

Norfolk and Norwich University Hospitals NHS Foundation Trust

East of England - North A03a

The Norfolk and Norwich University Hospitals NHS Foundation Trust incorporates Norfolk & Norwich University Hospital
<http://www.nnuh.nhs.uk/> <<http://www.nnuh.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 2019 – 31 Mar 2020. The exceptions are for adjuvant chemotherapy, APER/Hartmann's and the five trust outcomes: 30-day unplanned readmission, 30-day unplanned return-to-theatre, 90-day mortality 2-year mortality and unclosed ileostomy.

30-day unplanned readmission, 30-day unplanned return to theatre and 90-day mortality are further restricted to patients undergoing surgery up to 31 March 2020. Two-year mortality estimates include patients undergoing a major resection between 1 April 2017 and 31 March 2018. Adjuvant chemotherapy estimates include patients undergoing major resection for pathological stage III colon cancer between 01 December 2016 and 31 August 2019.

The Audit dataset is linked to Hospital Episode Statistics (HES) and Patient Episode Database for Wales (PEDW) at the patient level to obtain further information on patient care and follow-up such as stoma reversal and emergency readmissions in England/Wales. The dataset also links to Office of National Statistics records. These provide information about date, place and cause of death.

NBOCA also links to the National Radiotherapy Dataset (RTDS) for information on radiotherapy treatment in England, and the Systemic Anti-Cancer Therapy database (SACT) for information on chemotherapy treatment in England.

Data Quality

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 NCRAS in England and PEDW in Wales. This can be larger than 100 if more patients are reported to the Audit than identified in NCRAS/PEDW.

Data completeness

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

ASA grade

% of patients recorded as having a major resection who have a particular ASA grade recorded, or no ASA recorded.

Management of all patients

Potentially curative patients

Patients electively diagnosed with colon cancer with pre-treatment staging of T2-T4 and no evidence of metastatic disease.

Management of patients having major resection

At least 12 lymph nodes excised (%)

% of colon cancer patients undergoing major resection with a recorded number of lymph nodes, who had at least 12 lymph nodes examined.

Adjuvant chemotherapy

% of adjuvant chemotherapy in patients undergoing major resection for pathological stage III colon cancer between 01 June 2016 and 31 August 2019. These are unadjusted chemotherapy rates. SACT and HES data re used for patients treated in England and PEDW data are used for patients treated in Wales.

Rectal cancer patients

Neo-adjuvant therapy (%)

% of rectal cancer patients having short- or long-course radiotherapy prior to major resection.

Circumferential resection margin: Negative (%)

% of rectal cancer patients undergoing major resection whose CRM is reported to be negative.

Circumferential resection margin: Recorded (%)

% of rectal cancer patients undergoing a major resection who have a recorded CRM.

APER rate (%)

% of patients with rectal cancer undergoing abdominoperineal excision of the rectum and therefore having a permanent stoma this audit year.

APER/Hartmann's (%)

% of patients whose rectal cancer resection is an abdomino-perineal excision of rectum (APER)/pelvic exenteration/Hartmann's 1 April 2014 to 30 September 2018.

Compare trust outcomes

Funnel plots display trust risk-adjusted outcomes for 30-day unplanned readmission, 30-day unplanned return to theatre, 90-day mortality, 2-year mortality and 18-month unclosed ileostomy. 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/PEDW, 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.

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

Data Quality

All Patients:	Trust	Network	National
Number of patients in Audit	475	2077	32641
Case ascertainment (%)	Good	Good	Good
Data completeness of:			
– Pre-treatment TNM (%)	74	83	85

All Patients:	Trust	Network	National
– Performance status (%)	67	92	86

Patients having major resection:	Trust	Network	National
Number of patients in Audit	293	1166	18552
ASA grade 1 (%)	6	10	9
ASA grade 2 (%)	55	54	53
ASA grade 3 (%)	37	33	30
ASA grade 4+ (%)	1	2	2
ASA grade not recorded (%)	1	1	6
Data completeness of:			
7 Audit items for risk-adjustment (%)	98	88	89

Key:

- > 80%
- 50 - 80%
- < 50%

Management of all patients

All Patients:	Trust	Network	National
Number of patients in Audit	475	2077	29766
Seen by Clinical Nurse Specialist (%)	80	89	86

All patients deemed potentially curative	Trust	Network	National
Number of potentially curative patients	140	610	8157
Undergoing major resection (%)	84	83	83

Management of patients having major resection

Patients having major resection:	Trust	Network	National
Number of patients in Audit	293	1166	18515
Distant metastases (%)	3	4	6
Urgent or emergency surgery (%)	9	20	21
At least 12 lymph nodes excised (%)	92	83	86
Laparoscopic surgery attempted (%)	77	74	71

Patients having major resection:	Trust	Network	National
Risk-adjusted length of stay > 5 days (%)	55	53	58

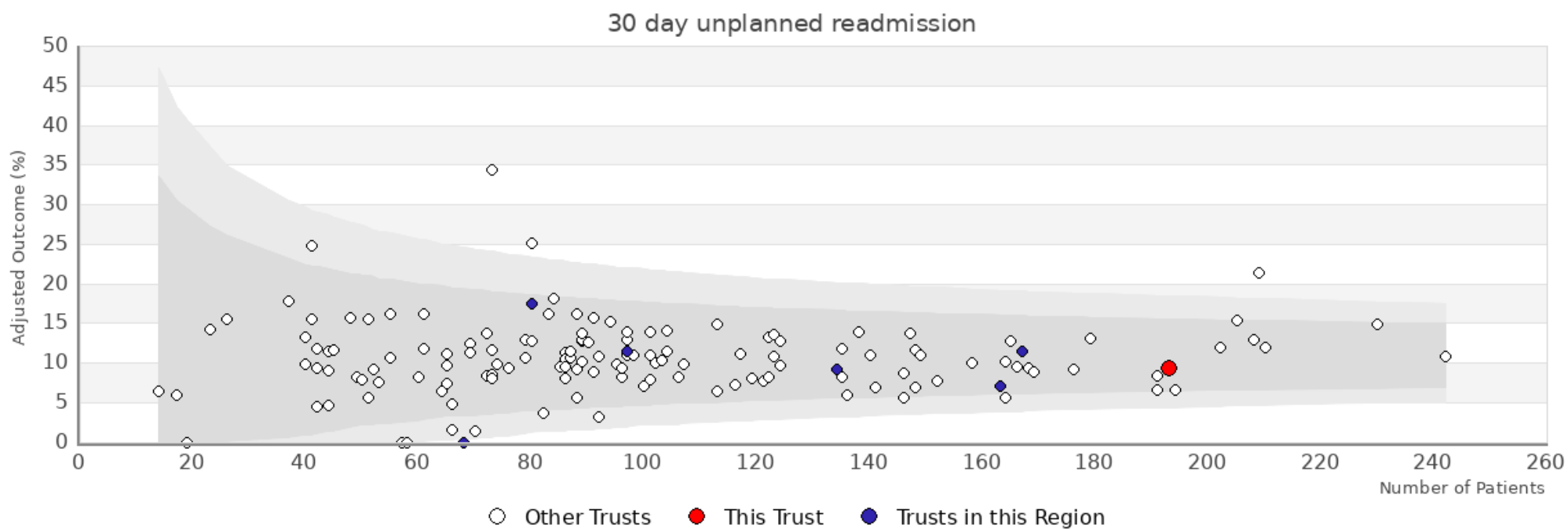
Patients having major resection for stage III colon cancer:	Trust	Network	National
Number of patients in audit	106	637	10335
Adjuvant chemotherapy (%)	57	55	63

Rectal cancer patients

Patients having major resection:	Trust	Network	National
Number of patients in Audit	76	253	4137
Neoadjuvant therapy (%)	28	32	34
Circumferential resection margin: Recorded (%)	100	88	90
Circumferential resection margin: Negative (%)	92	85	84
Rectal volume	N/A	N/A	N/A

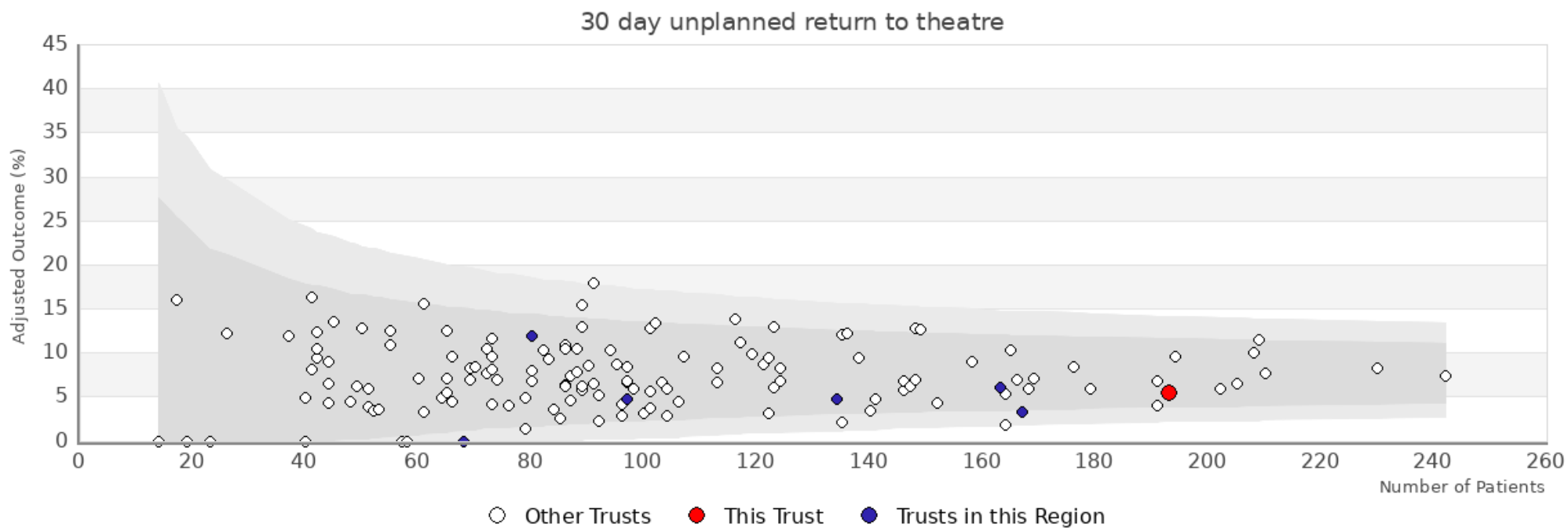
Patients in APER/Hartmanns estimate:	Trust	Network	National
Number of patients in APER/Hartmanns estimate	260	1175	17956

Patients in APER/Hartmanns estimate:	Trust	Network	National
APER/Hartmanns (%)	29	32	37



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	193	9.3%	9.3%
Other trusts within the region: East of England - North			
Cambridge University Hospitals NHS Foundation Trust	134	9.2%	9%
East Suffolk and North Essex NHS Foundation Trust	167	11.5%	10.8%

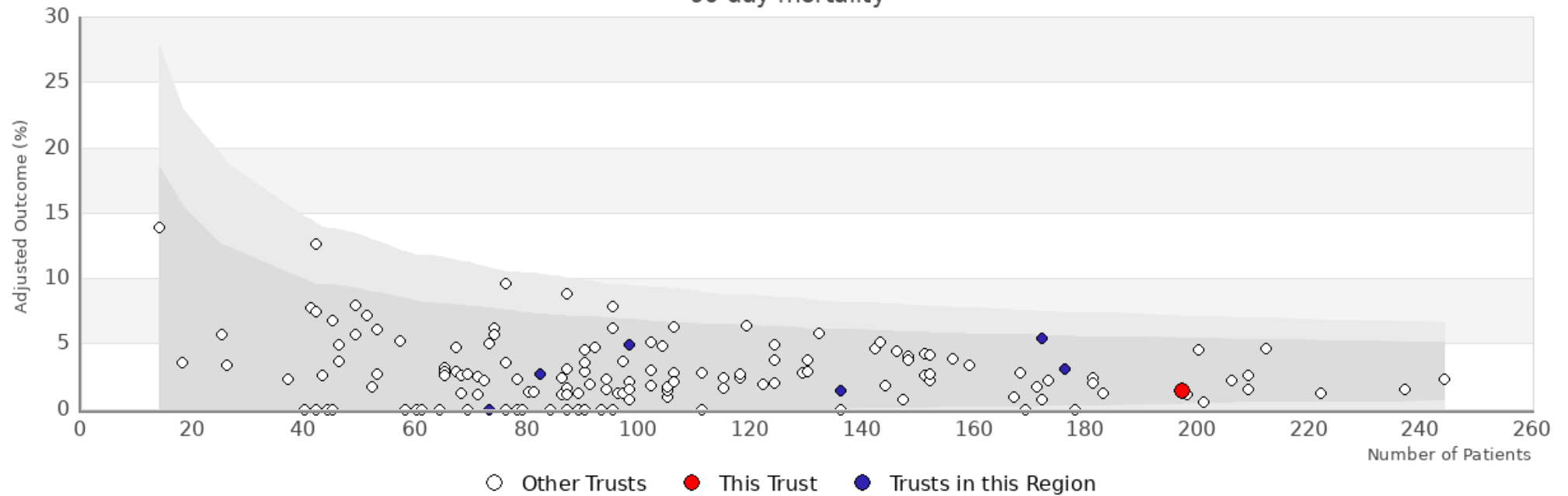
Trust	Number	Adjusted	Observed
James Paget University Hospitals NHS Foundation Trust	80	17.4%	18.8%
North West Anglia NHS Foundation Trust	163	7.1%	6.8%
West Suffolk NHS Foundation Trust	97	11.5%	10.3%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	193	5.4%	5.2%
Other trusts within the region: East of England - North			
Cambridge University Hospitals NHS Foundation Trust	134	4.7%	4.5%
East Suffolk and North Essex NHS Foundation Trust	167	3.3%	3%

Trust	Number	Adjusted	Observed
James Paget University Hospitals NHS Foundation Trust	80	11.9%	13.8%
North West Anglia NHS Foundation Trust	163	6.1%	5.5%
West Suffolk NHS Foundation Trust	97	4.7%	4.1%

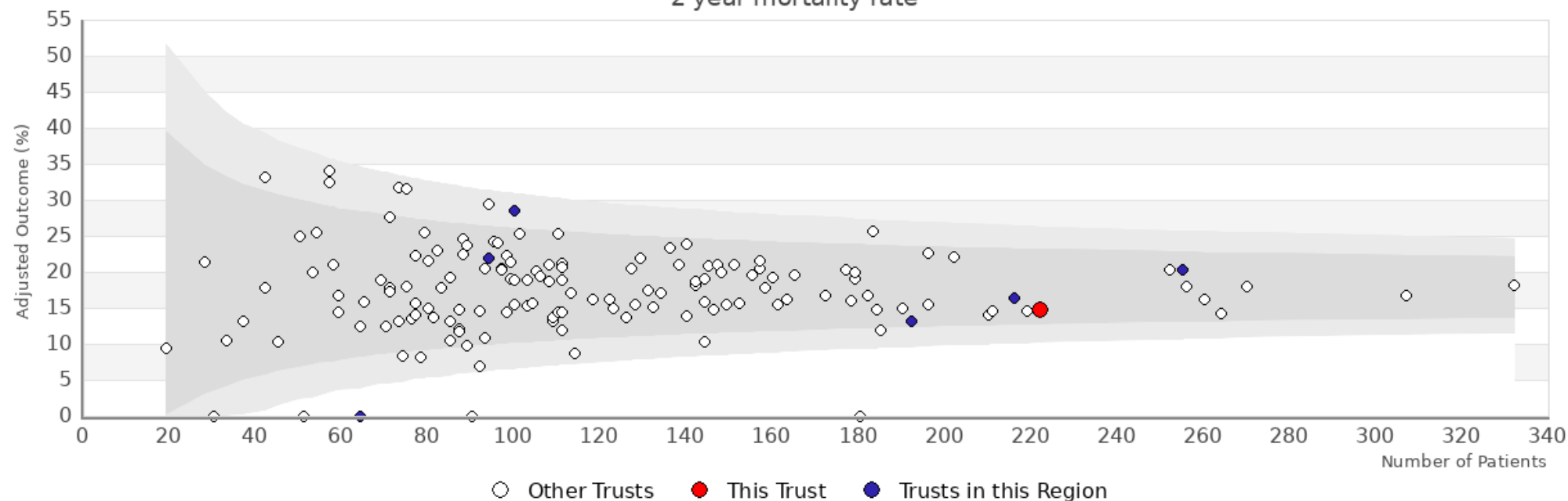
90 day mortality



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	197	1.4%	1%
Other trusts within the region: East of England - North			
Cambridge University Hospitals NHS Foundation Trust	136	1.5%	1.5%
East Suffolk and North Essex NHS Foundation Trust	176	3.1%	2.3%

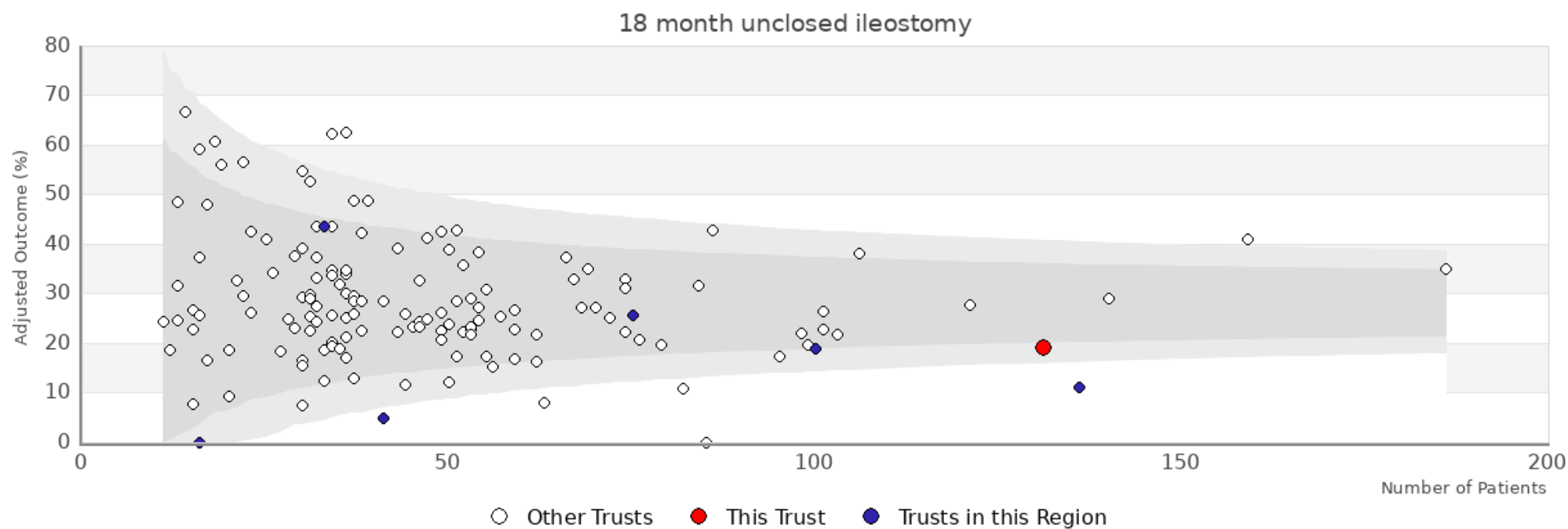
Trust	Number	Adjusted	Observed
James Paget University Hospitals NHS Foundation Trust	82	2.7%	3.7%
North West Anglia NHS Foundation Trust	172	5.4%	4.1%
West Suffolk NHS Foundation Trust	98	4.9%	4.1%

2 year mortality rate



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	222	14.8%	13.1%
Other trusts within the region: East of England - North			
Cambridge University Hospitals NHS Foundation Trust	192	13.2%	13.3%
East Suffolk and North Essex NHS Foundation Trust	255	20.4%	20.4%

Trust	Number	Adjusted	Observed
James Paget University Hospitals NHS Foundation Trust	94	22%	21.6%
North West Anglia NHS Foundation Trust	216	16.4%	15.4%
West Suffolk NHS Foundation Trust	100	28.6%	23.8%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	131	19.2%	17.6%
Other trusts within the region: East of England - North			
Cambridge University Hospitals NHS Foundation Trust	100	19%	18%
East Suffolk and North Essex NHS Foundation Trust	136	11.1%	11%

Trust	Number	Adjusted	Observed
James Paget University Hospitals NHS Foundation Trust	33	43.5%	48.5%
North West Anglia NHS Foundation Trust	75	25.5%	24%
West Suffolk NHS Foundation Trust	41	4.7%	4.9%