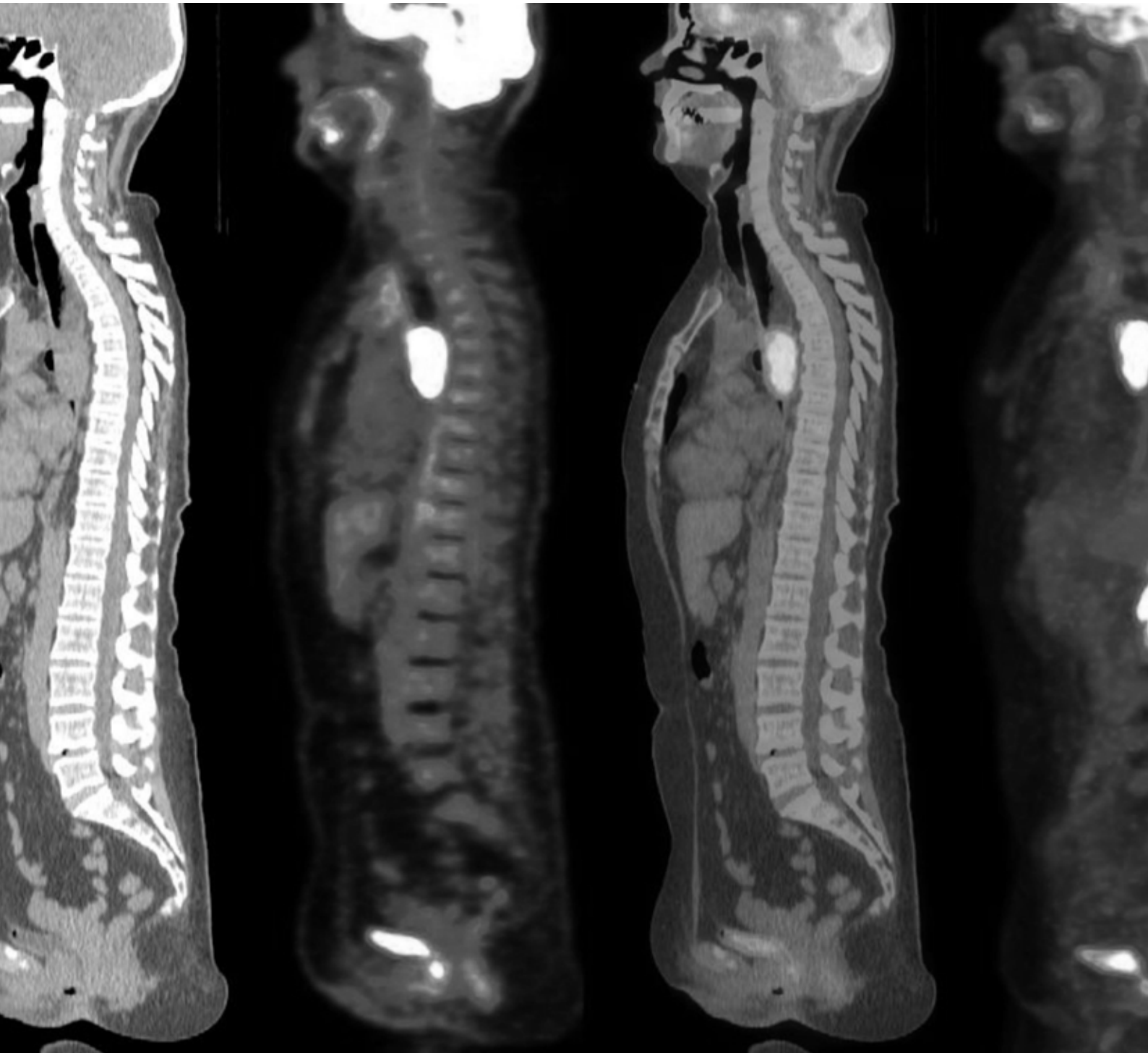
National Oesophago-Gastric Cancer Audit 2015



This report was prepared by

Clinical Effectiveness Unit,
The Royal College of Surgeons of England
Georgina Chadwick, Clinical Research Fellow
Mira Varagunam, Statistician
Oliver Groene, Senior Lecturer
David Cromwell, Reader in Health Services Research

The Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS)
Richard Hardwick, Consultant Surgeon
Nick Maynard, Consultant Surgeon

The British Society of Gastroenterology (BSG)
Stuart Riley, Consultant Gastroenterologist

Royal College of Radiologists (RCR)
Tom Crosby, Consultant Clinical Oncologist

Health and Social Care Information Centre (HSCIC)
Kimberley Greenaway, Project Manager

Prepared in partnership with:

The Healthcare Quality Improvement Partnership (HQIP) The National Oesophago-Gastric Cancer Audit is commissioned by HQIP as part of the National Clinical Audit Programme (NCA). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the National Clinical Audit Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

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. As part of this it supports Audit and the evaluation of clinical effectiveness for surgery.

The RCS analysed the data and wrote the content of the 2015 Annual Report.

The Health and Social Care Information Centre (HSCIC) is the trusted national provider of high quality information, data and IT systems for health and social care.

The HSCIC managed the publication of the 2015 Annual Report.

The Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS) is the speciality society that represents upper gastrointestinal surgeons. It is one of the key partners leading the Audit.

The British Society of Gastroenterology (BSG) is an organisation focused on the promotion of gastroenterology within the United Kingdom. It has over three thousand members drawn from the ranks of physicians, surgeons, pathologists, radiologists, scientists, nurses, dietitians, and others interested in the field. It is one of the key partners leading the Audit.

The Royal College of Radiologists (RCR) leads, educates and supports doctors who are training and working in the specialties of clinical oncology and clinical radiology. It is one of the key partners leading the Audit.

National Oesophago-Gastric Cancer Audit 2015

An audit of the care received by people with Oesophago-Gastric Cancer in England and Wales
2015 Annual Report

Contents

Tables

Figures

Acknowledgements

The National Oesophago-Gastric Cancer Audit (NOGCA) is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the NCA Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

We would like to acknowledge the support of the many hospitals that participated in this Audit, and thank them for the considerable time that their staff devoted to collecting and submitting the data.

We would also like to thank the Cancer Networks, who contributed on behalf of Wales.

We would particularly like to thank:

- The data linkage team at the Health and Social Care Information Centre (HSCIC)
- The Clinical Reference Group and Project Board,

The Audit is supported by the Clinical Audit Support Unit (CASU) Helpdesk, James Thatcher, Eleanor Bunn, Arthur Yelland, Claire Meace, and the CASU development team who provided IT support and technical infrastructure.

Executive summary

Oesophago-gastric (O-G) cancer is currently the fifth most common cause of cancer in the UK affecting around 15,000 people each year, and fourth most common cause of cancer death. The overall five-year survival rate in England and Wales is approximately 15 per cent for both oesophageal and gastric cancer.[1,2]

The National Oesophago-Gastric Cancer Audit (NOGCA) was set up in 2006 to investigate the quality of care received by patients with O-G cancer, and latterly the management of high grade dysplasia (HGD) of the oesophagus. The first Audit collected data on patients diagnosed between June 2007 and October 2009. After a short break the second NOGCA started collecting data on patients diagnosed after 1st April 2011. The Audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP) and is one of five national cancer audits currently being undertaken in England and Wales.

The Audit covers all patients diagnosed with invasive epithelial cancer of the oesophagus, gastro-oesophageal junction (GOJ) or stomach in England and Wales, as well as patients diagnosed with HGD of the oesophagus in England, who were aged 18 or over at diagnosis. In this report, we describe the care received by patients diagnosed between 1st April 2012 and 31st March 2014 and their outcomes. Data was collected on therapies received by patients (such as surgery) until December 2014. The Annual Report is aimed at patients, health care providers and Strategic Clinical Networks (SCNs). It provides information on:

- Management of HGD of the oesophagus
- Treatment planning and referral pathway
- Curative treatment and short term outcomes
- Palliative treatment, and endoscopic/radiological palliative therapies and their short term outcomes
- Place of death for patients managed with palliative intent.

Results are presented at a national level, by SCN in England and by Network in Wales. Results are also presented at an NHS Trust/Local Health Board level in the Annexes.

Throughout the report we aim to compare current practice with various clinical guidelines. The principal UK guidelines for O-G cancer are the Scottish Intercollegiate Guideline Network (SIGN) guidelines on the management of oesophageal and gastric cancer[3] and the clinical guidelines published by The Association of Upper Gastroenterology Surgeons of Great Britain and Ireland (AUGIS), The British Society of Gastroenterologists (BSG), and The British Association of Surgical Oncology (BASO)[4]. Management of patients with HGD was compared to the BSG guidelines for the management of HGD[5].

Participation by NHS acute Trusts and case-ascertainment

Patient information was submitted to the Audit from:

- 150 NHS acute Trusts in England that provide O-G cancer services
- 6 NHS Health Boards in Wales that provide O-G cancer services.

English NHS Trusts submitted clinical information for 20,372 patients (80 per cent of the 25,579 estimated total). Data on 929 patients treated in Welsh hospitals was supplied centrally from the Cancer Network Information System Cymru (CaNISC).

The Audit data was linked to mortality data from the Office for National Statistics (ONS) to obtain information on outcomes. The Audit data for patients treated in England was also linked to Hospital Episode Statistics (HES) and the Radiotherapy dataset (RTDS) to gather additional information on patient management.

High grade dysplasia of the oesophagus

In April 2012, the NOGCA started collecting data on patients diagnosed with HGD of the oesophagus in England. The details of 930 patients diagnosed with HGD have been submitted to the Audit over two years.

The BSG guidelines recommend that all patients diagnosed with HGD are discussed at a multi-disciplinary team (MDT) meeting for O-G cancer patients, and that patients with HGD should be considered for endoscopic therapy in preference to either oesophagectomy or endoscopic surveillance. Amongst this cohort of 930 patients, 87.3 per cent of cases had their case discussed at an MDT. Investigation of treatment modality revealed that 67.5 per cent had endoscopic treatment, 6.3 per cent had a surgical resection and 26.2 per cent underwent surveillance alone.

Of the 395 patients who had an endoscopic treatment, the outcome of the resection was known for 367 (92.9 per cent). In this sample, the excision was reported as complete in 65.9 per cent of cases. Among the incomplete excisions, 47 required a further endoscopic resection, 21 patients went on to have an oesophagectomy, and 57 patients continued regular surveillance. Histology results for the resected specimen were available for 367 patients. For 195 (53.1 per cent) of these patients, the diagnosis of HGD was confirmed on histology. However, for 124 of these patients the diagnosis was upgraded (97 to intramucosal cancer and 27 submucosal cancer) and 48 patients had no evidence of HGD or cancer in the resected specimen.

Treatment planning

Overall, 38.1 per cent of patients had a curative treatment plan. This proportion varied across the various tumour sites, being highest for tumours located in the lower oesophagus or the GOJ (42.1 per cent and 45.0 per cent respectively). The proportion of patients with stomach tumours who had a curative treatment plan was 33.3 per cent. The proportion of patients managed with curative intent varied across SCNs/Networks, ranging from 34 to 45 per cent.

Surgery (with or without adjunct oncological therapy) was planned for over 80 per cent of patients managed with curative intent, with 15.6 per cent receiving definitive oncology and 4.3 per cent treated endoscopically.

Patterns of referral

A patient can be diagnosed with O-G cancer after referral to secondary care via three main routes: following a visit to a general practitioner, an emergency admission, or a referral by another hospital consultant from a non-emergency setting. Previous Audit results have highlighted that patients diagnosed as a result of an emergency admission are less likely to be managed with curative intent.

In this report, we found that the proportion of patients diagnosed after an emergency admission had fallen since the results published by the NOGCA in 2010, from 15.3 per cent to 13.6 per cent.

Curative surgery

For the two-year Audit period, data were submitted on 3,036 curative oesophagectomies and 1,701 curative gastrectomies. Among patients who underwent an oesophagectomy, just over three-quarters had surgery and chemotherapy/chemoradiotherapy rather than surgery alone (78 per cent vs 22 per cent, respectively).

Among patients who underwent a gastrectomy, a lower proportion had multi-modal therapy rather than surgery alone (54 per cent vs 46 per cent, respectively), but this proportion had increased since 2010 when 58 per cent of patients underwent gastrectomy alone.

Another shift in practice since 2010 has been the use of minimally invasive (MI) surgical techniques. Overall, 1,137 oesophagectomies (41 per cent) and 246 gastrectomies (14 per cent) were performed using a minimally invasive (either full or hybrid) approach.

The 90-day postoperative mortality rate for oesophagectomy and gastrectomy was 4.3 per cent (95% confidence intervals (CI) 3.6-5.1) and 4.2 per cent (95% CI 3.3-5.3), respectively. Complication rates remained high, with 36.9 per cent of patients suffering a complication post-oesophagectomy and 23.7 per cent suffering one post-gastrectomy.

Definitive oncology

Among patients with O-G tumours that are amenable to curative treatment, the majority of patients are managed surgically. Proximal oesophageal squamous cell cancers (SCCs) are an exception to this, with definitive oncology being the preferred therapeutic option. For mid/lower oesophageal SCCs both definitive oncology and surgery can be considered as potentially curative treatment options.

In this report, we found that, for upper oesophageal SCCs managed with curative intent, 67 per cent of patients received definitive oncology. For mid/lower oesophageal SCCs, 45.8 per cent of patients treated with curative intent were managed with definitive oncology. The choice of curative therapy for distal oesophageal SCCs varied between SCNs/Networks. In particular, for mid/lower oesophageal SCCs, the proportion of patients having definitive oncology ranged from below 25 per cent to above 75 per cent.

The RTDS radiotherapy dataset aims to collect information on all patients receiving radiotherapy in England. The Audit linked the records for patients diagnosed from 1st April 2012 to 31st March 2013 in England. By doing so, the Audit was able to compare the regimens received by patients with those recommended by the Royal College of Radiologists (RCR). The analysis of the linked records revealed that:

- Among 300 patients planned to receive definitive chemoradiotherapy for oesophageal cancer, 65.3 per cent of patients followed a recommended treatment regimen
- Among the 86 patients who were planned to receive definitive radiotherapy alone for oesophageal cancer, 49.0 per cent followed a recommended regimen.

Palliative treatment

Two thirds of patients with O-G cancer were managed with palliative intent. For these patients, the care focuses on symptom control (e.g. relief of dysphagia), improving survival, and improving quality of life.

Overall, 13,272 patients were managed with palliative intent. Their most common treatment modality was palliative oncology. However, there was significant variation in the choice of palliative treatment across SCNs/Networks. Completion of palliative chemotherapy remains poor, with only 54.9 per cent of patients completing treatment as planned.

Linking the Audit records with HES for patients diagnosed in England allowed us to examine the completeness with which endoscopic palliative therapies were reported to the Audit. This analysis found that 85.5 per cent of stents recorded in the NOGCA dataset were accurately recorded in HES (ie, the dates of the procedure in the two datasets were within 7 days of each other). Nonetheless, only 59.5 per cent of patients who had a stent recorded in HES had a matching stent insertion record submitted to the Audit. This suggests the completeness with which NHS hospitals are submitting endoscopic/radiologic therapeutic procedures to the Audit needs improving.

Place of death

Patients on a palliative care pathway in the last weeks of life are, in principle, best managed in the community. In particular, many patients express the wish to die at home rather than in hospital. In this report, we investigated place of death amongst palliative O-G cancer patients using the place of death categorisation from ONS.

The results of the analysis showed that overall 34.3 per cent of O-G cancer patients managed with palliative intent died at home. A similar proportion of these patients died in hospital, with the majority of the remainder dying in a hospice or care home. While the social deprivation of the areas in which patients lived did not affect the percentage of patients dying at home, there was a sizeable difference in the percentage dying in hospital among patients living in the areas of least deprivation (30.6 per cent) to those in the areas of greatest deprivation (39.4 per cent).

Key findings

- NOGCA achieved 80 per cent case ascertainment.
- A quarter of patients with HGD were managed by surveillance alone.
- Proportion of patients managed with curative intent has increased to 38.1 per cent, but the figure varied significantly across SCNs/Networks.
- Proportion of patients diagnosed as a result of an emergency admission has fallen to 13.6 per cent.
- 90-day postoperative mortality rate for both oesophagectomy and gastrectomy has fallen, to 4.3 per cent (95% CI 3.6-5.1) and 4.2 per cent (95% CI 3.3-5.3) respectively.
- Choice of therapy for oesophageal SCCs varied significantly by SCN/Network.
- Submissions to the Audit for oesophageal stent insertion were poor.
- A third of patients managed with palliative intent died at home.

Recommendations

Multi-disciplinary teams (MDT)

Multi-disciplinary teams (MDTs) should review the results for their organisation to ensure care is consistent with the recommendations in national clinical guidance on patients with oesophago-gastric (O-G) cancer and high grade dysplasia (HGD). In particular:

1. A significant proportion of cases of HGD are still managed by surveillance alone, despite the British Society of Gastroenterology (BSG) recommending that all patients should be considered for active treatment. It is important that NHS Trusts and Health Boards consider referral of patients with HGD to a specialist centre which has experience of treating HGD.
2. As surgical mortality rates fall, Trusts should pay particular interest in monitoring their complication rates. Surgeons should prospectively monitor these rates.
3. All patients with oesophageal squamous cell carcinoma (SCC) being considered for curative therapy should be discussed with both an oncologist and a surgeon to determine the most appropriate treatment option.
4. Completion rates for palliative chemotherapy remain low. Clinicians should carefully assess eligibility of patients for palliative chemotherapy, especially in older patients and patients with a poorer performance status. This assessment should balance clinical considerations with patient choice.
5. A significant proportion of patients who receive endoscopic/radiologic palliative treatment for O-G cancer in England do not have an endoscopy record submitted to the Audit. Trusts should review their policies to try and improve data submissions in the future.

Medical Directors of NHS Trusts / Health Boards

Medical Directors should review the results for their organisation and ensure that sufficient resources are available for MDTs to:

1. provide high quality care to patients with oesophago-gastric cancer and high grade dysplasia, and
2. collect and submit the data requested by the Audit.

Strategic Clinical Networks / Commissioners and Health Boards

There is variation between NHS providers in the provision of various elements of care along the care pathway. Strategic Clinical Networks (SCNs) and Commissioners (in England), and Networks and Health Boards (in Wales) should review the Audit results for organisations within their regions to assure themselves of the quality of care provided to patients with O-G cancer and HGD, and should work with NHS providers to develop strategies for addressing areas of variation in their region.

In particular:

1. SCNs/Networks should work with local NHS Trusts/ Health Boards to ensure that patients with HGD are consistently referred to a specialist centre which has experience of treating HGD.
2. SCNs/Networks should know the proportion of cases of O-G cancer managed with curative intent and, where this is low, investigate possible reasons and develop strategies to improve this figure.
3. SCNs/Networks should know the proportion of cases of O-G cancer diagnosed as a result of an emergency admission and NHS providers should work together to develop strategies for reducing this figure.
4. SCNs/Networks should monitor where patients are dying and where a high proportion of patients are dying in hospital, they should investigate possible reasons for this including poor support networks available to palliative patients outside of the hospital environment.

1. Introduction

The National Oesophago-Gastric Cancer Audit (NOGCA) was established to assess the quality of care received by patients with oesophago-gastric (O-G) cancer in England and Wales or high grade dysplasia (HGD) of the oesophagus in England, and to identify areas where improvements could be made in future. The Audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP) and is one of five national cancer audits currently being undertaken in England and Wales.

The Audit is designed to examine the care received by patients from the time they are diagnosed with cancer or HGD to the end of their primary treatment. It is based on prospectively-collected, patient-level data that describes people treated in NHS hospitals in England and Wales, and aims to answer Audit questions related to:

- whether clinical (pre-treatment) staging is performed to the standards specified in national clinical guidelines
- whether decisions about planned curative or palliative treatments are supported by the necessary clinical data (staging, patient fitness, etc)
- access to curative modalities for suitable patients, such as neoadjuvant chemotherapy prior to surgical resection
- the use of oncological and endoscopic/radiological palliative services
- outcomes of care for patients receiving curative and palliative therapies.

The current NOGCA began in April 2011. It has built on the work of the first NOGCA, which ran from 2007 to 2010 and was also commissioned by the Healthcare Quality Improvement Partnership (HQIP).

In April 2012, the NOGCA implemented a revised dataset that incorporated changes suggested by hospital staff and by the Audit's Clinical Reference Group. These changes included minor alterations to improve the robustness of the dataset and the deletion of items that could be more efficiently obtained through data linkage. As a consequence, this year's Annual Report focuses on patients diagnosed with O-G cancer between the 1st April 2012 and 31st March 2014.

The Audit also started collecting information on all patients with a new diagnosis of oesophageal HGD in England in April 2012. This was an important enhancement to the scope of the Audit because there is the risk of a patient's condition progressing to oesophageal cancer if left untreated. The information in the Annual Report on patients with HGD also covers the same two year period (1st April 2012 and 31st March 2014).

O-G cancer is the fifth most common malignancy (and fourth most common cause of cancer death) in the UK, affecting around 15,000 people each year. The incidence is increasing, particularly tumours of the lower oesophagus and gastro-oesophageal junction (GOJ), and the prognosis for most patients is poor. The overall five-year survival rate in England and Wales is approximately 15 per cent for both oesophageal and gastric cancer.

Clinical guidelines recommend that general practitioners (GPs) make an urgent referral for suspected O-G cancer if patients present with 'alarm symptoms' (e.g. weight loss, vomiting, dysphagia) or are over 55 year and present with unexplained persistent, recent onset dyspepsia.[6] However, one-sixth of patients are still diagnosed after an emergency admission and it is generally accepted that improving the diagnostic process is an important route to increasing survival rates. One of the challenges of this is that many of the signs and symptoms of O-G cancer are non-specific and are present in large numbers of individuals without cancer. Public Health England ran its 'Be Clear on Cancer' Campaign in early 2015 to raise public awareness of O-G cancers, and this is one of various national initiatives aimed at improving early diagnosis rates. Another focus has been reducing provider variation in the diagnosis and management of patients with HGD of the oesophagus.

Establishing the options for treatment requires patients to have a number of investigations, and so determine the stage of the disease. Standard investigations currently include computed tomography (CT) scan, endoscopic ultrasound and staging laparoscopy, although it is becoming accepted that positron emission tomography (PET) is beneficial for selecting patients for curative treatment. Poor staging procedures can lead to curative treatments being attempted inappropriately.

Surgery is the mainstay of curative treatment for patients with localised disease, and is often combined with preoperative (neoadjuvant) cycles of chemotherapy and radiotherapy. A recent development has been the use of chemoradiotherapy without surgery as a curative modality, but this is restricted to particular types of oesophageal tumours. Curative surgery for O-G cancer is a major undertaking, and is only suitable for patients who are relatively fit. Because of this, and because many patients are diagnosed with advanced disease, only around 30-40 per cent of patients are candidates for a curative treatment pathway.

Patients who are not eligible for curative therapy may be treated with a range of palliative treatments. Oncological therapies (chemotherapy, radiotherapy or a combination of the two) are increasingly used, with the aim of extending life. Endoscopic / radiological therapies (e.g. stenting) are principally used for symptom control.

Various clinical guidelines support clinicians in the management of O-G cancer, and HGD. These guidelines are used by the Audit to determine which aspects of care to examine, and as sources of the standards of care that services should be delivering. The principal UK guidelines for O-G cancer and HGD are:

- The Scottish Intercollegiate Guideline Network (SIGN) guideline on the management of oesophageal and gastric cancer[3]
- The clinical guideline published by The Association of Upper Gastroenterology Surgeons of Great Britain and Ireland (AUGIS), The British Society of Gastroenterology (BSG), and The British Association of Surgical Oncology (BASO)[4]
- The British Society of Gastroenterology guidelines on the diagnosis and management of Barrett's oesophagus[5].

These guidelines cover the care pathway: referral, diagnosis, staging, curative and palliative treatments. The National Institute for Health and Clinical Excellence (NICE) has provided additional guidance on particular aspects of care, notably:

- Referral Guidelines for Suspected Cancer, and the Management of Dyspepsia in Adults in Primary Care[6]
- Guidance on the use of interventional procedures, such as endoscopic submucosal dissection of oesophageal tumours[7].

1.1 Aim of the 2015 Annual Report

This report aims to give an overall picture of the care provided to patients with O-G cancer or oesophageal HGD by NHS services. It provides information on:

1. Management of patients with HGD.
2. Patient characteristics and treatment modalities.
3. Treatment patterns, including variation in the use of definitive oncology.
4. Patterns of curative surgery, surgical procedures, outcomes.
5. Use of oncology and endoscopy in palliative treatment.
6. New analysis of place of death of palliative patients.

The report is primarily aimed at clinicians working within hospital cancer units. Nonetheless, the information contained in the report on patterns of care is relevant to other health care professionals, patients and the public who are interested in having an overall picture of the organisation of O-G cancer services within the NHS.

1.2 Regional organisation of cancer services

O-G cancer services within England and Wales are organised on a regional basis to provide an integrated model of care. In the period up to 2012, services were organised into Cancer Networks each containing one or more cancer centres that provide curative surgical treatment and specialist radiology, oncology and palliative services to all patients living in the area. Diagnostic services and most palliative services continue to be provided by individual NHS Trusts (units) within the network areas.

In 2013, Strategic Clinical Networks (SCNs) were established in England to work across commissioners, providers and voluntary organisations to bring cohesion, leadership, and innovation to four key health challenges. The responsibilities of the SCNs are aligned with the NHS Outcomes framework, focusing on prevention, end of life care, urgent and emergency care and rehabilitation[8] and have effectively replaced the English Cancer Networks, which have been abolished.

Throughout this report, we present information at the level of SCNs for England and at the level of two separate Networks for Wales when the organisation of care is across various services due to the centralisation of specialist services.

2. Methods

2.1 Inclusion criteria

The Audit prospectively collects clinical and demographic details for patients diagnosed with invasive epithelial oesophago-gastric (O-G) cancer (ICD-10 codes C15 and C16) or oesophageal high grade dysplasia (HGD).

Patients were eligible for inclusion if they were resident in England or Wales, were diagnosed in an NHS hospital, and were aged 18 or over at diagnosis. Patients with endocrine tumours or gastro-intestinal stromal tumours (GISTs) were not included in the Audit due to the different behaviour and management of these tumours.

A small number of treatments received by patients in independent hospitals were reported to the Audit and are included in the analysis. However, the majority of patients in the Audit received treatment in the NHS only.

2.2 Data collection

The Audit collected data on patient characteristics, pre-treatment tumour stage, the staging process and the management plan of all patients. Data on the process and outcomes of surgery, chemotherapy, radiotherapy and endoscopic palliative therapy were collected if appropriate. Information on the proformas used for data collection, and the data dictionary are available from http://www.hscic.gov.uk/og.

NHS acute Trusts in England involved in the care of both curative and palliative O-G cancer patients participate in the Audit by submitting patient information to the Clinical Audit Platform (CAP) managed by the Health and Social Care Information Centre (HSCIC). Information on the care pathway and outcomes are entered prospectively, either by entering data manually via web-based forms or by uploading data files generated from other information systems. The majority of hospitals upload data, which minimises the burden of data collection on hospital staff. As many hospitals can be involved in the care of one patient, the hospital responsible for diagnosis or treatment uploads the relevant data.

Data on patients treated in Welsh NHS hospitals was provided by the Cancer Network Information System Cymru (CaNISC). The Welsh cancer dataset includes the majority of data items in the Audit dataset but it does not include information on surgical complication rates and does not extend to cover patients diagnosed with oesophageal HGD.

When the data were extracted for analysis, patient records were first anonymised by the HSCIC before being passed to the Clinical Effectiveness Unit (CEU) at the Royal College of Surgeons of England (RCS).

2.3 Linkage to other data sets

The Audit dataset was linked to various other national datasets. This process reduces the burden of data collection, enables the quality of the data submitted by hospitals to be checked by comparing data items shared by the different datasets, and allows the Audit to derive a richer set of results.

The Audit dataset was linked to extracts from the:

1. Office for National Statistics (ONS) Death Registry to provide accurate statistics on cancer mortality rates.
2. Hospital Episode Statistics (HES) to provide additional information on hospital care in England both before and after the date of diagnosis, and to validate activity data provided by hospitals (eg, dates of procedures).
3. The National Radiotherapy Dataset (RTDS) to provide a richer description of radiotherapy practices in England.

Data were linked using a hierarchical deterministic approach, which involved matching patient records using various patient identifiers. For example, the Audit and HES records matched combinations of NHS number, sex, date of birth, and postcode.

2.4 Statistical analysis of data

The values of the various process and outcome indicators are typically expressed as rates and are presented as percentages. Averages and rates are typically presented with 95% confidence intervals (CI) to describe their level of precision. For descriptive analyses, the distributions of the data were described using appropriate statistics (e.g. mean and standard deviation or median and interquartile range for continuous variables) and the statistical significance of differences between patient groups or geographical regions were tested using appropriate tests (such as a t-test for the difference between two continuous variables and a chi-squared test for the differences between proportions).

The results of the Audit are presented at different organisational levels:

- by Strategic Clinical Network (SCN) level for England, with Wales considered as two separate Networks (North and South), and
- by NHS Trust in England and NHS Health Board in Wales.

To show differences between the geographical regions, SCN/Network rates and 95% CI are plotted against the overall rate, with SCNs/Networks ordered according to the number of patients on whom data were submitted. English patients were allocated to the SCN based on their NHS Trust of diagnosis and not by region of residence. Welsh patients were allocated to either North or South Wales on a similar basis.

Postoperative mortality for each NHS Trust/Health Board was adjusted to take into account differences in the casemix of patients treated at each centre. Multivariable logistic regression was used to adjust for age, sex, tumour site, pre-treatment stage, comorbidities, performance status and ASA. Separate regression models were developed for 30-day mortality and 90-day mortality.

The logistic regression models were used to estimate the probability of each postoperative outcome for a patient. The probabilities derived for patients treated at the same organisation were summed to give the predicted number of deaths. Risk-adjusted rates for each organisation were then produced by dividing the observed number of deaths by the predicted number and multiplying this ratio with the overall mean mortality rate. Rates adjusted for age and sex for emergency referrals, and complication rates for each Trust/Health Board, were estimated using separate logistic regression models in a similar manner.

The variation in adjusted mortality rates of the NHS Trust/Health Board was examined using a funnel plot[9]. This plot tests whether the mortality rate of any single NHS Trust/Health Board differs significantly from the national rate. Two funnel limits (which narrow as the number of cases increase) were used that indicate the ranges within which 95.0 per cent (representing a difference of two standard deviations from the national rate) or 99.8 per cent (representing a difference of three standard deviations) would be expected to fall if variation was due only to sampling error. Exact binomial limits were used. Following convention, we use the 99.8 per cent limits to identify 'outliers' as it is unlikely for an NHS organisation to fall beyond these limits solely by chance.

2.5 Key indicators used in the report

Key indicators used in this report were derived from best evidence and standards on the management of O-G cancer and HGD.

For patients diagnosed with HGD, the key measures are:

Domain	Standard	Indicator	Source
Referral and diagnosis	All patients with a diagnosis of HGD should have the diagnosis confirmed by a second pathologist	% patients whose diagnosis was confirmed with second biopsy	BSG guidelines[5]
Treatment planning	All patients with dysplasia for whom therapy is considered should be discussed at a specialist O-G cancer MDT	% patients discussed at MDT	
	Endoscopic treatment of HGD is preferred over oesophagectomy or endoscopic surveillance alone	% patients who received active treatment vs surveillance alone	
	Endoscopic resection should be performed in high volume tertiary referral centres	Number of cases of HGD treated at each Trust	

For patients diagnosed with O-G cancer, the key measures are:

Domain	Standard	Indicator	Source
Referral and diagnosis	GPs should be encouraged to refer patients as early as possible	% diagnosed after emergency admission	O-G cancer guidelines[4]
Treatment planning		% with curative/palliative/no active treatment intent	
Curative treatment	Preoperative chemoradiation may improve long term survival	% (neo) adjuvant oncological therapy	O-G cancer guidelines[4]
	Clinical anastomotic leakage should not exceed 5%	% overall complication rate after surgery % postoperative anastomotic leak	O-G cancer guidelines[4]
	Overall hospital mortality for oesophageal resection should be less than 10%. In-hospital mortality should be less than 10% for total gastrectomy and less than 5% for subtotal/partial gastrectomy	30- and 90-day postoperative mortality rates	O-G cancer guidelines[4]
	Chemoradiation is the definitive treatment of choice for localised squamous cell carcinoma of the proximal oesophagus	% proximal squamous cells carcinomas treated curatively with definitive oncology	O-G cancer guidelines[4]
Palliative treatment	Chemoradiation provides a survival benefit over radiotherapy alone for oesophageal cancer	% combined chemoradiotherapy for palliative therapy	O-G cancer guidelines[4]
		% completing palliative chemotherapy	
		% completing palliative radiotherapy	

3. Participation

The records of patients diagnosed with oesophago-gastric (O-G) cancer or oesophageal high grade dysplasia (HGD) between April 2012 and March 2014 were extracted from the Clinical Audit Platform (CAP) system on the 31st March 2015. Overall, 150 English NHS Trusts and six Welsh NHS Health Boards submitted patient data.

The number of O-G cancer records submitted by organisations in England and Wales between April 2012 and March 2014 were:

- 21,301 tumour records
- 5,250 surgery records
- 4,644 pathology records
- 11,247 oncology records
- 3,365 endoscopy records.

Of the total 21,301 tumour records, English NHS Trusts submitted 20,372 records and information was extracted from Cancer Network Information System Cymru (CaNISC) on 929 Welsh patients.

There were 930 records for patients diagnosed with HGD between April 2012 and March 2014 submitted by English NHS Trusts.

3.1 Case ascertainment of patients with oesophago-gastric (O-G) cancer

Case ascertainment was calculated for individual English NHS Trusts by comparing the number of tumour records in the Audit dataset with the number of patients identified within the Hospital Episodes Statistics (HES) database over the relevant time frame. Case ascertainment was not calculated for Welsh organisations as data is collected centrally.

HES is the national hospital administrative database for all acute NHS Trusts in England. Each HES record describes the period during which an admitted patient is under the care of a hospital consultant (an episode). Clinical information is captured using the International Classification of Disease (ICD-10) diagnostic codes and the Office of Population Censuses and Surveys Classification of Surgical Operations and Procedures (OPCS-4). The records of an individual patient are allocated the same anonymised identifier, which enables the care given to patients to be followed over time.

Patients with O-G cancer were identified in HES by searching records for the ICD diagnosis codes C15 and C16 in the first diagnostic field. As it is possible for a patient to have multiple HES episodes during a single admission to hospital, in order to determine the number of O-G cancer patients in HES over the relevant timeframe, the date of diagnosis was taken as the admission date of the episode in HES where O-G cancer was first recorded in the first diagnostic field.

The estimated number of cases of O-G cancer in HES was 25,579 for the 2012/2014 data collection period. Combined with the 20,372 Audit tumour records submitted by English NHS Trusts, this gives an overall case ascertainment of 79.6 per cent. This is a small increase in case ascertainment compared to the 2011/2013 data collection period, when it was calculated to be 78.6 per cent.

Case ascertainment at an individual Trust level is presented in Annex 3. While some English NHS Trusts provided the expected number of records, others provided fewer records. A high case ascertainment rate is important to ensure the representativeness of the results produced by the Audit.

3.2 Completeness of surgical records

An analysis of the completeness of data submitted in the surgical records is summarised in Annex 4. This information is important for calculating risk adjusted outcomes, and for monitoring treatment within the cancer centres as well as assessing compliance with best practise guidelines.

We also analysed the completeness of the data item 'death in hospital'. This field is important due to the time lag before obtaining confirmation from Office for National Statistics (ONS). For the purposes of outcome analysis, if a patient was coded as having died in hospital in the Audit and the ONS date of death was unavailable, then the date noted as date of death in the Audit was taken as the date of death.

4. Patient characteristics

This chapter provides a summary of the characteristics of the 21,301 patients who were diagnosed with oesophago-gastric (O-G) cancer between 1st April 2012 and 31st March 2014.

Overall three quarters of O-G cancers were within the oesophagus, with two thirds of these located in the lower oesophagus/gastro-oesophageal junction (GOJ). The majority of stomach tumours were located proximally (in the body or fundus) (Table 4.1).

Table 4-1
O-G cancer patient characteristics, for England and Wales

Site	%	Sub-site	Number of patients	%
Oesophagus	52.8	Upper third	917	8.2
		Middle third	2,802	24.9
		Lower third	7,532	66.9
G-O junction[1]	19.6	Siewert I	1,641	39.2
		Siewert II	1,317	31.5
		Siewert III	1,226	29.3
Stomach	27.6	Fundus	717	12.2
		Body	3,124	53.1
		Antrum	1,234	21.0
		Pylorus	776	13.2
Total			**21,301**	

[1] Tumours of the G-O junction are described using the 3 category Siewert classification[10]:
I. Adenocarcinoma of the distal oesophagus, the centre of which is within 2-5cm proximal to the anatomical cardia. It may infiltrate the gastro-oesophageal junction from above.
II. True junctional adenocarcinoma, the centre of which is within 2cm above or below of the anatomical cardia.
III. Subcardial gastric adenocarcinoma, the centre of which is within the 5cm distal to the anatomical cardia. It may infiltrate the gastro-oesophageal junction from below

Patients were classified into five groups according to the site and histology of their tumour:

- Squamous cell carcinomas (SCC) of the oesophagus
- Adenocarcinomas (ACA) of the upper and middle oesophagus
- ACA of the lower third of the oesophagus and Siewert type I tumours
- Siewert type II and type III tumours
- Tumours of the stomach.

Table 4-2 summarises patient characteristics across these groups. Overall twice as many men were affected by O-G cancer compared to women, but there was wide variation across cancer types and sites, with men and women equally affected by oesophageal SCCs.

Table 4-2
Characteristics of patients diagnosed with O-G cancer in England and Wales by type of O-G tumour

		Oesophageal SCC	Oesoph ACA Upper / Mid	Oesoph ACA Lower / SI	GOJunction SII / SIII	Stomach
Number of patients	**Total**	4,460	1,208	7,217	2,541	5,875
	Women	2,278	366	1,419	561	2,178
	Men	2,177	869	5,779	1,973	3,681
Ratio men to women		0.96	2.37	4.07	3.52	1.69
Median age (years)	Women	74	78	75	72	76
	Men	70	71	69	70	75
% Performance status[1] > 3		15.0	15.7	12.0	10.3	19.1
% Patients with > 1 comorbidity		34.2	31.1	37.3	36.1	38.8

SCC=squamous cell carcinoma; ACA=adenocarcinoma; SI, SII, SIII= Siewert I, II, III.
[1] Performance status based on Eastern Cooperative Oncology Group (ECOG) Score for performance status in cancer patients. 0 denotes perfect health and 4 a patient who is bed-bound, completely disabled and unable to carry out any self-care.
Patients scoring 3 or more are capable of only limited self-care, confined to bed or chair >50 per cent of waking hours.
** Sex was unknown for 50 patients

5. Diagnosis, treatment plan and short term outcomes of high grade dysplasia (HGD) patients in England

Since April 2012, the National Oesophago-Gastric Cancer Audit (NOGCA) has been collecting data on patients with a new diagnosis of oesophageal high grade dysplasia (HGD) in England. After two years of data collection, data on 930 cases of HGD have been submitted. Annex 5 and 6 examine both the completeness of data submitted to the Audit for patients with HGD and adherence to The British Society of Gastroenterology (BSG) guidelines for the management of Barrett's oesophagus[5].

Summary of key BSG recommendations

- Diagnosis of dysplasia should be confirmed by a second gastro-intestinal (GI) pathologist
- All patients with dysplasia should be discussed at a specialist upper GI multi-disciplinary team (MDT) meeting
- Endoscopic treatment of HGD is preferred over oesophagectomy or endoscopic surveillance alone
- Endoscopic resection should be performed in high-volume tertiary referral centres, managing at least 15 cases per year. While radiofrequency ablation (RFA) should be performed in centres equipped to perform endoscopic mucosal resection (EMR).

5.1 Patient characteristics and referral pathway

The characteristics of patients diagnosed with HGD were similar to those of patients with oesophageal cancer and are summarised in Table 5-1. The majority of referrals arose from symptomatic referrals, while 376 (40.4 per cent) were referred from Barrett's surveillance.

Overall, 132 (85.7 per cent) of NHS Trusts submitted data to the NOGCA on patients diagnosed with HGD. The median number of cases diagnosed at each organisation was five, but ranged from 1 to 47 (IQR 2-9).

Table 5-1
Characteristics of patients diagnosed with HGD in England

	Men	Women
Number of patients, n (%)*	676 (72.8)	252 (27.2)
Median age (years)	71 (64-77.5)	75 (67-82)
Source of referral, n (%)		
Symptomatic	475 (51.1)	157 (62.3)
Surveillance	376 (40.4)	67 (26.6)
Not Known	79 (8.5)	28 (11.1)

* Sex was missing for 2 patients

5.2 Diagnosis of HGD and treatment planning

Once a diagnosis of HGD is made, the BSG guideline recommends that the diagnosis is confirmed by a second pathologist[5]. This was found to be the case for 82.8 per cent of patients.

Details of the endoscopic findings at the time of diagnosis could be submitted to the Audit, but these data items were not mandatory and were variably reported by organisations:

- The maximum circumferential length of Barrett's was recorded for 298 patients (32.0 per cent). Among these, the mean (±SD) length was 5.7cm (±6.6)
- Details of the endoscopic appearance was available for 517 patients (55.6 per cent). Among these, 300 (58.0 per cent) had an endoscopically visible nodule and 195 (37.7 per cent) had flat mucosa. The remaining 22 (4.3 per cent) had a depressed lesion. In the majority of cases (63.3 per cent), the area of dysplasia was shown to be unifocal.

Given that endoscopic appearances of dysplasia may be subtle, and the mucosa is frequently flat with a unifocal lesion of HGD, it is important to ensure that multiple biopsies are taken throughout the entire length of the Barrett's segment in line with the BSG recommendations. To date, the Audit has not collected data to examine whether this is in fact occurring.

After diagnosis, 35.8 per cent of patients were referred onto to another NHS Trust for treatment. This resulted in only 102 Trusts treating patients with HGD, with the majority of Trusts treating ≤5 cases over the two years (Table 5-2).

The BSG recommend that all patients with HGD are managed in high volume centres, treating 15 or more cases each year. At this time, only seven NHS Trusts treated 30 or more cases over the two year time frame (Table 5-3). The majority of NHS Trusts treated five or fewer cases each year.

The BSG guideline recommends that all patients diagnosed with HGD are discussed at the specialist multi-disciplinary team (MDT) meeting for O-G cancer patients, and that patients should be considered for endoscopic therapy in preference to either oesophagectomy or endoscopic surveillance. Amongst this cohort, 87.3 per cent of cases had their case discussed at an MDT.

Table 5-2
Number of cases of HGD treated at each Trust

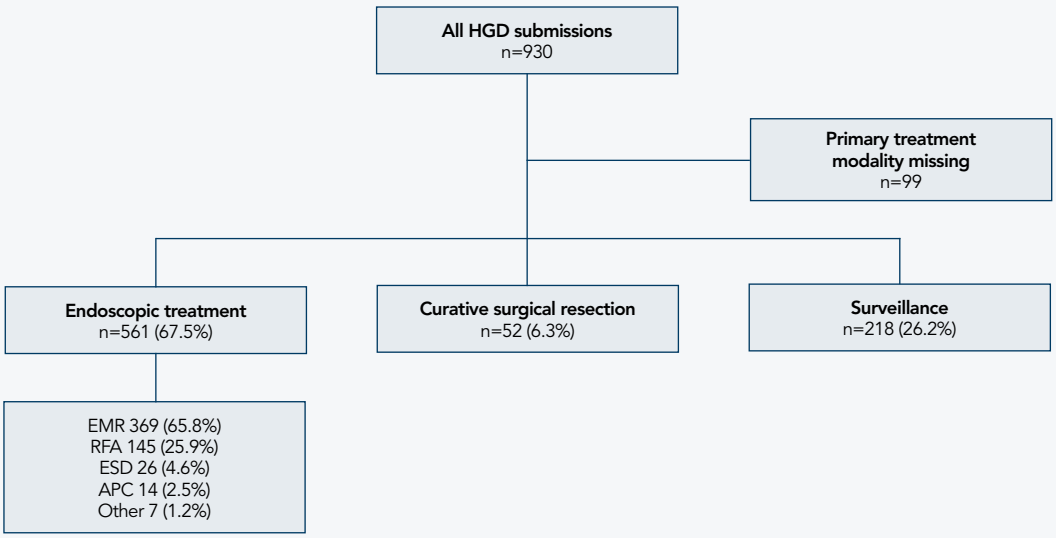
Number of cases of HGD treated	Number of NHS Trusts (%)
< 5	53 (51.9)
5-9	23 (22.6)
10-14	6 (5.9)
15-19	5 (4.9)
20-24	5 (4.9)
25-29	3 (2.9)
≥30	7 (6.9)

Table 5-3
Trusts managing more than 30 cases of HGD over 2 years

NHS Trust	Number of cases treated
University College London NHS Foundation Trust	71
Newcastle upon Tyne NHS Foundation Trust	56
Nottingham University Hospitals NHS Trust	52
Portsmouth Hospitals NHS Trust	46
Cambridge University Hospitals NHS Foundation Trust	43
Leeds Teaching Hospitals NHS Trust	32
Royal Liverpool and Broadgreen University Hospitals NHS Trust	31

Primary planned treatment modality was known for 831 patients (89.4 per cent) (Figure 5-1). The majority of cases were managed non-surgically, with EMR and RFA being used most frequently. Only 6.3 per cent of patients underwent a surgical resection.

Figure 5-1
HGD treatment modalities



EMR = Endoscopic mucosal resection; RFA = Radiofrequency Ablation; ESD = Endoscopic Submucosal Dissection; APC = Argon Plasma Coagulation

Of more concern, 26.2 per cent of patients were managed by surveillance alone. The proportion of patients managed in this way increased with age, from 12.6 per cent for patients aged under 60 years to 43.2 per cent in patients aged 80 or over (p<0.001) (Table 5-4).

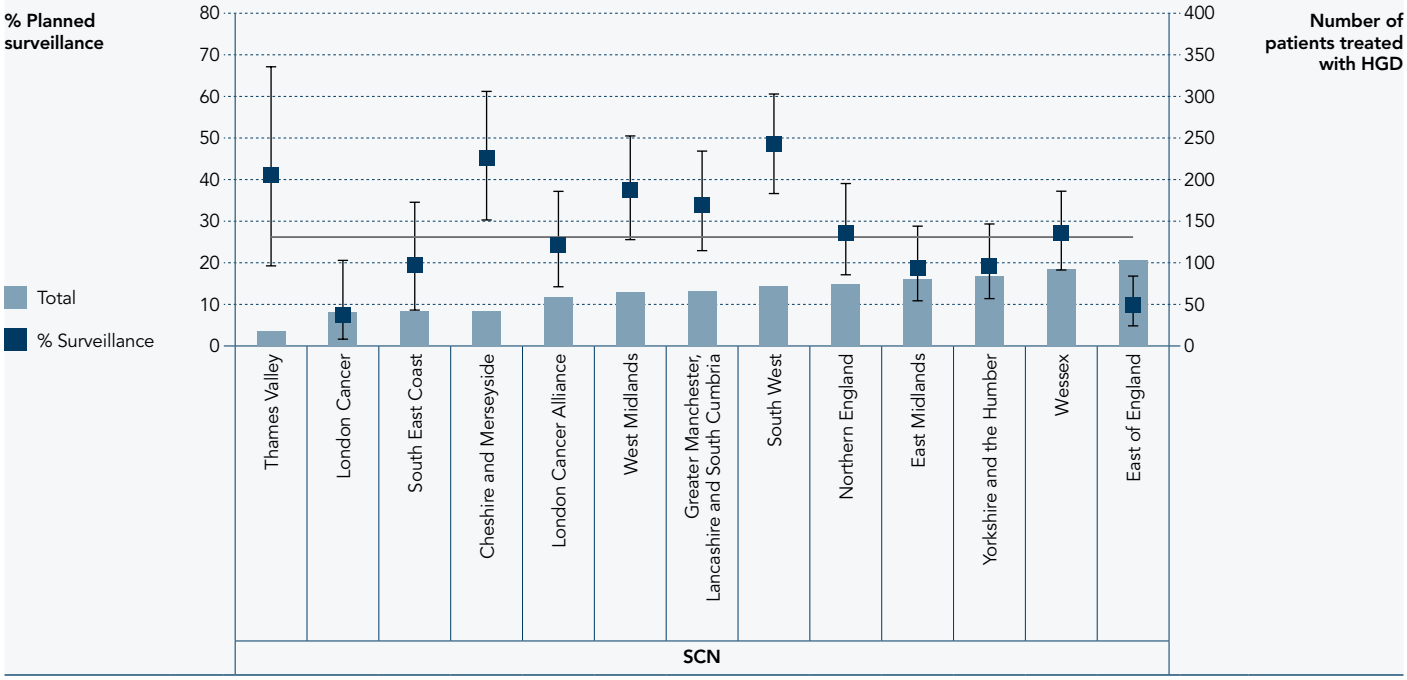
An association with the hospital where the patient was treated was also noted. Patients managed in high volume hospitals (ie, treating 30 or more cases over the two years) were significantly more likely to receive active treatment in preference to surveillance alone compared to those managed in lower volume hospitals (85.1 per cent vs 66.9 per cent, p<0.001).

Table 5-4
Choice of treatment modality, by age of patient

Treatment modality, n (%)	Age of Patient (years)				Total
	<60	60 to 69	70 to 79	≥80	
Surveillance	15 (12.6)	51 (21.6)	76 (25.3)	76 (43.2)	218 (26.2)
Oesophagectomy	11 (9.2)	18 (7.6)	17 (5.7)	6 (3.4)	52 (6.3)
Endoscopic treatment	93 (78.2)	167 (70.8)	207 (69.0)	94 (53.4)	561 (67.5)
Missing	8	26	25	40	99

Finally, there was significant variation in the proportion of patients managed by surveillance alone according to Strategic Clinical Network (SCN) of diagnosis. While 49 per cent of patients diagnosed with HGD in the South West of England were managed by surveillance alone, only eight per cent of those diagnosed in London and 10 per cent of those diagnosed in the East of England were managed this way (Figure 5-2).

Figure 5-2
Use of planned surveillance as treatment of HGD, by SCN of diagnosis



5.3 Use of endoscopic resection

Overall, 395 patients were reported as having undergone an EMR or endoscopic submucosal dissection (ESD) as the primary treatment modality. The outcome of the resection was known for 367 of these cases (92.9 per cent). In this sample, the excision was reported to be complete in 242 (65.9 per cent) cases. In the 125 (34.1 per cent) patients with an incomplete excision, 21 patients went on to require an oesophagectomy, and 47 required a further EMR/ESD, while the remaining 57 patients continued regular surveillance.

For 367 patients, the histology results of the resected sample were available and these were compared to the original diagnosis of HGD. For 195 (53.1 per cent) patients, the diagnosis of HGD was confirmed, but for 124 of these patients the diagnosis was upgraded – 97 to intramucosal cancer and 27 submucosal cancer. In the remaining 48 cases, there was no histological evidence of HGD or cancer found in the resection specimen. Previous studies have suggested that EMR can alter the histological diagnosis in up to 30 per cent of patients[11], which highlights the importance of all visible nodules being resected prior to the application of ablative therapies.

5.4 Key findings

- 26.2 per cent of patients in England with HGD were managed by surveillance alone.
- Higher rates of surveillance were observed when patients were managed in low volume hospitals, and there was significant variation in the proportion of patients managed by surveillance alone across SCNs.

5.5 Recommendations

- NHS Trusts should consider referring patients with a new diagnosis of HGD to a specialist centre for treatment where local expertise is not available.

Comments from Dr Stuart Riley (Consultant Gastroenterologist, Northern General Hospital, Sheffield)

In 2012, the NOGCA began collecting data on patients with HGD of the oesophagus, around the time that the BSG and NICE has issued guidance aimed to standardise care and improve the outcome of such patients. This report describes the initial diagnosis and management of 930 patients submitted to the Audit from April 2012 to March 2014.

In line with guideline recommendations, most patients were reviewed at a specialist MDT and the diagnosis of HGD was confirmed by a second pathologist. The reporting of endoscopic findings, however, was variable and NHS Trusts should review their policies on standardising endoscopic reporting.

It was encouraging to see that most patients with HGD are now being treated with endoscopic therapy and few are undergoing surgery. Nonetheless, although there are a small number of centres who provide high volume endoscopic therapy, many organisations are treating less than five cases per year. Furthermore, over a quarter of patients with HGD are being treated by surveillance alone, despite recommendations that active treatment be undertaken. High volume centres are more likely to undertake active treatment of HGD, and significant regional variation suggests that SCNs and Commissioners should work with Providers to address these areas of variation.

6. Treatment planning

All patients with a new diagnosis of oesophago-gastric (O-G) cancer need to undergo appropriate staging investigations to determine whether the disease is potentially amenable to curative therapy. At this stage in the care process, all patients should have their treatment discussed at the upper gastro-intestinal (GI) multi-disciplinary team (MDT) meeting to determine the most appropriate course of treatment. These meetings typically involve a gastroenterologist, a surgeon, a pathologist and a radiologist. Treatment decisions should take account of both disease stage and patient factors such as comorbidities, nutritional status and patient preference.

Curative treatment options for O-G cancer include surgery, oncological therapy (alone or in combination with surgery) and endoscopic therapy. Curative endoscopic treatment is only possible where the disease is limited to the mucosa (or rarely the most superficial sub-mucosal layer). In this situation, the risk of the disease spreading to the lymph nodes is minimal and good long term outcomes can therefore be achieved through localised endoscopic therapy[12]. Surgery with or without oncological treatment is recommended if there is evidence of the tumour invading deeper submucosal layers as there is a much higher risk of lymphatic spread[13].

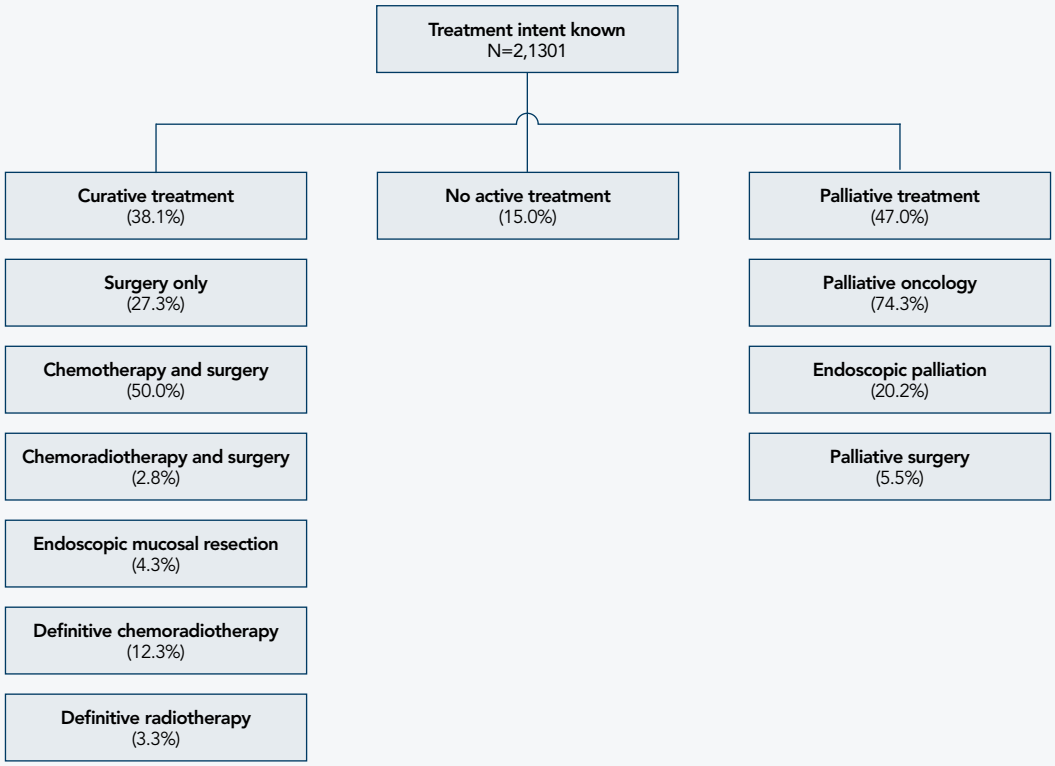
Whether a patient has surgery or surgery with perioperative oncological treatment is dependent on tumour stage and patient preferences. The choice of surgical approach depends on the site and extent of the disease and the surgeon's own experience. Minimally invasive surgical techniques for oesophageal and gastric resections have been introduced in the last decade, which aim to limit the degree of morbidity associated with the surgery but a clear benefit with minimally invasive techniques has not yet been demonstrated[14].

Palliative treatment options aim to both reduce the impact of patient symptoms and improve the length and quality of life for patients. Therapeutic options include endoscopic stenting, palliative oncology, palliative surgery and best supportive care, and will be discussed in greater detail later in the report.

6.1 Audit findings

Planned treatment intent is a mandatory item in the Audit dataset and was available for all 21,301 patients. The distribution of planned treatment modality is summarised is Figure 6-1. The pattern of planned treatments is similar to that described in last year's Annual Report.

Figure 6-1
Treatment intent and modality for O-G cancer patients, for England and Wales



Overall, 38.1 per cent of patients had a curative treatment plan (Figure 6-1), with gastro-oesophageal junction (GOJ) Siewert II/III tumours most likely to be managed with curative intent (Table 6-1).

Table 6-1
Treatment intent by type of tumour, for England and Wales

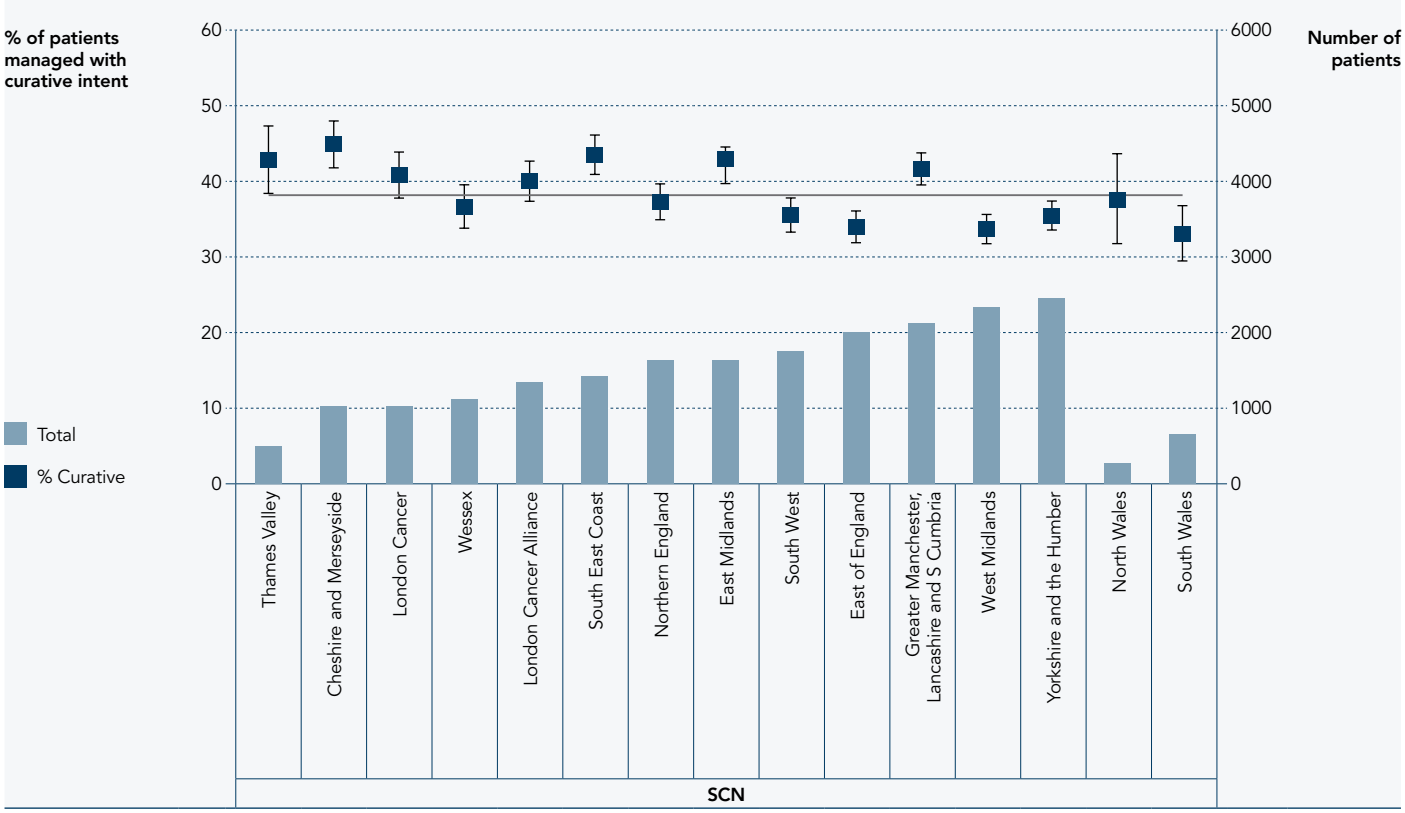
	Oesophageal SCC		Oesophageal ACA Mid/ Upper		Oesophageal ACA Lower/ SI		G-O Junction SII/SIII		Stomach	
	n	%	n	%	n	%	n	%	n	%
Curative	1,584	35.5	386	32.1	3,045	42.1	1,143	45.0	1,956	33.3
Palliative	2,876	64.5	816	67.9	4,181	57.9	1,393	55.0	3,921	66.7
Total	4,460		1,202		7,226		2,536		5,877	

SCC=squamous cell carcinoma; ACA=adenocarcinoma; SI, SII, SIII= Siewert I, II, III.

There was considerable variation in the unadjusted proportion of patients offered curative treatment across Strategic Clinical Networks (SCNs)/Networks (Figure 6-2). Factors such as the case mix and personal choice may influence these differences, but it is also important to consider the impact that differences in the infrastructure and policies within the SCNs/Networks may play in this.

While the proportion of patients who declined curative treatment would have provided an indication of the extent to which personal choice impacted on the proportion of patients receiving curative surgery, this data item was poorly completed. As a result, we have recommended that this item is made mandatory for data collected from April 2016.

Figure 6-2
Proportion of O-G cancer patients managed with curative treatment plans, by SCN for England and Network for Wales.



6.2 Referral pathway and patterns

A patient can be diagnosed with O-G cancer after referral to secondary care by a general practitioner (GP), or following an emergency admission via an accident and emergency department, or following referral by another hospital consultant from a non-emergency setting. Previous Annual Reports have demonstrated that patients diagnosed as a result of an emergency admission are less likely to be managed with curative intent. This is likely to reflect the fact that the disease is diagnosed at a later stage, with the patient only presenting to hospital once they have become seriously ill.

The proportion of patients diagnosed after an emergency admission is described in Annex 7. The results are adjusted for age and gender. There was considerable variability in the proportion of diagnoses after an emergency admission. However, the mean rate nationally was 13.6 per cent, down from average of 15.3 per cent reported in the first O-G cancer Audit. This suggests there has been an overall improvement in the mechanisms by which referrals for cancer assessment are made.

It is important that NHS Trusts/Health Boards with high rates of patients diagnosed as a result of an emergency admission investigate the possible reasons for this because this route to diagnosis is associated with poorer outcomes. The proportion of patients entering secondary care via the emergency route is being considered as an indicator to be used in the hospital inspections performed by the Care Quality Commission (CQC) intelligence monitoring team in assessing quality.

Finally, we note that the source of referral is not being provided to the same level of completeness across all NHS providers, with some Trusts having an unacceptably high proportion of missing data. Data completeness needs to be improved in the future.

6.3 Key findings

- The proportion of patients managed with a curative treatment intent varies significantly across SCNs/Networks and reasons for this need to be investigated by local services.
- The proportion of patients diagnosed as a result of an emergency admission has fallen since the first National O-G Cancer Audit. Nonetheless, there seems to be scope for further improvement given that one in eight patients are still diagnosed following an emergency admission. The completeness of the source of referral data item was variable across NHS providers and needs to be improved.

6.4 Recommendations

- SCNs/Networks should know the proportion of cases of O-G cancer managed with curative intent and where this is low investigate possible reasons and develop strategies to improve this figure.
- SCNs/Networks should know the proportion of cases of O-G cancer diagnosed as a result of an emergency admission and NHS providers should work together to develop strategies to reduce this figure.

7. Curative surgery

In this chapter, we focus on patients who followed a curative treatment pathway. In preparation for the main analysis, a small proportion of patients were identified with discrepancies in the data items related to planned and actual treatments. For example, a few patients had the planned modality entered as non-curative in the tumour record and surgical intent entered as curative in the surgical record. A few other patients were recorded as having oesophageal cancer in the tumour record but underwent a gastrectomy in the surgical record. In these cases, the data items were triangulated across all the available data sources in order to correct data errors, wherever possible. Despite this, a few records had to be excluded because of ambiguity within the different datasets (Figure 7-1).

7.1 Characteristics of patients who underwent curative surgery

Overall, among the patients diagnosed with oesophago-gastric (O-G) cancer between April 2012 and March 2014, there were 4,951 patients who had curative surgery. Table 7-1 summarises the characteristics of these patients.

Among patients who underwent an oesophagectomy, just over three-quarters had surgery and chemotherapy/chemoradiotherapy rather than surgery alone (78 per cent vs 22 per cent, respectively). Compared to the proportions reported in the 2010 National Oesophago-Gastric Cancer Audit (NOGCA) Annual Report, this represents a slight rise in the use of multi-modal therapy since 2010. Among patients who underwent a gastrectomy, a lower proportion had multi-modal therapy rather than surgery alone (54 per cent vs 46 per cent, respectively) but this represents a larger shift in practice since 2010 than for oesophagectomy. In the 2010 NOGCA Annual Report, 58 per cent of patients underwent gastrectomy alone.

Patients who had a combination of surgery and chemotherapy were on average younger and fitter than those having only surgery. This was expected given that the selection of therapies is based on the ability of patients to cope with the physiological impact of both chemotherapy and surgery.

Figure 7-1
Flow diagram describing the inclusion of patients for the analysis of curative treatment patterns

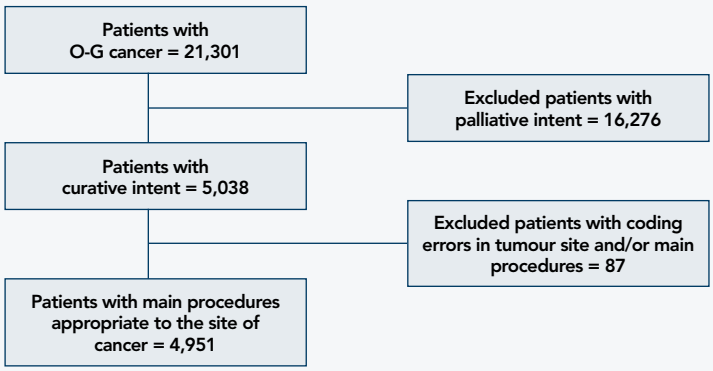


Table 7-1
Summary of characteristics of patients who had a planned curative oesophagectomy or gastrectomy[1], analysed according to planned treatment modality, for England and Wales

Planned modality		Type of procedure	
		Oesophagectomy (n=3,036)	Gastrectomy (n=1,701)
Surgery only			
Number of patients		656	760
Patient age (years)	Median	69	76
	Inter Quartile Range	62 to 76	68 to 80
Performance status	% 0 or 1	85.0	81.0
ASA grade	% I or II	67.0	61.0
Surgery and chemotherapy			
Number of patients		2,211	902
Patient age (years)	Median	65	68
	Inter Quartile Range	59 to 71	59 to 73
Performance status	% 0 or 1	93.0	91.0
ASA grade	% I or II	75.0	73.0
Surgery and chemoradiotherapy			
Number of patients		102	16
Patient age (years)	Median	62.5	61
	Inter Quartile Range	54 to 69	54 to 69.5
Performance status	% 0 or 1	92.0	81.0
ASA grade	% I or II	75.0	81.0
Other*			
Number of patients		67	23
Patient age (years)	Median	64	67
	Inter Quartile Range	59 to 69	61 to 72
Performance status	% 0 or 1	91.0	87.0
ASA grade	% I or II	90.0	78.0

* Patients who had a planned modality of EMR, definitive chemoradiotherapy and definitive radiotherapy in the patient registration form, but went on to have curative surgery at a later date.
[1] The analysis excluded 214 patients who had a curative surgical intent, but converted to bypass or open and shut procedures.

A small proportion of patients had surgery and chemoradiotherapy. Overall, in NHS cancer centres with more than 10 cases, 2.4 per cent of patients had a planned modality consisting of surgery and chemoradiotherapy. There was some variability between NHS providers, and the proportion of patients planned to have curative resection with chemoradiotherapy exceeded 10 per cent at three cancer centres.

7.2 Surgical procedures by tumour category

Information on main procedure and tumour category details are summarised in Table 7-2.

The majority of oesophagectomies were performed via the transthoracic route with the 2-phase Ivor Lewis procedure being the most frequent (82.4 per cent) surgical operation.

The number of open and shut procedures has decreased to 3.8 per cent among patients diagnosed between April 2012 and December 2014. In the 2010 NOGCA Annual Report, the figure was 5.2 per cent, indicating the number of unnecessary operations has reduced over time.

Table 7-2
Surgical procedures performed by type and site of tumour, for England and Wales

Type of operation	Oesophageal SCC	Oesophageal ACA Mid/Upper	Oesophageal ACA Lower/SI	GO Junction SII/SIII	Stomach
Oesophagectomy					
Left Thor-abdominal	31	19	182	58	N/A
2-Phase (Ivor-Lewis)	348	137	1,601	429	N/A
3-Phase (McKeown)	57	13	51	12	N/A
Transhiatal	11	<5	65	17	N/A
Gastrectomy					
Total	N/A	N/A	41	182	568
Extended Total	N/A	N/A	18	75	25
Proximal	N/A	N/A	5	< 5	21
Distal	N/A	N/A	0	0	701
Other	N/A	N/A	0	< 5	53
Other Procedure					
Open-Shut	15	< 5	79	42	51
Bypass	<5	0	0	< 5	24
Total	**470**	**175**	**2,042**	**821**	**1,443**

SCC=squamous cell carcinoma; ACA=adenocarcinoma; SI, SII, SIII= Siewert I, II, III.

Overall 41.3 per cent oesophagectomies were minimally invasive (MI)/hybrid operations and 14.5 per cent of gastrectomies were MI (see Table 7-3). There appears to be a sustained rise in use of these surgical techniques over time.

In the 2010 Annual Report, only 30 per cent of oesophagectomies and 13 per cent of gastrectomies were performed using a full MI/hybrid technique.

Table 7-3
Surgical approach used for curative surgical resections by type of procedure, for England and Wales

Oesophagectomy	Left Thor-abdominal	2-Phase Ivor Lewis	3-Phase (McKeown)	Overall
Open	273	1,283	63	1,619
Hybrid (includes converted)	10	801	14	825
Minimally invasive (MI) (includes converted)	2	265	45	312
Total	**285**	**2,349**	**122**	**2,756**
N MI/hybrid	12	1066	59	1,137
% MI/hybrid	4.2	45.4	48.4	41.3
Data incomplete	5	166	11	182

Gastrectomy	Total / Extended total	Subtotal / partial	Overall
Open	820	627	1,447
Minimally invasive (MI) (includes converted)	90	156	246
Total	**910**	**783**	**1,693**
% MI	9.9	19.9	14.5
Data incomplete	4	4	8

7.3 Postoperative length of stay and complication rates

The length of stay in the hospital after the operation was calculated as the difference between the date of operation and date of discharge. The date of the procedure is a mandatory item, but the date of discharge/death is not. Length of stay was calculated from records that had complete data on date of discharge/death. It is important that these two items are completed in order that the Audit can provide an accurate assessment of length of stay. Length of hospital stay is now being used as an indicator of hospital and consultant performance. Annex 4 contains the proportion of curative surgical patients missing date of discharge/death by NHS Trust/ Health Board.

The median length of stay for oesophagectomy was 13 days (IQR: 10 to 19). There was no difference in the distribution of length of stay for either open or hybrid procedures, with both having a median of 13 days. However, the median length of stay was slightly shorter for MI oesophagectomies, being 11 days (IQR 8-17).

The median length of stay for gastrectomy was 10 days (IQR: 8 to 14). The median length of stay for open procedures was slightly longer than for MI procedures, 11 (8 to 14) and 8.5 (7 to 13.5) days, respectively.

Patients undergoing surgical resection of the oesophagus or stomach may experience a number of complications in the postoperative period. Unfortunately, details of surgical complications are not available in the Welsh data and the figures reported here are derived only using patients treated in England cancer centres.

Overall, about a third of patients undergoing an oesophagectomy and a fifth having a gastrectomy suffered a postoperative complication (Table 7-4). Overall patients having a gastrectomy had lower complication rates for all specific complications than those undergoing an oesophagectomy. The most common complication after both an oesophagectomy and a gastrectomy was respiratory (including infection, pulmonary effusion, pulmonary embolism, and acute respiratory distress syndrome), affecting 19.1 per cent and 9.1 per cent of patients, respectively.

Table 7-4
Overall rates of postoperative in-hospital complications for patients with O-G cancer treated in England

Complications	Oesophagectomy (n=2,962)		Gastrectomy (n=1,643)	
	Rate (%)	95% (CI)	Rate (%)	95% (CI)
Any complication	36.9	35.1-38.7	23.7	21.7-25.9
Anastomotic leak	7.1	6.2-8.0	5.1	4.0-6.2
Chyle leak	3.1	2.5-3.8	0.3	0.1-0.70
Cardiac complication	7.8	6.9-8.9	2.1	1.5-3.0
Wound infection	3.9	3.2-4.6	2.9	2.2-3.9
Respiratory	19.1	17.7-20.6	9.1	7.7-10.6
Unplanned surgery	9.1	8.2-10.3	6.6	5.4-7.9

7.4 Postoperative mortality

Standard measures of surgical outcomes for oesophagectomy and gastrectomy are 30 and 90-day postoperative mortality. We derived these outcomes for patients diagnosed with O-G cancer between April 2012 and March 2014 undergoing the procedure in England and Wales (Table 7-5).

Both the 30 and 90-day mortalities have fallen since the 2010 NOGCA Annual report, when 30-day mortality was 3.8 per cent for oesophagectomies and 4.5 per cent for gastrectomies, and 90-day mortality was 5.7 per cent for oesophagectomies and 6.9 per cent for gastrectomies.

Table 7-5
Unadjusted postoperative mortality for curative surgery by type of procedure, for England and Wales

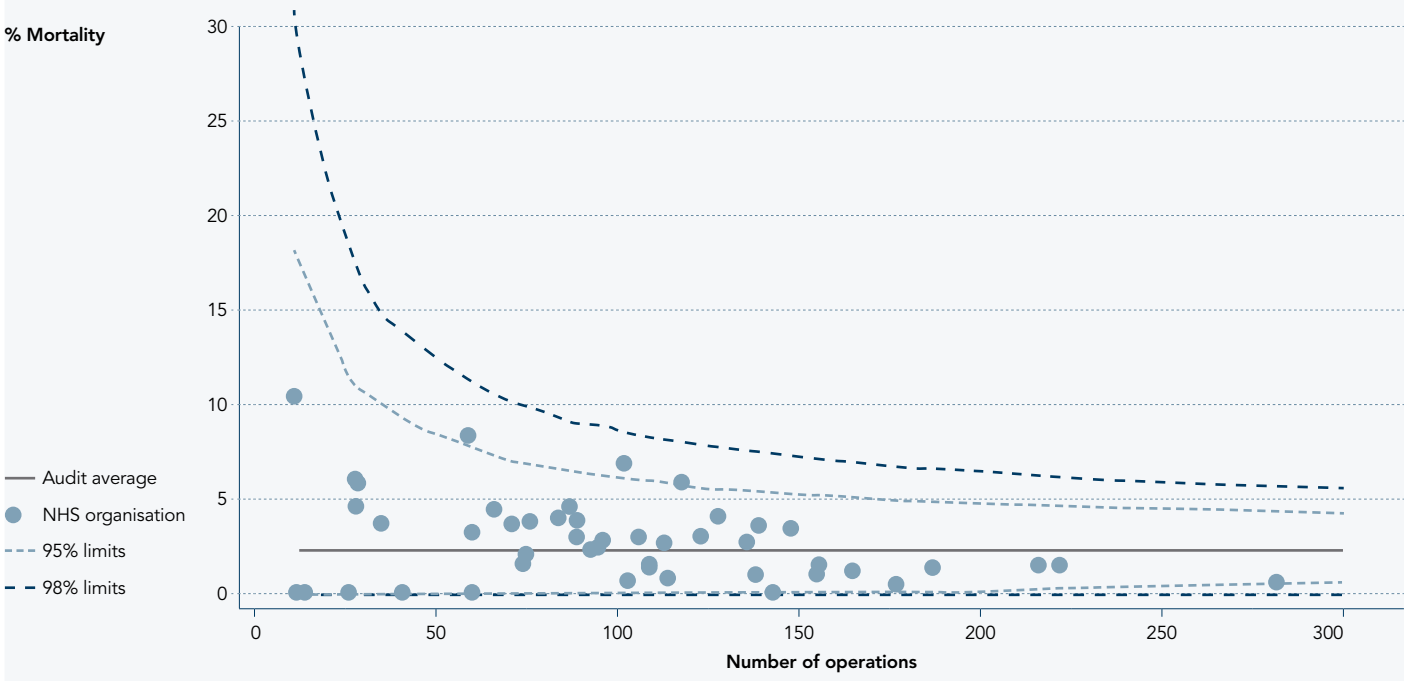
	Oesophagectomy (n=3,050)		Gastrectomy (n=1,848)	
	Rate (%)	95% (CI)	Rate (%)	95% (CI)
30-day mortality	2.2	1.7 - 2.8	2.3	1.6 - 3.1
90-day mortality	4.3	3.6 - 5.1	4.2	3.3 - 5.3

The 30-day and 90-day mortality rates were explored at NHS Trust/Health Board level, and outcomes are shown in funnel plots after adjusting for age, sex, performance status, comorbidities, TNM stage, ASA grade and site of tumour (Figure 7-2). These suggest that the underlying mortality rate at each NHS Trust/Health Board is the same and each are performing to the same standard.

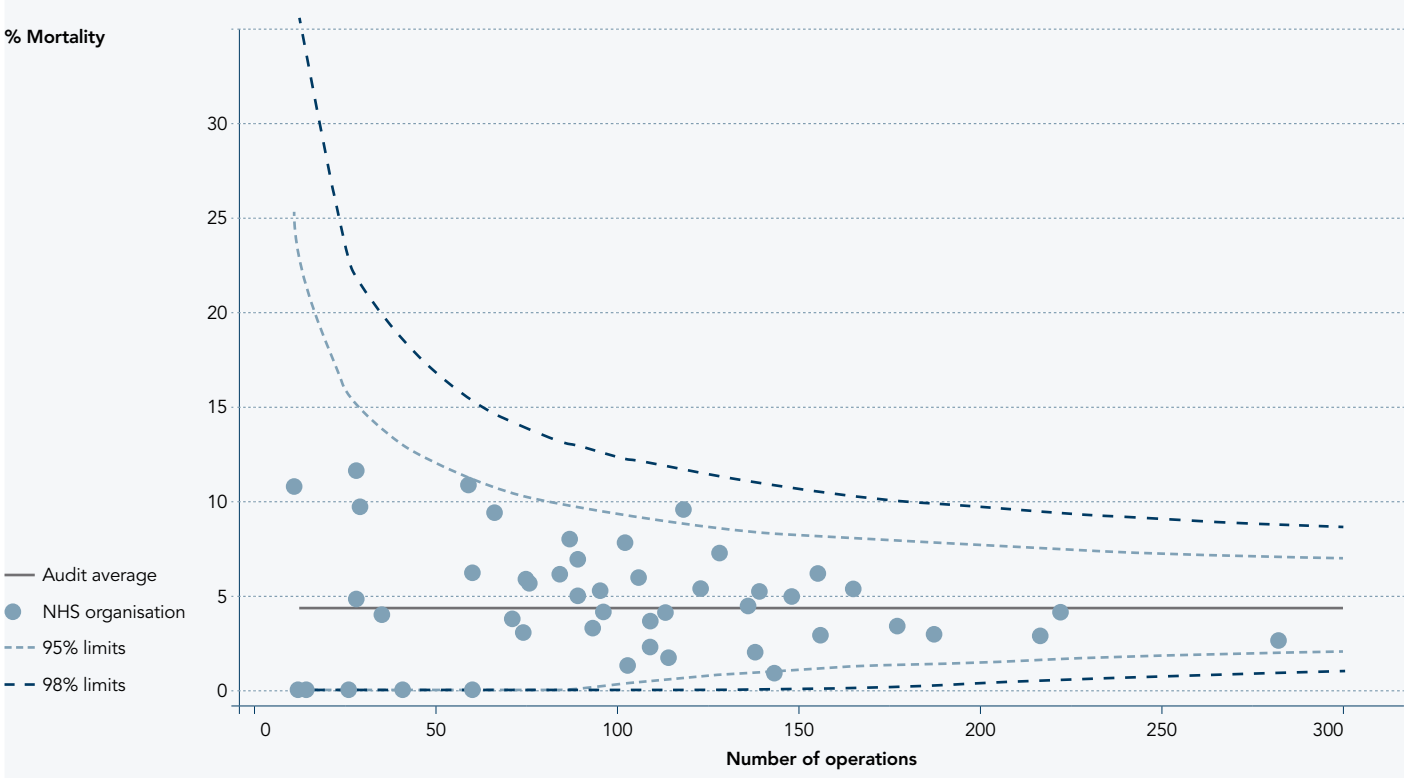
The adjusted 30-day and 90-day mortality rate and length of stay, by NHS Trust/Health Board (for England and Wales), as well as age and sex adjusted complication rates (for England), are shown in Annex 8.

Figure 7-2
Funnel plots showing adjusted 30-day and 90-day mortality rates for England and Wales

Adjusted 30-day mortality rate by Trust/Health Board for England and Wales



Adjusted 90-day mortality rate by Trust/Health Board for England and Wales



7.5 Key findings

- The proportion of patients who have perioperative oncological therapy planned with curative surgery has risen since 2010, in line with recommended practice.
- There has been a decrease in the number of open-shut operations being performed since the 2010 O-G Cancer Audit.
- The proportion of oesophagectomies performed using a MI/hybrid approach has increased substantially since the first Audit.
- NHS Trust/Health Board 30-day and 90-day postoperative mortality figures for surgical resections were all within the expected range when compared to the overall average for England and Wales. Overall 90-day mortality after oesophagectomy and gastrectomy was 4.2 per cent and 4.3 per cent, respectively.

7.6 Recommendations

- As surgical mortality rates fall, NHS Trusts/Health Boards should pay particular attention to monitoring their complication rates. Surgeons should prospectively monitor these rates.

Comments from Mr Nick Maynard (Consultant Upper GI Surgeon, Oxford University Hospitals NHS Foundation Trust)

The 2015 Annual Report of the National Oesophago-Gastric Cancer Audit demonstrates a continuing commitment by Clinicians involved in the treatment of oesophago-gastric cancer to collect data. Many units continue to lack appropriate resources for comprehensive data collection and this remains a challenge for many Trusts.

Minimally invasive surgery is increasingly being used to remove these tumours – 41 per cent of oesophagectomies were performed using a minimally invasive approach, and yet only 14 per cent of gastrectomies were performed in this way. We can expect to see this figure increase over the next few years.

The use of definitive chemoradiotherapy for oesophageal SCC is steadily increasing (45.8 per cent compared to 35.1 per cent in the 2014 report and 38 per cent in the 2013 report). The increasing use of chemoradiotherapy, both as definitive treatment and in the neoadjuvant setting, rightly questions the role of surgery in the treatment of oesophageal SCC, and it will be interesting to see whether the predominant role of surgery in the treatment of oesophageal SCC will be for salvage resections.

We can be very proud of the low 90-day postoperative mortality rates (4.3 per cent for oesophagectomy and 4.2 per cent for gastrectomy), but the overall complication rates remain high. Perioperative complications influence long and short-term outcomes following oesophago-gastric resections, but the reporting of complications following surgery and oncological treatments is extremely variable. The absence of any standard definitions and reporting platform in widespread use makes it impossible to interpret these complication rates and any differences between Trusts. It is hoped that the standardised list of complications produced by the Oesophagectomy Complications Consensus Group (ECCG) will be adopted universally[15].

8. Use of definitive oncology and outcomes

While the majority of oesophago-gastric (O-G) tumours are still managed surgically, definitive oncology is recommended for proximal oesophageal squamous cell carcinomas (SCCs) and should be considered for mid/lower oesophageal SCCs (current recommendations[4] are outlined below). The evidence to support the use of definitive chemoradiotherapy is less strong for oesophageal adenocarcinomas and is largely restricted to use in patients considered unsuitable for curative surgery[16].

Current curative treatment plan recommendations[4]:

Oesophageal SCC:

- Definitive chemoradiation for proximal oesophageal tumours
- For tumours of the middle or lower oesophagus either chemoradiotherapy alone or combined with surgery.

Oesophageal adenocarcinoma and gastro-oesophageal junction tumours:

- Preoperative chemotherapy or chemoradiation is recommended to improve long term survival after surgery, compared to surgery alone
- Perioperative chemotherapy (pre and postoperative) can also be recommended as it increases survival for Siewert II and III cancers.

Gastric cancer:

- Perioperative chemotherapy is recommended to improve survival compared to surgery alone
- In patients at high risk of recurrence who have not had neoadjuvant chemotherapy, adjuvant chemoradiotherapy may be considered as it has been shown to improve survival in non-Western populations.

For the purposes of this chapter, planned definitive oncology was defined as chemo/radiotherapy given to the patient with curative intent, where there is no plan for the patient to proceed to surgery at a later date. It should be noted that a proportion of these patients may need salvage surgery at a later date where definitive oncology failed.

For patients who undergo any oncological therapy, the Audit collects data on planned treatment modality. Definitive oncology treatment can be coded using one of two separate modalities: planned curative radiotherapy or definitive chemoradiotherapy. For the purposes of this chapter, we consider use of both these modalities in England and Wales.

8.1 Choice of curative treatment for oesophageal SCCs

The choice of treatment among patients with SCC was influenced by the location of the tumour in the oesophagus. Among patients with upper oesophageal SCC, 67.0 per cent were managed with definitive oncology and 33.0 per cent were managed surgically. Among patients with tumours located in the mid/lower oesophagus, only 45.8 per cent were managed with definitive oncology and 54.2 per cent were managed surgically.

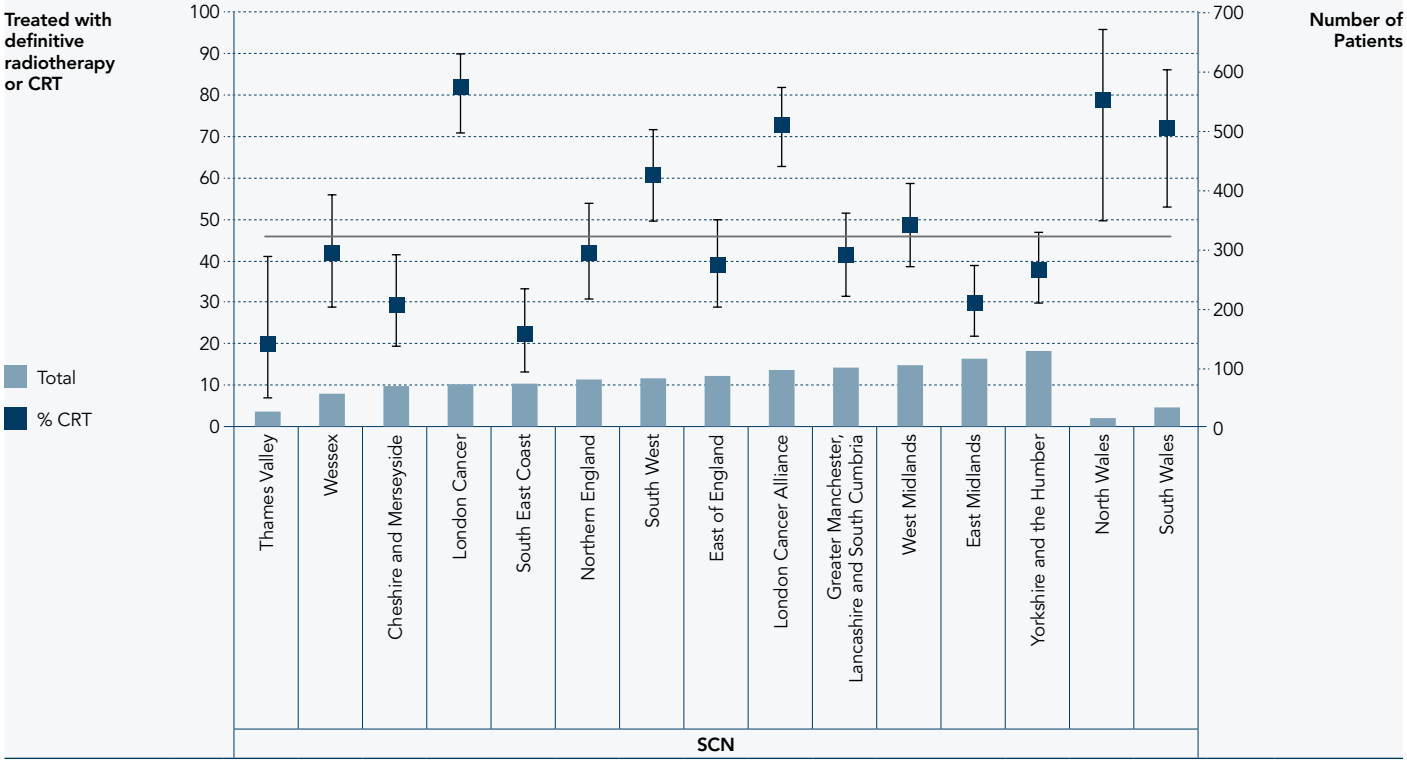
On average, patients who received definitive oncology were slightly older than those undergoing surgery, but they had similar distributions of performance status and numbers of comorbidities (these differences were not statistically significant) (Table 8-1).

Table 8-1
Patient characteristics according to planned treatment modality for oesophageal SCC, for England and Wales

	Surgical resection ± neoadjuvant/adjuvant oncology	Definitive oncology
Number of patients, n (%)		
Women	384 (57.4)	340 (53.5)
Men	285 (42.6)	295 (46.5)
Median age, years (IQR)	67 (60-73)	70 (63-76)
Performance status, n (%)		
0/1	573 (85.7)	529 (83.3)
≥2	96 (14.3)	106 (16.7)
History of comorbidities, n (%)		
0	458 (68.5)	414 (65.2)
≥1	211 (31.5)	221 (34.8)

Across Strategic Clinical Networks (SCNs) in England/ Networks in Wales, there was considerable variation in the proportion of patients who were managed surgically or with definitive oncology for mid/lower oesophageal SCCs (Figure 8-1). This variation requires investigation at a local level. Where SCNs/Networks, have a significantly lower proportion of patients managed by definitive oncology, it is important to ensure that cases are being discussed with an oncologist to ensure that this is considered as a potential treatment option.

Figure 8-1
Proportion of patients with mid/lower oesophageal SCC who were managed with curative intent, treated with definitive CRT vs surgery, for England and Wales



8.2 Choice of definitive oncology modality

Among the cohort of patients for whom the oncology modality was known, there were 722 patients treated with definitive oncology. The vast majority of these patients were treated for oesophageal cancer, as expected. Definitive oncology is not a recommended treatment modality for gastric cancer.

The choice of definitive oncology modality varied according to patient characteristics and the cancer site. The median age of patients treated with definitive oncological treatment was 72 years (IQR 64-77) and 83.8 per cent had performance status of 0 or 1.

The most common form of therapy was combined chemoradiotherapy; few patients received radiotherapy alone (Table 8-2). Patients who received combined chemoradiotherapy vs radiotherapy alone were on average older (median age: 77 vs 69 years), were more likely to have a poorer level of physical function (performance status of ≥2: 25.7 per cent vs 12.3 per cent, p<0.001), and more likely to have one or more comorbidities (45.2 per cent vs 35.6 per cent, p=0.015).

Overall, 70.3 per cent of patients who had definitive chemotherapy completed their treatment as planned, compared to 97.5 per cent of patients treated with radiotherapy. The most common reasons for failing to complete planned chemotherapy included acute chemotherapy toxicity (35.9 per cent) and disease progression (32.1 per cent).

Table 8-2
Use of definitive oncological treatment by tumour site, for England and Wales

Treatment intent	Oesophageal SCC	Oesoph ACA Upper/Mid	Oesoph ACA Lower/SI	GO Junction SII/SIII	Stomach
Number of patients	455	43	181	32	12
Radiotherapy (%)	23.0	40.0	43.0	16.0	33.0
Chemoradiotherapy (%)	77.0	60.0	57.0	84.0	67.0

SCC=squamous cell carcinoma; ACA=adenocarcinoma; SI, SII, SIII= Siewert I, II, III.

8.3 Use of radiotherapy in definitive oncology in England

The evidence base for supporting particular regimens for the use of definitive radiotherapy in O-G cancer is limited. Using what evidence is available, the Royal College of Radiologists (RCR) make the following recommendations[17] on dosing regimens:

- Oesophageal cancer
  - Definitive chemoradiotherapy, recommended radiotherapy dose:
    - 50.4Gy in 28 fractions
    - 50Gy in 25 fractions.
  - Definitive radiotherapy, recommended radiotherapy dose:
    - 50Gy in 15 or 16 fractions
    - 50-55Gy in 20 fractions
    - 60Gy in 30 fractions.
- Gastric cancer
  - Not a recommended treatment.

The Audit does not directly collect information on the delivery of radiotherapy doses. This was judged to be unnecessary because of the introduction of the National Radiotherapy Dataset (RTDS) in England. This is designed to collect data on all radiotherapy which is administered in English NHS hospitals, with data being collected at the point of administration. The RTDS therefore records treatment that is actually given rather than treatment which is planned.

The RTDS dataset available for this report was limited to radiotherapy administered in England between 1st April 2012 and 31st March 2013. In this section, we explore current use of definitive radiotherapy for oesophageal cancer.

Overall 2,146 National Oesophago-Gastric Cancer Audit (NOGCA) records were successfully linked to RTDS for the one year period. The most common planned treatment modality recorded for these patients was palliative oncology (1,032), followed by definitive chemoradiotherapy (304). We used this linked dataset to determine the radiotherapy regimens given. The RTDS captures the actual treatment rather than the planned regimen. Where the regimen did not adhere exactly to the RCR guidelines, the dose fractionation data were manually reviewed to infer the likely planned treatment regimen.

8.4 Use of definitive chemoradiotherapy for oesophageal cancer in England

There were 300 patients diagnosed with oesophageal cancer between April 2012 and March 2013 in England whose planned treatment modality was definitive chemoradiotherapy and who had a linked RTDS record. The dose of radiotherapy given and total number of attendances was known for 282 (94.0 per cent) of these patients. Overall, 184 patients (65.3 per cent) followed a dosing regimen recommended by the RCR for use in definitive chemoradiotherapy, with the majority of these patients receiving 50Gy over 25 fractions (Table 8-3).

Another commonly used regimen was 54Gy over 30 fractions. This is an alternative definitive treatment regimen, although the evidence base for its use in routine treatment is more limited. A further 18 patients received a regimen more commonly chosen for definitive radiotherapy alone, despite the initial plan being combined chemoradiotherapy. Information in the Audit dataset indicated that nine (50 per cent) of these patients did receive radiotherapy alone, suggesting that the initial treatment plan was later altered for these patients. Finally, 19 patients initially planned to receive definitive chemoradiotherapy received a dosing regimen more consistent with radiotherapy administered with palliative intent (20Gy/5, 30Gy/10, or 80Gy/1), suggesting a change in treatment plan.

Table 8-3
Radiotherapy dose and fractions used for curative radiotherapy when combined with chemotherapy for oesophageal cancer, in England

	Doses	Fractions	Number (%)
Evidence based doses	50.4 Gy	28	25 (8.9)
	50 Gy	25	159 (56.4)
Other regimens used in >=5 patients	54 Gy	30	27 (9.6)
	60 Gy	30	5 (1.8)
	50-55 Gy	20	13 (4.6)
	30 Gy	10	10 (3.5)
	20 Gy	5	6 (2.1)
Other regimens used in <5 patients			37 (13.1)

8.5 Use of curative radiotherapy for oesophageal cancer

Curative radiotherapy alone was used with much less frequency. Only 86 patients diagnosed with oesophageal cancer between April 2012 and March 2013 in England were planned to receive definitive radiotherapy. The dose of radiotherapy given and total number of attendances was known for 80 (93.1 per cent) of these patients.

There were 39 patients (49.4 per cent) patients whose radiotherapy followed an RCR recommended treatment regimen (Table 8-4). The most commonly used regimen was 50-55Gy over 20 fractions. The other common regimen was 50Gy over 25 fractions. This is a regimen more commonly used for definitive chemoradiotherapy and further exploration of the NOGCA dataset suggests that the treatment plan for seven of these patients did change to combined chemoradiotherapy.

Table 8-4
Radiotherapy dose and fractions used for curative radiotherapy of oesophageal cancer, in England

	Doses	Fractions	Number (%)
Evidence based doses	50 Gy	15 or 16	11 (13.9)
	50-55 Gy	20	25 (31.6)
	60 Gy	30	3 (3.8)
Other regimens used in >=5 patients	40 Gy	15	6 (7.6)
	30 Gy	10	7 (8.9)
	50 Gy	25	12 (15.2)
Other regimens used in <5 patients			15 (19.0)

8.6 Key findings

- Two thirds of upper oesophageal SCCs were managed with definitive oncology. Among patients with mid/lower oesophageal SCCs, there was variation in the choice of curative treatment across SCNs/Networks.
- Treatment related toxicities were more common among patients having chemotherapy than radiotherapy.
- There was significant variation in dose-fractionation reported for radiotherapy regimens in England. However, this is likely to reflect in part changes to the initial treatment plan, either in terms of treatment intent, or in terms of whether radiotherapy was administered with chemotherapy.
- There was reasonable compliance with RCR recommended dosing schedules.

8.7 Recommendations

- All patients with oesophageal SCCs being considered for curative therapy should be discussed with both an oncologist and a surgeon to determine the most appropriate treatment option.

Comments from Dr Tom Crosby (Consultant Clinical Oncologist, Velindre Cancer Centre, Cardiff)

The use of chemoradiotherapy (CRT) in oesophago-gastric cancer is increasing. It is predominantly used in two treatment approaches, namely preoperative CRT prior to planned surgery (pCRT) and definitive CRT where it is planned to be used alone(dCRT). This Audit has demonstrated a low use of preoperative CRT in the UK, just 2.4 per cent (see Chapter 7). This is likely to rise following publication of the CROSS trial[18] and demonstration that this treatment can be given safely in the UK through the NeoSCOPE study (Crosby, GI ASCO 2016). The achievement of a significant pathological response and in particular an R0 surgical resection, has been shown to be increased through the use of pCRT and is associated with a better outcome.

The use of dCRT is considered a standard of care in the treatment of localised SCC oesophagus. Its use is increasing (35 per cent in 2012 to 46 per cent in 2014). There is still huge variation however between Networks (from 20 per cent to 80 per cent of all cases) which is difficult to justify as we all consider the same published evidence in terms of survival and quality of life for it's use [16,19,20,21]. The use of dCRT in adenocarcinoma does not have such a strong evidence base but it should be considered in those patients with non-metastatic disease where the risks for a safe R0 resection are considered high due to presence of co-morbidities or extent of disease. Much of the variation seen in dose fractionation regimen can be explained by the fact that the RTDS records treatments given compared to treatment intent in the Audit. For example it is clear that some patients initially thought to have been considered curative have been given a standard palliative dosing regimen. Hence, for dCRT it is likely that 87 per cent of all cases have followed an RCR recommended dose/fractionation regimen. However, in 10 per cent a higher dose of 54Gy in 30 fractions was used. It would be preferable if such dose escalation was tested for efficacy and safety as part of a prospective clinical study. The forthcoming SCOPE 2 trial will address this important question.

9. Palliative oesophago-gastric (O-G) cancer treatment patterns and outcomes

Two thirds of patients with oesophago-gastric (O-G) cancer were managed with palliative intent after their diagnosis. The goals of palliative therapy are symptom control (e.g. relief of dysphagia or pain), lengthening the duration of survival, and improving quality of life. Patients on a palliative care pathway have various treatment options available to them (see right) but whether or not a patient receives a particular therapy will depend upon their condition and preference.

Overall, 13,272 patients were planned to receive palliative therapy where planned palliative modality was known. The most common palliative treatment modality was palliative oncology (chemotherapy and/or radiotherapy) (47.9 per cent), but the selection of the planned treatment modality was dependent upon the tumour location (Table 9-1). Twice as many patients with oesophageal tumours had endoscopic palliation (typically used to relief the symptoms of dysphagia – difficulty swallowing) than patients with stomach tumours. In addition, a much higher proportion of patients with stomach tumours received no active treatment.

However, there was significant variation in the choice of palliative modality across the Strategic Clinical Networks (SCNs) in England/Networks in Wales (Figure 9-1).

Palliative Treatment Options:

Palliative chemotherapy can improve survival in locally advanced gastric and oesophageal cancer by 3-6 months, compared to best supportive care alone. However it should only be considered in patients with a good performance status.

External beam radiotherapy can be used to treat dysphagia with few side effects, but benefit is comparatively slow to achieve compared to stenting.

Brachytherapy is a form of internal radiotherapy and can be used to treat dysphagia with few adverse effects. In the longer term it may be associated with better relief of dysphagia and fewer complications than oesophageal stent insertion, but symptom relief is slower in the short-term. As a result brachytherapy should be considered if life expectancy is more than 3 months.

Endoscopic/radiological therapy:

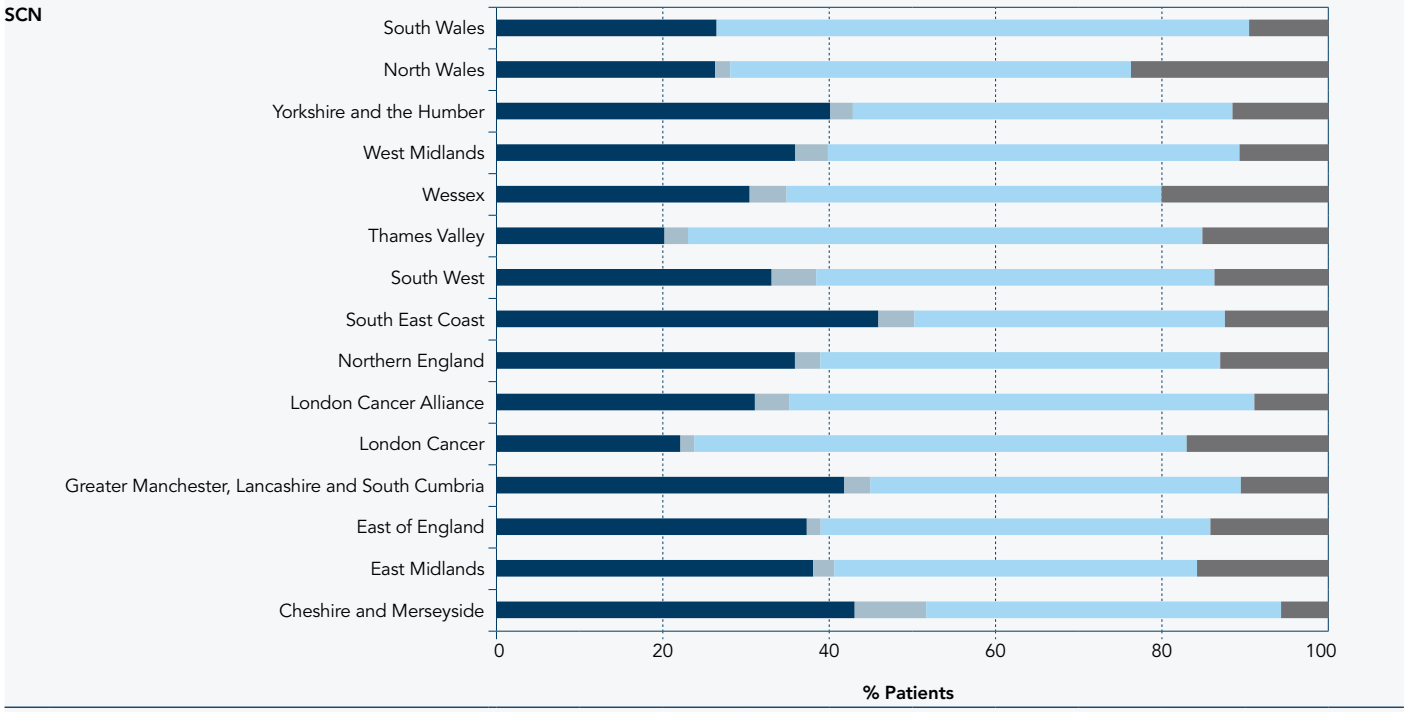
- Stenting is the most common endoluminal palliative procedure and provides rapid relief of dysphagia in a one-stage procedure. It is particularly useful if life expectancy is short
- Laser therapy and argon plasma coagulation (APC) can be used to relieve dysphagia by treating either tumour directly or by treating tumour ingrowth above or below a stent.

Table 9-1
Choice of palliative treatment by O-G cancer site, in England and Wales

	Oesophageal SCC	Oesoph ACA Upper/Mid	Oesoph ACA Lower/SI	GO Junction SII/SIII	Stomach
No active treatment, n (%)	877 (29.8)	252 (30.8)	1,247 (29.9)	505 (35.6)	1,885 (48.2)
Palliative surgery, n (%)	97 (3.3)	27 (3.3)	122 (2.9)	45 (3.2)	167 (4.3)
Palliative oncology, n (%)	1,457 (49.4)	384 (46.7)	2,120 (50.8)	760 (53.6)	1,634 (41.7)
Endoscopic palliation, n (%)	516 (17.5)	156 (19.1)	684 (16.4)	108 (7.6)	229 (5.9)
Total	**2,947**	**819**	**4,173**	**1,418**	**3,915**

SCC=squamous cell carcinoma; ACA=adenocarcinoma; SI, SII, SIII= Siewert I, II, III.

Figure 9-1
Proportion of palliative patients who were planned to receive each palliative treatment modality, by SCN/Network in England and Wales



9.1 Palliative oncology

There were 6,355 patients whose initial treatment plan was palliative oncology. Among these, 4,713 (74.2 per cent) patients had the oncology modality recorded. Palliative chemotherapy alone was the most common treatment (65.8 per cent), with palliative radiotherapy (29.5 per cent) also used relatively frequently. The choice of oncology modality varied across tumour sites (Table 9-2). Chemotherapy alone was used for four-fifths of stomach tumours and Siewert II/III tumours. In comparison, the use of chemotherapy and radiotherapy was evenly split for oesophageal squamous cell carcinomas (SCCs).

Table 9-2
Palliative oncology treatment modality according to tumour site, in England and Wales

	Oesophageal SCC	Oesoph ACA Upper/Mid	Oesoph ACA Lower/SI	GO Junction SII/SIII	Stomach
% Chemotherapy	46.0	62.0	66.0	80.0	79.0
% Radiotherapy	46.0	34.0	29.0	17.0	19.0
% Chemoradiotherapy	8.0	4.0	5.0	3.0	2.0
Total cases	**1,144**	**293**	**1,577**	**565**	**1,134**

Patients receiving palliative chemotherapy or chemoradiotherapy were younger than those receiving radiotherapy (mean (SD) age 65.8 (± 10.7) vs 76.2 (±10.5)), and had a better physical function (performance status 0/1: 81.3 per cent vs 51.5 per cent).

Palliative radiotherapy was well tolerated, with 97.8 per cent of patients completing their treatment as planned. In contrast, palliative chemotherapy was relatively poorly tolerated, with only 54.9 per cent of patients completing the planned treatment. The most common reasons for not completing a course of chemotherapy were: progressive disease during treatment (38.9 per cent) and acute toxicity (25.8 per cent).

In general, patients who were older and had a poorer performance status were consistently less likely to complete their planned course of chemotherapy (Table 9-3). Only 31.0 per cent of patients who were over 80 and had a performance status of ≥2 completed their chemotherapy as planned.

Table 9-3
Proportion of patients who completed palliative chemotherapy, by age and performance status

Age Group (years)	Performance status		
	0 (n=626)	1 (n=772)	2-4 (n=256)
% Under 60	63.0	61.0	48.0
% 60 to 70	57.0	51.0	45.0
% 70 to 80	58.0	55.0	46.0
% Over 80	59.0	52.0	31.0

9.2 Endoscopic and radiological palliative therapy

One of the commonest symptoms of advanced oesophageal cancer is dysphagia, difficulty swallowing, which can be managed endoscopically by dilatation or stenting.

The National Oesophago-Gastric Cancer Audit (NOGCA) aims to collect data on all patients who underwent endoscopic/radiological palliative therapy. Until now it has been uncertain how complete the data collected by the Audit has been in this regard. We therefore aimed to investigate the reliability with which stents were coded in Hospital Episode Statistics (HES), and then build on this to look at the proportion of stents that had been coded in HES that were reported to the Audit for English patients.

Coding of stents in HES

Surgical procedures are recorded in HES using the UK Office of Population Censuses and Surveys classification (OPCS) version 4.6. Stents can be recorded in HES using several different OPCS codes (Table 9-4). Several of these OPCS codes do not specify that the stent was inserted into the oesophagus, so to be certain that this was the procedure being recorded in HES we looked for cases where these non-specific OPCS codes were recorded in combination with codes specific for either diagnostic or therapeutic fibreoptic endoscopies of the upper gastro-intestinal tract.

Table 9-4
OPCS coding of stent insertion

Specific OPCS codes for endoscopic insertion of stent	OPCS codes for stent insertion using rigid endoscope or open procedure	OPCS codes for stent insertion into an organ, without specification that under endoscopic control
G15.4/6/7	G11.2/8/9	Y02.1/2/8/9
G15.6	G18.4	Y14.1/2/3/4/8/9
G21.5		
G44.1		

In order to investigate the recording of stents in HES, the NOGCA-HES linked dataset was limited to those 2,153 patients who had oesophageal cancer managed with palliative intent and had an endoscopy record submitted to the Audit. The analysis cohort was then further limited to the 1,996 patients (92.7 per cent) who had an endoscopic stent insertion reported to the Audit. Investigation of the HES-linked record for these patients demonstrated that overall 85.5 per cent of patients had a stent recorded in HES within seven days of the date reported to the Audit (Table 9-5).

Further analysis of the HES records for the subset of patients who did not have a stent recorded in HES on the date recorded in the Audit revealed that a significant proportion of patients had other therapeutic and diagnostic endoscopies recorded in HES at the time of stent insertion (Table 9-6).

Table 9-5
Coding of stent insertions in HES

Timing of stent recorded in HES compared to Audit stent insertion date	Number of patients (n=1,996)	(%)
Same day	1,581	79.2
±1-7 days	125	6.3
±8-14 days	23	1.1
±15-28 days	20	1.0
>28 days	48	2.4
Never recorded in HES	199	10.0

Table 9-6
Other endoscopic procedures recorded in HES at the time that a stent was reported to have been inserted in the Audit

Timing of other procedure recorded in HES compared to Audit stent insertion date	Any therapeutic OGD, n (%)	Diagnostic OGD, n (%))	Any diagnostic or therapeutic OGD, n (%))
Same day	26 (6.3)	27 (6.5)	52 (12.5)
±1-7 days	13 (3.1)	29 (7.0)	34 (8.2)
±8-14 days	8 (1.9)	51 (12.3)	53 (12.8)
±15-28 days	3 (0.7)	72 (17.3)	66 (15.9)
>28 days	22 (5.3)	214 (51.6)	192 (46.3)
Never recorded in HES	343 (82.7)	22 (5.3)	18 (4.3)

OGD = oesophago-gastro duodenoscopy

There was marked variability in the reliability with which stents were recorded in HES across Trusts, with between 77 and 100 per cent of stents recorded in HES being recorded in the Audit as well.

By combining data from HES and the Audit we demonstrated that 3,357 patients with oesophageal cancer managed with palliative intent had had a stent recorded in either the NOGCA or HES.

This suggests that only 59.5 per cent of patients who had a stent inserted had the procedure reported to the Audit. Furthermore there was significant variation in reporting of stents to the Audit across Trusts. Seven organisations submitted no endoscopy records to the Audit despite more than 10 patients reported to have had a stent inserted according to HES (as reported in Annex 9), while four submitted 100 per cent of stents to the Audit.

9.3 Key findings

- Significant variation in choice of palliative treatment modality across SCNs/Networks, with palliative oncology used most frequently.
- Overall, only 54.9 per cent of patients completed palliative chemotherapy as planned. The proportion was lower among the older and more frail patients.
- For 85.5 per cent of stent insertions recorded by English NHS Trusts in the NOGCA dataset, a corresponding record was found in HES. There is a need for clearer guidance to clinicians and coders on which procedure codes to use for stent insertion so that the quality of HES coding can be improved, with greater use of more specific codes for stent insertion.
- Only 59.5 per cent of patients who had a stent recorded in HES had a corresponding record submitted to the Audit. This suggests the process with which endoscopic procedures are submitted to the Audit needs to be reviewed by NHS Trusts.

9.4 Recommendations

- Completion rates for palliative chemotherapy remain low. Clinicians should carefully assess eligibility of patients for palliative chemotherapy, especially in older patients and patients with poorer performance status. This assessment should balance clinical considerations with patient choice.
- A significant proportion of patients who receive endoscopic/radiologic palliative treatment for O-G cancer do not have an endoscopy record submitted to the Audit. NHS Trusts should review their policies to try to improve data submissions in future.

10. Place of death amongst palliative oesophago-gastric (O-G) cancer patients

Cancer patients on a palliative care pathway should receive care that relieves symptoms, pain and distress, and improves quality of life for both patients and their families. Excessive treatment or service utilisation near the end of life interferes with this goal.

The Department of Health (England) End of Life Care Strategy (2008) first proposed an end of life care strategy emphasising the delivery of care in all locations in the last days of life, aiming to treat patients with dignity, controlling pain, being in familiar surroundings, and being in the company of close family or friends[22]. Further, the NICE Quality Standard for End of Life Care for Adults (2011) specifies 16 quality statements related to the delivery of end of life care, including clear communication with patients, coordination of care and access to specialist services and (culturally sensitive) liaison with family members[23].

A key issue in end of life care is the question of where care in the last weeks is provided, and where the death occurs. Between 56 and 74 per cent of the general population expresses a preference to die at home according to Office for National Statistics (ONS) data, but only 35 per cent of all deaths occurred at home and 58 per cent of all deaths occur in hospital (End of Life Care, National Audit Office, 2008[24]).

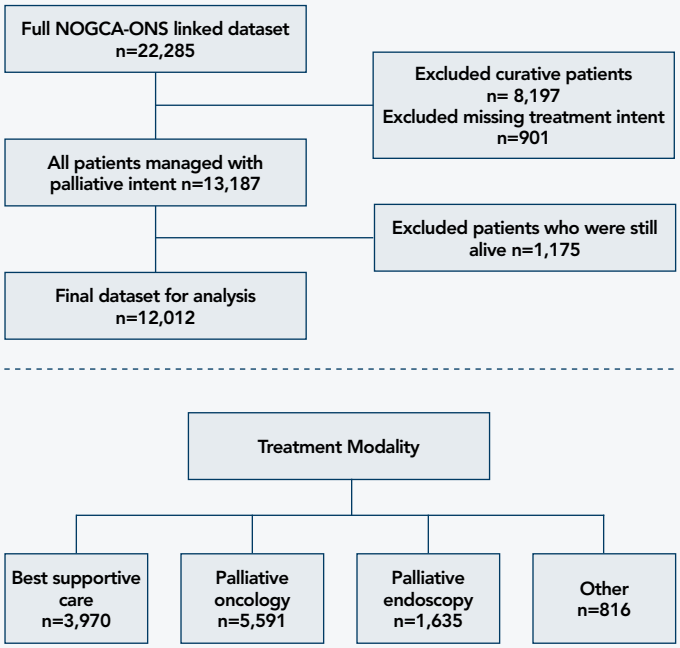
Key factors predicting hospital admission are disease progression or the development of new co-morbidities. However, unnecessary hospital admissions are also known to be caused by insufficient access to community services[25], such as home care, nursing home and hospice services, which are variable throughout the country.

Patients on a palliative care pathway in the last weeks of life are in principle best managed in the community, in hospices or NHS specialist palliative care units. However, little is known about the actual place of death of palliative oesophago-gastric (O-G) cancer patients as most national data sources do not hold information on the treatment plan or pathway and thus combine patients with both curative and palliative treatment intent in their analysis.

In this chapter we assess the place of death amongst palliative O-G cancer patients using the place of death categorisation from ONS.

There were 22,285 patients in the linked Audit-ONS dataset. Of these 8,197 had a curative treatment plan and 1,175 of the patients with a palliative treatment plan were still alive, a further 901 had treatment intent missing. These patients were excluded from the analysis, leaving 12,012 O-G cancer patients with a palliative treatment plan and place of death data (Figure 10-1).

Figure 10-1
Summary of patient selection for the analysis of place of death data, England and Wales



10.1 Place of death

The majority of palliative O-G cancer patients (34.5 per cent) died in an NHS hospital, followed by patients dying at home (34.3 per cent), in a non-NHS hospice (16.7 per cent) and a non-local authority care home (10.4 per cent). Few patients died in NHS hospices (1.8 per cent) (Table 10-1).

10.2 Place of death, patient age and treatment modality

The place of death differed substantially depending on the patient's age at diagnosis and treatment modality (Table 10-2). The proportion of patients who died at home was highest among those aged 60 to 79 years. The fall in the proportion of home deaths among the more elderly patients is mirrored by an increase in the proportion who died in a care home. This might also explain the slight drop in the proportion who died in hospital amongst the very old. In contrast, although patients under 60 years were more likely to die in a hospice compared to older patients, there was not a substantial change in the proportion who died in hospital in this youngest age group.

Table 10-1
Place of death amongst patients receiving palliative care, by ONS category

Place of death	Number of patients	(%)
Care home – local authority	57	0.5
Care home – non-local authority	1,253	10.4
Elsewhere	186	1.5
Home	4,110	34.3
Hospice - NHS	219	1.8
Hospice - non-NHS	2,004	16.7
Hospital - NHS	4,142	34.5
Hospital - non-NHS	8	0.1
Other	22	0.2
Missing	11	

Table 10-2
Place of death by patient age, and by palliative treatment modality

Place of death	Age in Years									
	<60		60-69		70-79		80-89		≥90	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Home	474	32.1	905	36.7	1,260	35.5	1,266	33.5	205	28.0
Hospice	405	27.4	525	21.3	624	17.6	583	15.4	86	11.7
Hospital - NHS	529	35.8	895	36.3	1,277	36.0	1,212	32.1	229	31.2
Care home (non-local authority)	36	2.4	110	4.5	317	8.9	607	16.1	183	25.0
Other	34	2.3	33	1.3	67	1.9	109	2.9	30	4.1
Total	1,478		2,468		3,545		3,777		733	

Place of death	No active treatment n (%)	Palliative oncology n (%)	Palliative endoscopy n (%)
Home	1,282 (32.3)	2,045 (36.6)	537 (32.9)
Hospice	633 (15.9)	1,148 (20.6)	267 (16.3)
Hospital - NHS	1,375 (34.7)	1,939 (34.7)	543 (33.2)
Care home (non-local authority)	564 (14.2)	353 (6.3)	247 (15.1)
Other	114 (2.9)	99 (1.8)	41 (2.5)
Total	3,968	5,584	1,635

In terms of the treatment groups, there were only minor differences in the proportion who died at home (32.3 per cent for no active treatment vs 36.6 per cent for palliative oncology and 32.9 per cent for palliative endoscopy). There was also little difference in the proportion of patients who died in an NHS hospital across the treatment modalities. This finding was unexpected because patients receiving palliative oncology are more likely to have specific treatment related needs which may lead to an admission to hospital e.g. treatment toxicity. Differences in place of death amongst the treatment modalities can further be observed in the categories 'care home' and 'hospice'.

10.3 Place of death by regional deprivation score

Place of death is known to be associated with access to community services, including care homes and hospice care. Access to such services is linked to socio-economic status.

While the percentage of palliative O-G cancer patients dying at home was unaffected by deprivation score, there was an almost 10 per cent difference in the percentage of patients dying in hospital between the lowest and highest deprivation groups (30.2 per cent for the least deprived vs 39.4 per cent for the most deprived).

Further differences can be seen in the percentage of patients dying in hospices, which is highest for the least deprivated groups, potentially reflecting access to such services in the respective communities (Table 10-3).

10.4 Key findings

- About one third of deaths amongst palliative O-G cancer patients were in hospital; another third occurred at home.
- Differences for place of death were noticeable by patient age and by treatment modality.
- A large percentage of patients who received no active treatment died in hospital. The reasons for this, such as access to hospice care, pain management or emerging co-morbidities, should be investigated further by local organisations in order to assess whether this percentage could be reduced.
- Regional levels of social deprivation did not affect the percentage of patients dying at home, but there was a large (roughly 10 per cent) difference in the percentage of patients who died in hospital between patients in the lowest and highest deprivation regions. Reasons for these socio-economic disparities warrant further investigation at a local level.

10.5 Recommendations

- Strategic Clinical Networks in England/Networks in Wales should monitor where patients are dying, and where a high proportion of patients are dying in hospital they should investigate possible reasons for this.

Table 10-3
Place of death. by deprivation score

Place of death	1 Lowest deprivation	2	3	4	5 Highest deprivation
Home	652	774	818	824	1,031
(%)	(34.0)	(34.7)	(34.1)	(34.1)	(34.4)
Hospice	438	435	453	441	443
(%)	(22.9)	(19.5)	(18.9)	(18.3)	(14.5)
Hospital – NHS	579	721	814	833	1,181
(%)	(30.2)	(32.4)	(33.9)	(34.5)	(39.4)
Care home (non-local authority)	209	243	259	274	265
(%)	(10.9)	(10.9)	10.8)	(11.3)	(8.8)
Other	38	56	57	43	78
(%)	(2.0)	(2.5)	(2.4)	(1.8)	(2.6)
Total	**1,916**	**2,229**	**2,401**	**2,415**	**2,998**

Comments from Professor Sam Ahmedzai (Emeritus Professor of Palliative Medicine, The University of Sheffield)

Given that the mortality rate of oesophageal cancers is still sadly so high, it is fitting that the National Audit examines not only the diagnostic and initial treatment processes, but also the experience for the patients in terms of their final outcome. This is the first time that the National Audit has produced a section on 'Place of Death' and it reveals many important findings.

Overall, roughly a third of patients died in hospital and a third at home, with one in ten dying in a care home. This is broadly in keeping with national statistics for place of death of all cancer patients. Older patients were more likely to die at home or in care homes. The symptom burden of patients dying from oesophageal cancer is high, including pain, difficulty swallowing and therefore dehydration and under-nutrition, vomiting and other abdominal complications. Previous research has shown that, although many older people would prefer to die at home, their experience of symptom management can be poorer at home than in hospital or hospice[26,27].

Another interesting finding was that very few patients (1.8 per cent) died in a hospice. This is lower than the national average for all cancers. Surprisingly, patients who had received more active palliative oncology were more likely to die in a hospice than those who had palliative endoscopic intervention or 'best supportive care' only. Both findings raise questions about access and the selection of patients for hospice admission and warrants further investigation.

An unsurprising observation was that a higher level socio-economic deprivation was linked to a greater likelihood of dying in hospital. However, it was reassuring that deprivation did not appear to reduce the possibility of patients being able to die in their own homes or in a hospice. This reflects the common experience of hospital teams finding difficulty in mobilising health and social care resources to allow for discharge of the most socially deprived patients.

Annex 1: Organisation of the Audit

The project is assisted by a Clinical Reference Group (CRG), the membership of which is drawn from all of the clinical groups involved in the management of oesophago-gastric (O-G) cancer and overseen by a Project Board, which has senior representatives from the four participating organisations and the funding body.

Members of Clinical Reference Group		
Mike Hallisey	Consultant Surgeon Birmingham	Association of Cancer Surgeons
Paul Barham	Consultant Surgeon Bristol	Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland
Martin Richardson	Consultant Surgeon	Cancer Networks
Jane Ingham	CEO	Healthcare Quality Improvement Partnership (HQIP)
Jan van der Meulen (chair)	Professor of Clinical Epidemiology	London School of Hygiene and Tropical Medicine
Bill Allum	National O-G Cancer Lead (joint)	National Cancer Action Team
Chris Carrigan	National Coordinator for Cancer Registration	National Cancer Action Team
Anthony Ingold	Chairman	Oesophageal Patients Association
Vicki Owen-Holt	Specialist Nurse	Royal College of Nursing
Nic Mapstone	Consultant Pathologist	Royal College of Pathologists
Hans-Ulrich Laasch	Consultant Radiologist	Royal College of Radiologists
Sam Ahmedzai	Emeritus Professor of Supportive Care Medicine	Palliative Care Representative
Tom Crosby	Consultant Clinical Oncologist	Clinical Oncologist in Wales and Royal College of Radiologists in UK
Nick Carroll	Consultant Radiologist and Endoscopist	UK EUS Users Group
Fiona Macharg	Specialist Dietician	British Dietetic Association Oncology Group
Greg Rubin	Professor General Practice and Primary Care	Durham University

Members of Project Board	
Stuart Riley	British Society of Gastroenterologist (BSG)
Mike Griffin	Association of Upper Gastroenterology Surgeons of Great Britain and Ireland (AUGIS)
Alyson Whitmarsh	Health and Social Care Information Centre (HSCIC)
Jane Ingham	Healthcare Quality Improvement Partnership (HQIP)
Jan van der Meulen (chair)	London School of Hygiene and Tropical Medicine
Diana Tait	Royal College of Radiologists (RCR)
Nick Maynard	Association of Upper Gastroenterology Surgeons of Great Britain and Ireland (AUGIS)

Annex 2: List of Strategic Clinical Networks in England and Welsh Units

SCN code	SCN name	NHS Trust code	NHS Trust name
LC	London Cancer	R1H	Barts Health NHS Trust
		RAL	Royal Free London NHS Foundation Trust
		RAP	North Middlesex University Hospital NHS Trust
		RF4	Barking, Havering and Redbridge University Hospitals NHS Trust
		RKE	The Whittington Hospital NHS Trust
		RQW	The Princess Alexandra Hospital NHS Trust
		RQX	Homerton University Hospital NHS Foundation Trust
		RRV	University College London Hospitals NHS Foundation Trust
		RVL	Barnet and Chase Farm Hospitals NHS Trust
N40	London Cancer Alliance	RAS	The Hillingdon Hospitals NHS Foundation Trust
		RAX	Kingston Hospital NHS Foundation Trust
		RFW	West Middlesex University Hospital NHS Trust
		RJ1	Guy's and St Thomas' NHS Foundation Trust
		RJ2	Lewisham and Greenwich NHS Trust
		RJ6	Croydon Health Services NHS Trust
		RJ7	St George's Healthcare NHS Trust
		RPY	The Royal Marsden NHS Foundation Trust
		RQM	Chelsea and Westminster Hospital NHS Foundation Trust
		RV8	North West London Hospitals NHS Trust
		RVR	Epsom and St Helier University Hospitals NHS Trust
		RYJ	Imperial College Healthcare NHS Trust
		RJZ	King's College Hospital NHS Foundation Trust
N50	Cheshire and Merseyside	RBL	Wirral University Teaching Hospital NHS Foundation Trust
		RBN	St Helens and Knowsley Hospitals NHS Trust
		RBQ	Liverpool Heart and Chest Hospital NHS Foundation Trust
		REM	Aintree University Hospital NHS Foundation Trust
		RJR	Countess of Chester Hospital NHS Foundation Trust
		RQ6	Royal Liverpool and Broadgreen University Hospitals NHS Trust
		RVY	Southport and Ormskirk Hospital NHS Trust
		RWW	Warrington and Halton Hospitals NHS Foundation Trust
N51	Greater Manchester, Lancashire and South Cumbria	RBT	Mid Cheshire Hospitals NHS Foundation Trust
		RBV	The Christie NHS Foundation Trust
		RJN	East Cheshire NHS Trust
		RM2	University Hospital of South Manchester NHS Foundation Trust
		RM3	Salford Royal NHS Foundation Trust
		RMC	Bolton NHS Foundation Trust
		RMP	Tameside Hospital NHS Foundation Trust
		RRF	Wrightington, Wigan and Leigh NHS Foundation Trust
		RTX	University Hospitals of Morecambe Bay NHS Foundation Trust
		RW3	Central Manchester University Hospitals NHS Foundation Trust
		RW6	Pennine Acute Hospitals NHS Trust
		RWJ	Stockport NHS Foundation Trust
		RXL	Blackpool Teaching Hospitals NHS Foundation Trust
		RXN	Lancashire Teaching Hospitals NHS Foundation Trust
		RXR	East Lancashire Hospitals NHS Trust
N52	Northern England	RE9	South Tyneside NHS Foundation Trust
		RLN	City Hospitals Sunderland NHS Foundation Trust
		RNL	North Cumbria University Hospitals NHS Trust
		RR7	Gateshead Health NHS Foundation Trust
		RTD	The Newcastle upon Tyne Hospitals NHS Foundation Trust
		RTF	Northumbria Healthcare NHS Foundation Trust
		RTR	South Tees Hospitals NHS Foundation Trust
		RVW	North Tees and Hartlepool NHS Foundation Trust
		RXP	County Durham and Darlington NHS Foundation Trust

SCN code	SCN name	NHS Trust code	NHS Trust name
N53	Yorkshire and the Humber	RAE	Bradford Teaching Hospitals NHS Foundation Trust
		RCB	York Teaching Hospital NHS Foundation Trust
		RCD	Harrogate and District NHS Foundation Trust
		RCF	Airedale NHS Foundation Trust
		RFF	Barnsley Hospital NHS Foundation Trust
		RFR	The Rotherham NHS Foundation Trust
		RFS	Chesterfield Royal Hospital NHS Foundation Trust
		RHQ	Sheffield Teaching Hospitals NHS Foundation Trust
		RJL	Northern Lincolnshire and Goole NHS Foundation Trust
		RP5	Doncaster and Bassetlaw Hospitals NHS Foundation Trust
		RR8	Leeds Teaching Hospitals NHS Trust
		RWA	Hull and East Yorkshire Hospitals NHS Trust
		RWY	Calderdale and Huddersfield NHS Foundation Trust
		RXF	Mid Yorkshire Hospitals NHS Trust
N54	East of England	RAJ	Southend University Hospital NHS Foundation Trust
		RC1	Bedford Hospital NHS Trust
		RC9	Luton and Dunstable University Hospital NHS Foundation Trust
		RCX	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust
		RDD	Basildon and Thurrock University Hospitals NHS Foundation Trust
		RDE	Colchester Hospital University NHS Foundation Trust
		RGN	Peterborough and Stamford Hospitals NHS Foundation Trust
		RGP	James Paget University Hospitals NHS Foundation Trust
		RGQ	Ipswich Hospital NHS Trust
		RGR	West Suffolk NHS Foundation Trust
		RGT	Cambridge University Hospitals NHS Foundation Trust
		RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust
		RQ8	Mid Essex Hospital Services NHS Trust
		RQQ	Hinchingbrooke Health Care NHS Trust
		RWG	West Hertfordshire Hospitals NHS Trust
		RWH	East and North Hertfordshire NHS Trust
N55	East Midlands	RJF	Burton Hospitals NHS Foundation Trust
		RK5	Sherwood Forest Hospitals NHS Foundation Trust
		RNQ	Kettering General Hospital NHS Foundation Trust
		RNS	Northampton General Hospital NHS Trust
		RTG	Derby Hospitals NHS Foundation Trust
		RWD	United Lincolnshire Hospitals NHS Trust
		RWE	University Hospitals of Leicester NHS Trust
		RX1	Nottingham University Hospitals NHS Trust
N56	West Midlands	RBK	Walsall Healthcare NHS Trust
		RJC	South Warwickshire NHS Foundation Trust
		RJD	Mid Staffordshire NHS Foundation Trust
		RJE	University Hospital of North Staffordshire NHS Trust
		RKB	University Hospitals Coventry and Warwickshire NHS Trust
		RL4	The Royal Wolverhampton NHS Trust
		RLQ	Wye Valley NHS Trust
		RLT	George Eliot Hospital NHS Trust
		RNA	The Dudley Group NHS Foundation Trust
		RR1	Heart of England NHS Foundation Trust
		RRK	University Hospitals Birmingham NHS Foundation Trust
		RWP	Worcestershire Acute Hospitals NHS Trust
		RXK	Sandwell and West Birmingham Hospitals NHS Trust
		RXW	Shrewsbury and Telford Hospital NHS Trust

SCN code	SCN name	NHS Trust code	NHS Trust name
N57	South West	RA3	Weston Area Health NHS Trust
		RA4	Yeovil District Hospital NHS Foundation Trust
		RA7	University Hospitals Bristol NHS Foundation Trust
		RA9	South Devon Healthcare NHS Foundation Trust
		RBA	Taunton and Somerset NHS Foundation Trust
		RBZ	Northern Devon Healthcare NHS Trust
		RD1	Royal United Hospital Bath NHS Trust
		REF	Royal Cornwall Hospitals NHS Trust
		RH8	Royal Devon and Exeter NHS Foundation Trust
		RK9	Plymouth Hospitals NHS Trust
		RTE	Gloucestershire Hospitals NHS Foundation Trust
		RVJ	North Bristol NHS Trust
N58	South East Coast	RA2	Royal Surrey County Hospital NHS Foundation Trust
		RDU	Frimley Park Hospital NHS Foundation Trust
		RN7	Dartford and Gravesham NHS Trust
		RPA	Medway NHS Foundation Trust
		RTK	Ashford and St Peter's Hospitals NHS Foundation Trust
		RTP	Surrey and Sussex Healthcare NHS Trust
		RVV	East Kent Hospitals University NHS Foundation Trust
		RWF	Maidstone and Tunbridge Wells NHS Trust
		RXC	East Sussex Healthcare NHS Trust
		RXH	Brighton and Sussex University Hospitals NHS Trust
		RYR16	Western Sussex Hospitals NHS Foundation Trust – St Richard's Hospital
		RYR18	Western Sussex Hospitals NHS Foundation Trust – Worthing Hospital
N59	Thames Valley	RD7	Heatherwood and Wexham Park Hospitals NHS Foundation Trust
		RD8	Milton Keynes Hospital NHS Foundation Trust
		RHW	Royal Berkshire NHS Foundation Trust
		RN3	Great Western Hospitals NHS Foundation Trust
		RTH	Oxford University Hospitals NHS Trust
		RXQ	Buckinghamshire Healthcare NHS Trust
N60	Wessex	R1F	Isle of Wight NHS Trust
		RBD	Dorset County Hospital NHS Foundation Trust
		RD3	Poole Hospital NHS Foundation Trust
		RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust
		RHM	University Hospital Southampton NHS Foundation Trust
		RHU	Portsmouth Hospitals NHS Trust
		RN5	Hampshire Hospitals NHS Foundation Trust
		RNZ	Salisbury NHS Foundation Trust
NWW	North Wales	7A1	Betsi Cadwaladr University Local Health Board
SWCN	South Wales	7A2	Hywel Dda University Local Health Board
		7A3	Abertawe Bro Morgannwg University Local Health Board
		7A4	Cardiff and Vale University Local Health Board
		7A5	Cwm Taf University Local Health Board
		7A6	Aneurin Bevan University Local Health Board

Annex 3: Levels of case-ascertainment for English NHS Trusts
(over 2012-14, 2 years of data)

Estimates of the number of patients diagnosed in England with oesophago-gastric (O-G) cancer are derived from the number of patients whose first record of O-G cancer (ICD code: C15/C16) in Hospital Episode Statistics (HES) was within the Audit period. HES data do not provide a gold-standard for comparison, but can give an indication on major discrepancies between patients submitted to the Audit and patients documented as receiving care for O-G cancer in HES. When calculating case ascertainment, the actual figure from HES (denominator) and the number of records submitted (numerator) are used, these are then grouped into categories. Trusts submitting less than 10 cases in the two year period were excluded from the comparison.

Key
● Case-ascertainment above 80%
■ Case-ascertainment between 80-60%.
▲ Case-ascertainment rates below 60%

Note: Tertiary treatment centres are not included in this Annex.

SCN code	SCN name	NHS Trust code	NHS Trust name	Expected cases based on HES	Tumour records submitted	% Case ascertainment rate (grouped)
LC	London Cancer	R1H	Barts Health NHS Trust	251 to 300	226	81 to 90 ●
		RAL	Royal Free London NHS Foundation Trust	51 to 100	67	81 to 90 ●
		RAP	North Middlesex University Hospital NHS Trust	51 to 100	102	>90 ●
		RF4	Barking, Havering and Redbridge University Hospitals NHS Trust	251 to 300	238	>90 ●
		RKE	The Whittington Hospital NHS Trust	51 to 100	56	>90 ●
		RQW	The Princess Alexandra Hospital NHS Trust	101 to 150	64	61 to 70 ■
		RQX	Homerton University Hospital NHS Foundation Trust	51 to 100	57	71 to 80 ■
		RRV	University College London Hospitals NHS Foundation Trust	151 to 200	99	51 to 60 ▲
		RVL	Barnet and Chase Farm Hospitals NHS Trust	101 to 150	112	71 to 80 ■
N40	London Cancer Alliance	RAS	The Hillingdon Hospitals NHS Foundation Trust	51 to 100	51	81 to 90 ●
		RAX	Kingston Hospital NHS Foundation Trust	51 to 100	77	>90 ●
		RFW	West Middlesex University Hospital NHS Trust	<50	63	>90 ●
		RJ1	Guy's and St Thomas' NHS Foundation Trust	201 to 250	89	41 to 50 ▲
		RJ2	Lewisham and Greenwich NHS Trust	101 to 150	117	>90 ●
		RJ6	Croydon Health Services NHS Trust	51 to 100	90	>90 ●
		RJ7	St George's Healthcare NHS Trust	101 to 150	89	81 to 90 ●
		RJZ	King's College Hospital NHS Foundation Trust	251 to 300	237	81 to 90 ●
		RQM	Chelsea and Westminster Hospital NHS Foundation Trust	51 to 100	58	81 to 90 ●
		RV8	North West London Hospitals NHS Trust	101 to 150	40	0 to 40 ▲
		RVR	Epsom and St Helier University Hospitals NHS Trust	151 to 200	161	>90 ●
		RYJ	Imperial College Healthcare NHS Trust	151 to 200	250	>90 ●
N50	Cheshire and Merseyside	RBL	Wirral University Teaching Hospital NHS Foundation Trust	201 to 250	189	>90 ●
		RBN	St Helens and Knowsley Hospitals NHS Trust	151 to 200	165	81 to 90 ●
		REM	Aintree University Hospital NHS Foundation Trust	201 to 250	168	81 to 90 ●
		RJR	Countess of Chester Hospital NHS Foundation Trust	101 to 150	113	>90 ●
		RQ6	Royal Liverpool and Broadgreen University Hospitals NHS Trust	201 to 250	187	81 to 90 ●
		RVY	Southport and Ormskirk Hospital NHS Trust	101 to 150	76	61 to 70 ■
		RWW	Warrington and Halton Hospitals NHS Foundation Trust	101 to 150	103	71 to 80 ■
N51	Greater Manchester, Lancashire and South Cumbria	RBT	Mid Cheshire Hospitals NHS Foundation Trust	101 to 150	122	>90 ●
		RJN	East Cheshire NHS Trust	51 to 100	110	>90 ●
		RM2	University Hospital of South Manchester NHS Foundation Trust	101 to 150	134	>90 ●
		RM3	Salford Royal NHS Foundation Trust	151 to 200	106	61 to 70 ■
		RMC	Bolton NHS Foundation Trust	101 to 150	132	>90 ●
		RMP	Tameside Hospital NHS Foundation Trust	101 to 150	65	41 to 50 ▲
		RRF	Wrightington, Wigan and Leigh NHS Foundation Trust	101 to 150	125	>90 ●
		RTX	University Hospitals of Morecambe Bay NHS Foundation Trust	201 to 250	136	61 to 70 ■
		RW3	Central Manchester University Hospitals NHS Foundation Trust	151 to 200	286	>90 ●
		RW6	Pennine Acute Hospitals NHS Trust	301 to 350	236	61 to 70 ■
		RWJ	Stockport NHS Foundation Trust	101 to 150	51	41 to 50 ▲
		RXL	Blackpool Teaching Hospitals NHS Foundation Trust	151 to 200	188	>90 ●
		RXN	Lancashire Teaching Hospitals NHS Foundation Trust	201 to 250	189	81 to 90 ●
		RXR	East Lancashire Hospitals NHS Trust	251 to 300	233	>90 ●

SCN code	SCN name	NHS Trust code	NHS Trust name	Expected cases based on HES	Tumour records submitted	% Case ascertainment rate (grouped)
N52	Northern England	RE9	South Tyneside NHS Foundation Trust	51 to 100	91	>90 ●
		RLN	City Hospitals Sunderland NHS Foundation Trust	101 to 150	151	>90 ●
		RNL	North Cumbria University Hospitals NHS Trust	151 to 200	157	81 to 90 ●
		RR7	Gateshead Health NHS Foundation Trust	51 to 100	101	>90 ●
		RTD	The Newcastle upon Tyne Hospitals NHS Foundation Trust	301 to 350	182	51 to 60 ▲
		RTF	Northumbria Healthcare NHS Foundation Trust	201 to 250	220	>90 ●
		RTR	South Tees Hospitals NHS Foundation Trust	251 to 300	298	>90 ●
		RVW	North Tees and Hartlepool NHS Foundation Trust	151 to 200	192	>90 ●
		RXP	County Durham and Darlington NHS Foundation Trust	251 to 300	243	>90 ●
N53	Yorkshire and the Humber	RAE	Bradford Teaching Hospitals NHS Foundation Trust	151 to 200	207	>90 ●
		RCB	York Teaching Hospital NHS Foundation Trust	251 to 300	211	71 to 80 ■
		RCD	Harrogate and District NHS Foundation Trust	51 to 100	77	>90 ●
		RCF	Airedale NHS Foundation Trust	101 to 150	78	71 to 80 ■
		RFF	Barnsley Hospital NHS Foundation Trust	101 to 150	116	>90 ●
		RFR	The Rotherham NHS Foundation Trust	101 to 150	124	>90 ●
		RFS	Chesterfield Royal Hospital NHS Foundation Trust	151 to 200	143	>90 ●
		RHQ	Sheffield Teaching Hospitals NHS Foundation Trust	301 to 350	245	71 to 80 ■
		RJL	Northern Lincolnshire and Goole NHS Foundation Trust	201 to 250	211	>90 ●
		RP5	Doncaster and Bassetlaw Hospitals NHS Foundation Trust	251 to 300	170	61 to 70 ■
		RR8	Leeds Teaching Hospitals NHS Trust	351 to 400	294	71 to 80 ■
		RWA	Hull and East Yorkshire Hospitals NHS Trust	251 to 300	231	71 to 80 ■
		RWY	Calderdale and Huddersfield NHS Foundation Trust	151 to 200	144	71 to 80 ■
		RXF	Mid Yorkshire Hospitals NHS Trust	201 to 250	204	>90 ●
N54	East of England	RAJ	Southend University Hospital NHS Foundation Trust	101 to 150	120	81 to 90 ●
		RC1	Bedford Hospital NHS Trust	101 to 150	101	>90 ●
		RC9	Luton and Dunstable University Hospital NHS Foundation Trust	101 to 150	70	51 to 60 ▲
		RCX	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	101 to 150	128	>90 ●
		RDD	Basildon and Thurrock University Hospitals NHS Foundation Trust	101 to 150	118	>90 ●
		RDE	Colchester Hospital University NHS Foundation Trust	151 to 200	159	>90 ●
		RGN	Peterborough and Stamford Hospitals NHS Foundation Trust	151 to 200	147	>90 ●
		RGP	James Paget University Hospitals NHS Foundation Trust	101 to 150	109	81 to 90 ●
		RGQ	Ipswich Hospital NHS Trust	151 to 200	152	>90 ●
		RGR	West Suffolk NHS Foundation Trust	51 to 100	103	>90 ●
		RGT	Cambridge University Hospitals NHS Foundation Trust	251 to 300	168	51 to 60 ■
		RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust	301 to 350	279	81 to 90 ●
		RQ8	Mid Essex Hospital Services NHS Trust	151 to 200	65	0 to 40 ▲
		RQQ	Hinchingbrooke Health Care NHS Trust	51 to 100	70	81 to 90 ●
		RWG	West Hertfordshire Hospitals NHS Trust	151 to 200	63	0 to 40 ▲
		RWH	East and North Hertfordshire NHS Trust	151 to 200	141	81 to 90 ●
N55	East Midlands	RJF	Burton Hospitals NHS Foundation Trust	101 to 150	107	81 to 90 ●
		RK5	Sherwood Forest Hospitals NHS Foundation Trust	151 to 200	161	81 to 90 ●
		RNQ	Kettering General Hospital NHS Foundation Trust	101 to 150	139	>90 ●
		RNS	Northampton General Hospital NHS Trust	151 to 200	126	71 to 80 ■
		RTG	Derby Hospitals NHS Foundation Trust	251 to 300	234	71 to 80 ■
		RWD	United Lincolnshire Hospitals NHS Trust	251 to 300	138	51 to 60 ▲
		RWE	University Hospitals of Leicester NHS Trust	351 to 400	362	>90 ●
		RX1	Nottingham University Hospitals NHS Trust	251 to 300	318	>90 ●
N56	West Midlands	RBK	Walsall Healthcare NHS Trust	101 to 150	66	41 to 50 ▲
		RJC	South Warwickshire NHS Foundation Trust	51 to 100	68	61 to 70 ■
		RJD	Mid Staffordshire NHS Foundation Trust	101 to 150	118	81 to 90 ●
		RJE	University Hospital of North Staffordshire NHS Trust	351 to 400	256	61 to 70 ■
		RKB	University Hospitals Coventry and Warwickshire NHS Trust	251 to 300	202	71 to 80 ■
		RL4	The Royal Wolverhampton NHS Trust	201 to 250	165	71 to 80 ■
		RLQ	Wye Valley NHS Trust	<50	95	>90 ●
		RLT	George Eliot Hospital NHS Trust	51 to 100	49	61 to 70 ■
		RNA	The Dudley Group NHS Foundation Trust	201 to 250	168	71 to 80 ■
		RR1	Heart of England NHS Foundation Trust	401 to 450	339	81 to 90 ●
		RRK	University Hospitals Birmingham NHS Foundation Trust	251 to 300	183	61 to 70 ■
		RWP	Worcestershire Acute Hospitals NHS Trust	201 to 250	226	>90 ●
		RXK	Sandwell and West Birmingham Hospitals NHS Trust	101 to 150	162	>90 ●
		RXW	Shrewsbury and Telford Hospital NHS Trust	251 to 300	239	81 to 90 ●

SCN code	SCN name	NHS Trust code	NHS Trust name	Expected cases based on HES	Tumour records submitted	% Case ascertainment rate (grouped)
N57	South West	**RA3**	Weston Area Health NHS Trust	51 to 100	70	81 to 90 ●
		RA4	Yeovil District Hospital NHS Foundation Trust	51 to 100	43	51 to 60 ▲
		RA7	University Hospitals Bristol NHS Foundation Trust	201 to 250	211	>90 ●
		RA9	South Devon Healthcare NHS Foundation Trust	151 to 200	150	81 to 90 ●
		RBA	Taunton and Somerset NHS Foundation Trust	151 to 200	157	>90 ●
		RBZ	Northern Devon Healthcare NHS Trust	51 to 100	63	81 to 90 ●
		RD1	Royal United Hospital Bath NHS Trust	151 to 200	86	51 to 60 ▲
		REF	Royal Cornwall Hospitals NHS Trust	201 to 250	204	81 to 90 ●
		RH8	Royal Devon and Exeter NHS Foundation Trust	151 to 200	176	81 to 90 ●
		RK9	Plymouth Hospitals NHS Trust	201 to 250	207	>90 ●
		RTE	Gloucestershire Hospitals NHS Foundation Trust	301 to 350	255	81 to 90 ●
		RVJ	North Bristol NHS Trust	151 to 200	136	81 to 90 ●
N58	South East Coast	**RA2**	Royal Surrey County Hospital NHS Foundation Trust	151 to 200	121	71 to 80 ■
		RDU	Frimley Park Hospital NHS Foundation Trust	101 to 150	59	41 to 50 ▲
		RN7	Dartford and Gravesham NHS Trust	101 to 150	90	71 to 80 ■
		RPA	Medway NHS Foundation Trust	101 to 150	58	41 to 50 ▲
		RTK	Ashford and St Peter's Hospitals NHS Foundation Trust	101 to 150	65	51 to 60 ▲
		RTP	Surrey and Sussex Healthcare NHS Trust	101 to 150	91	71 to 80 ■
		RVV	East Kent Hospitals University NHS Foundation Trust	301 to 350	218	61 to 70 ■
		RWF	Maidstone and Tunbridge Wells NHS Trust	251 to 300	178	71 to 80 ■
		RXC	East Sussex Healthcare NHS Trust	201 to 250	179	81 to 90 ●
		RXH	Brighton and Sussex University Hospitals NHS Trust	151 to 200	139	71 to 80 ■
		RYR16	Western Sussex Hospitals NHS Foundation Trust	151 to 200	112	61 to 70 ■
		RYR18	Western Sussex Hospitals NHS Foundation Trust	101 to 150	109	>90 ●
N59	Thames Valley	**RD7**	Heatherwood and Wexham Park Hospitals NHS Foundation Trust	101 to 150	17	0 to 40 ▲
		RD8	Milton Keynes Hospital NHS Foundation Trust	51 to 100	58	61 to 70 ■
		RHW	Royal Berkshire NHS Foundation Trust	151 to 200	67	0 to 40 ▲
		RN3	Great Western Hospitals NHS Foundation Trust	101 to 150	128	81 to 90 ●
		RTH	Oxford University Hospitals NHS Trust	301 to 350	126	41 to 50 ▲
		RXQ	Buckinghamshire Healthcare NHS Trust	101 to 150	96	81 to 90 ●
N60	Wessex	**R1F**	Isle of Wight NHS Trust	<50	78	>90 ●
		RBD	Dorset County Hospital NHS Foundation Trust	101 to 150	81	71 to 80 ■
		RD3	Poole Hospital NHS Foundation Trust	101 to 150	97	81 to 90 ●
		RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	151 to 200	146	71 to 80 ■
		RHM	University Hospital Southampton NHS Foundation Trust	201 to 250	190	81 to 90 ●
		RHU	Portsmouth Hospitals NHS Trust	301 to 350	286	81 to 90 ●
		RN5	Hampshire Hospitals NHS Foundation Trust	151 to 200	143	71 to 80 ■
		RNZ	Salisbury NHS Foundation Trust	51 to 100	96	>90 ●

Annex 4: Data completeness for surgical and pathology records
(over 2012-2014, 2 years of data)

Completeness of data entered by each NHS Trust/ Health Board for key fields was calculated for all patients who had a surgical record submitted. We calculated the proportion with complete data on death in hospital and date of discharge/death. Furthermore all patients who have surgery should have a corresponding pathology record, so we analysed the proportion who did for each NHS Trust/Health Board.

Finally, considering only patients who had a pathology record submitted to the Audit, we looked at data completeness in recording TNM stage, where TX, NX and MX were considered as missing data.

NHS Trusts/Health Boards submitting records for less than 10 surgical resections in the two year period were excluded from the comparison.

Key		
Surgical intent is mandatory	Complications	Other indicators
● 100% complete	● data completeness >=80%	● data completeness>= 90%
▲ <100% complete	■ data completeness between 75-79%	■ data completeness between 80-90%
	▲ data completeness <75%.	▲ data completeness < 80%.

SCN name	SCN code	Trust code	Trust name	No. surgical cases	% with surgical intent*	% with any complications	% with death in hospital	% with date of discharge/ death	% with matched pathology record	% with T-stage	% with N stage	% with M stage
London Cancer	LC	RF4	Barking, Havering and Redbridge University Hospitals NHS Trust	68	100 ●	97 ●	97 ●	93 ●	79 ▲	100 ●	100 ●	100 ●
		R1H	Barts Health NHS Trust	72	100 ●	100 ●	100 ●	97 ●	92 ●	100 ●	100 ●	100 ●
		RRV	University College London Hospitals NHS Foundation Trust	130	100 ●	100 ●	100 ●	99 ●	95 ●	100 ●	100 ●	100 ●
	N40	RPY	The Royal Marsden NHS Foundation Trust	91	100 ●	100 ●	100 ●	100 ●	100 ●	100 ●	100 ●	100 ●
		RYJ	Imperial College Healthcare NHS Trust	105	100 ●	99 ●	100 ●	96 ●	92 ●	100 ●	100 ●	100 ●
		RJ1	Guy's and St Thomas' NHS Foundation Trust	182	100 ●	21 ▲	43 ▲	97 ●	91 ●	100 ●	100 ●	99 ●
Cheshire and Merseyside	N50	REM	Aintree University Hospital NHS Foundation Trust	87	100 ●	83 ●	99 ●	99 ●	89 ■	100 ●	100 ●	100 ●
		RBQ	Liverpool Heart and Chest Hospital NHS Foundation Trust	180	99 ▲	86 ●	100 ●	100 ●	81 ■	100 ●	100 ●	100 ●
Greater Manchester	N51	RM2	University Hospital of South Manchester NHS Foundation Trust	42	100 ●	98 ●	90 ●	100 ●	95 ●	100 ●	100 ●	100 ●
		RW3	Central Manchester University Hospitals NHS Foundation Trust	99	100 ●	100 ●	100 ●	98 ●	91 ●	100 ●	100 ●	100 ●
		RM3	Salford Royal NHS Foundation Trust	200	100 ●	100 ●	100 ●	100 ●	89 ■	99 ●	100 ●	100 ●
		RXN	Lancashire Teaching Hospitals NHS Foundation Trust	208	100 ●	88 ●	99 ●	100 ●	92 ●	100 ●	100 ●	100 ●
Northern England	N52	RTR	South Tees Hospitals NHS Foundation Trust	166	100 ●	100 ●	100 ●	100 ●	84 ■	99 ●	99 ●	100 ●
		RTD	The Newcastle upon Tyne Hospitals NHS Foundation Trust	311	100 ●	100 ●	100 ●	100 ●	94 ●	99 ●	100 ●	100 ●
Yorkshire and the Humber	N53	RP5	Doncaster and Bassetlaw Hospitals NHS Foundation Trust	31	100 ●	94 ●	97 ●	94 ●	81 ■	100 ●	100 ●	96 ●
		RAE	Bradford Teaching Hospitals NHS Foundation Trust	110	100 ●	0 ▲	87 ■	87 ■	83 ■	100 ●	99 ●	100 ●
		RWA	Hull and East Yorkshire Hospitals NHS Trust	124	100 ●	78 ■	85 ■	86 ■	90 ●	100 ●	100 ●	100 ●
		RHQ	Sheffield Teaching Hospitals NHS Foundation Trust	150	100 ●	100 ●	99 ●	100 ●	97 ●	97 ●	99 ●	99 ●
		RR8	Leeds Teaching Hospitals NHS Trust	163	100 ●	4 ▲	96 ●	98 ●	96 ●	99 ●	100 ●	100 ●
East of England	N54	RWG	West Hertfordshire Hospitals NHS Trust	98	100 ●	96 ●	94 ●	94 ●	90 ●	100 ●	100 ●	100 ●
		RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust	109	100 ●	100 ●	100 ●	100 ●	99 ●	100 ●	100 ●	100 ●
		RQ8	Mid Essex Hospital Services NHS Trust	139	99 ▲	46 ▲	45 ▲	40 ▲	42 ▲	100 ●	100 ●	98 ●
		RGT	Cambridge University Hospitals NHS Foundation Trust	145	100 ●	77 ■	100 ●	94 ●	91 ●	100 ●	100 ●	100 ●
East Midlands	N55	RTG	Derby Hospitals NHS Foundation Trust	103	100 ●	91 ●	96 ●	97 ●	89 ■	100 ●	99 ●	100 ●
		RWE	University Hospitals of Leicester NHS Trust	143	100 ●	100 ●	100 ●	100 ●	90 ●	100 ●	99 ●	100 ●
		RX1	Nottingham University Hospitals NHS Trust	239	100 ●	99 ●	99 ●	100 ●	94 ●	100 ●	100 ●	100 ●
West Midlands	N56	RR1	Heart of England NHS Foundation Trust	57	100 ●	74 ▲	68 ▲	98 ●	98 ●	100 ●	100 ●	98 ●
		RJE	University Hospital of North Staffordshire NHS Trust	75	100 ●	81 ●	33 ▲	80 ■	16 ▲	100 ●	100 ●	100 ●
		RKB	University Hospitals Coventry and Warwickshire NHS Trust	115	100 ●	100 ●	100 ●	99 ●	97 ●	99 ●	99 ●	100 ●
		RRK	University Hospitals Birmingham NHS Foundation Trust	153	100 ●	71 ▲	99 ●	14 ▲	93 ●	99 ●	99 ●	100 ●
South West	N57	RTE	Gloucestershire Hospitals NHS Foundation Trust	97	100 ●	100 ●	99 ●	100 ●	89 ■	100 ●	100 ●	10 ▲
		RA7	University Hospitals Bristol NHS Foundation Trust	160	100 ●	99 ●	99 ●	99 ●	92 ●	100 ●	100 ●	100 ●
		RK9	Plymouth Hospitals NHS Trust	232	100 ●	91 ●	100 ●	100 ●	92 ●	100 ●	100 ●	100 ●
South East Coast	N58	RXH	Brighton and Sussex University Hospitals NHS Trust	29	100 ●	62 ▲	90 ●	83 ■	59 ▲	100 ●	100 ●	100 ●
		RWF	Maidstone and Tunbridge Wells NHS Trust	64	100 ●	50 ▲	80 ■	100 ●	80 ■	98 ●	100 ●	100 ●
		RA2	Royal Surrey County Hospital NHS Foundation Trust	114	100 ●	100 ●	100 ●	100 ●	100 ●	100 ●	100 ●	100 ●
Thames Valley	N59	RN3	Great Western Hospitals NHS Foundation Trust	12	100 ●	100 ●	100 ●	92 ●	17 ▲	100 ●	100 ●	100 ●
		RHW	Royal Berkshire NHS Foundation Trust	35	100 ●	100 ●	100 ●	100 ●	94 ●	100 ●	100 ●	100 ●
		RTH	Oxford University Hospitals NHS Trust	105	100 ●	100 ●	99 ●	97 ●	87 ■	100 ●	100 ●	100 ●
Wessex	N60	RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	74	100 ●	93 ●	91 ●	92 ●	96 ●	97 ●	99 ●	96 ●
		RHU	Portsmouth Hospitals NHS Trust	108	100 ●	100 ●	99 ●	99 ●	100 ●	95 ●	97 ●	100 ●
		RHM	University Hospital Southampton NHS Foundation Trust	127	100 ●	98 ●	96 ●	100 ●	93 ●	100 ●	100 ●	100 ●
North Wales	NWW	7A1	Betsi Cadwaladr University Local Health Board	82	100 ●	NA	99 ●	100 ●	74 ▲	100 ●	98 ●	72 ▲
South Wales	SWCN	7A2	Hywel Dda University Local Health Board	13	100 ●	NA	85 ■	92 ●	54 ▲	100 ●	100 ●	86 ■
		7A3	Abertawe Bro Morgannwg University Local Health Board	27	100 ●	NA	96 ●	67 ▲	56 ▲	93 ●	100 ●	67 ▲
		7A4	Cardiff and Vale University Local Health Board	31	100 ●	NA	97 ●	100 ●	81 ■	100 ●	100 ●	76 ▲

N/A Welsh data is extracted directly from CaNISC, and the data source does not provide any details as to complications occurring in Wales

* Surgical intent is a mandatory field with an option for 'not known'. Trusts/Health Boards with less than 100 per cent complete data had records marked as not known

Annex 5: Completeness of data submissions to the high grade dysplasia (HGD) Dataset by NHS Trust (over 2012-14, 2 years of data)

Completeness of data entered by each NHS Trust for key HGD fields was calculated for fields where data submission was non-mandatory or where the data item was mandatory but the option of 'not known' or 'not applicable' was available.

NHS Trust submitting records for less than 10 patients with HGD were excluded from the comparison.

Key
- ● data completeness >=80%
- ■ data completeness <80 and >=60%
- ▲ data completeness <60%.

Trust code	Trust name	N	Mandatory data items (% of responses that are reported as 'not known' or 'not applicable')					Non-mandatory data items (% responses that were complete)				
			% Route to Referral	% Appearance of HGD e.g. flat or nodular	% Presence of Barretts segment	% HGD lesion e.g. unifocal, multifocal	% Diagnosis confirmed by a second pathologist	Length of circumferential columnar lining	Maximum length of columnar lining	% Date of agreed treatment plan	% Treatment plan agreed at MDT	% Referral for treatment to specialist centre
RRV	University College London Hospitals NHS Foundation Trust	64	97 ●	84 ●	95 ●	78 ■	91 ●	61 ■	73 ■	69 ■	97 ●	94 ●
RYJ	Imperial College Healthcare NHS Trust	15	100 ●	93 ●	100 ●	93 ●	80 ●	93 ●	100 ●	93 ●	100 ●	100 ●
RJ1	Guy's and St Thomas' NHS Foundation Trust	14	100 ●	64 ■	100 ●	71 ■	93 ●	43 ▲	71 ■	71 ■	86 ●	86 ●
RJ2	Lewisham and Greenwich NHS Trust	12	100 ●	25 ▲	58 ▲	25 ▲	100 ●	8 ▲	8 ▲	58 ▲	92 ●	100 ●
RQ6	Royal Liverpool and Broadgreen University Hospitals NHS Trust	29	97 ●	66 ■	86 ●	90 ●	34 ▲	14 ▲	34 ▲	100 ●	83 ●	93 ●
RBQ	Liverpool Heart and Chest Hospital NHS Foundation Trust	15	100 ●	0 ▲	20 ▲	7 ▲	7 ▲	7 ▲	7 ▲	93 ●	93 ●	80 ●
RW3	Central Manchester University Hospitals NHS Foundation Trust	23	100 ●	48 ▲	100 ●	78 ■	22 ▲	0 ▲	0 ▲	100 ●	100 ●	100 ●
RM3	Salford Royal NHS Foundation Trust	16	94 ●	94 ●	100 ●	81 ●	100 ●	88 ●	88 ●	100 ●	100 ●	100 ●
RW6	Pennine Acute Hospitals NHS Trust	11	100 ●	18 ▲	0 ▲	0 ▲	91 ●	0 ▲	0 ▲	73 ■	100 ●	100 ●
RTD	The Newcastle upon Tyne Hospitals NHS Foundation Trust	54	100 ●	20 ▲	93 ●	4 ▲	98 ●	2 ▲	2 ▲	100 ●	100 ●	98 ●
RTR	South Tees Hospitals NHS Foundation Trust	11	100 ●	18 ▲	27 ▲	9 ▲	18 ▲	9 ▲	9 ▲	45 ▲	18 ▲	18 ▲
RR8	Leeds Teaching Hospitals NHS Trust	26	88 ●	77 ■	85 ●	62 ■	92 ●	4 ▲	4 ▲	100 ●	100 ●	100 ●
RHQ	Sheffield Teaching Hospitals NHS Foundation Trust	19	100 ●	89 ●	100 ●	58 ▲	89 ●	79 ■	95 ●	100 ●	100 ●	100 ●
RAE	Bradford Teaching Hospitals NHS Foundation Trust	13	62 ■	31 ▲	62 ■	0 ▲	100 ●	15 ▲	15 ▲	100 ●	85 ●	92 ●
RGT	Cambridge University Hospitals NHS Foundation Trust	37	100 ●	97 ●	97 ●	97 ●	100 ●	46 ▲	84 ●	100 ●	100 ●	100 ●
RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust	26	100 ●	100 ●	100 ●	100 ●	92 ●	85 ●	85 ●	31 ▲	100 ●	100 ●
RX1	Nottingham University Hospitals NHS Trust	52	71 ■	37 ▲	94 ●	6 ▲	100 ●	40 ▲	40 ▲	98 ●	96 ●	96 ●
RWE	University Hospitals of Leicester NHS Trust	18	89 ●	72 ■	100 ●	100 ●	100 ●	50 ▲	39 ▲	89 ●	100 ●	100 ●
RL4	The Royal Wolverhampton NHS Trust	13	100 ●	15 ▲	77 ■	8 ▲	69 ■	0 ▲	0 ▲	100 ●	92 ●	100 ●
RWP	Worcestershire Acute Hospitals NHS Trust	12	100 ●	50 ▲	92 ●	33 ▲	8 ▲	8 ▲	33 ▲	100 ●	100 ●	100 ●
RR1	Heart of England NHS Foundation Trust	11	100 ●	27 ▲	55 ▲	18 ▲	91 ●	9 ▲	9 ▲	82 ●	91 ●	91 ●
RTE	Gloucestershire Hospitals NHS Foundation Trust	23	91 ●	83 ●	87 ●	74 ■	96 ●	0 ▲	0 ▲	100 ●	100 ●	83 ●
RK9	Plymouth Hospitals NHS Trust	18	100 ●	6 ▲	28 ▲	0 ▲	22 ▲	0 ▲	0 ▲	0 ▲	33 ▲	28 ▲
REF	Royal Cornwall Hospitals NHS Trust	11	91 ●	0 ▲	9 ▲	9 ▲	45 ▲	0 ▲	0 ▲	100 ●	100 ●	100 ●
RDU	Frimley Park Hospital NHS Foundation Trust	10	100 ●	90 ●	100 ●	90 ●	100 ●	50 ▲	70 ■	100 ●	100 ●	100 ●
RHU	Portsmouth Hospitals NHS Trust	42	79 ■	2 ▲	48 ▲	0 ▲	5 ▲	0 ▲	0 ▲	98 ●	86 ●	79 ■
RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	24	96 ●	88 ●	100 ●	46 ▲	67 ■	100 ●	100 ●	100 ●	100 ●	96 ●
RHM	University Hospital Southampton NHS Foundation Trust	21	100 ●	100 ●	100 ●	95 ●	100 ●	33 ▲	62 ■	100 ●	100 ●	100 ●

Annex 6: Management of high grade dysplasia (HGD) at Strategic Clinical Network (SCN) level (over 2012-14, 2 years of data)

At an SCN level the management of patients with HGD was compared to the The British Society of Gastroenterology guidelines.

Key

- ● Plan adhered to national guidelines >=90%
- ■ Plan adhered to national guidelines <90 and >=80%
- ▲ Plan adhered to national guidelines <80%.

SCN code	SCN of diagnosis	N	% Diagnosis confirmed by second pathologist	% Treatment plan agreed at MDT	% Active treatment of HGD
LC	London Cancer	44	92 ●	98 ●	93 ●
N40	London Cancer Alliance	67	92 ●	90 ●	76 ▲
N50	Cheshire and Merseyside	55	80 ■	71 ▲	55 ▲
N51	Greater Manchester, Lancashire and South Cumbria	75	74 ▲	78 ▲	66 ▲
N52	Northern England	80	91 ●	93 ●	73 ▲
N53	Yorkshire and the Humber	89	57 ▲	96 ●	81 ■
N54	East of England	110	94 ●	97 ●	90 ●
N55	East Midlands	84	99 ●	91 ●	81 ■
N56	West Midlands	69	36 ▲	71 ▲	63 ▲
N57	South West	77	75 ▲	69 ▲	51 ▲
N58	South East Coast	54	97 ●	96 ●	80 ■
N59	Thames Valley	25	76 ▲	100 ●	59 ▲
N60	Wessex	101	88 ■	85 ■	73 ▲

Annex 7: Emergency admissions
(over 2012-14, 2 years of data)

The proportion of missing data on referral source and the adjusted referral rates were calculated for each NHS Trust/ Health Board. If a patient had a missing record for this data item, then it was assumed that the admission was not an emergency referral for the calculation of adjusted referral rate by NHS Trust/Health Board. Rates were adjusted for age and gender.

NHS Trusts/Health Boards submitting less that 10 records in the two year period were excluded from comparison

Key

Missing ref source
- ● missing ref source <10%
- ■ missing ref source between 10-15%
- ▲ missing ref source >15%

Emergency admissions
- ● proportion of emergency admissions (adjusted) <15%
- ■ proportion of emergency admissions (adjusted) 15-20%
- ▲ proportion of emergency admissions (adjusted) >20%

SCN code	SCN name	NHS Trust code	Trust name	% Missing referral source	% Adjusted emergency admissions
LC	London Cancer	R1H	Barts Health NHS Trust	3.1 ●	20.1 ▲
		RAL	Royal Free London NHS Foundation Trust	0.0 ●	15.0 ■
		RAP	North Middlesex University Hospital NHS Trust	5.9 ●	8.7 ●
		RF4	Barking, Havering and Redbridge University Hospitals NHS Trust	0.8 ●	24.3 ▲
		RKE	The Whittington Hospital NHS Trust	1.8 ●	15.1 ■
		RQW	The Princess Alexandra Hospital NHS Trust	15.6 ▲	4.7 ●
		RQX	Homerton University Hospital NHS Foundation Trust	5.3 ●	3.7 ●
		RRV	University College London Hospitals NHS Foundation Trust	7.1 ●	3.4 ●
		RVL	Barnet and Chase Farm Hospitals NHS Trust	13.4 ■	3.6 ●
N40	London Cancer Alliance	RAS	The Hillingdon Hospitals NHS Foundation Trust	0.0 ●	22.8 ▲
		RAX	Kingston Hospital NHS Foundation Trust	0.0 ●	21.9 ▲
		RFW	West Middlesex University Hospital NHS Trust	6.3 ●	18.6 ■
		RJ1	Guy's and St Thomas' NHS Foundation Trust	50.6 ▲	11.4 ●
		RJ2	Lewisham and Greenwich NHS Trust	6.0 ●	13.9 ●
		RJ6	Croydon Health Services NHS Trust	0.0 ●	15.5 ■
		RJ7	St George's Healthcare NHS Trust	0.0 ●	16.8 ■
		RJZ	King's College Hospital NHS Foundation Trust	9.7 ●	23.0 ●
		RQM	Chelsea and Westminster Hospital NHS Foundation Trust	0.0 ●	15.4 ■
		RV8	North West London Hospitals NHS Trust	0.0 ●	17.7 ■
		RVR	Epsom and St Helier University Hospitals NHS Trust	0.0 ●	29.9 ▲
		RYJ	Imperial College Healthcare NHS Trust	10.8 ■	17.6 ■
N50	Cheshire and Merseyside	RBL	Wirral University Teaching Hospital NHS Foundation Trust	1.6 ●	22.0 ▲
		RBN	St Helens and Knowsley Hospitals NHS Trust	3.0 ●	20.0 ■
		REM	Aintree University Hospital NHS Foundation Trust	7.1 ●	21.9 ▲
		RJR	Countess of Chester Hospital NHS Foundation Trust	0.9 ●	14.1 ●
		RQ6	Royal Liverpool and Broadgreen University Hospitals NHS Trust	9.1 ●	8.2 ●
		RVY	Southport and Ormskirk Hospital NHS Trust	0.0 ●	1.3 ●
		RWW	Warrington and Halton Hospitals NHS Foundation Trust	2.9 ●	2.0 ●
N51	Greater Manchester, Lancashire and South Cumbria	RBT	Mid Cheshire Hospitals NHS Foundation Trust	13.9 ■	15.8 ■
		RJN	East Cheshire NHS Trust	0.9 ●	12.0 ●
		RM2	University Hospital of South Manchester NHS Foundation Trust	0.0 ●	23.1 ▲
		RM3	Salford Royal NHS Foundation Trust	0.9 ●	11.9 ●
		RMC	Bolton NHS Foundation Trust	0.0 ●	12.8 ●
		RMP	Tameside Hospital NHS Foundation Trust	0.0 ●	21.3 ▲
		RRF	Wrightington, Wigan and Leigh NHS Foundation Trust	2.4 ●	1.6 ●
		RTX	University Hospitals of Morecambe Bay NHS Foundation Trust	4.4 ●	0.0 ●
		RW3	Central Manchester University Hospitals NHS Foundation Trust	22.7 ▲	2.4 ●
		RW6	Pennine Acute Hospitals NHS Trust	5.5 ●	4.5 ●
		RWJ	Stockport NHS Foundation Trust	0.0 ●	1.8 ●
		RXL	Blackpool Teaching Hospitals NHS Foundation Trust	0.0 ●	15.6 ■
		RXN	Lancashire Teaching Hospitals NHS Foundation Trust	10.6 ■	0.6 ●
		RXR	East Lancashire Hospitals NHS Trust	0.4 ●	12.7 ●

SCN code	SCN name	NHS Trust code	Trust name	% Missing referral source	% Adjusted emergency admissions
N52	Northern England	RE9	South Tyneside NHS Foundation Trust	0.0 ●	29.1 ▲
		RLN	City Hospitals Sunderland NHS Foundation Trust	0.0 ●	16.7 ■
		RNL	North Cumbria University Hospitals NHS Trust	0.6 ●	9.5 ●
		RR7	Gateshead Health NHS Foundation Trust	2.0 ●	12.5 ●
		RTD	The Newcastle upon Tyne Hospitals NHS Foundation Trust	1.1 ●	23.6 ▲
		RTF	Northumbria Healthcare NHS Foundation Trust	0.0 ●	19.5 ■
		RTR	South Tees Hospitals NHS Foundation Trust	0.7 ●	14.2 ●
		RVW	North Tees and Hartlepool NHS Foundation Trust	1.6 ●	27.6 ▲
		RXP	County Durham and Darlington NHS Foundation Trust	0.0 ●	15.4 ■
N53	Yorkshire and the Humber	RAE	Bradford Teaching Hospitals NHS Foundation Trust	14.0 ■	3.5 ●
		RCB	York Teaching Hospital NHS Foundation Trust	39.8 ▲	1.9 ●
		RCD	Harrogate and District NHS Foundation Trust	0.0 ●	15.5 ■
		RCF	Airedale NHS Foundation Trust	10.3 ■	5.1 ●
		RFF	Barnsley Hospital NHS Foundation Trust	0.9 ●	24.9 ▲
		RFR	The Rotherham NHS Foundation Trust	0.0 ●	16.0 ■
		RFS	Chesterfield Royal Hospital NHS Foundation Trust	0.7 ●	16.4 ■
		RHQ	Sheffield Teaching Hospitals NHS Foundation Trust	0.0 ●	12.5 ●
		RJL	Northern Lincolnshire and Goole NHS Foundation Trust	0.9 ●	23.2 ▲
		RP5	Doncaster and Bassetlaw Hospitals NHS Foundation Trust	0.0 ●	11.6 ●
		RR8	Leeds Teaching Hospitals NHS Trust	5.4 ●	7.9 ●
		RWA	Hull and East Yorkshire Hospitals NHS Trust	6.1 ●	15.8 ■
		RWY	Calderdale and Huddersfield NHS Foundation Trust	4.2 ●	16.5 ■
		RXF	Mid Yorkshire Hospitals NHS Trust	9.3 ●	9.4 ●
N54	East of England	RAJ	Southend University Hospital NHS Foundation Trust	0.8 ●	19.3 ■
		RC1	Bedford Hospital NHS Trust	0.0 ●	5.1 ●
		RC9	Luton and Dunstable University Hospital NHS Foundation Trust	31.4 ▲	0.0 ●
		RCX	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	0.0 ●	15.8 ■
		RDD	Basildon and Thurrock University Hospitals NHS Foundation Trust	0.8 ●	19.4 ■
		RDE	Colchester Hospital University NHS Foundation Trust	0.0 ●	3.1 ●
		RGN	Peterborough and Stamford Hospitals NHS Foundation Trust	0.0 ●	4.1 ●
		RGP	James Paget University Hospitals NHS Foundation Trust	0.0 ●	14.9 ●
		RGQ	Ipswich Hospital NHS Trust	30.9 ▲	9.4 ●
		RGR	West Suffolk NHS Foundation Trust	1.0 ●	14.0 ●
		RGT	Cambridge University Hospitals NHS Foundation Trust	6.0 ●	2.4 ●
		RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust	0.4 ●	22.1 ▲
		RQ8	Mid Essex Hospital Services NHS Trust	33.8 ▲	3.4 ●
		RQQ	Hinchingbrooke Health Care NHS Trust	1.4 ●	1.7 ●
		RWG	West Hertfordshire Hospitals NHS Trust	12.7 ■	8.0 ●
		RWH	East and North Hertfordshire NHS Trust	1.4 ●	21.4 ▲
N55	East Midlands	RJF	Burton Hospitals NHS Foundation Trust	0.0 ●	7.3 ●
		RK5	Sherwood Forest Hospitals NHS Foundation Trust	0.0 ●	16.9 ■
		RNQ	Kettering General Hospital NHS Foundation Trust	0.0 ●	20.6 ▲
		RNS	Northampton General Hospital NHS Trust	0.0 ●	12.1 ●
		RTG	Derby Hospitals NHS Foundation Trust	0.0 ●	22.6 ▲
		RWD	United Lincolnshire Hospitals NHS Trust	41.3 ▲	6.1 ●
		RWE	University Hospitals of Leicester NHS Trust	0.0 ●	19.7 ■
		RX1	Nottingham University Hospitals NHS Trust	2.5 ●	15.3 ■

SCN code	SCN name	NHS Trust code	Trust name	% Missing referral source	% Adjusted emergency admissions
N56	West Midlands	RBK	Walsall Healthcare NHS Trust	0.0 ●	6.5 ●
		RJC	South Warwickshire NHS Foundation Trust	20.6 ▲	14.8 ●
		RJD	Mid Staffordshire NHS Foundation Trust	0.0 ●	20.0 ■
		RJE	University Hospital of North Staffordshire NHS Trust	16.8 ▲	0.4 ●
		RKB	University Hospitals Coventry and Warwickshire NHS Trust	1.5 ●	19.3 ■
		RL4	The Royal Wolverhampton NHS Trust	1.8 ●	11.8 ●
		RLQ	Wye Valley NHS Trust	0.0 ●	12.7 ●
		RLT	George Eliot Hospital NHS Trust	0.0 ●	6.3 ●
		RNA	The Dudley Group NHS Foundation Trust	0.6 ●	0.0 ●
		RR1	Heart of England NHS Foundation Trust	56.9 ▲	12.0 ●
		RRK	University Hospitals Birmingham NHS Foundation Trust	2.2 ●	9.5 ●
		RWP	Worcestershire Acute Hospitals NHS Trust	4.4 ●	9.8 ●
		RXK	Sandwell and West Birmingham Hospitals NHS Trust	8.6 ●	12.1 ●
		RXW	Shrewsbury and Telford Hospital NHS Trust	7.5 ●	0.8 ●
N57	South West	RA3	Weston Area Health NHS Trust	0.0 ●	15.6 ■
		RA4	Yeovil District Hospital NHS Foundation Trust	2.3 ●	2.4 ●
		RA7	University Hospitals Bristol NHS Foundation Trust	0.5 ●	4.5 ●
		RA9	South Devon Healthcare NHS Foundation Trust	0.7 ●	18.8 ■
		RBA	Taunton and Somerset NHS Foundation Trust	0.6 ●	0.0 ●
		RBZ	Northern Devon Healthcare NHS Trust	3.2 ●	3.1 ●
		RD1	Royal United Hospital Bath NHS Trust	14.0 ■	2.4 ●
		REF	Royal Cornwall Hospitals NHS Trust	4.4 ●	4.4 ●
		RH8	Royal Devon and Exeter NHS Foundation Trust	1.1 ●	13.0 ●
		RK9	Plymouth Hospitals NHS Trust	2.4 ●	19.0 ■
		RTE	Gloucestershire Hospitals NHS Foundation Trust	0.8 ●	19.0 ■
		RVJ	North Bristol NHS Trust	0.7 ●	6.5 ●
N58	South East Coast	RA2	Royal Surrey County Hospital NHS Foundation Trust	5.8 ●	2.6 ●
		RDU	Frimley Park Hospital NHS Foundation Trust	6.8 ●	0.0 ●
		RN7	Dartford and Gravesham NHS Trust	1.1 ●	27.9 ▲
		RPA	Medway NHS Foundation Trust	3.4 ●	28.4 ▲
		RTK	Ashford and St Peter's Hospitals NHS Foundation Trust	1.5 ●	0.0 ●
		RTP	Surrey and Sussex Healthcare NHS Trust	0.0 ●	3.5 ●
		RVV	East Kent Hospitals University NHS Foundation Trust	21.1 ▲	3.7 ●
		RWF	Maidstone and Tunbridge Wells NHS Trust	24.7 ▲	1.7 ●
		RXC	East Sussex Healthcare NHS Trust	7.3 ●	3.7 ●
		RXH	Brighton and Sussex University Hospitals NHS Trust	7.9 ●	2.2 ●
		RYR16	Western Sussex Hospitals NHS Foundation Trust	0.0 ●	8.4 ●
		RYR18	Western Sussex Hospitals NHS Foundation Trust	0.0 ●	6.1 ●
N59	Thames Valley	RD7	Heatherwood and Wexham Park Hospitals NHS Foundation Trust	23.5 ▲	0.0 ●
		RD8	Milton Keynes Hospital NHS Foundation Trust	6.9 ●	0.0 ●
		RHW	Royal Berkshire NHS Foundation Trust	7.5 ●	7.7 ●
		RN3	Great Western Hospitals NHS Foundation Trust	9.4 ●	11.1 ●
		RTH	Oxford University Hospitals NHS Trust	45.2 ▲	10.1 ●
		RXQ	Buckinghamshire Healthcare NHS Trust	11.5 ■	8.6 ●
N60	Wessex	R1F	Isle of Wight NHS Trust	0.0 ●	15.6 ■
		RBD	Dorset County Hospital NHS Foundation Trust	7.4 ●	15.7 ■
		RD3	Poole Hospital NHS Foundation Trust	3.1 ●	19.9 ■
		RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	2.7 ●	17.8 ■
		RHM	University Hospital Southampton NHS Foundation Trust	0.0 ●	8.2 ●
		RHU	Portsmouth Hospitals NHS Trust	1.4 ●	17.0 ■
		RN5	Hampshire Hospitals NHS Foundation Trust	0.7 ●	0.0 ●
		RNZ	Salisbury NHS Foundation Trust	0.0 ●	13.0 ●
NWW	North Wales	7A1	Betsi Cadwaladr University Local Health Board	0.0 ●	17.0 ■
SWCN	South Wales	7A2	Hywel Dda University Local Health Board	3.7 ●	22.8 ▲
		7A3	Abertawe Bro Morgannwg University Local Health Board	1.0 ●	28.1 ▲
		7A4	Cardiff and Vale University Local Health Board	0.0 ●	17.8 ■
		7A5	Cwm Taf University Local Health Board	0.0 ●	18.8 ■
		7A6	Aneurin Bevan University Local Health Board	9.4 ●	30.5 ▲

Annex 8: Comparative analysis of outcomes after curative surgery for NHS Trusts in England and Wales
(over 2012-14, 2 years of data)

Note: The overall volume of procedures based on two years of Audit data is small and as postoperative mortality is low, the power to detect true outliers is limited. Therefore, results reported for individual NHS Trusts/ Health Boards should not be considered as ultimate evidence, but rather as indicators to direct further local enquiry into the quality of care. Outcomes for NHS Trusts/ Health Boards with a volume smaller than 10 cases per year are not reported here.

SCN code	SCN name	Trust code	Trust name	Surgical cases	30-day mortality adjusted %	90-day mortality adjusted %	Length of stay (days)	*Complication rate % adjusted
LC	London Cancer	RF4	Barking, Havering and Redbridge University Hospitals NHS Trust	60	0.0	0.0	9	18.2
		R1H	Barts Health NHS Trust	66	4.5	9.4	12	43.5
		RRV	University College London Hospitals NHS Foundation Trust	114	0.8	1.7	14	45.8
N40	London Cancer Alliance	RPY	The Royal Marsden NHS Foundation Trust	89	3.8	6.9	13	50.6
		RYJ	Imperial College Healthcare NHS Trust	95	2.4	5.2	13	65.5
		RJ1	Guy's and St Thomas' NHS Foundation Trust	156	1.4	2.9	12	5.2
N50	Cheshire and Merseyside	REM	Aintree University Hospital NHS Foundation Trust	76	3.8	5.5	11	29.1
		RBQ	Liverpool Heart and Chest Hospital NHS Foundation Trust	165	1.2	5.3	12	20.6
N51	Greater Manchester, Lancashire and South Cumbria	RM2	University Hospital of South Manchester NHS Foundation Trust	41	0.0	0.0	12	12.1
		RW3	Central Manchester University Hospitals NHS Foundation Trust	89	3.0	5.0	13	53.2
		RM3	Salford Royal NHS Foundation Trust	177	0.5	3.4	13	35.2
		RXN	Lancashire Teaching Hospitals NHS Foundation Trust	187	1.4	2.9	12.5	25.8
N52	Northern England	RTR	South Tees Hospitals NHS Foundation Trust	143	0.0	0.9	11	9.8
		RTD	The Newcastle Upon Tyne Hospitals NHS Foundation Trust	282	0.6	2.6	12	49.0
N53	Yorkshire and the Humber	RP5	Doncaster and Bassetlaw Hospitals NHS Foundation Trust	29	5.9	9.7	14	37.1
		RAE	Bradford Teaching Hospitals NHS Foundation Trust	102	6.8	7.8	14	0.0
		RWA	Hull and East Yorkshire Hospitals NHS Trust	118	5.9	9.5	12	29.7
		RHQ	Sheffield Teaching Hospitals NHS Foundation Trust	139	3.6	5.2	11	40.7
		RR8	Leeds Teaching Hospitals NHS Trust	155	1.0	6.1	14	0.6
N54	East of England	RWG	West Hertfordshire Hospitals NHS Trust	84	4.0	6.1	12	45.2
		RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust	103	0.6	1.3	8	37.6
		RQ8	Mid Essex Hospital Services NHS Trust	123	3.0	5.3	10	13.7
		RGT	Cambridge University Hospitals NHS Foundation Trust	138	1.0	1.9	11	2.9
N55	East Midlands	RTG	Derby Hospitals NHS Foundation Trust	93	2.3	3.3	10	34.4
		RWE	University Hospitals of Leicester NHS Trust	128	4.0	7.2	15	52.7
		RX1	Nottingham University Hospitals NHS Trust	222	1.5	4.0	11	46.9
N56	West Midlands	RR1	Heart of England NHS Foundation Trust	60	3.2	6.1	13	16.5
		RJE	University Hospital of North Staffordshire NHS Trust	74	1.6	3.0	13	0.0
		RKB	University Hospitals Coventry and Warwickshire NHS Trust	109	1.4	3.6	9	25.7
		RRK	University Hospitals Birmingham NHS Foundation Trust	136	2.8	4.4	13	41.8
N57	South West	RTE	Gloucestershire Hospitals NHS Foundation Trust	87	4.6	7.9	11	57.7
		RA7	University Hospitals Bristol NHS Foundation Trust	148	3.4	4.9	12	49.6
		RK9	Plymouth Hospitals NHS Trust	216	1.4	2.8	10	2.8
N58	South East Coast	RXH	Brighton and Sussex University Hospitals NHS Trust	28	4.6	4.8	9	17.5
		RWF	Maidstone and Tunbridge Wells NHS Trust	59	8.3	10.8	14	40.8
		RA2	Royal Surrey County Hospital NHS Foundation Trust	113	2.7	4.1	10.5	60.3
N59	Thames Valley	RN3	Great Western Hospitals NHS Foundation Trust	12	0.0	0.0	12.5	67.5
		RHW	Royal Berkshire NHS Foundation Trust	35	3.7	4.0	8	29.0
		RTH	Oxford University Hospitals NHS Trust	96	2.8	4.1	13	54.0
N60	Wessex	RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	71	3.6	3.8	11	5.6
		RHU	Portsmouth Hospitals NHS Trust	106	3.0	5.9	13	60.8
		RHM	University Hospital Southampton NHS Foundation Trust	109	1.5	2.2	9	44.0
NWW	North Wales	7A1	Betsi Cadwaladr University Local Health Board	75	1.9	5.7	9	N/A
SWCN	South Wales	7A2	Hywel Dda University Local Health Board	11	10.4	10.8	10	N/A
		7A3	Abertawe Bro Morgannwg University Local Health Board	26	0.0	0.0	14	N/A
		7A4	Cardiff and Vale University Local Health Board	28	6.0	11.5	13	N/A

* Rate of any complication after surgery, adjusted for age and sex.

N/A Welsh data supplied by CaNISC which does not collect data on complications.

Rate of complications should be interpreted with caution, as they may be affected by coding practices at Trust level.

Annex 9: Completeness of stent recording in Hospital Episodes Statistics (HES) and the NOGCA dataset (over 2012-14, 2 years of data)

Analysis in Chapter 9 demonstrated that overall 85.5 per cent of stents were accurately recorded in Hospital Episode Statistics (HES). Using this piece of information we looked at the proportion of patients managed with palliative intent for oesophageal cancer who had a stent recorded in HES who had an endoscopy record for stent insertion submitted to the Audit. This analysis was limited to English NHS Trusts that performed ≥10 stent insertions, recorded in either HES or the Audit.

Key
- ● data completeness >=80%
- ■ data completeness <80 and >=60%
- ▲ data completeness <60%.

SCN code	SCN name	Trust code	Trust name	Total stents submitted to Audit	Number of stents recorded in HES	Overall stents recorded in HES or Audit	Proportion of stents recorded in Audit %	Proportion of stents recorded in HES %
LC	London Cancer	R1H	Barts Health NHS Trust	15	26	29	52 ▲	90 ●
		RF4	Barking, Havering and Redbridge University Hospitals NHS Trust	21	37	37	57 ▲	100 ●
		RRV	University College London Hospitals NHS Foundation Trust	11	14	15	73 ■	93 ●
		RVL	Barnet and Chase Farm Hospitals NHS Trust	0	22	22	0 ▲	100 ●
N40	London Cancer Alliance	RAS	The Hillingdon Hospitals NHS Foundation Trust	13	13	13	100 ●	100 ●
		RAX	Kingston Hospital NHS Foundation Trust	16	18	19	84 ●	95 ●
		RJ2	Lewisham and Greenwich NHS Trust	1	16	16	6 ▲	100 ●
		RJ7	St George's Healthcare NHS Trust	6	10	13	46 ▲	77 ■
		RJZ	King's College Hospital NHS Foundation Trust	14	41	42	33 ▲	98 ●
		RVR	Epsom and St Helier University Hospitals NHS Trust	20	28	30	67 ■	93 ●
		RYJ	Imperial College Healthcare NHS Trust	15	21	22	68 ■	95 ●
N50	Cheshire and Merseyside	RBL	Wirral University Teaching Hospital NHS Foundation Trust	6	24	24	25 ▲	100 ●
		RBN	St Helens and Knowsley Hospitals NHS Trust	21	35	35	60 ■	100 ●
		REM	Aintree University Hospital NHS Foundation Trust	22	30	34	65 ■	88 ●
		RJR	Countess of Chester Hospital NHS Foundation Trust	9	14	15	60 ■	93 ●
		RQ6	Royal Liverpool and Broadgreen University Hospitals NHS Trust	24	27	28	86 ●	96 ●
		RVY	Southport and Ormskirk Hospital NHS Trust	5	13	13	38 ▲	100 ●
		RWW	Warrington and Halton Hospitals NHS Foundation Trust	11	16	18	61 ■	89 ●
N51	Greater Manchester, Lancashire and South Cumbria	RBT	Mid Cheshire Hospitals NHS Foundation Trust	1	11	11	9 ▲	100 ●
		RBV	The Christie NHS Foundation Trust	15	12	15	100 ●	80 ●
		RJN	East Cheshire NHS Trust	10	19	19	53 ▲	100 ●
		RM2	University Hospital of South Manchester NHS Foundation Trust	20	29	31	65 ■	94 ●
		RM3	Salford Royal NHS Foundation Trust	16	18	21	76 ■	86 ●
		RMC	Bolton NHS Foundation Trust	25	32	32	78 ■	100 ●
		RMP	Tameside Hospital NHS Foundation Trust	0	10	10	0 ▲	100 ●
		RRF	Wrightington, Wigan and Leigh NHS Foundation Trust	4	10	10	40 ▲	100 ●
		RTX	University Hospitals of Morecambe Bay NHS Foundation Trust	8	24	24	33 ▲	100 ●
		RW3	Central Manchester University Hospitals NHS Foundation Trust	12	46	47	26 ▲	98 ●
		RW6	Pennine Acute Hospitals NHS Trust	1	18	18	6 ▲	100 ●
		RWJ	Stockport NHS Foundation Trust	11	10	12	92 ●	83 ●
		RXL	Blackpool Teaching Hospitals NHS Foundation Trust	36	53	54	67 ■	98 ●
		RXN	Lancashire Teaching Hospitals NHS Foundation Trust	7	47	47	15 ▲	100 ●
		RXR	East Lancashire Hospitals NHS Trust	25	34	37	68 ■	92 ●
N52	Northern England	RLN	City Hospitals Sunderland NHS Foundation Trust	8	12	13	62 ■	92 ●
		RR7	Gateshead Health NHS Foundation Trust	6	9	10	60 ■	90 ●
		RTD	The Newcastle upon Tyne Hospitals NHS Foundation Trust	33	31	35	94 ●	89 ●
		RTF	Northumbria Healthcare NHS Foundation Trust	13	23	27	48 ▲	85 ●
		RTR	South Tees Hospitals NHS Foundation Trust	26	36	38	68 ■	95 ●
		RVW	North Tees and Hartlepool NHS Foundation Trust	24	30	33	73 ■	91 ●
		RXP	County Durham and Darlington NHS Foundation Trust	21	26	28	75 ■	93 ●

SCN code	SCN name	Trust code	Trust name	Total stents submitted to Audit	Number of stents recorded in HES	Overall stents recorded in HES or Audit	Proportion of stents recorded in Audit %	Proportion of stents recorded in HES %
N53	Yorkshire and the Humber	RAE	Bradford Teaching Hospitals NHS Foundation Trust	14	30	32	44 ▲	94 ●
		RCB	York Teaching Hospital NHS Foundation Trust	38	46	48	79 ■	96 ●
		RCD	Harrogate and District NHS Foundation Trust	9	8	12	75 ■	67 ■
		RCF	Airedale NHS Foundation Trust	1	25	25	4 ▲	100 ●
		RFF	Barnsley Hospital NHS Foundation Trust	19	21	23	83 ●	91 ●
		RFR	The Rotherham NHS Foundation Trust	23	29	30	77 ■	97 ●
		RFS	Chesterfield Royal Hospital NHS Foundation Trust	26	37	38	68 ■	97 ●
		RHQ	Sheffield Teaching Hospitals NHS Foundation Trust	42	44	50	84 ●	88 ●
		RJL	Northern Lincolnshire and Goole NHS Foundation Trust	10	25	26	38 ▲	96 ●
		RP5	Doncaster and Bassetlaw Hospitals NHS Foundation Trust	31	34	41	76 ■	83 ●
		RR8	Leeds Teaching Hospitals NHS Trust	10	47	47	21 ▲	100 ●
		RWA	Hull and East Yorkshire Hospitals NHS Trust	12	30	31	39 ▲	97 ●
		RWY	Calderdale and Huddersfield NHS Foundation Trust	3	46	46	7 ▲	100 ●
		RXF	Mid Yorkshire Hospitals NHS Trust	0	30	30	0 ▲	100 ●
N54	East of England	RAJ	Southend University Hospital NHS Foundation Trust	11	17	18	61 ■	94 ●
		RC1	Bedford Hospital NHS Trust	13	21	24	54 ▲	88 ●
		RC9	Luton and Dunstable University Hospital NHS Foundation Trust	17	14	17	100 ●	82 ●
		RCX	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	22	28	29	76 ■	97 ●
		RDD	Basildon and Thurrock University Hospitals NHS Foundation Trust	18	15	21	86 ●	71 ■
		RDE	Colchester Hospital University NHS Foundation Trust	9	30	31	29 ▲	97 ●
		RGN	Peterborough and Stamford Hospitals NHS Foundation Trust	0	28	28	0 ▲	100 ●
		RGP	James Paget University Hospitals NHS Foundation Trust	14	19	19	74 ■	100 ●
		RGQ	Ipswich Hospital NHS Trust	37	45	47	79 ■	96 ●
		RGR	West Suffolk NHS Foundation Trust	6	11	12	50 ▲	92 ●
		RGT	Cambridge University Hospitals NHS Foundation Trust	1	28	29	3 ▲	97 ●
		RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust	29	50	50	58 ▲	100 ●
		RQ8	Mid Essex Hospital Services NHS Trust	0	13	13	0 ▲	100 ●
		RQQ	Hinchingbrooke Health Care NHS Trust	7	11	11	64 ■	100 ●
		RWG	West Hertfordshire Hospitals NHS Trust	13	13	13	100 ●	100 ●
		RWH	East and North Hertfordshire NHS Trust	13	10	13	100 ●	77 ■
N55	East Midlands	RJF	Burton Hospitals NHS Foundation Trust	0	11	11	0 ▲	100 ●
		RK5	Sherwood Forest Hospitals NHS Foundation Trust	0	19	19	0 ▲	100 ●
		RNQ	Kettering General Hospital NHS Foundation Trust	19	20	25	76 ■	80 ●
		RNS	Northampton General Hospital NHS Trust	18	25	28	64 ■	89 ●
		RTG	Derby Hospitals NHS Foundation Trust	37	50	50	74 ■	100 ●
		RWE	University Hospitals of Leicester NHS Trust	52	52	56	93 ●	93 ●
		RX1	Nottingham University Hospitals NHS Trust	50	52	57	88 ●	91 ●
N56	West Midlands	RJC	South Warwickshire NHS Foundation Trust	6	13	13	46 ▲	100 ●
		RJD	Mid Staffordshire NHS Foundation Trust	27	29	31	87 ●	94 ●
		RJE	University Hospital of North Staffordshire NHS Trust	25	55	55	45 ▲	100 ●
		RKB	University Hospitals Coventry and Warwickshire NHS Trust	42	43	49	86 ●	88 ●
		RL4	The Royal Wolverhampton NHS Trust	15	27	28	54 ▲	96 ●
		RLT	George Eliot Hospital NHS Trust	0	10	10	0 ▲	100 ●
		RNA	The Dudley Group NHS Foundation Trust	0	23	23	0 ▲	100 ●
		RR1	Heart of England NHS Foundation Trust	37	64	71	52 ▲	90 ●
		RRK	University Hospitals Birmingham NHS Foundation Trust	16	24	26	62 ■	92 ●
		RWP	Worcestershire Acute Hospitals NHS Trust	19	45	45	42 ▲	100 ●
		RXK	Sandwell and West Birmingham Hospitals NHS Trust	11	19	20	55 ▲	95 ●
		RXW	Shrewsbury and Telford Hospital NHS Trust	9	45	45	20 ▲	100 ●

SCN code	SCN name	Trust code	Trust name	Total stents submitted to Audit	Number of stents recorded in HES	Overall stents recorded in HES or Audit	Proportion of stents recorded in Audit %	Proportion of stents recorded in HES %
N57	South West	RA3	Weston Area Health NHS Trust	12	16	16	75	100
		RA7	University Hospitals Bristol NHS Foundation Trust	48	49	55	87	89
		RA9	South Devon Healthcare NHS Foundation Trust	24	29	30	80	97
		RBA	Taunton and Somerset NHS Foundation Trust	8	28	29	28	97
		RBZ	Northern Devon Healthcare NHS Trust	9	12	13	69	92
		RD1	Royal United Hospital Bath NHS Trust	6	23	24	25	96
		REF	Royal Cornwall Hospitals NHS Trust	38	48	53	72	91
		RH8	Royal Devon and Exeter NHS Foundation Trust	31	28	33	94	85
		RK9	Plymouth Hospitals NHS Trust	12	26	29	41	90
		RTE	Gloucestershire Hospitals NHS Foundation Trust	30	29	32	94	91
		RVJ	North Bristol NHS Trust	17	29	29	59	100
N58	South East Coast	RA2	Royal Surrey County Hospital NHS Foundation Trust	0	10	10	0	100
		RN7	Dartford and Gravesham NHS Trust	15	20	20	75	100
		RTK	Ashford and St Peter's Hospitals NHS Foundation Trust	2	12	12	17	100
		RTP	Surrey and Sussex Healthcare NHS Trust	0	24	24	0	100
		RVV	East Kent Hospitals University NHS Foundation Trust	0	23	23	0	100
		RWF	Maidstone and Tunbridge Wells NHS Trust	15	43	43	35	100
		RXC	East Sussex Healthcare NHS Trust	32	51	53	60	96
		RXH	Brighton and Sussex University Hospitals NHS Trust	5	16	16	31	100
		RYR	Western Sussex Hospitals NHS Foundation Trust	53	51	53	100	96
N59	Thames Valley	RHW	Royal Berkshire NHS Foundation Trust	0	15	15	0	100
		RN3	Great Western Hospitals NHS Foundation Trust	15	26	27	56	96
		RTH	Oxford University Hospitals NHS Trust	27	32	34	79	94
N60	Wessex	RBD	Dorset County Hospital NHS Foundation Trust	3	13	13	23	100
		RD3	Poole Hospital NHS Foundation Trust	5	11	12	42	92
		RDZ	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	15	24	24	63	100
		RHM	University Hospital Southampton NHS Foundation Trust	37	32	38	97	84
		RHU	Portsmouth Hospitals NHS Trust	50	51	52	96	98
		RN5	Hampshire Hospitals NHS Foundation Trust	20	23	27	74	85
		RNZ	Salisbury NHS Foundation Trust	23	23	26	88	88

Glossary of terms

Adjuvant treatment – An additional therapy (e.g. chemotherapy or radiotherapy) provided to improve the effectiveness of the primary treatment (e.g. surgery). This may aim to reduce the chance of local recurrence of the cancer or to improve the patient's overall chance of survival.

AUGIS – Association of Upper Gastrointestinal Surgeons

BSG – British Society of Gastroenterology

No active treatment (best supportive care) – It is important that patients with incurable disease have a holistic approach to their treatment, taking consideration of their physical, emotional, and social needs.

Chemotherapy – Drug therapy used to treat cancer. It may be used alone, or in conjunction with other types of treatment (e.g. surgery or radiotherapy).

Clinical Reference Group – The Audit's Clinical Reference Group (CRG) is comprised of representatives of the key stakeholders in oesophago-gastric cancer care. They advise the Project Team on particular aspects of the project and provide input from the wider clinical and patient community.

Clinical Effectiveness Unit – The Clinical Effectiveness Unit (CEU) is an academic collaboration between The Royal College of Surgeons of England and the London School of Hygiene and Tropical Medicine, and undertakes national surgical Audit and research. It is one of the key stakeholders leading the Audit.

CT-scan – (Computed Tomography) an imaging modality that uses X-ray radiation to build up a 3-dimensional image of the body. Its main use in O-G cancer is to identify distant metastases, lymph node enlargement and involvement of organs adjacent to the tumour. It is not able to detect microscopic changes such as early seeding to lymph nodes.

Curative care – This is where the aim of the treatment is to cure the patient of the disease. It is not possible to do this in many patients with O-G cancer and is dependent on how far the disease has spread and the patient's general health and physical condition.

Dysphagia – A symptom where the patient experiences difficulty swallowing. They often complain that the food sticks in their throat. It is the commonest presenting symptom of oesophageal cancer.

Endoscopy – An investigation whereby a telescopic camera is used to examine the inside of the digestive tract. It can be used to guide treatments such as stents (see below).

Endoscopic Mucosal Resection/ Endoscopic Submucosal Dissection – a procedure to remove cancerous or other abnormal tissues (lesions) using a long narrow tube equipped with a light, camera and other instruments, which is passed down the oesophagus.

Gastric – an adjective used to describe something that is related to or involves the stomach, e.g. gastric cancer is another way of saying stomach cancer.

Gastrectomy – a surgical procedure to remove either a section (a partial gastrectomy) or all (a total gastrectomy) of the stomach. In a total gastrectomy, the oesophagus is connected to the small intestine.

The Health and Social Care Information Centre – The Health and Social Care Information Centre (HSCIC) is the trusted source of authoritative data and information relating to health and social care. HSCIC's information, data and systems plays a fundamental role in driving better care, better services and better outcomes for patients. The Clinical Audit Support Unit (CASU) is one of its key components.

HES – Hospital Episode Statistics is a database which contains data on all in-patients treated within NHS Trusts in England. This includes details of admissions, diagnoses and those treatments undergone.

ICD10 - International Classification of Diseases and Related Health Problems 10th Revision

Laparoscopy – This is often called 'keyhole surgery' and involves inserting a small camera into the abdomen through a small cut, so as to either guide the operation or to look at the surface of the abdominal organs and so accurately stage the disease.

Lymph nodes – Lymph nodes are small bean shaped organs, often also referred to as lymph 'glands', which form part of the immune system. They are distributed throughout the body and are usually the first place to which cancers spread.

MDT – The multi-disciplinary team is a group of professionals from diverse specialties that works to optimise diagnosis and treatment throughout the patient pathway.

Metastases – Metastases are deposits of cancer that occur when the cancer has spread from the place in which it started to other parts of the body. These are commonly called secondary cancers. Disease in which this has occurred is known as metastatic disease.

Neoadjuvant chemotherapy – Chemotherapy given before another treatment, usually surgery. This is usually given to reduce the size, grade or stage of the cancer and therefore improve the effectiveness of the surgery performed.

NICE – The National Institute of Health and Clinical Excellence is an independent organisation responsible for providing national guidance on the promotion of good health and the prevention and treatment of ill health.

Oesophagus – The portion of the digestive tract that carries food from the bottom of the throat to the top of the stomach. It is also known as the gullet or the food pipe.

Oesophagectomy – The surgical removal of all or part of the oesophagus. The procedure can be performed by opening the thorax (a trans-thoracic oesophagectomy) or through openings in the neck and abdomen (a trans-hiatal oesophagectomy)

Oncology – The branch of medicine which deals with the non-surgical treatment of cancer, such as chemotherapy and radiotherapy.

ONS – The Office for National Statistics (ONS) is the government department responsible for collecting and publishing official statistics about the UK's society and economy. This includes cancer registration data.

Pathology – The branch of medicine that deals with tissue specimens under a microscope to determine the type of disease and how far a cancer has spread within the specimen (i.e. whether a tumour has spread to the edges of the specimen or lymph nodes).

Palliative care – Palliative care is the care given to patients whose disease cannot be cured. It aims to improve quality of life rather than extend survival and concentrates on relieving physical and psychological distress.

Radiology – The branch of medicine that involves the use of imaging techniques (such as X-rays, CT Scans and PET scans) to diagnose and stage clinical problems. Interventional radiology is the subspecialty that performs minimally invasive procedures under imaging guidance.

Radiotherapy – A treatment that uses radiation to kill tumour cells and so shrink the tumour. In most cases, it is a palliative treatment but it can be used together with surgery or chemotherapy in a small number of patients as part of an attempt at cure.

RCR – The Royal College of Radiologists is an independent professional body governing training and clinical practice of specialist doctors. The RCR has two faculties:

- Clinical Oncology, which consist of doctors specialising in administration of radiotherapy.
- Clinical Radiology, which consists of doctors specialising in the performance and interpretation of x-rays, CT, PET and other scans as well as undertaking minimally invasive procedures under image guidance ('Interventional Radiology').

RCS – The Royal College of Surgeons of England is an independent professional body committed to enabling surgeons to achieve and maintain the highest standards of surgical practice and patient care. As part of this it supports Audit and the evaluation of clinical effectiveness for surgery.

Stage – The extent to which the primary tumour has spread; the higher the stage, the more extensive the disease.

Staging – The process by which the stage (or extent of spread) of the tumour is determined through the use of various investigations.

Surgical resection – An operation whose aim is to completely remove the tumour

References

1. Cancer Research UK Statistical Information. Oesophageal Cancer Statistics. 2015 [Accessed Sept 2015]; Available from: http://www.cancerresearchuk.org/cancer-info/cancerstats/types/oesophagus.
2. Cancer Research UK Statistical Information. Gastric Cancer Statistics. 2015 [Accessed Sept 2015]; Available from: http://www.cancerresearchuk.org/cancer-info/cancerstats/types/stomach/.
3. SIGN. Management of oesophageal and gastric cancer. 2006; Available from: http://sign.ac.uk/guidelines/fulltext/87/index.html.
4. Allum W, Blazeby J, Griffin S, Cunningham D, Jankowski J, Wong R. Guidelines for the management of oesophageal and gastric cancer. Gut. 2011;60(11):1449-72.
5. Fitzgerald RC, di Pietro M, Ragunath K, Ang Y, Kang JY, Watson P, et al. British Society of Gastroenterology guidelines on the diagnosis and management of Barrett's oesophagus. Gut. 2014;63(1):7-42. Epub 2013/10/30.
6. NICE guidance (2005). Referral guidelines for suspected cancer. http://www.nice.org.uk/guidance/cg27.
7. NICE Guidance (2010). Endoscopic submucosal dissection of oesophageal dysplasia and neoplasia. http://www.nice.org.uk/guidance/ipg355
8. High quality care for all, now and for future generations: Transforming urgent and emergency care services in England. 2013 [Sept 2015]; Available from: http://www.england.nhs.uk/wp-content/uploads/2013/06/urg-emerg-care-ev-bse.pdf.
9. Spiegelhalter DJ. Funnel plots for comparing institutional performance. Stat Med. 2005; 24(8): 1185-202.
10. Siewert JR, Stein HJ. Classification of adenocarcinoma of the oesophagogastric junction. Br J Surg. 1998;85(11):1457-9. Epub 1998/11/21.
11. Chennat J, Konda VJ, Ross AS, de Tejada AH, Noffsinger A, Hart J, et al. Complete Barrett's eradication endoscopic mucosal resection: an effective treatment modality for high-grade dysplasia and intramucosal carcinoma--an American single-center experience. Am J Gastroenterol. 2009;104(11):2684-92. Epub 2009/08/20.
12. Ell C, May A, Pech O, Gossner L, Guenter E, Behrens A, et al. Curative endoscopic resection of early esophageal adenocarcinomas (Barrett's cancer). Gastrointest Endosc. 2007;65(1):3-10. Epub 2006/12/23.
13. Stein HJ, Feith M, Bruecher BL, Naehrig J, Sarbia M, Siewert JR. Early esophageal cancer: pattern of lymphatic spread and prognostic factors for long-term survival after surgical resection. Ann Surg. 2005;242(4):566-73; discussion 73-5. Epub 2005/09/30.
14. Nagpal K, Ahmed K, Vats A, Yakoub D, James D, Ashrafian H, et al. Is minimally invasive surgery beneficial in the management of esophageal cancer? A meta-analysis. Surg Endosc. 2010;24(7):1621-9.
15. Low DE, Alderson D, Cecconello I, Chang AC, Darling GE, D'Journo XB, et al. International Consensus on Standardization of Data Collection for Complications Associated With Esophagectomy: Esophagectomy Complications Consensus Group (ECCG). Ann Surg. 2015;262(2):286-94. Epub 2015/01/22.
16. Crosby T, Hurt CN, Falk S, Gollins S, Mukherjee S, Staffurth J, et al. Chemoradiotherapy with or without cetuximab in patients with oesophageal cancer (SCOPE1): a multicentre, phase 2/3 randomised trial. The Lancet Oncology. 2013;14(7):627-37. Epub 2013/04/30.
17. Radiotherapy dose-fractionation. Royal College of Radiologists; 2006; Available from: http://www.rcr.ac.uk/docs/oncology/pdf/Dose-Fractionation_Final.pdf.
18. van Hagen P, Hulshof MC, van Lanschot JJ, Steyerberg EW, van Berge Henegouwen MI, Wijnhoven BP, et al. Preoperative chemoradiotherapy for esophageal or junctional cancer. N Engl J Med. 2012;366(22):2074-84. Epub 2012/06/01.
19. Blazeby JM, Farndon JR, Donovan J, Alderson D. A prospective longitudinal study examining the quality of life of patients with esophageal carcinoma. Cancer. 2000;88(8):1781-7. Epub 2000/04/13.
20. Allum WH, Stenning SP, Bancewicz J, Clark PI, Langley RE. Long-term results of a randomized trial of surgery with or without preoperative chemotherapy in esophageal cancer. J Clin Oncol. 2009;27(30):5062-7. Epub 2009/09/23.
21. Rees JR, Whale K, Fish D, Fayers P, Cafaro V, Pusic A, et al. Patient-reported outcomes in randomised controlled trials of colorectal cancer: an analysis determining the availability of robust data to inform clinical decision-making. J Cancer Res Clin Oncol. 2015;141(12):2181-92. Epub 2015/04/26.
22. Department of Health (2008). End of Life Care Strategy: promoting high quality care for adults at the end of their life. http://www.gov.uk/government/publications/end-of-life-care-strategy-promoting-high-quality-care-for-adults-at-the-end-of-their-life.

23. NICE Guidance (2011). End of life care for adults. http://www.nice.org.uk/guidance/qs13.

24. National Audit Office (2008). End of life care. http://www.nao.org.uk/report/end-of-life-care/.

25. Grim RD, McElwain D, Hartmann R, Hudak M, Young S. Evaluating causes for unplanned hospital readmissions of palliative care patients. Am J Hosp Palliat Care. 2010;27(8):526-31. Epub 2010/08/18.

26 Gott M, Seymour J, Bellamy G, Clark D, Ahmedzai S. Older people's views about home as a place of care at the end of life. Palliat Med. 2004;18(5):460-7. Epub 2004/08/31.

27. Pollock K. Is home always the best and preferred place of death? BMJ. 2015;351:h4855. Epub 2015/10/09.

Published by the Health and Social Care Information Centre

This publication may be requested in large print or other formats.

For further information

www.hscic.gov.uk
0300 303 5678
enquiries@hscic.gov.uk