaths when 266.42 was expected, calculating a total of 69.58 excess patient deaths.
The **SHMI** value for the **Trauma and Orthopaedics Specialty** is 132, which is outside statistical confidence limits. There were 175 patient deaths when 132.33 was expected, calculating a total of 42.67 excess patient deaths.
The **SHMI** value for the **Critical Care Specialty** is 320, which is outside statistical confidence limits. There were 27 patient deaths when 8.44 was expected, calculating a total of 18.56 excess patient deaths.

The report includes data derived from *HED* for the **Hospital Standardised Mortality Ratio (HSMR)**. The HSMR is currently 128 for the Trust for the most recent period (June 2018) for which data is available. The HSMR value for the Trust is outside upper statistical confidence limits. There were 1340 patient deaths when 1047.75 was expected, calculating a total of 292.25 excess patient deaths. There is ongoing work with the Palliative Care and Coding teams to ensure accuracy and consistency of the coding data for this diagnostic category. Also all Mortality Outlier Alerts are closely monitored and scrutinised to identify trends and subsequent investigations at Specialty level are conducted. The resultant quality improvement initiatives and actions plans identified are monitored through various Corporate workstreams and the Quality and Safety plans.

A specific report on **Stroke Mortality (I60-I67)** is included, with data split by diagnosis and site. The aggregate RAMI for the month and 12-month cumulative period of the various Stroke Primary Diagnoses for the Trust is within statistical confidence limits.
The in-month RAMI for the various Stroke Primary Diagnoses for the Trust is within statistical confidence limits at 73, with both the City and Sandwell sites also within statistical confidence limits at 0 and 77 respectively.
The **I64- Stroke not specified as Haemorrhage or Infarction**, Stroke Primary Diagnosis group is outside statistical confidence limits at the City site with a value of 556. The Trust level value is 132 and the Sandwell site value is 75, both within statistical confidence limits. There was 1 patient death when 0.180 was expected, calculating a total of 0.82 excess deaths.

REPORT RECOMMENDATION:

The Committee is asked to NOTE the report and its associated executive summary.

ACTION REQUIRED *(Indicate with 'x' the purpose that applies)*:

The receiving body is asked to receive, consider and:

Accept	Approve the recommendation	Discuss
		x

KEY AREAS OF IMPACT ***(Indicate with 'x' all those that apply):***

Financial		**Environmental**		**Communications & Media**	**x**
Business and market share		**Legal & Policy**	**x**	**Patient Experience**	**x**
Clinical	**x**	**Equality and Diversity**		**Workforce**	

Comments: NIL

ALIGNMENT TO TRUST OBJECTIVES, RISK REGISTERS, BAF, STANDARDS AND PERFORMANCE METRICS:

Safe & High Quality Care

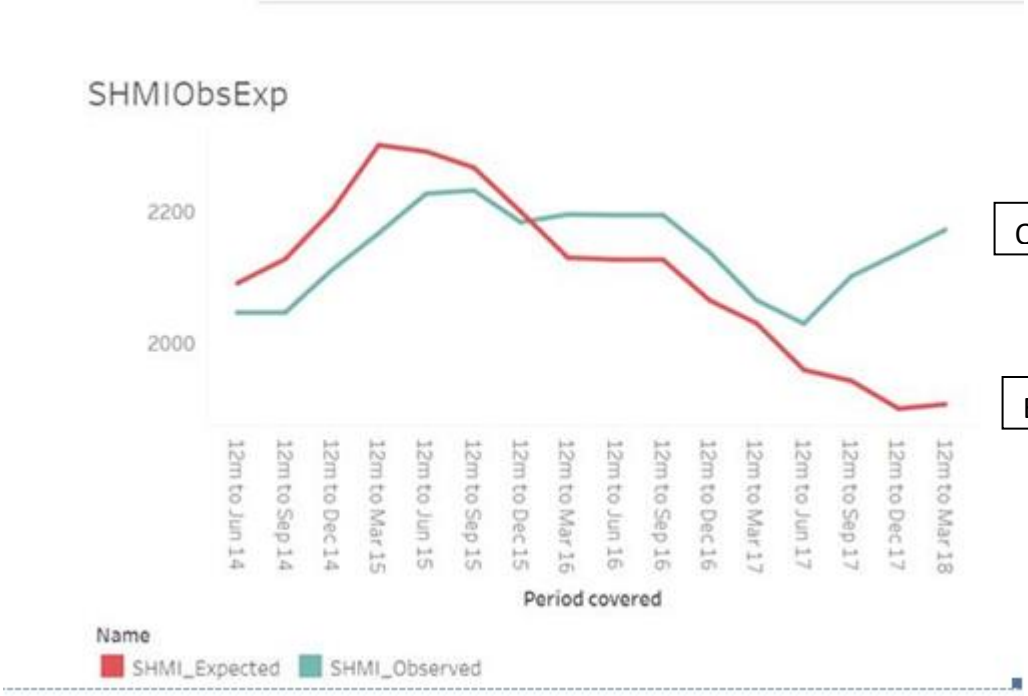
PREVIOUS CONSIDERATION:

None

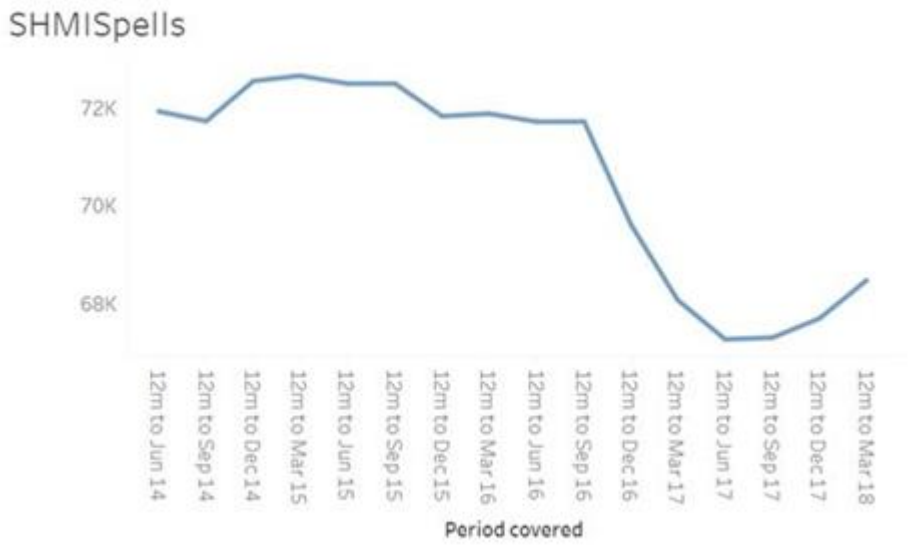
Appendix 2

Potential effect of change in admission profile on mortality rates at SWBHT

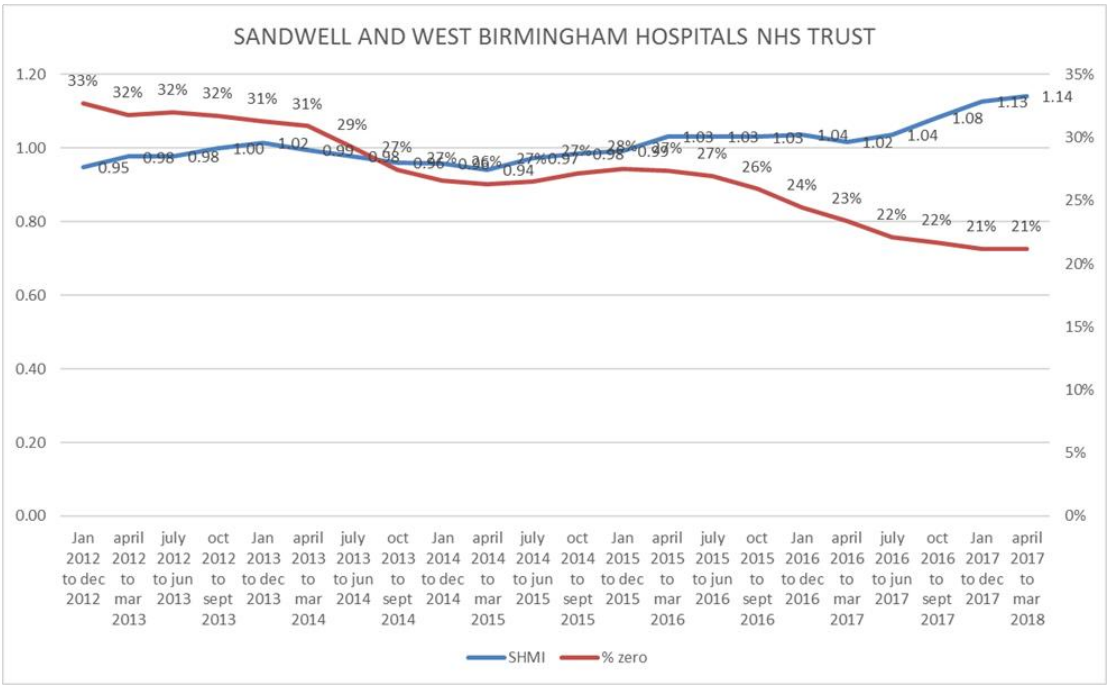
Graph 1 – SHMI values between 2014 – 2018 showing a rise in value from 2016. The SHMI is calculated from a ratio of observed and expected mortality data



Graph 2 – observed compared to expected deaths at SWBH 2014- 2018. There is a fall in expected deaths over the period but actual deaths stays reasonably constant



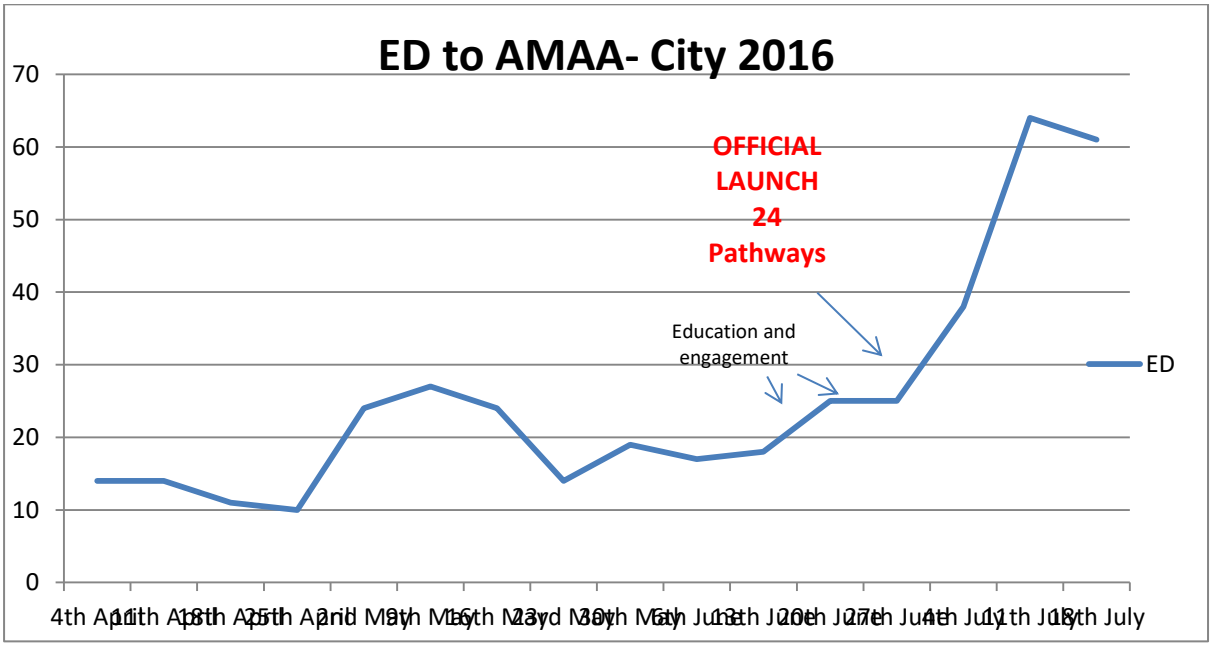
Graph 3 – change in admission spells showing a fall from 2016, corresponding to the fall in expected deaths and subsequent rising SHMI value over the same period of time.



Graph 4 – zero hours admissions (less than 14 hours) falls with progressive decline since 2012 but continuing after 2016. This fall in short stay patients will be reflected in the decline in SHMI spells in Graph 3.

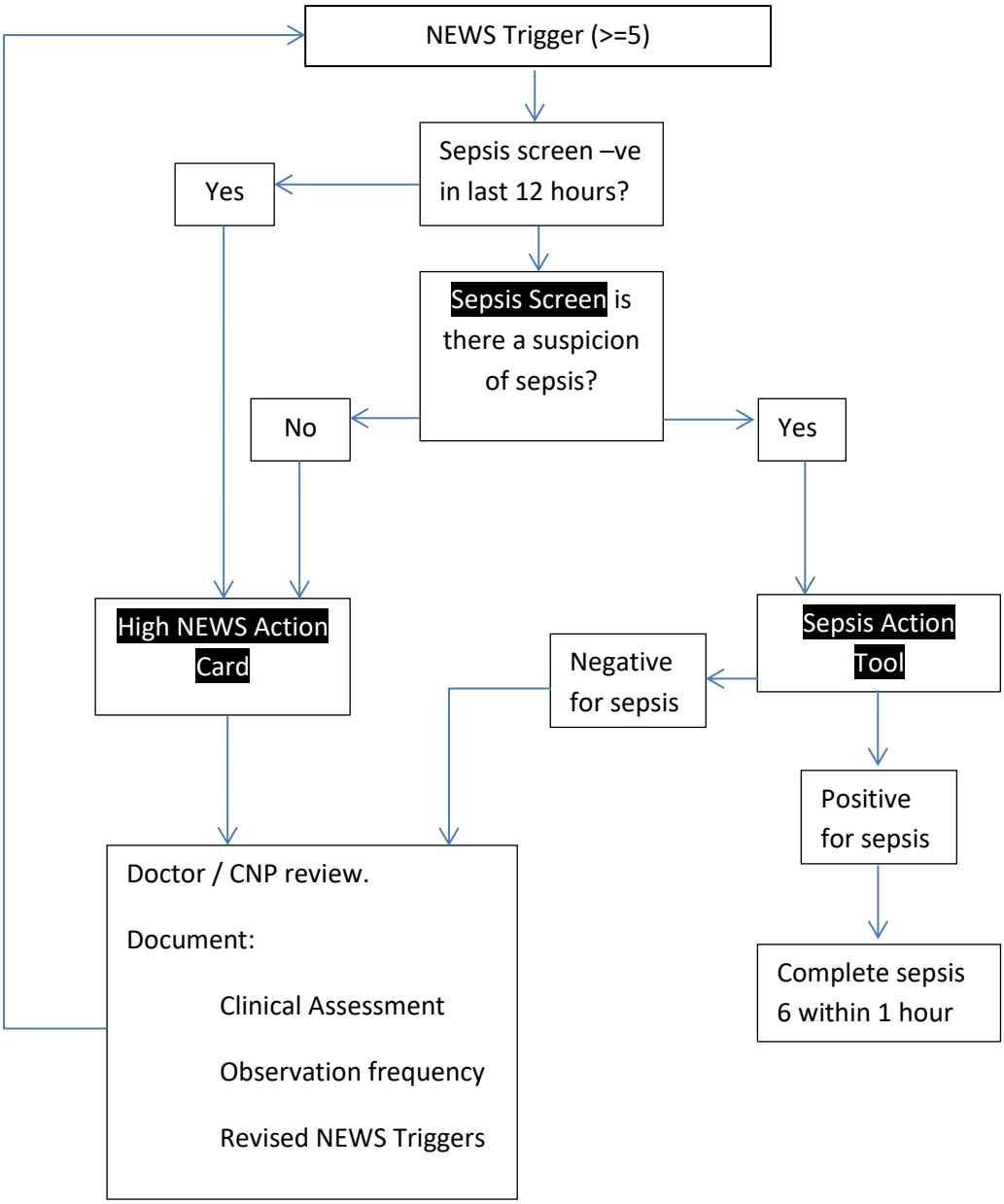
There is also a reduction in R codes (signs and symptoms – data not shown). These data point to a reduction in short term admission where symptoms as opposed to a specific diagnosis are recorded and parallels the increase in activity thorough the ambulatory areas of AMU where activity is recorded as OP rather than IP. These patients would

previously have had short term admission to AMU (less than 14 hours with symptoms and signs recorded rather than a diagnosis).



Graph 5 – change in admission volume to ambulatory area after its relaunch in 2016. This increase in patients seen in ambulatory areas corresponds to the fall in SHMI spells

Appendix 3


NEWS Trigger (>=5)
Sepsis screen –ve in last 12 hours?
Yes
Sepsis Screen is there a suspicion of sepsis?
No
Yes
High NEWS Action Card
Sepsis Action Tool
Negative for sepsis
Positive for sepsis
Complete sepsis 6 within 1 hour
Doctor / CNP review.
Document:
Clinical Assessment
Observation frequency
Revised NEWS Triggers

Name: RXK:

High NEWS Action Card

All Patients	Date										
	Time										
	NEWS										
	Sepsis Screen Outcome	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve	+Ve - Ve
	If +ve Sepsis Action Tool complete?										
NEWS 5 - 6	Escalation:										
	Nurse In Charge										
	Junior Medic / CNP (OOHs)										
	Non-escalation reason:										
	Treatment in progress and observing for response										
	Known reason for high NEWS e.g. Nebuliser, Physiotherapy										
	Parameters reset for this Patient's chronic condition										
	Documented end of life care plan										
	Have you Considered?										
	Oxygen, IV Access, Fluids										
	12 lead ECG, ABGs, Glucose										
	Referral to CCOT										
NEWS >=7	Escalation:										
	Nurse In Charge										
	Senior Medic (SpR or above)										
	Action:										
	Oxygen, IV Access, Fluids										
	Referral to CCOT										
	Have you Considered?										
	12 lead ECG, ABGs, Glucose										
	Transfer to monitored area or critical care										
	Initials										
Document 'Other' Reasons or Actions											

Date and time each entry, write in the NEWS for that time, tick or circle each box that applies, sign the entry.

Appendix 5

RAMI sepsis data April 2017 – March 2018

Total sepsis deaths

	SWBHT	City	Sandwell	Male	Female
Deaths	115	30	85		
Gender (M:F)	65:50	22:8	43:42		
Mean Age	77	74	79	76	80
Median Age	80	77	81	77	81
SD Age	13	16	11	14	11
Mean LoS	10	10	10	12	9
Median LoS	7	7	6	7	6
Length of stay	0-1/7	2-4/7	5-9/7	>9/7	
No pts	26	21	34	35	
Specialty	SWBHT	City	Sandwell		
Elderly care	15	2	13		
Rheumatology	1	-	1		
Respiratory	19	3	16		
Dermatology	5	-	5		
Cardiology	7	4	3		
Intermediate care	1	-	1		
Rehabilitation	1	-	1		
Haematology	1	1	-		
Endocrinology	2	1	1		
Gastroenterology	23	5	18		
General medicine	24	12	12		
Critical care	3	2	1		
A+E	1	-	1		
T+O	7	-	7		
General surgery	5	-	5		

Sandwell 10 deaths from Sunday admission, 6 from Saturday admission (average would be 12 for each day). 15 out of 115 deaths had organism stated, others just 'sepsis'

Associated conditions	Initial added diagnosis	Total with mention of
Acute renal failure	16	80
Urine infection	8	
Cellulitis or ulcer	10	
Respiratory infection	27	
Bone marrow suppression	8	

SHMI data April 2017 – March 2018

Total	Acute hospital	City	Sandwell	Rowley	Leasowes	Hospice	N'home	Home
133	108	25	83	2	2	3	7	11

In hosp	mean	median	Sd
Age	77	80	12
Bed days	10	6	17
M:F	61:51		
Out of hosp	mean	median	Sd
Age	74	79	15
Bed days pre discharge	14	8	15
Time to death from discharge	8	7	7

Palliative care – 24 within hospital patients, 8 non hospital patients

Month of death

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Number	11	9	12	10	9	4	11	10	12	23	16	7

Specialty	hosp	Out of hosp
Acute medicine	26	7
Anaesthetics	3	-
Cardiology	5	-
Dermatology	5	1
Gastroenterology	19	4
General Surgery	5	-
Geriatric	13	3
Respiratory	23	6
T+O	8	1

Other diagnoses	hosp	Out of hosp
Cancer/haem	21	14
Dementia/neuro dx	13	7
MI	7	
CVA	4	
Respiratory infection	19	
Biliary infection	8	
UTI	8	

Sandwell and West Birmingham Hospitals NHS Trust

General Surgery : Quality Improvement Proposal Acute Abdominal Pain

Mr Andrew Torrance

GOAL

- ALL high risk surgical patients must undertake mortality risk assessment this is inclusive of clear documentation and clear informed patient engagement and consent to ensure most appropriate pre and post operative care.

Aims

- To reduce Mortality rates within national averages.
- To improve patient outcomes inclusive of morbidity.
- To facilitate best use of resources.

National NELA Audit database current mortality

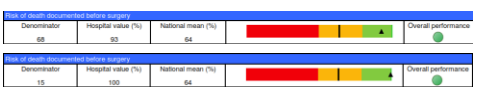
- National mortality of 30 days – 11.4%
- City mortality– 13.7%

- SGH mortality 15.1%

- Variation across peers between 5%–17%
- SWBH within range of variation but worse then the average.

Mortality risk assessment P–POSSUM

- In line with guidance ALL patient should be assessed for high risk surgery through use of P–POSSUM.
- National average for compliance in pre assessment Mortality risk is 64%
- City currently exceeds through 100% compliance and SGH at 93%



Mortality risk assessment P–POSSUM

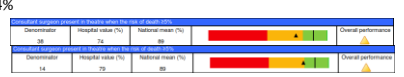
- Although compliance with full audit and documentation is a success we need to:

NOT JUST USE IT BUT ACT ON IT

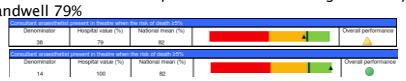
Implementation of P–POSSUM– Where are we

- A score of >5%

Consultant Surgeon present :National average 89% City 79% Sandwell 74%

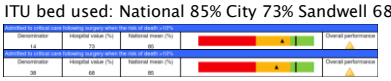


Consultant Anaesthetist present :National average 82% City 100% Sandwell 79%



- A score of >10%

1) ITU bed used: National 85% City 73% Sandwell 68%



Contributory factors impacting acute abdominal mortality

- Unmodifiable:
  - Patient group e.g. Age, frailty, co-morbidities
- Modifiable:
  - Adherence to P-POSSUM guidance: Senior management of patient, ITU, Futile surgery avoidance
  - Delays in Senior intervention: All patients should be seen within 14hours (Nationally 55%, City 41% SGH, 36%)
  - Delays in CT (before surgery): Nationally 83% assessment within 4 hours City 75% SGH 82%
  - Access to theatre: Treatment to commence within 6 hours Nationally 82% City 83% SGH 67%

Benchmarking our current performance

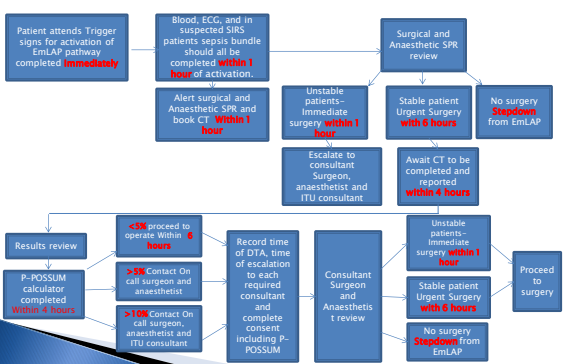
Aspirations

1. Reduced mortality below National average
2. 100% Compliance in risk assessing all patients using P-Possum
3. 100% compliance to Emergency Laparotomy Pathway
   - Clear documentation
   - Clear senior escalation (consultant surgeon and anaesthetist)
   - Clear informed consent
4. Improve P-Possum outcome guidance in line with National average
   - >5% Senior input
   - >10% ITU access
5. Improve access to Theatres to with 6 hours
6. Improve access to CT within 4 hours
7. Improve MDT approach to working by integration with Geriatrician's
8. Roll out Acute abdominal assessments to elective surgery.

Actions

Action	Aims	Lead	By When	Progress
Implementation of EMLAP	1)Improve awareness 2)Reduce delays in treatment 3)Improve documentation 4)Improve audit information 5)Improve senior input for emergency patients 6)Improve patient consent	Andy Torrance	April 2017	Pilot study commenced
Review and assess theatre access issues	To improve utilisation and address underlying cause for delays in treatment	Andy Torrance	April 2017	Data on delayed starts being reviewed
Introduction of elderly care referrals	To assess frail/elderly patient needs to reduce risk of indirect co morbidities	Andy Torrance	March 2017	Surgical liaison role being implemented within the team. Agreed at January QIHD
Review access to ITU	To improve the level of care given to patients requiring it the most	Shinade Coughlan	April 2017	Review underway of capacity and demand and trend analysis
Apply "Red to Green" Methodology from start of EmLAP journey to discharge	1)To improve pre and post operative pathway ensuring all actions to improve patient journey, outcome quality and time within hospital is to highest standard and lowest cost/LOS	Andy Torrance/Shinade Coughlan	April 2017	N/A
Introduce 3 monthly outcome audits	To assess where we are. What are we doing well, what is not so well, what can we improve and how.	Andy Torrance	On going	Agenda item at QIHD

EmLAP– Innovation in new ways of working



Benefits

- Patients:
  - Improved mortality (Safety)
  - Reduce morbidity/adverse events e.g. chest infections/cardiac events (Quality)
  - Reduced LOS due to reduce adverse events
  - Improved patient experience through informed decision making (Effectiveness)

Benefits

- Organisational:
  - Reduced cost through improved LOS
  - Best use of resource (ITU rather then increased pressure on busy main wards)
  - Improved data collection for further future improvements
  - Improved multi-disciplinary approach to working

The Future

- Elective care:
  - Develop P-Possum score for elective pathways
  - Patients with greater then 5% score would undertake Anaesthetic pre assessment
  - Allows informed patient choice for elective procedures
  - Predicts need for ITU demand (reduces on day cancelations)

Better care: Better outcomes

Appendix 7

Report Title	Improving Accuracy of Documentation		
Sponsoring Executive	David Carruthers, Medical Director		
***Report* Author**	Dave Baker, Director of Partnerships and Innovation		
Meeting	Clinical Leadership Executive	**Date**	27/11/2018

1. Suggested discussion points *[two or three issues you consider the Committee should focus on]*

Getting an accurate baseline on mortality is dependent upon accurate documentation and subsequent coding because the level of complexities and comorbidities impacts the volume of expected deaths. The committee has previously heard that improving documentation and coding at SWBH could reduce the Mortality rates (RAMI by 3 and the HSMR by 5).
Key Points arising from this paper are:

- The development of a "guide to good documentation" for training and the corresponding communications;
- Focussed work in areas where we know the biggest impact could be made through specific and bespoke training;
- The National Guidance allowing prior comorbidities to be considered long term conditions;
- With the delay to Unity, the use of an algorithm to recognise long term conditions that patients have presented with previously that may not have been documented in subsequent visits (this capability is embedded in Unity)
- Open communications into NHSI Taunton (Analytics team) and external auditors.

Alignment to 2020 Vision *[indicate with an **'X'** which Plan this paper supports]*

Safety Plan		Public Health Plan		People Plan & Education Plan	
Quality Plan	**Y**	Research and Development		Estates Plan	
Financial Plan		Digital Plan		Other *[specify in the paper]*	

1. Previous consideration *[where has this paper been previously discussed?]*

Update from prior mortality papers CLE, Q&S and Board

2. Recommendation(s)

The Committee is asked to:

a.	**Recognise** the implementation of changes from 1/12/2018 as a means of improving accuracy around mortality.
b.	
c.	

3. Impact *[indicate with an **'X'** which governance initiatives this matter relates to and where shown elaborate]*

Trust Risk Register		Risk Number(s):						
Board Assurance Framework		Risk Number(s):						
Equality Impact Assessment	Is this required?	Y		N	X	If 'Y' date completed		
Quality Impact Assessment	Is this required?	Y		N	X	If 'Y' date completed		

1.0 Overview

The quality plan has previously highlighted that whilst there are high levels of deprivation across Sandwell and West Birmingham the average number of complexities and comorbidities (C&Cs) recorded for SWB patients is 4 (average for the NHS) whereas upto 8 would seem a more appropriate average for our population.

A review of the 2017/18 data showed that we could have recorded up to 180,000 more C&Cs than we actually did. This is significant because recording low levels of C&Cs reduces the expected number of deaths. With the help of a Healthcare analytics company we calculated that better documentation and coding would improve the Trust's Mortality statistics (RAMI by 3 points and the HSMR by 5 points).

In support of the quality plan and to improve the documentation and coding the coding and information team have:

- Written a long form guide to good documentation;
- Worked with the Medical Director to convert this into short form, easy to use prompt for doctors (appendix 2);
- Identified the two most significant areas for training: namely; Geriatrics and Acute Internal Medicine and AMU;
- Identified a list of long term/chronic conditions and agreed them with the Medical Director (appendix 3). Note that: where coloured green and marked with a "Y" the condition will be automatically coded; where marked with a Y but coloured yellow the condition will not be automatically coded (removed from process via review from Medical Director); where marked with an "N" this will merely act as a prompt to the coding team to review the records more thoroughly.
- Developed an algorithm that draws on data collated from previous visits by the patient to automatically recognise agreed long term conditions and code them. It is important to note that this capability, known as "problems list" exists in Unity (which was originally planned to have been implemented by now).

It is worth noting that Unity starts with no C&C history. It is reliant with being populated over time (this is a risk associated with Unity implementation). In response to this risk the information team are also looking at how the data collected on patients can be used to pre populate Unity before final launch to mitigate this risk.

2.0 **Communication and Implementation**

The guide to good documentation and coding will be communicated by the Medical Director through various channels including:

- QIHD;
- Heartbeat;
- Induction training for junior doctors;
- Laminates of the short version in key areas of the organisation;
- Email;
- Through the specialty leads, who will also hold the long form version;

- Intranet

In addition to the communications focussed training will be delivered through the coding team/junior doctors into two key areas: Geriatrics and Acute Internal Medicine and AMU.

3.0 Review

Our external auditors have a strong capability around documentation and coding. Once launched, we will ask them to review that the process/algorithm is operating effectively.

We have already been in touch with the analytics unit of NHSI in Taunton who have requested more information. Once implemented we will brief them of our change and extend an invitation to them to visit and review the algorithm that has been created to bridge the gap between December and the revised Unity go live.

GUIDE TO GOOD DOCUMENTATION FOR CODING AT SWBH

Sally Nicholds (Clinical Coding Manager) and Matthew Maguire (Head of Information)

Context

There are several reason to aspire to good documentation;

- knowing what is wrong with the patient and establishing correct management plan
- understanding our local population (epidemiological analysis)
- external understanding of our patients for national statistics such as mortality indicators (HSMR, RAMI, SHMI)
- research
- getting the right income for treating your patients.

Current Status

At SWBH we have a good reputation externally for our clinical coding, this is because when we show our auditors the documentation that is recorded we are very accurate at translating this into the relevant clinical codes. We know we serve a very poor and deprived population, however the documentation does not support this and so we show as an outlier in mortality statistics as having more unexpected deaths.

The main indices used to support mortality are the Charlson Comorbidity Index (CCI)

https://www.mdcalc.com/charlson-comorbidity-index-cci

Diagnosis

To ensure we have good coding our clinical documentation needs to state what the **primary diagnosis** is for all patients. If we do not have a primary diagnosis then we will revert to clinically coding the signs and symptoms (known as **R Codes**), which will result in poor coding of the patients stay and also a reduction in income.

Once the primary diagnosis is documented we need to document all of the patient's **complexities and comorbidities**. These are long term conditions that

- may make the patient stay longer
- require more patient management whilst with us
- stop us discharging the patient – eg Off legs, hypertensive, COPD, urinary infection, lives alone, incontinent etc….

Primary diagnosis

Clearly document the **primary diagnosis** in the patient's medical record and on the discharge summary. Pay particular attention to the use of the words listed in the two categories below as some will result in the diagnosis being coded while others will result in the signs and symptoms being coded (**R codes**). It is always better we get a clear diagnosis for each patient (if we can). We will be setting thresholds for sign and symptoms coding for each specialty and then monitoring and holding them to account for delivery of these targets.

Diagnosis is coded if the following words are documented	Signs and symptoms are coded if the following words are documented
✓ Probable / Presumed	× Possible
✓ Treated as	× Impression
✓ Confirmed	× Likely
✓ Clinical diagnosis / diagnosis	× Treated as likely
✓ (Single Triangle) Δ	× Query/?
	× Double Triangle ΔΔ
	× Differential Diagnosis
	× Suspected
i.e. use these	i.e. avoid these

EXAMPLE

Patient admitted with a cough and fever ? Chest infection	diagnosis is recorded as:	Code assignment is:	
	• **probable** chest infection	• chest infection	✓
	• **possible** chest infection	• Cough and fever (R codes)	X

Secondary diagnoses/co-morbidities

Ensure **all co-morbidities** and **complications** are clearly documented for each inpatient stay.

As it stands Co-morbidities cannot be taken from documentation relating to previous inpatient stays.

Here is a list of common co-morbidities that are usually coded but could be improved by providing more detail. Please consider other diagnosis where more detail can be given. Avoid symbols (e.g. ↑ and ↓)

Diagnosis	Code	Extra information required
AF	I48	Type e.g. paroxysmal, persistent, chronic, typical, atypical
Alcohol status	F10	Harmful or dependant **NOT** ↑ or excess alcohol
Arthritis	M13/M06	Type e.g. OA, rheumatoid Joints affected
Cancer	C00-C97	Current Vs history List all metastatic sites
CKD	N18	Stage I-V
Dementia	F00-F03	Type e.g. vascular, multi infarct Links to underlying condition e.g. Alzheimer's, Parkinson's
Diabetes Mellitus	E10/E11	Type I, II, steroid induced Complications, e.g. retinopathy, nephropathy
Heart Failure	I50	Type e.g. LVF, CCF
History of stroke	I69/Z867	Residual effects
Hypercholesterolemia	E780	Document Hypercholesterolemia **NOT** ↑ chol
Hypertension	I10X	Document hypertension **NOT** ↑ BP
Obesity	E66	Document obesity **NOT** ↑ BMI
Pressure sore	L89	Stage I-V
Respiratory failure	J969	Acute or chronic, Type I or II
Thyroid disease	E03/E05	Hyper or hypothyroidism NOT ↑ or ↓ thyroid

We will go through a process with each specialty lead to identify a top list of complexities and comorbidities specific for use in each specialty.

Be consistent

Be consistent when documenting conditions –eg. Don't switch between asthma and COPD.

Social circumstances

A detailed social history focusing on housing, mobility (e.g. use of walking aids) and social support needed is important as well.

Investigations

Interpreting results

Coders have access to all patient results but cannot interpret them:

- Results (laboratory and radiology) need to be clearly documented in the patient's medical record with an interpretation of **what they indicate** (such as respiratory failure, AKI or rhabdomyolysis).
- Document not only that the results have been discussed with the patient or their relatives but also **what was actually discussed**.
- For **all infections** it is imperative that you document the
    - infective agents if known
    - resistance to antimicrobials.

e.g. for a patient admitted with a UTI you might document: UTI due to E.coli which is resistant to amoxicillin

Procedures

There are two types of procedure that need recording,

- surgical in theatres
- medical in a department/ward/unit.

Surgical procedures

Accuracy is essential for procedural documentation as it often drives the HRG and so dictates the tariff for the inpatient stay.

- Document all surgical procedures carried out on a clearly dated operation note.

(Typed surgical operation notes are preferable.)

- Include details which further describe a procedure
    - e.g. radical, total, endoscopic, arthroscopic.
- Detail
    - Site, laterality (left, right), approach (endoscopic, open)

Medical procedures

Clearly document and date all medical procedures including details of image guidance.

- Detail site, laterality (left, right) and approach (endoscopic, open)

Diagnosis	Code	Extra information required
Ascitic tap	T46	Image guidance Date
Haemofiltration	X40	List all dates
Insertion of central lines	L91	Site of insertion Image guidance Date
Insertion of chest drain	T12	Image guidance Date
Urinary catheterisation	M47	Reason e.g. retention, fluid monitoring Date of insertion & TWOC
Ventilation	E85	Type e.g. invasive, non- invasive Date
Infusions	X29	Type Date

Postoperative complications

With all post-operative complications we need the medical record to **clearly demonstrate the link** between the operation and the complication in the notes or on the discharge summary. The clinical coders cannot assume a link between complications and operations.

Discharge summary

Ensure that the patients discharge summary is a comprehensive account of the inpatient stay.

Please include all co-morbidities and complications including postoperative which have impacted on the patients care.

Please see Appendix B for guidance.

Monitoring

Good clinical documentation is a core part of high quality and safe patient care. Feedback to specialties on their coding performance can help improve patient care but it is also important to make sure that accurate data is collected as this has implications for the reputation of the trust in relationship to clinical and financial performance.

Over time the depth of coding should increase with less R codes, 'other' and unspecifid' codes and a higher number of complexities and comorbidities recorded

Depth of diagnosis coding

This shows one specialty each month from 2008 to date with depth of diagnosis coding, average complexity and co-morbidity coding, average number of unspecified and other coding and the number of sign and symptom "R" codes used.

http://trustreports/Reports/Pages/Report.aspx?ItemPath=%2fOperational+Reports%2fClinicalCoding%2fDiagnosis+Coding+by+Specialty

Depth of coding – should be increasing

Depth of complexity and co-morbidity – should be increasing

Number of R codes – should be decreasing

Number of "Other" codes – should be decreasing

Number of "Unspecified" codes – should be decreasing

Depth of procedure coding

This shows one specialty each month from 2008 to date with depth of procedure coding, average surgical coding, average number of unspecified and other coding.

http://trustreports/Reports/Pages/Report.aspx?ItemPath=%2fOperational+Reports%2fClinicalCoding%2fProcedure+Coding+by+Specialty

Depth of coding – should be increasing

Depth of surgical coding – should be increasing

Number of "Other" codes – should be decreasing

Number of "Unspecified" codes – should be decreasing

Poorly coded diagnosis

This shows a specialty which codes are been used that are considered poorly coded. Primary diagnosis is a sign or symptom, or an unspecified code.

http://trustreports/Reports/Pages/Report.aspx?ItemPath=%2fOperational+Reports%2fClinicalCoding%2fPoorlyCodedPrimaryDiagnosis

It show the data by list of patients so that you can view any clinical documentation that you have, it also shows aggregated groups of codes used, clinician, coder etc.. to see if there is any correlation between codes used and coder or clinician and codes used.

Income

Complete documentation is essential for accurate clinical coding to ensure correct HRG assignment supporting national tariff optimisation for the trust. It is important to understand that inaccurate and/or incomplete documentation can lead to incorrect HRG assignment which may have a negative financial impact for the trust.

Example

Patient is admitted for 4 days with an infective exacerbation of COPD.

Additional information in medical **record**			
	Type II DM, hypertension and current smoker		Type I respiratory failure, LVF, AKI and Type II DM with nephropathy
code	Poor Coding outcome	code	Properly Coded outcome
J440	COPD with acute LRTI	J440	COPD with acute LRTI
E119	DM Type II	J9690	Type II respiratory failure
I10X	Hypertension	I501	LVF
F171	Current smoker	N179	AKI
		E112D	DM Type II
		N083A	DM with nephropathy
		I10X	Hypertension
		F171	Current smoker
HRG	**DZ62J**		**DZ65H**
Tariff	**£1919**		**£2531**

A short Guide to DOCUMENTATION

Diagnosis

To ensure we have **good coding** documentation needs to state what the **primary diagnosis** is for all patients. If we **do not** have a primary diagnosis then we will revert to clinically coding **signs and symptoms (R Codes)**, which will result in **poor coding** of the patients stay.

Once the primary diagnosis is documented we need to document **all** the patient's **complexities and comorbidities**, or the **secondary diagnosis**.

Primary Diagnosis

Clearly document the primary diagnosis in:

- **medical record**
- **discharge summary**

Pay attention to the use of the words listed in the table below. It is very important you use the right words.

Use these terms	Avoid these Terms
✓ Probable ✓ Presumed ✓ Treated as ✓ Confirmed ✓ Clinical diagnosis ✓ Diagnosis ✓ Single triangle Δ	× Possible × Impression × Likely × Treated as likely × Query/? × Double triangle ΔΔ × Differential diagnosis × Suspected

Secondary Diagnosis/ Comorbidities

Ensure **all** co-morbidities & complications are clearly documented for each inpatient stay.

Diagnosis	Extra Info
AF	Type e.g. paroxysmal, persistent, chronic, typical, atypical
Alcohol status	Harmful or dependant **NOT** ↑ or excess alcohol
Arthritis	Type e.g. OA, rheumatoid and the joints affected
Cancer	Current Vs history List all metastatic sites
CKD	Stage I-V
Dementia	Type e.g. vascular, multi infarct Links to underlying condition e.g. Alzheimer's, Parkinson's
Diabetes Mellitus	Type I, II, steroid induced Complications, e.g. retinopathy, nephropathy
Heart Failure	Type e.g. LVF, CCF
History of stroke	Residual effects
Hyper cholesterolaemia	Document Hypercholesterolemia **NOT** ↑ chol
Hypertension	Document hypertension **NOT** ↑BP
Obesity	Document obesity **NOT** ↑ BMI
Pressure sore	Stage I-V
Respiratory failure	Acute or chronic Type I or II
Thyroid disease	Hyper or hypo not ↑ or ↓

Interpreting Results

Patient results need to be clearly documented in the patient's medical record. It is also important that the results discussed with the patient are documented.

For infections it is imperative that you document:

- the infective agents if known
- resistance to antimicrobials.

For example: a patient admitted with a **UTI** due to **E. coli** which is resistant to **amoxicillin.**

It is also important to be consistent when documenting **asthma** or **COPD**.

Social History

A detailed social history focusing on housing, mobility (e.g. use of walking aids) and social support needed is important as well. Include details of family history as well.

Postoperative Complications

Make sure that the medical **record clearly demonstrates** the link between **the operation** and the **complication** on the discharge summary.

Procedures

There are 2 types of procedures which need recording:

- surgical in theatres
- medical in a department/ward

Surgical Procedures

Document all surgical procedures carried out on a clearly dated operation note.

Include details which further **describe a procedure**, e.g. radical, total, endoscopic, arthroscopic.

Detail site, laterality (left, right) and approach (endoscopic, open).

Medical Procedures

Clearly document and date all medical procedures including details of image guidance.

Detail site, laterality (left, right) and approach (endoscopic, open).

Discharge Summary

Ensure the patients discharge summary includes the **primary diagnosis** and **all co-morbidities and complications** including postoperative which have impacted the patients care.

List of Long term/Chronic Conditions

AutoComple	Condition	Code	Quantity in last period (mont	Mon	Exclud	Exclud	Exclud	Exclud	Exclud	Exclud	Exclud	Last Co	Dot9
N	Cancer	C00-C97	2	18								N	N
Y	Alpha thalassaemia	D560	2	18	D561	D562	D563					Y	N
Y	Beta thalassaemia	D561	2	18	D560	D562	D563					Y	N
Y	Delta-beta thalasaemia	D562	2	18	D560	D561	D563					Y	N
Y	Thalasaemia trait	D563	2	18	D560	D561	D562					Y	N
Y	Sickle-cell anemia	D571	2	18	D570							Y	N
Y	Sickle-cell trait	D573	2	18	D570	D571						Y	N
Y	Diabetes Type I	E10	2	18	E11	E12	E13	E14				N	Y
Y	Diabetes Type 2	E11	2	18	E10	E12	E13	E14				N	Y
Y	Diabetes malnutrtion related	E12	2	18	E10	E11	E13	E14				N	Y
Y	Diabetes other specified	E13	2	18	E10	E11	E12	E14				N	Y
Y	Diabetes unspecified	E14	2	18	E10	E11	E12	E13				N	Y
Y	Dementia	F00-F03	2	18	F051							Y	N
Y	Schizophrenia	F20	2	18								N	Y
Y	Bipolar affective disorder	F31	2	18								N	Y
N	Learning disability	F70-F79	2	18								N	N
N	Developmental disorder	F80-F83	2	18								N	N
Y	Motor neuron disease	G122	2	18								Y	N
Y	Parkinson's disease	G20X	2	18	G21	G22						Y	N
Y	Alzheimers	G30	2	18								N	Y
Y	Multiple sclerosis	G35X	2	18								Y	N
Y	Epilepsy	G40	2	18	G41							N	Y
Y	Cerebral palsy	G80	2	18								N	Y
N	Hemiplegia	G81	2	18								N	N
Y	Blindness	H54	2	18	G453							N	Y
Y	Deafness	H91	2	18								N	Y
Y	Hypertension	I10X	2	18	I11	I12	I13					Y	N
Y	Previous MI	I252	2	18								Y	N
Y	IHD	I259	2	18								Y	N
Y	Heart failure	I50	2	18	I11	I13						N	Y
Y	Cerebrovascular disease	I67	2	18								N	Y
Y	PVD	I739	2	18	I743	I702						N	Y
Y	Emphysema	J43	2	18	J45	J44						N	Y
Y	COPD	J44	2	18	J45	J43						N	Y
Y	Asthma	J45	2	18	J44	J43						N	Y
Y	Bronchiectasis	J47	2	18								Y	N
Y	Crohn's disease	K50	2	18								N	Y
Y	IBS	K58	2	18								N	Y
Y	Alcoholic liver disease	K70	2	18								N	Y
Y	Rheumatoid arthritis seropositive	M059	2	18	M069							N	Y
Y	Rheumatoid arthritis	M069	2	18	M059							N	Y
Y	Gout	M109	2	18								N	Y
Y	Arthritis	M139	2	18	M15	M16	M17	M18	M19	M05	M06	N	Y
Y	Osteoarthritis (Hip)	M16	2	18	M199							N	Y
Y	Osteoarthritis (Knee)	M17	2	18	M199							N	Y
Y	Osteoarthritis (General)	M199	2	18	M15	M16	M17	M18				N	Y
Y	SLE	M32	2	18								N	Y
Y	Sjogren's syndrome	M350	2	18								Y	N
Y	Behcet's disease	M352	2	18								Y	N
Y	PMR	M353	2	18								Y	N
Y	Ankylosing spondylitis	M45X	2	18								N	Y
Y	Osteoporosis	M819	2	18	M809							N	Y
Y	Chronic kidney disease	N18	2	18	I12	I13						N	Y
Y	Spina bifida	Q05	2	18								N	Y
Y	Down's syndrome	Q90	2	18								N	Y
Y	Family history of malignant neoplasm of digestive organs	Z800	2	18								Y	N
Y	Family history of malignant neoplasm of trachea, bronchus and lung	Z801	2	18								Y	N
Y	Family history of malignant neoplasm of other respiratory and intrathoracic organs	Z802	2	18								Y	N
Y	Family history of malignant neoplasm of breast	Z803	2	18								Y	N
Y	Family history of malignant neoplasm of genital organs	Z804	2	18								Y	N
Y	Family history of malignant neoplasm of urinary tract	Z805	2	18								Y	N
Y	Family history of leukaemia	Z806	2	18								Y	N
Y	Family history of other malignant neoplasms of lymphoid, haematopoietic and related tissues	Z807	2	18								Y	N
Y	Family history of malignant neoplasm of other organs or systems	Z808	2	18								Y	N
Y	Family history of malignant neoplasm, unspecified	Z809	2	18								Y	N
Y	Family history of mental retardation	Z810	2	18								Y	N
Y	Family history of alcohol abuse	Z811	2	18								Y	N
Y	Family history of tobacco abuse	Z812	2	18								Y	N
Y	Family history of other psychoactive substance abuse	Z813	2	18								Y	N
Y	Family history of other substance abuse	Z814	2	18								Y	N
Y	Family history of other mental and behavioural disorders	Z818	2	18								Y	N
Y	Family history of epilepsy and other diseases of the nervous system	Z820	2	18								Y	N
Y	Family history of blindness and visual loss	Z821	2	18								Y	N
Y	Family history of deafness and hearing loss	Z822	2	18								Y	N
Y	Family history of stroke	Z823	2	18								Y	N
Y	Family history of ischaemic heart disease and other diseases of the circulatory system	Z824	2	18								Y	N
Y	Family history of asthma and other chronic lower respiratory diseases	Z825	2	18								Y	N
Y	Family history of arthritis and other diseases of the musculoskeletal system and connective tissue	Z826	2	18								Y	N
Y	Family history of congenital malformations, deformations and chromosomal abnormalities	Z827	2	18								Y	N
Y	Family history of other disabilities and chronic diseases leading to disablement, not elsewhere classified	Z828	2	18								Y	N
Y	Family history of human immunodeficiency virus [HIV] disease	Z830	2	18								Y	N
Y	Family history of other infectious and parasitic diseases	Z831	2	18								Y	N
Y	Family history of diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	Z832	2	18								Y	N
Y	Family history of diabetes mellitus	Z833	2	18								Y	N
Y	Family history of other endocrine, nutritional and metabolic diseases	Z834	2	18								Y	N
Y	Family history of eye and ear disorders	Z835	2	18								Y	N
Y	Family history of diseases of the respiratory system	Z836	3	19								Y	N
Y	Family history of diseases of the digestive system	Z837	4	20								Y	N
Y	Family history of diseases of the skin and subcutaneous tissue	Z840	2	18								Y	N
Y	Family history of disorders of kidney and ureter	Z841	2	18								Y	N
Y	Family history of other diseases of the genitourinary system	Z842	2	18								Y	N
Y	Family history of consanguinity	Z843	2	18								Y	N
Y	Family history of other specified conditions	Z848	2	18								Y	N

Y	Personal history of malignant neoplasm of digestive organs	Z850	2	18	C15-C26	Y	N
Y	Personal history of malignant neoplasm of trachea, bronchus and lung	Z851	2	18	C33-C34	Y	N
Y	Personal history of malignant neoplasm of other respiratory and intrathoracic organs	Z852	2	18	C30-C32 C37-C39	Y	N
Y	Personal history of malignant neoplasm of breast	Z853	2	18	C50	Y	N
Y	Personal history of malignant neoplasm of genital organs	Z854	2	18	C51-C63	Y	N
Y	Personal history of malignant neoplasm of urinary tract	Z855	2	18	C64-C68	Y	N
Y	Personal history of leukaemia	Z856	2	18	C91-C95	Y	N
Y	Personal history of other malignant neoplasms of lymphoid, haematopoietic and related tissues	Z857	2	18	C81-C90 C96	Y	N
Y	Personal history of malignant neoplasms of other organs and systems	Z858	2	18		Y	N
Y	Personal history of other neoplasms	Z860	2	18		Y	N
Y	Personal history of infectious and parasitic diseases	Z861	2	18		Y	N
Y	Personal history of diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	Z862	2	18		Y	N
Y	Personal history of endocrine, nutritional and metabolic diseases	Z863	2	18		Y	N
Y	Personal history of psychoactive substance abuse	Z864	2	18		Y	N
Y	Personal history of other mental and behavioural disorders	Z865	2	18		Y	N
Y	Personal history of diseases of the nervous system and sense organs	Z866	2	18		Y	N
Y	Personal history of diseases of the circulatory system	Z867	2	18		Y	N
Y	Personal history of diseases of the respiratory system	Z870	2	18		Y	N
Y	Personal history of diseases of the digestive system	Z871	2	18		Y	N
Y	Personal history of diseases of the skin and subcutaneous tissue	Z872	2	18		Y	N
Y	Personal history of diseases of the musculoskeletal system and connective tissue	Z873	2	18		Y	N
Y	Personal history of diseases of the genitourinary system	Z874	2	18		Y	N
Y	Personal history of complications of pregnancy, childbirth and the puerperium	Z875	2	18		Y	N
Y	Personal history of certain conditions arising in the perinatal period	Z876	2	18		Y	N
Y	Personal history of congenital malformations, deformations and chromosomal abnormalities	Z877	2	18		Y	N
Y	Personal history of other specified conditions	Z878	2	18		Y	N
Y	Personal history of allergy to penicillin	Z880	2	18		Y	N
Y	Personal history of allergy to other antibiotic agents	Z881	2	18		Y	N
Y	Personal history of allergy to sulfonamides	Z882	2	18		Y	N
Y	Personal history of allergy to other anti-infective agents	Z883	2	18		Y	N
Y	Personal history of allergy to anaesthetic agent	Z884	2	18		Y	N
Y	Personal history of allergy to narcotic agent	Z885	2	18		Y	N
Y	Personal history of allergy to analgesic agent	Z886	2	18		Y	N
Y	Personal history of allergy to serum and vaccine	Z887	2	18		Y	N
Y	Personal history of allergy to other drugs, medicaments and biological substances	Z888	2	18		Y	N
Y	Personal history of allergy to unspecified drugs, medicaments and biological substances	Z889	2	18		Y	N
Y	Acquired absence of finger(s) [including thumb], unilateral	Z890	2	18		Y	N
Y	Acquired absence of hand and wrist	Z891	2	18		Y	N
Y	Acquired absence of upper limb above wrist	Z892	2	18		Y	N
Y	Acquired absence of both upper limbs [any level]	Z893	2	18		Y	N
Y	Acquired absence of foot and ankle	Z894	2	18	Z895 Z896 Z897	Y	N
Y	Acquired absence of leg at or below knee	Z895	2	18	Z896 Z897	Y	N
Y	Acquired absence of leg above knee	Z896	2	18	Z895 Z897	Y	N
Y	Acquired absence of both lower limbs [any level, except toes alone]	Z897	2	18		Y	N
Y	Acquired absence of upper and lower limbs [any level]	Z898	2	18		Y	N
Y	Acquired absence of limb, unspecified	Z899	2	18		Y	N
Y	Acquired absence of part of head and neck	Z900	2	18		Y	N
Y	Acquired absence of breast(s)	Z901	2	18		Y	N
Y	Acquired absence of lung [part of]	Z902	2	18		Y	N
Y	Acquired absence of part of stomach	Z903	2	18		Y	N
Y	Acquired absence of other parts of digestive tract	Z904	2	18		Y	N
Y	Acquired absence of kidney	Z905	2	18		Y	N
Y	Acquired absence of other organs of urinary tract	Z906	2	18		Y	N
Y	Acquired absence of genital organ(s)	Z907	2	18		Y	N
Y	Acquired absence of other organs	Z908	2	18		Y	N
Y	Personal history of allergy, other than to drugs and biological substances	Z910	2	18		Y	N
Y	Personal history of noncompliance with medical treatment and regimen	Z911	2	18		Y	N
Y	Personal history of poor personal hygiene	Z912	2	18		Y	N
Y	Personal history of unhealthy sleep-wake schedule	Z913	2	18		Y	N
Y	Personal history of psychological trauma, not elsewhere classified	Z914	2	18		Y	N
Y	Personal history of self-harm	Z915	2	18		Y	N
Y	Personal history of other physical trauma	Z916	2	18		Y	N
Y	Personal history of female genital mutilation	Z917	2	18		Y	N
Y	Personal history of other specified risk-factors, not elsewhere classified	Z918	2	18		Y	N
Y	Personal history of contraception	Z920	2	18		Y	N
Y	Personal history of long-term (current) use of anticoagulants	Z921	2	18		Y	N
Y	Personal history of long-term (current) use of other medicaments	Z922	2	18		Y	N
Y	Personal history of irradiation	Z923	2	18		Y	N
Y	Personal history of major surgery, not elsewhere classified	Z924	2	18		Y	N
Y	Personal history of rehabilitation measures	Z925	2	18		Y	N
Y	Personal history of chemotherapy for neoplastic disease	Z926	2	18		Y	N
Y	Personal history of other medical treatment	Z928	2	18		Y	N
Y	Personal history of medical treatment, unspecified	Z929	2	18		Y	N
Y	Kidney transplant status	Z940	2	18		Y	N
Y	Heart transplant status	Z941	2	18		Y	N
Y	Lung transplant status	Z942	2	18		Y	N
Y	Heart and lungs transplant status	Z943	2	18		Y	N
Y	Liver transplant status	Z944	2	18		Y	N
Y	Skin transplant status	Z945	2	18		Y	N
Y	Bone transplant status	Z946	2	18		Y	N
Y	Corneal transplant status	Z947	2	18		Y	N
Y	Other transplanted organ and tissue status	Z948	2	18		Y	N
Y	Presence of pacemaker	Z950	2	18		Y	N
Y	Presence of CABG	Z951	2	18		Y	N
Y	Presence of aortocoronary bypass graft	Z951	2	18		Y	N
Y	Presence of prosthetic heart valve	Z952	2	18		Y	N
Y	Presence of xenogenic heart valve	Z953	2	18		Y	N
Y	Presence of other heart-valve replacement	Z954	2	18		Y	N
Y	Presence of coronary stent/angioplasty	Z955	2	18		Y	N
Y	Presence of coronary angioplasty implant and graft	Z955	2	18		Y	N
Y	Presence of other cardiac and vascular implants and grafts	Z958	2	18		Y	N
Y	Presence of intraocular lens	Z961	2	18		Y	N
Y	Presence of otological and audiological implants	Z962	2	18		Y	N
Y	Presence of artificial larynx	Z963	2	18		Y	N
Y	Presence of endocrine implants	Z964	2	18		Y	N
Y	Presence of tooth-root and mandibular implants	Z965	2	18		Y	N
Y	Presence of orthopaedic joint implants	Z966	2	18		Y	N
Y	Presence of artificial eye	Z970	2	18		Y	N
Y	Presence of artificial limb (complete)(partial)	Z971	2	18		Y	N
Y	Presence of dental prosthetic device (complete)(partial)	Z972	2	18		Y	N
Y	Presence of spectacles and contact lenses	Z973	2	18		Y	N
Y	Presence of external hearing-aid	Z974	2	18		Y	N
Y	Presence of (intrauterine) contraceptive device	Z975	2	18		Y	N
Y	Presence of other specified devices	Z978	2	18		Y	N
Y	Intestinal bypass and anastomosis status	Z980	2	18		Y	N
Y	Arthrodesis status	Z981	2	18		Y	N