National Bowel Cancer Audit Annual Report 2013

This 2013 annual Report contains data from the 2011/2012 reporting period which covers patients in England and Wales with a date of diagnosis from 1 April 2011 to 31 March 2012.

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The Association of Coloproctology of Great Britian and Ireland (ACPGBI) is the professional body that represents UK colorectal surgeons. ACPGBI provided a clinical interpretation of the data analysed in the 2013 Annual Report.

The Royal College of Surgeons of England (RCS) is an independent professional body committed to enabling surgeons to achieve and maintain the highest standards of surgical practice and patient care. The RCS carried out the analysis of the data for the 2013 Annual Report.

Health and Social Care Information Centre (HSCIC) is the trusted source of authoritative data and information relating to health and care. HSCIC's information, data and systems plays a fundamental role in driving better care, better services and better outcomes for patients. HSCIC managed the publication of this annual report.

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Foreword

Welcome to the 2013 Annual Report from the National Bowel Cancer Audit. Publication has been brought forward this year and coincides with the annual scientific meeting of the Association of Coloproctology of Great Britain and Ireland. Those of you familiar with the annual audit report will need no introduction to the wealth of data contained in the following pages. Those of my generation will remember the old TV Times advert tag line – "I never knew there was so much in it". The same response applies to this report. Do spend some time reading it through: although it is a long document, part of its bulk involves individual trust data.

So where does this report take us? Well we are at the cross-roads with audits of clinical activity and we have reached the point where individual clinicians' outcomes are to be reported. This year sees a Government initiative to publish outcome data for 10 surgical specialties, one of which is colorectal surgery and specifically colorectal cancer. This somewhat goes against the direction of travel for the management of colorectal cancer, where the Multidisciplinary Team (MDT) is paramount and patients follow complex pathways involving myriad clinicians, specialist nurses and other health care workers. Whilst surgery remains the pre-eminent treatment modality, many patients do not undergo major surgery. Indeed in this cohort of patients, just under 60 per cent underwent a major resection. Thus, although there are a number of reasons in favour of single surgeon outcome reporting, there are also a number of problems that need to be addressed before we can achieve this goal with the current data collection system. The recent NBCA Annual Reports give an excellent picture of trends in the management of colorectal cancer as well as variation in management and outcome down to Unit level. The data is not robust enough to hone down further, partly because the number of cases for each individual surgeon is insufficient for reliable statistical analysis, but also because crucial data is often missing. The Annual Report is similar to a national weather forecast. It can give a good general picture of what is happening and some detail on regional weather variation, but it can't tell you what is happening in your back garden. This means we have to have a major re-think as to what data is collected, how and by whom it is collected and how we risk adjust in an appropriate manner. It is inevitable that this will require greater involvement of clinicians in data recording.

This year's audit report builds on the last few years' reports. The number of patients entered remains high at a shade under 30,000. Gratifyingly, there is a continued fall in post-operative mortality to 4.5 per cent following major resection (it was 6.1 per cent in 2008-2009). What is concerning is the stubbornly high proportion of patients who present as an emergency (21 per cent). This equates to 5,000 patients and the data demonstrates that these patients have a higher likelihood of dying in hospital after resection. Understanding why so many patients present as an emergency, despite the wide introduction of screening, should be a priority. Reducing emergency presentation will make a big impact on mortality from colorectal cancer. Longer-term outcome is reported in this year's report, specifically two-year survival. This is obviously an important question for a patient diagnosed with colorectal cancer – "what is the likelihood of me surviving this disease". It is not the only question and the problem of "at what cost" is starting to be explored. An example is the permanent stoma rate after rectal cancer resection, which is a quality of life issue in bowel cancer treatment.

Again, the report highlights variation in treatment and outcome around the country in aspects such as the proportion of patients presenting as an emergency, length of hospital stay, application of laparoscopic resection and major resection rate. It is this latter issue that will need further study. We need to have greater understanding of why just over 40 per cent of patients do not undergo resection, especially as in the future outcome data will be dissected in great detail.

Although this report contains a huge amount of data we shouldn't be complacent. Data completeness varies from trust to trust and this probably reflects resources available for data collection and uploading, rather than the enthusiasm of the clinical teams. Accurate audit is an expensive business, but the benefits to patients are well established in driving up performance and improving outcomes. This report heralds a welcome shift from "process" data to outcome data.

Graham Williams
President Association of Coloproctology
of Great Britain and Ireland (ACPGBI)

Executive Summary

- Audit of Colorectal Cancer has been a core ACPGBI activity for nearly 20 years. In this time data submission has advanced from 8,000 "enthusiast" cases to 30,000 cases, representing the national colorectal cancer practice. An obvious strength of the Audit is both completeness of case ascertainment and NHS database linkage that describes the patient experience. The trade-off has been a reduction in clinician data entry; future data submission changes will be required to achieve the granularity of clinician specific outcomes.
- All participating trusts in England submit their data via the Open Exeter system, as described at www.hscic.gov.uk/bowel. The Welsh data is submitted directly from the Canisc system to the Open Exeter system. The Audit dataset is linked to HES/PEDW at the patient level to obtain further information on patient care and follow-up, such as stoma reversal and emergency readmissions. Funnel plots are used to compare the outcomes between Cancer Networks/Wales and between trusts/sites. Potential outliers are reported back to Cancer Networks/Wales and to trusts/sites in advance of the report being published.
- Overall post-operative mortality has fallen to 4.5 per cent after major surgery for colorectal cancer. It is striking that emergency admission with colorectal cancer remains at a stubborn 21 to 22 per cent of all cases. The significance of this mode of admission is that emergency major surgery is associated with a risk of death of 8.9 per cent at 30 days and 13.7 per cent at 90 days.
- 90 day surgical mortality has fallen for four successive audit cycles, associated with a parallel fall in the proportion of cases subjected to major surgery. Despite the widespread adoption of Enhanced Recovery Programmes, 65 per cent of colon cancer patients and 79 per cent of rectal cancer patients are still in hospital five days after resection. From 25 per cent of resections being laparoscopic in 2008, the progressive use of laparoscopic resections has increased to over 40 per cent in this audit year.
- Two out of five colorectal cancer patients do not undergo resection. Non-resection as a treatment option represents a complex mixture of early stage disease, patient frailty and advanced cancer. Two-year survival was 67 per cent for all 50,245 colorectal cancer patients diagnosed between the 1 April 2008 and the 31 March 2010. Two-year survival was 80 per cent if resected and 45 per cent if not resected.
- 86 per cent of rectal cancer cases had undergone MRI staging. 5 per cent of rectal cancer patients had a local excision; 50 per cent a major resection; and 45 per cent no tumour surgery. 66 per cent of major resections were anterior resection; 24 per cent abdomino-perineal excision of the rectum (APER); and 10 per cent Hartmann's or unknown. Two-year survival was 50 per cent in those patients with rectal cancer having no tumour surgery; 87 per cent in those whose rectal cancer was treated by excision/resection with appropriate adjuvant therapy.
- 77 per cent of patients with rectal cancer undergoing restorative anterior resection had a "temporary" proximal stoma. However, at 18 months 30 per cent of these individuals after restorative anterior resections still had their proximal stoma.

Recommendations

1. It has to be reiterated that clinical ownership of the data within trusts is crucial. The Lead Clinician, together with other members of the MDT, should ensure accurate and complete data collection for submission to the Audit. There should be an agreed process for clinical sign off of audit data to ensure the accuracy of clinician based outcomes.

2. Emergency colorectal cancer admission remains a substantial challenge. The poorer outcome associated with this mode of admission emphasises the need for networks and units to re-visit their arrangements for caring for the elderly, high risk patient presenting acutely. Pathways that provide preoperative resuscitation, adequate theatre access, post-operative critical care, and early colorectal team involvement, including full radiological support and facilities for colonic stenting, are likely to improve post-operative survival.

3. Extended delay is seen in ileostomy reversal and the non-closure of the temporary stomas created in association with anterior resection. Irrespective of the causes of this stoma closure delay, patient counselling information for a temporary ileostomy should include a non-closure rate of 30 per cent, a median closure delay of seven months for those that are closed, and an approximately ten per cent chance of death with a non-reversed intestinal stoma at 18 months.

4. Laparoscopic surgery is to be considered in all suitable cases. Laparoscopic colorectal surgery has clear advantages for selected patients in terms of length of stay and possibly outcome measures. In line with the current NICE guidance, suitable patients should be offered the opportunity for a laparoscopic resection.

5. Local MDTs should be using the results of the Audit to examine their outcomes to improve patient care. The individual feedback on activity should prompt local "deep-dive" audits particularly when the unit would appear to be an outlier. Reasons for non-resection, unplanned returns to theatre, and post-operative deaths are just some examples that could be examined.

1. Introduction

Introduction
NBCA 2013

- Audit of Colorectal Cancer has been a core ACPGBI activity for nearly 20 years.
- Data submission has evolved from "enthusiast" surgeon data entry to the use of third party clinical systems such as Somerset Cancer Register.
- Audit strengths include completeness of case ascertainment and analysis that can link to other NHS datasets to fully describe the patient experience.
- Audit weaknesses include lack of clinical sign off on data submitted and limited data on the use of non-resection, radiotherapy and chemotherapy.
- Audit data submission will require substantial modification to achieve the granularity of clinician specific outcomes.

The new audit cycle presented in this report is intended to bring data collection and analysis in line with the standard reporting cycle for NHS data (1 April to 31 March) and, as importantly, place publication of the report squarely in the scientific meeting of the Association of Coloproctology. This is because the Audit describes a core function of the Association. MDTs consisting of surgeons, colorectal nurse specialists, gastroenterologists, radiologists and pathologists, not to mention our anaesthetic and critical care colleagues, manage nearly 30,000 people with colorectal cancer and the estimated 450,000 people investigated and cleared of this diagnosis. This is an enormous, expensive, multifaceted technical exercise, which hangs on the expertise of multiple clinicians to transform a frightening diagnosis into an appropriate practical solution with a human face.

At the centre of the colorectal cancer experience are the patient and their family with the understandable anxieties as to what the future may bring once the diagnosis has been given:

- What are the risks of dying from an operation - how long will I be in hospital?
- Will it be a telescope operation?
- What are my chances of surviving?
- Will I need a bag - will it be permanent or temporary?

As clinicians that help patients with colorectal cancer, we are more than familiar with these very sensible and practical questions. The aim of the 2013 Audit, built on what your trust said happened to your patients between 1 April 2011 and 31 March 2012, is designed to give answers to these questions for both the patient and the professional.

Why the Audit looks like it does

The audit of bowel cancer in England and Wales can be traced back to the 1990s and the Wessex Audit, the Trent and Wales Audit and a series of Scottish Audits that all described patient results after surgery for colorectal cancer. The ACPGBI's minimum dataset became available in about 2000 and so began a clinician centred, systematic but voluntary collection of colorectal surgical activity and associated patient outcomes.

ACPGBI voluntary participation was the basis in 2002 of a report describing 8,000 cases from 261 surgeons in 73 trusts and in 2004 a further voluntary report analysing 10,613 cases from 93 trusts. Despite these laudable audits of data provided by the enthusiast, the ACPGBI faced difficulties in achieving a national audit. The difficulties included the time and financial resources required and the increasing legislative difficulties that threatened to ensnare those that held patient data. To overcome these problems and make the National Bowel Cancer Audit a truly national enterprise, a joint project by ACPGBI and the Healthcare Commission was agreed. The aim was national **open reporting** of colorectal patient outcomes, once the Audit had achieved case ascertainment over 80 per cent and data accuracy that would allow for case-mix adjustment.

The 2005 report followed, based on 10,194 patients from 77 trusts. The 2006 report contained two years of data (2003-2005) and 18,539 patients. The 2007 report for the first time openly reported trust participation but only 17 per cent of trusts were achieving good case ascertainment. In 2009 data for two years was again presented (2006/7 and 2007/8) with 40,000 cases and 95 per cent trust participation. The 2010 report approached 24,000 cases and by 2011, 28,000 cases were reported and most recently in 2012, 29,000 cases of colorectal cancer management were described.

So in 11 years of the ACPGBI describing colorectal cancer management in England and Wales, we have moved from an enthusiast 8,000 cases snap shot often based on surgeon entered data using the ACPGBI minimum dataset to 29,000 cases, 85 per cent case ascertainment, a picture very largely based on routine data entry with variable clinician review of data submission in many trusts.

Your Data and The Audit

Clinicians talk to people with bowel problems, do telescopes, do scans, review MDT management plans and institute curative or palliative care. The details of this process are recorded in administrative data coding which becomes HES or PEDW and, in a large proportion of trusts, are also recorded in the Somerset Cancer Register (SCR). Although the SCR records aspects of clinical management, its central purpose within the trust is to allow tracking of cancer patients, providing statistical information used to improve the performance of cancer services against set targets.

From the trust the next step is the data upload through the NHS platform known as Open Exeter (see Section 2). In a few trusts this consists of direct data entry or CSV file upload, in others via third party systems such as InfoFlex, but the vast majority of data is submitted via the SCR as a single upload on the last possible day of data submission. This severely limits any ability for the clinicians in a trust to scrutinise what has been submitted.

Strengths and Weaknesses of NBCA

While the aims of colorectal cancer audit remain unchanged, the nuts and bolts of data collection have changed. And as the Audit approaches its "teens" it seems appropriate that we all share in an understanding of what the present Audit does well and what could be done better.

The strengths of the national review of colorectal cancer activity and outcomes are indisputable; no other national review of this subject can describe colorectal outcomes in as significant detail as NBCA.

NBCA Strengths
The Audit is the most complete source of clinical information on bowel cancer patients in England and Wales, such as staging data, ASA grade, surgical urgency and surgical access.
Case ascertainment is high, at 86 per cent currently, and has improved year on year. Close to 100 per cent of trusts in England and all MDTs in Wales submit to the Audit each year, although case ascertainment varies between trusts. In particular MDTs in Wales have had very high case ascertainment year on year.
Data completeness of risk-adjustment items is relatively high in patients having a major resection, however, this varies considerably between trusts.
The Audit data is linked to HES for England and PEDW for Wales, providing invaluable information on patient follow-up such as stoma reversal and emergency readmissions, which is difficult to obtain in an audit.
The Audit provides a national picture of the care and outcomes of patients in England and Wales with bowel cancer. It provides feedback to trusts on the management of patients and their surgical outcomes so that quality of care can be monitored.

Weaknesses	Future solutions
The Audit is very surgically focussed, providing little information on non-surgical treatment. For example, it does not collect detailed information on chemotherapy and the data collected on radiotherapy is very incomplete.	Future linkage to the Radiotherapy and Chemotherapy Datasets is planned, once these datasets provide data that is complete enough and of good quality.
Patients not resected are not covered in any detail in the Audit. Clinical data on patients not resected is poor, and it is not possible to identify patients not resected because they have too little cancer, too much cancer, or are too frail.	The Audit dataset will be redesigned in the near future to contain fewer data items, and update the items that are collected. Linkage to more existing data sources will mean that information collected elsewhere does not need to be collected in the Audit dataset. The aim is to collect more complete data on fewer, more clinically relevant items.
No information is collected on patient experience (such as humanity of care, information provided, patient choice) or outcomes reported by patients.	
End of life care is not covered by the Audit.	
Data upload is laborious and not clinician-led. The method of data upload varies between trusts.	Development of Clinician Entry Platform.
Clinician specific outcomes and resource utilisation cannot be defined by current methodology.	
The Audit does not cover any structural outcomes such as number of surgeons, access to beds, ERP implementation.	An organisational survey of hospitals submitting to the Audit.

A Final Word - "Granularity"

Granularity - how fit is the data submitted to the Audit for the purpose of describing patient outcomes within an individual clinician's practice? An important question of public transparency and one that might be reasonably put by a member of the public seeking treatment of a colorectal cancer in the 21st Century NHS. The best examples of fine detail granular NHS surgical practice are seen in the Society of Cardiothoracic Surgeons National Adult Cardiac Surgery Database and the Orthopaedic National Joint Registry. Both of these schemes have been developed over several years and are based on bespoke clinician collected data entry into a central database.

By contrast, the National Bowel Cancer Audit in England has taken a different path moving away from largely "enthusiast" clinician data entry to using routine datasets with variable degrees of clinician input, to generate descriptions of national, Cancer Network and trust level colorectal cancer outcomes. The gain has been much better coverage of national cancer activity but with a loss of clinician scrutiny of aspects of data entry, such as which surgeon managed which patient. If, as seems likely, clinician level outcomes in colorectal cancer management become a required feature of the Audit report, systems of clinician based data entry may be required. NHS Wales, whilst also developing linkage with various databases in Wales, will continue to use Canisc to support MDT working with high levels of clinical involvement and sign off.

The audit we have now has evolved over the last 20 years from enthusiast regional audit, through national "minimum dataset" enthusiasm to the present national audit with nearly 90 per cent case ascertainment of colorectal cancer practice in England and Wales. Transparency of individual clinical practice (be it surgical procedure, radiology judgement, oncology therapy or anaesthetic assessment and critical care) will require further development of the Audit. Defining the methodology and resources required for bespoke clinician data entry to address clinician outcome transparency will be the next Audit challenge.

2. Methods

Methodology
NBCA 2013

- All participating trusts in England submit their data via the Open Exeter system, as described at www.hscic.gov.uk/bowel. The Welsh data is submitted directly from the Canisc system to the Open Exeter system.
- Multiple tumour and treatment records are consolidated into a single record for the tumour, using rules developed to resolve conflicting entries between multiple records. To view those rules, see the Supportive Document.
- Case ascertainment is calculated nationally, and for each Cancer Network and trust/site, using HES/PEDW to estimate the denominators.
- The Audit dataset is linked to HES/PEDW at the patient level to obtain further information on patient care and follow-up, such as stoma reversal and emergency readmissions.
- Most results are descriptive and are presented in simple tables with percentages of patients in each group.
- Funnel plots are used to compare the following four outcomes between Cancer Networks/Wales and between trusts/sites: 90-day mortality after major resection; 90-day emergency readmission after major resection; two-year mortality after major resection and 18-month stoma rate after major resection for rectal cancer. All outcomes are adjusted for patient case-mix.
- Potential outliers on these four risk-adjusted outcomes are reported back to Cancer Networks/Wales and to trusts/sites in advance of the report being published.

2.1 Data collection

All, except one, eligible NHS trusts in England and all Health Boards in Wales submitted data to the Audit for inclusion in the 2013 Annual Report. The majority of analyses in the report include patients in England and Wales submitted to the Audit who were diagnosed between 1 April 2011 and 31 March 2012, but for certain patient outcomes different, more relevant, inclusion criteria are used. Data is also available from the previous three audits and comparisons are made across years for certain key statistics. Patients submitted to the Audit in a previous year are excluded from subsequent audits. All participating trusts submit their data via the Open Exeter system, as described at www.hscic.gov.uk/bowel. The Welsh data is submitted directly from the Canisc system to the Open Exeter system.

2.2 Data processing

Multiple records
The dataset that is collected through the Open Exeter system consists of separate tables on characteristics of the patient, the tumour, the treatment, and the follow-up of the patient, which are linked using a unique patient identifier.

As demonstrated in previous Annual Reports multiple treatment records per patient are a substantial issue, and again this year 30 per cent of patients have multiple treatment records. This can affect the quality of data in the Audit if there is conflicting information between the records. Details of how multiple records are dealt with are given in the Supportive Document.

2.3 Case ascertainment

Case ascertainment is expressed as the ratio of number of patients reported to the Audit compared to the number of patients admitted for the first time to the participating units with a date of diagnosis of bowel cancer within the audit period, according to HES/PEDW. Further details are given in the Supportive Document.

2.4 Linkage to HES and PEDW

Patients treated at hospital in England were linked to HES records using their NHS numbers, date of birth, sex and postcode. 87 per cent of patients in English trusts in the Audit could be linked to HES and 82 per cent of patients in Welsh Health Boards in the Audit could be linked to PEDW. In England and Wales overall, 95 per cent of patients undergoing major surgery could be linked to HES/PEDW. Audit data linked to HES/PEDW data allows the possibility of exploiting HES/PEDW data for items not available in the Audit as well as information that is poorly recorded in the Audit. In particular HES is useful for analysing patient follow-up, such as emergency readmissions and stoma reversals. The mode of admission (elective or emergency) is defined in HES/PEDW, as is the number of comorbidities, which is defined according to the Charlson comorbidity score. This is the first year that Welsh Audit data were linked with PEDW and it is possible that there are differences in the coding accuracy and completeness between PEDW and HES.

2.5 Data completeness

Data completeness is defined as the proportion of patients with complete data items on all seven of the variables: age, sex, ASA grade, TNM T-stage, TNM N-stage, distant metastases and site of cancer, as these are the variables from the Audit that are used for risk adjustment when comparing post-operative mortality between Cancer Networks and trusts. Distant metastases are defined as M-stage M1 or Dukes' stage D. Mode of admission and number of comorbidities are also used in the model but they come from HES and are therefore not included in data completeness. Data completeness is only assessed in patients who underwent major surgery, because only in these patients could all seven data items be expected to be complete. The completeness of other data items in the Audit is mixed, as can be seen in the tables of results throughout this report. Data completeness reports have been sent to each Cancer Network and trust, both to provide feedback on the data submitted and to point to areas that need to be addressed in individual trusts if the Audit is extended to answer additional clinical questions. The data completeness reports have recently been updated so that the denominator of each item reflects the patients who are expected to have the item recorded.

2.6 Handling missing data

The details of how missing data was handled are given in the Supportive Document.

2.7 Definition of outcomes derived from HES/PEDW

Emergency readmission within 90 days of surgery was derived from HES/PEDW data in patients undergoing major surgery, and was defined as an emergency admission to any hospital for any cause within 90 days of surgery. HES/PEDW records mode of admission as one of elective, emergency, maternity, or transfer from another hospital. Emergency admissions include admission via Accident and Emergency services, or emergency admission via general practitioner, Bed Bureau, or consultant outpatient clinic.

18-month stoma rate was estimated on rectal cancer patients undergoing major surgery. Patients undergoing an abdomino perineal excision of the rectum (APER) or Hartmann's procedure according to the Audit were assumed to have had a colostomy at the time of their primary procedure. In patients having an APER this colostomy is clearly permanent. Patients undergoing an anterior resection (AR) were assumed to have had an ileostomy or colostomy if this information was recorded in the Audit (whether permanent or temporary). This information was missing in a large proportion of patients, and was updated from procedure codes for colostomy or ileostomy in HES/PEDW from the time of the primary procedure onwards.

In patients having an AR or Hartmann's procedure, information on reversal of stomas was taken from procedure codes in HES/PEDW only, regardless of whether recorded as permanent or temporary in the Audit. A procedure code for reversal of ileostomy or colostomy within 18 months of surgery was assumed to mean that the patient had their stoma reversed, regardless of whether the stoma was coded as an ileostomy or colostomy. This approach to dealing with coding inconsistencies was taken on the grounds that if a procedure code for stoma reversal was recorded in HES/PEDW it was probable that a stoma reversal took place, and that the details of the procedure were incorrectly coded.

2.8 Statistical Analysis

Most results reported in this audit report are descriptive. The results of categorical data items are reported as percentages (per cent). The denominator of these proportions is in most cases the number of patients for whom the value of the data item was not missing.

Results are typically grouped by Cancer Network and/or trust/hospital/MDT. England's 28 Cancer Networks were used in the analyses, and compared to Wales as a whole. The results for Wales are reported according to where the multidisciplinary team who discussed the patients' management were located, rather than by trust/hospital. With almost 30,000 cases across 163 trusts/sites/MDTs, there were of the order 1,000 cases per network, and of the order 200 per trust/hospital/MDT.

Funnel plots

Funnel plots are used to make comparisons between Cancer Networks or between trusts/hospitals on the following outcomes: 90-day mortality after major surgery; 90-day emergency readmission after major surgery; two-year mortality after major surgery; and 18-month stoma rates for rectal cancer patients undergoing major surgery. The rate for each Cancer Network or for each trust or hospital is plotted against the total number of patients used to estimate the rate. The "target" is specified as the average rate across all Cancer Networks/ trusts/hospitals.

In this report, those Cancer Networks, trusts or hospitals with results outside the outer (99.8 per cent) funnel limit are considered as potential outliers. The recommended HQIP procedure for **potential** outliers was carried out. All Cancer Networks and trusts/hospitals falling above the inner limit on any of the outcomes were informed and, as a first step, asked to check the data they submitted. See the Supportive Document for more information about the interpretation of funnel plots.

Adjusted outcomes

Multivariable logistic regression was carried out to estimate risk-adjusted 30-day/90-day post-operative mortality, 90-day emergency readmission, and 18-month stoma rates for rectal cancer patients undergoing major surgery. A Poisson model was fitted to estimate risk-adjusted two-year mortality after major surgery. Unlike the 90-day mortality, 90-day emergency readmission rate and 18-month stoma rate, the two-year mortality rate takes into account the length of time each patient was followed up for. The observed two-year mortality is the number of patients who died within two years divided by the sum of the amount of time each patient is followed for. For example, in two trusts/sites with the same proportion of patients dying within two years, the trust in which patients die earlier will have a higher two-year mortality rate.

Multivariable Regression Model Variables	
Patient Characteristics	Age; Age squared; Sex
Morbidity and Presentation	ASA grade; Charlson comorbidity score (according to HES/PEDW); Mode of admission (according to HES/PEDW)
Cancer	T-stage; N-stage; Distant metastases (according to M-stage or Dukes' stage); Site of tumour

An interaction between age and distant metastases was also included in the models to allow age to have a different effect in patients with and without metastases. Once patients have metastatic disease the effect of age is found to be far less important than in patients without metastases. The model for two-year survival additionally included interactions between epoch (0-3 months after surgery vs. 3-24 months after surgery) and all of the risk factors. This allows risk factors to have a different effect shortly after surgery and in the longer-term. For example, the effect of ASA grade is much larger peri-operatively than in the longer-term, whilst cancer stage has a much larger impact on longer-term than short-term mortality. The model for 18-month stoma rate did not include cancer site as it was for rectal cancer patients only.

Patients with missing date of surgery were excluded, and multiple imputation was used to fill in any missing information on the risk factors. Four trusts were excluded because most patients were missing on ASA grade and/or TNM-stage.

The adjusted outcomes were estimated using indirect standardisation. The observed number of events for a trust or hospital was divided by the number expected on the basis of the multivariable regression model. The adjusted rate was then estimated by multiplying this ratio by the average rate in all patients included in the analysis.

All statistical analyses were performed using Stata version 11.

3. Colorectal Cancer – Surgical Care

Overview Colorectal Cancer
NBCA 2013

- Overall post-operative mortality has fallen to 4.5 per cent after major surgery.
- Emergency admission with colorectal cancer remains at a stubborn 21 per cent of all cases. Emergency major surgery is associated with a risk of death of 8.9 per cent at 30 days and 13.7 per cent at 90 days.
- 90 day surgical mortality has fallen for four successive audit cycles - associated with a parallel fall in the proportion of cases subjected to major surgery.
- 65 per cent of colon cancer patients and 79 per cent of rectal cancer patients are still in hospital five days after resection.
- Younger patients are more frequently readmitted as an emergency within three months of discharge than elderly patients.
- From 25 per cent of resections being laparoscopic in 2008, the progressive use of laparoscopic resections has increased to over 40 per cent.

Colorectal cancer is a major cause of illness, disability and death in England and Wales. This 2013 Audit includes 29,445 people who were diagnosed with colorectal cancer between April 2011 and March 2012. Surgical removal of a locally confined cancer remains the most certain modality of cure but patient suitability and disease characteristics have a profound influence on treatment.

Important markers of patient outcome after major surgery for colorectal cancer include patient death after an operation, the length of time you need to be in hospital for and the need to be readmitted in the first few months after getting home. Another marker of surgical care is access to laparoscopic surgery to remove the cancer. In this section of the report we present the 2011-2012 experience with respect to these outcomes.

3.1 Chances of Death after Major Surgery

Table 3.1
Per cent undergoing major surgery by audit year

	2008-09		2009-10		2010-11		2011-12	
	N	%	N	%	N	%	N	%
Total patients	22,972		27,344		28,422		29,445	
Undergoing major resection	14,522	**63.2**	16,634	**60.8**	17,186	**60.5**	17,250	**58.6**
Died within 30 days of major resection	578	4.0	639	3.9	586	3.4	501	2.9
Died within 90 days of major resection	876	6.1	959	5.8	901	5.3	784	4.5

Although conventional surgical outcomes describe post-operative mortality at 30 days, the audit has explored this outcome at three months for the following reasons:

- from a patient perspective the risk of post-operative death at three months is just as significant an outcome as death within one month of surgery
- post-operative death at three months captures those deaths that occur after prolonged critical care support which is now a much more common feature of colorectal cancer resection and adds significantly to the procedure associated death rate
- exploration of post-operative death beyond three months adds little additional outcome information.

Table 3.1 demonstrates that unadjusted post-operative mortality has continued to decrease year-on-year for the last four years of the Audit and seems to indicate better surgical outcomes for those undergoing major resection. This could indicate improving patient care by reducing post-operative death.

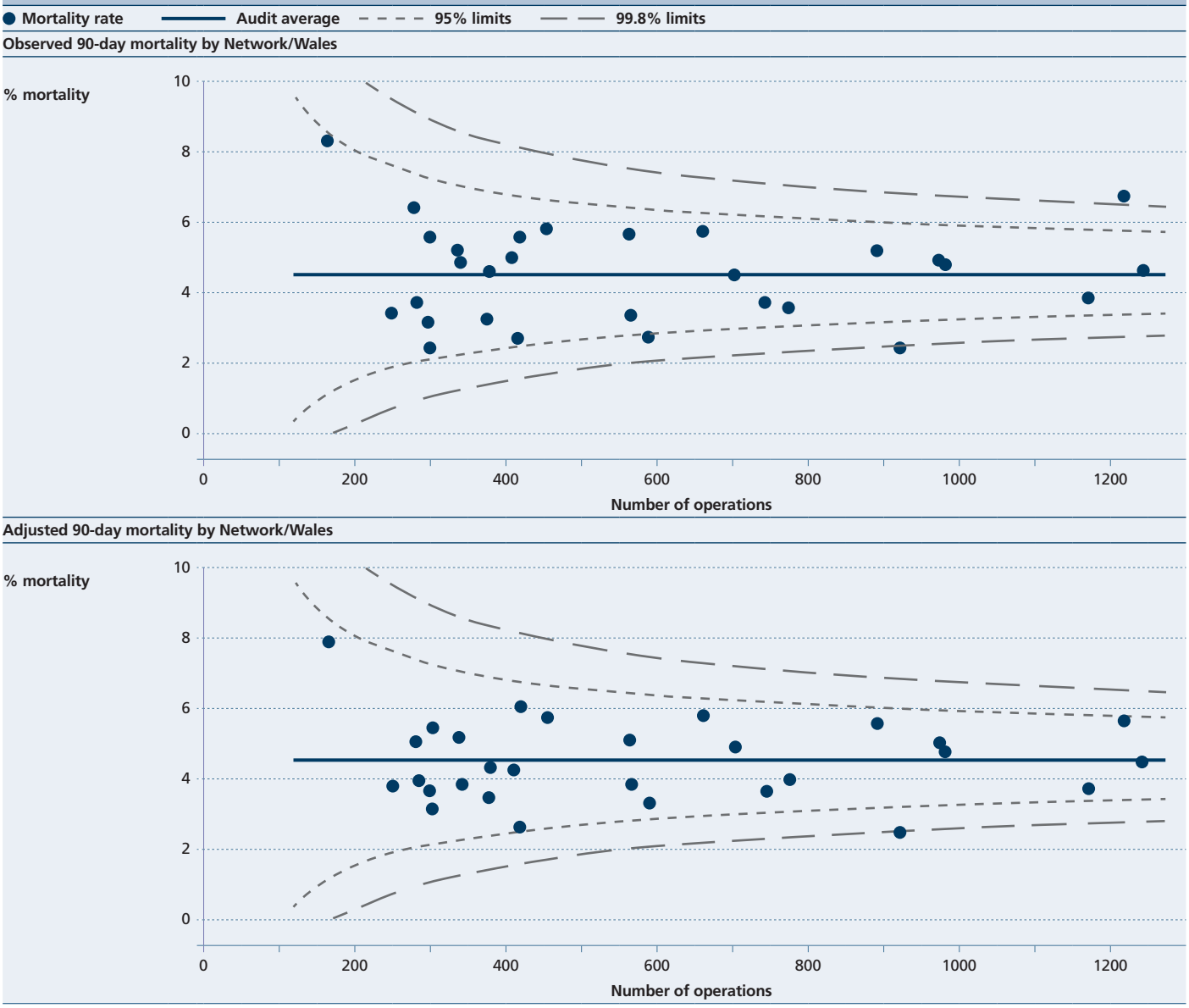
However, alongside the improving mortality rates of colorectal cancer there is evidence of a concurrent trend to reduce the proportion of cases undergoing major resection; from 63 per cent of all cases to 59 per cent of all cases. If these overlapping trends have arisen due to the better palliation of colorectal cancer by non-surgical means, with better selection of appropriate patients for surgery then this development is to be welcomed. However, in the future it is important that "high risk" patients are not being systematically excluded from resection to protect unit outcomes. A system of agreed criteria for non-resection requires urgent development to ensure continued access to resection for those "high risk" patients that despite the hazard involved might benefit from surgical resection.

Figure 3.1 shows the variation in 90-day post-operative mortality across English Cancer Networks/Wales, without and with risk-adjustment. When making comparisons between Cancer Networks and between trusts/sites, 90-day mortality was adjusted for the following 10 risk factors (see Table 6.3 of the 2012 Annual Report for details):

- age
- sex
- ASA grade
- T-stage
- N-stage
- distant metastases
- mode of admission
- cancer site
- number of comorbidities
- interaction between age and distant metastases (described in Section 2.8).

After risk-adjustment there were no networks above the inner limits. Across Cancer Networks there is no more variation in 90 day post-operative mortality than might be expected by chance. This implies that there is no postcode lottery in post-operative mortality across the English Cancer Networks and Wales when analysed in large patient populations.

Figure 3.1
Observed and adjusted 90-day post-operative mortality by English Cancer Network/Wales for patients diagnosed between 01/04/2011 and 31/03/2012



Funnel plots for 90-day post-operative mortality by trust/site, both observed and risk-adjusted, are presented in Figure 3.2. On adjusted 90-day mortality there was one trust above the outer limit and a further two trusts above the inner limit. For all of the funnel plots by trust/site in this report, if all trusts/sites had the same underlying rate, four would be expected to lie above the inner limits and 0.2 above the outer limit by chance alone.

Following the Department of Health Detection and Management of Outliers policy, published in January 2011, the three trusts/sites falling above the limits were notified, and given the opportunity to check their data and provide a response to the Audit Project Team. All three trusts responded.

Figure 3.2
Observed and adjusted 90-day post-operative mortality by trust/site with more than 10 operations for patients diagnosed between 01/04/2011 and 31/03/2012

3.2 Death after Surgery and Mode of Admission

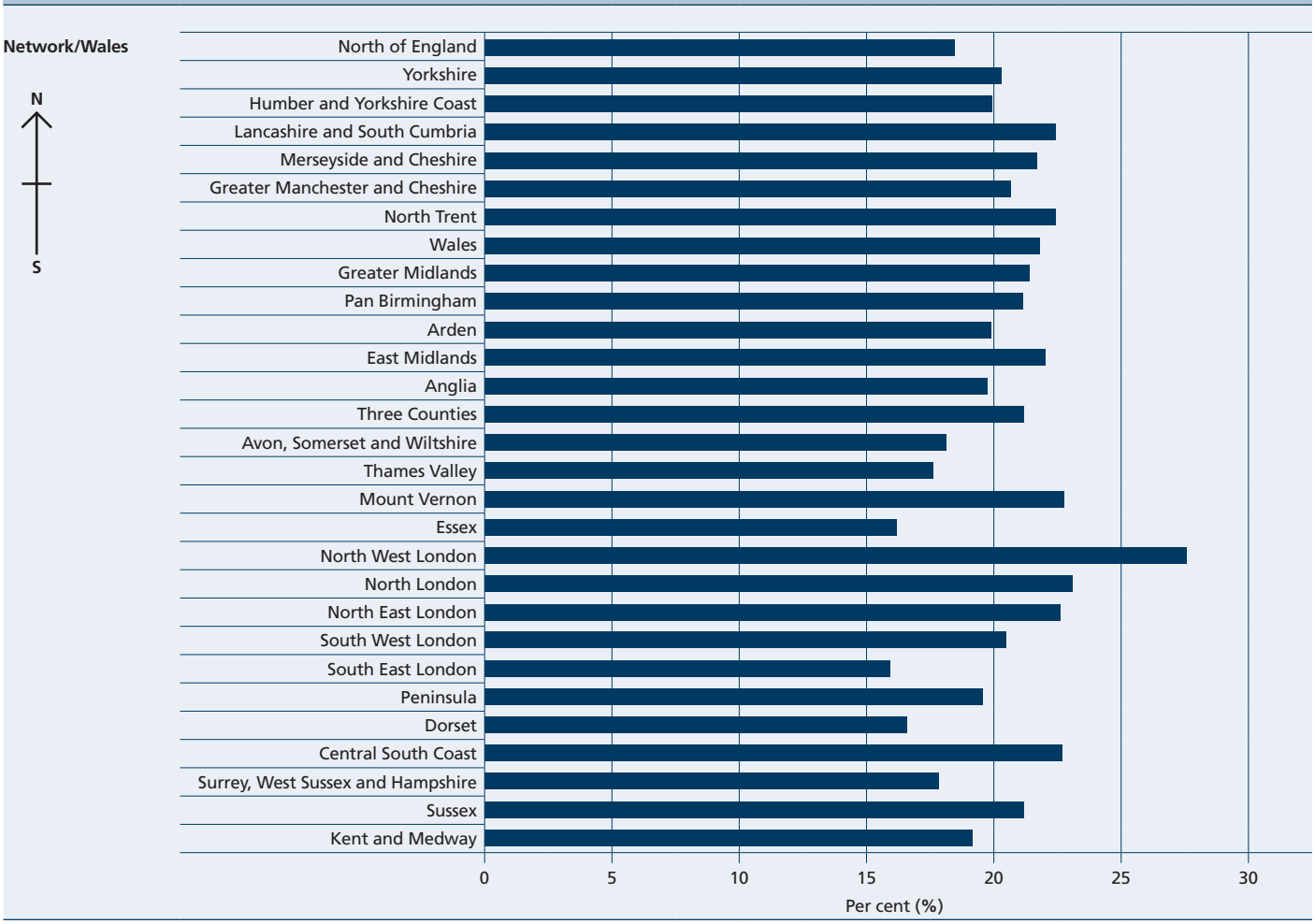
Table 3.2
Emergency admissions by audit year

	2008-09		2009-10		2010-11		2011-12	
	N	%	N	%	N	%	N	%
Total patients	22,972		27,344		28,422		29,445	
Emergency admission	4,437	21.7	5,456	22.1	5,551	21.6	5,249	20.6
Elective admission	16,025	78.3	19,218	77.9	20,098	78.4	20,228	79.4
Missing (% of total)	2510 (10.9)		2670 (9.8)		2773 (9.8)		3968 (13.5)	

Emergency admission with colorectal cancer continues to be an unchanging feature of clinical practice in England and Wales, accounting for a stubborn 21 to 22 per cent of all admissions across all four years of audit data submissions. It might be hoped that Bowel Symptom Awareness and the Bowel Screening Programme may in due course diminish this aspect of clinical presentation.

Mode of admission, according to HES/PEDW, shows quite large variations between Cancer Network. Within the same city, North West London recorded 28 per cent of colorectal cancers having an emergency admission compared with only 16 per cent of colorectal cancer patients in South East London. The basis of this huge variation across one area of England requires further explanation, and could be due to coding differences.

Figure 3.3
Emergency admissions, according to HES/PEDW, in all patients linked to HES/PEDW, by English Cancer Network/Wales



As a consequence of this pattern of colorectal cancer admissions, 18 per cent of patients having major surgery had an urgent or emergency procedure. However, there was again substantial variation in the data submitted to the audit with 13 trusts/hospitals indicating that at least a third of the procedures for patients with colorectal cancer were classified as urgent or emergency (Section 6.3).

Table 3.3
Mortality in patients who had major surgery, by surgical urgency

		Colon		Rectosigmoid		Rectal	
		Number	%	Number	%	Number	%
Total patients undergoing major resection		**11,670**		**835**		**4,615**	
30-day mortality by urgency of operation	Elective	146/6886	2.1	9/525	1.7	51/3338	1.5
	Scheduled	39/1848	2.1	1/171	0.6	17/919	1.8
	Urgent	67/1265	5.3	3/59	5.1	7/185	3.8
	Emergency	127/1383	9.2	3/61	4.9	5/76	6.6
	Missing urgency of operation	17/287	5.9	0/19	0.0	1/97	1.0
90-day mortality by urgency of operation	Elective	225/6886	3.3	15/525	2.9	85/3338	2.5
	Scheduled	56/1848	3.0	1/171	0.6	25/919	2.7
	Urgent	124/1265	9.8	4/59	6.8	10/185	5.4
	Emergency	192/1383	13.9	5/61	8.2	11/76	14.5
	Missing urgency of operation	21/287	7.3	0/19	0.0	1/97	1.0

The very real consequence of emergency presentation is the increased risk of post-operative death that this mode of admission poses when followed by surgical resection. The Audit has again explored post-operative death at two points after surgical intervention, 30 days and 90 days. Elective or scheduled surgery for colorectal cancer results in about two patients in one hundred dying at 30 days and one further patient dying by 90 days.

By contrast, those patients having major surgery, on an urgent or emergency basis, fare significantly worse.

In patients with colon cancer having urgent or emergency surgery there is an associated seven per cent chance of dying by 30 days rising to 12 per cent by 90 days. Reducing the need for emergency and urgent surgery in colorectal cancer is clearly a priority given the post-operative outcomes associated with these interventions. Stenting strategies that allow emergency admissions with obstruction to be converted to planned resections may also have a role in improving the outcome of this poor prognosis group.

NICE clinical guideline 131, November 2011, Colonic stents in acute large bowel obstruction:

If considering the use of a colonic stent in patients presenting with acute large bowel obstruction, offer CT of the chest, abdomen and pelvis to confirm the diagnosis of mechanical obstruction, and to determine whether the patient has metastatic disease or colonic perforation.

A consultant colorectal surgeon should consider inserting a colonic stent in patients presenting with acute large bowel obstruction They should do this together with an endoscopist or a radiologist (or both) who is experienced in using colonic stents.

Only a healthcare professional experienced in placing colonic stents who has access to fluoroscopic equipment and trained support staff should insert colonic stents.

If a self-expanding metallic stent is suitable attempt insertion urgently and no longer than 24 hours after patients present with colonic obstruction.

The ACPGBI endorses recruitment into the on-going national stent trial – The **CReST** Trial – The role of endoluminal **stenting** in the acute management of obstructing **colorectal** cancer.

3.3 Length of Hospital Stay

For those patients that survive surgical resection, the length of time they are ill and need to remain as an inpatient is another marker of quality of care. The widespread adoption of enhanced recovery programmes means that discharge home after five days has become an accepted "ideal" in defining length of stay after colorectal cancer resection.

Table 3.4 summarises the outcomes of patients undergoing major surgery, by cancer site. Just over two-thirds of patients stayed in hospital for longer than five days after their surgery, and this was more often seen after surgery for rectal cancer surgery (79 per cent) than after colon cancer surgery (65 per cent). Post-operative teaching of stoma care may be part of the explanation for a longer inpatient stay after rectal cancer surgery.

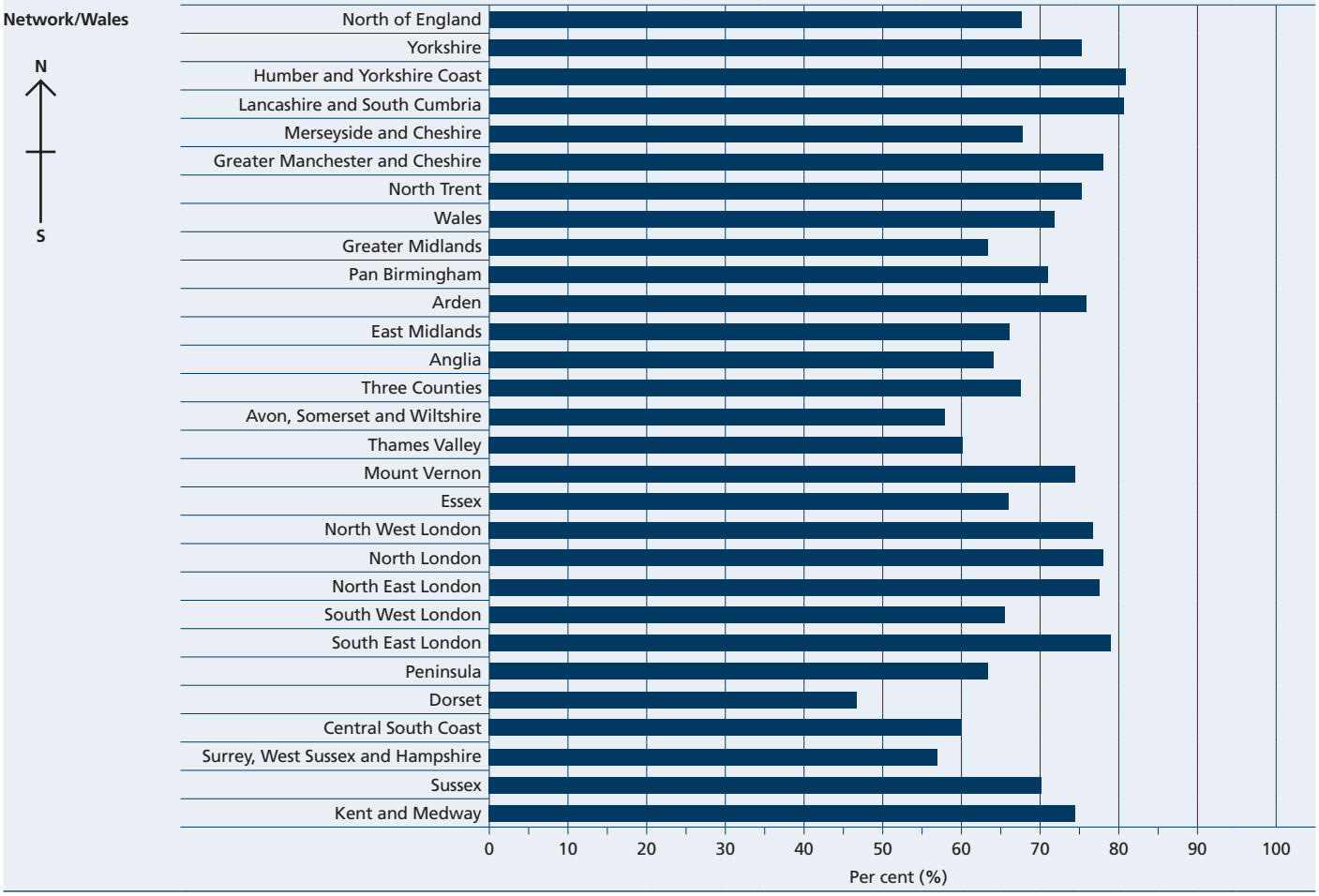
Table 3.4
Length of hospital stay of patients undergoing major resection, by cancer site

		Colon		Rectosigmoid		Rectal	
		Number	%	Number	%	Number	%
Total patients undergoing major resection		**11,670**		**835**		**4,615**	
Length of hospital stay (LOS)	Median LOS	7		7		8	
	Range	0-336		0-174		0-269	
	Interquartile range	5-12		5-13		6-14	
Length of stay longer than 5 days	Yes	6,493	65.0	479	67.8	3,080	79.0
	No	3,498	35.0	227	32.2	818	21.0
	Missing (% of total)	1679 (14.4)		129 (15.4)		717 (15.5)	

Figure 3.4 shows the proportion of patients staying in hospital longer than five days after major resection by Cancer Network. There was substantial variation amongst English Cancer Networks/Wales, from below 50 per cent to more than 80 per cent. It is unlikely that large differences in clinical approach might account for all of this variation. Hospital discharge in an elderly population of colorectal cancer patients is likely to be extremely dependent on aspects of social care provision.

The Enhanced Recovery Programme is about getting patients back to good health as soon as possible after a colorectal cancer operation. This is done by both patient education and multiple interventions designed to aid early mobilisation and early resumption of normal eating and drinking. As a consequence of good patient progress, many patients should be able to go home earlier and so avoid prolonged hospital stays associated with "traditional care" after cancer surgery.

Figure 3.4
Length of hospital stay > 5 days after major surgery by English Cancer Network/Wales



3.4 Emergency Readmissions within 90 days

The other side of the coin to hospital discharge is the need for unplanned hospital readmission shortly after getting home. Therefore, an important part of assessing quality of hospital care for colorectal cancer patients is to determine the emergency readmission rate of patients undergoing major surgery.

For the purposes of this analysis we used HES/PEDW data linked to the cases submitted to the audit to determine emergency readmissions within 90 days of surgery.

Table 3.5
Emergency hospital readmission rate (HES/PEDW definition) within 90 days of surgery for patients undergoing major resection, by cancer site

		Colon		Rectosigmoid		Rectal	
		Number	%	Number	%	Number	%
Total patients undergoing major resection		**11,670**		**835**		**4,615**	
Emergency readmission within 90 days	Yes	2,048	18.4	158	19.8	1,069	24.0
	No	9,071	81.6	640	80.2	3,376	76.0
	Missing (% of total)	551 (4.7)		37 (4.4)		170 (3.7)	

The same risk factors were used to adjust hospital readmission rates as were used to adjust 90-day mortality. In this analysis the ten risk factors described before, were not found to be as strongly associated with hospital readmission as they were with post-operative mortality.

The strongest risk factors associated with readmission within 90 days of admission were:

- young age
- advanced N-stage
- cancer site
- greater number of comorbidities.

Elderly age appeared to protect against readmission which was more commonly seen in the younger patient. Patients aged 90 had a 25 per cent reduced risk of an emergency readmission compared to patients aged 70, and patients aged 50 had a 30 per cent increased risk compared to those aged 70. See the 2012 Annual Report Table 6.4(b) for details.

In the funnel plots in Figure 3.5 one Cancer Network fell above the outer limit on adjusted readmission rate, and a further two Cancer Networks fell above the inner limit.

In the funnel plots in Figure 3.6 no trust/site fell above the outer limit and ten fell above the inner limit on adjusted readmission rate.

All of the Cancer Networks and trusts were informed, and all responded.

Figure 3.5
Observed and adjusted 90-day emergency readmission rate by Cancer Network/Wales for patients diagnosed between 01/04/2011 and 31/03/2012

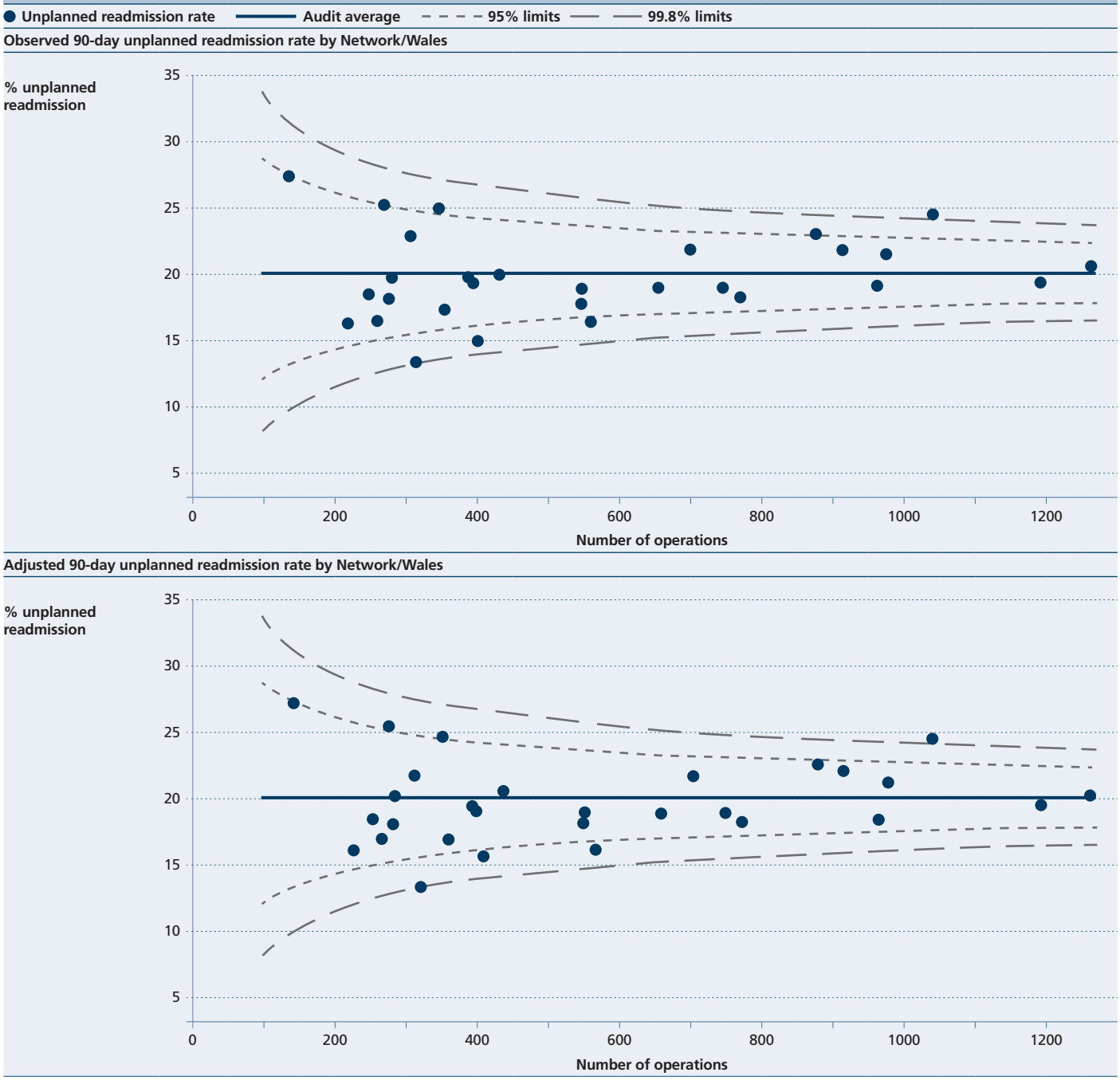


Figure 3.6
Observed and adjusted 90-day emergency readmission rate by trust/hospital site for patients diagnosed between 01/04/2011 and 31/03/2012

3.5 Laparoscopic surgery

The adoption of laparoscopic resection of colorectal cancer has been a significant success story for UK colorectal surgery over the last five years. From 25 per cent of resections being laparoscopic in 2008, the progressive use of laparoscopic resections has increased to over 40 per cent.

NICE Recommendations for Laparoscopic surgery TA105 August 2006

- Laparoscopic (including laparoscopically assisted) resection is recommended as an alternative to open resection for individuals with colorectal cancer in whom both laparoscopic and open surgery are considered suitable.
- Laparoscopic colorectal surgery should be performed only by surgeons who have completed appropriate training in the technique and who perform this procedure often enough to maintain competence. The exact criteria to be used should be determined by the relevant national professional bodies. Cancer Networks and constituent trusts should ensure that any local laparoscopic colorectal surgical practice meets these criteria as part of their clinical governance arrangements.
- The decision about which of the procedures (open or laparoscopic) is undertaken should be made after informed discussion between the patient and the surgeon. In particular, they should consider:
    - the suitability of the lesion for laparoscopic resection
    - the risks and benefits of the two procedures
    - the experience of the surgeon in both procedures.

Surgical access falls into three categories: open resection; laparoscopic converted to open resection; and fully completed laparoscopic resection.

The Audit compared the characteristics of patients and their surgical and pathological outcomes according to surgical access, examined how surgical access has changed over the last four years, and compared the use of laparoscopic surgery between networks.

Use of laparoscopic surgery by trust/site is reported in Section 6.3.

Table 3.6 describes the surgical access of patients undergoing major surgery according to patient and tumour characteristics. The majority of patients with emergency admissions or urgent or emergency surgery had open surgery. Patients with advanced cancer, a high ASA grade, or multiple comorbidities were also likely to have an open resection.

Table 3.6
Surgical access by patient characteristics for the 14,820 patients undergoing major surgery with surgical access recorded

			Open		Laparoscopic converted to open		Laparoscopic completed	
		Total number	Number	%	Number	%	Number	%
	Overall	**14,820**	7,529	50.8	1,220	8.2	6,071	41.0
Sex	Male	**8,363**	4,204	50.3	795	9.5	3,364	40.2
	Female	**6,456**	3,324	51.5	425	6.6	2,707	41.9
	Missing	**1**						
Age-group	≤64 yrs	**4,475**	2,219	49.6	374	8.4	1,882	42.1
	65-74 yrs	**4,809**	2,330	48.5	435	9.0	2,044	42.5
	75-84 yrs	**4,439**	2,371	53.4	326	7.3	1,742	39.2
	85+ yrs	**1,097**	609	55.5	85	7.7	403	36.7
ASA grade	1	**1,939**	825	42.5	160	8.3	954	49.2
	2	**7,674**	3,607	47.0	658	8.6	3,409	44.4
	3	**3,692**	2,116	57.3	300	8.1	1,276	34.6
	4 or 5	**452**	320	70.8	26	5.8	106	23.5
	Missing	**1,063**	661	62.2	76	7.1	326	30.7
TNM T-stage	T1	**893**	339	38.0	84	9.4	470	52.6
	T2	**2,119**	882	41.6	177	8.4	1,060	50.0
	T3	**7,059**	3,329	47.2	643	9.1	3,087	43.7
	T4	**3,306**	2,180	65.9	229	6.9	897	27.1
	Missing	**1,443**	799	55.4	87	6.0	557	38.6
TNM N-stage	N0	**7,849**	3,673	46.8	685	8.7	3,491	44.5
	N1	**3,418**	1,777	52.0	284	8.3	1,357	39.7
	N2	**2,280**	1,353	59.3	184	8.1	743	32.6
	Missing	**1,273**	726	57.0	67	5.3	480	37.7
TNM M-stage	M0	**12,589**	6,111	48.5	1,047	8.3	5,431	43.1
	M1	**1,752**	1,149	65.6	127	7.2	476	27.2
	Missing	**479**	269	56.2	46	9.6	164	34.2
Mode of admission (from HES/PEDW)	Elective	**11,204**	4,959	44.3	1,059	9.5	5,186	46.3
	Emergency	**2,203**	1,752	79.5	89	4.0	362	16.4
	Missing	**1,413**	818	57.9	72	5.1	523	37.0
Surgical urgency	Elective	**9,508**	4,261	44.8	783	8.2	4,464	46.9
	Scheduled	**2,604**	1,146	44.0	325	12.5	1,133	43.5
	Urgent	**1,205**	869	72.1	59	4.9	277	23.0
	Emergency	**1,330**	1,159	87.1	39	2.9	132	9.9
	Missing	**173**	94	54.3	14	8.1	65	37.6
Cancer site	Caecum/ ascending colon	**4,094**	2,031	49.6	278	6.8	1,785	43.6
	Hepatic flexure	**634**	338	53.3	39	6.2	257	40.5
	Transverse colon	**924**	602	65.2	54	5.8	268	29.0
	Splenic flexure/ descending colon	**914**	573	62.7	85	9.3	256	28.0
	Sigmoid colon	**3,586**	1,683	46.9	286	8.0	1,617	45.1
	Rectosigmoid	**1,071**	458	42.8	134	12.5	479	44.7
	Rectal	**3,597**	1,844	51.3	344	9.6	1,409	39.2
Comorbidities (from HES/PEDW)	0	**8,732**	4,227	48.4	716	8.2	3,789	43.4
	1	**3,956**	2,059	52.0	349	8.8	1,548	39.1
	2+	**1,457**	827	56.8	124	8.5	506	34.7
	Missing	**675**	416	61.6	31	4.6	228	33.8

Figure 3.7
Surgical access by audit year

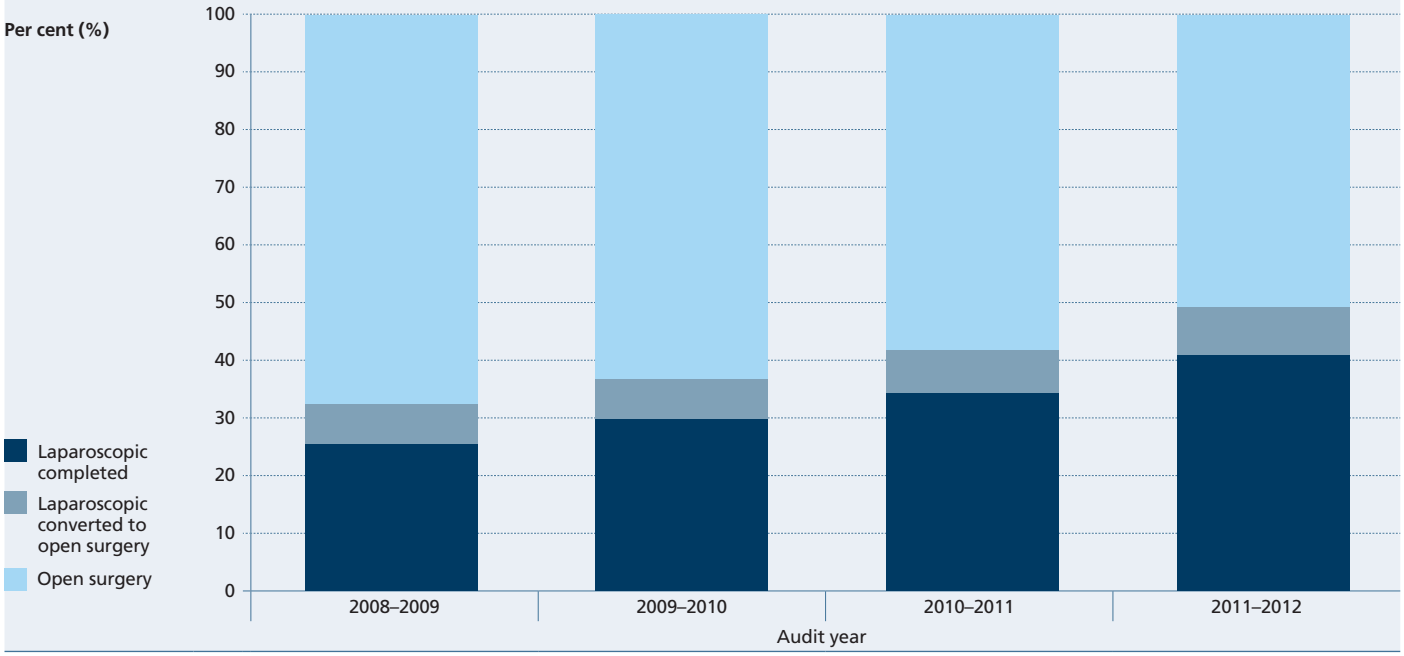
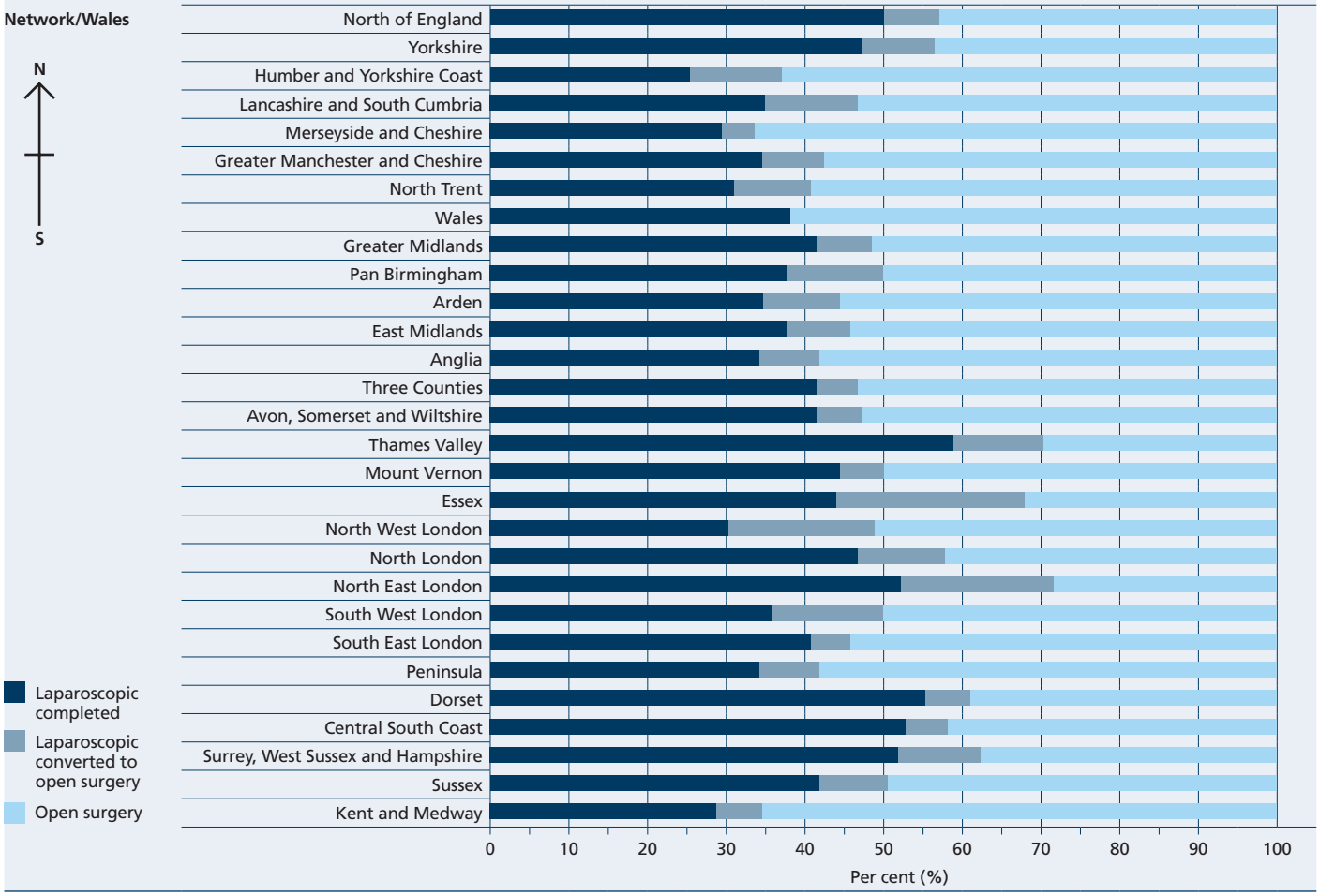


Figure 3.8
Surgical access by English Cancer Network/Wales



Laparoscopic access by Cancer Network is presented in Figure 3.8. There is no clear north/south divide across England, as adjacent Cancer Networks both in the north and south of the country show quite different rates of completed laparoscopic resection. It is likely that the variation seen reflects different history of adopting laparoscopic surgical technique.

Overall the Thames Valley Cancer Network has the highest rate of laparoscopic completed resections submitted while the Humber and Yorkshire Cancer Network has the lowest rate of completed laparoscopic procedures.

4. Survival and Colorectal Cancer

Survival and Colorectal Cancer
NBCA 2013

- Two out of five colorectal cancer patients do not undergo resection.
- Non-resection as a treatment option represents a complex mixture of early stage disease, patient frailty and advanced cancer.
- Two-year survival was 67 per cent for all 50,245 colorectal cancer patients diagnosed between the 1 April 2008 and the 31 March 2010.
- Two-year survival was 80 per cent if resected and 45 per cent if not resected.

4.1. Patients not undergoing major surgery

Surgical resection remains the major treatment modality for colorectal cancer and of the 29,445 cases submitted to the Audit more than half were managed by major resection, such as right hemicolectomy, sigmoid colectomy and anterior resection. A small percentage (3.5 per cent) of patients had a local excision or polypectomy. However, a very large proportion of patients, the remaining 38 per cent, had a diagnosis of colorectal cancer made but did not have any surgery directed at removing their cancer. This implies that at each MDT meeting for every three patients discussed and worked up for surgical resection, another two are not offered major resection. There are several possible reasons for this.

Too Little Cancer (Stage I)
There are an increasing number of situations in which pre-treatment of a primary cancer does not leave any visible residual disease. Examples are the polyp cancer removed at endoscopy, rectal cancers treated by TEMS or local excision and rectal cancers that undergo apparent complete response to long course chemo/radiotherapy and subsequently follow a watch and wait policy. The data available to this Audit is unable to accurately reflect this as the pre-treatment stage of only 40 per cent of all cases is available. However given this limitation fewer of the pre-treatment T1 cancers were subjected to major resection than was the case for cancers with more advanced T-stage, and amongst patients with pre-treatment staging recorded, a quarter of T1 cancers underwent local excision or polypectomy.

NICE Recommendations The diagnosis and management of colorectal cancer: full guideline (November 2011)

- The colorectal MDT should consider further treatment for patients with locally excised, pathologically confirmed stage I cancer taking into account pathological characteristics of the lesion, imaging results and any previous treatments.
- Offer further treatment to patients whose tumour had involved resection margins (less than 1 mm).
- Discuss the risks and benefits of all treatment options with the patient after discussion in the MDT.
- An early rectal cancer MDT should decide which treatment to offer to patients with stage I rectal cancer, taking into account previous treatments, such as radiotherapy.

Too Much Cancer (Stage IV)
It remains unclear as to what constitutes the best approach for those patients that present with advanced colorectal cancer. The two potential choices for otherwise fit individuals being chemotherapy first followed by resection or primary resection first followed by chemotherapy.

When the tumour burden is extensive with multiple distant metastases, it is possible that surgical resection, particularly if the primary tumour is asymptomatic, might not benefit either patient survival or quality of life. Thus in the Audit, 70 per cent of those patients recorded as having disseminated systemic disease (M1) on pre-treatment staging did not undergo a major surgical resection. Similarly when compared to earlier stage disease, proportionately fewer (52 per cent) of 2,703 patients with pre-treatment T4 disease underwent surgical resection (Table 4.1).

NICE Recommendations The diagnosis and management of colorectal cancer: full guideline (November 2011)

- Prioritise treatment to control symptoms if at any point the patient has symptoms from the primary tumour.
- If both primary and metastatic tumours are considered resectable, anatomical site-specific MDTs should consider initial systemic treatment followed by surgery, after full discussion with the patient. The decision on whether the operations are done at the same time or separately should be made by the anatomical site-specific MDTs in consultation with the patient.

Too Frail (Easily Broken or Damaged)
The third common reason for not subjecting an individual to the toxicity of a major surgical resection is the inability of some individuals to withstand the surgical insult and survive with a reasonable quality of life thereafter. Within the data submitted to the Audit, age is an obvious discriminator of frailty; of 3,472 patients aged over 85 years at diagnosis, less than 40 per cent were offered major surgical resection.

It is of interest in this context that the co-morbidity score, which has been seen as a marker of patient fitness is a weak discriminator of who is and who is not offered surgical resection. Future Audit data collection might better determine the pattern of surgical decision making in relation to co-morbidity by collecting Cardiopulmonary Exercise Testing (CPET) assessments after preoperative testing.

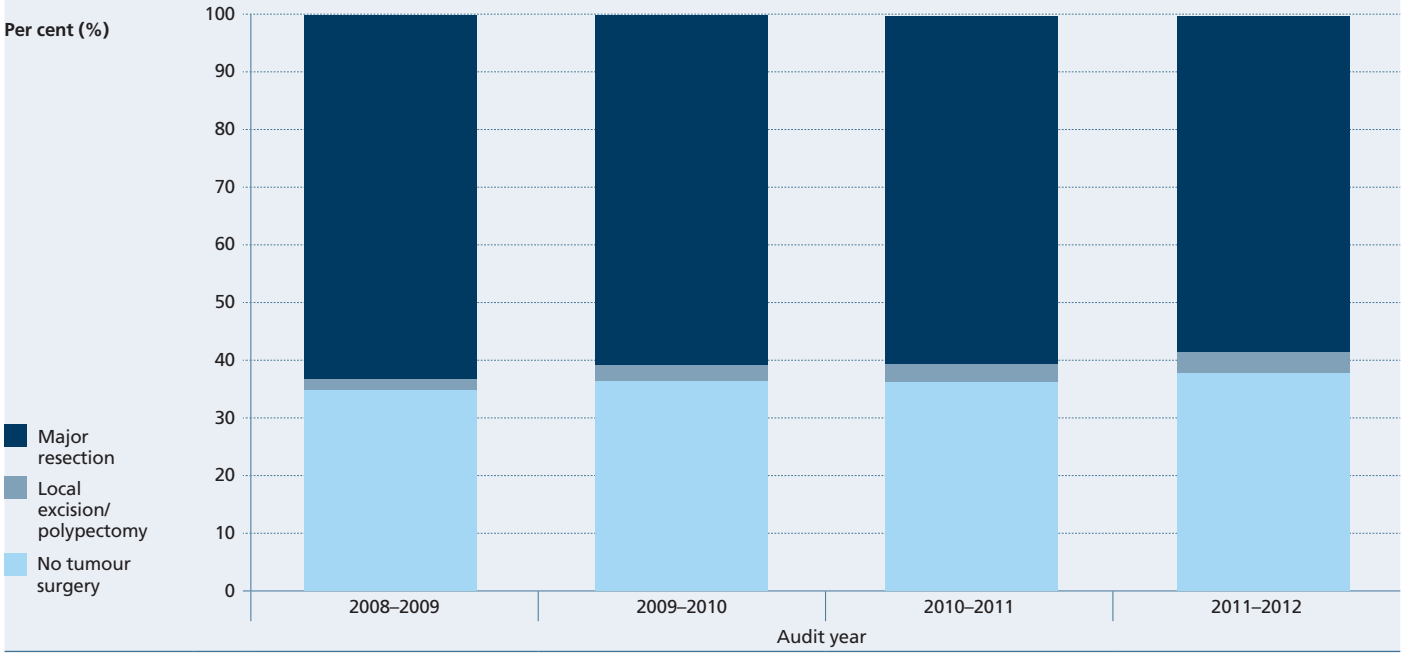
There is no association between either tumour site or patient gender and the use of major surgical resection for the management of colorectal cancer. As might be expected those patients that present as an emergency with colorectal cancer are less likely to undergo surgery to remove their cancer (48 per cent of emergency patients have no tumour surgery versus 30 per cent of elective patients); this finding almost certainly reflects the more advanced age, the more advanced disease and associated co-morbidity seen in those patients that present as an emergency (Table 4.1).

Table 4.1
Surgery type according to patient characteristics on all 29,445 patients diagnosed between 1 April 2011 and 31 March 2012

			No tumour surgery		Local excision / polypectomy		Major resection	
		Total number	Number	%	Number	%	Number	%
	Overall	**29,445**	11,162	37.9	1,033	3.5	17,250	58.6
Age-group	**≤64 yrs**	**8,314**	2,788	33.5	279	3.4	5,247	63.1
	65-74 yrs	**8,840**	2,825	32.0	415	4.7	5,600	63.3
	75-84 yrs	**8,819**	3,435	38.9	253	2.9	5,131	58.2
	85+ yrs	**3,472**	2,114	60.9	86	2.5	1,272	36.6
Pre-treatment T-stage	**T1**	**603**	149	24.7	160	26.5	294	48.8
	T2	**2,867**	671	23.4	107	3.7	2,089	72.9
	T3	**7,553**	2,477	32.8	48	0.6	5,028	66.6
	T4	**2,703**	1,287	47.6	5	0.2	1,411	52.2
	Missing	**15,719**	6,578	41.8	713	4.5	8,428	53.6
Pre-treatment N-stage	**N0**	**6,477**	1,668	25.8	337	5.2	4,472	69.0
	N1	**4,965**	1,692	34.1	43	0.9	3,230	65.1
	N2	**2,583**	1,223	47.3	8	0.3	1,352	52.3
	Missing	**15,420**	6,579	42.7	645	4.2	8,196	53.2
Pre-treatment M-stage	M0	**10,558**	2,543	24.1	390	3.7	7,625	72.2
	M1	**3,095**	2,164	69.9	13	0.4	918	29.7
	Missing	**15,792**	6,455	40.9	630	4.0	8,707	55.1
Comorbidities (from HES/PEDW)	**0**	**15,737**	5,260	33.4	498	3.2	9,979	63.4
	1	**6,957**	2,338	33.6	165	2.4	4,454	64.0
	2+	**2,837**	1,099	38.7	74	2.6	1,664	58.7
	Missing	**3,914**	2,465	63.0	296	7.6	1,153	29.5
Mode of admission (from HES/PEDW)	**Elective**	**20,228**	6,124	30.3	715	3.5	13,389	66.2
	Emergency	**5,249**	2,532	48.2	22	0.4	2,695	51.3
	Missing	**3,968**	2,506	63.2	296	7.5	1,166	29.4

As discussed in Section 3.1, the proportion of patients undergoing a major resection has decreased slightly over the last four years. Over the same time-period the proportion of patients treated by local excision or polypectomy has increased from 2 per cent to 3.5 per cent. This does not fully account for the reduction in major resections and the proportion of patients receiving no surgery for their tumour has increased slightly, from 35 per cent to 38 per cent (Figure 4.1).

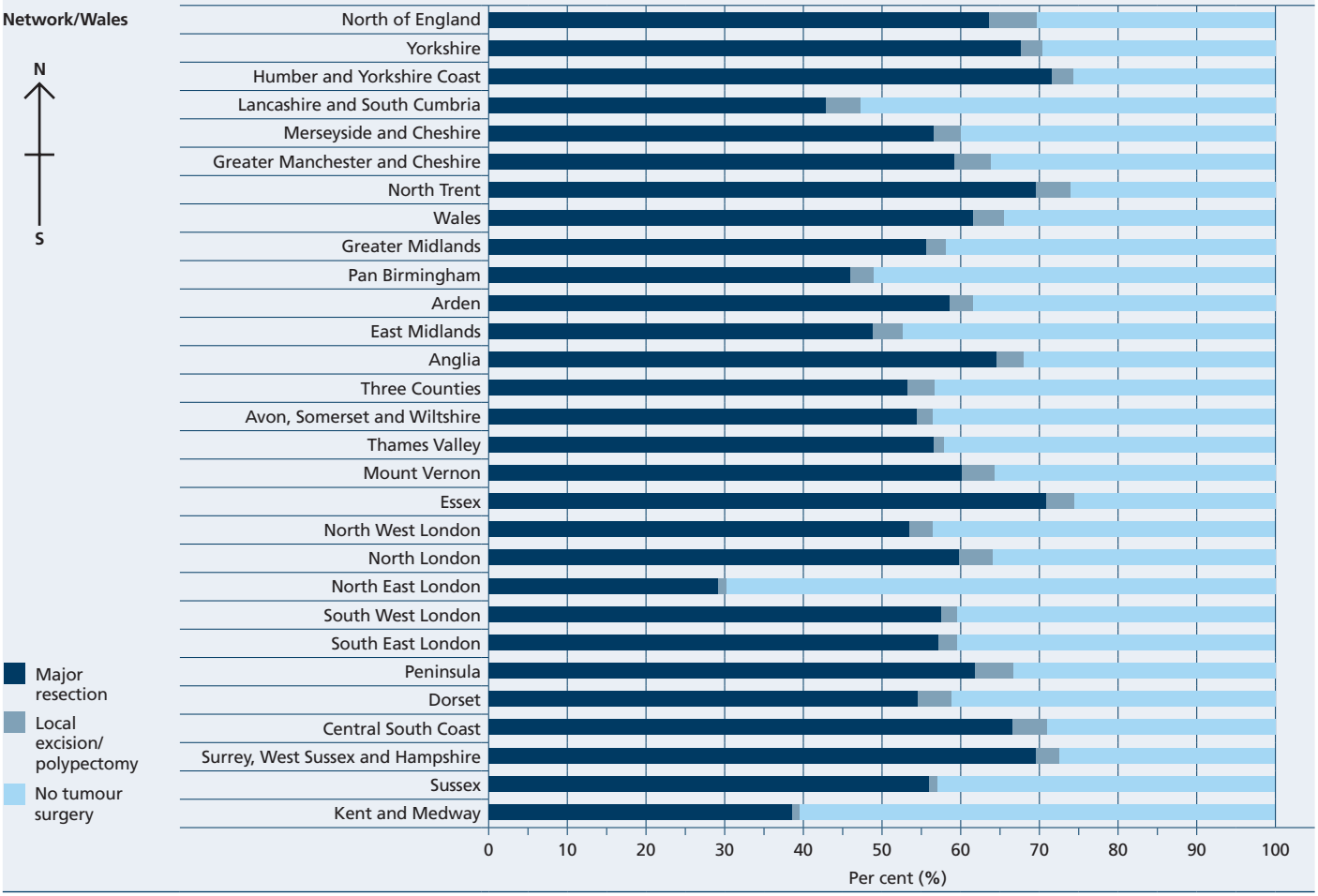
Figure 4.1
Type of surgery by audit year



There is considerable Cancer Network variation in the proportion of patients reported to have had a surgical resection, from nearly 70 per cent of all cases in some Cancer Networks to less than 30 per cent in North East London Cancer Network. Note, however, that one large trust in North East London did not submit procedure names for any patients and these patients are therefore recorded as having no surgery. For the other trusts in this network, the proportion undergoing major resection was 57 per cent and the proportion having a local excision/ polypectomy was 1.6 per cent.

Similarly there was one trust in Kent and Medway with all procedure names missing and another with the procedure name missing in 94 per cent of patients. Excluding these two trusts, the proportion undergoing major resection in this network was 64 per cent and the proportion having a local excision/polypectomy was 1.9 per cent. One of the important implications for these trusts with grossly inadequate data is that they will have no estimate of post-operative outcomes, or estimates based on very small sub-samples of their patients. The importance of this is that the Audit is unable to carry out any performance monitoring for these trusts.

Figure 4.2
Type of surgery by Cancer Network/Wales



For those patients not having a surgical resection, survival has been examined for the nearly 20,000 patients diagnosed between April 2008 and March 2010 who did not undergo surgery on their tumour. The large majority were still alive within 90 days of diagnosis and 42 per cent were still alive at two years.

As outlined above the mix of reasons for non-resection is complex, too little cancer, advanced unresectable cancer and resectable disease in an otherwise frail individual. Identifying the overall survival within these subsets will be the aim of future audits.

Table 4.2
Outcomes of patients by type of surgery for all patients diagnosed between 1 April 2008 and 31 March 2010

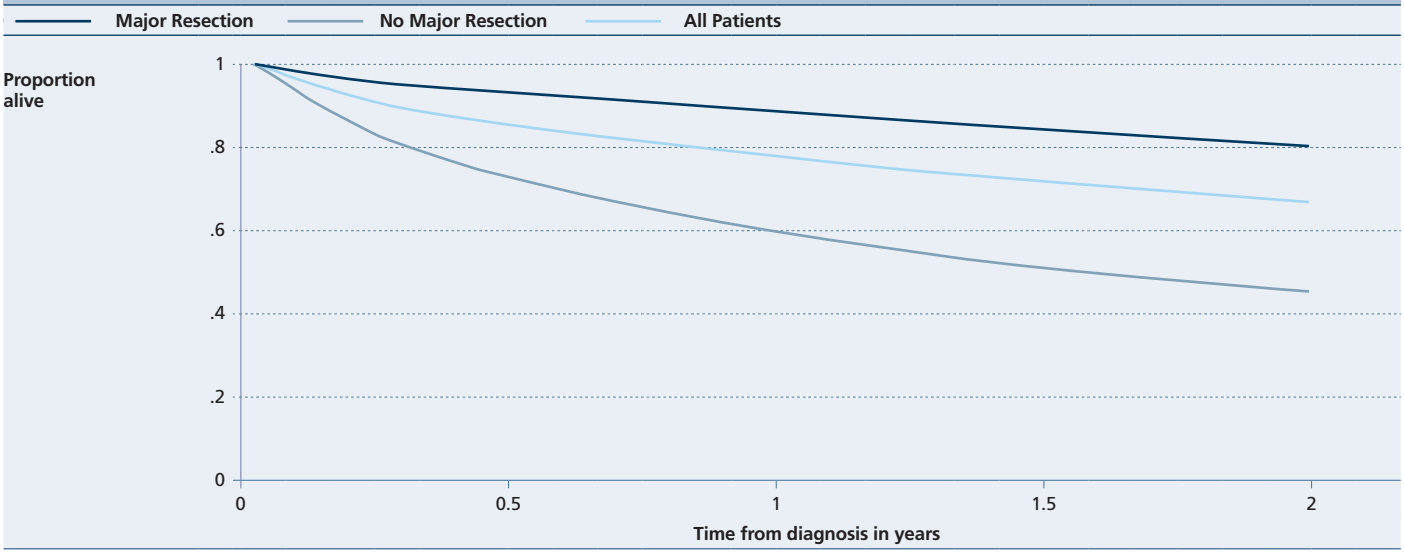
		No tumour surgery		Local excision/ polypectomy		Major resection	
		Number	%	Number	%	Number	%
Total patients		17,942		1,218		31,156	
Died within 90 days of diagnosis	Yes	3,385	19.0	15	1.2	1,481	4.8
	No	14,449	81.0	1,203	98.8	29,597	95.2
	Missing (% of total)	108 (0.6)		0 (0)		78 (0.3)	
Died within 24 months of diagnosis	Yes	10,377	58.2	118	9.7	6,258	20.1
	No	7,457	41.8	1,100	90.3	24,820	79.9
	Missing (% of total)	108 (0.6)		0 (0)		78 (0.3)	

4.2 All Colorectal Cancer – Two-year Survival

For the large majority of colorectal cancer patients survival and cure remain the primary concern after diagnosis. Although conventionally five years of follow-up is used to determine when an individual with colorectal cancer is cured, the large majority of patients that will develop recurrent disease do so within the first two years of follow-up.

A very significant strength of the case ascertainment available to the National Bowel Cancer Audit, is the ability to report the two-year survival outcome for all 50,245 colorectal cancer patients diagnosed between the 1 April 2008 and the 31 March 2010. The overall chances of surviving to two years after presenting with colorectal cancer between 2008 and 2010 in England and Wales were 67 per cent. Amongst the cases subjected to major resection and associated oncology therapy the two-year survival figure was 80 per cent, and amongst the cases not having a major resection this figure was 45 per cent. See Figure 4.3.

Figure 4.3
Kaplan-Meier survival curve over 2 years for all patients diagnosed between 1 April 2008 and 31 March 2010



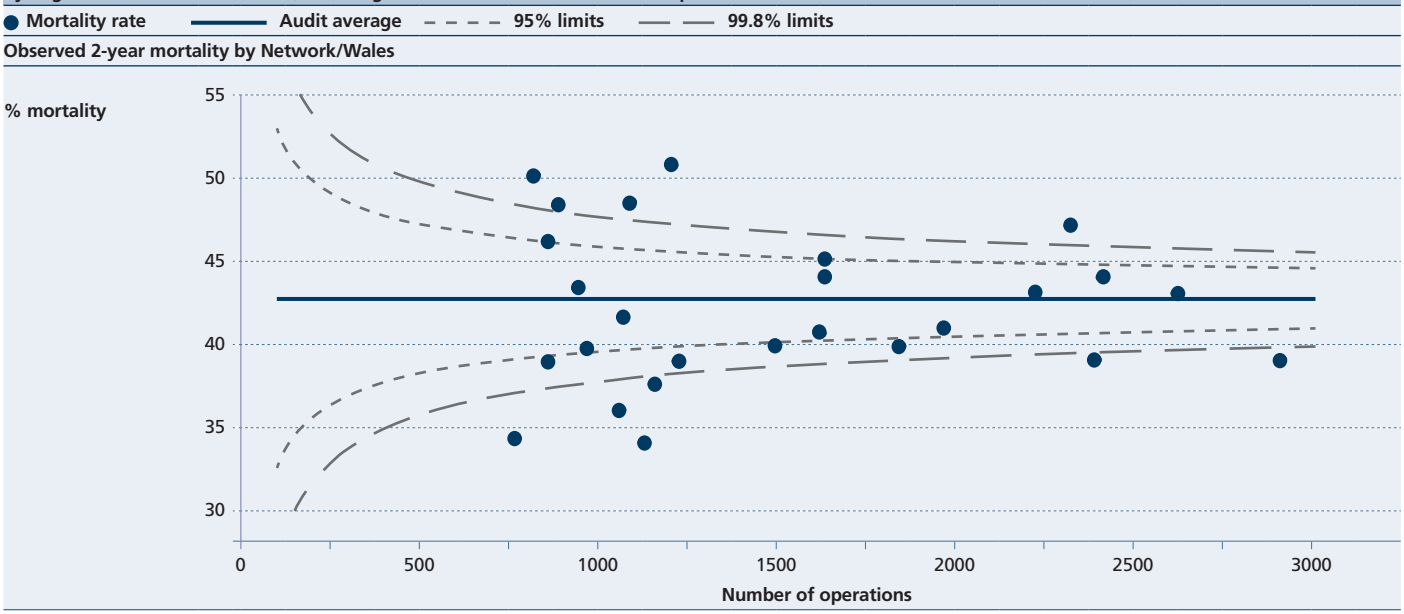
4.3 All Colorectal Cancer – Two-year Survival by Cancer Network

The management of colorectal cancer is complex and multidisciplinary with numerous possible pathways and patterns of care. Patients may be selected for resection or non-resection for many perfectly valid reasons. In addition stage at presentation is impacted by Bowel Screening Initiatives and potentially Bowel Cancer Symptom Awareness campaigns. The summation of this activity is best seen in the survival of all colorectal cancer patients presenting to a trust or Cancer Network, regardless of whether or not they underwent a surgical resection. Figure 4.4 shows that there is large variation in the two-year mortality of all patients between Cancer Networks. This variation is more than would be expected by chance alone, with five networks falling above and six falling below the outer limits. Fewer than 0.1 Cancer Networks would be expected to fall outside the outer limits by chance alone.

These results have not been reported back to networks because they are unadjusted for patient case-mix. It was not possible to risk-adjust the two-year mortality of all patients by network or by trust/site, because staging information was very incomplete for patients not undergoing a surgical resection. However, as a snapshot of overall care for colorectal cancer this observed variation in two-year survival requires explanation in terms of whether these differences reflect variations in disease presentation or therapeutic options available within a Cancer Network.

In the next section and in Table 6.4, risk-adjusted two-year mortality is presented by Cancer Network and by trust/site for patients undergoing major resection.

Figure 4.4
Observed two-year mortality for all patients (with and without resection) diagnosed between 01/04/2008 and 31/03/2010, by English Cancer Network/Wales, including trusts/MDTs with more than ten operations



4.4 Colorectal Cancer treated by major resection – Two-year Mortality by Cancer Network and Trust

In this section comparisons are made between Cancer Networks and between trusts/sites on unadjusted and adjusted two-year mortality amongst patients undergoing major resection. The risk-factors in Table 4.3, previously used in the adjustment of 90-day mortality, were used to adjust two-year mortality for case-mix. Because staging data was so incomplete in patients not undergoing a major resection, comparisons are only made between Cancer Networks and between trusts/sites on patients undergoing a major resection.

Because each risk-factor may have a very different effect on the risk of death soon after surgery to its effect on longer-term mortality, the effect of each risk factor was modelled separately between 0 to 3 months after surgery and 3 to 24 months after surgery, as explained in Section 2.8.

For each risk-factor, the effect on mortality in the three months following surgery is very similar to that estimated in the risk-adjustment model for 90-day mortality (see 2012 Annual Report Table 6.3). However, the effects in the 3 to 24 months after surgery are often quite different.

- ASA grade, has a much stronger effect shortly after surgery than at two years
- in patients without metastases, age has a stronger effect shortly after surgery than at two years
- number of comorbidities, has a stronger effect shortly after surgery than at two years
- stage of cancer, affects two-year mortality more than short-term mortality.

Table 4.3
Risk adjustment model for two-year mortality amongst patients undergoing a major resection

		0 to 3 months after surgery		3 to 24 months after surgery	
		Rate ratio	95% CI	Rate ratio	95% CI
Audit year	2009-2010	1		1	
	2008-2009	1.11	1.01 to 1.22	1.06	1.00 to 1.13
Sex	Male	1		1	
	Female	0.80	0.72 to 0.88	0.92	0.86 to 0.97
No metastases: Age**	50 yrs	0.37	0.29 to 0.49	0.66	0.59 to 0.73
	60 yrs	0.59	0.53 to 0.65	0.76	0.73 to 0.80
	70 yrs	1		1	
	80 yrs	1.81	1.70 to 1.93	1.48	1.41 to 1.54
	90 yrs	3.52	2.98 to 4.15	2.46	2.19 to 2.75
Metastases: Age**	50 yrs	0.64	0.49 to 0.83	0.44	0.33 to 0.60
	60 yrs	0.75	0.68 to 0.83	0.66	0.59 to 0.74
	70 yrs	1		1	
	80 yrs	1.51	1.34 to 1.70	1.53	1.38 to 1.69
	90 yrs	2.58	1.87 to 3.55	2.36	1.81 to 3.09
ASA	1	1		1	
	2	1.79	1.36 to 2.37	1.13	1.01 to 1.26
	3	2.96	2.23 to 3.94	1.59	1.41 to 1.80
	4 or 5	7.03	5.22 to 9.47	2.00	1.68 to 2.39
TNM T stage	T1	1		1	
	T2	1.18	0.81 to 1.73	1.16	0.88 to 1.53
	T3	1.45	1.03 to 2.03	2.04	1.60 to 2.62
	T4	2.13	1.50 to 3.03	3.65	2.83 to 4.70
TNM N stage	N0	1		1	
	N1	1.03	0.92 to 1.16	1.57	1.45 to 1.69
	N2	1.33	1.16 to 1.51	2.77	2.55 to 3.00
Distant metastases	No	1		1	
	Yes	1.83	1.54 to 2.17	2.94	2.71 to 3.20
Cancer site	Caecum/ascending colon	1		1	
	Hepatic flexure	0.96	0.76 to 1.21	1.07	0.93 to 1.22
	Transverse colon	1.48	1.26 to 1.74	0.91	0.81 to 1.03
	Splenic flexure/descending colon	1.21	1.00 to 1.45	0.78	0.69 to 0.89
	Sigmoid colon	0.88	0.77 to 1.01	0.73	0.67 to 0.80
	Rectosigmoid	1.05	0.86 to 1.29	0.87	0.69 to 0.89
	Rectal	1.33	1.15 to 1.54	1.09	0.99 to 1.19
Mode of admission	Elective	1		1	
	Emergency	2.17	1.94 to 2.43	1.56	1.46 to 1.67
Comorbidities	0	1		1	
	1	1.35	1.21 to 1.5	1.10	1.02 to 1.17
	2+	1.64	1.41 to 1.91	1.36	1.22 to 1.51

**Age modelled as a linear and quadratic term, separately in patients with and without metastases

Figures 4.5 and 4.6 show observed and adjusted two-year mortality amongst patients undergoing a major resection by Cancer Network and by trust/site. Across all trusts/sites (and all Cancer Networks), two-year mortality was 24.5 per cent. There is substantial variability in the estimates, particularly between trusts/sites. One Cancer Network fell above the outer limits and a further two fell above the inner limits. Ten trusts/sites fell above the outer limits and a further 15 fell above the inner limits.

These Cancer Networks and trusts/sites were all informed, and all of them responded. It appears from Figure 4.6 that there is an effect of trusts/sites with lower volumes having a higher two-year mortality than trusts/sites operating on more patients.

In fact, the risk-adjusted two-year mortality was 28 per cent in trusts/sites carrying out fewer than 100 resections over the two years, compared to 23 per cent in trusts/sites carrying out 300 or more resections. Caution is required in interpreting these results but an association between large case volume and better surgical outcome has been reported for other cancer sites. Case selection and post-operative care may both have a significant role to play in explaining these differences in surgical outcome. Any future Audit re-design will attempt to address these important aspects of the clinical process.

Figure 4.5
Observed and adjusted two-year surgical outcomes for patients undergoing a major surgical resection between 01/04/2008 and 31/03/2010, by English Cancer Network/Wales, including trusts/MDTs with more than ten operations

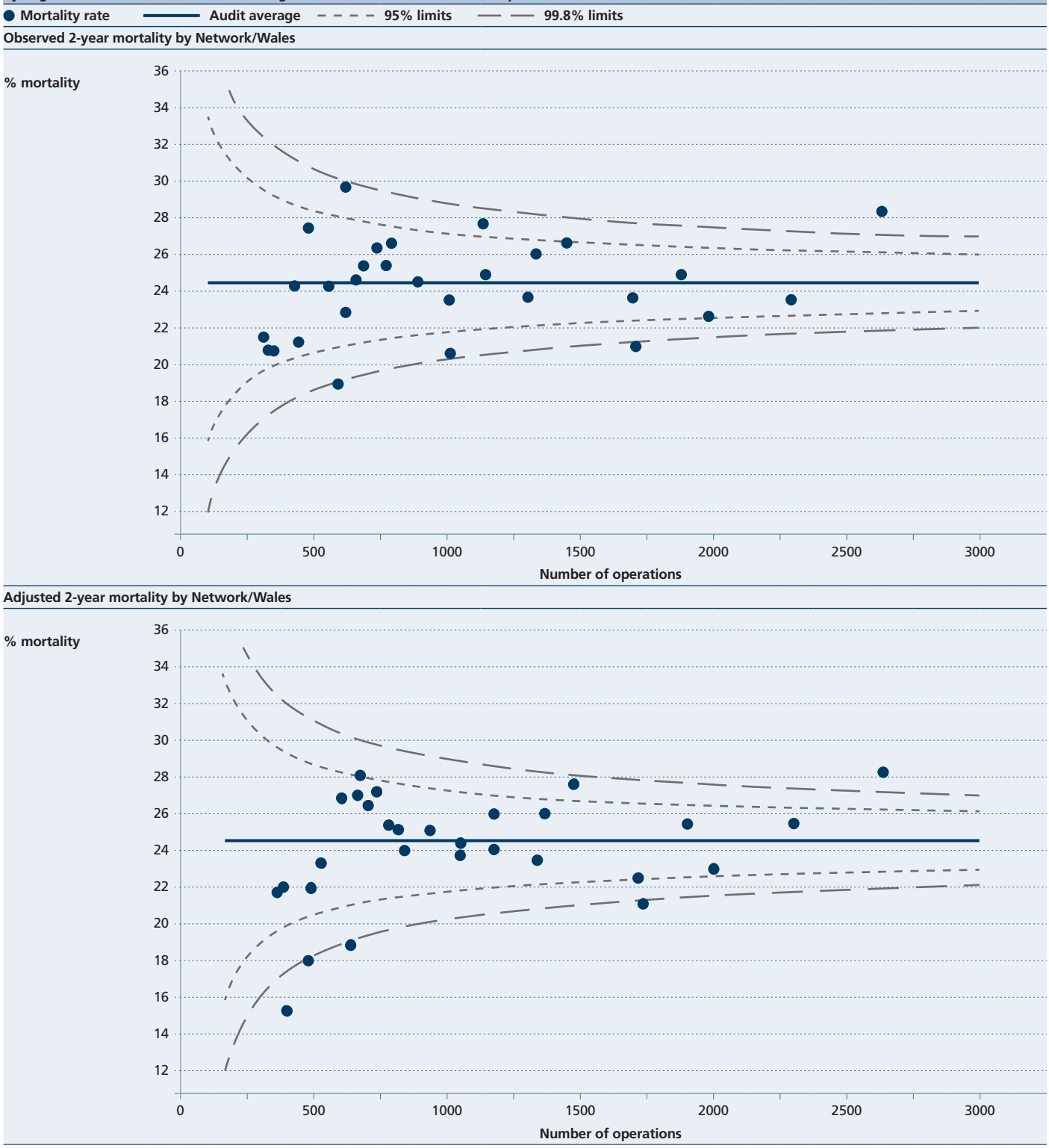
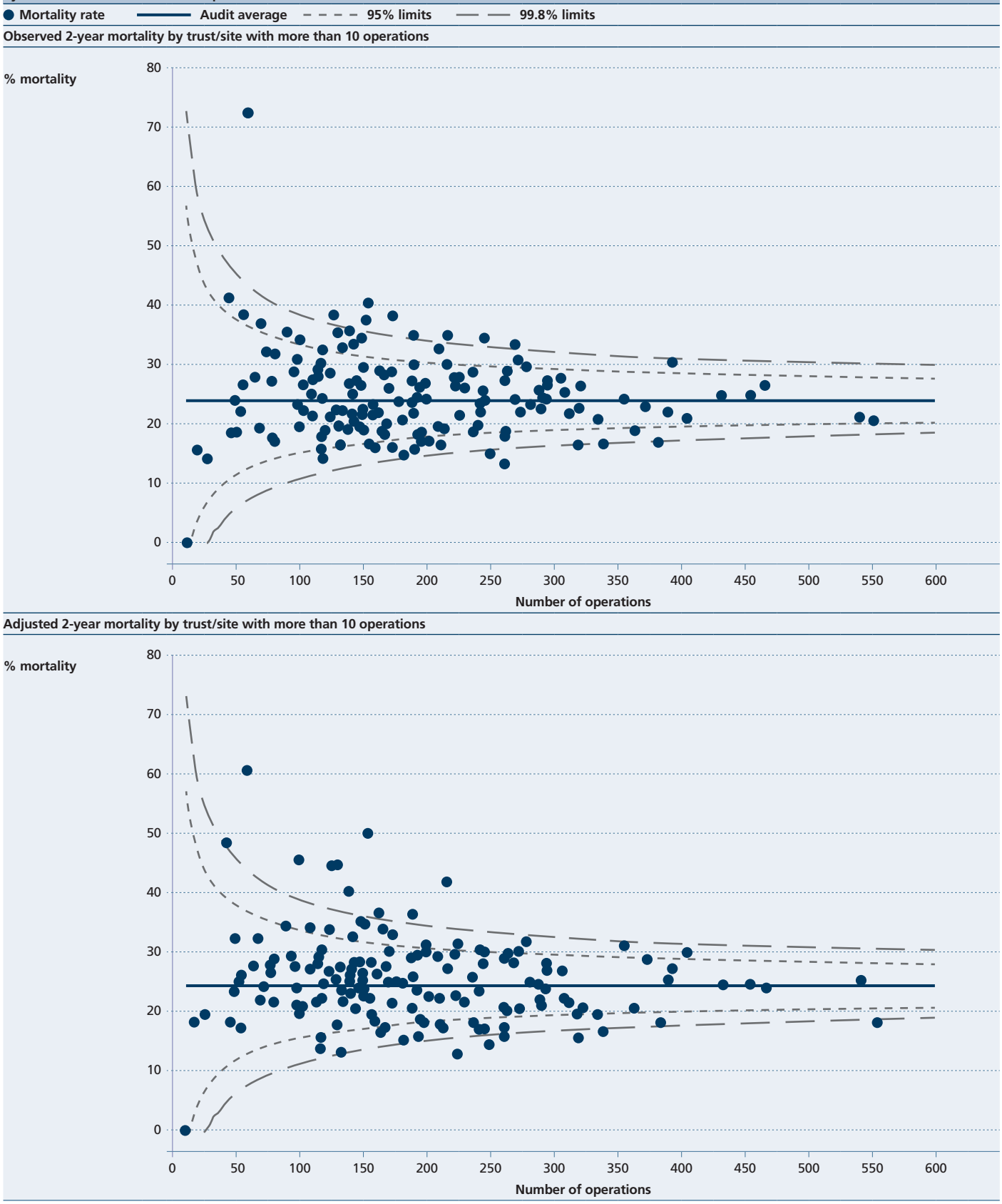


Figure 4.6
Observed and adjusted two-year mortality for patients undergoing a major resection between 01/04/2008 and 31/03/2010, by trust/site with more than ten operations



5. Rectal cancer patients

Rectal Cancer
NBCA 2013

- 86 per cent of cases had evidence of MRI staging.
- Neoadjuvant therapy data was too incomplete to be meaningful.
- Five per cent of rectal cancer patients had a local excision; 50 per cent a major resection; and 45 per cent no tumour surgery.
- 66 per cent of major resections were anterior resection, 24 per cent APER and 10 per cent Hartmann's or unknown.
- 92 per cent of those undergoing resection were CRM negative.
- 77 per cent of anterior resections had a "temporary" ileostomy.
- At 18 months 30 per cent of anterior resections still had a stoma.
- Two-year survival was 50 per cent in those having no tumour surgery; 87 per cent in those treated surgically.

5.1. Management of rectal cancer patients

The treatment of patients with rectal cancer has characteristics that make the patient pathway quite distinct from those followed by patients with colonic cancer. Carcinoma of the rectum has to be treated within the confines of the pelvis and so this malignancy is prone to local recurrence. Preventing local recurrence requires an understanding of the use of local staging (MRI scan) to identify threatened margins, preoperative adjuvant therapy (radiotherapy and chemoradiotherapy) and the quality assurance of completeness of excision (circumferential margin) determined by systematic scrutiny of the resected specimen. In addition surgery for rectal cancer is much more likely to lead to an intestinal stoma, either permanent or "temporary", which begs the question what does temporary actually mean?

Table 5.1
Description of management of patients diagnosed with rectal cancer between 1 April 2011 and 31 March 2012 who had a major resection. Data are from the Audit only

		Number	%
Total number of patients with rectal cancer who had major surgery		**4,615**	
MRI scan reported	Yes*	3,979	86.2
	No	636	13.8
Preoperative radiotherapy†	Short course	612	13.3
	Long course	994	21.5
	Post-operative	64	1.4
	Unknown type	62	1.3
	No radiotherapy or not reported	2,883	62.5
Circumferential resection margins	Negative	2,579	92.3
	Positive	214	7.7
	Missing (% of total)	1822 (39.5)	
Rectal surgical procedures	Anterior Resection (AR)	3,029	65.6
	APER	1,099	23.8
	Hartman's	366	7.9
	Other procedure	121	2.6
Stoma‡	Permanent	1,039	24.5
	Temporary	1,377	32.5
	Type unknown	44	1.0
	None	1,782	42.0
	Missing (% of total)	373 (8.1)	

* Yes if patient has a result of MRI scan or date of MRI scan
† Unknown radiotherapy type if date of radiotherapy is recorded but not type
‡ Unknown stoma type if patient was recorded as having a Hartmann's but their stoma type was not recorded in the Audit

In terms of the preoperative assessment of rectal cancer, from the data submitted to the audit, 86 per cent of rectal cancer patients undergoing major surgery were reported to have had an MRI scan, either by having a date of scan or result of scan (Table 5.1).

NICE clinical guideline 131, November 2011, Staging of colorectal cancer:

Offer magnetic resonance imaging (MRI) to assess the risk of local recurrence, as determined by anticipated resection margin, tumour and lymph node staging, to all patients with rectal cancer unless it is contraindicated.

Information on the preoperative use of chemotherapy is not available to this Audit and the preoperative neoadjuvant use of radiotherapy is very incomplete (Table 5.1). Amongst rectal cancer patients submitted to the Audit, 63 per cent did not have details of radiotherapy recorded; it is impossible to determine whether this represents the non-recording of radiotherapy or no radiotherapy. For the minority in whom data about the use of preoperative radiotherapy is available, long course radiotherapy with its associated delay in surgical resection is the dominant pathway. Future linkage to the Radiotherapy and Chemotherapy Datasets is planned to explore this crucial aspect of rectal cancer management.

Quality assurance of rectal cancer neoadjuvant and surgical therapy is provided by the pathologist's determination of the involvement of the circumferential resection margin. Again this item is poorly recorded, 39 per cent of submitted rectal cancer patients have this item missing (Table 5.1). However, for the 2,793 rectal cancer patients in whom this information is available, 92 per cent of those selected for surgical resection (with or without neoadjuvant therapy) had negative circumferential margins, indicating suitable patient selection and MDT working.

5.2. Pathways and Rectal Cancer

As well as changing patterns of neoadjuvant therapy in rectal cancer treatment, there are choices to be made in the surgical removal of the disease. Surgical resection of the rectum remains the foremost intervention for treatment of rectal cancer. Two thirds of rectal cancer patients undergoing major surgery had an anterior resection, a quarter had an abdominoperineal excision of the rectum (APER), and eight per cent had a Hartmann's procedure (Table 5.1).

While locally advanced disease is best managed by resection, organ preservation is another option that can be considered for suitable early cases of rectal cancer. In the data submitted to the Audit we have seen a steady increase in the use of local excision (TEMS or other local procedure) over the last three Audit periods from 2.7 per cent to 4.6 per cent (Table 5.2).

Table 5.2
Treatment pathways of rectal cancer patients by Audit year, defined by type of surgery and time from diagnosis to surgery

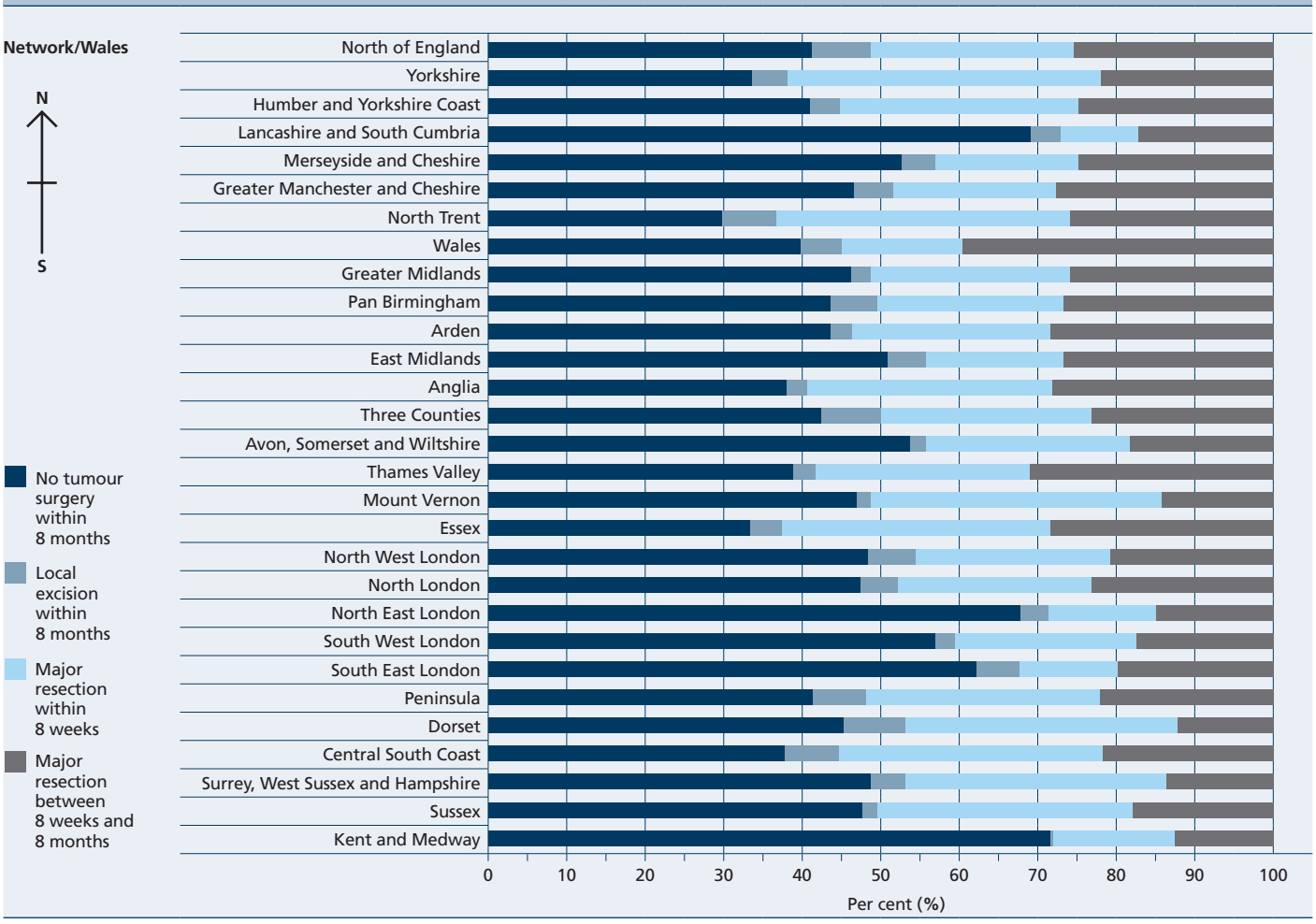
	2008-09		2009-10		2010-11	
	N	%	N	%	N	%
Total rectal cancer patients	**7,385**		**8,530**		**8,921**	
Local excision within 8 months	199	2.7	305	3.6	410	4.6
Major resection within 8 weeks	2,022	27.4	2,156	25.3	2,304	25.8
Major resection between 8 weeks and 8 months	1,806	24.5	2,065	24.2	2,125	23.8
No tumour surgery within 8 months	3,358	45.5	4,004	46.9	4,082	45.8

The challenges of achieving a good patient outcome: avoidance of local recurrence and preservation of function; has spawned a complexity of approaches to rectal cancer treatment. Preoperative adjuvant chemoradiotherapy over 10 to 12 weeks may be followed by a 6 to 12 week delay to assess tumour response before resection; potentially delaying surgery for six months or more after diagnosis. Thus, in rectal cancer patients the median time from diagnosis to major resection was seven weeks compared with only three weeks in colon cancer patients. Variations in the technical and temporal management of rectal cancer may include:

- organ preservation or resection
- neoadjuvant therapy or not
- neoadjuvant therapy and immediate surgery or delayed surgery
- no surgery due to unsuitability (frailty/systemic disease) or watch and wait after complete response to neoadjuvant therapy.

The current data upload submitted to the Audit cannot describe in detail how these approaches are being employed - but the Audit can establish the temporal pattern of surgical intervention from date of diagnosis and date of any surgical intervention.

Figure 5.1
Treatment pathways of rectal cancer patients by Cancer Network, for patients diagnosed between 1 April 2010 and 31 March 2011



As we have seen, local excision is employed in about five per cent of patients whilst major resection is used in about 50 per cent of patients. Amongst the 3,828 patients having a major surgical resection of a rectal cancer in this Audit, half had their surgery within eight weeks of diagnosis, but the other half had their surgery delayed by up to eight months, almost certainly reflecting the use of long course chemo/radiotherapy followed by a delay to assess response before proceeding to surgical resection. There is an interesting variation in the use of delayed rectal cancer surgery (eight weeks to eight months) by Cancer Network which may reflect the different usage of long course radiotherapy and the different periods of waiting to assess response. Again future linkage to the Radiotherapy and Chemotherapy Datasets will help our understanding of these variations.

Consistent with this use of different regimens in rectal cancer are the reported preoperative characteristics of patients being subjected to different care pathways (Table 5.3). Those patients not subjected to either local excision or major resection were most likely to have metastatic disease, to be admitted as an emergency and to have the most comorbidity. By contrast, early T1/T2 tumours formed the majority of those rectal cancers subjected to local excision, whilst T2/T3/T4 rectal cancers predominated in those patients undergoing major resection.

Locally advanced rectal cancers with the potential for a threatened margin, the majority of T4 cancers and those cancers with N1/N2 disease, were more likely to have a resection that was delayed between eight weeks and eight months after diagnosis; this observation being consistent with a period of long course chemo/radiotherapy and delay before carrying out surgical resection.

Table 5.3
Patient characteristics by treatment pathway, for rectal cancer patients diagnosed between 1 April 2010 and 31 March 2011

		No tumour surgery within 8 months		Local excision within 8 months		Major resection within 8 weeks		Major resection between 8 weeks and 8 months	
		Number	%	Number	%	Number	%	Number	%
Total rectal cancer patients		**4,082**		**410**		**2,304**		**2,125**	
Sex	Male	2,556	62.6	253	61.7	1,477	64.1	1,368	64.4
	Female	1,526	37.4	157	38.3	827	35.9	756	35.6
	Missing (% of total)	0 (0)		0 (0)		0 (0)		1 (0)	
Age-group	≤65 yrs	1,210	29.6	106	25.9	812	35.2	854	40.2
	65-74 yrs	1,051	25.7	150	36.6	825	35.8	746	35.1
	75-84 yrs	1,143	28.0	105	25.6	567	24.6	475	22.4
	85+ yrs	678	16.6	49	12.0	100	4.3	50	2.4
Pre-treatment TNM T-stage	T1	58	3.3	50	33.3	53	4.3	30	2.2
	T2	297	17.0	67	44.7	437	35.1	272	20.4
	T3	975	55.8	31	20.7	672	53.9	868	65.0
	T4	418	23.9	2	1.3	84	6.7	166	12.4
	Missing (% of total)	2334 (57.2)		260 (63.4)		1058 (45.9)		789 (37.1)	
Pre-treatment TNM N-stage	N0	566	33.3	153	83.6	713	59.4	454	35.7
	N1	631	37.1	21	11.5	379	31.6	536	42.1
	N2	504	29.6	9	4.9	109	9.1	283	22.2
	Missing (% of total)	2381 (58.3)		227 (55.4)		1103 (47.9)		852 (40.1)	
Pre-treatment TNM M-stage	M0	907	62.0	166	94.3	910	93.7	902	92.0
	M1	556	38.0	10	5.7	61	6.3	78	8.0
	Missing (% of total)	2619 (64.2)		234 (57.1)		1333 (57.9)		1145 (53.9)	
Mode of admission (from HES)	Elective	2,718	80.3	274	95.8	2,058	94.1	1,847	95.4
	Emergency	665	19.7	12	4.2	129	5.9	89	4.6
	Missing (% of total)	699 (17.1)		124 (30.2)		117 (5.1)		189 (8.9)	
Comorbidities (from HES)	0	2,129	62.7	176	61.5	1,479	67.5	1,264	65.3
	1	889	26.2	81	28.3	554	25.3	514	26.5
	2+	375	11.1	29	10.1	158	7.2	158	8.2
	Missing (% of total)	689 (16.9)		124 (30.2)		113 (4.9)		189 (8.9)	

From the data submitted to the audit a substantial proportion of all rectal cancer patients (45 per cent) would appear not to be offered surgical resection - presumably for the reasons of patient frailty and/or metastatic disease (Table 5.3). However, it is possible that a third albeit numerically small reason for non-resection, lies in some patients opting for "watch and wait" after an apparent complete response to chemoradiotherapy. As noted previously, future linkage to the Radiotherapy and Chemotherapy Datasets may clarify this possibility.

The two-year outcome for patients subjected to no surgery, local excision and major resection respectively is reported in Table 5.4. Not surprisingly 50 per cent of patients not subjected to surgical treatment are dead at the end of two years follow up. By contrast, the two-year survival outcomes for all the surgical pathways are in excess of 86 per cent, confirming appropriate MDT patient selection for each management modality. The 90 day mortality of surgical excision/resection is low, but particularly low for surgical resection delayed between eight weeks and eight months (0.7 per cent) despite the patients having more advanced local disease.

Table 5.4
Outcomes by treatment pathway for all rectal cancer patients diagnosed between 1 April 2008 and 31 March 2010

		No tumour surgery within 8 months		Local excision within 8 months		Major resection within 8 weeks		Major resection between 8 weeks and 8 months	
		Number	%	Number	%	Number	%	Number	%
Total patients		**7,362**		**504**		**4,178**		**3,871**	
Died within 90 days of diagnosis	Yes	827	11.3	5	1.0	137	3.3	28	0.7
	No	6,511	88.7	499	99	4,039	96.7	3,843	99.3
	Missing (% of total)	24 (0.3)		0 (0)		2 (0)		0 (0)	
Died within 24 months of diagnosis	Yes	3,701	50.4	66	13.1	575	13.8	518	13.4
	No	3,637	49.6	438	86.9	3,601	86.2	3,353	86.6
	Missing (% of total)	24 (0.3)		0 (0)		2 (0)		0 (0)	

5.3. Stomas in Rectal Surgery - What is "Temporary"?

Over 40 per cent of rectal cancer patients were reported in the Audit to have had no stoma, whether temporary or permanent. This is due to incomplete or inaccurate Audit data as all patients undergoing an APER have a permanent stoma, all patients having a Hartmann's procedure have a stoma which may be reversed, and a substantial proportion of patients having an anterior resection have a stoma, some of which will be reversed. For this reason 18-month stoma rates are estimated from Audit data linked to HES/PEDW.

- Patients having an APER or Hartmann's were assumed to have a stoma, which was assumed to be permanent for APERs.
- The Audit was used to determine whether patients having an AR were given a stoma, but where this information was missing in the Audit it was updated from HES/PEDW.
- Reversal of stomas in patients having an AR or a Hartmann's was identified in HES/PEDW only.

A very significant feature of the patient experience of surgical resection for rectal cancer is the need for an intestinal stoma.

If the anal canal has to be removed because of a low rectal cancer then an abdo-perineal excision of the rectum (APER) results in a permanent colostomy. Hartmann's operation, although potentially reversible, in rectal cancer often means a permanent stoma. Overall 84 per cent of rectal cancer patients had a stoma at the time of a surgical resection (Audit data linked to HES/PEDW data). This included all cases of APER and Hartman's but in addition 77 per cent of all anterior resections were covered by a "temporary stoma" - the large majority of these stomas consisting of an ileostomy.

Temporary in the preoperative discussion implies that at some point (often quoted as between three and six months) a further surgical procedure would be used to close the ileostomy and restore intestinal continuity. To understand the outcome of the "temporary stoma" after rectal cancer surgery the audit has linked HES/PEDW data to the audit submission for April 2009 to March 2011, allowing 18 months of completed follow up to detect subsequent stoma closure.

With 18 months of completed HES/PEDW follow up, 61 per cent of all "temporary stomas" associated with anterior resection had been closed, leaving nearly one third of anterior resection patients with a stoma at 18 months (Table 5.5). Across all rectal cancer patients having a major resection, 51 per cent had a stoma at 18 months.

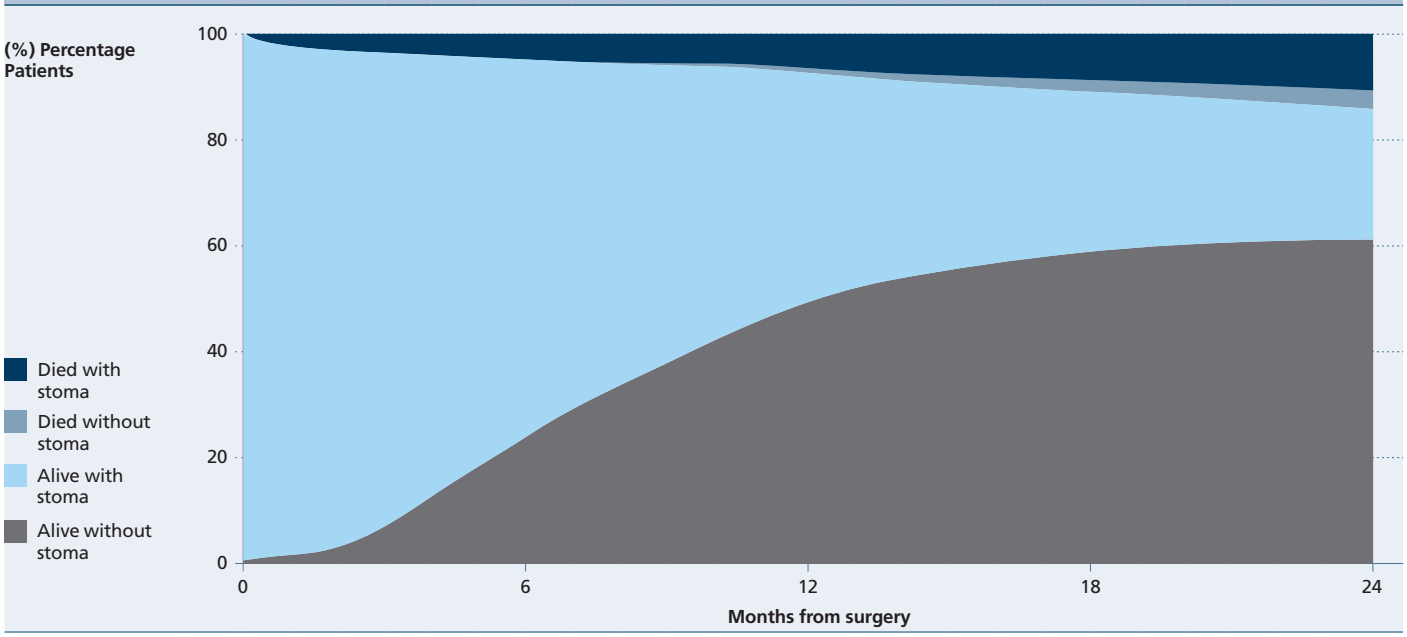
Table 5.5
Description of stoma types by procedure for the rectal cancer patients linked to HES/PEDW having a major resection between 01 April 2009 and 31 March 2011

		AR		APER		Hartmann's		Other	
		Number	%	Number	%	Number	%	Number	%
Total rectal cancer patients undergoing major resection		**5,733**		**1,982**		**514**		**234**	
Any stoma	No	1,307	22.8	0	0.0	0	0.0	80	34.2
	Yes	4,426	77.2	1,982	100.0	514	100.0	154	65.8
Stoma location	None	1,307	22.8	0	0.0	0	0.0	80	34.2
	Ileostomy	3,548	61.9	100	5.0	45	8.8	107	45.7
	Colostomy	878	15.3	1,882	95.0	469	91.2	47	20.1
Stoma at 18 months, ignoring deaths	No	4,028	70.3	0	0.0	22	4.3	95	40.6
	Yes	1,705	29.7	1,982	100.0	492	95.7	139	59.4

In patients having an anterior resection, in addition to a third of stomas still not being closed at 18 months, there is a considerable delay in closing ileostomies that are deemed suitable for reversal. Post-operative chemotherapy may have a significant role to play in this delay. Commonly adjuvant chemotherapy starts a month after surgery and lasts for six months during which period further surgical intervention is avoided. Thereafter, waiting list delays for stoma closure (not seen as a cancer treatment) might further prolong the time to ileostomy closure. Patient preference may be a further factor delaying and/or preventing temporary stoma closure.

For a combination of these reasons, six months after anterior resection only 20 per cent of temporary stomas (Figure 5.2) have been reversed. The median time to ileostomy closure after anterior resection in this audit is 12 months. Amongst patients whose ileostomy is reversed the median time to closure is seven months. Of particular significance is the fact that the large majority of those patients that die within two years of anterior resection, die with an intestinal stoma still unclosed.

Figure 5.2
Time to stoma reversal/death for rectal cancer patients having an Anterior Resection between 1 April 2008 and 31 March 2010



The reasons for both the extended delay in ileostomy reversal and the non-closure of the temporary stoma created in association with anterior resection are not clear. Irrespective of the causes of this stoma closure delay, patient counselling for a temporary ileostomy should include a non-closure rate of 40 per cent, a median closure delay of seven months for those closed, and an approximately ten per cent chance of death with a non-reversed intestinal stoma at 18 months.

Patient characteristics strongly associated with non-reversal of an ileostomy after anterior resection were ASA grade, older age and advanced disease (T3/T4 tumours in particular). Emergency admission and comorbidities also increased the risk of non-reversal of an ileostomy after anterior resection (Table 5.6).

Table 5.6
Factors for stoma reversal within 18 months in patients having an Anterior Resection between 01 April 2009 and 31 March 2011

		Hazard ratio*	95% CI
Year of surgery	2010-2011	1	
	2009-2010	1.04	0.92 to 1.18
Sex	Male	1	
	Female	1.03	0.89 to 1.18
Age	50 yrs	1.40	1.22 to 1.61
	60 yrs	1.27	1.19 to 1.35
	70 yrs	1	
	80 yrs	0.69	0.62 to 0.76
	90 yrs	0.41	0.31 to 0.54
ASA	1	1	
	2	0.64	0.52 to 0.78
	3	0.34	0.27 to 0.44
	4 or 5	0.24	0.13 to 0.45
TNM T-stage	T1	1	
	T2	0.70	0.54 to 0.90
	T3	0.55	0.44 to 0.70
	T4	0.36	0.26 to 0.51
TNM N-stage	N0	1	
	N1	0.78	0.67 to 0.91
	N2	0.73	0.58 to 0.90
Distant metastases	No	1	
	Yes	0.62	0.48 to 0.80
Mode of admission	Elective	1	
	Emergency	0.76	0.55 to 1.06
Comorbidities	0	1	
	1	0.94	0.81 to 1.10
	2+	0.71	0.54 to 0.92

* Ignoring death (ie patients who die before 18 months are censored at 18 months)

In order to make comparisons between Cancer Networks (Figure 5.3) and between trusts/sites (Figure 5.4), 18-month stoma rates for all resection surgery (APER, Hartmanns and Anterior Resection) were adjusted for case-mix. This is because rectal cancer resection without a permanent or a never closed "temporary" stoma is a very reasonable patient aspiration.

All of the risk factors used to adjust 90-day mortality except cancer site, were used to adjust the 18-month stoma rate (see the 2012 Annual Report Table 7.3 for details of the model used). There was considerable variation between Cancer Networks with two falling above and four falling below the outer limits on adjusted 18-month stoma rate. The variation by trust/site was also large, with five trusts/sites falling above and seven trusts/sites falling below the outer limits. A further 16 trusts/sites fell above the inner limits.

This analysis of stoma at 18 months includes all surgical resections for rectal cancer (APER, Hartmann's and Anterior Resection). Therefore, variation is very likely to reflect different ways of working: selection of patients for APER, the use of adjuvant therapy following anterior resection and/or resources for stoma closure.

The observed and adjusted 18-month stoma rates of each trust/site are reported in Section 6.5.

All Cancer Networks and trusts/sites falling above the funnel limits have been informed, and given the opportunity to check the data that they submitted. The Cancer Networks and trusts identified as potential outliers were all informed, and all of them responded.

Figure 5.3
Observed and adjusted 18-month stoma rate by English Cancer Network/ Wales for rectal cancer patients undergoing a major resection between 01/04/2009 and 31/03/2011

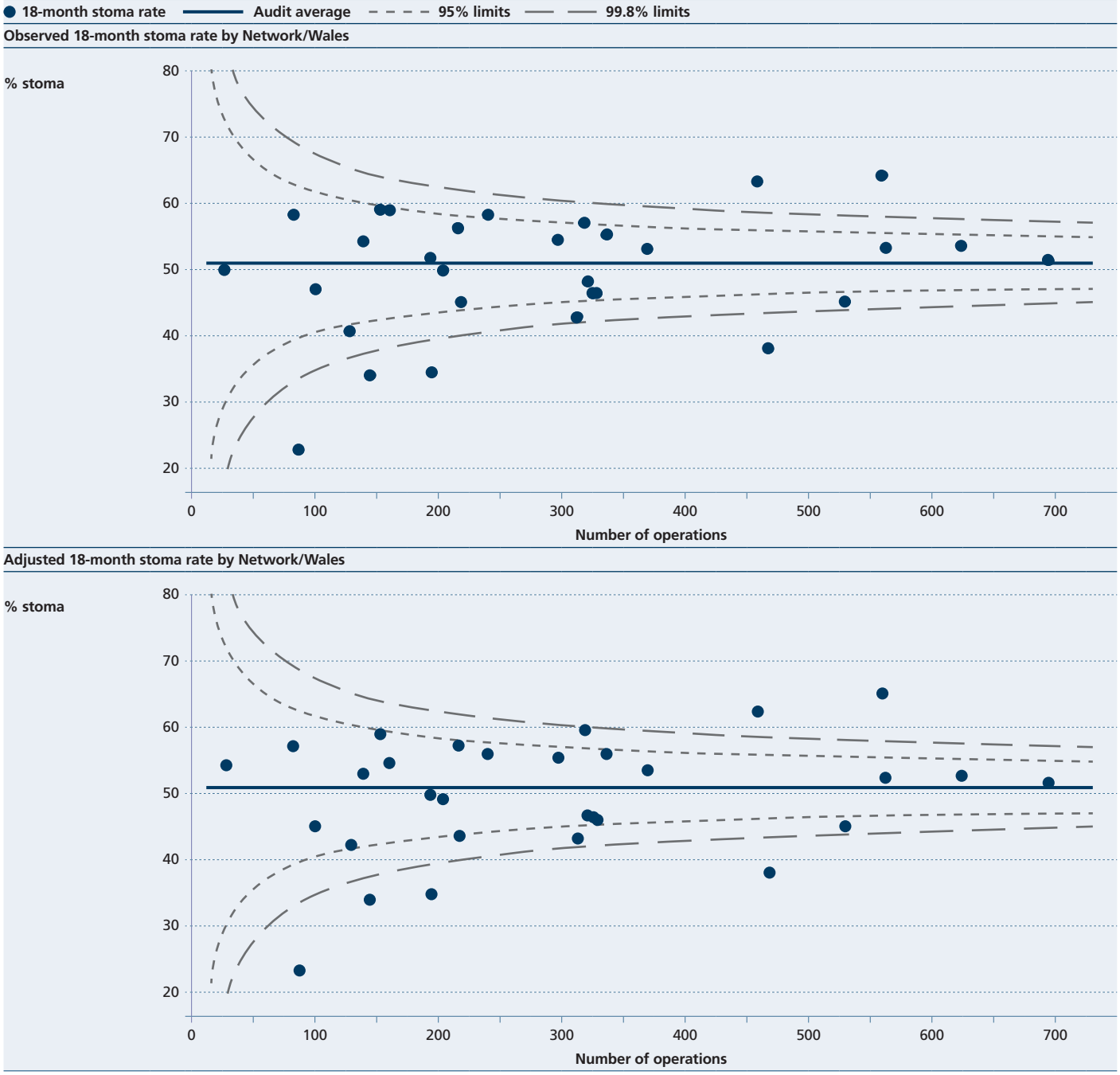


Figure 5.4
Observed and adjusted 18-month stoma rate by English trust / hospital for rectal cancer patients undergoing a major resection between 01/04/2009 and 31/03/2011

6. Trust feedback

Table 6.1
Case ascertainment and data completeness according to trust/hospital site

The Royal Marsden, Clatterbridge Centre for Oncology NHS Foundation Trust and The Christie Hospital NHS Foundation Trust are tertiary cancer centres that mainly provide oncological treatment for bowel cancer patients and were excluded from this table.

Grade	Case Ascertainment (CA)
Good ●	>80% case ascertainment or data completeness
Fair ■	50-80% case ascertainment or data completeness
Poor ▲	<50% case ascertainment or data completeness

Please note grades were assigned to case ascertainment and data completeness before the figures were rounded to whole numbers.

Network/Trust Name	No. cases reported to the Audit	No. cases identified in HES / PEDW	Case ascertainment %	No. cases having major surgery according to the Audit	Data completeness for patients having major surgery %
Overall	**29,445**	**34,220**	**86** ●	**17,250**	**79** ■
North Of England					
City Hospitals Sunderland NHS Foundation Trust	168	218	77 ■	89	96 ●
County Durham and Darlington NHS Foundation Trust	309	333	93 ●	213	97 ●
Gateshead Health NHS Foundation Trust	125	171	73 ■	92	80 ●
North Cumbria University Hospitals NHS Trust	198	224	88 ●	113	65 ■
North Tees and Hartlepool NHS Foundation Trust	245	233	105 ●	133	92 ●
Northumbria Healthcare NHS Foundation Trust	328	362	91 ●	210	91 ●
South Tees Hospitals NHS Foundation Trust	276	283	98 ●	179	73 ■
South Tyneside NHS Foundation Trust	114	122	93 ●	81	85 ●
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	237	246	96 ●	165	95 ●
Yorkshire					
Airedale NHS Foundation Trust	119	116	103 ●	78	95 ●
Bradford Teaching Hospitals NHS Foundation Trust	151	179	84 ●	101	94 ●
Calderdale and Huddersfield NHS Foundation Trust	207	240	86 ●	138	93 ●
Harrogate and District NHS Foundation Trust	114	127	90 ●	76	96 ●
Leeds Teaching Hospitals NHS Trust	360	407	88 ●	248	84 ●
Mid Yorkshire Hospitals NHS Trust	278	295	94 ●	182	85 ●
York Teaching Hospital NHS Foundation Trust	234	249	94 ●	168	89 ●
Humber and Yorkshire Coast					
Hull and East Yorkshire Hospitals NHS Trust	263	322	82 ●	187	90 ●
Humber NHS Foundation Trust		5			
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	193	268	72 ■	152	88 ●
Scarborough and North East Yorkshire Health Care NHS Trust	105	108	97 ●	63	89 ●
Lancashire and South Cumbria					
Blackpool Teaching Hospitals NHS Foundation Trust	219	227	96 ●	101	55 ■
East Lancashire Hospitals NHS Trust	249	252	99 ●	105	61 ■
Lancashire Teaching Hospitals NHS Foundation Trust	236	264	89 ●	120	9 ▲
University Hospitals Of Morecambe Bay NHS Foundation Trust	257	261	98 ●	87	1 ▲
Merseyside and Cheshire					
Aintree University Hospital NHS Foundation Trust	205	211	97 ●	114	87 ●
Countess Of Chester Hospital NHS Foundation Trust	177	181	98 ●	89	87 ●
Royal Liverpool and Broadgreen University Hospitals NHS Trust	211	185	114 ●	119	61 ■
Southport and Ormskirk Hospital NHS Trust	163	147	111 ●	84	54 ■
St Helens and Knowsley Hospitals NHS Trust	215	196	110 ●	115	90 ●
Warrington and Halton Hospitals NHS Foundation Trust	189	170	111 ●	122	78 ■
Wirral University Teaching Hospital NHS Foundation Trust	223	215	104 ●	141	97 ●
Greater Manchester and Cheshire					
Bolton NHS Foundation Trust	177	187	95 ●	107	88 ●
Central Manchester University Hospitals NHS Foundation Trust	115	113	102 ●	66	85 ●
East Cheshire NHS Trust	144	134	107 ●	78	72 ■
Mid Cheshire Hospitals NHS Foundation Trust	150	170	88 ●	68	94 ●
Pennine Acute Hospitals NHS Trust	362	436	83 ●	212	77 ■
Salford Royal NHS Foundation Trust	100	127	79 ■	67	90 ●
Stockport NHS Foundation Trust	140	185	76 ■	82	62 ■
Tameside Hospital NHS Foundation Trust	117	130	90 ●	73	92 ●
Trafford Healthcare NHS Trust	42	77	55 ■	34	97 ●
University Hospital Of South Manchester NHS Foundation Trust	127	130	98 ●	87	98 ●
Wrightington, Wigan and Leigh NHS Foundation Trust	139	166	84 ●	72	88 ●

Network/Trust Name	No. cases reported to the Audit	No. cases identified in HES / PEDW	Case ascertainment %	No. cases having major surgery according to the Audit	Data completeness for patients having major surgery %
North Trent					
Barnsley Hospital NHS Foundation Trust	120	133	90 ●	86	69 ■
Chesterfield Royal Hospital NHS Foundation Trust	198	191	104 ●	134	96 ●
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	196	304	64 ■	169	91 ●
Sheffield Teaching Hospitals NHS Foundation Trust	359	373	96 ●	236	96 ●
The Rotherham NHS Foundation Trust	143	153	93 ●	82	99 ●
Wales					
Bronglais MDT	51	47	109 ●	32	91† ●
Cardiff MDT	247	173	143 ●	122	43† ▲
Nevill Hall Hospital MDT	117	99	118 ●	79	37† ▲
Prince Charles Hospital MDT	116	88	132 ●	81	25† ▲
Princess Of Wales MDT	171	162	106 ●	121	92† ●
Royal Glamorgan Hospital MDT	104	92	113 ●	73	38† ▲
Royal Gwent Hospital MDT	272	128	213 ●	153	64† ■
Swansea MDT	190	162	117 ●	130	92† ●
West Wales General and Prince Phillip MDT	160	143	112 ●	89	39† ▲
Withybush General MDT	80	81	99 ●	50	68† ■
Ysbwyty Glan Clwydd MDT	174	171	102 ●	109	41† ▲
Ysbwyty Gwynedd MDT	173	148	117 ●	107	79† ■
Ysbwyty Maelor MDT	178	165	108 ●	106	72† ■
Greater Midlands					
Mid Staffordshire NHS Foundation Trust	106	108	98 ●	72	96 ●
Shrewsbury and Telford Hospital NHS Trust	358	378	95 ●	189	3 ▲
The Dudley Group NHS Foundation Trust	187	175	107 ●	111	82 ●
The Royal Wolverhampton NHS Trust	207	235	88 ●	130	93 ●
University Hospital Of North Staffordshire NHS Trust	335	321	104 ●	164	53 ■
Pan Birmingham					
Heart Of England NHS Foundation Trust	430	417	103 ●	172	94 ●
Sandwell and West Birmingham Hospitals NHS Trust	94	214	44 ▲	37	95 ●
University Hospitals Birmingham NHS Foundation Trust	202	210	96 ●	135	76 ■
Walsall Healthcare NHS Trust	67	122	55 ■	22	59 ■
Arden					
George Eliot Hospital NHS Trust	101	84	120 ●	53	94 ●
South Warwickshire NHS Foundation Trust	134	146	92 ●	92	88 ●
University Hospitals Coventry and Warwickshire NHS Trust	221	229	97 ●	130	94 ●
Worcestershire Acute Hospitals NHS Trust (Arden)	171	180	95 ●	93	92 ●
East Midlands					
Burton Hospitals NHS Foundation Trust	167	163	102 ●	104	94 ●
Derby Hospitals NHS Foundation Trust	305	330	92 ●	43	91 ●
Kettering General Hospital NHS Foundation Trust	194	184	105 ●	90	68 ■
Northampton General Hospital NHS Trust	145	170	85 ●	80	88 ●
Nottingham University Hospitals NHS Trust	368	432	85 ●	158	27 ▲
Sherwood Forest Hospitals NHS Foundation Trust	160	198	81 ●	107	80 ●
United Lincolnshire Hospitals NHS Trust	41	470	9 ▲	36	69 ■
University Hospitals Of Leicester NHS Trust	486	463	105 ●	297	90 ●
Anglia					
Bedford Hospital NHS Trust	122	133	92 ●	88	93 ●
Cambridge University Hospitals NHS Foundation Trust	277	280	99 ●	194	94 ●
Hinchingbrooke Health Care NHS Trust	64	103	62 ■	41	95 ●
Ipswich Hospital NHS Trust	272	257	106 ●	189	69 ■
James Paget University Hospitals NHS Foundation Trust	142	137	104 ●	74	85 ●
Norfolk and Norwich University Hospitals NHS Foundation Trust	452	452	100 ●	279	71 ■
Peterborough and Stamford Hospitals NHS Foundation Trust	179	210	85 ●	122	66 ■
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	169	170	99 ●	102	80 ●
West Suffolk NHS Foundation Trust	174	185	94 ●	111	97 ●
Three Counties					
Gloucestershire Hospitals NHS Foundation Trust	376	487	77 ■	178	88 ●
Worcestershire Acute Hospitals NHS Trust (3 Counties)	259	270	96 ●	134	74 ■
Wye Valley NHS Trust	128	132	97 ●	96	90 ●

Network/Trust Name	No. cases reported to the Audit	No. cases identified in HES / PEDW	Case ascertainment %	No. cases having major surgery according to the Audit	Data completeness for patients having major surgery %
Avon, Somerset and Wiltshire					
North Bristol NHS Trust	198	247	80 ●	131	47 ▲
Royal United Hospital Bath NHS Trust	257	275	93 ●	167	93 ●
Taunton and Somerset NHS Foundation Trust	205	225	91 ●	54	54 ■
University Hospitals Bristol NHS Foundation Trust	162	173	94 ●	72	76 ■
Weston Area Health NHS Trust	123	110	112 ●	85	93 ●
Yeovil District Hospital NHS Foundation Trust	102	121	84 ●	62	84 ●
Thames Valley					
Buckinghamshire Healthcare NHS Trust	270	268	101 ●	76	91 ●
Great Western Hospitals NHS Foundation Trust	187	206	91 ●	125	87 ●
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	70	175	40 ▲	25	60 ■
Milton Keynes Hospital NHS Foundation Trust	112	125	90 ●	65	55 ■
Oxford University Hospitals NHS Trust	229	411	56 ■	193	97 ●
Royal Berkshire NHS Foundation Trust	178	251	71 ■	108	77 ■
Mount Vernon					
Luton and Dunstable Hospital NHS Foundation Trust*		132			
East and North Hertfordshire NHS Trust	229	249	92 ●	131	81 ●
West Hertfordshire Hospitals NHS Trust	247	217	114 ●	156	73 ■
Essex					
Basildon and Thurrock University Hospitals NHS Foundation Trust	135	197	69 ■	110	95 ●
Colchester Hospital University NHS Foundation Trust	270	300	90 ●	165	96 ●
Mid Essex Hospital Services NHS Trust	180	203	89 ●	148	83 ●
Southend University Hospital NHS Foundation Trust	207	215	96 ●	139	97 ●
North West London					
Chelsea and Westminster Hospital NHS Foundation Trust	83	69	120 ●	46	93 ●
Ealing Hospital NHS Trust	64	64	100 ●	38	79 ■
Imperial College Healthcare NHS Trust	35	266	13 ▲	16	94 ●
North West London Hospitals NHS Trust	125	249	50 ■	26	35 ▲
The Hillingdon Hospitals NHS Foundation Trust	108	117	92 ●	81	95 ●
West Middlesex University Hospital NHS Trust	83	83	100 ●	60	83 ●
North London					
Barnet and Chase Farm Hospitals NHS Trust	210	220	95 ●	117	90 ●
North Middlesex University Hospital NHS Trust	67	87	77 ■	44	93 ●
Royal Free London NHS Foundation Trust	81	106	76 ■	46	85 ●
The Princess Alexandra Hospital NHS Trust	13	159	8 ▲	8	0 ▲
The Whittington Hospital NHS Trust	82	81	101 ●	47	98 ●
University College London Hospitals NHS Foundation Trust	110	125	88 ●	75	69 ■
North East London					
Barking, Havering and Redbridge University Hospitals NHS Trust	237	271	87 ●		
Barts and The London NHS Trust	66	91	73 ■	33	82 ●
Homerton University Hospital NHS Foundation Trust	56	50	112 ●	33	100 ●
Newham University Hospital NHS Trust	27	67	40 ▲	18	89 ●
Whipps Cross University Hospital NHS Trust	107	141	76 ■	61	75 ■
South West London					
Croydon Health Services NHS Trust	134	143	94 ●	74	69 ■
Epsom and St Helier University Hospitals NHS Trust	200	202	99 ●	94	0 ▲
Kingston Hospital NHS Trust	124	156	79 ■	86	88 ●
St George's Healthcare NHS Trust	78	184	42 ▲	57	12 ▲
South East London					
Guy's and St Thomas' NHS Foundation Trust	157	154	102 ●	121	53 ■
King's College Hospital NHS Foundation Trust	102	100	102 ●	59	90 ●
Lewisham Healthcare NHS Trust	79	79	100 ●	35	69 ■
South London Healthcare NHS Trust	172	386	45 ▲	77	60 ■

Network/Trust Name	No. cases reported to the Audit	No. cases identified in HES / PEDW	Case ascertainment %	No. cases having major surgery according to the Audit	Data completeness for patients having major surgery %
Peninsula					
Northern Devon Healthcare NHS Trust	140	154	91 ●	99	95 ●
Plymouth Hospitals NHS Trust	300	295	102 ●	158	70 ■
Royal Cornwall Hospitals NHS Trust	305	305	100 ●	191	75 ■
Royal Devon and Exeter NHS Foundation Trust	252	295	85 ●	178	80 ■
South Devon Healthcare NHS Foundation Trust	220	205	107 ●	129	92 ●
Dorset					
Dorset County Hospital NHS Foundation Trust	143	147	97 ●	67	93 ●
Poole Hospital NHS Foundation Trust	165	169	98 ●	93	95 ●
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	213	218	98 ●	125	91 ●
Central South Coast					
Hampshire Hospitals NHS Foundation Trust	118	252	47 ▲	108	86 ●
Isle Of Wight NHS Trust	105	102	103 ●	70	83 ●
Portsmouth Hospitals NHS Trust	392	348	113 ●	247	91 ●
Salisbury NHS Foundation Trust	164	177	93 ●	114	93 ●
University Hospital Southampton NHS Foundation Trust	246	287	86 ●	138	79 ■
Western Sussex Hospitals NHS Trust (Central South Coast)	193	196	98 ●	136	96 ●
Winchester and Eastleigh Healthcare NHS Trust	183	117	156 ●	124	74 ■
Surrey, West Sussex and Hampshire					
Ashford and St Peter's Hospitals NHS Foundation Trust	190	200	95 ●	115	85 ●
Frimley Park Hospital NHS Foundation Trust	132	217	61 ■	126	93 ●
Royal Surrey County Hospital NHS Foundation Trust	152	164	93 ●	102	75 ■
Surrey and Sussex Healthcare NHS Trust	168	170	99 ●	104	77 ■
Sussex					
Brighton and Sussex University Hospitals NHS Trust	205	257	80 ■	97	60 ■
East Sussex Healthcare NHS Trust	340	332	102 ●	194	99 ●
Sussex Community NHS Trust		1			
Western Sussex Hospitals NHS Trust (Sussex)	196	196	100 ●	124	97 ●
Kent and Medway					
Dartford and Gravesham NHS Trust	107	164	65 ■	79	91 ●
East Kent Hospitals University NHS Foundation Trust	262	447	59 ■	14	0 ▲
Maidstone and Tunbridge Wells NHS Trust	315	328	96 ●	190	46 ▲
Medway NHS Foundation Trust	48	197	24 ▲		

* No data submitted for this Trust
† TNM stage particularly incomplete on patients in Wales diagnosed 1 Aug 2011 – 31 Mar 2012

Table 6.2
Management of all patients reported to the Audit according to trust/hospital site

Network/Trust Name	Number of patients reported to the audit	Discussed at MDT meeting (%)	Seen by clinical nurse specialist (%)	CT scan reported (%)	Underwent major surgery (%)
Overall	**29,445**	**97.8**	87.7	**89.1**	58.6
Lancashire and South Cumbria					
University Hospitals Of Morecambe Bay NHS Foundation Trust	257	96.8	0.0	87.2	33.9
Blackpool Teaching Hospitals NHS Foundation Trust	219	92.8	79.3	92.2	46.1
Lancashire Teaching Hospitals NHS Foundation Trust	236	98.3	7.3	95.3	50.8
East Lancashire Hospitals NHS Trust	249	89.5	91.5	86.7	42.2
Greater Manchester and Cheshire					
Mid Cheshire Hospitals NHS Foundation Trust	150	100.0	89.8	81.3	45.3
The Christie NHS Foundation Trust	76	92.1	83.6	100.0	72.4
East Cheshire NHS Trust	144	100.0	93.6	97.2	54.2
University Hospital Of South Manchester NHS Foundation Trust	127	99.2	96.6	88.2	68.5
Salford Royal NHS Foundation Trust	100	100.0	96.8	89.0	67.0
Trafford Healthcare NHS Trust	42	97.6	100.0	97.6	81.0
Bolton NHS Foundation Trust	177	100.0	80.4	78.5	60.5
Tameside Hospital NHS Foundation Trust	117	99.1	100.0	100.0	62.4
Wrightington, Wigan and Leigh NHS Foundation Trust	139	100.0	92.4	97.8	51.8
Central Manchester University Hospitals NHS Foundation Trust	115	99.1	100.0	67.8	57.4
Pennine Acute Hospitals NHS Trust	362	99.7	42.2	86.2	58.6
Stockport NHS Foundation Trust	140	98.6	56.7	95.7	58.6
Merseyside and Cheshire					
Wirral University Teaching Hospital NHS Foundation Trust	223	98.6	89.0	89.7	63.2
St Helens and Knowsley Hospitals NHS Trust	215	100.0	98.3	92.6	53.5
Aintree University Hospital NHS Foundation Trust	205	99.5	69.1	93.2	55.6
Countess Of Chester Hospital NHS Foundation Trust	177	100.0	91.0	89.8	50.3
Royal Liverpool and Broadgreen University Hospitals NHS Trust	211	100.0	56.4	72.5	56.4
Southport and Ormskirk Hospital NHS Trust	163	100.0	86.9	94.5	51.5
Warrington and Halton Hospitals NHS Foundation Trust	189	100.0	85.9	94.2	64.6
Yorkshire					
Bradford Teaching Hospitals NHS Foundation Trust	151	100.0	98.7	93.4	66.9
York Teaching Hospital NHS Foundation Trust	234	100.0	93.4	97.4	71.8
Harrogate and District NHS Foundation Trust	114	99.1	95.1	98.2	66.7
Airedale NHS Foundation Trust	119	100.0	86.4	100.0	65.5
Leeds Teaching Hospitals NHS Trust	360	97.8	77.1	92.5	68.9
Calderdale and Huddersfield NHS Foundation Trust	207	94.7	81.7	92.8	66.7
Mid Yorkshire Hospitals NHS Trust	278	100.0	96.7	96.0	65.5
Humber and Yorkshire Coast					
Scarborough and North East Yorkshire Health Care NHS Trust	105	97.1	95.3	88.6	60.0
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	193	96.4	94.5	95.9	78.8
Hull and East Yorkshire Hospitals NHS Trust	263	95.8	95.9	90.9	71.1
North Trent					
Barnsley Hospital NHS Foundation Trust	120	100.0	95.5	96.7	71.7
The Rotherham NHS Foundation Trust	143	100.0	90.4	90.9	57.3
Chesterfield Royal Hospital NHS Foundation Trust	198	100.0	94.2	96.0	67.7
Sheffield Teaching Hospitals NHS Foundation Trust	359	100.0	90.7	96.4	65.7
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	196	99.0	97.3	96.9	86.2
Pan Birmingham					
Walsall Healthcare NHS Trust	67	100.0	42.0	55.2	32.8
Heart Of England NHS Foundation Trust	430	100.0	94.5	92.8	40.0
University Hospitals Birmingham NHS Foundation Trust	202	100.0	97.2	87.1	66.8
Sandwell and West Birmingham Hospitals NHS Trust	94	100.0	58.6	59.6	39.4
Arden					
South Warwickshire NHS Foundation Trust	134	99.2	90.4	93.3	68.7
University Hospitals Coventry and Warwickshire NHS Trust	221	100.0	95.0	91.9	58.8
George Eliot Hospital NHS Trust	101	100.0	88.9	95.0	52.5
Worcestershire Acute Hospitals NHS Trust (Arden)	171	99.4	82.9	87.7	54.4

Network/Trust Name	Number of patients reported to the audit	Discussed at MDT meeting (%)	Seen by clinical nurse specialist (%)	CT scan reported (%)	Underwent major surgery (%)
Mount Vernon					
West Hertfordshire Hospitals NHS Trust	247	100.0	100.0	93.9	63.2
East and North Hertfordshire NHS Trust	229	90.1	100.0	86.0	57.2
North West London					
The Hillingdon Hospitals NHS Foundation Trust	108	100.0	100.0	99.1	75.0
Ealing Hospital NHS Trust	64	96.9	88.5	79.7	59.4
West Middlesex University Hospital NHS Trust	83	100.0	100.0	100.0	72.3
Chelsea and Westminster Hospital NHS Foundation Trust	83	98.8	97.5	98.8	55.4
North West London Hospitals NHS Trust	125	100.0	88.9	8.8	20.8
Imperial College Healthcare NHS Trust	35	100.0	63.6	97.1	45.7
North London					
Royal Free London NHS Foundation Trust	81	100.0	100.0	96.3	56.8
North Middlesex University Hospital NHS Trust	67	100.0	100.0	95.5	65.7
The Whittington Hospital NHS Trust	82	100.0	98.6	92.7	57.3
The Princess Alexandra Hospital NHS Trust	13	100.0		61.5	61.5
University College London Hospitals NHS Foundation Trust	110	96.3	100.0	96.4	68.2
Barnet and Chase Farm Hospitals NHS Trust	210	100.0	97.3	96.2	55.7
North East London					
Barking, Havering and Redbridge University Hospitals NHS Trust	237	97.5	50.0	84.8	0*
Whipps Cross University Hospital NHS Trust	107	99.0	83.0	77.6	57.0
Newham University Hospital NHS Trust	27	96.3	95.7	96.3	66.7
Barts and The London NHS Trust	66	100.0	82.5	86.4	50.0
Homerton University Hospital NHS Foundation Trust	56	100.0	100.0	96.4	58.9
South East London					
Guy's and St Thomas' NHS Foundation Trust	157	100.0	100.0	7.0	77.1
Lewisham Healthcare NHS Trust	79	100.0	90.7	92.4	44.3
King's College Hospital NHS Foundation Trust	102	100.0	96.1	72.5	57.8
South London Healthcare NHS Trust	172	100.0	100.0	76.2	44.8
South West London					
Kingston Hospital NHS Trust	124	99.2	84.5	96.0	69.4
Croydon Health Services NHS Trust	134	98.5	100.0	94.8	55.2
St George's Healthcare NHS Trust	78	98.5	100.0	79.5	73.1
The Royal Marsden NHS Foundation Trust	31	100.0	100.0	96.8	51.6
Epsom and St Helier University Hospitals NHS Trust	200	98.5	93.1	89.0	47.0
Peninsula					
South Devon Healthcare NHS Foundation Trust	220	100.0	100.0	95.9	58.6
Northern Devon Healthcare NHS Trust	140	100.0	94.0	92.1	70.7
Royal Cornwall Hospitals NHS Trust	305	100.0	92.2	92.5	62.6
Royal Devon and Exeter NHS Foundation Trust	252	98.4	98.4	96.0	70.6
Plymouth Hospitals NHS Trust	300	99.3	83.5	80.7	52.7
Dorset					
Dorset County Hospital NHS Foundation Trust	143	99.3	95.8	92.3	46.9
Poole Hospital NHS Foundation Trust	165	99.4	90.9	93.9	56.4
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	213	91.5	96.6	94.4	58.7
Avon, Somerset and Wiltshire					
Weston Area Health NHS Trust	123	100.0	92.5	91.1	69.1
Yeovil District Hospital NHS Foundation Trust	102	100.0	98.9	92.2	60.8
University Hospitals Bristol NHS Foundation Trust	162	100.0	86.9	92.6	44.4
Taunton and Somerset NHS Foundation Trust	205	99.5	31.3	91.7	26.3
Royal United Hospital Bath NHS Trust	257	100.0	80.4	90.3	65.0
North Bristol NHS Trust	198	100.0	98.8	93.4	66.2
Three Counties					
Wye Valley NHS Trust	128	98.4	98.1	99.2	75.0
Gloucestershire Hospitals NHS Foundation Trust	376	96.0	98.3	96.5	47.3
Worcestershire Acute Hospitals NHS Trust (3 Counties)	259	100.0	26.9	88.0	51.7

Network/Trust Name	Number of patients reported to the audit	Discussed at MDT meeting (%)	Seen by clinical nurse specialist (%)	CT scan reported (%)	Underwent major surgery (%)
Thames Valley					
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	70	98.5	94.7	87.1	35.7
Milton Keynes Hospital NHS Foundation Trust	112	100.0	94.8	69.6	58.0
Royal Berkshire NHS Foundation Trust	178	91.7	95.6	56.7	60.7
Great Western Hospitals NHS Foundation Trust	187	98.9	82.4	91.4	66.8
Oxford University Hospitals NHS Trust	229	98.7	100.0	80.3	84.3
Buckinghamshire Healthcare NHS Trust	270	99.6	87.3	93.0	28.1
Central South Coast					
Isle Of Wight NHS Trust	105	100.0	77.0	97.1	66.7
University Hospital Southampton NHS Foundation Trust	246	44.3	100.0	94.7	56.1
Portsmouth Hospitals NHS Trust	392	99.7	99.7	99.0	63.0
Winchester and Eastleigh Healthcare NHS Trust	183	98.9	94.6	91.3	67.8
Hampshire Hospitals NHS Foundation Trust	118	84.7	81.8	96.6	91.5
Salisbury NHS Foundation Trust	164	100.0	90.7	95.1	69.5
Western Sussex Hospitals NHS Trust (Central South Coast)	193	100.0	80.7	93.8	70.5
Surrey, West Sussex and Hampshire					
Royal Surrey County Hospital NHS Foundation Trust	152	97.4	93.4	88.8	67.1
Frimley Park Hospital NHS Foundation Trust	132	94.7	100.0	97.0	95.5
Ashford and St Peter's Hospitals NHS Foundation Trust	190	86.8	82.8	95.8	60.5
Surrey and Sussex Healthcare NHS Trust	168	100.0	87.7	97.6	61.9
Sussex					
East Sussex Healthcare NHS Trust	340	100.0	95.5	96.5	57.1
Brighton and Sussex University Hospitals NHS Trust	205	100.0	92.4	89.8	47.3
Western Sussex Hospitals NHS Trust (Sussex)	196	100.0	80.6	95.9	63.3
Kent and Medway					
Dartford and Gravesham NHS Trust	107	99.1	94.6	97.2	73.8
Medway NHS Foundation Trust	48	97.9	100.0	0.0	0.0*
East Kent Hospitals University NHS Foundation Trust	262	87.3	100.0	0.0	5.3
Maidstone and Tunbridge Wells NHS Trust	315	99.0	99.4	63.5	60.3
Greater Midlands					
Mid Staffordshire NHS Foundation Trust	106	100.0	92.4	94.3	67.9
University Hospital Of North Staffordshire NHS Trust	335	100.0	78.6	86.9	49.0
The Royal Wolverhampton NHS Trust	207	99.0	73.7	87.9	62.8
The Dudley Group NHS Foundation Trust	187	94.6	87.4	85.6	59.4
Shrewsbury and Telford Hospital NHS Trust	358	100.0	61.0	97.5	52.8
North Of England					
South Tyneside NHS Foundation Trust	114	100.0	100.0	81.6	71.1
City Hospitals Sunderland NHS Foundation Trust	168	98.8	95.2	96.4	53.0
North Cumbria University Hospitals NHS Trust	198	100.0	88.2	87.4	57.1
Gateshead Health NHS Foundation Trust	125	100.0	98.3	99.2	73.6
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	237	99.1	99.6	97.0	69.6
Northumbria Healthcare NHS Foundation Trust	328	99.4	95.6	87.8	64.0
South Tees Hospitals NHS Foundation Trust	276	96.4	99.0	96.7	64.9
North Tees and Hartlepool NHS Foundation Trust	245	97.1	93.5	97.1	54.3
County Durham and Darlington NHS Foundation Trust	309	100.0	99.7	98.7	68.9
Anglia					
Bedford Hospital NHS Trust	122	99.2	97.2	98.4	72.1
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	169	99.4	85.6	88.2	60.4
Peterborough and Stamford Hospitals NHS Foundation Trust	179	99.4	82.6	87.2	68.2
James Paget University Hospitals NHS Foundation Trust	142	100.0	33.0	95.8	52.1
Ipswich Hospital NHS Trust	272	96.7	95.8	65.8	69.5
West Suffolk NHS Foundation Trust	174	100.0	94.7	97.7	63.8
Cambridge University Hospitals NHS Foundation Trust	277	100.0	99.6	93.5	70.0
Norfolk and Norwich University Hospitals NHS Foundation Trust	452	99.8	91.0	92.3	61.7
Hinchingbrooke Health Care NHS Trust	64	98.4	28.0	92.2	64.1

Network/Trust Name	Number of patients reported to the audit	Discussed at MDT meeting (%)	Seen by clinical nurse specialist (%)	CT scan reported (%)	Underwent major surgery (%)
Essex					
Southend University Hospital NHS Foundation Trust	207	99.5	96.6	91.3	67.1
Basildon and Thurrock University Hospitals NHS Foundation Trust	135	94.8	100.0	96.3	81.5
Colchester Hospital University NHS Foundation Trust	270	99.6	99.6	94.8	61.1
Mid Essex Hospital Services NHS Trust	180	98.9	98.8	97.8	82.2
East Midlands					
Burton Hospitals NHS Foundation Trust	167	95.2	98.8	63.5	62.3
Sherwood Forest Hospitals NHS Foundation Trust	160	99.4	100.0	91.3	66.9
Kettering General Hospital NHS Foundation Trust	194	85.6	99.2	87.6	46.4
Northampton General Hospital NHS Trust	145	96.6	87.2	90.3	55.2
Derby Hospitals NHS Foundation Trust	305	81.8	86.2	81.3	14.1
United Lincolnshire Hospitals NHS Trust	41	97.6	97.3	85.4	87.8
University Hospitals Of Leicester NHS Trust	486	99.2	97.9	98.8	61.1
Nottingham University Hospitals NHS Trust	368	97.5	54.3	71.7	42.9
Wales					
Ysbwyty Glan Clwydd MDT	174	100.0	96.9	98.9	62.6
Ysbwyty Gwynedd MDT	173	100.0	94.1	96.5	61.8
Ysbwyty Maelor MDT	178	99.4	99.4	99.4	59.6
Nevill Hall Hospital MDT	117	96.6	100.0	76.1	67.5
Royal Gwent Hospital MDT	272	99.3	99.2	99.3	56.3
Cardiff MDT	247	98.4	94.0	98.8	49.4
Prince Charles Hospital MDT	116	98.3	99.1	86.2	69.8
Royal Glamorgan Hospital MDT	104	100.0	63.8	91.3	70.2
Princess Of Wales MDT	171	98.2	93.5	98.8	70.8
Swansea MDT	190	98.9	92.5	97.9	68.4
Bronglais MDT	51	100.0	95.2	94.1	62.7
West Wales General and Prince Phillip MDT	160	99.4	90.8	94.4	55.6
Withybush General MDT	80	97.5	82.1	96.2	62.5
* No procedure names entered for this trust					

Table 6.3
Management of patients who had major surgery according to trust/hospital site

Network/Trust Name	No. patients having major surgery	Patients with distant metastases at time of surgery (%)	Major surgery carried out as urgent or emergency (%)	Median number of lymph nodes excised	Laparoscopic surgery attempted (%)	Length of hospital stay > 5 days (%)
Overall	17,250	11.9	18.1	16	49.2	68.9
North Of England						
City Hospitals Sunderland NHS Foundation Trust	89	11.2	7.9	16	54.1	73.9
County Durham and Darlington NHS Foundation Trust	213	13.6	16.0	13.5	55.9	69.3
Gateshead Health NHS Foundation Trust	92	10.1	6.7	16	38.5	53.6
North Cumbria University Hospitals NHS Trust	113	14.3	12.7	15	38.2	62.7
North Tees and Hartlepool NHS Foundation Trust	133	5.3	10.5	18	81.3	53.5
Northumbria Healthcare NHS Foundation Trust	210	6.4	10.0	15	40.0	70.7
South Tees Hospitals NHS Foundation Trust	179	11.3	16.8	18	87.3	66.7
South Tyneside NHS Foundation Trust	81	19.5	11.3	15	5.0	92.6
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	165	9.1	7.3	18	84.0	70.9
Yorkshire						
Airedale NHS Foundation Trust	78	9.0	15.4	22	60.3	70.5
Bradford Teaching Hospitals NHS Foundation Trust	101	12.2	5.0	19	90.0	79.0
Calderdale and Huddersfield NHS Foundation Trust	138	3.0	12.8	19	44.1	60.6
Harrogate and District NHS Foundation Trust	76	6.7	15.8	19	69.7	68.4
Leeds Teaching Hospitals NHS Trust	248	13.0	15.3	18	62.5	79.3
Mid Yorkshire Hospitals NHS Trust	182	14.6	23.2	17	40.7	78.7
York Teaching Hospital NHS Foundation Trust	168	6.0	18.1	22	37.6	80.2
Humber and Yorkshire Coast						
Hull and East Yorkshire Hospitals NHS Trust	187	17.2	11.4	15	36.0	90.8
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	152	17.9	21.9	17	39.6	75.5
Scarborough and North East Yorkshire Health Care NHS Trust	63	8.3	19.4	17	36.7	63.2
Lancashire and South Cumbria						
Blackpool Teaching Hospitals NHS Foundation Trust	101	8.0	23.4	13	73.6	77.2
East Lancashire Hospitals NHS Trust	105	12.7	57.7	15	40.2	80.0
Lancashire Teaching Hospitals NHS Foundation Trust	120	12.0	8.4	10	19.1	84.1
University Hospitals Of Morecambe Bay NHS Foundation Trust	87	11.3	13.8	15	0.0	100.0
Merseyside and Cheshire						
Aintree University Hospital NHS Foundation Trust	114	13.4	54.0	20	50.9	62.3
Countess Of Chester Hospital NHS Foundation Trust	89	7.1	29.2	16	50.0	51.2
Royal Liverpool and Broadgreen University Hospitals NHS Trust	119	7.0	19.5	18	18.4	73.0
Southport and Ormskirk Hospital NHS Trust	84	16.7	15.5	15	56.0	75.7
St Helens and Knowsley Hospitals NHS Trust	115	12.6	10.4	18	5.5	82.6
Warrington and Halton Hospitals NHS Foundation Trust	122	11.3	22.0	15	32.2	59.3
Wirral University Teaching Hospital NHS Foundation Trust	141	8.6	18.4	19	39.7	69.5
Greater Manchester and Cheshire						
Bolton NHS Foundation Trust	107	11.2	29.2	12	18.6	78.5
Central Manchester University Hospitals NHS Foundation Trust	66	19.7	18.2	15	49.2	71.4
East Cheshire NHS Trust	78	7.9	17.9	14	61.6	73.0
Mid Cheshire Hospitals NHS Foundation Trust	68	2.9	86.2	14	0.0	83.1
Pennine Acute Hospitals NHS Trust	212	18.5	23.4	17.5	55.9	75.0
Salford Royal NHS Foundation Trust	67	7.7	15.2	14	71.2	77.8
Stockport NHS Foundation Trust	82	11.4	13.0	14	13.5	89.0
Tameside Hospital NHS Foundation Trust	73	11.4	12.3	13	75.7	64.4
The Christie NHS Foundation Trust	55	26.4	5.5	19	43.6	83.3
Trafford Healthcare NHS Trust	34	21.2	26.5	21	29.4	84.4
University Hospital Of South Manchester NHS Foundation Trust	87	14.9	12.6	21	33.3	89.5
Wrightington, Wigan and Leigh NHS Foundation Trust	72	8.6	16.7	14	15.2	62.9
North Trent						
Barnsley Hospital NHS Foundation Trust	86	9.5	20.0	18.5	0.0	66.7
Chesterfield Royal Hospital NHS Foundation Trust	134	5.3	10.4	18	32.1	79.7
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	169	10.5	12.0	16	69.1	63.9
Sheffield Teaching Hospitals NHS Foundation Trust	236	8.6	16.1	27	29.8	82.1
The Rotherham NHS Foundation Trust	82	17.3	24.4	18	68.3	73.2

Network/Trust Name	No. patients having major surgery	Patients with distant metastases at time of surgery (%)	Major surgery carried out as urgent or emergency (%)	Median number of lymph nodes excised	Laparoscopic surgery attempted (%)	Length of hospital stay > 5 days (%)
Wales						
Bronglais MDT	32	12.5	0.0	11	0.0	87.5
Cardiff MDT	122	9.1	23.0	15	54.9	66.7
Nevill Hall Hospital MDT	79	15.4	24.1	16	30.4	72.2
Prince Charles Hospital MDT	81	6.3	6.3	12	86.4	50.6
Princess Of Wales MDT	121	15.4	0.8	17	27.3	70.6
Royal Glamorgan Hospital MDT	73	15.5	20.8	13	13.9	78.1
Royal Gwent Hospital MDT	153	10.0	22.9	13	47.4	77.8
Swansea MDT	130	14.3	30.0	18	27.7	65.1
West Wales General and Prince Phillip MDT	89	9.1	21.3	14	15.7	82.0
Withybush General MDT	50	18.0	32.0	15	58.0	58.0
Ysbwyty Glan Clwydd MDT	109	13.9	38.0	17.5	28.7	79.6
Ysbwyty Gwynedd MDT	107	10.7	15.9	12	71.0	79.4
Ysbwyty Maelor MDT	106	13.4	8.5	22	17.0	68.9
Greater Midlands						
Mid Staffordshire NHS Foundation Trust	72	12.7	19.7	17	45.6	62.5
Shrewsbury and Telford Hospital NHS Trust	189	6.8	4.2	7	45.9	53.7
The Dudley Group NHS Foundation Trust	111	8.0	25.5	17	0.0	69.0
The Royal Wolverhampton NHS Trust	130	14.7	19.2	19	47.5	77.8
University Hospital Of North Staffordshire NHS Trust	164	17.4	19.6	17	70.2	51.4
Pan Birmingham						
Heart Of England NHS Foundation Trust	172	21.9	14.0	21	64.4	69.7
Sandwell and West Birmingham Hospitals NHS Trust	37	5.6	8.1	24	9.7	61.1
University Hospitals Birmingham NHS Foundation Trust	135	15.3	12.7	20	54.6	76.2
Walsall Healthcare NHS Trust	22	0.0	40.0	14.5	7.7	66.7
Arden						
George Eliot Hospital NHS Trust	53	11.8	15.1	15	54.7	69.2
South Warwickshire NHS Foundation Trust	92	18.5	21.8	16	42.0	72.9
University Hospitals Coventry and Warwickshire NHS Trust	130	20.6	24.8	24	46.8	77.7
Worcestershire Acute Hospitals NHS Trust (Arden)	93	13.5	6.5	10	28.6	82.0
East Midlands						
Burton Hospitals NHS Foundation Trust	104	16.0	30.4	16	48.5	56.4
Derby Hospitals NHS Foundation Trust	43	4.8	21.4	15.5	19.0	64.3
Kettering General Hospital NHS Foundation Trust	90	7.9	15.6	14.5	*	76.7
Northampton General Hospital NHS Trust	80	9.2	17.5	15	65.8	57.0
Nottingham University Hospitals NHS Trust	158	5.7	12.7	12	55.4	64.4
Sherwood Forest Hospitals NHS Foundation Trust	107	10.6	23.4	17	38.7	76.3
United Lincolnshire Hospitals NHS Trust	36	20.6	45.7	16	16.7	64.7
University Hospitals Of Leicester NHS Trust	297	20.1	16.8	13	46.4	66.7
Anglia						
Bedford Hospital NHS Trust	88	9.4	11.4	13	54.7	81.0
Cambridge University Hospitals NHS Foundation Trust	194	8.4	14.1	16	33.3	56.9
Hinchingbrooke Health Care NHS Trust	41	14.6	70.7	15	77.5	82.9
Ipswich Hospital NHS Trust	189	8.8	12.2	13	51.6	52.7
James Paget University Hospitals NHS Foundation Trust	74	14.1	32.9	13	25.5	87.5
Norfolk and Norwich University Hospitals NHS Foundation Trust	279	12.8	10.8	13	33.1	67.5
Peterborough and Stamford Hospitals NHS Foundation Trust	122	12.8	12.4	15	45.7	70.7
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	102	6.3	22.8	11	18.8	60.0
West Suffolk NHS Foundation Trust	111	9.9	23.4	17	50.0	47.2
Three Counties						
Gloucestershire Hospitals NHS Foundation Trust	178	10.8	12.5	25	46.8	53.8
Worcestershire Acute Hospitals NHS Trust (3 Counties)	134	16.0	32.6	17	64.1	58.3
Wye Valley NHS Trust	96	17.4	17.7	13	24.5	75.0

Network/Trust Name	No. patients having major surgery	Patients with distant metastases at time of surgery (%)	Major surgery carried out as urgent or emergency (%)	Median number of lymph nodes excised	Laparoscopic surgery attempted (%)	Length of hospital stay > 5 days (%)
Avon, Somerset and Wiltshire						
North Bristol NHS Trust	131	9.6	10.8	19	23.4	30.2
Royal United Hospital Bath NHS Trust	167	8.4	12.7	17	54.9	66.7
Taunton and Somerset NHS Foundation Trust	54	6.5	5.6	18	75.8	52.2
University Hospitals Bristol NHS Foundation Trust	72	12.9	25.0	16	38.9	62.5
Weston Area Health NHS Trust	85	10.7	15.3	18	39.7	44.7
Yeovil District Hospital NHS Foundation Trust	62	20.3	24.2	19.5	66.7	75.6
Thames Valley						
Buckinghamshire Healthcare NHS Trust	76	17.6	14.5	16	80.3	38.9
Great Western Hospitals NHS Foundation Trust	125	8.1	11.3	17	35.2	74.0
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	25	4.2	13.6	19	66.7	68.0
Milton Keynes Hospital NHS Foundation Trust	65	4.7	98.5	14	*	*
Oxford University Hospitals NHS Trust	193	7.3	11.9	16	83.9	66.7
Royal Berkshire NHS Foundation Trust	108	7.6	15.0	18	82.7	44.3
Mount Vernon						
East and North Hertfordshire NHS Trust	131	18.2	20.0	20	41.5	80.2
West Hertfordshire Hospitals NHS Trust	156	15.6	12.8	14	57.4	70.9
Essex						
Basildon and Thurrock University Hospitals NHS Foundation Trust	110	13.8	5.5	15	39.4	58.3
Colchester Hospital University NHS Foundation Trust	165	13.4	15.3	14	86.1	70.6
Mid Essex Hospital Services NHS Trust	148	18.1	12.2	17	61.9	67.6
Southend University Hospital NHS Foundation Trust	139	12.2	20.9	16	75.5	65.0
North West London						
Chelsea and Westminster Hospital NHS Foundation Trust	46	11.1	10.9	20.5	10.9	100.0
Ealing Hospital NHS Trust	38	16.2	18.2	15.5	57.9	89.2
Imperial College Healthcare NHS Trust	16	6.3	25.0	17	62.5	62.5
North West London Hospitals NHS Trust	26	13.3	7.7	19	87.0	0.0
The Hillingdon Hospitals NHS Foundation Trust	81	26.3	28.4	14	51.9	78.8
West Middlesex University Hospital NHS Trust	60	17.5	14.0	16	50.0	53.8
North London						
Barnet and Chase Farm Hospitals NHS Trust	117	11.5	14.5	13	71.8	73.5
North Middlesex University Hospital NHS Trust	44	4.7	8.1	10	50.0	100.0
Royal Free London NHS Foundation Trust	46	8.9	15.2	17	19.6	79.1
The Princess Alexandra Hospital NHS Trust	8	37.5	80.0	13	25.0	75.0
The Whittington Hospital NHS Trust	47	21.3	31.9	19	73.8	76.7
University College London Hospitals NHS Foundation Trust	75	13.5	55.4	20	54.7	83.8
North East London						
Barts and The London NHS Trust	33	3.0	21.9	20.5	20.0	93.8
Homerton University Hospital NHS Foundation Trust	33	30.3	24.2	17	65.6	76.7
Newham University Hospital NHS Trust	18	17.6	33.3	16	64.7	58.3
Whipps Cross University Hospital NHS Trust	61	13.3	8.2	20	83.7	77.6
South West London						
Croydon Health Services NHS Trust	74	12.3	11.1	12	49.1	68.2
Epsom and St Helier University Hospitals NHS Trust	94	15.2	*	*	*	*
Kingston Hospital NHS Trust	86	8.2	14.0	17	44.2	61.9
St George's Healthcare NHS Trust	57	17.0	9.1	24	63.5	60.9
The Royal Marsden NHS Foundation Trust	16	0.0	0.0	23.5	43.8	87.5
South East London						
Guy's and St Thomas' NHS Foundation Trust	121	2.3	1.0	15	0.0	100.0
King's College Hospital NHS Foundation Trust	59	20.7	18.6	16.5	72.3	82.9
Lewisham Healthcare NHS Trust	35	12.1	5.7	20	11.8	73.5
South London Healthcare NHS Trust	77	4.8	11.1	15	*	*
Peninsula						
Northern Devon Healthcare NHS Trust	99	7.3	12.2	14	53.1	58.3
Plymouth Hospitals NHS Trust	158	10.3	41.3	21	26.4	67.3
Royal Cornwall Hospitals NHS Trust	191	17.5	14.1	16	24.8	61.4
Royal Devon and Exeter NHS Foundation Trust	178	9.8	16.9	15	48.8	58.3
South Devon Healthcare NHS Foundation Trust	129	16.0	29.7	16	65.7	69.8

Network/Trust Name	No. patients having major surgery	Patients with distant metastases at time of surgery (%)	Major surgery carried out as urgent or emergency (%)	Median number of lymph nodes excised	Laparoscopic surgery attempted (%)	Length of hospital stay > 5 days (%)
Dorset						
Dorset County Hospital NHS Foundation Trust	67	10.6	26.2	18	68.8	56.3
Poole Hospital NHS Foundation Trust	93	16.1	8.6	17.5	62.4	39.6
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	125	9.1	10.4	15	54.5	100.0
Central South Coast						
Hampshire Hospitals NHS Foundation Trust	108	8.3	16.7	13.5	64.8	63.6
Isle Of Wight NHS Trust	70	7.4	16.7	18	34.3	65.7
Portsmouth Hospitals NHS Trust	247	8.9	13.8	19	77.2	61.0
Salisbury NHS Foundation Trust	114	7.9	18.4	17	81.8	41.0
University Hospital Southampton NHS Foundation Trust	138	21.6	21.2	17	17.4	60.8
Western Sussex Hospitals NHS Trust (Central South Coast)	136	11.1	13.3	13	53.1	72.6
Winchester and Eastleigh Healthcare NHS Trust	124	10.5	12.1	14	59.2	52.3
Surrey, West Sussex and Hampshire						
Ashford and St Peter's Hospitals NHS Foundation Trust	115	11.9	15.7	15	64.9	62.5
Frimley Park Hospital NHS Foundation Trust	126	16.1	16.8	18	78.6	50.4
Royal Surrey County Hospital NHS Foundation Trust	102	17.5	13.7	21.5	59.4	45.0
Surrey and Sussex Healthcare NHS Trust	104	5.0	17.3	15	35.6	73.7
Sussex						
Brighton and Sussex University Hospitals NHS Trust	97	10.5	46.3	16.5	69.0	71.1
East Sussex Healthcare NHS Trust	194	8.9	27.8	18	26.6	68.4
Western Sussex Hospitals NHS Trust (Sussex)	124	9.0	16.1	15	79.0	73.0
Kent and Medway						
Dartford and Gravesham NHS Trust	79	6.6	17.7	17	39.7	77.6
East Kent Hospitals University NHS Foundation Trust	14	0.0	0.0	16	*	0.0
Maidstone and Tunbridge Wells NHS Trust	190	11.0	18.8	16	32.8	73.7

* No data submitted for this item

Table 6.4
Outcomes of patients who had major surgery according to trust/hospital site

Network/Trust Name	No. patients having major surgery	Observed 30-day mortality (%)	Adjusted 30-day mortality (%)	Observed 90-day mortality (%)	Adjusted 90-day mortality (%)	No. patients having major surgery linked to HES/ PEDW	Observed 90-day unplanned readmission rate (%)	Adjusted 90-day unplanned readmission rate (%)	No. patients having major resection 1 Apr 08 - 31 Mar 10	Observed 2-year mortality (%)	Adjusted 2-year mortality (%)
Overall	17,250	2.9	2.9	4.5	4.5	16,188	20.0	20.0	29,710	24.5	24.5
Lancashire and South Cumbria											
University Hospitals Of Morecambe Bay NHS Foundation Trust	87	0.0	†	3.5	†	84	20.2	†	34	31.3	†
Blackpool Teaching Hospitals NHS Foundation Trust	101	4.0	3.6	5.0	4.8	98	10.2	10.7	270	24.6	28.4
Lancashire Teaching Hospitals NHS Foundation Trust	120	3.4	4.2	5.0	6.4	114	16.7	17.0	203	17.7	22.7
East Lancashire Hospitals NHS Trust	105	3.8	3.2	5.8	4.6	102	12.7	12.0	149	27.1	35.4
Greater Manchester and Cheshire											
Mid Cheshire Hospitals NHS Foundation Trust	68	0.0	0.0	0.0	0.0	66	16.7	17.8	28	14.9	19.6
The Christie NHS Foundation Trust	55	0.0	0.0	0.0	0.0	36	27.8	22.9	51	19.0	32.4
East Cheshire NHS Trust	78	6.6	6.9	7.9	8.1	75	17.3	17.6	47	19.2	18.7
University Hospital Of South Manchester NHS Foundation Trust	87	3.4	2.5	4.6	3.3	86	16.3	15.5	133	17.1	13.4
Salford Royal NHS Foundation Trust	67	1.5	2.1	1.5	2.0	64	9.4	9.3	118	25.0	22.4
Trafford Healthcare NHS Trust	34	5.9	4.8	5.9	4.6	31	19.4	19.8	96	29.3	29.3
Bolton NHS Foundation Trust	107	3.7	3.5	8.4	8.0	97	19.6	19.0	178	24.5	25.0
Tameside Hospital NHS Foundation Trust	73	5.5	5.1	6.8	6.6	73	16.4	16.0	155	40.6	50.1
Wrightington, Wigan and Leigh NHS Foundation Trust	72	1.4	1.5	2.8	2.9	70	20.0	20.7	54	22.7	25.2
Central Manchester University Hospitals NHS Foundation Trust	66	3.1	2.9	6.2	5.6	63	25.4	22.5	56	27.0	17.5
Pennine Acute Hospitals NHS Trust	212	4.2	4.0	7.1	6.4	206	20.9	20.0	273	31.3	30.3
Stockport NHS Foundation Trust	82	0.0	0.0	0.0	0.0	80	21.3	20.5	148	20.0	24.1
Merseyside and Cheshire											
Wirral University Teaching Hospital NHS Foundation Trust	141	1.4	1.3	2.8	2.7	138	20.3	20.3	309	26.0	22.5
St Helens and Knowsley Hospitals NHS Trust	115	0.9	1.2	2.6	3.3	112	14.3	14.1	190	22.5	26.1
Aintree University Hospital NHS Foundation Trust	114	1.8	3.5	1.8	3.1	107	22.4	23.0	217	35.4	42.1
Countess Of Chester Hospital NHS Foundation Trust	89	1.1	1.1	3.4	3.4	88	14.8	15.4	151	22.2	25.3
Royal Liverpool and Broadgreen University Hospitals NHS Trust	119	3.4	4.0	4.2	4.9	114	20.2	20.0	189	27.7	29.5
Southport and Ormskirk Hospital NHS Trust	84	2.4	2.5	2.4	2.4	80	16.3	17.3	151	30.0	22.7
Warrington and Halton Hospitals NHS Foundation Trust	122	4.9	4.6	7.4	7.4	119	17.6	17.6	242	23.6	30.4
Yorkshire											
Bradford Teaching Hospitals NHS Foundation Trust	101	2.0	2.1	2.0	2.0	101	25.7	24.4	215	19.8	17.4
York Teaching Hospital NHS Foundation Trust	168	4.2	4.2	6.0	6.4	159	22.0	22.8	262	19.3	20.7
Harrogate and District NHS Foundation Trust	76	5.3	4.5	6.6	6.0	75	28.0	30.5	110	25.6	27.2
Airedale NHS Foundation Trust	78	0.0	0.0	1.3	1.4	76	18.4	17.8	167	18.8	17.3
Leeds Teaching Hospitals NHS Trust	248	4.9	3.7	6.9	5.4	241	21.6	21.0	433	25.2	24.7
Calderdale and Huddersfield NHS Foundation Trust	138	4.4	5.8	4.4	6.0	135	17.8	17.8	160	16.6	18.9
Mid Yorkshire Hospitals NHS Trust	182	2.2	2.9	4.4	5.3	173	19.7	19.1	364	19.5	20.6
Humber and Yorkshire Coast											
Scarborough and North East Yorkshire Health Care NHS Trust	63	4.9	4.5	9.8	9.3	59	25.4	25.4	81	32.2	29.0
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	152	4.6	3.3	7.3	5.3	147	20.4	19.5	263	18.6	20.5
Hull and East Yorkshire Hospitals NHS Trust	187	1.1	1.0	1.6	1.5	180	17.2	17.3	393	30.8	27.5
North Trent											
Barnsley Hospital NHS Foundation Trust	86	3.5	3.8	7.0	7.5	82	31.7	31.3	158	23.6	28.4
The Rotherham NHS Foundation Trust	82	3.7	3.7	4.9	4.6	79	21.5	21.5	189	24.1	29.0
Chesterfield Royal Hospital NHS Foundation Trust	134	3.0	5.1	3.7	6.2	132	22.0	22.6	169	20.6	27.9
Sheffield Teaching Hospitals NHS Foundation Trust	236	2.1	1.9	3.0	2.8	231	19.5	19.3	384	17.5	18.1
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	169	3.6	4.4	6.0	6.7	166	20.5	19.6	110	21.8	34.3
Pan Birmingham											
Walsall Healthcare NHS Trust	22	0.0	0.0	0.0	0.0	21	38.1	40.5	174	38.4	33.1
Heart Of England NHS Foundation Trust	172	1.7	1.8	4.7	4.6	159	27.7	27.6	467	26.9	24.2
University Hospitals Birmingham NHS Foundation Trust	135	1.5	1.7	2.2	2.4	129	21.7	20.7	274	22.6	20.8
Sandwell and West Birmingham Hospitals NHS Trust	37	2.7	4.5	2.7	3.8	36	16.7	17.7	225	28.2	31.5

Network/Trust Name	No. patients having major surgery	Observed 30-day mortality (%)	Adjusted 30-day mortality (%)	Observed 90-day mortality (%)	Adjusted 90-day mortality (%)	No. patients having major surgery linked to HES/ PEDW	Observed 90-day unplanned readmission rate (%)	Adjusted 90-day unplanned readmission rate (%)	No. patients having major resection 1 Apr 08 - 31 Mar 10	Observed 2-year mortality (%)	Adjusted 2-year mortality (%)
Arden											
South Warwickshire NHS Foundation Trust	92	5.4	5.1	6.5	5.6	88	11.4	11.5	196	19.1	18.9
University Hospitals Coventry and Warwickshire NHS Trust	130	2.3	2.1	6.2	5.5	124	17.7	17.0	242	22.3	23.4
George Eliot Hospital NHS Trust	53	0.0	0.0	0.0	0.0	51	25.5	24.1	128	38.6	44.8
Worcestershire Acute Hospitals NHS Trust (Arden)	93	2.2	2.1	3.2	3.2	90	17.8	17.7	125	29.1	33.8
Mount Vernon											
West Hertfordshire Hospitals NHS Trust	156	3.2	3.2	6.5	6.4	152	19.7	19.8	110	28.0	27.2
East and North Hertfordshire NHS Trust	131	3.1	3.0	4.6	4.4	123	16.3	16.0	320	23.1	15.8
North West London											
The Hillingdon Hospitals NHS Foundation Trust	81	6.2	4.6	7.4	5.4	80	18.8	19.0	153	37.9	35.0
Ealing Hospital NHS Trust	38	5.3	4.4	5.3	4.5	36	16.7	17.0	66	28.4	27.7
West Middlesex University Hospital NHS Trust	60	12.1	8.8	12.1	9.3	49	14.3	13.6	101	20.2	21.1
Chelsea and Westminster Hospital NHS Foundation Trust	46	2.2	1.9	2.2	1.8	44	25.0	23.5	103	27.1	19.9
North West London Hospitals NHS Trust	26	0.0	0.0	0.0	0.0	26	23.1	25.7	81	17.9	21.7
Imperial College Healthcare NHS Trust	16	6.7	4.3	6.7	4.7	14	7.1	7.5	291	25.2	21.2
North London											
Royal Free London NHS Foundation Trust	46	6.5	5.6	6.5	6.1	39	10.3	9.7	117	30.4	29.4
North Middlesex University Hospital NHS Trust	44	0.0	0.0	4.5	5.2	41	17.1	15.6	7	*	*
The Whittington Hospital NHS Trust	47	6.5	4.4	6.5	4.3	43	25.6	23.3	115	28.4	21.8
The Princess Alexandra Hospital NHS Trust	8	0.0	*	0.0	*	6	33.3	*	23	19.6	†
University College London Hospitals NHS Foundation Trust	75	1.3	2.3	2.7	4.5	71	25.4	24.5	20	16.0	18.4
Barnet and Chase Farm Hospitals NHS Trust	117	5.1	2.7	5.1	2.8	113	26.5	26.3	230	26.6	21.8
North East London											
Whipps Cross University Hospital NHS Trust	61	8.2	7.9	11.5	11.3	60	21.7	22.8	156	17.2	22.4
Newham University Hospital NHS Trust	18	11.1	9.1	16.7	14.3	18	27.8	28.4	60	72.3	60.6
Barts and The London NHS Trust	33	0.0	0.0	6.1	9.1	31	48.4	44.7	91	35.8	34.7
Homerton University Hospital NHS Foundation Trust	33	0.0	0.0	0.0	0.0	30	16.7	15.8	69	19.9	32.5
South East London											
Guy's and St Thomas' NHS Foundation Trust	121	0.0	0.0	1.7	3.8	112	28.6	30.6	4	*	*
Lewisham Healthcare NHS Trust	35	0.0	0.0	0.0	0.0	35	31.4	32.5	79	18.1	26.7
King's College Hospital NHS Foundation Trust	59	0.0	0.0	1.7	1.6	52	17.3	16.8	118	16.2	14.1
South London Healthcare NHS Trust	77	2.6	2.4	5.3	4.9	71	22.5	21.5	116	29.8	28.3
South West London											
Kingston Hospital NHS Trust	86	1.2	1.6	1.2	1.5	82	12.2	12.8	135	22.9	23.6
Croydon Health Services NHS Trust	74	5.4	4.6	6.8	5.8	67	20.9	20.9	137	19.6	21.8
St George's Healthcare NHS Trust	57	3.5	4.0	3.5	4.1	56	16.1	15.4	50	24.5	23.7
The Royal Marsden NHS Foundation Trust	16	0.0	0.0	0.0	0.0	16	18.8	17.0	12	0.0	0.0
Epsom and St Helier University Hospitals NHS Trust	94	4.3	†	8.5	†	89	13.5	†	168	21.8	†
Peninsula											
South Devon Healthcare NHS Foundation Trust	129	2.4	2.3	3.9	3.7	123	17.9	18.1	197	18.0	18.5
Northern Devon Healthcare NHS Trust	99	1.0	1.4	1.0	1.4	97	21.6	22.9	151	23.1	26.6
Royal Cornwall Hospitals NHS Trust	191	2.1	2.1	4.8	4.7	186	21.0	20.8	390	22.7	25.5
Royal Devon and Exeter NHS Foundation Trust	178	2.8	2.6	3.4	3.0	171	14.6	15.2	322	27.0	20.5
Plymouth Hospitals NHS Trust	158	1.3	1.2	4.4	4.2	158	20.3	19.3	244	26.2	28.1
Dorset											
Dorset County Hospital NHS Foundation Trust	67	3.0	2.9	6.1	5.5	66	13.6	14.6	145	21.8	20.6
Poole Hospital NHS Foundation Trust	93	2.2	2.9	2.2	2.7	90	18.9	19.0	212	17.0	18.1
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	125	1.6	2.0	2.4	3.0	123	23.6	24.0	237	19.0	18.3

Network/Trust Name	No. patients having major surgery	Observed 30-day mortality (%)	Adjusted 30-day mortality (%)	Observed 90-day mortality (%)	Adjusted 90-day mortality (%)	No. patients having major surgery linked to HES/ PEDW	Observed 90-day unplanned readmission rate (%)	Adjusted 90-day unplanned readmission rate (%)	No. patients having major resection 1 Apr 08 - 31 Mar 10	Observed 2-year mortality (%)	Adjusted 2-year mortality (%)
Avon, Somerset and Wiltshire											
Weston Area Health NHS Trust	85	6.0	4.5	9.5	7.5	80	11.3	12.3	135	33.3	27.6
Yeovil District Hospital NHS Foundation Trust	62	1.6	1.7	4.8	4.9	61	24.6	24.5	162	22.5	26.5
University Hospitals Bristol NHS Foundation Trust	72	8.7	6.6	8.7	6.8	64	7.8	7.6	124	21.8	26.9
Taunton and Somerset NHS Foundation Trust	54	1.9	2.1	1.9	2.1	50	10.0	10.3	98	31.4	27.7
Royal United Hospital Bath NHS Trust	167	2.4	1.9	4.9	4.1	157	20.4	20.6	289	26.1	24.8
North Bristol NHS Trust	131	3.9	3.7	4.7	4.7	128	23.4	25.0	335	21.3	19.4
Three Counties											
Wye Valley NHS Trust	96	1.1	1.0	4.2	3.8	89	21.3	20.4	191	30.6	29.4
Gloucestershire Hospitals NHS Foundation Trust	178	1.1	1.3	1.7	1.9	171	18.1	17.6	158	22.2	19.8
Worcestershire Acute Hospitals NHS Trust (3 Counties)	134	0.0	0.0	3.0	2.6	132	19.7	20.2	270	33.8	29.7
Thames Valley											
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	25	0.0	0.0	0.0	0.0	25	12.0	13.2	42	27.8	†
Milton Keynes Hospital NHS Foundation Trust	65	0.0	0.0	1.6	2.5	64	15.6	15.4	45	41.7	48.8
Royal Berkshire NHS Foundation Trust	108	0.9	1.2	2.8	3.5	103	21.4	21.1	104	22.9	20.8
Great Western Hospitals NHS Foundation Trust	125	4.9	4.4	4.9	4.4	116	18.1	17.4	217	30.5	27.3
Oxford University Hospitals NHS Trust	193	1.6	2.3	2.6	3.7	188	17.0	17.0	290	23.1	22.4
Buckinghamshire Healthcare NHS Trust	76	1.3	2.1	1.3	2.0	59	5.1	5.0	121	19.5	24.9
Central South Coast											
Isle Of Wight NHS Trust	70	4.3	3.3	5.7	4.5	66	19.7	20.1	119	32.9	30.7
University Hospital Southampton NHS Foundation Trust	138	0.7	0.8	1.5	1.6	134	24.6	26.1	339	17.4	17.0
Portsmouth Hospitals NHS Trust	247	1.6	1.7	2.4	2.4	244	23.0	22.5	455	25.3	24.9
Winchester and Eastleigh Healthcare NHS Trust	124	2.4	2.9	5.6	6.5	112	27.7	27.5	181	21.1	25.0
Hampshire Hospitals NHS Foundation Trust	108	0.9	1.1	0.9	1.1	102	13.7	14.0	165	19.5	16.7
Salisbury NHS Foundation Trust	114	1.8	1.4	2.7	2.2	107	19.6	20.6	194	18.9	16.1
Western Sussex Hospitals NHS Trust (Central South Coast)	136	0.0	0.0	0.0	0.0	133	21.1	22.0	245	35.0	30.1
Surrey, West Sussex and Hampshire											
Royal Surrey County Hospital NHS Foundation Trust	102	2.9	2.9	4.9	4.7	100	18.0	18.4	119	14.5	15.8
Frimley Park Hospital NHS Foundation Trust	126	6.3	7.0	7.9	7.9	123	16.3	16.2	151	19.6	23.9
Ashford and St Peter's Hospitals NHS Foundation Trust	115	1.7	2.1	3.5	4.0	111	18.9	20.1	74	32.7	24.5
Surrey and Sussex Healthcare NHS Trust	104	3.8	3.2	6.7	5.8	94	27.7	29.9	99	23.7	23.9
Sussex											
East Sussex Healthcare NHS Trust	194	2.6	2.5	4.7	4.5	187	17.1	17.9	294	24.9	24.0
Brighton and Sussex University Hospitals NHS Trust	97	4.2	5.9	6.3	8.3	91	9.9	10.3	143	21.0	27.0
Western Sussex Hospitals NHS Trust (Sussex)	124	3.3	3.9	6.5	7.6	121	15.7	16.7	223	26.8	29.9
Kent and Medway											
Dartford and Gravesham NHS Trust	79	1.3	1.3	3.8	3.9	78	16.7	17.6	118	18.3	22.4
East Kent Hospitals University NHS Foundation Trust	14	0.0	†	0.0	†	14	28.6	†	0	0.0	*
Maidstone and Tunbridge Wells NHS Trust	190	2.1	2.4	3.7	4.0	182	16.5	17.0	226	22.1	13.3
Greater Midlands											
Mid Staffordshire NHS Foundation Trust	72	2.8	2.5	5.6	4.9	69	24.6	24.6	146	27.8	28.4
University Hospital Of North Staffordshire NHS Trust	164	3.1	3.6	7.4	7.8	162	19.1	19.2	101	34.6	45.6
The Royal Wolverhampton NHS Trust	130	5.5	5.4	7.0	6.7	126	20.6	20.3	245	24.4	17.2
The Dudley Group NHS Foundation Trust	111	2.7	1.9	5.5	4.0	107	18.7	18.1	200	24.8	31.3
Shrewsbury and Telford Hospital NHS Trust	189	2.1	3.0	3.7	5.2	183	15.8	16.0	320	17.0	19.8

Network/Trust Name	No. patients having major surgery	Observed 30-day mortality (%)	Adjusted 30-day mortality (%)	Observed 90-day mortality (%)	Adjusted 90-day mortality (%)	No. patients having major surgery linked to HES/ PEDW	Observed 90-day unplanned readmission rate (%)	Adjusted 90-day unplanned readmission rate (%)	No. patients having major resection 1 Apr 08 - 31 Mar 10	Observed 2-year mortality (%)	Adjusted 2-year mortality (%)
North Of England											
South Tyneside NHS Foundation Trust	81	3.7	3.0	4.9	3.9	75	21.3	19.7	149	34.7	28.5
City Hospitals Sunderland NHS Foundation Trust	89	2.2	2.1	2.2	2.2	89	27.0	25.5	174	16.6	21.5
North Cumbria University Hospitals NHS Trust	113	2.7	2.5	2.7	2.6	112	15.2	15.5	210	19.8	22.3
Gateshead Health NHS Foundation Trust	92	1.1	1.3	2.2	2.5	91	13.2	13.3	193	25.0	23.7
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	165	4.2	3.1	6.1	4.7	161	20.5	20.6	295	27.3	28.2
Northumbria Healthcare NHS Foundation Trust	210	3.9	4.4	5.3	6.0	205	22.4	22.5	356	24.8	31.1
South Tees Hospitals NHS Foundation Trust	179	1.7	1.4	5.6	4.6	171	21.6	21.3	282	23.6	25.3
North Tees and Hartlepool NHS Foundation Trust	133	0.8	0.8	1.5	1.6	132	21.2	20.7	262	18.5	17.3
County Durham and Darlington NHS Foundation Trust	213	3.3	4.0	7.1	8.3	206	19.9	20.1	373	23.5	28.9
Anglia											
Bedford Hospital NHS Trust	88	2.3	2.8	2.3	2.8	85	17.6	18.8	143	33.8	32.9
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	102	1.0	0.9	3.0	2.8	99	21.2	21.1	142	25.6	26.2
Peterborough and Stamford Hospitals NHS Foundation Trust	122	1.6	1.7	2.5	2.5	121	21.5	20.6	164	29.5	36.9
James Paget University Hospitals NHS Foundation Trust	74	5.6	4.1	6.9	5.1	70	27.1	27.0	210	32.9	29.4
Ipswich Hospital NHS Trust	189	3.7	3.6	5.8	5.6	185	20.0	21.1	79	27.8	28.1
West Suffolk NHS Foundation Trust	111	4.5	3.1	7.2	5.3	109	22.9	23.6	223	28.2	22.9
Cambridge University Hospitals NHS Foundation Trust	194	1.0	1.0	2.6	2.6	191	19.9	19.7	250	15.5	14.6
Norfolk and Norwich University Hospitals NHS Foundation Trust	279	1.4	1.7	2.5	2.9	275	14.9	15.3	541	21.7	25.5
Hinchingbrooke Health Care NHS Trust	41	5.0	4.6	5.0	4.7	37	13.5	14.5	130	22.8	25.4
Essex											
Southend University Hospital NHS Foundation Trust	139	2.2	2.2	5.8	5.7	137	27.7	28.5	306	28.0	27.0
Basildon and Thurrock University Hospitals NHS Foundation Trust	110	2.7	3.0	4.5	5.0	105	15.2	15.5	191	16.3	20.6
Colchester Hospital University NHS Foundation Trust	165	1.8	2.7	2.4	3.4	157	19.1	19.6	264	29.2	29.7
Mid Essex Hospital Services NHS Trust	148	1.4	1.6	1.4	1.5	142	12.7	12.4	131	20.4	17.9
East Midlands											
Burton Hospitals NHS Foundation Trust	104	4.0	3.6	5.0	4.3	98	27.6	27.2	171	26.6	25.1
Sherwood Forest Hospitals NHS Foundation Trust	107	6.6	6.5	8.5	8.5	104	16.3	15.8	240	20.2	17.2
Kettering General Hospital NHS Foundation Trust	90	4.4	8.1	7.8	13.3	87	24.1	23.2	130	35.8	44.9
Northampton General Hospital NHS Trust	80	1.3	1.9	1.3	1.8	76	13.2	13.0	167	28.8	34.1
Derby Hospitals NHS Foundation Trust	43	0.0	0.0	2.3	2.4	42	16.7	18.1	262	14.1	16.5
United Lincolnshire Hospitals NHS Trust	36	2.8	3.1	2.8	2.9	34	23.5	25.4	56	38.8	26.4
University Hospitals Of Leicester NHS Trust	297	3.1	3.2	4.4	4.5	275	25.1	24.2	553	21.2	18.2
Nottingham University Hospitals NHS Trust	158	5.2	5.1	6.5	6.8	147	26.5	27.2	405	21.7	30.3
Wales											
Ysbwyty Glan Clwydd MDT	109	7.3	3.7	14.7	8.0	95	33.7	33.8	173	29.2	30.3
Ysbwyty Gwynedd MDT	107	4.8	3.4	4.8	3.6	98	18.4	19.3	262	27.8	29.2
Ysbwyty Maelor MDT	106	4.8	5.2	4.8	5.2	98	24.5	26.2	199	27.5	30.2
Nevill Hall Hospital MDT	79	7.7	6.0	9.0	7.0	70	27.1	25.2	140	36.1	40.2
Royal Gwent Hospital MDT	153	6.5	5.1	7.8	6.4	103	21.4	21.2	279	30.1	31.8
Cardiff MDT	122	3.3	2.9	4.9	4.6	94	25.5	25.0	313	22.4	21.6
Prince Charles Hospital MDT	81	1.2	1.3	2.5	2.7	50	24.0	23.4	190	35.5	36.7
Royal Glamorgan Hospital MDT	73	5.5	4.3	6.8	5.3	60	25.0	23.8	141	27.3	25.2
Princess Of Wales MDT	121	4.2	4.4	5.8	5.6	103	22.3	20.9	237	29.3	26.0
Swansea MDT	130	4.7	4.9	5.5	5.7	103	23.3	22.5	295	27.7	27.2
Bronglais MDT	32	3.1	2.4	6.3	4.8	31	19.4	18.4	71	37.3	22.1
West Wales General and Prince Phillip MDT	89	2.3	1.8	5.7	4.9	75	22.7	24.8	195	26.7	29.7
Withybush General MDT	50	6.0	4.5	10.0	7.4	43	32.6	34.2	142	22.2	23.1

* Estimates not reported because 10 or fewer patients included in the estimate
† Adjusted estimates not reported because most patients missing ASA grade and/or TNM stage

Table 6.5
Results for patients with rectal cancer who had major surgery according to trust/hospital site

Network/Trust name	Number of patients with rectal cancer undergoing major surgery	MRI scan reported (%)	Preoperative radiotherapy (short or long course) (%)	APER rate (%)	Number of patients in HES/PEDW 18-month stoma estimate*	Observed 18-month stoma rate using HES/PEDW (%)	Adjusted 18-month stoma rate using HES/PEDW (%)
Overall	4,615	86	35	24	8,399	51	51
North Of England							
City Hospitals Sunderland NHS Foundation Trust	36	89	50	42	61	56	56
County Durham and Darlington NHS Foundation Trust	63	92	51	24	101	40	44
Gateshead Health NHS Foundation Trust	21	100	29	38	59	68	64
North Cumbria University Hospitals NHS Trust	26	73	50	23	62	35	37
North Tees and Hartlepool NHS Foundation Trust	44	93	43	25	70	37	37
Northumbria Healthcare NHS Foundation Trust	70	86	70	27	99	55	55
South Tees Hospitals NHS Foundation Trust	39	79	56	23	92	66	63
South Tyneside NHS Foundation Trust	26	85	31	31	34	71	72
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	43	86	42	16	85	46	46
Yorkshire							
Airedale NHS Foundation Trust	28	100	61	46	42	57	58
Bradford Teaching Hospitals NHS Foundation Trust	26	73	23	27	49	47	40
Calderdale and Huddersfield NHS Foundation Trust	44	84	32	27	81	41	39
Harrogate and District NHS Foundation Trust	17	100	71	41	44	45	45
Leeds Teaching Hospitals NHS Trust	78	83	40	22	128	63	63
Mid Yorkshire Hospitals NHS Trust	58	93	40	29	117	64	69
York Teaching Hospital NHS Foundation Trust	55	98	13	18	76	39	38
Humber and Yorkshire Coast							
Hull and East Yorkshire Hospitals NHS Trust	48	85	38	13	117	58	57
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	42	83	45	24	70	57	55
Scarborough and North East Yorkshire Health Care NHS Trust	18	94	72	22	42	60	55
Lancashire and South Cumbria							
Blackpool Teaching Hospitals NHS Foundation Trust	20	100	30	30	56	48	49
East Lancashire Hospitals NHS Trust	30	90	50	20	38	79	75
Lancashire Teaching Hospitals NHS Foundation Trust	30	87	37	33	52	56	57
University Hospitals Of Morecambe Bay NHS Foundation Trust	22	91	23	18	10	80	†
Merseyside and Cheshire							
Aintree University Hospital NHS Foundation Trust	28	100	50	14	50	50	53
Countess Of Chester Hospital NHS Foundation Trust	22	91	55	14	26	46	43
Royal Liverpool and Broadgreen University Hospitals NHS Trust	34	91	85	32	53	57	55
Southport and Ormskirk Hospital NHS Trust	14	86	50	14	29	55	55
St Helens and Knowsley Hospitals NHS Trust	24	96	33	42	57	56	59
Warrington and Halton Hospitals NHS Foundation Trust	36	89	47	19	68	57	58
Wirral University Teaching Hospital NHS Foundation Trust	30	90	43	7	69	46	47
Greater Manchester and Cheshire							
Bolton NHS Foundation Trust	29	66	69	31	47	57	61
Central Manchester University Hospitals NHS Foundation Trust	25	80	24	16	14	43	42
East Cheshire NHS Trust	27	93	52	26	37	49	47
Mid Cheshire Hospitals NHS Foundation Trust	18	100	89	28	23	57	61
Pennine Acute Hospitals NHS Trust	58	93	50	19	121	79	75
Salford Royal NHS Foundation Trust	16	94	0	19	29	62	61
Stockport NHS Foundation Trust	25	100	48	16	33	52	53
Tameside Hospital NHS Foundation Trust	29	93	79	10	32	69	66
The Christie NHS Foundation Trust	19	100	79	32	17	53	55
Trafford Healthcare NHS Trust	5	80	40	20	30	70	68
University Hospital Of South Manchester NHS Foundation Trust	22	86	55	5	42	50	52
Wrightington, Wigan and Leigh NHS Foundation Trust	12	100	50	42	12	58	54
North Trent							
Barnsley Hospital NHS Foundation Trust	18	56	0	33	50	72	72
Chesterfield Royal Hospital NHS Foundation Trust	46	96	28	17	55	64	69
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	56	93	30	32	46	48	51
Sheffield Teaching Hospitals NHS Foundation Trust	65	92	51	40	90	56	59
The Rotherham NHS Foundation Trust	18	94	33	28	62	48	49

Network/Trust name	Number of patients with rectal cancer undergoing major surgery	MRI scan reported (%)	Preoperative radiotherapy (short or long course) (%)	APER rate (%)	Number of patients in HES/PEDW 18-month stoma estimate*	Observed 18-month stoma rate using HES/ PEDW (%)	Adjusted 18-month stoma rate using HES/ PEDW (%)
Wales							
Bronglais MDT	15	93	7	20	13	100	87
Cardiff MDT	34	94	35	18	71	59	60
Nevill Hall Hospital MDT	18	89	72	17	20	70	67
Prince Charles Hospital MDT	27	81	37	30	48	60	60
Princess Of Wales MDT	42	90	38	19	45	71	71
Royal Glamorgan Hospital MDT	20	90	20	15	30	80	82
Royal Gwent Hospital MDT	36	83	42	19	65	62	63
Swansea MDT	32	81	16	44	70	63	65
West Wales General and Prince Phillip MDT	10	90	40	20	23	78	82
Withybush General MDT	13	92	15	8	27	67	68
Ysbwyty Glan Clwydd MDT	22	91	77	45	42	50	52
Ysbwyty Gwynedd MDT	22	86	50	36	35	66	69
Ysbwyty Maelor MDT	24	96	88	25	46	54	54
Greater Midlands							
Mid Staffordshire NHS Foundation Trust	14	79	43	36	40	63	61
Shrewsbury and Telford Hospital NHS Trust	47	89	30	17	87	47	47
The Dudley Group NHS Foundation Trust	33	88	52	39	51	43	44
The Royal Wolverhampton NHS Trust	35	94	40	26	83	40	39
University Hospital Of North Staffordshire NHS Trust	41	83	15	12	50	46	47
Pan Birmingham							
Heart Of England NHS Foundation Trust	38	71	37	21	111	38	39
Sandwell and West Birmingham Hospitals NHS Trust	9	89	44	22	80	41	42
University Hospitals Birmingham NHS Foundation Trust	40	90	55	30	64	53	54
Walsall Healthcare NHS Trust	2	100	100	0	44	43	41
Arden							
George Eliot Hospital NHS Trust	15	93	47	33	45	51	54
South Warwickshire NHS Foundation Trust	21	86	33	29	56	52	52
University Hospitals Coventry and Warwickshire NHS Trust	38	87	45	21	79	54	54
Worcestershire Acute Hospitals NHS Trust (Arden)	38	92	34	58	26	81	83
East Midlands							
Burton Hospitals NHS Foundation Trust	27	59	7	30	53	32	33
Derby Hospitals NHS Foundation Trust	11	82	45	9	55	33	33
Kettering General Hospital NHS Foundation Trust	42	90	7	29	33	39	38
Northampton General Hospital NHS Trust	26	92	35	38	49	57	57
Nottingham University Hospitals NHS Trust	27	70	7	15	83	42	44
Sherwood Forest Hospitals NHS Foundation Trust	30	93	43	27	70	37	38
United Lincolnshire Hospitals NHS Trust	5	100	80	40	13	69	81
University Hospitals Of Leicester NHS Trust	82	94	74	33	150	55	53
Anglia							
Bedford Hospital NHS Trust	25	96	16	28	51	59	56
Cambridge University Hospitals NHS Foundation Trust	66	79	38	17	94	53	55
Hinchingbrooke Health Care NHS Trust	2	100	50	0	41	59	57
Ipswich Hospital NHS Trust	40	68	33	30	50	38	36
James Paget University Hospitals NHS Foundation Trust	20	50	20	25	53	60	61
Norfolk and Norwich University Hospitals NHS Foundation Trust	79	77	20	32	154	44	44
Peterborough and Stamford Hospitals NHS Foundation Trust	37	78	62	22	50	76	74
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	28	86	36	18	49	76	71
West Suffolk NHS Foundation Trust	22	86	0	5	53	42	38
Three Counties							
Gloucestershire Hospitals NHS Foundation Trust	57	82	25	14	82	40	39
Worcestershire Acute Hospitals NHS Trust (3 Counties)	28	86	21	36	59	69	67
Wye Valley NHS Trust	29	97	34	31	43	49	47

Network/Trust name	Number of patients with rectal cancer undergoing major surgery	MRI scan reported (%)	Preoperative radiotherapy (short or long course) (%)	APER rate (%)	Number of patients in HES/PEDW 18-month stoma estimate*	Observed 18-month stoma rate using HES/ PEDW (%)	Adjusted 18-month stoma rate using HES/ PEDW (%)
Avon, Somerset and Wiltshire							
North Bristol NHS Trust	34	88	44	3	84	45	43
Royal United Hospital Bath NHS Trust	49	80	43	35	89	48	48
Taunton and Somerset NHS Foundation Trust	12	92	42	42	30	43	40
University Hospitals Bristol NHS Foundation Trust	11	91	36	18	20	45	43
Weston Area Health NHS Trust	13	92	31	31	33	61	63
Yeovil District Hospital NHS Foundation Trust	15	80	40	13	50	48	49
Thames Valley							
Buckinghamshire Healthcare NHS Trust	17	94	41	18	34	53	60
Great Western Hospitals NHS Foundation Trust	36	78	44	22	71	65	65
Milton Keynes Hospital NHS Foundation Trust	15	80	13	27	33	48	46
Oxford University Hospitals NHS Trust	72	71	0	19	101	44	44
Royal Berkshire NHS Foundation Trust	29	62	17	7	36	72	74
Mount Vernon							
East and North Hertfordshire NHS Trust	36	61	8	14	78	67	60
West Hertfordshire Hospitals NHS Trust	44	98	11	23	61	49	46
Essex							
Basildon and Thurrock University Hospitals NHS Foundation Trust	30	97	30	17	67	42	45
Colchester Hospital University NHS Foundation Trust	49	96	24	20	84	44	44
Mid Essex Hospital Services NHS Trust	44	75	18	23	53	51	48
Southend University Hospital NHS Foundation Trust	39	92	46	33	107	49	48
North West London							
Chelsea and Westminster Hospital NHS Foundation Trust	11	82	0	27	18	50	47
Ealing Hospital NHS Trust	6	83	0	17	10	40	40
Imperial College Healthcare NHS Trust	2	100	50	100	84	49	46
North West London Hospitals NHS Trust	5	40	0	0	24	17	18
The Hillingdon Hospitals NHS Foundation Trust	16	81	25	38	30	57	57
West Middlesex University Hospital NHS Trust	19	100	53	5	42	45	43
North London							
Barnet and Chase Farm Hospitals NHS Trust	33	100	61	12	61	62	60
North Middlesex University Hospital NHS Trust	2	100	50	0	2	0	0
Royal Free London NHS Foundation Trust	7	86	71	29	26	42	41
The Princess Alexandra Hospital NHS Trust	1	0	0	0	16	56	†
The Whittington Hospital NHS Trust	10	100	10	20	26	42	41
University College London Hospitals NHS Foundation Trust	17	88	41	18	18	67	75
North East London							
Barts and The London NHS Trust	8	100	50	0	25	44	47
Homerton University Hospital NHS Foundation Trust	4	50	25	0	7	14	14
Newham University Hospital NHS Trust	2	100	100	0	17	41	42
Whipps Cross University Hospital NHS Trust	14	93	50	14	37	35	37
South West London							
Croydon Health Services NHS Trust	18	78	17	17	31	19	19
Epsom and St Helier University Hospitals NHS Trust	19	68	5	0	30	33	†
Kingston Hospital NHS Trust	17	94	12	0	34	26	27
St George's Healthcare NHS Trust	27	85	41	4	10	20	22
The Royal Marsden NHS Foundation Trust	8	100	38	0	8	25	25
South East London							
Guy's and St Thomas' NHS Foundation Trust	27	15	0	70	13	77	78
King's College Hospital NHS Foundation Trust	8	63	13	25	31	68	63
Lewisham Healthcare NHS Trust	6	100	0	0	23	57	56
South London Healthcare NHS Trust	13	62	38	0	12	17	19
Peninsula							
Northern Devon Healthcare NHS Trust	27	96	30	4	33	48	52
Plymouth Hospitals NHS Trust	37	92	43	35	55	71	67
Royal Cornwall Hospitals NHS Trust	65	95	25	31	87	41	44
Royal Devon and Exeter NHS Foundation Trust	46	89	20	22	87	53	52
South Devon Healthcare NHS Foundation Trust	36	86	17	56	59	68	69

Network/Trust name	Number of patients with rectal cancer undergoing major surgery	MRI scan reported (%)	Preoperative radiotherapy (short or long course) (%)	APER rate (%)	Number of patients in HES/PEDW 18-month stoma estimate*	Observed 18-month stoma rate using HES/ PEDW (%)	Adjusted 18-month stoma rate using HES/ PEDW (%)
Dorset							
Dorset County Hospital NHS Foundation Trust	11	100	27	18	34	47	46
Poole Hospital NHS Foundation Trust	27	70	22	26	35	34	36
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	44	100	11	18	69	28	28
Central South Coast							
Hampshire Hospitals NHS Foundation Trust	28	100	7	11	71	20	21
Isle Of Wight NHS Trust	17	88	24	12	26	50	54
Portsmouth Hospitals NHS Trust	93	78	25	16	136	35	35
Salisbury NHS Foundation Trust	30	100	0	13	56	46	47
University Hospital Southampton NHS Foundation Trust	28	79	29	25	101	45	44
Western Sussex Hospitals NHS Trust (Central South Coast)	30	70	10	20	52	48	48
Winchester and Eastleigh Healthcare NHS Trust	36	97	3	6	31	39	38
Surrey, West Sussex and Hampshire							
Ashford and St Peter's Hospitals NHS Foundation Trust	28	82	0	21	43	53	52
Frimley Park Hospital NHS Foundation Trust	38	100	3	5	43	37	39
Royal Surrey County Hospital NHS Foundation Trust	25	72	0	24	33	18	18
Surrey and Sussex Healthcare NHS Trust	21	95	0	14	67	28	29
Sussex							
Brighton and Sussex University Hospitals NHS Trust	34	88	32	32	50	48	49
East Sussex Healthcare NHS Trust	40	88	48	45	75	53	51
Western Sussex Hospitals NHS Trust (Sussex)	28	86	36	32	69	48	48
Kent and Medway							
Dartford and Gravesham NHS Trust	18	94	56	17	34	59	57
East Kent Hospitals University NHS Foundation Trust	4	0	25	100	12	67	†
Maidstone and Tunbridge Wells NHS Trust	50	74	20	16	62	40	39

* Patients linked to HES having major surgery between 1 April 2009 and 31 March 2011
† Adjusted estimates not reported because most patients missing ASA grade and/or TNM stage

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