Agenda Item 10

MORTALITY SUMMARY REPORT

CONFIDENTIAL

THE QUEEN ELIZABETH HOSPITAL, KING'S LYNN, NHS FOUNDATION TRUST

TRUST LEVEL – AUGUST/SEPTEMBER 2016

Report Date	6th September 2016
Healthcare Intelligence Specialist	Marianne Tankard
Area	East of England
Contact details	07738 028 185
Prepared by	June 2015 to May 2016

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EXECUTIVE SUMMARY

Data Period: June 2015 to May 2016

Metric	Result
HSMR/SMR Analysis	**105.80** 'as expected' range
HSMR Crude Mortality	The Trust is 1 of 6 within the peer group of 17 that sit within the 'as expected' range
HSMR Expected Mortality	1 outlying group this period • Urinary tract infections RR = **101.54** (53 deaths vs 35.09 expected)
HSMR Weekday/Weekend Analysis	There is no significant difference between the weekday and weekend HSMR for emergency admissions. Both are 'as expected'.
Coding analysis	• The Trust has a palliative care coding rate of 0.94% vs. national rate of 3.27% • The Trust has a Charlson comorbidity upper quartile rate of 23.4% vs. 25.0% national rate
All Diagnosis SMR	All diagnosis SMR is **106.93** and is statistically 'higher than expected' • There are 6 significant outliers within the 'all diagnosis' basket for this time period attracting higher than expected deaths
New CUSUM alerts this month	There are 0 new CUSUM alert this month
SHMI (Jan 15 to Dec 15)	• SHMI = 91.9 'as expected' (band 2)

*(lower/upper 95% confidence interval) ** (lower/upper 95% control limits with adjustment for over-dispersion)

REPORT OUTLINE

Background

The report provides an overview of mortality using the Hospital Standardised Mortality Ratio (HSMR), the Standardised Mortality Ratio (SMR), Summary-level Hospital Mortality Index (SHMI) and Crude rates. The report presents intelligence with potential recommendations for further investigation. This report should be used as an adjunct to supplement other pieces of work completed within the Trust and not used in isolation.

Methods

Using routinely collected hospital administrative data derived from Hospital Episode Statistics (HES) and analysing in the Quality Investigator tool, this report examines in-hospital mortality, for all inpatient admissions for the 12 month time period June 2015 to May 2016.

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Dr Foster reminds customers of their responsibilities not to publish data which could potentially identify individuals. You must not release any figures to those who should not have access, including the public that could allow this. This includes the publication of Board reports on the internet. Any number, rate or percentage derived from Dr Foster statistics must be suppressed if there is a risk of identification. Figures that may identify individuals when subtracted from totals, sub totals or other published figures must also be suppressed.

HOSPITAL STANDARDISED MORTALITY RATIOS (HSMR) ANALYSIS

Key Highlights:

- HSMR = **105.80** 'as expected' range
- Crude rate with HSMR basket = 3.55% (East of England Peer group rate = 3.60%)
- There is 1 outlying group attracting significantly higher than expected deaths.
    - Urinary tract infections RR = **151.04** (53 deaths vs 35.09 expected)

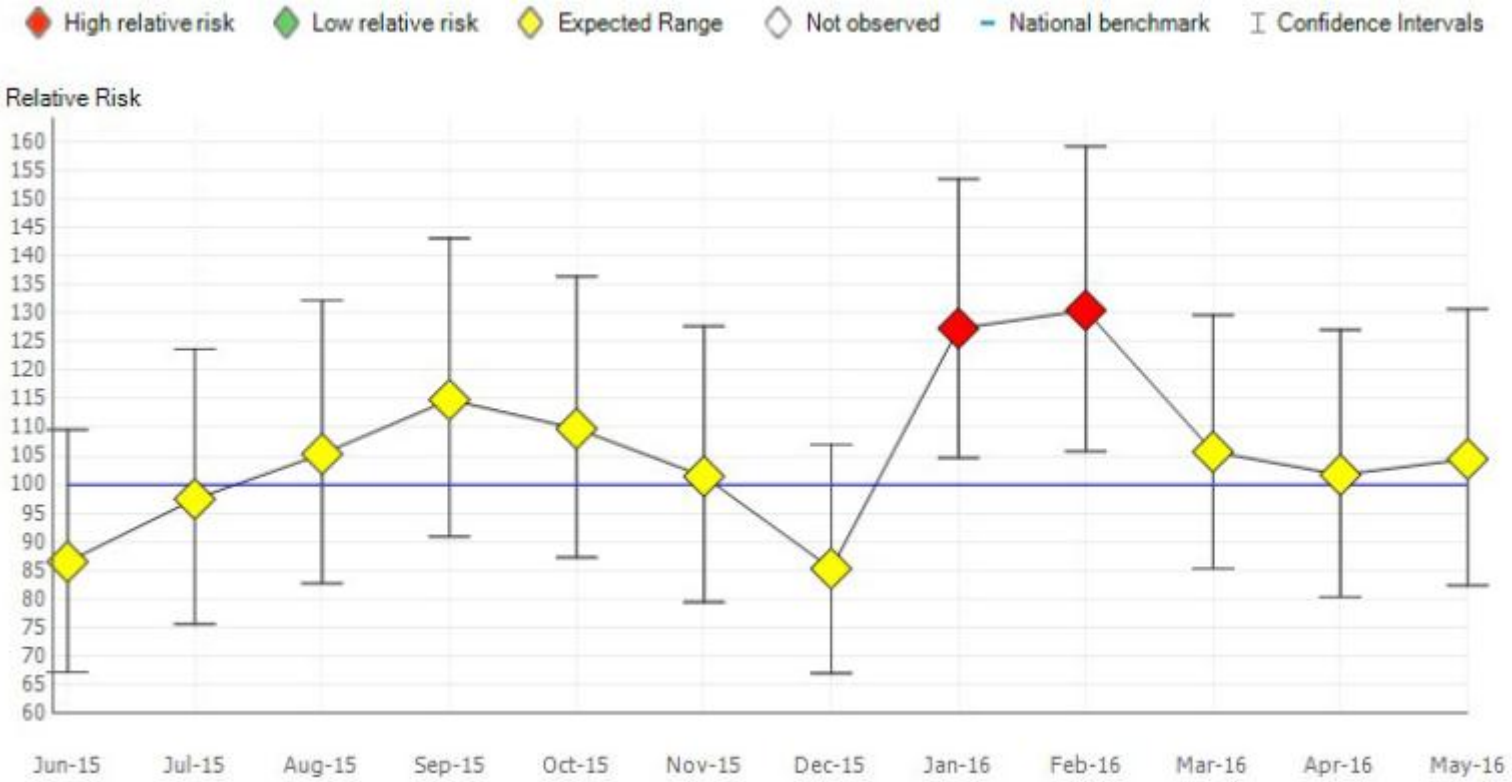
Figure 1 – HSMR Monthly Trend

HSMR for 12 month period = 105.80 'as expected' range

Results: 1 to 12 of 12

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
27,351	27,254	Jun-2015 / May-2016	967 (3.55%)	913.98 (3.35%)	105.80 (99.24 - 112.69)	Month: Feb-16	0.84 (High)

Trend (Month)	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	27,351	27,254	100.00 %	967	913.98	53.02	3.55 %	3.35 %	105.80	99.24	112.69
Jun-15	2,200	2,195	8.05 %	68	78.65	-10.65	3.10 %	3.58 %	86.46	67.14	109.61
Jul-15	2,283	2,271	8.33 %	67	68.74	-1.74	2.95 %	3.03 %	97.47	75.53	123.78
Aug-15	2,076	2,068	7.59 %	74	70.22	3.78	3.58 %	3.40 %	105.38	82.74	132.30
Sep-15	2,277	2,268	8.32 %	79	68.78	10.22	3.48 %	3.03 %	114.86	90.93	143.15
Oct-15	2,353	2,345	8.60 %	81	73.77	7.23	3.45 %	3.15 %	109.80	87.20	136.48
Nov-15	2,159	2,153	7.90 %	72	70.97	1.03	3.34 %	3.30 %	101.45	79.38	127.77
Dec-15	2,412	2,401	8.81 %	74	86.79	-12.79	3.08 %	3.61 %	85.26	66.95	107.04
Jan-16	2,296	2,288	8.40 %	110	86.34	23.66	4.81 %	3.77 %	127.40	104.71	153.55
Feb-16	2,292	2,290	8.40 %	97	74.30	22.70	4.24 %	3.24 %	130.56	105.87	159.27
Mar-16	2,456	2,442	8.96 %	92	86.99	5.01	3.77 %	3.56 %	105.75	85.25	129.70
Apr-16	2,308	2,302	8.45 %	77	75.69	1.31	3.34 %	3.29 %	101.72	80.28	127.14
May-16	2,239	2,231	8.19 %	76	72.74	3.26	3.41 %	3.26 %	104.49	82.32	130.78


High relative risk
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National benchmark
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Figure 2 – HSMR 12 Month's Peer Comparison

The Trust is 1 of 8 (out of 17) within the East of England peer group with an 'as expected' HSMR. The Crude rate is 3.55% (Peer group crude rate = 3.60%)

Results: 1 to 17 of 17

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
523,350	519,057	Jun-2015 / May-2016	18,665 (3.60%)	19117.34 (3.68%)	97.63 (96.24 - 99.04)	Month: Feb-16	0.85 (High)

Peer (Acute)	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	523,350	519,057	100.00 %	18,665	19117.34	-452.34	3.60 %	3.68 %	97.63	96.24	99.04
Norfolk and Norwich University Hospitals NHS Foundation Trust	66,057	65,369	12.59 %	2,299	2012.74	286.26	3.52 %	3.08 %	114.22	109.60	118.99
Colchester Hospital University NHS Foundation Trust	35,453	35,315	6.80 %	1,374	1277.87	96.13	3.89 %	3.62 %	107.52	101.91	113.36
Luton and Dunstable University Hospital NHS Foundation Trust	30,450	30,349	5.85 %	981	913.25	67.75	3.23 %	3.01 %	107.42	100.80	114.36
Mid Essex Hospital Services NHS Trust	28,268	28,121	5.42 %	1,064	995.75	68.25	3.78 %	3.54 %	106.85	100.53	113.47
Southend University Hospital NHS Foundation Trust	39,072	39,001	7.51 %	1,251	1187.64	63.36	3.21 %	3.05 %	105.33	99.58	111.34
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	27,351	27,219	5.24 %	965	910.00	55.00	3.55 %	3.34 %	106.04	99.46	112.95
Ipswich Hospital NHS Trust	33,139	33,000	6.36 %	1,023	994.51	28.49	3.10 %	3.01 %	102.87	96.66	109.37
James Paget University Hospitals NHS Foundation Trust	18,470	18,369	3.54 %	831	807.45	23.55	4.52 %	4.40 %	102.92	96.04	110.16
Bedford Hospital NHS Trust	17,187	17,081	3.29 %	722	716.78	5.22	4.23 %	4.20 %	100.73	93.51	108.35
East and North Hertfordshire NHS Trust	32,395	32,157	6.20 %	1,320	1389.68	-69.68	4.10 %	4.32 %	94.99	89.93	100.25
Peterborough and Stamford Hospitals NHS Foundation Trust	28,644	28,504	5.49 %	1,184	1257.14	-73.14	4.15 %	4.41 %	94.18	88.89	99.70
Basildon and Thurrock University Hospitals NHS Foundation Trust	29,080	28,107	5.42 %	1,359	1503.82	-144.82	4.84 %	5.35 %	90.37	85.63	95.31
The Princess Alexandra Hospital NHS Trust	21,393	21,296	4.10 %	818	898.72	-80.72	3.84 %	4.22 %	91.02	84.89	97.48
West Hertfordshire Hospitals NHS Trust	28,656	28,508	5.49 %	1,123	1261.36	-138.36	3.94 %	4.42 %	89.03	83.90	94.39
Hinchingbrooke Health Care NHS Trust	15,467	15,370	2.96 %	450	503.07	-53.07	2.93 %	3.27 %	89.45	81.38	98.11
West Suffolk NHS Foundation Trust	22,178	22,064	4.25 %	783	949.74	-166.74	3.55 %	4.30 %	82.44	76.77	88.43
Cambridge University Hospitals NHS Foundation Trust	50,090	49,227	9.48 %	1,118	1537.83	-419.83	2.27 %	3.12 %	72.70	68.50	77.09

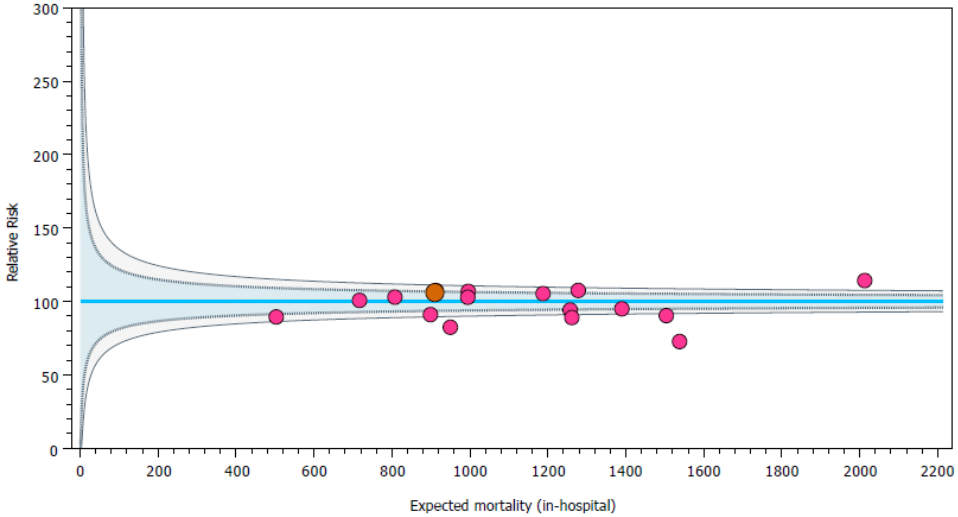


Figure 3 – HSMR by diagnosis group

There is 1 outlying group attracting significantly higher than expected deaths.

- Urinary tract infections RR = 151.04 (53 deaths vs 35.09 expected)

Results: 1 to 56 of 56

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
27,351	27,254	Jun-2015 / May-2016	967 (3.55%)	913.98 (3.35%)	105.80 (99.24 - 112.69)	Month: Feb-16	0.85 (High)

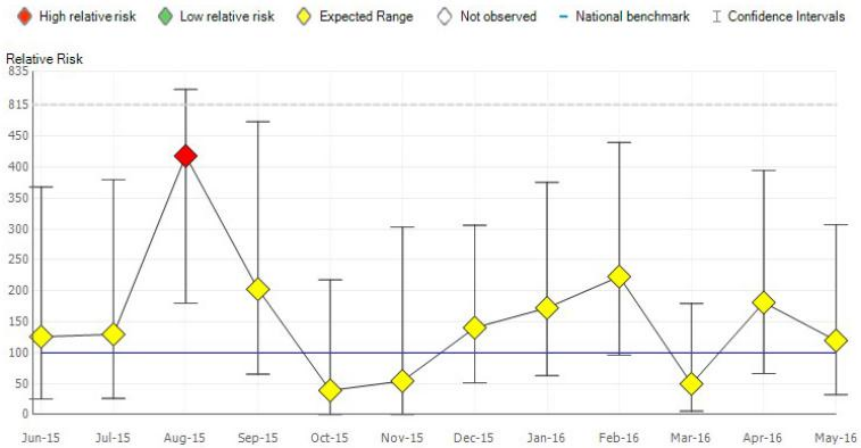
Diagnosis group	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	27,351	27,254	100.00 %	967	913.98	53.02	3.55 %	3.35 %	105.80	99.24	112.69
Urinary tract infections	1,481	1,479	5.43 %	53	35.09	17.91	3.58 %	2.37 %	151.04	113.13	197.57
Pneumonia	1,251	1,246	4.57 %	201	179.20	21.80	16.13 %	14.38 %	112.17	97.19	128.79
Chronic obstructive pulmonary disease and bronchiectasis	958	956	3.51 %	50	38.38	11.62	5.23 %	4.01 %	130.29	96.69	171.77
Intracranial injury	72	68	0.25 %	16	9.72	6.28	23.53 %	14.30 %	164.59	94.02	267.31
Cancer of bronchus, lung	603	601	2.21 %	32	23.81	8.19	5.32 %	3.96 %	134.40	91.91	189.74

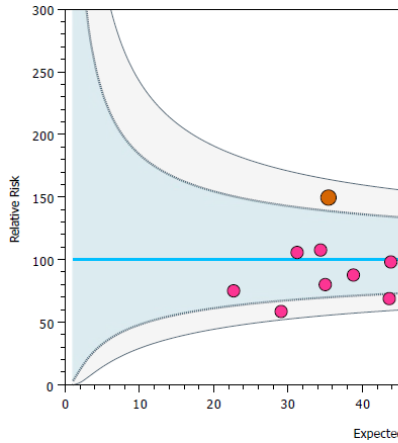
Figure 3.1 – HSMR by diagnosis group – Urinary tract infection further information:

Results: 1 to 12 of 12

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
1,481	1,481	Jun-2015 / May-2016	53 (3.58%)	35.45 (2.39%)	149.51 (111.99 - 195.57)	Month: Feb-16	0.80 (Average)

Trend (Month)	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	1,481	1,481	100.00 %	53	35.45	17.55	3.58 %	2.39 %	149.51	111.99	195.57
Jun-15	104	104	7.02 %	3	2.38	0.62	2.88 %	2.29 %	126.04	25.33	368.27
Jul-15	98	98	6.62 %	3	2.31	0.69	3.06 %	2.36 %	129.92	26.11	379.61
Aug-15	81	81	5.47 %	8	1.91	6.09	9.88 %	2.36 %	418.26	180.10	824.19
Sep-15	109	109	7.36 %	5	2.46	2.54	4.59 %	2.26 %	202.86	65.38	473.41
Oct-15	104	104	7.02 %	1	2.55	-1.55	0.96 %	2.46 %	39.14	0.51	217.78
Nov-15	97	97	6.55 %	1	1.84	-0.84	1.03 %	1.89 %	54.50	0.71	303.21
Dec-15	138	138	9.32 %	6	4.27	1.73	4.35 %	3.09 %	140.63	51.35	306.10
Jan-16	143	143	9.66 %	6	3.48	2.52	4.20 %	2.43 %	172.51	62.99	375.50
Feb-16	146	146	9.86 %	8	3.58	4.42	5.48 %	2.46 %	223.18	96.10	439.79
Mar-16	163	163	11.01 %	2	4.02	-2.02	1.23 %	2.46 %	49.80	5.59	179.79
Apr-16	150	150	10.13 %	6	3.31	2.69	4.00 %	2.21 %	181.22	66.18	394.46
May-16	148	148	9.99 %	4	3.34	0.66	2.70 %	2.25 %	119.90	32.26	306.97





UTI: Position vs. East of England peers

UTI: 12 month trend

HSMR WEEKDAY/WEEKEND ANALYSIS

Key Highlights:

- There is no significant difference between the weekday and weekend HSMR for emergency admissions. Both are 'as expected'.

Figure 5 – HSMR Weekday Admissions Emergency only = 105.28 'as expected'

Day of admission	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	11,642	11,582	100.00 %	727	690.51	36.49	6.28 %	5.96 %	105.28	97.77	113.22
Monday	2,425	2,416	20.86 %	136	140.99	-4.99	5.63 %	5.84 %	96.46	80.93	114.11
Tuesday	2,345	2,333	20.14 %	142	135.44	6.57	6.09 %	5.81 %	104.85	88.31	123.58
Wednesday	2,379	2,367	20.44 %	166	141.52	24.48	7.01 %	5.98 %	117.30	100.13	136.56
Thursday	2,216	2,202	19.01 %	152	133.45	18.55	6.90 %	6.06 %	113.90	96.51	133.51
Friday	2,277	2,264	19.55 %	131	139.12	-8.12	5.79 %	6.14 %	94.17	78.73	111.74

View data in Quality Investigator

Figure 6 – HSMR Weekend Admissions Emergency only = 101.60 'as expected'

Day of admission	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	3,258	3,255	100.00 %	225	221.46	3.54	6.91 %	6.80 %	101.60	88.76	115.78
Sunday	1,657	1,655	50.84 %	110	105.01	4.99	6.65 %	6.34 %	104.76	86.09	126.26
Saturday	1,601	1,600	49.16 %	115	116.45	-1.45	7.19 %	7.28 %	98.75	81.53	118.54

View data in Quality Investigator

TRENDS IN CODING

Key Highlights:

- The Trust has a palliative care coding rate of 0.94% vs. national rate of 3.27%
- The Trust has a Charlson comorbidity upper quartile rate of 23.4% vs. 25.0% national rate

Figure 7 – Palliative Care Coding Rate Vs National

Trend (Financial Year)	Spells	Observed	Rate (%)	National Rate (%)
2013/14	14,410	341	2.37	2.95
2014/15	15,745	287	1.82	3.19
2015/16	16,046	278	1.73	3.40
2016/17	2,752	26	0.94	3.27

View data in Quality Investigator

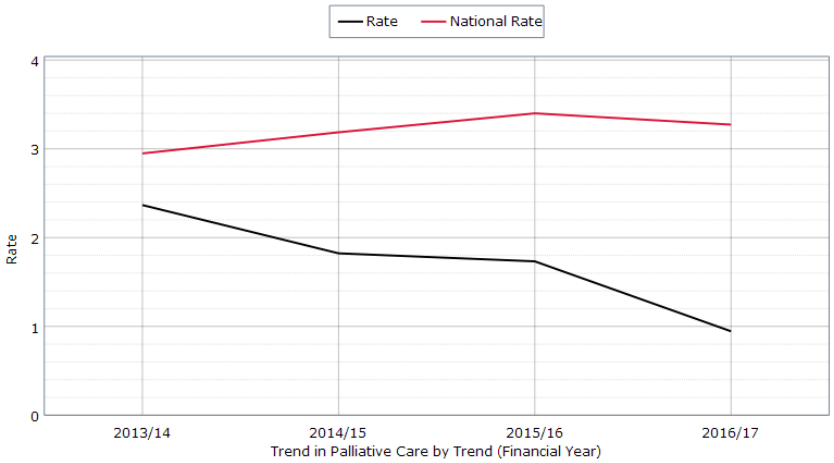


Figure 7.1 Palliative care coding rate vs. HSMR (rolling 12 month) As palliative care coding rate reduces HSMR is increasing as shown below:

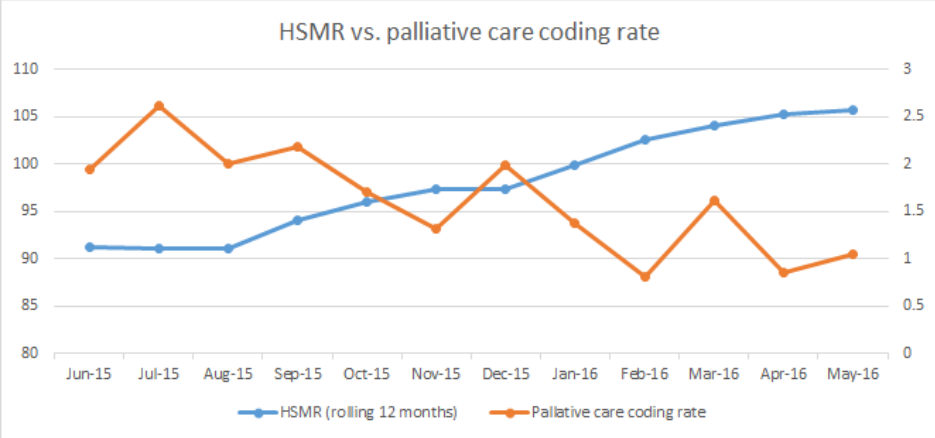
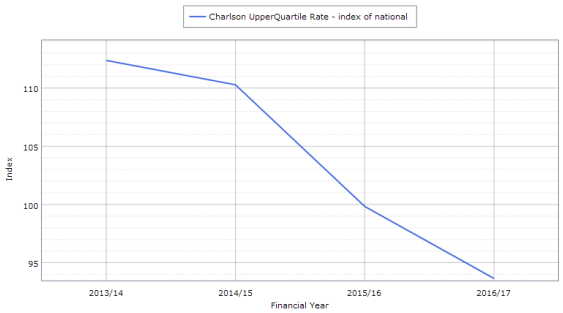


Figure 8 – Charlson Index Co-morbidity Coding Rates Vs National

	2013/14	2014/15	2015/16	2016/17
Charlson comorbidity upper-quartile rate	28.1%	27.6%	25.0%	23.4%
Charlson rate as index of national	112	110	100	94

View data in Quality Investigator



SMR ALL DIAGNOSIS GROUPS

Key Highlights:

- All diagnosis SMR = **106.93** 'higher than expected' range
- Crude rate within All diagnosis basket = 1.41% (East of England Peer group rate = 1.47%)
- There are 6 outlying groups attracting significantly higher than expected deaths.

Figure 9 – SMR All Diagnosis trend month

All diagnosis SMR = **106.93** 'higher than expected' range

Results: 1 to 12 of 12

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
81,197	80,961	Jun-2015 / May-2016	1,148 (1.42%)	1073.62 (1.33%)	106.93 (100.83 - 113.30)	Month: Feb-16	0.87 (High)

Trend (Month)	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	81,197	80,961	100.00 %	1,148	1073.62	**74.38**	1.42 %	1.33 %	**106.93**	100.83	113.30
Jun-15	6,738	6,728	8.31 %	81	90.34	-9.34	1.20 %	1.34 %	89.67	71.20	111.45
Jul-15	6,928	6,902	8.53 %	86	84.78	**1.22**	1.25 %	1.23 %	101.43	81.13	125.27
Aug-15	6,231	6,212	7.67 %	81	80.64	**0.36**	1.30 %	1.30 %	100.45	79.77	124.85
Sep-15	6,917	6,898	8.52 %	90	80.47	**9.53**	1.30 %	1.17 %	111.84	89.93	137.47
Oct-15	6,887	6,864	8.48 %	95	86.45	**8.55**	1.38 %	1.26 %	109.89	88.90	134.33
Nov-15	6,680	6,667	8.23 %	90	84.00	**6.00**	1.35 %	1.26 %	107.14	86.15	131.70
Dec-15	6,677	6,655	8.22 %	87	101.36	-14.36	1.31 %	1.52 %	85.83	68.75	105.87
Jan-16	6,772	6,750	8.34 %	124	99.35	**24.65**	1.84 %	1.47 %	**124.82**	103.81	148.82
Feb-16	6,868	6,853	8.46 %	113	89.21	**23.79**	1.65 %	1.30 %	**126.67**	104.39	152.29
Mar-16	7,130	7,102	8.77 %	112	100.83	**11.17**	1.58 %	1.42 %	111.08	91.46	133.66
Apr-16	6,638	6,620	8.18 %	99	90.68	**8.32**	1.50 %	1.37 %	109.18	88.73	132.92
May-16	6,731	6,710	8.29 %	90	85.51	**4.49**	1.34 %	1.27 %	105.25	84.63	129.37

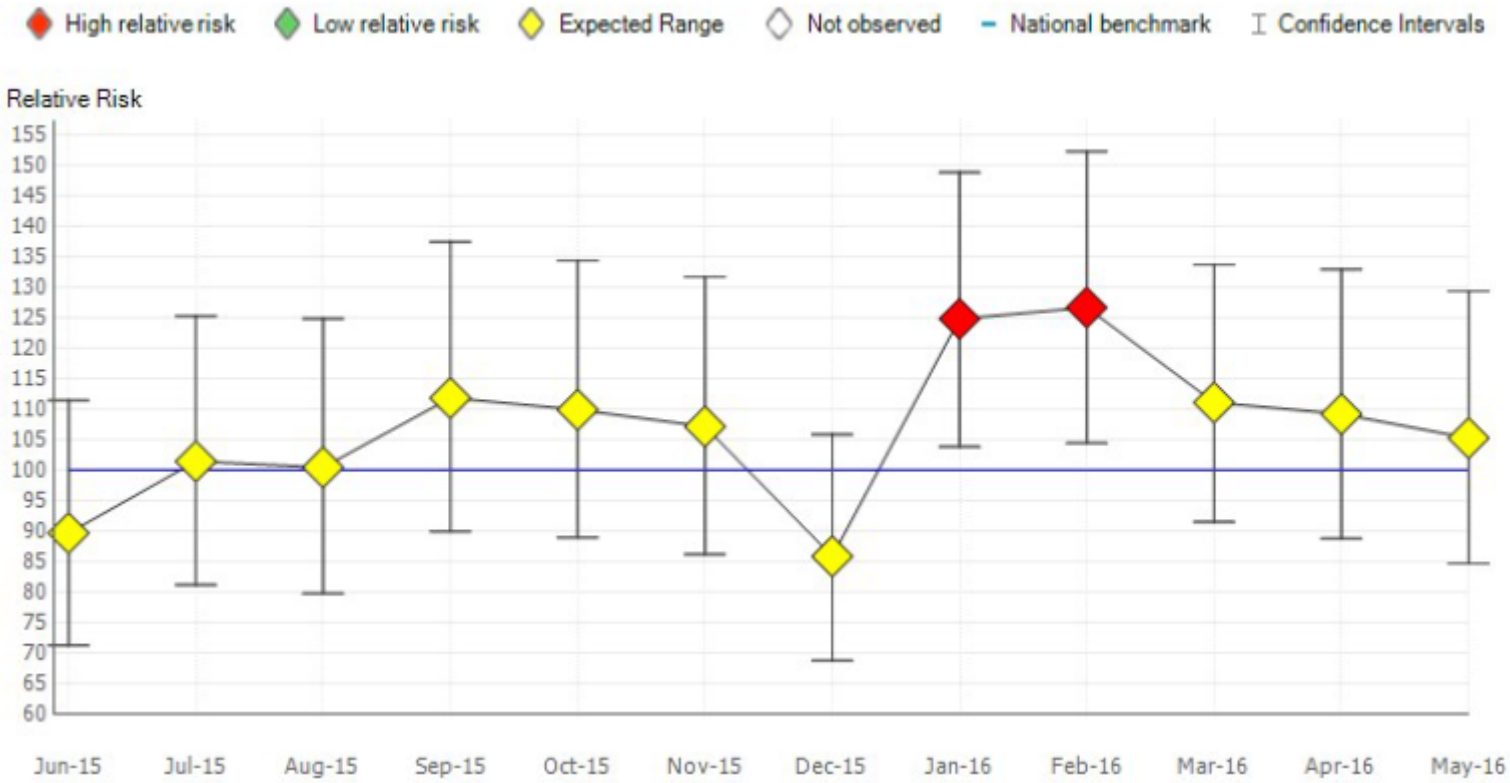

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Figure 10 – All Diagnosis SMR by peers

The Trust is 1 of 2 Trusts (within the peer group of 17) with an 'All Diagnosis' SMR within the 'as expected' range. The crude rate is 1.41% (vs 1.47% for the peer group).

Results: 1 to 17 of 17

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
1,519,098	1,509,016	Jun-2015 / May-2016	22,199 (1.47%)	22568.80 (1.50%)	98.36 (97.07 - 99.66)	Month: Feb-16	0.87 (High)

Peer (Acute)	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	1,519,098	1,509,016	100.00 %	22,199	22568.80	-369.80	1.47 %	1.50 %	98.36	97.07	99.66
James Paget University Hospitals NHS Foundation Trust	59,766	59,541	3.95 %	1,131	950.87	180.13	1.90 %	1.60 %	118.94	112.11	126.08
Norfolk and Norwich University Hospitals NHS Foundation Trust	176,449	174,919	11.59 %	2,667	2309.75	357.25	1.52 %	1.32 %	115.47	111.13	119.93
Luton and Dunstable University Hospital NHS Foundation Trust	101,766	101,438	6.72 %	1,192	1086.67	105.33	1.18 %	1.07 %	109.69	103.55	116.10
Colchester Hospital University NHS Foundation Trust	97,451	97,104	6.43 %	1,615	1502.92	112.08	1.66 %	1.55 %	107.46	102.28	112.83
Mid Essex Hospital Services NHS Trust	88,350	87,877	5.82 %	1,261	1171.51	89.49	1.43 %	1.33 %	107.64	101.78	113.75
Southend University Hospital NHS Foundation Trust	98,964	98,789	6.55 %	1,512	1415.10	96.90	1.53 %	1.43 %	106.85	101.53	112.37
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	81,197	80,852	5.36 %	1,143	1064.01	78.99	1.41 %	1.32 %	107.42	101.29	113.84
Ipswich Hospital NHS Trust	95,478	95,120	6.30 %	1,271	1220.31	50.69	1.34 %	1.28 %	104.15	98.51	110.04
Bedford Hospital NHS Trust	54,774	54,536	3.61 %	840	832.50	7.50	1.54 %	1.53 %	100.90	94.19	107.96
East and North Hertfordshire NHS Trust	94,639	93,822	6.22 %	1,575	1675.98	-100.98	1.68 %	1.79 %	93.97	89.39	98.73
Peterborough and Stamford Hospitals NHS Foundation Trust	85,579	85,225	5.65 %	1,368	1478.51	-110.51	1.61 %	1.73 %	92.53	87.69	97.56
The Princess Alexandra Hospital NHS Trust	68,234	68,013	4.51 %	967	1055.52	-88.52	1.42 %	1.55 %	91.61	85.93	97.58
Basildon and Thurrock University Hospitals NHS Foundation Trust	81,729	80,382	5.33 %	1,551	1747.24	-196.24	1.93 %	2.17 %	88.77	84.41	93.30
West Hertfordshire Hospitals NHS Trust	94,417	94,017	6.23 %	1,320	1499.22	-179.22	1.40 %	1.59 %	88.05	83.36	92.93
Hinchingbrooke Health Care NHS Trust	43,346	43,152	2.86 %	530	591.00	-61.00	1.23 %	1.37 %	89.68	82.21	97.65
West Suffolk NHS Foundation Trust	62,946	62,635	4.15 %	913	1110.01	-197.01	1.46 %	1.77 %	82.25	77.00	87.76
Cambridge University Hospitals NHS Foundation Trust	134,013	131,594	8.72 %	1,343	1857.69	-514.69	1.02 %	1.41 %	72.29	68.48	76.27

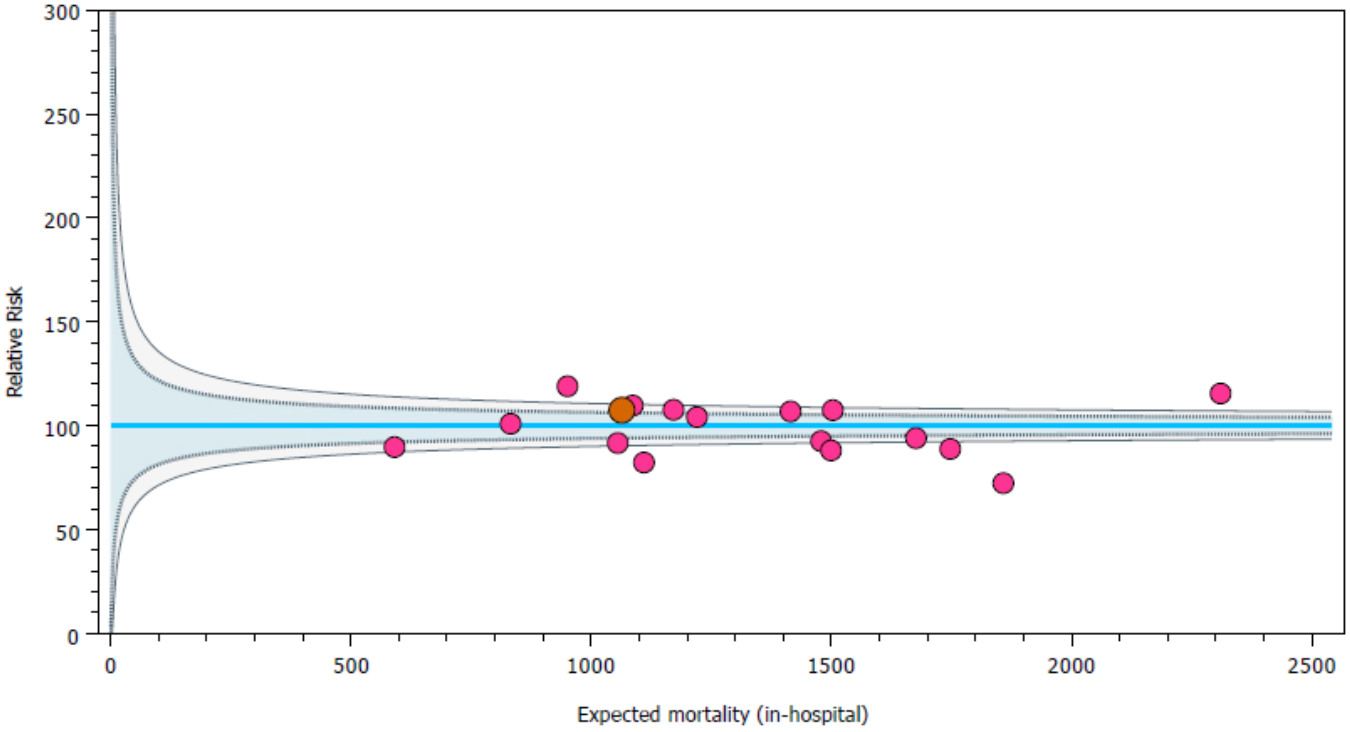

300
250
200
150
100
50
0
Relative Risk
0
500
1000
1500
2000
2500
Expected mortality (in-hospital)

Figure 11 – All Diagnosis SMR diagnosis group

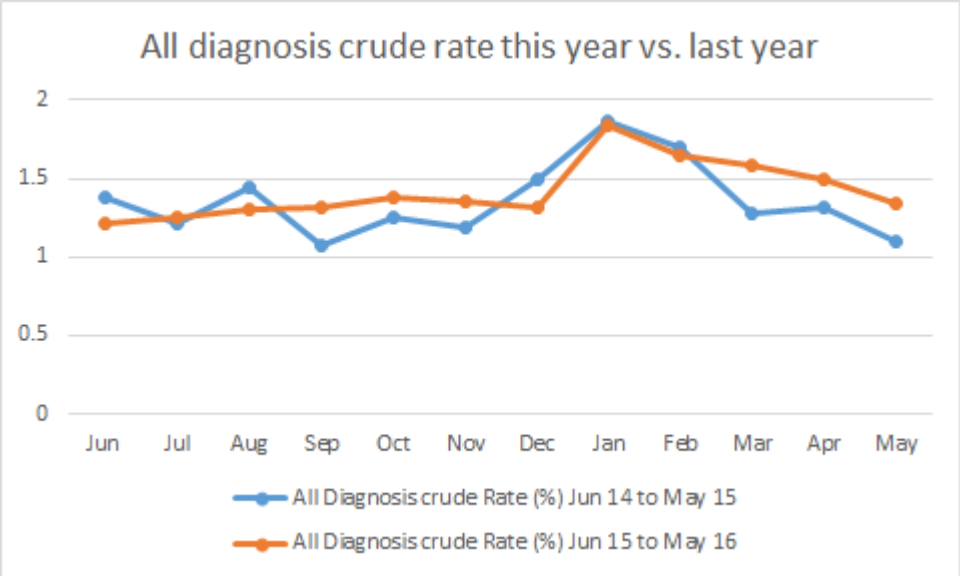
There are 6 outlying groups attracting significantly higher than expected deaths which it would be prudent to investigate further – highlighted below.

Results: 1 to 246 of 246

Spells	Superspells	First / Last	Observed	Expected	Relative Risk	Benchmark	C-Statistic
81,197	80,961	Jun-2015 / May-2016	1,148 (1.42%)	1073.62 (1.33%)	106.93 (100.83 - 113.30)	Month: Feb-16	0.87 (High)

Diagnosis group	Spells	Superspells	(%) of all	Observed	Expected	Obs. - Exp.	Rate (%)	Exp. (%)	Relative Risk	Low	High
ALL	81,197	80,961	100.00 %	1,148	1073.62	74.38	1.42 %	1.33 %	106.93	100.83	113.30
Livebom	1,516	1,516	1.87 %	3	0.23	2.77	0.20 %	0.02 %	1293.32	259.94	3778.85
Influenza	15	15	0.02 %	3	0.31	2.69	20.00 %	2.04 %	979.82	196.93	2862.87
Alcohol-related mental disorders	182	182	0.22 %	3	0.33	2.67	1.65 %	0.18 %	901.81	181.25	2634.93
Diseases of mouth, excluding dental	230	230	0.28 %	2	0.13	1.87	0.87 %	0.05 %	1586.57	178.18	5728.28
Urinary tract infections	1,481	1,475	1.82 %	53	34.47	18.53	3.59 %	2.34 %	153.76	115.17	201.12
Diseases of white blood cells	26	26	0.03 %	3	0.54	2.46	11.54 %	2.09 %	552.44	111.03	1614.14

Figure 12 - All diagnosis Basket Crude Mortality rate this year vs. last year



CUSUM ALERTS

Key Highlights:

0 new CUSUM diagnosis group alerts since last report

Figure 13 – Relative Risk and CUSUM Alerts

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Organisation The Queen Elizabeth Hospital, King's Lynn, NHS Fou..
Site All sites selected
My Group All diagnoses & procedures
Report date 6 Sep 2016
Time period 2 months (Apr 2016 to May 2016)

Dashboards

Mortality

Alerts view: Negative alerts – all

CUSUM detection threshold: 99.0

Relative risk and CUSUM

Title	Cusum	Observed	Expected	Rate (%)	Relative Risk	Trend	LOS	Readm.	Peers
Diagnosis group		0	-	0.0	-				
HSMR Basket of 56 Diagnosis Groups	0↓	153	148.4	3.4	103				
Procedure group	2↑	19	12.8	13.2	148				
Diagnostic imaging of heart	1↑	8	4.4	6.7	183				
External resuscitation	1↑	11	8.5	45.8	130				

SHMI (JAN 15 TO DEC 15)

Key Highlights:

- SHMI = 91.1 'as expected' (band 2)
- NB: There is no further analysis available yet – this will follow shortly

Provider code	Provider name	SHMI value	SHMI banding	Number of spells	Observed deaths	Expected deaths	99.8% Poisson lower control limit	99.8% Poisson upper control limit	95% over-dispersion lower control limit	95% over-dispersion upper control limit
RCX	THE QUEEN ELIZABETH HOSPITAL, KING'S LYNN, NHS FOUNDATION TRUST	0.911	2	42,908	1,510	1,657.982	0.926	1.078	0.897	1.115

Figure 14 - SHMI position vs. national:

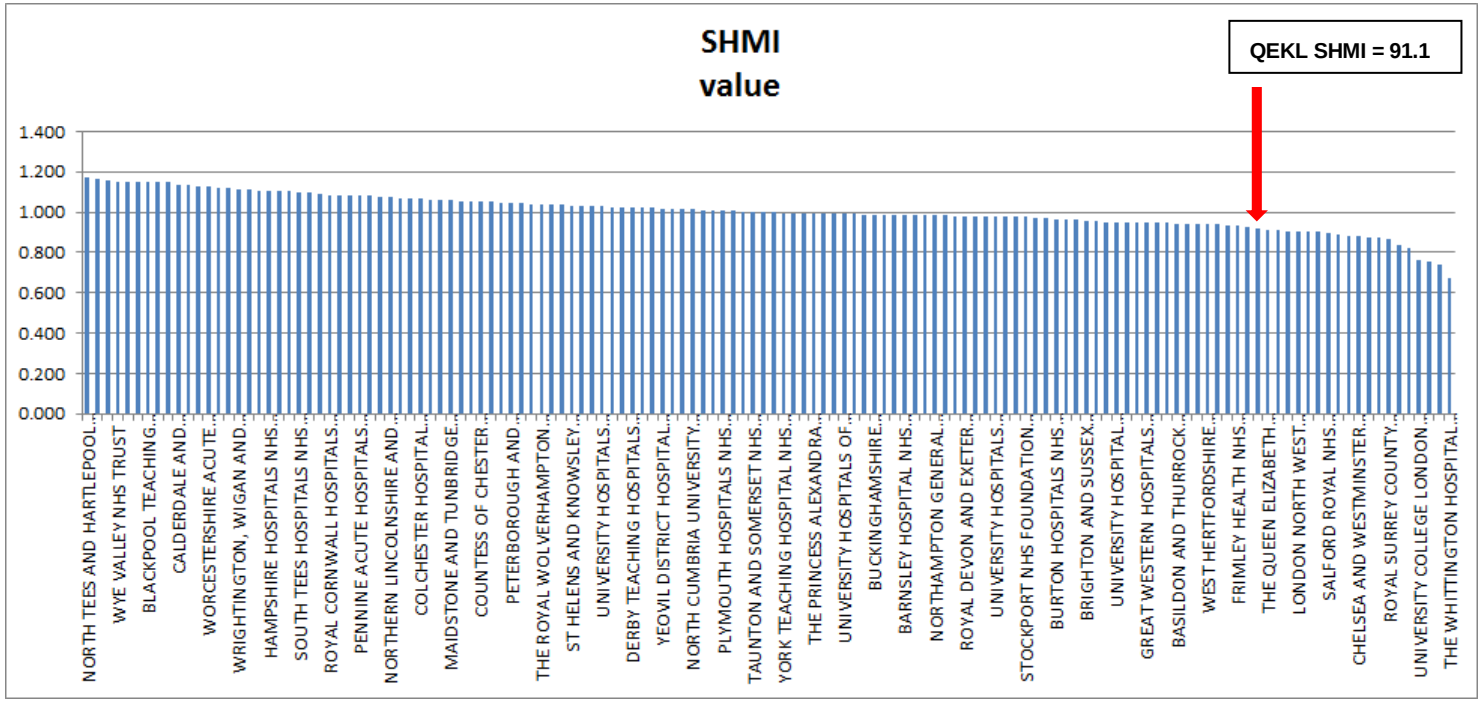

Figure 15 – SHMI and HSMR comparison vs. national

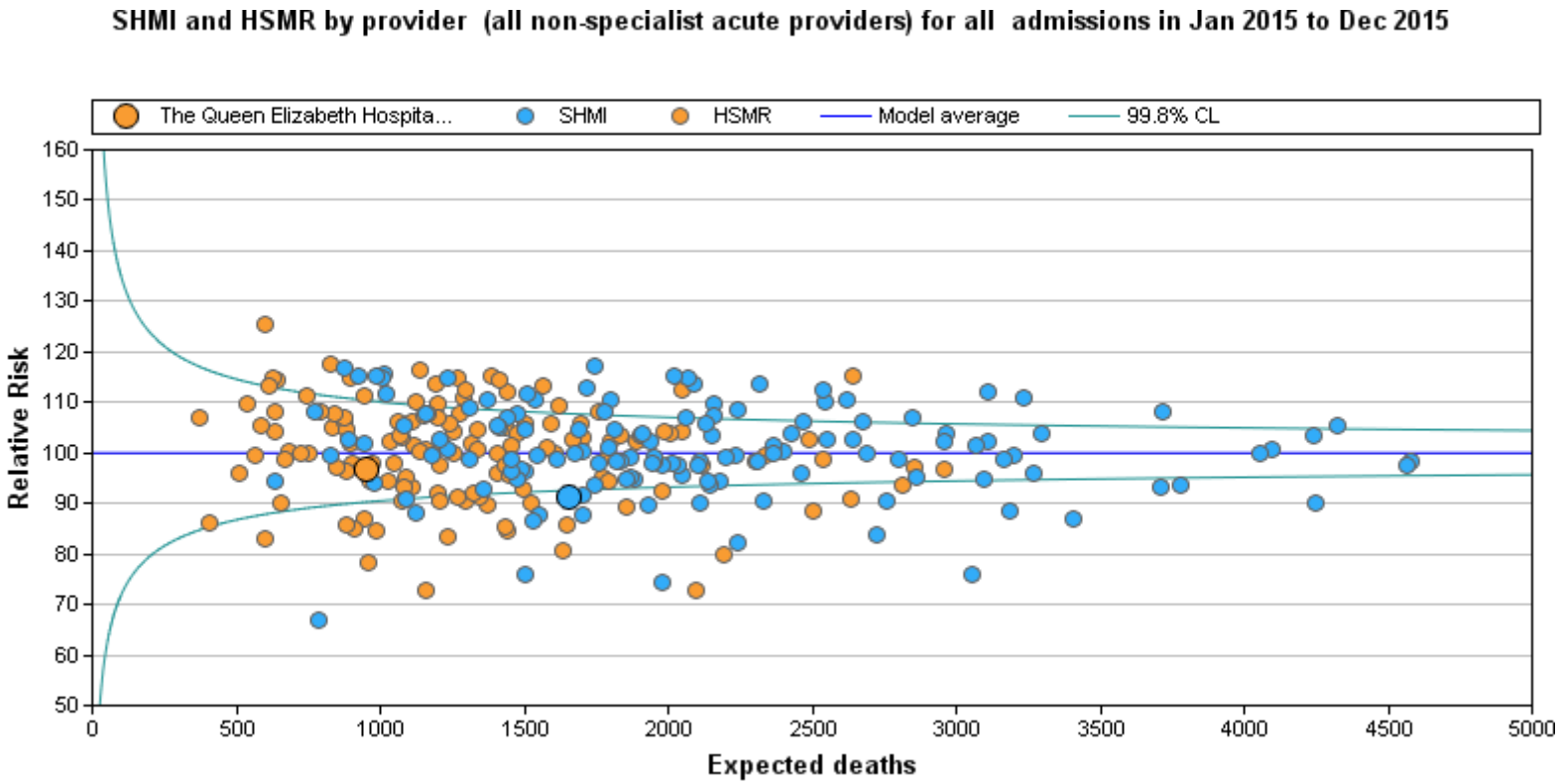

Figure 16 – SHMI with adjustments

SHMI (with adjustments) and HSMR for Jan 2015 to Dec 2015					
Model	SHMI Spells	SHMI	Obs	Exp	95% CI
SHMI 95% CI	42908	91.07	1510	1657.98	86.54-95.79
SHMI published banding (95% CL with over-dispersion)	42908	91.07	1510	1657.98	89.72-111.46
SHMI (adjusted for palliative care)	42908	96.61	1510	1563.03	91.80-101.61
SHMI (in hospital deaths)	42908	87.01	1034	1188.44	81.78-92.47
HSMR	26624	96.63	922	954.17	90.49-103.07

Figure 17 – SHMI Trend

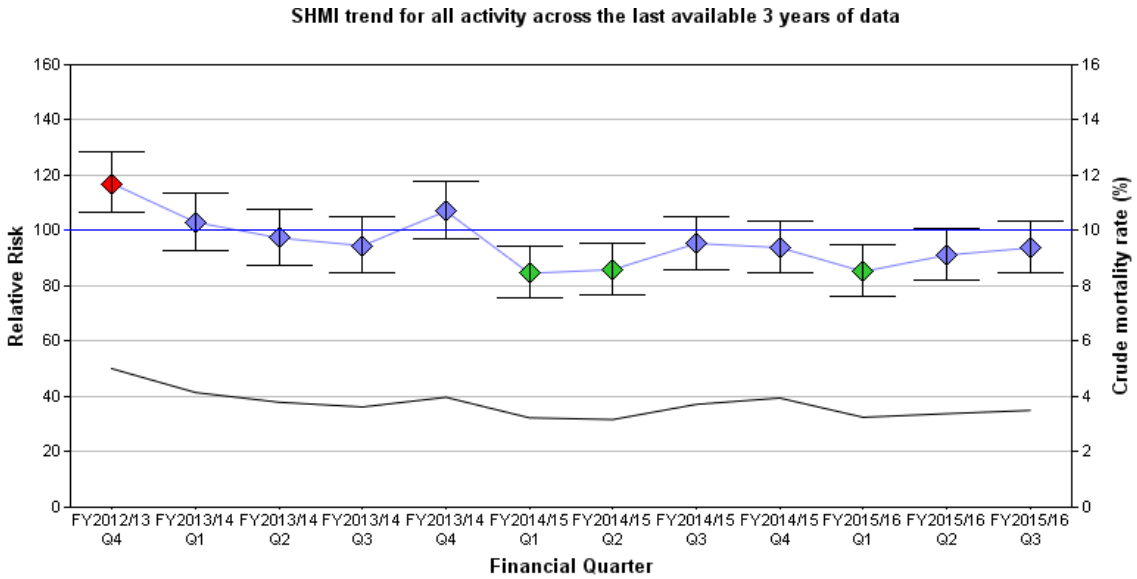

Figure 18 – SHMI outlying CCS groups

There are 0 groups attracting significantly higher than expected deaths for SHMI ('all deaths').

REFERENCES

SMR

A calculation used to monitor death rates. The standardised mortality ratio is the ratio of observed deaths to expected deaths, where expected deaths are calculated for a typical area with the same case-mix adjustment. The SMR may be quoted as either a ratio or a percentage. If the SMR is quoted as a percentage and is equal to 100, then this means the number of observed deaths equals that of expected. If higher than 100, then there is a higher reported mortality ratio.

HSMR

The Hospital Standardised Mortality Ratio is the ratio of observed deaths to expected deaths for a basket of 56 diagnosis groups, which represent approximately 80% of in hospital deaths. It is a subset of all and represents about 35% of admitted patient activity. Further information can be found at http://www.drfoster.com/about-us/our-approach/metrics-methodologies-and-models-library/

Benchmark

The benchmark used in this analysis is the monthly benchmark available within the Quality Investigator tool.

CUSUM

A cumulative sum statistical process control chart plots patients' actual outcomes against their expected outcomes sequentially over time. The chart has upper and lower thresholds and breaching this threshold triggers an alert. If patients repeatedly have negative or unexpected outcomes, the chart will continue to rise until an alert is triggered. The line is then reset to half the starting position and plotting of patients continues.

Charlson Index of Comorbidities

The original Charlson weights were derived 25 years ago in the USA. We have updated them (e.g. HIV had the highest weight then but its mortality has fallen greatly since) and calibrated them on English data due to differences in coding practice and hospital patient population characteristics. We had advice from some clinical coders on current English coding practice and, where possible, also assessed the consistency of comorbidity recording among admissions for the same patient.

Charlson Upper-Quartile Rate

For each financial year we calculate the proportion of a trust's HSMR spells where the Charlson index for the diagnosis-dominant episode is in the national upper quartile for that diagnosis and admission type, this is the observed value. The expected value is the equivalent proportion nationally i.e. 25%. The trust's index value is calculated as the observed/expected x 100.

Palliative Care Coding Rate

For each financial year we calculate the proportion of a trust's HSMR superspells excluding day cases which are coded as having palliative care, this is the observed value shown. The expected value is the proportion nationally for the equivalent mix of diagnosis and admission type. The trust's index value is calculated as observed/expected x 100