

## Bolton NHS Foundation Trust

GREATER MANCHESTER, LANCASHIRE AND SOUTH CUMBRIA N51

The Bolton NHS Foundation Trust incorporates Royal Bolton Hospital <http://www.boltonft.nhs.uk/> <<http://www.boltonft.nhs.uk/>>

## Patient inclusion and data sources

The majority of these results are for patients in England and Wales diagnosed with bowel cancer 1 Apr 2014 – 31 Mar 2015. The exceptions are for 2-year mortality and 18-month stoma rate. Two-year mortality estimates include patients undergoing a major resection between 1 April 2012 and 31 March 2013. 18-month stoma rates include rectal cancer patients undergoing a major resection between 1 April 2012 and 31 March 2015. The Audit dataset is linked to Hospital Episode Statistics (HES) at the patient level to obtain further information on patient care and follow-up such as stoma reversal and emergency readmissions in England, and to the National Radiotherapy Dataset (RTDS) for information on radiotherapy treatment in England.

## Data Quality

### Data completeness

% of relevant patient group with useable value of data item.

### Case ascertainment

Number of patients reported to the Audit as a percentage of the number of patients admitted for the first time to the trust/network with a diagnosis of bowel cancer within the audit period according to HES. This can be larger than 100 if more patients are reported to the Audit than identified in HES.

### 7 audit items for risk-adjustment

The per cent of patients with complete data items on all of age, sex, ASA grade, pathological T-stage, pathological N-stage, distant metastases and site of cancer.

## Management of all patients

### **No major resection: too little cancer**

Those undergoing a local resection of polypectomy.

### **No major resection: too much cancer**

No excision and reason for no treatment includes advanced stage cancer OR no excision and non-curative intent and metastatic disease.

### **No major resection: too frail**

not in too much cancer group AND no excision and reason for no treatment includes significant co-morbidity OR no excision and performance status 3 or 4.

### **No major resection: unknown/other reason:**

no excision and does not meet any of the above criteria.

## Compare trust outcomes

Funnel plots display trust risk-adjusted outcomes for 90-day mortality, 30-day unplanned readmission, 2-year mortality and, for rectal cancer patients, 18-month stoma rate. The funnel regions represent the 95 per cent limit and the 99.8 per cent limit for trusts compared to the national average. Those trusts with results outside the outer (99.8 per cent) limit are considered potential outliers.

Risk adjustment is performed using the seven items listed under Data Quality as well as mode of admission (elective/emergency) and number of co-morbidities according to HES, and an interaction between age and distant metastases. Missing values are imputed using Multiple Imputation. The model for two-year mortality additionally includes interactions between follow-up time (0-3 months after surgery vs. 3-24 months after surgery) and all of the risk factors.

A stoma is considered to be reversed if a HES record with relevant code is identified with 18 months of the initial surgical procedure.

See [FAQs <https://www.nboca.org.uk/about/faq/>](https://www.nboca.org.uk/about/faq/) for more details.

## Data Quality

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<b>All Patients:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	175	2626	28013
Case ascertainment (%)	98	98	93
Data completeness of:			
– Pre-treatment TNM (%)	87	80	71
– Performance status (%)	99	88	77

<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	116	1599	18809
ASA grade 1 (%)	9	14	14
ASA grade 2 (%)	54	53	53
ASA grade 3 (%)	28	29	25
ASA grade 4+ (%)	5	3	3
ASA grade not recorded (%)	3	1	5
Data completeness of:			
7 Audit items for risk-adjustment (%)	95	91	82

**Key:**

## Management of all patients

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<b>All Patients:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	175	2626	30122
Seen by Clinical Nurse Specialist (%)	97	94	92

## Management of patients having major resection

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<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	116	1599	18809
Distant metastases (%)	7	10	9
Urgent or emergency surgery (%)	16	16	16
Median number of lymph nodes excised	11	15	17
Laparoscopic surgery attempted (%)	19	53	61

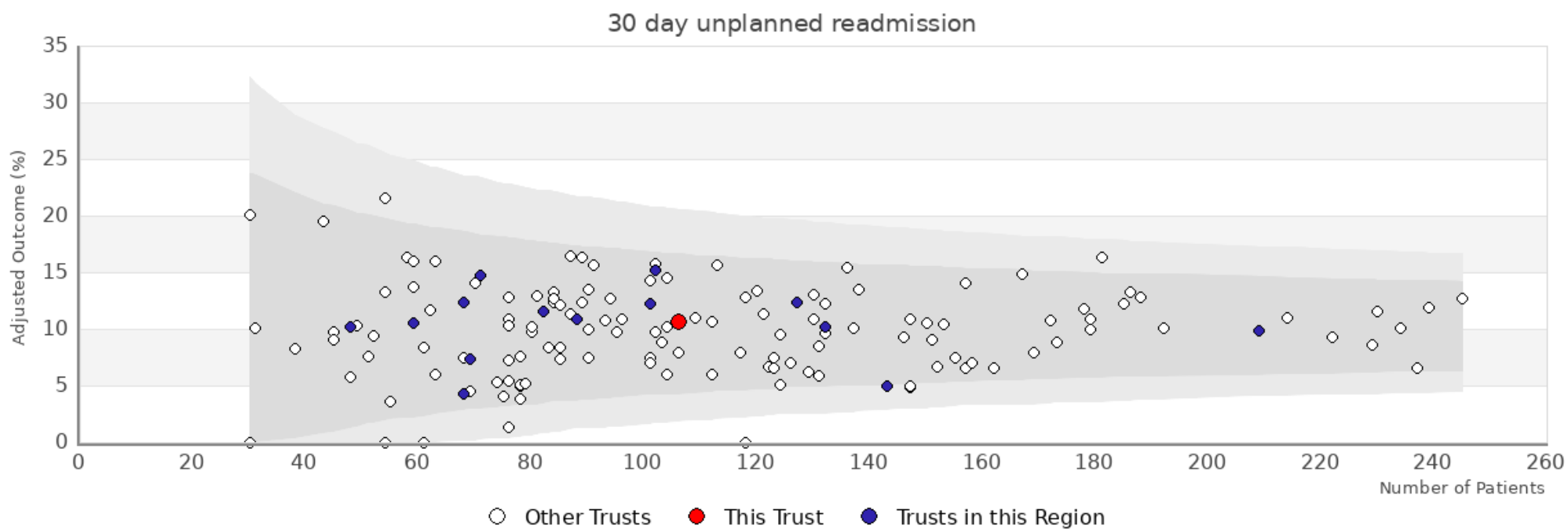
<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Length of stay > 5 days (%)	82	78	69

## Rectal cancer patients

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<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	27	387	4769
Neoadjuvant therapy (%)	76	63	37
Circumferential resection margin: Recorded (%)	11	26	25
Circumferential resection margin: Positive (%)	7	6	7
Rectal volume	N/A	N/A	N/A

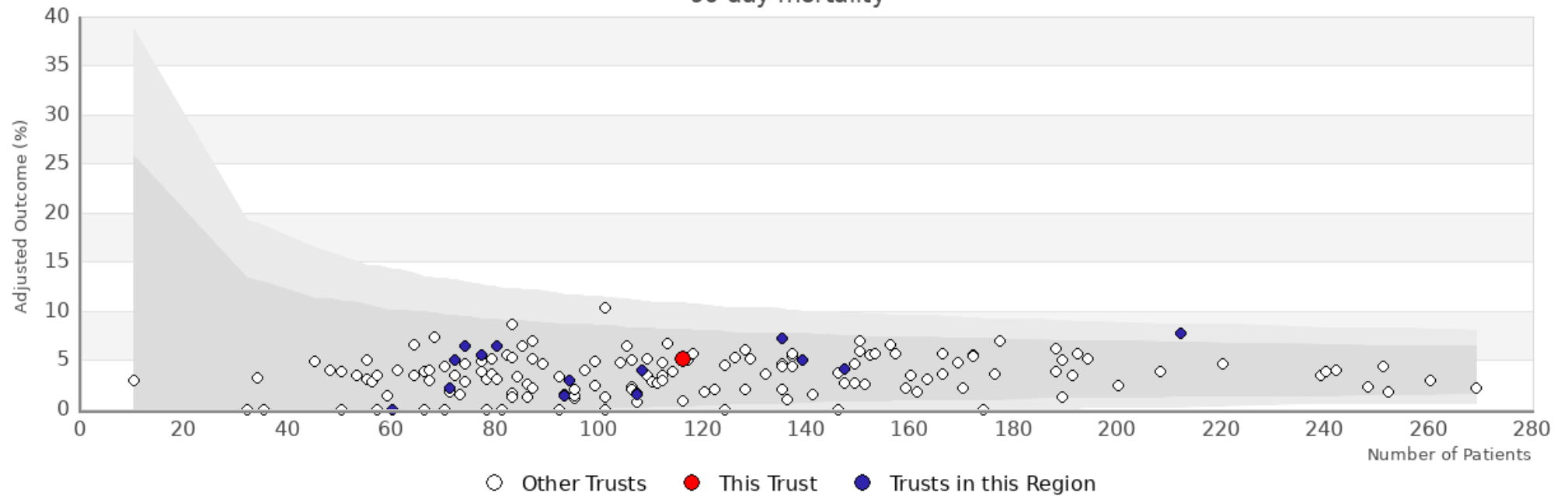
<b>Patients in APER/Hartmanns estimate:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in APER/Hartmanns estimate	N/A	N/A	N/A
APER/Hartmanns (%)	N/A	N/A	N/A



Trust	Number	Adjusted	Observed
Bolton NHS Foundation Trust	106	10.6%	10.4%
Other trusts within the region: GREATER MANCHESTER, LANCASHIRE AND SOUTH CUMBRIA			
Blackpool Teaching Hospitals NHS Foundation Trust	101	12.2%	11.9%

Trust	Number	Adjusted	Observed
Central Manchester University Hospitals NHS Foundation Trust	71	14.7%	15.5%
East Cheshire NHS Trust	59	10.5%	10.2%
East Lancashire Hospitals NHS Trust	143	4.9%	4.9%
Lancashire Teaching Hospitals NHS Foundation Trust	127	12.3%	12.6%
Mid Cheshire Hospitals NHS Foundation Trust	88	10.9%	11.4%
Pennine Acute Hospitals NHS Trust	209	9.9%	9.6%
Salford Royal NHS Foundation Trust	68	4.3%	4.4%
Stockport NHS Foundation Trust	102	15.2%	14.7%
Tameside Hospital NHS Foundation Trust	69	7.3%	7.2%
The Christie NHS Foundation Trust	48	10.2%	12.5%
University Hospital of South Manchester NHS Foundation Trust	82	11.5%	12.2%
University Hospitals of Morecambe Bay NHS Foundation Trust	132	10.2%	9.8%
Wrightington, Wigan and Leigh NHS Foundation Trust	68	12.3%	11.8%

90 day mortality

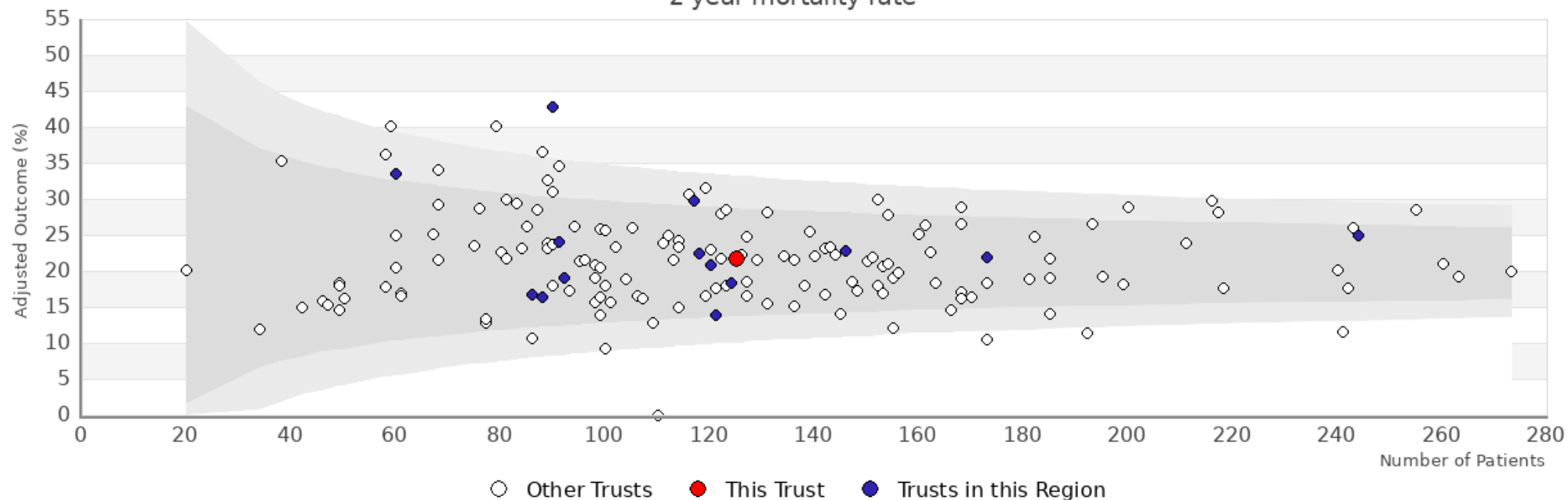


Trust	Number	Adjusted	Observed
Bolton NHS Foundation Trust	116	5.2%	5.2%
Other trusts within the region: GREATER MANCHESTER, LANCASHIRE AND SOUTH CUMBRIA			
Blackpool Teaching Hospitals NHS Foundation Trust	108	4%	2.8%



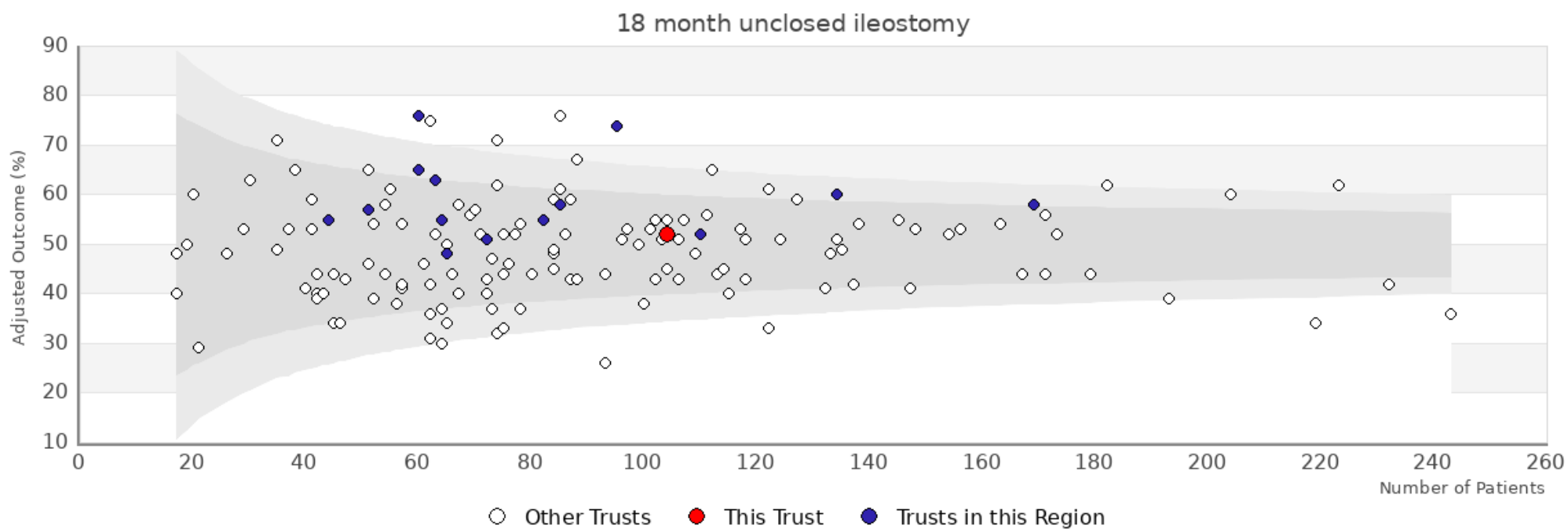
Trust	Number	Adjusted	Observed
Central Manchester University Hospitals NHS Foundation Trust	80	6.4%	3.8%
East Cheshire NHS Trust	72	5%	8.3%
East Lancashire Hospitals NHS Trust	147	4.1%	4.1%
Lancashire Teaching Hospitals NHS Foundation Trust	135	7.2%	6.7%
Mid Cheshire Hospitals NHS Foundation Trust	93	1.4%	1.1%
Pennine Acute Hospitals NHS Trust	212	7.8%	7.1%
Salford Royal NHS Foundation Trust	77	5.5%	5.2%
Stockport NHS Foundation Trust	107	1.5%	1.9%
Tameside Hospital NHS Foundation Trust	71	2.2%	2.8%
University Hospital of South Manchester NHS Foundation Trust	94	2.9%	3.2%
University Hospitals of Morecambe Bay NHS Foundation Trust	139	5%	5.8%
Wrightington, Wigan and Leigh NHS Foundation Trust	74	6.4%	8.1%

2 year mortality rate



Trust	Number	Adjusted	Observed
Bolton NHS Foundation Trust	125	21.7%	20.9%
Other trusts within the region: GREATER MANCHESTER, LANCASHIRE AND SOUTH CUMBRIA			
Blackpool Teaching Hospitals NHS Foundation Trust	117	29.8%	26.6%

<b>Trust</b>	<b>Number</b>	<b>Adjusted</b>	<b>Observed</b>
Central Manchester University Hospitals NHS Foundation Trust	118	22.5%	23.3%
East Cheshire NHS Trust	86	16.8%	21.2%
East Lancashire Hospitals NHS Trust	146	22.8%	28.5%
Lancashire Teaching Hospitals NHS Foundation Trust	120	20.8%	15.4%
Mid Cheshire Hospitals NHS Foundation Trust	88	16.4%	9.7%
Pennine Acute Hospitals NHS Trust	244	24.9%	28.6%
Salford Royal NHS Foundation Trust	91	24%	27%
Stockport NHS Foundation Trust	121	13.8%	15.1%
Tameside Hospital NHS Foundation Trust	90	42.9%	27.4%
The Christie NHS Foundation Trust	60	33.6%	36.5%
University Hospital of South Manchester NHS Foundation Trust	92	19%	24.3%
University Hospitals of Morecambe Bay NHS Foundation Trust	173	21.9%	20.9%
Wrightington, Wigan and Leigh NHS Foundation Trust	124	18.4%	16.9%



Trust	Number	Adjusted	Observed
Bolton NHS Foundation Trust	104	52%	54%
Other trusts within the region: GREATER MANCHESTER, LANCASHIRE AND SOUTH CUMBRIA			
Blackpool Teaching Hospitals NHS Foundation Trust	60	65%	65%

Trust	Number	Adjusted	Observed
Central Manchester University Hospitals NHS Foundation Trust	82	55%	60%
East Cheshire NHS Trust	65	48%	48%
East Lancashire Hospitals NHS Trust	134	60%	62%
Lancashire Teaching Hospitals NHS Foundation Trust	95	74%	76%
Mid Cheshire Hospitals NHS Foundation Trust	63	63%	57%
Pennine Acute Hospitals NHS Trust	169	58%	59%
Salford Royal NHS Foundation Trust	64	55%	53%
Stockport NHS Foundation Trust	85	58%	58%
Tameside Hospital NHS Foundation Trust	72	51%	54%
The Christie NHS Foundation Trust	60	76%	75%
University Hospital of South Manchester NHS Foundation Trust	51	57%	59%
University Hospitals of Morecambe Bay NHS Foundation Trust	110	52%	53%
Wrightington, Wigan and Leigh NHS Foundation Trust	44	55%	55%