

## EXECUTIVE SUMMARY

<b>TITLE:</b>	<b>BOARD/GROUP/COMMITTEE:</b>
Hospital Standardised Mortality Ratios (HSMRs)	Trust Board
<b>1. PURPOSE:</b>	<b>REVIEWED BY (BOARD/COMMITTEE) and DATE:</b>
<p>The attached paper is to provide the Trust Board with the background and initiatives that are in place to respond to the recent Dr Foster publication of the trust being a significant outlier for HSMR data at 115. This relates to 2009/10.</p> <p>The work over the year has identified that whilst there are known quality issues that require action, particularly over increased deaths on Saturday and Sunday, there are also data quality issues arising from variations in the recording and coding of co-morbidities and clinical coding practice in palliative care.</p> <p>The paper lays out the effect that Dr Foster rebasing the data had on the Trust progress, shows areas where improvements have occurred and future work.</p> <p>This was used to brief NHS London, the Department of Health and internally for staff.</p> <p>In addition attachments II and III relate to letters received from the CQC following investigations into Dr Foster data alerts, both of which have reached a satisfactory conclusion.</p>	<input type="checkbox"/> <b>PEQ</b> ..... <input type="checkbox"/> <b>STRATEGY</b> ..... <input type="checkbox"/> <b>FINANCE</b> ..... <b>AUDIT</b> ..... <input checked="" type="checkbox"/> <b>CLINICAL GOVERNANCE</b> ..... <input type="checkbox"/> <b>CHARITABLE FUNDS</b> ..... <input type="checkbox"/> <b>TRUST BOARD</b> ..... <input type="checkbox"/> <b>REMUNERATION</b> ..... <b>OTHER ...</b>
<b>2. DECISION REQUIRED:</b>	<b>CATEGORY:</b>
For information	<input type="checkbox"/> <b>NATIONAL TARGET</b> <b>CNST</b> <input checked="" type="checkbox"/> <b>CQC REGISTRATION</b> <b>HEALTH &amp; SAFETY</b> <input checked="" type="checkbox"/> <b>ASSURANCE FRAMEWORK</b> <input type="checkbox"/> <b>CQUIN/TARGET FROM COMMISSIONERS</b> <input checked="" type="checkbox"/> <b>CORPORATE OBJECTIVE</b> ..... <input type="checkbox"/> <b>OTHER</b> ..... (please specify)
	<b>AUTHOR/PRESENTER:</b> Pam Strange/ Ian Abbs
	<b>DATE:</b> 19 <sup>th</sup> November 2010.
<b>3. FINANCIAL IMPLICATIONS/IMPACT ON CURRENT FORECAST:</b>	
N/A	
<b>4. DELIVERABLES</b>	
As detailed.	
<b>5. KEY PERFORMANCE INDICATORS</b>	
<b>AGREED AT</b> _____ <b>MEETING</b>	<b>DATE:</b> _____
<b>OR</b>	
<b>REFERRED TO:</b> _____	<b>DATE:</b> _____
<b>REVIEW DATE</b> (if applicable) _____	

## **Dr Foster Hospital Standardised Mortality Ratio (HSMR)**

### **Briefing Paper**

#### **Executive Summary**

The Trust recognises that the 2009/2010 HSMR figure in the Dr Foster Hospital Guide of 115 is a significant adverse outlier. The Trust is committed to understanding the HSMR data and using this as a tool to improve patient care.

The Trust has made significant improvements in patient care in the past 18 months, and this conclusion is supported by the findings of the Dr Foster data which showed a nine point improvement for the Trust (prior to rebasing). In addition, the Trust has been tracking other quality indicators, which include a reduction in complaints, serious incidents and improvements in specific clinical areas such as stroke care. Despite these improvements, the Trust is concerned that our reported HSMRs remain amongst the poorest performers in the Dr Foster HSMR figures.

The Trust is absolutely committed to delivering the optimal clinical outcomes, safe care and the best patient experience. There are areas of care that we recognise need to be improved, and we are using the data from Dr Foster and our own live audits to target these areas for continuous improvement. We are pleased that in areas such as stroke, care of the elderly and trauma care, this is already evident. Rebased HSMR has improved during this year to around 102, and we are determined to drive further improvements in the months ahead.

In addition to these areas where quality needs to be improved, there are a number of other reasons behind our HSMR results. The recently published Department of Health '*National review of hospital standardised mortality ratios (HSMR)*' highlighted potential data quality issues arising from variations in the recording and coding of co-morbidities and also from the variations in clinical coding practice in regard to palliative care, where clearer guidance is needed. The Trust's findings support this, following analysis of our HSMRs, we have identified issues that include recording and coding of palliative care, co-morbidities and still births. It is established that our recording of palliative care is nearly 70% below the national average.

## **1.0 Introduction**

Dr Foster is due to publish the Good Hospital Guide on the 28<sup>th</sup> November 2010 in the Observer. This will contain the Trust's data for the Hospital Standardised Mortality Ratio (HSMR) for 2009/10. The Trust's position for 2009/10 is an HSMR of 115 (where 100 is the national average expected mortality ratio). In 2008/09 the Trust HSMR was 111 and prior to rebasing this had improved in 2009/10 to 102. However, rebasing of the 2009/10 national data, where national performance improved to a greater extent than the 9 point performance improvement achieved by the Trust, effectively results in a deterioration in 2009/10 performance.

This briefing paper sets out the Trust position with regards to HSMR performance, highlights improvements in care and describes the work that has been undertaken to ensure that data presented reflects the accurate position.

## **2.0 Background Issues**

### **2.1 2009/2010 HSMR**

The Trust recognises that the 2009/2010 HSMR figure in the Dr Foster Hospital Guide of 115 is a significant adverse outlier.

There has been a particularly focussed approach to the HSMR since September last year when pneumonia mortality, which had been a longstanding adverse outlier at that time, was fully reviewed.

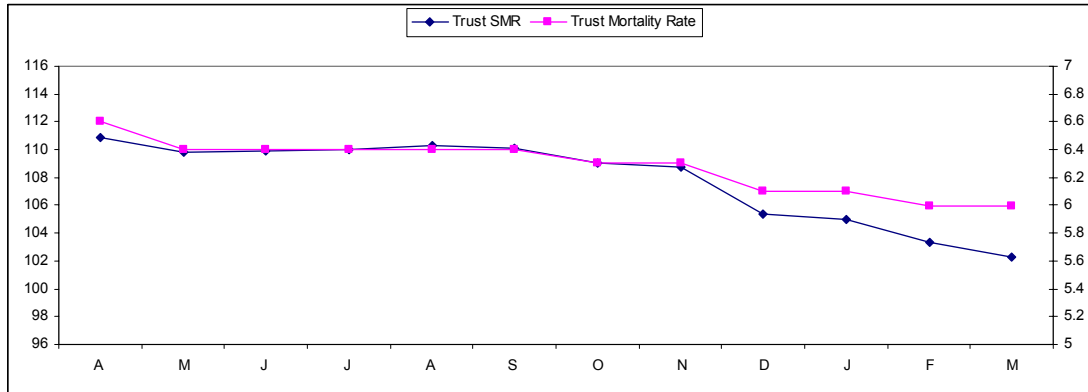
Analyses of the components of our HSMR and investigation of specific alerts (red bells) from the Dr Foster system have been in place since September 2009.

The analysis has looked at the main contributors to the adverse total picture, which include pneumonia, stroke, all cancers and urinary tract infection (UTI). Investigation of alerts has included perinatal deaths and complications of device, implant or graft, which have contributed to the position.

Focussed action, in areas highlighted by the Dr Foster data, has been associated with clear improvements in care. Action following the pneumonia review generated a significant programme to improve care for patients admitted with community acquired pneumonia. The analysis of stroke mortality data was pivotal to the centralisation of the stroke service and subsequent improvements in patient care leading to a reduction in mortality and the HASU winning an award for the most improved unit.

From a start point of an HSMR of 111 in April 2009, Chart 1 below shows that there was a significant reduction over the year to the Trust having an HSMR of 102 by March 2010. This figure was close to the national figure and was not depicted as a negative outlier.

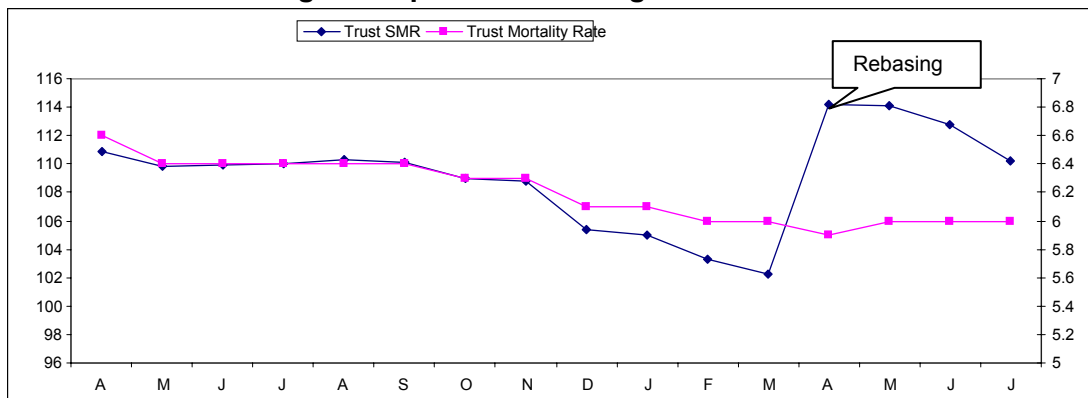
**Chart 1 Dr Foster 12 Month Trust HSMR and Crude Mortality to March 2010**



## 2.2 Rebasing

The Trust's HSMR reduced to close to the national figure during 2009/2010. It was recognized that comparative performance data would alter when Dr Foster rebased the figures but the extent of this was not anticipated. The rebased year end HSMR went from 102 to 115 which is a significant outlier in national performance. In effect, despite achieving a 9 point improvement, the Trust did not improve at the same rates as other trusts. Chart 2 shows the effect of the rebasing process.

**Chart 2 Dr Foster 12 Month Trust HSMR and Crude Mortality to July 2010 Showing the Impact of Rebasing**



The Trust is determined to improve and we can confirm that progress has been made. For the year to date our HSMR has continued to come down and is now (August 2010) at 108 with cancer excess deaths reduced from 58.8 in November 2009, to 9.6 in August 2010.

## 3.0 Implemented actions

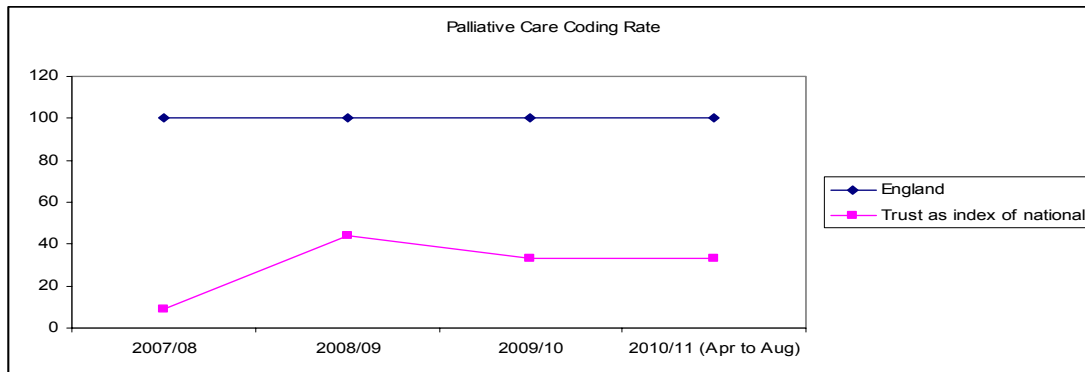
There has been real improvement in the quality of patient care but we also identified that there needed to be increased attention to detail in ensuring that all co-morbidities were coded. The following section provides greater detail of these findings following clinical audit in specialist areas.

### 3.1 Cancer/Palliative Care

Collectively, cancers were the largest single contributor to our all-up adverse variance at mid year 2009/10, being around a third of our excess. Yet a full audit of all cancer deaths indicated that care standards were at or better than expected levels. In order to establish the

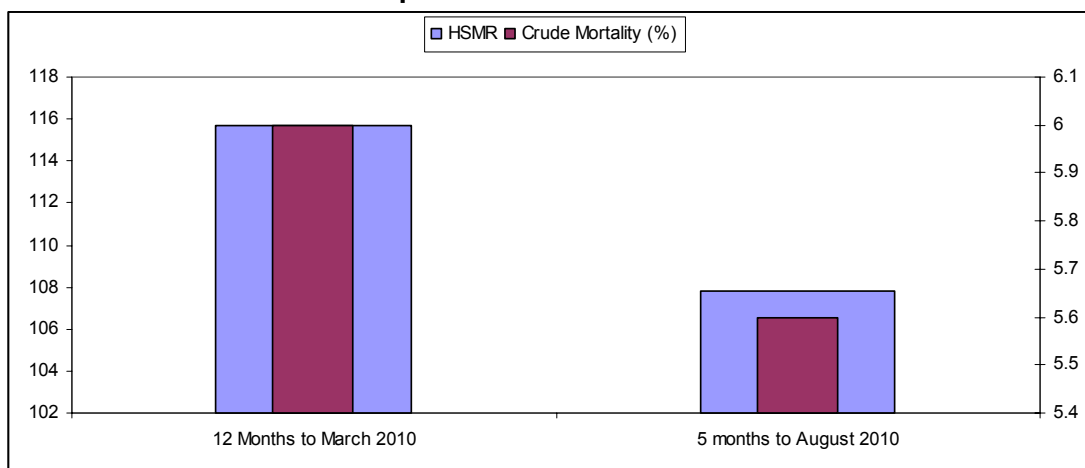
reasons behind this, we met with Dr Foster analysts and it emerged that the Trust had an exceptionally low rate of coding palliative care for cancer cases – about 70% below the national rate. That was in turn having a major effect on our HSMR.

**Chart 3 Dr Foster chart showing Trust shortfall in palliative care coding compared to the national position, 2007/8 to present**



The Trust does see a higher than expected number of admissions for end of life care in comparison to other local trusts. There are a couple of key reasons for this. Firstly, there are few nursing homes that have a gold standard for end of life care. This results in higher than average numbers of patients admitted for terminal care. In addition, data has shown that there are few options for people to select where they would like to be cared for at the end of life and choice is limited. For example, in Barking and Dagenham only 20% of people were given a choice of where they would like to die against a national average of 60%. Secondly, patients presenting late for diagnosis of some cancers mean that they are then not eligible for NICE treatment pathways. Analysis of the 2009/10 HRG for stomach cancer highlighted that 10 of the deaths were patients presenting late and therefore sadly not eligible for the NICE pathway.

**Chart 4 Trust HSMR and Crude Mortality for April/August 2010 with 2009/2010 HSMR for Comparison**



Confidence in this data is based on further discussion with Dr Foster which has indicated that it is not only in relation to palliative care that our previous recording and coding of mortality has been not as adjusted to reducing HSMR as it clearly is at other trusts.

### 3.2 Perinatal deaths

An additional coding issue relates to perinatal deaths. Review of the most recent available Dr Foster data (August 2010) shows that about half of our excess is associated with perinatal deaths, which emerged as both an alert and a major contributor to our adverse position last year. Our work since has identified that the excess is again entirely due to coding information and the erroneous data is being removed putting the trust in line with national coding processes.

**Chart 5 Admitting Diagnoses with Top Contribution to Trust HSMR for April/August 2010 by Excess Deaths**

Diagnosis group	Spells	Deaths	%	Expected	%	RR	Excess Deaths
ALL	15427	862	5.60%	799.6	5.20%	107.8	62.4
Other perinatal conditions	<u>338</u>	39	11.50%	12	3.60%	324.7	27
Urinary tract infections	<u>855</u>	46	5.40%	35.4	4.20%	130.1	10.6
Chronic obstructive pulmonary disease and bronchiectasis	<u>421</u>	32	7.60%	22.4	5.40%	142.7	9.6
Pneumonia	<u>616</u>	134	21.90%	125.7	20.50%	106.6	8.3
Congestive heart failure, nonhypertensive	<u>282</u>	43	15.40%	38.1	13.60%	112.9	4.9
Acute myocardial infarction	<u>215</u>	32	15.00%	27.3	12.70%	117.4	4.7

### 3.3 Co-morbidities

As to the remaining half of the excess, a coding disparity has been identified, namely the coding of co-morbidities. Review of our position relative to other local trusts with lower HSMRs shows that our expected mortality rate, which is significantly dependent on co-morbidities, is considerably less than theirs. Thus for multi-episode Urinary Tract Infection (UTI) whilst ours is 8% others are above 12 or 13%. Our actual mortality therefore appears as adverse against expected at a level where theirs would not.

**Chart 6 Trust Local Peer Group (Anonymised) Showing Expected Deaths and HSMR for Multi-Episode UTI cases, April/August 2010**

Peer (My current group)	Spells	Deaths	%	Expected	%	RR
ALL	<u>784</u>	84	10.70%	83.5	10.70%	100.6
A	83	12	14.50%	11.4	13.80%	104.9
B	70	10	14.30%	9.6	13.70%	104.5
C	143	13	9.10%	17.7	12.40%	73.6
D	50	5	10.00%	6.2	12.30%	81.2
E	29	0	0.00%	2.9	9.90%	0
F	26	1	3.80%	2.4	9.30%	41.5
G	113	8	7.10%	10.2	9.10%	78.2
H	37	6	16.20%	3.3	8.90%	182.3
I	48	3	6.30%	4.3	8.90%	70
Barking, Havering and Redbridge University Hospitals NHS Trust	185	26	14.10%	15.6	8.40%	166.6

We are therefore reviewing all UTI deaths and those in a number of other diagnoses back to April to bring our coding of co-morbidities in line with practice elsewhere. That work will be completed by the end of November and we expect it to further substantially reduce our

current HSMR by the time the Dr Foster hospital guide is published, certainly to a level where we are not a statistically significant variant from the national position.

Over the last year our HSMR has been affected by coding rather than care issues. Detailed analysis of the HSMR to bring the Trust into line with the national position has increased our determination to identify every opportunity to improve patients' underlying care.

#### **4.0 Patient Safety Systems**

The Trust has been very active in introducing systems and processes to identify and address the significant variation in the mortality data. These are highlighted as follows:

**4.1 Training** - continuous training programmes on the interrogation of Dr Foster data have been run throughout the year for consultant staff and senior managers.

**4.2 Audit** -The Clinical Governance and Performance team representatives have been meeting on a monthly basis to identify "red bell alerts" by procedure and diagnosis. The patient's notes are then reviewed by the responsible clinician to audit and identify required changes in practice. This ensures that the Trust is driving improvements in clinical practice and safety, leading to a reduction in the HSMR.

**4.3 Data Analysis** - real time data is used to support consultants to continuously review their mortality on a month by month basis. The reported outcomes do not show a significant problem in clinical care or care pathways but do identify that poor recording of co-morbidities, identifying palliative care patients and a lack of recording of dementia as secondary coding has contributed to unrealistic risk ratings that have taken the trust above the expected level of mortality.

**4.4 Corporate Audit** - the audit of mortality data is a corporate audit topic and 10 audits to specifically review mortality have been registered with the clinical audit department since January this year

**4.5 Monitoring** - the Trust Board and key committees review the Dr Foster data analysis through the monthly dashboard and the Clinical Governance Committee monitors and reviews the audits and their outcomes.

**4.6 Review Outcomes** - through the above methods, the Trust has undertaken a review of every Dr Foster excess mortality alert since April which equates to 16 reviews, some of which are still in the process of completion.

It is very clear that when the primary diagnosis is not clearly and correctly recorded in the patient record this can result in the first diagnosis being recorded as the primary diagnosis which will result in the risk assessment of whether each death was expected being incorrect. Dr Foster uses the primary diagnosis to assess the risk of death and it is this on which the HSMR is based thereby inflating the HSMR. Systems have been changed to facilitate the Coding Team in recording an accurate primary diagnosis as well as key co-morbidities which includes using the death certificate information.

An independent audit of all mortality for September is being carried out to identify a range of issues including where the documentation is not providing sufficient evidence for coding all of the co-morbidities.

**4.7 CompStat approach** – this process started in late October and currently reviews 7 major clinical pathways and an additional one in Emergency Medicine which is due to start mid November. It functions by agreeing on best practice pathways then weekly reviews are

held by clinicians on patients who have gone through the pathway to identify deviations from the pathway and provide feedback for change in real time. .

**4.8 Weekend Mortality** – the Dr Foster data indicates that there is a quality issue for patient care at the weekends, a rise in mortality for patients admitted at the weekend has been identified. The Trust is taking a range of steps to ensure a consistent approach to the quality of patient care 24/7 and the key to this has been an extensive review of the junior doctors' rotas which has been completed. From 1<sup>st</sup> December all junior doctors will work to an agreed rota which means that they are aware of their rota for months in advance and the weekends are fully covered with junior doctors who are familiar with the patients and the hospital. This has been a large piece of well developed work which will improve patient safety and staff morale. A similar process is in progress with the Consultant rotas.

## **5.0 Care Quality Commission Alerts**

The Care Quality Commission (CQC) have raised 3 alerts with the Trust in the past year, two were in relation to mortality outlier data,

- stroke
- complication of device, implant or graph

The Trust supplied an extensive report in relation to stroke detailing the identification of issues and the action plans that led to the development of the HASU which was fully accepted by the CQC and the matter closed. The second the CQC closed without action following investigation as they found that the Trust was not an outlier as has been perceived. This was the conclusion that had been drawn from the Trusts own investigation.

The other alert dealt with the outlier data for emergency maternity re-admissions. The Trust supplied a full audit of the data with an accompanying action plan. The CQC requested further data and then concluded that all appropriate action had been taken by the trust.

## **6.0 Conclusion**

The Trust is fully committed to improving the quality and safety of all episodes of patient care by developing, implementing and auditing clinical pathways. It is also essential that all key elements of the patient profile and care are captured and reported fully in order that the Trust's standing on mortality data is reflected accurately. A great deal of work has been completed so far this year and there is more to do. Full recognition is given to this important subject by all clinicians and managers and every endeavour will be made to increase public, stakeholder and staff confidence in the quality of care provided by this trust.

## **Reference**

National review of hospital standardised mortality ratios (HSMR). Professor Sir Bruce Keogh; Ian Dalton. Department of Health: Gateway reference:15066

### **Authors:**

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22 November 2010



40, RESTRICTED

**John Goulston, Chief Executive**

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6<sup>th</sup> September 2010

Our reference: A393

Dear Mr Goulston,

**Re: Imperial College Dr Foster mortality outlier alert for 'complication of device, implant or graft' at Barking, Havering and Redbridge University Hospitals NHS Trust**

We are writing further to the letter you received from the Dr Foster Unit at Imperial College London in August 2010, regarding mortality rates at your trust.

The Care Quality Commission received a copy of the alert on 24<sup>th</sup> August 2010 (see enclosure). We are currently assessing the alert using our own analysis and other information before deciding whether or not it needs to be followed up further. We will write to you again to share our findings and will inform you if we need to make further enquiries but in the meantime we would not want you to stop any action you may have already initiated.

Please continue to communicate with your regular Care Quality Commission regional contacts with regards to general trust matters, but liaise directly with me in connection with this matter.

If you would like to discuss the content of this letter in more detail, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink that reads 'PP. Chris Sherlaw-Johnson'.

**Chris Sherlaw-Johnson**  
Surveillance Manager

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outliers@cqc.org.uk

Encl.

cc: Bev Gray – Compliance Inspector – Care Quality Commission  
Tony Allen – Compliance Manager – Care Quality Commission  
Michele Golden – Compliance Manager – Care Quality Commission  
Colin Hough - Regional Director – Care Quality Commission  
Charles Hollwey – Chief Executive – Havering PCT  
Professor Trish Morris -Thompson - Director of Nursing - London SHA

Mr John Goulston  
Chief Executive  
Barking, Havering and Redbridge University Hospitals NHS Trust  
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17 August 2010

Dear Mr Goulston,

## **MORTALITY OUTLIERS**

**We are writing to share with you in confidence an analysis of mortality data which indicates higher than average mortality rates for Complication of device, implant or graft within your hospital trust (Appendix 1).**

The Dr Foster Unit at Imperial College (DFU) routinely analyses Hospital Episode Statistics (HES) and Secondary Uses Service (SUS) data for a wide range of diagnoses and procedures, computing risk-adjusted mortality rates for hospitals. In the course of this work we have come across examples of mortality rates in various trusts significantly in excess of what would be expected, given the risk profile of the relevant patients.

There are a number of possible reasons for these results, including random variation, poor data quality or coding problems, and case-mix issues, and we draw no conclusions as to what lies behind the figures. However, as clinicians we believe we have a duty under the GMC Good Medical Practice code to alert trusts to this analysis since there is a possibility that it indicates areas where patients may be at risk.

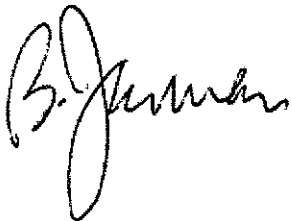
We therefore piloted a system of mortality alerts to trusts in 2007 and received very valuable feedback. As a result of the pilot we have made a number of changes for the roll-out of the alert system. First, we have limited the procedures and diagnoses we monitor for the purposes of this alert system, as we wish to restrict alerts to areas where there is most likely to be a clinical issue. Second, we have increased the amount of information supplied with the alerts. The short briefing note at Appendix 2 explains our methodology and alert process in more detail, including the criteria we have used for alerting trusts.

Third, we have decided to share alerts routinely with the Care Quality Commission. The general view of the trusts we consulted in our pilot was that it was appropriate for the Commission to receive this information as part of the wide range of data it receives about individual trusts. The Commission has said that it will consider these alerts using its own internal analytical process and then decide whether or not they represent a concern in the context of all the other information it holds with respect to the trust. The Commission will follow these up by writing to you either asking for further information or to inform you that it has no current concerns.

The purpose of this alert system is, in essence, both to discharge our ethical duty and to provide trusts with information which we hope you will find helpful. What action you do or do not take is entirely a matter for you; although we would be very happy to receive feedback on this alert, please do not feel obliged to acknowledge this letter. We should add that we do not have the capacity to provide follow-up advice and analysis, although we are happy to answer specific technical queries.

Finally, we must stress that this is an initiative of the Dr Foster Unit at Imperial College, not Dr Foster Intelligence. Information on which trusts have mortality outliers has not and will not be shared with Dr Foster Intelligence for marketing or other purposes. This alert system is overseen by the independent Dr Foster Ethics Committee.

Yours sincerely



Professor Sir Brian Jarman OBE MA PhD FRCP FRCGP FFPH FMedSci  
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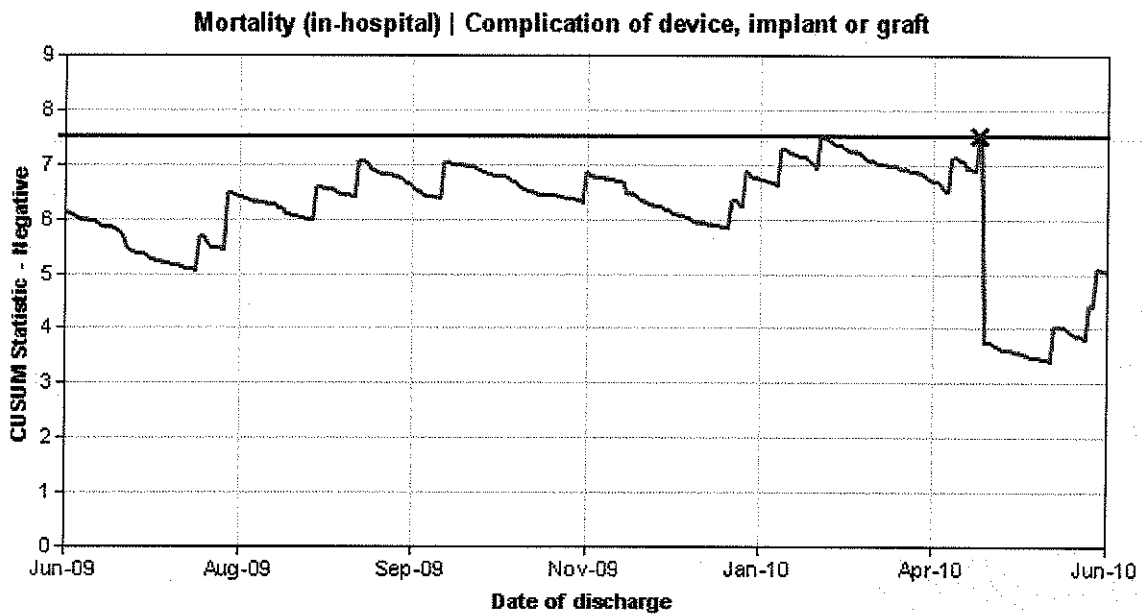
Appendix 1

**Barking, Havering and Redbridge University Hospitals NHS Trust**

**Complication of device, implant or graft**

T82-T87

This chart indicates that on at least one occasion in the three months to May 2010, risk-adjusted mortality of double the expected rate was recorded at this trust for this diagnosis or procedure.



Superspells: 670 (549/121)  
 First / Last: Jun-09/Jun-10  
 Deaths: 17 (2.5%)  
 Expected: 8.6 (1.3%)  
 Observed minus expected: 8.4 (1.2%)  
 Relative Risk: 197.2 (114.8—315.7)  
 C-Statistic: 0.83 (High)  
 Alerts (X): 1 (Apr-10)

The probability of a false alarm for this trust in a twelve month period: 0.08%

## Appendix 1

### DEFINITIONS

The threshold for alerts is set at a high level to ensure an estimated false alarm rate of 0.1% over a 12 month period of monitoring (see discussion of methodology at Appendix 2).

**(a) Superspells:**

A continuous period of care for an individual, which might include transfers from one hospital to another, and therefore more than one admission (spell). Two different numbers are shown in brackets, the first of which refers to inpatients, the second to daycases; the latter are assumed to have a zero risk of mortality

**(b) First / Last:**

Time period covered by the graph - the most recent 12 months for which we have data

**(c) Deaths (x%) :**

Number of deaths and percentage of superspells ending in death

**(d) Expected (x%):**

Risk adjusted expected number of deaths based on England average mortality

**(e) Observed minus expected:**

(c) – (d)

**(f) Relative Risk:**

This is calculated by dividing the observed mortality rate by the expected mortality rate and multiplying by 100. A relative risk of 100 would mean the trust was at the England average. The range refers to 95% confidence intervals

**(g) C-Statistic:**

The c-statistic is a measure of how well the risk model used for a given diagnosis or procedure predicts the outcome. It is a score between 0.5 and 1.0, where the former represents a predictive power no better than using the crude national rate and perfect predictive power (the model fully explains all variation in outcome). The score that you see is the average value for all the patients in the analysis which we have banded as follows:

- 0.5 to <0.6 = Very Poor
- 0.6 to <0.7 = Poor
- 0.7 to <0.8 = Fair
- 0.8 to <0.9 = Good
- 0.9+ = Excellent

**(h) Alerts (x):**

Number of alerts over the last 12 months and when they occurred

**(i) The probability of a false alarm for this trust in a twelve month period:**

This is derived from simulation in which 1000s of artificial hospitals, all with the same expected death rate for this diagnosis or procedure group and with the same number of admissions as the annual average for this trust, were monitored for five years. The proportion of them that had an alert in the last year of monitoring is therefore the false alarm rate for this trust in a twelve month period and is given here.

## Appendix 2

**NOTE ON METHODOLOGY**

The analysis is based on HES, NHS-wide Clearing Service and SUS data. We have analysed the data since April 2006, covering all major diagnoses and procedures, and identified instances where a given trust's death rates are at least double the expected mortality rate, based on the national average, in the most recent month for which data are available.

To track mortality rates we use cumulative sum charts (CUSUM) charts, which are widely used for quality control in industry, and increasingly in healthcare. We now explain the technique in brief. We determine for each patient the probability of death based on a number of variables (age, sex, whether they are an elective or emergency admission, any pre-existing co-morbidities, sub-diagnosis/procedure, socio-economic group, number of previous admissions, whether they are receiving palliative care, year of discharge and month of admission (for respiratory conditions); this risk adjustment is based on 1996/97-2008/09 data). Based on this, a risk-based score is determined for each patient of death or survival and the function of the difference between actual outcome versus expected outcome is plotted cumulatively.

An acceptable series of outcomes produces a graph where the cumulative score varies randomly at or around a baseline (each poor outcome, ie death, is compensated for by a larger number of good outcomes), whereas a series of poor outcomes will show the chart sloping upwards. Once the chart reaches a pre-set level an alert will be registered, indicating that there is a significant risk of an unacceptably high death rate (odds ratio = 2). Technically, the clinical group or procedure under scrutiny is then deemed "out of control".

The threshold at which we register an alert is set at a high level to minimise false alarms and maximise the possibility that what we are observing is not merely random variation. Based on a large number of computer simulations, we tailor the threshold to each trust and group so that the false alarm rate is less than 0.1% over the course of a year, based on the expected case-mix adjusted mortality, and the average diagnosis or procedure specific volume of your trust over a 12 month period.

Once an alert is sounded the chart is then automatically re-set at half the alert level. Resetting in this way ensures that improved death rates can be identified (if the alert level were not reset, the unit could continue to trigger alerts, even if its death rate improved significantly). But resetting at half the alert level ensures that continued high death rates will rapidly trigger another alert. Because every individual outcome is tracked in this way CUSUM charts are adept at rapidly identifying changes in death rates; we therefore intend to use this methodology to track whether they improve following an alert. If the death rate remains unacceptable the chart will continue to slope upwards again towards the trigger point, whereas acceptable levels would keep the unit below the trigger threshold.

The methodology has been widely discussed in the scientific literature and in itself is generally accepted as robust (see a sample of references below).

**References**

Jarman B, Gault S, Alves B, Hider A, Dolan S, Cook A, Hurwitz B, Iezzoni LI. Explaining differences in English hospital death rates using routinely collected data. *BMJ* 1999; 318:1515

Steiner SH, Cook RJ, Farewell VT, Treasure T. Monitoring surgical performance using risk-adjusted cumulative sum charts. *Biostatistics* 2000;1(4):441-452.

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**John Goulston, Chief Executive**

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17<sup>th</sup> November 2010

Our reference: C10/TG

Dear Mr Goulston

**Re: CQC Maternity outlier alert for emergency maternal readmissions at Barking, Havering and Redbridge University Hospitals NHS Trust**

Thank you for your letter dated 3<sup>rd</sup> September 2010.

As you are aware, analysis of maternity indicators undertaken by the Care Quality Commission has indicated significantly high rates for emergency maternal readmissions at your trust. We wanted to be certain that the high rates in this area had been recognised, explanations explored and appropriate actions taken by the trust in a timely manner to ensure the future safety of patients.

We have reviewed the information you have provided, considered it against our own findings and do not feel that we need to undertake additional enquiries at this time. However, your regional contacts are aware of the areas for improvement that have been identified and the actions that have been planned, and will be in touch with you regarding progress in these areas. Should you become aware of any further issues relating to this alert, we would ask you to let us know.

This letter and information regarding these emergency maternal readmission rates have been shared with your Care Quality Commission regional contacts, the PCT and the SHA for their information.

If you would like to discuss the content of this letter in more detail, please do not hesitate to contact me.

Yours sincerely



**Chris Sherlaw-Johnson**

Surveillance Manager

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cc: Bev Gray – Compliance Inspector – Care Quality Commission  
Tony Allen – Compliance Manager – Care Quality Commission  
Michele Golden – Compliance Manager – Care Quality Commission  
Colin Hough – Regional Director – Care Quality Commission  
Charles Hollwey – Chief Executive – Havering PCT  
Professor Trish Morris -Thompson – Director of Nursing – London SHA