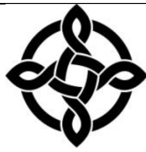

GIG CYMRU NHS WALES | Bwrdd Iechyd Prifysgol Cwm Taf University Health Board

Health Board Report
LEARNING AND IMPROVING **2014/15 MORTALITY REVIEW UPDATE**

Executive Lead(s): Medical Director
Authors: Dr Jason Shannon, Assistant Medical Director and Matthew Smith, Clinical Audit Facilitator
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Purpose of the Health Board Report	
The purpose of this report is to inform and provide assurance to the Health Board of the outcome of the recent detailed analysis which has been undertaken following the report of a higher than anticipated winter mortality ratio, which Members will recall featured within the mortality report presented to Board in March 2015.	
Governance	
Link to Health Board Strategic Objective(s)	The Board's overarching role is to ensure its Strategy outlined within 'Cwm Taf Cares' 3 Year Integrated Medium Term Plan 2015-2018 and the related organisational objectives aligned with the Institute of Healthcare Improvement's (IHI) 'Triple Aim' are being progressed, these in summary are; • To **improve** quality, safety and patient experience. • To **protect** and **improve** population health. • To **ensure** that the services provided are accessible and sustainable into the future. • To **provide** strong governance and assurance. • To **ensure** good value based care and treatment for our patients in line with the resources made available to the Health Board. This report focuses mainly on **providing** strong governance and assurance.
Supporting evidence	The information referenced within this report has been captured from a detailed analysis of data and case note review relating to hospital inpatient deaths during 2014/15 winter months.
Engagement – Who has been involved in this work?	
There has been extensive engagement with senior staff from the information and performance team, mortality review team, public health colleagues and senior officers at welsh government.	

Health Board Resolution To;							
APPROVE		**ENDORSE**		**DISCUSS**	√	**NOTE**	√

Recommendation	The Health Board is asked to; • **NOTE** and **DISCUSS** the outcome of the review undertaken to analyse the higher than expected winter mortality.

Summarise the Impact of the Health Board Report	
Equality and diversity	There are no equality and diversity implications of the report.
Legal implications	There are no direct legal implications of this report. However, it should be noted certain categories of deaths are routinely referred for consideration by HM Coroner.
Population Health	There are no specific population health issues.
Quality, Safety & Patient Experience	This report aims to provide assurance with regards the quality and safety of care provided to patients.
Resources	There are no direct resource implications of this report. However, the Board should note the resources being used to ensure robust mortality review processes are in place.
Risks and Assurance	The analysis undertaken to inform the content of this report, provides assurance that whilst the inpatient Risk Adjusted Mortality Index (RAMI 14) has increased in the winter months in Cwm Taf UHB, the internal analysis undertaken has not found any evidence of a systematic failure in health care leading to excess deaths. Crude mortality remains high at Cwm Taf UHB due primarily to the lack of alternative end of life care arrangements for many patients just prior to their death, and due to the populations high rate of co-morbidities (the presence of one or more disorders in addition to the primary disease or disorder), and often presenting late in the course of their illness, acutely unwell, which limits the potential for effective therapeutic interventions.
Health & Care Standards	The 22 Health & Care Standards for NHS Wales are mapped into the 7 Quality Themes: Staying Healthy; Safe Care; Effective Care; Dignified Care; Timely Care; Individual Care; Staff & Resources Link to WG Health & Care Standards document The work reported in this report takes into account many of the related quality themes.
Workforce	There are no direct workforce implications.
Freedom of information status	Open

LEARNING AND IMPROVING
WINTER 2014/15 MORTALITY REVIEW

1. SITUATION / PURPOSE OF REPORT

The purpose of this report is to inform and provide assurance to the Health Board of the outcome of the recent detailed analysis which has been undertaken following the report of a higher than anticipated winter mortality ratio, which Members will recall featured within the mortality report presented to Board in March 2015.

Cwm Taf UHB along with all other Health Boards has every 3 months, been publishing on a regular basis its "mortality statistics". This includes a number of different sets of data including the Risk Adjusted Mortality Index 'RAMI' and other measures of mortality. The UHB continues to work collaboratively with colleagues across Wales to find better ways of measuring our performance and to learn about our quality of care. Board Members will note that Dr Jason Shannon, Consultant Pathologist and Assistant Medical Director has been leading this work across Wales at the request of Welsh Government.

Following a recent conference call with LHB Medical Directors, chaired by the Deputy Chief Medical Officer, it was agreed that:

- NHS Wales has moved on significantly from a previous focus on what we know now to be flawed single hospital mortality figures towards a richer quality assurance picture based on implementation of the Palmer Review recommendations for Health Boards, and this should be apparent from our quarterly publications.

It was also agreed that for the remainder of this financial year **RAMI 14** will be published with a narrative based primarily on learning from the following:

- Mortality case note reviews;
- National clinical audits;
- Mortality measures within clinical and diagnostic groups.

Analysis work would be undertaken to help inform and explain the reported higher than expected winter 2014/15 mortality data, which would help inform the planned latest publication of mortality data. The analysis being informed by the Board's established internal mortality case-note review process, which is undertaken on all hospital inpatient deaths.

2. BACKGROUND / INTRODUCTION

Given that all lives come to an end the challenge for healthcare organisations in assessing deaths which might have been avoided is based on determining that the timing and circumstances of any given death is appropriate.

There is ongoing public attention to “mortality rates” across the UK generally. In Wales, the main mortality indicator is the Risk Adjusted Mortality Index (RAMI). RAMI and other indices continue to be published for all Health Boards in Wales but consideration RAMI on their own is not considered reliable and as such, should be used with caution and at most only a signpost to inform further review, which for Cwm Taf is its case note mortality review process.

Mortality indices should not be examined in isolation and their use as an indicator of healthcare quality is now regarded as virtually non-existent (CTUHB uses a sophisticated suite of information on a range of quality measures for this purpose, such as deaths following fractured neck of femur, infection rate, hospital acquired skin damage (pressure sore rates) etc which is beyond the scope of this report).

In the 2013-14 report to the Board on mortality, it was recommended that an acceptance that high RAMI scores for Prince Charles Hospital (PCH) and the Royal Glamorgan Hospital (RGH) sites were not, in the view of the review team, linked to avoidable mortality. Subsequent to this, the Health Minister appointed Professor Stephen Palmer, professor of epidemiology at Cardiff University to review hospitals with reported high RAMI scores to consider the implications. Professor Palmer expressed the view that neither the summary RAMI for Wales (nor the Welsh Standardised Hospital Mortality Indices (SHMI)) are meaningful measures of hospital quality; they may be misleading and could divert attention away from more meaningful approaches to measuring and improving hospital care. He also endorsed the two-stage process of reviewing the medical notes of all patients who have died in hospital – a system pioneered in Cwm Taf.

This established process along with some supporting analysis, was used to inform the more recent review of the winter 2014/15 mortality, the main feature of this report to Board.

3. ASSESSMENT / GOVERNANCE AND RISK ISSUES

Cwm Taf UHB and its approach to mortality monitoring and review was endorsed by the Professor Stephen Palmer review which recommended;

1. Establishment of a systematic mortality review process;
2. Monitoring & benchmark of condition-specific mortality;
3. Participation in National Audits;
4. Improving data quality via improved engagement between the clinicians and the clinical coders;
5. Continue to monitor, measure and report to the Quality & safety Committee and to the Board.

In Cwm Taf, in relation to hospital mortality, the Health Board had already established a robust process of monitoring, informed by multidisciplinary mortality case note reviews as an important component of assuring and improving quality of care.

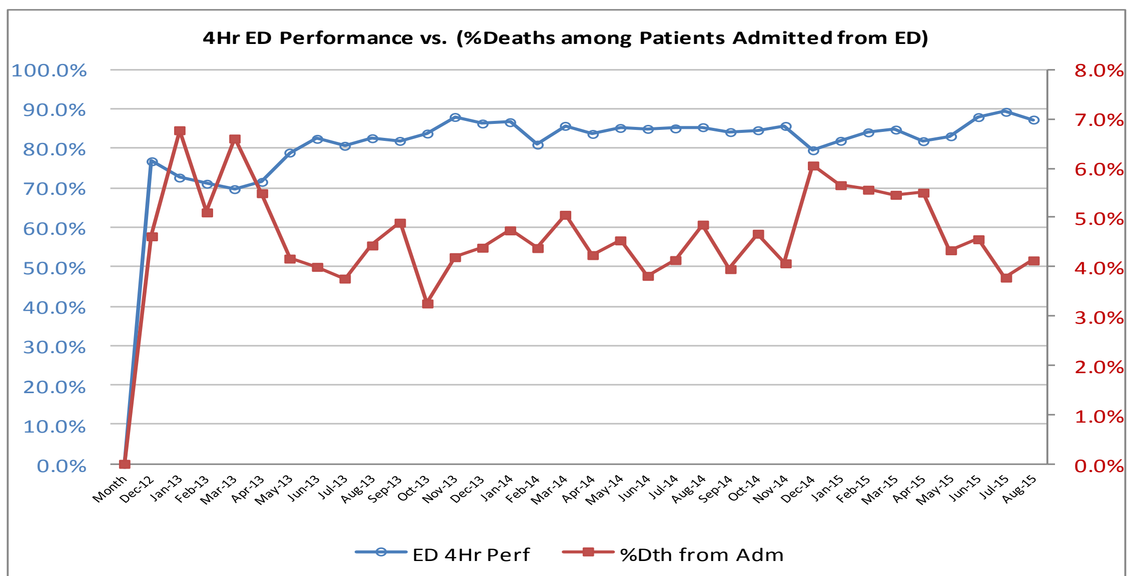
The UHB process includes:

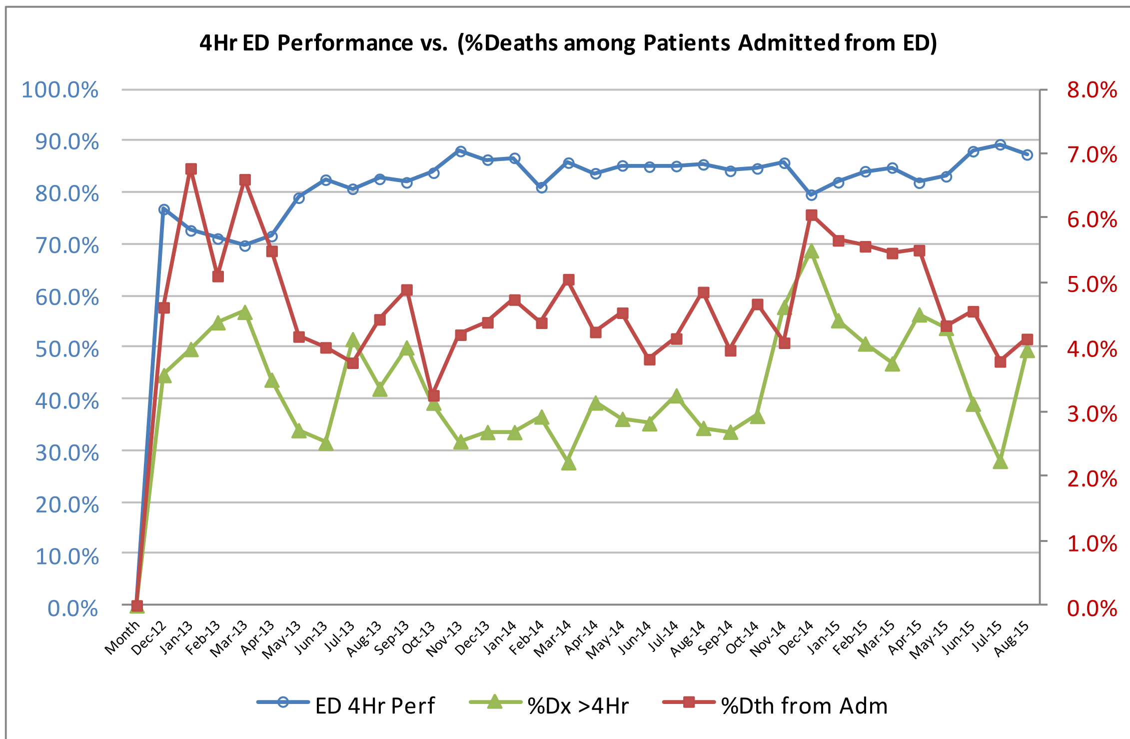
- The use of the Warwick Charts for correlation between mortality and delayed patient flow at A&E (in place since 2013)
- Review of all inpatient deaths on the acute sites since 2013 and all inpatient deaths on the community sites since 2014
- An A&E mortality review process for all deaths within A&E

The inpatient mortality reviews are undertaken by a multi-professional team of primary and secondary care clinicians. Structured pro-formas are used during the reviews to support the clinical discussions. There are three stages of reviews:

1. First stage is to identify if death was expected on admission;
2. Second stage is for un-expected death on admission and is to assess whether it was unavoidable or potentially avoidable;
3. Third stage is for the potentially avoidable deaths and is to grade the degree of avoidability and also for learning and quality improvement streams (e.g. thrombosis risk assessment & prophylaxis, sepsis management and anticoagulation management).

In December 2014, Warwick charts showed an increase in the number of deaths.

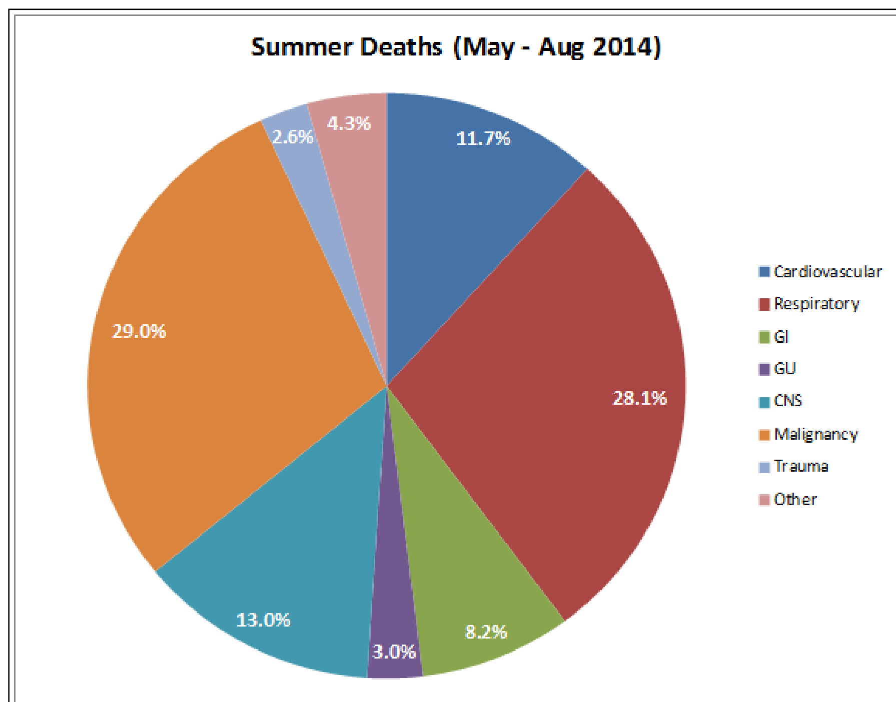


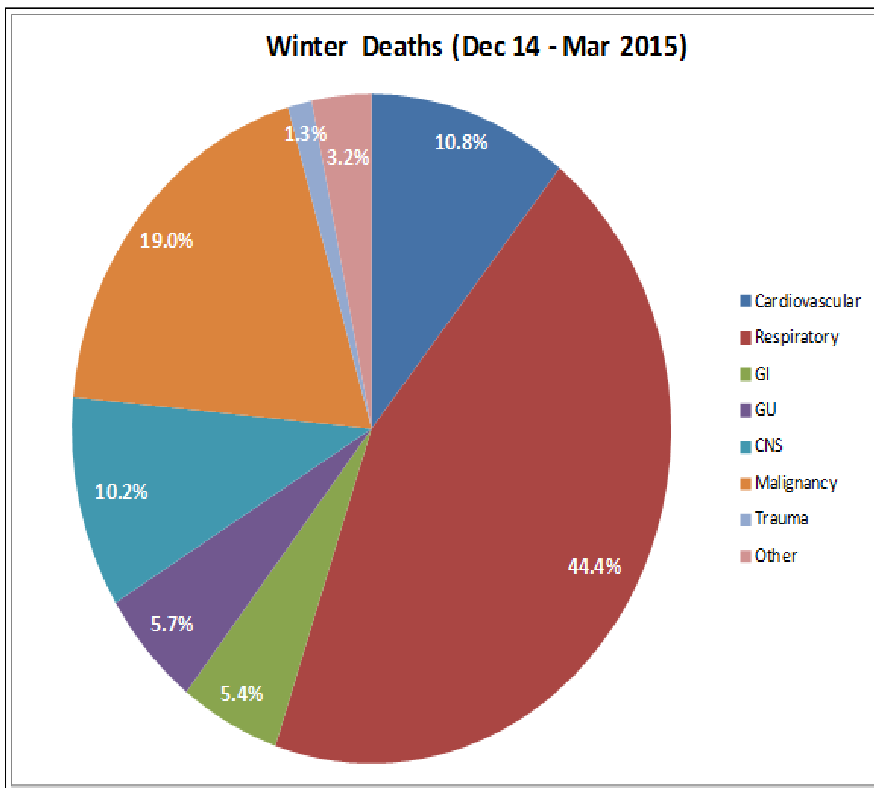


As a consequence and in line with the Health Board's usual monitoring arrangements, the increase was discussed with the mortality review team and clinical colleagues from acute medicine and critical care and a series of actions followed to better understand what was being reported.

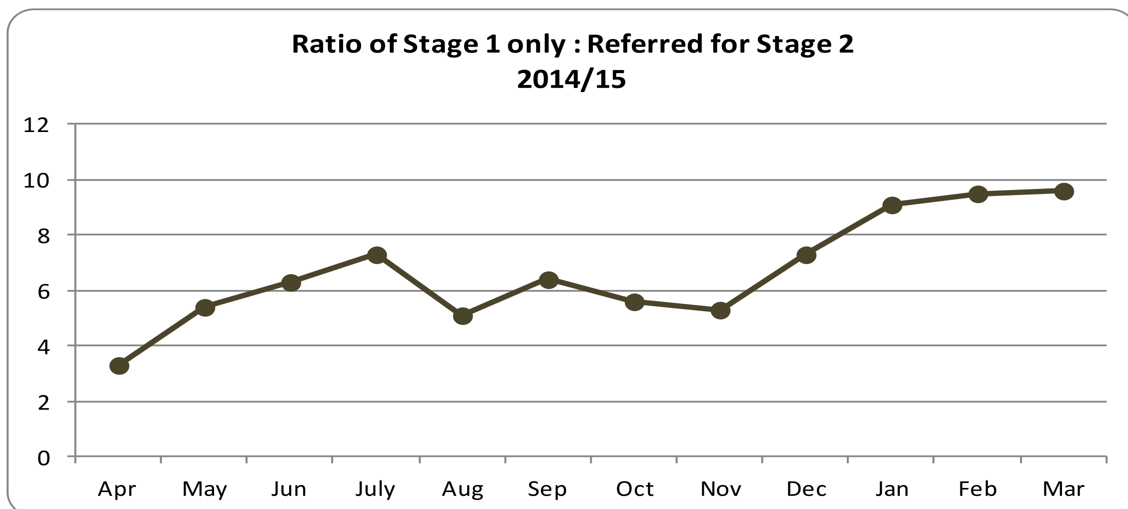
Findings

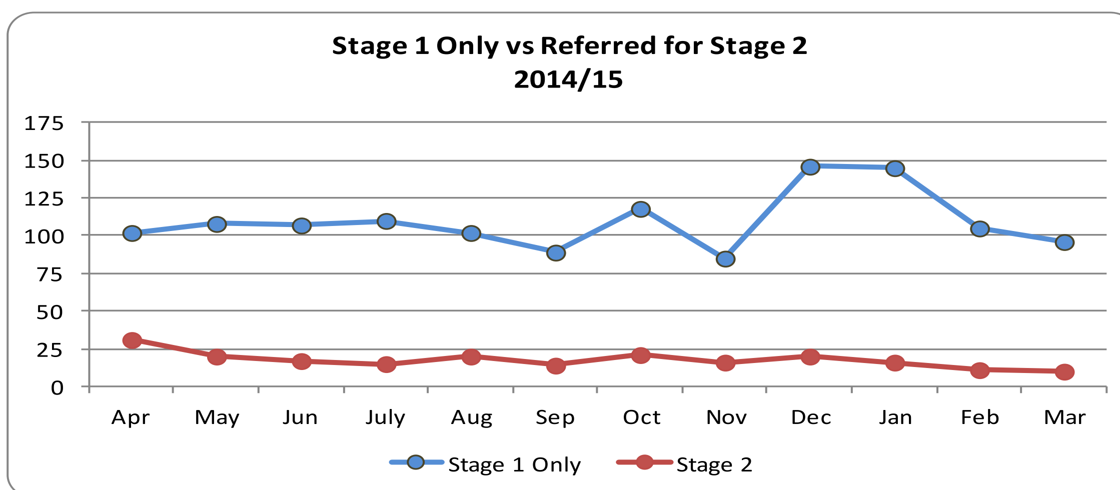
1. The increase in the number of deaths was due mainly to respiratory causes (including community acquired pneumonia). The attached shows comparison of causes of death at Royal Glamorgan Hospital for the summer & the winter months.





2. Increase in the ratio of stage 1 to stage 2 mortality reviews; meaning importantly that the observed excess winter mortality were in the expected category (stage 1)





Importantly this was later reported at a national level in the annual report of "Seasonal influenza in Wales - 2014/2015". The following summary extract was taken from this report as it is relevant to the review undertaken within Cwm Taf and its conclusions.

> ***Excess mortality during the influenza season***
> *Weekly monitoring of seasonal excesses in mortality is carried out at an England and Wales level during the winter period by Public Health England [5]. The expected number of weekly death registrations for any given week are calculated using Serfling regression and estimated numbers of all-cause registered deaths provided by the Office of National Statistics [6]. This is compared to the actual number of registered deaths for the same week to determine whether mortality is higher than expected, resulting in excess all-cause mortality.*
>
> *During the 2014/15 winter period, excess all-cause mortality was seen in week 51 2014 and a large peak was seen between weeks 1 to 11 2015. This is in contrast to the 2013-14 winter period where the numbers of excess deaths were low.*
>
> *A total of 16,415 excess all-age deaths were estimated by Public Health England to have occurred in England and Wales during 2014/15; which is significantly higher than seen during the past nine seasons.*

On 4th March 2015, a detailed report on mortality case note review was presented to the Cwm Taf Board and made available to the public via the internet (see attached link); Link to UHB March 2014 Board Report This report (supported by a presentation) outlined (pages 6 to 7) and confirmed the above findings and the correlation with our internal review processes which did not conclude that there was any systemic failures in the delivery of hospital inpatient care.

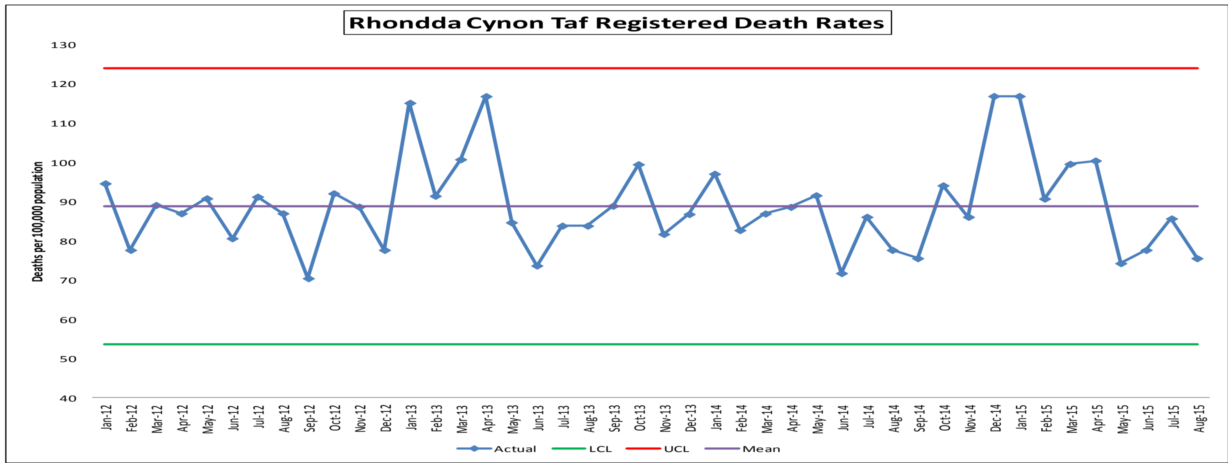
A meeting was held with Terry Gill from the Welsh Government, to share the outcome of the UHB's internal monitoring and to discuss the CHKS RAMI 14 publication for the winter mortality.

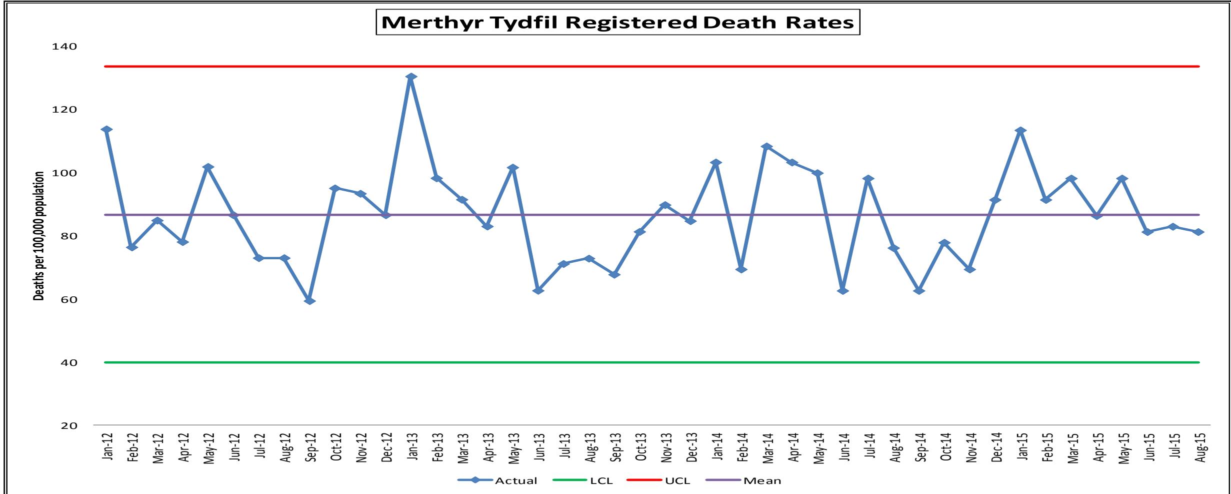
Statistical Process Control (SPC) charts, outlined on the next 2 pages of this report, were requested for the Cwm Taf Crude mortality for catchment population and deaths on hospital sites and these were provided to help inform our internal review process.

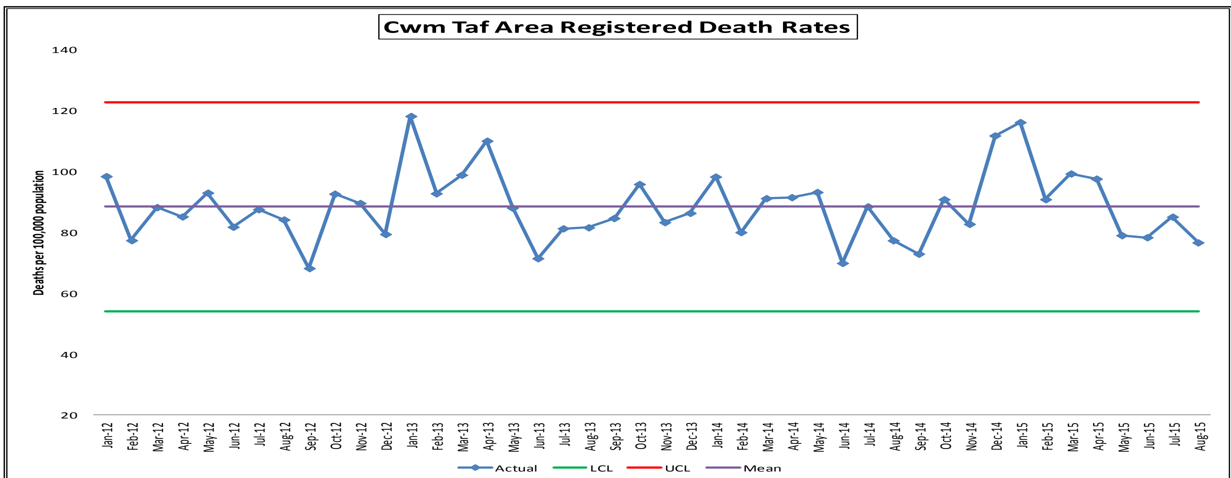
RAMI 2014 based on UK Peer		
Rolling Annual Period	Prince Charles	Royal Glamorgan
Dec-2013	128	113
Jan-2014	125	110
Feb-2014	122	107
Mar-2014	120	105
Apr-2014	117	105
May-2014	116	105
Jun-2014	117	105
Jul-2014	117	106
Aug-2014	118	106
Sep-2014	114	109
Oct-2014	114	113
Nov-2014	111	117
Dec-2014	111	120
Jan-2015	112	122
Feb-2015	112	125
Mar-2015	115	128
Source: CHKS via DAT+		
Run Date: 7th September 2015		

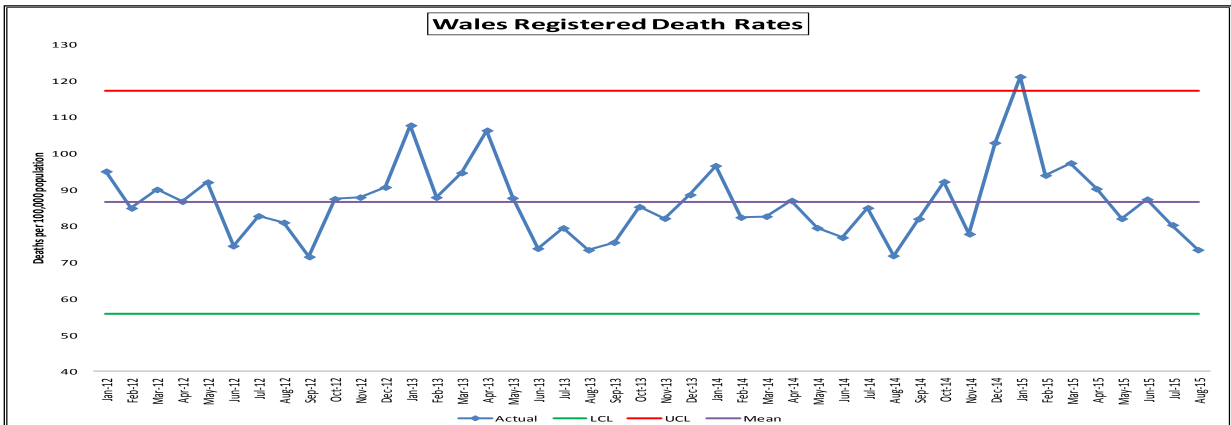
Acute Site Peer		
Rolling Annual Period	Prince Charles	Royal Glamorgan
Dec-2013	108	96
Jan-2014	106	93
Feb-2014	103	91
Mar-2014	101	89
Apr-2014	99	89
May-2014	98	89
Jun-2014	99	89
Jul-2014	99	89
Aug-2014	99	90
Sep-2014	96	93
Oct-2014	97	96
Nov-2014	94	99
Dec-2014	94	101
Jan-2015	95	103
Feb-2015	95	105
Mar-2015	98	108
Source: CHKS via DAT+		
Run Date: 7th September 2015		

Crude Mortality rates across Cwm Taf / Wales population.

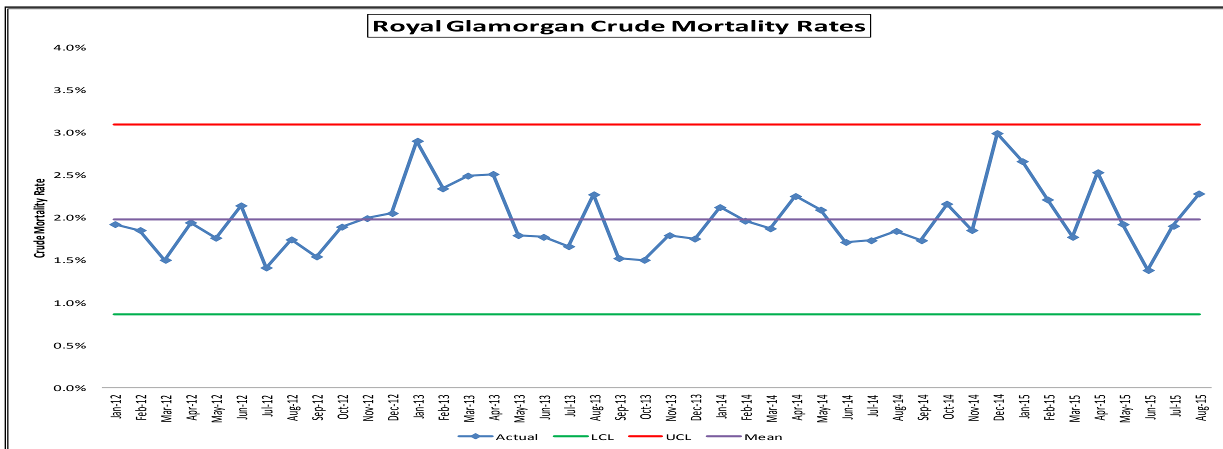


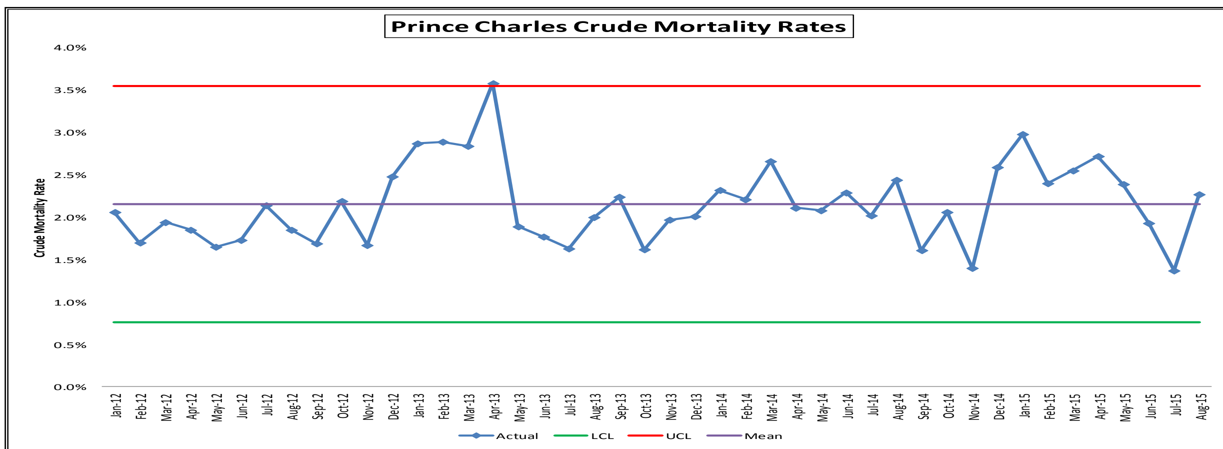


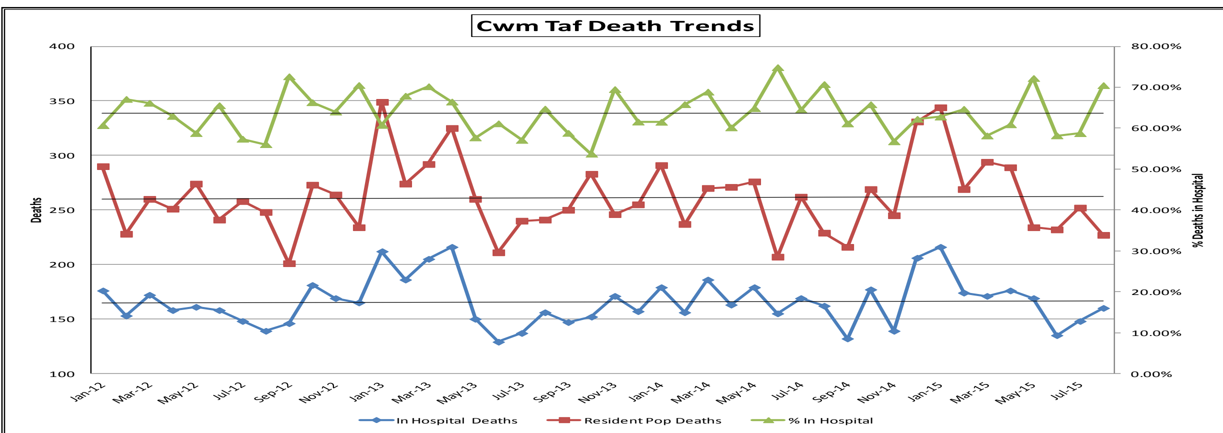


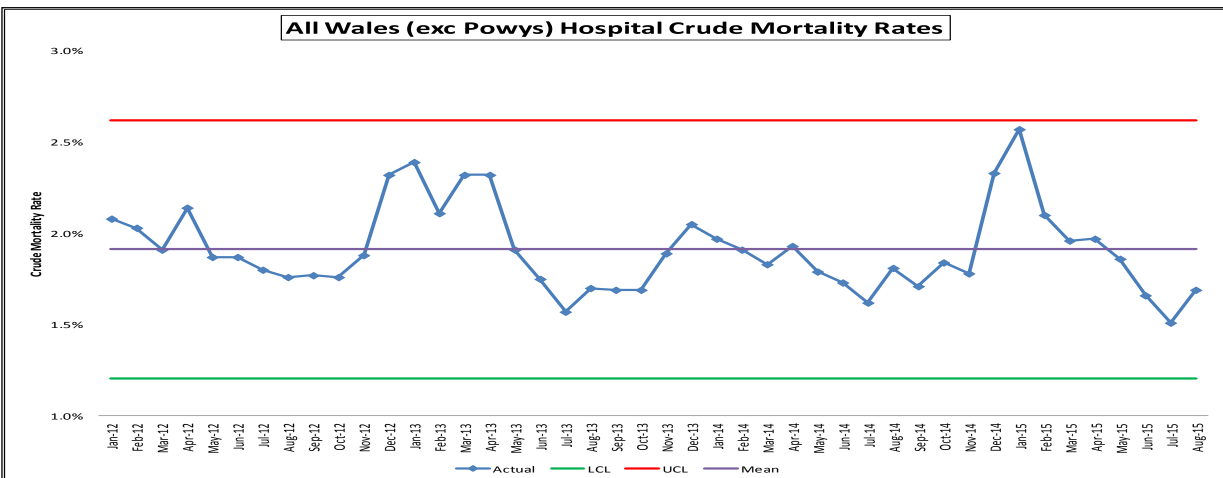


Crude Mortality rates across Cwm Taf hospital sites.









Reporting of information

A regular update of the issues identified in the mortality review process is provided to the Health Board's internal Quality Steering Group.

Quarterly reports are provided to the Quality and Safety Committee using the standardised dashboard format and now routinely included within the Integrated Quality Report & Dashboard.

Individual cases are brought to the attention of responsible clinicians where appropriate at stage 3 with involvement of respective line managers.

Limitations

The deceased, by definition, are a group with particular characteristics, notably high co-morbidity (the presence of one or more disorders in addition to the primary disease or disorder).

Mortality review is not a substitute for the wider study of harm which should also include assessment case notes of the living. Linkage of harm to mortality with certainty can be challenging. It is possible to unintentionally harm the dying without influencing mortality. For this reason, the Health Board's full engagement in the Harm Study run by Dr Sharon Mayer from Cardiff University is important.

The quality of case notes is variable and at times poor - the quality of the review is dependent upon accurate and reliable documentation in a similar way to coding. Significant preparation of case notes is required before an effective Stage 2 can proceed.

The difficulty of detecting problems in care related to omissions is well understood. The lessons learned as part of this process are being used to inform a project to improve the Clinical Record under the leadership of the Assistant Medical Director for Innovation.

Driving Improvement

The key driver for all our mortality case note review is learning and improving where we find opportunities to do so. The case note review process helps drive out quality improvement priorities which are then reported into the Quality & Safety Committee via the Integrated Quality Report.

Two examples of progress with our improvement work that are directly related to mortality and which are reported through the Quality & Safety Committee are Sepsis (presence of microorganisms in tissue or blood stream) and Venous Thromboembolism (VTE) (blood clot within a vein) risk assessment and appropriate treatment with medication.

Significant improvements have been noted with increase in awareness and staff training on the sepsis tool, which will be sustained with the expansion of the outreach team. Compliance with the sepsis six bundles within 1 hour has ranged from 90% through to 100% between May to July 2015.

In relation to VTE risk assessment, this is currently running at around 76% compliance, which is circa 20% above the reported Welsh average. Actions are being taken to improve this level of VTE further.

Challenges

The delivery of the Mortality Review process remains challenging, but the backlog at both Stage 1 and Stage 2 has been reduced as a result of increased engagement with Directorates, particularly Medical Directorate and Anaesthetics & Critical Care, as well as a pilot system for UMR at the time of death certification as envisaged under the proposed Medical Examiner system. Improvements have been made with regards to the timeliness of reviews.

It should be noted that whilst Professor Palmer commended the case note review process developed within Cwm Taf UHB, he also raised concern about the capacity of the Health Board to sustain the process (summary extracts from his 2014 national review on behalf of the Health Minister, are attached as Appendix 1).

The Medical Examiner System will be introduced in England and Wales at some point in the future although the delays at a national level are frustrating. It is envisages that the UMR (stage 1) will be subsumed into this role as part of its function in scrutiny of deaths and death certificates, allowing the mortality review team to concentrate primarily on cases at Stage 2 and beyond where the learning is maximised. We are already in the process of piloting UMR (electronically) at the time of death certification for a sample of deaths from April 2014 in anticipation of this change.

At the point following full implementation of the Medical Examiner System, there will be an appropriate degree of scrutiny of all deaths regardless of where they occur. The mortality review process already provides Cwm Taf UHB with the framework as a basis for this system.

CONCLUSION

The vast majority of deaths occurring in our acute sites are either expected or considered likely and the Mortality Review Process continues to offer objective reassurance of that fact. In particular, there is no evidence to suggest that avoidable mortality is the explanation for high RAMI scores in our acute hospital sites.

There is no evidence of a systematic failure in healthcare leading to excess deaths. Crude mortality remains high due primarily to a lack of alternative arrangements for many patients just prior to their death, and due to a population with a high rate of co-morbidities often presenting late in the course of their illness, often as an emergency with limited options for effective therapeutic interventions.

The 2014/15 winter peak in mortality, including hospital mortality, more pronounced at the Royal Glamorgan Hospital, is mainly attributed to;

- During 2014/15 winter period, excess all-cause mortality was seen nationally (England & Wales) in December 2014 with a large peak seen in January to March 2015, in contrast to the 2013-14 winter period where the numbers of excess deaths were low. This recent data was significantly higher than seen during the past nine seasons.
- Excess deaths in Cwm Taf hospitals following review were in the unavoidable category.
- Causes of death overwhelmingly related to respiratory infection.
- Discussions with Medicine and ITU colleagues support this view
- Similar findings reported from HM Coroners post mortems, which include non hospital deaths

RAMI will also remain high in the opinion of Professor Stephen Palmer largely attributable to the challenges of calculating figures in the setting of such complexity.

Cwm Taf UHB have now had an effective system of scrutiny in place to detect avoidable mortality for nearly three years based on a system of "all deaths review" which is led by clinicians and provides a rich learning environment in line with ongoing NHS culture change with linkages to appraisal and revalidation for medical staff.

Information from mortality review is fed into Quality Improvement processes as well as to individual clinical teams. The UHB system, which is growing in sophistication, will align well with the anticipated Medical Examiner System.

The challenges of accurate coding remain and in particular are exacerbated by, at times, a less than satisfactory quality of case notes, although work is being progressed to address this and also improve the storage of patient records within the UHB. Challenges remain with involving sufficient staff in the mortality case note review process which needs to be continually addressed.

4. RECOMMENDATIONS

The Board is asked to;

- **NOTE** and **DISCUSS** the outcome of the review undertaken to analyse the higher than expected winter mortality.

Freedom of information status	Open

Appendix 1 - Summary of Findings and Recommendations of Palmer Review

These are the main general findings and recommendations. Specific conclusions about the six hospitals are found in the body of the report.

1. The cooperation and openness of Health Board chairmen and their medical directors has been excellent.

2. I do not think that the summary RAMI for Wales (nor the Welsh SHMI) are meaningful measures of hospital quality; they may be misleading and could divert attention away from more meaningful approaches to measuring and improving hospital care.

3. Mortality measures within clinical and diagnostic groups are useful measures of health care outcomes, but they should be published in ways that recognise variation by chance (using process control charts, run charts etc.).

4. Currently there is not a centre of national epidemiological expertise in Wales with responsibility for the development and evaluation of mortality metrics and other outcome measures to advise and support Health Boards and Welsh Government. Such a resource should be set up, drawing on the Universities in Wales and their considerable expertise in statistics, operations research and health care epidemiology. In particular the MRC Farr Institute for e Health in Swansea University offers NHS Wales a special opportunity to move towards international leadership in the area of population based clinical outcomes measurement.

5. In place of the summary RAMI, the public should take assurance about the safety and quality of hospital care from timely medical records reviews of all deaths in hospital, following national protocols. These reviews should provide performance metrics for Health Boards. Full participation of clinicians in these reviews must be addressed urgently. Mortality reviews should then be extended in the first instance to deaths in patients newly discharged from hospital.

6. Significant improvement in clinical coding in Wales will require clinicians to take responsibility for the quality of medical records. I suggest that NHS Wales should work with the Post Graduate Dean and with the Royal Colleges in Wales to seek to ensure full clinical participation in safety and quality improvement systems, including the development and use of clinical benchmarking metrics.

7. In addition to the mortality review process, assurance of the quality of care in hospitals in Wales will come from full participation in national clinical audits. Performance metrics should be derived for these audits, including the participation of Health Boards in Wales.

8. Boards are at different stages of development of clinical information systems and in using clinical quality metrics and dashboards. I recommend that work is undertaken to assess how, and to ensure that, Health Boards have clear line of sight to the quality of clinical care and make timely, explicit, risk based judgments about the quality and safety of services.

Prince Charles Hospital and Royal Glamorgan Hospital

26. I met with the chairman, medical director and Board Secretary and reviewed Health Board and CHKS reports. Cwm Taf Health Board has a high proportion of deaths occurring in hospital, a high underlying general mortality rate in the population, and a relatively high prevalence of risk factors such as smoking. The reasons for the high proportion of in-hospital deaths are lower provision of hospice care in the community and a trend for end of life patients to be transferred into hospitals from nursing homes. Consequently, as I understand the way that RAMI is calculated, I would expect that both hospitals would have a high RAMI. Cwm Taf Health Board has an impressive and high visibility clinical case notes mortality review process in place giving considerable reassurance to the Board that high RAMIs are not indicators of poor care. The mortality review process is rigorous with three stages (about 25% of cases referred from stage 1 to the multidisciplinary stage 2, and a small number referred to stage 3), but it is resource intensive and the timeliness of reviews and the sustainability of the second stage review process are live issues. In recent months due to staff illness a backlog of reviews has built up. The Board has received value from the review process, identifying areas for further work such as coagulation treatment, timeliness of scans, and failure to accurately communicate "do not resuscitate" decisions. Importantly, a study has been carried out of the usefulness of the individual risk of death score calculated for each patient by the CHKS system. There was not a good correlation between risk of death and subsequent case note review findings and therefore it was rightly concluded that simply choosing those deaths which had a low probability score to review for avoidable factors would not be a sound approach.

27. The Health Board has acknowledged that it has been relatively weak in clinical coding completeness, timeliness of coding and depth of coding (although there is now an improvement plan in place). All these factors will tend to increase the RAMI relative to hospitals with better coding levels.

28. I have reviewed the Board data on RAMI with the medical director. Given my concerns about interpreting RAMI I am reluctant to offer an analysis since that may give unjustified weight to the measure. It is my opinion that the high RAMIs are very probably a result of several underlying factors that influence the model such as proportion of deaths in hospital rather than sub-optimal treatment. I reviewed category specific mortality indicators and Quality and Safety Committee reports and could not see any particular issues that require intervention beyond ongoing efforts to improve the quality of coding across the Health Board and finding the resources to sustain the timeliness of clinical case notes review of all hospital deaths.