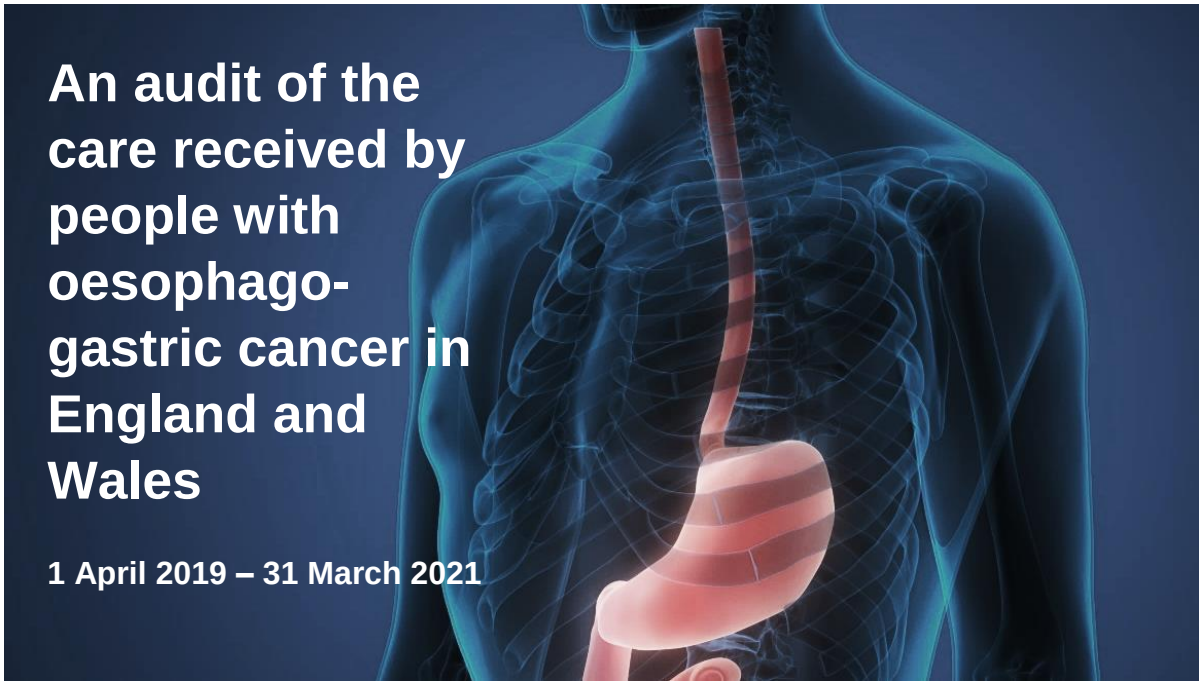
National Oesophago-Gastric Cancer Audit

2022



January 2023

HQIP
Healthcare Quality Improvement Partnership

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Commissioned by the Healthcare Quality Improvement Partnership

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bsg British Society of Gastroenterology	British Society of Gastroenterology is the speciality society of gastroenterologists. It is one of the key partners leading the Audit. Registered Charity no: 1149074
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Contents

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www.hqip.org.uk/national-programmes

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Executive Summary

The National Oesophago-Gastric Cancer Audit (NOGCA) was established to evaluate the quality of care received by patients diagnosed with oesophago-gastric (OG) cancer in England and Wales.

The Annual Report is written for those who deliver, receive, commission and regulate care. It provides information about OG cancer services for patients and commissioners, and enables NHS organisations to identify areas where care could be improved.

The 2022 Annual Report focuses on the care received by patients diagnosed with invasive epithelial cancer of the oesophagus, gastro-oesophageal junction (GOJ) or stomach, or high-grade dysplasia (HGD) of the oesophagus between April 2019 and March 2021. For outcomes of curative surgery among people with OG cancer, data are reported for a three year period (April 2018 to March 2021) to ensure that enough procedures are included in the analysis to produce robust statistics for individual organisations.

The Audit cohort therefore includes a group of patients whose care was affected by the COVID-19 pandemic, and the Annual Report describes some of the changes to OG cancer pathways and outcomes over this period.

Supplementary material, including tables containing individual organisation results, and further information about the Audit can be found on its website: www.nogca.org.uk.

Oesophago-gastric cancer: key findings

Records were submitted for 19,174 patients diagnosed with OG cancer in the 2019-21 Audit period, including 17,946 diagnosed at 126 NHS trusts in England and 1,228 at 6 local health boards in Wales.

1. *Impact of COVID-19 pandemic on OG cancer diagnoses*

In April 2020, the number of patients diagnosed with OG cancer was 43.6% of the 2019/20 monthly average, falling from 837 to 365 cases per month. The numbers diagnosed soon returned to normal levels, and in the period from June 2020 to March 2021, the number of monthly cases was 97.8% of 2019/20 levels.

The percentage of patients diagnosed with stage 4 disease (advanced cancer) increased from 41.6% in 2019/20 to 44.9% in 2020/21.

2. *Patterns of care at diagnosis*

Patients diagnosed after an emergency admission are more likely to have advanced disease than patients diagnosed after a GP referral. Comparing 2019/20 to 2020/21, the percentage of patients diagnosed after an emergency hospital admission increased, from 9.5% to 10.6% among patients with oesophageal cancer, and from 17.5% to 21.4% among those with stomach cancer. The risk of diagnosis after emergency admission was higher among older patients and those living in the most socially deprived areas.

3. *Staging and treatment planning*

In this Audit period, the use of non-invasive investigations (scans) was higher and use of endoscopic ultrasound (EUS) and laparoscopy lower compared to 2018/19.

Among patients with a curative treatment plan for oesophageal or GOJ cancer, the use of positron emission tomography (PET-CT) scans increased from 64.9% to 71.8% in the three years from 2018/19 to 2020/21. Over the same period, the use of EUS declined from 33.8% to 18.6%. This change in practice reflects increasing evidence that the use of EUS doesn't affect the initial management of early oesophageal cancer.

Similarly, the use of staging laparoscopy decreased among patients with a curative treatment plan for stomach cancer.

The proportion of all patients with a plan for curative treatment declined from 38.9% in 2019/20 to 35.9% in 2020/21.

Among patients in the 2019-21 cohort with clinical stage 0-3 disease, 58.5% had a curative treatment plan. This proportion was strongly related to age, with curative treatment being much less common among the oldest patients. It was also lower among patients living in the most deprived areas.

4. Waiting times along the care pathway

The target waiting time from urgent referral for suspected cancer to the start of treatment is 62 days in England and Wales. The percentage of urgent GP referrals who waited longer than 62 days from referral to first treatment increased from 57.0% in 2019/20 to 62.1% in 2020/21.

The percentage of all patients who waited more than 104 days from referral to first treatment increased from 15.3% in 2019/20 to 17.3% in 2020/21.

5. Curative surgery

In the three year period between April 2018 and March 2021, data were submitted for 3,632 oesophagectomies and 1,770 gastrectomies. Overall 30-day mortality was 1.5% for oesophagectomies and 1.4% for gastrectomies, 90-day mortality was 3.3% for oesophagectomies and 2.6% for gastrectomies. All surgical centres had adjusted 30- and 90-day mortality rates within the expected range (within 99.8% control limits from the national average).

Overall, 83.4% of oesophageal cancer patients and 85.9% of stomach cancer patients survived at least one year after surgery. All surgical centres had an adjusted 1-year survival rate that fell within the expected range (within 99.8% control limits).

Whilst previous Annual Reports have described the increasing use of enhanced recovery after surgery (ERAS) protocols since the Audit began collecting data about them in 2016, there was a decline in the use of ERAS for patients diagnosed in 2020/21 compared to the previous two years, from 79.2% in 2018/19 to 64.1% in 2020/21.

All surgical centres achieved positive longitudinal margin rates within the expected ranges from the national average for both oesophagectomy and gastrectomy. However, the overall positive longitudinal margin rate of 9.8% for gastrectomy exceeded the 5% target set out in the AUGIS recommendations. The rate for oesophagectomy (4.2%) was within the target range. Indicators summarising positive circumferential margins and number of lymph nodes examined continued to improve, but show more variation between NHS organisations than the longitudinal margin indicators.

The use of FLOT (5-fluorouracil, oxaliplatin and docetaxel) among patients undergoing curative gastrectomy or oesophagectomy for adenocarcinoma (excluding T1N0 tumours) continued to increase, accounting for 72% of all chemotherapy regimens used among this cohort of patients.

6. Non-curative treatments

Among patients on a non-curative care pathway, palliative chemotherapy or radiotherapy were the most common treatment options, recorded for 36.4% of patients. The proportion of patients completing palliative chemotherapy was relatively low at 61.1%, but this proportion has increased over the last five years from 44.9% among those diagnosed in 2016/17 to 61.4% in 2020/21. In the 2019-21 cohort, 15.8% of patients died within 90 days of starting palliative chemotherapy.

Among patients diagnosed between April 2016 and March 2021 who received palliative radiotherapy, 84.8% had a prescription that corresponded to an evidence-based (EB) palliative radiotherapy regimen for OG cancer.

There was substantial regional variation in the rates of planned EB palliative regimen use, ranging from 62.8% to 100%. Three prescriptions (27Gy/6F, 20Gy/4F, 36Gy/12F) accounted for 62% of all non-EB planned palliative regimens. The use of these most commonly prescribed non-EB regimens was concentrated within a few regions.

The use of doublet regimens (chemotherapy regimens that use two drugs: a platinum-based agent and a fluoropyrimidine) for palliative chemotherapy has almost doubled over the last five years, increasing from 22.4% among patients diagnosed in 2016/17 to 42.0% among those diagnosed in 2020/21. There was substantial regional variation in the use of doublet regimens.

High grade dysplasia (HGD) of the oesophagus: key findings

During the 2019-2021 period, the Audit received data on 447 patients diagnosed with oesophageal HGD in England. This number has decreased from 711 in 2017-19, and case ascertainment is low in some regions (fewer than 20 cases per year per million adults aged ≥40 years).

Based on guidance on the management of patients with HGD, the Audit assesses performance in three key areas:

Cases of suspected HGD should be confirmed by two gastrointestinal pathologists
In the 2019-21 cohort, 92% of patients had their diagnosis of HGD confirmed by a second pathologist. This figure has increased from 87% reported for 2017-19.

Patients with HGD should be discussed by a specialist multi-disciplinary team (MDT)
92% of patients diagnosed with HGD in 2019-21 had their treatment plan discussed at a specialist MDT meeting.

Endoscopic therapy for HGD is preferred over oesophagectomy or surveillance
The majority of patients diagnosed in 2019-21 (78%) had a plan for active treatment for their HGD. 14% had a plan for surveillance with endoscopic follow-up, while 8% had no planned surveillance or active treatment. Among patients with a plan for active treatment, endoscopic therapy was the planned treatment for 97% of patients and oesophagectomy for 3%.

Among patients who had an endoscopic resection procedure and information about pathology outcomes, 21% were reported to have a positive deep resection margin and 15% had a positive lateral margin.

Recommendations

		Where in report	Primary audience
Diagnosis and treatment of oesophago-gastric cancer			
1.	Review patients diagnosed with stage 4 disease to identify opportunities for earlier detection.	Page 13	GP practices, multi-disciplinary teams (MDTs), Cancer Alliances / commissioners
2.	Review patients diagnosed after emergency admission and undertake root cause analysis where appropriate to identify opportunities to reduce rates of emergency diagnosis.	Page 16	GP practices, MDTs, Cancer Alliances / commissioners
3.	Review the oesophago-gastric cancer care pathway and identify ways to reduce the proportion of patients waiting more than 104 days from referral to first treatment.	Pages 25-26	MDTs, NHS trusts / local health boards commissioners
4.	Explore reasons for non-completion of palliative chemotherapy regimens, and review patient selection for palliative chemotherapy where appropriate.	Page 40	Oncologists, MDTs, NHS trusts / local health boards, Cancer Alliances
5.	Investigate the reasons for low use of evidence-based (EB) regimens for palliative radiotherapy and the preference for alternative regimens in some regions.	Pages 42-43	Oncologists, MDTs, NHS trusts / local health boards, Cancer Alliances
Diagnosis and treatment of oesophageal high grade dysplasia			
6.	In regions with high rates of surveillance or non-treatment, review whether patients with high grade dysplasia are being considered for endoscopic treatment, in line with current BSG recommendations.	Pages 49-50	Clinical leads, MDTs
Audit participation			
7.	Review data collection practices for NOGCA and improve case ascertainment in regions where this is low.	Pages 11, 47-48	Clinical leads, MDTs, local audit teams

NOGCA | National Oesophago-Gastric Cancer Audit

2022 Annual Report: Oesophago-gastric cancer

The Audit received information about

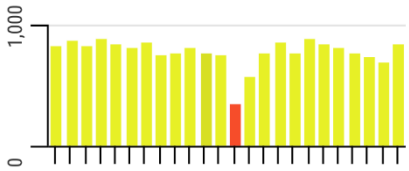
19,174

patients in England and Wales

diagnosed with oesophago-gastric (OG) cancer between April 2019 and March 2021, including 14,157 patients with oesophageal cancer and 5,017 patients with gastric cancer.

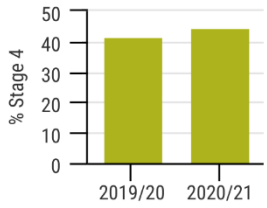
Impact of COVID-19 on diagnoses

In April 2020, the number of patient records submitted to the Audit fell to 43.6% of the 2019/20 monthly average, from 837 to 365 cases per month.



Month of diagnosis, April 2019-March 2021

Routes to diagnosis



The percentage of patients diagnosed with stage 4 OG cancer (advanced disease) increased from 41.6% in 2019/20 to 44.9% in 2020/21.

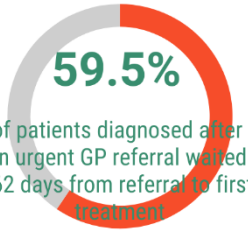
Between 2019/20 and 2020/21, the percentage of patients diagnosed after an emergency hospital admission increased from:

- 9.5% to 10.6% among patients with oesophageal cancer
- 17.5% to 21.4% among those with stomach cancer.

Waiting times

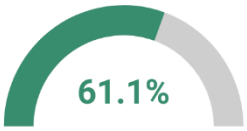
Among patients diagnosed with OG cancer in 2019-2021:

waited >104 days from referral to start of curative treatment



of patients diagnosed after an urgent GP referral waited >62 days from referral to first treatment

Non-curative treatment



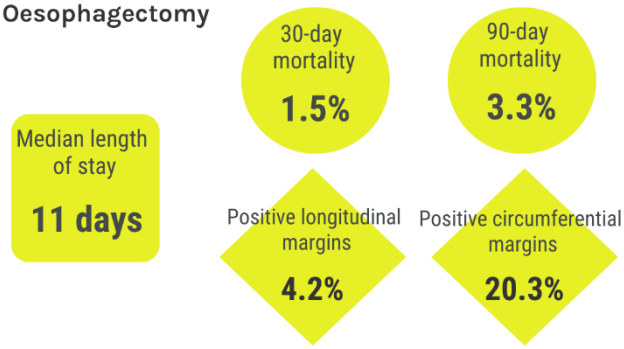
of patients receiving palliative chemotherapy completed their treatment. This proportion has increased from 44.9% among those diagnosed in 2016/17 to 61.4% in 2020/21

of patients receiving palliative radiotherapy had a prescription that corresponded to an evidence-based regimen for OG cancer

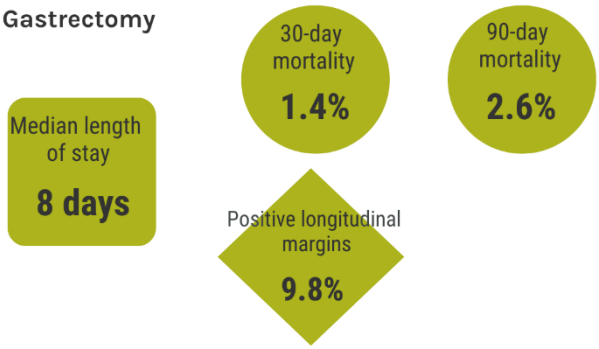
Outcomes of curative surgery

Among patients diagnosed with OG cancer in 2018-2021*:

Oesophagectomy



Gastrectomy



*3 years' of data used for surgical outcomes to ensure enough procedures included in the analysis to produce robust organisation-level statistics.

Glossary

Stage 4 cancer - This describes advanced cancers which have spread beyond the site of the original tumour to other organs/parts of the body. Treatment options are limited to therapies that might extend life or control symptoms but are unlikely to result in remission.

Oesophagectomy - The surgical removal of all or part of the oesophagus.

Gastrectomy - A surgical procedure to remove either a section or all of the stomach.

Margins - The edge of the tissue that is removed during surgery. A positive margin means that there are cancer cells at the edge of the removed tissue and more surgery may be needed. Circumferential margins are assessed after oesophagectomy, and are not applicable to gastrectomy.

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2022 Annual Report: High-grade dysplasia of the oesophagus

The Audit received information about

447

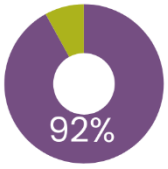
patients in England

diagnosed with high-grade dysplasia of the oesophagus between April 2019 and March 2021.

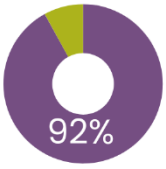
Patient characteristics

- Median age: 71 years
- 76% male
- 76% had a segment of Barrett's oesophagus
- 56% were diagnosed while on surveillance programmes and 44% after referral from a GP

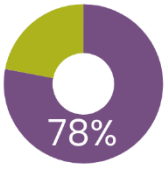
Recommended process of care



of patients had their diagnosis confirmed by a second pathologist



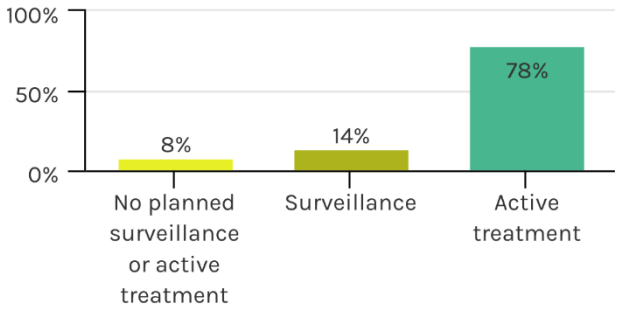
of patients were discussed at a multidisciplinary team meeting

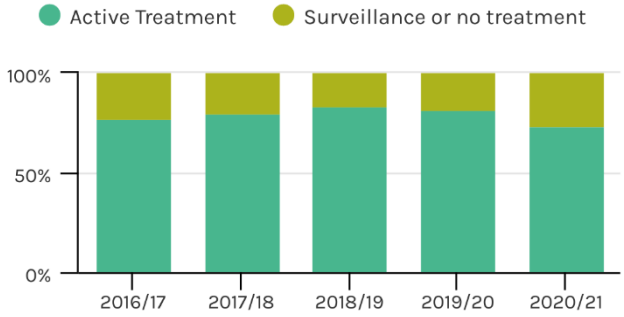


of patients had a plan for active treatment; 97% of these patients had a plan for endoscopic treatment

Primary treatment plan

Primary treatment among patients diagnosed between 2019 and 2021





Outcomes of endoscopic treatment

Outcomes after endoscopic mucosal resection / endoscopic submucosal dissection between 2019 and 2021

21% of endoscopic resections had positive deep margins (HGD cells present at the base of the removed specimen)

15% of endoscopic resections had positive lateral margins (HGD cells present at the side edges of the removed specimen)

Glossary

Barrett's oesophagus - Changes in the cells on the inner lining of the lower part of the oesophagus.

EMR/ESD - endoscopic mucosal resection/ endoscopic submucosal dissection - Procedures to remove abnormal tissue from the digestive tract using a telescopic camera to guide instruments.

High-grade dysplasia of the oesophagus - The presence of severely abnormal cells (precancerous cells) in the lining of the oesophagus. It can turn into cancer if it is left untreated.

1. Introduction

The National Oesophago-Gastric Cancer Audit (NOGCA) was established to evaluate the quality of care received by patients diagnosed with oesophago-gastric (OG) cancer, to highlight regional variation in care and to identify areas where NHS cancer services in England and Wales can improve. The Audit also examines the care received by patients diagnosed with oesophageal high grade dysplasia (HGD), due to the risk of progression to cancer if HGD is left untreated.

Patients in England and Wales were eligible for inclusion in the Audit if they were diagnosed with invasive epithelial cancer of the oesophagus, gastro-oesophageal junction (GOJ) or stomach (ICD10 codes C15 and C16), and were aged 18 years or over. Patients with neuro-endocrine tumours or gastro-intestinal stromal tumours (GISTs) were not included in the Audit due to the different management of these tumours.

The Audit is run by the Association of Upper Gastrointestinal Surgery of Great Britain & Ireland (AUGIS), the Royal College of Radiologists (RCR), the British Society of Gastroenterology (BSG), NHS Digital and the Clinical Effectiveness Unit of the Royal College of Surgeons of England (RCS). The delivery of the Audit is overseen by a Project Board. Advice on the clinical direction of the Audit, the interpretation of its findings and their dissemination is provided by a Clinical Reference Group (see Annex 1).

1.1 The 2022 Annual Report

The 2022 Annual Report focuses primarily on the care of patients diagnosed with OG cancer or oesophageal HGD between April 2019 and March 2021, and outcomes of curative surgery among patients diagnosed between April 2018 and March 2021. It is written for those who provide, receive, commission and regulate OG cancer care.

To explore the impact of the COVID-19 pandemic on OG cancer care, this report describes changes in OG cancer-related activities and events (diagnosis, staging and treatment) over the Audit period. These analyses complement data available via the National Cancer Registration and Analysis Service (NCRAS) Covid-19 dashboards: www.cancerdata.nhs.uk/covid-19

1.2 Regional organisation of OG cancer services

OG cancer services within England and Wales are organised on a regional basis to provide an integrated model of care (see Annex 3).

This report presents regional results for English NHS services using the 21 Cancer Alliances, which are responsible for coordinating cancer care and improving local outcomes (www.england.nhs.uk/cancer/cancer-alliances-improving-care-locally/).

For Wales, three NHS services providing specialist surgical and oncology services are used to define geographical regions: Swansea Bay, Betsi Cadwaladr (North Wales) and South Wales Cardiff region

1.3 Other information produced by the Audit

Supplementary material from the report, including tables containing individual trust results, and further information about the Audit can be found on its website: www.NOGCA.org.uk.

The NOGCA website also contains:

- Annual Reports from previous years
- Reports for the public and patients
- Information on the performance of each NHS organisation
- Resources to support local quality improvement initiatives
- Links to other sources of information about OG cancer.

2. Participation in the OG cancer audit

The 2022 Audit Report focuses on patients with invasive epithelial cancer of the oesophagus, gastro-oesophageal junction (GOJ) or stomach, who were diagnosed in England and Wales over two years, between 1 April 2019 and 31 March 2021.

Records were submitted for 19,174 patients, including 17,946 diagnosed at 126 NHS trusts in England and 1,228 diagnosed at 6 local health boards in Wales.

2.1 Case ascertainment

Case ascertainment for the period April 2019 to March 2021 was estimated to be 87.3% in England and 85.5% in Wales, with variation across geographical regions (Figure 2.1).

Case ascertainment in England was estimated by comparing the number of Audit records with the number of histologically confirmed epithelial OG cancer cases in the NCRAS dataset. For patients diagnosed in Wales, the expected number of patients was estimated using PEDW, identifying patients with an ICD-10 code for OG cancer (C15 or C16) recorded in the first episode. Case ascertainment estimates using PEDW will be slightly too low because it is not possible to identify patients with non-epithelial cancers.

2.2 Impact of COVID-19 pandemic on new diagnoses

During the first wave of the COVID-19 pandemic (March-May 2020), there was a substantial drop in the number of new OG cancer diagnoses.

In the Audit, the number of patients diagnosed with OG cancer in April 2020 fell to 43.6% of the 2019/20 monthly average, from 837 to 365 cases per month. A similar pattern was observed for oesophageal and gastric cancers (Figure 2.2).

The second wave of the pandemic (September 2020-April 2021) had much less impact on the number of new diagnoses. During the last 10 months of the Audit period to March 2021, the number of monthly cases retuned to 97.8% of 2019/20 levels.

Figure 2.1: Estimated case ascertainment by English and Welsh geographical regions, 2019/21

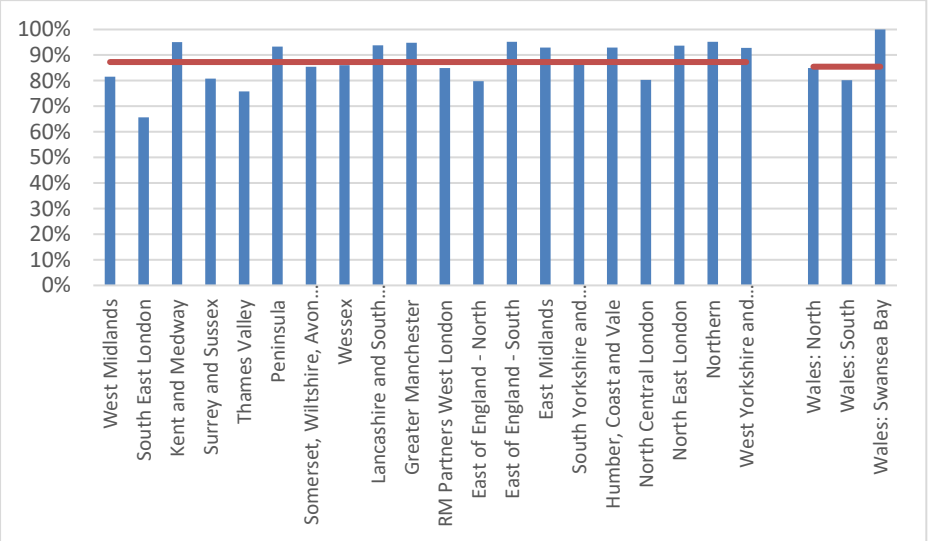
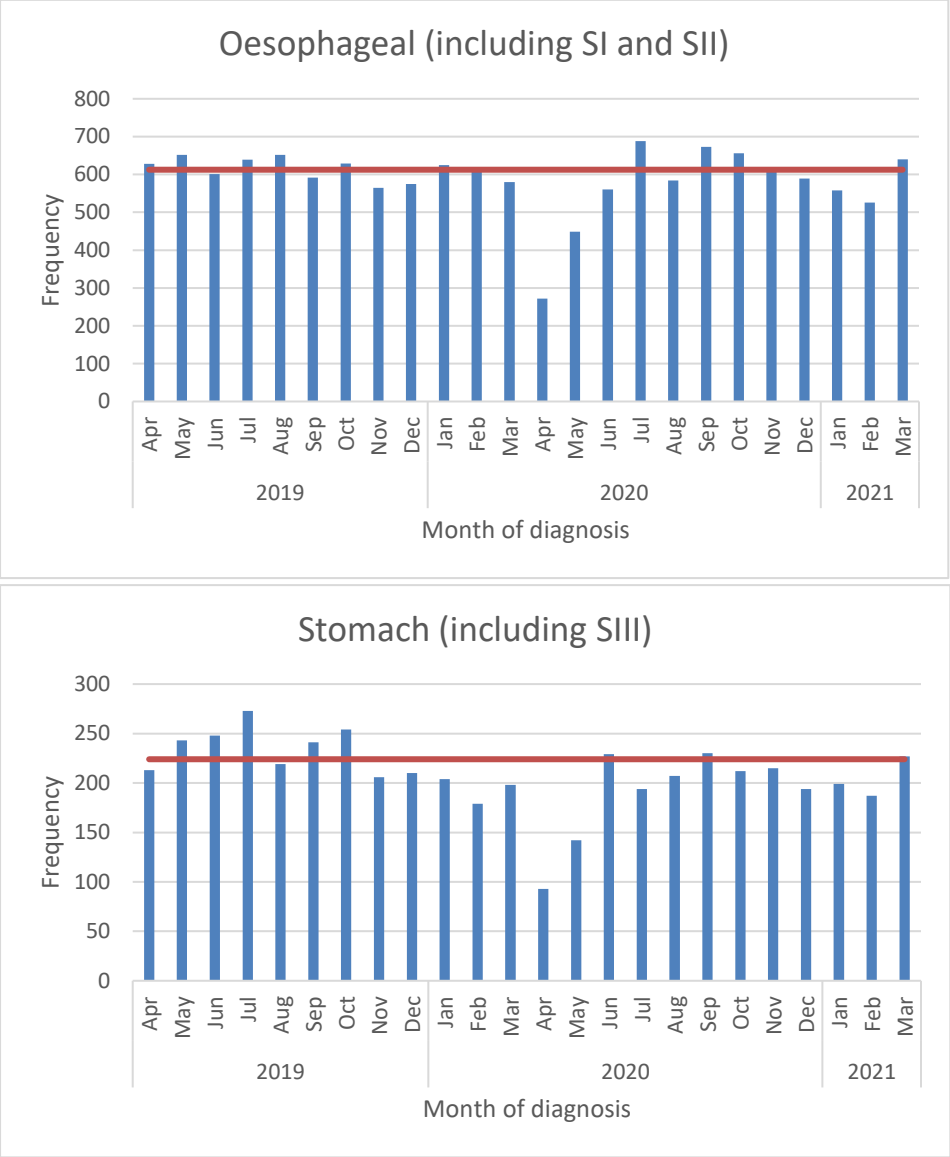


Figure 2.2: Number of tumour records for patients diagnosed with OG cancer between April 2019 and March 2021, by month of diagnosis and tumour site



NOTE: Red line indicates average monthly cases for 2019/20. SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details

3. Patients with oesophago-gastric cancer

OG cancer predominantly affects older people and occurs more frequently in men than in women, though there is some variation by tumour type (Table 3.1). Compared to the general populations of England and Wales, those diagnosed with stomach cancer are more likely to be living in the most deprived areas. There is a less clear socioeconomic gradient among patients with oesophageal cancer.

Gastric tumours as a proportion of all OG cancers continue to decline. In the Audit, stomach cancers accounted for 25.5% of all OG cancers diagnosed in 2020/21, compared to 30.0% in 2016/17.

3.1 Stage at diagnosis

The percentage of patients being diagnosed with stage 4 (metastatic) disease remains high, accounting for 43% of cases (Table 3.1). This may be an underestimate because 17% of patients did not have complete clinical stage information.

Among all patients diagnosed with OG cancer over the Audit period, the percentage diagnosed with stage 4 disease increased from 41.6% in 2019/20 to 44.9% in 2020/21 ($p<0.001$), while the percentage with stage 0/1-2 disease decreased from 22.4% to 18.9% ($p<0.001$). Slightly different patterns were observed for oesophageal and gastric cancers:

- Among patients diagnosed with oesophageal cancer, the percentage of patients with stage 4 disease increased from 40.9% in 2019/20 to 44.6% in 2020/21 ($p<0.001$). Stage 0/1-2 disease decreased from 19.3% to 16.1% ($p<0.001$). This could suggest stage migration (Figure 3.1). However, the absolute number of OG cancer cases also declined during this period and it is not known which patients (and clinical stages) are missing from the cohort.
- For stomach cancers, the percentage of patients with stage 4 disease rose from 43.7% in 2019/20 to 45.8% in 2020/21 ($p=0.169$). However, there was a larger decrease in stage 0/1-2 disease (31.3% in 2019/20 to 27.6% in 2020/21, $p=0.011$).

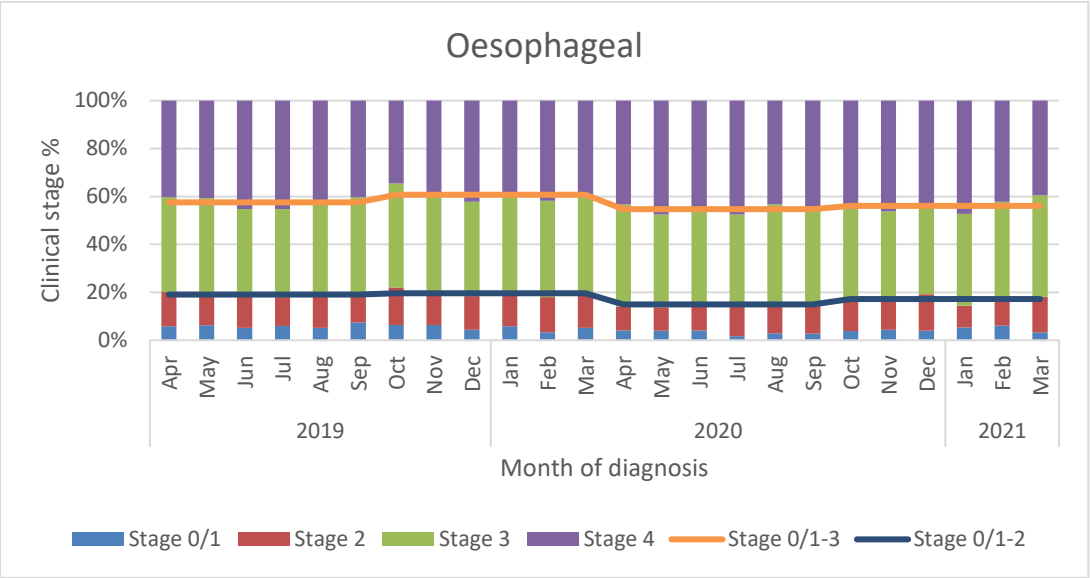
Stage at diagnosis was not related to patient deprivation in either audit year.

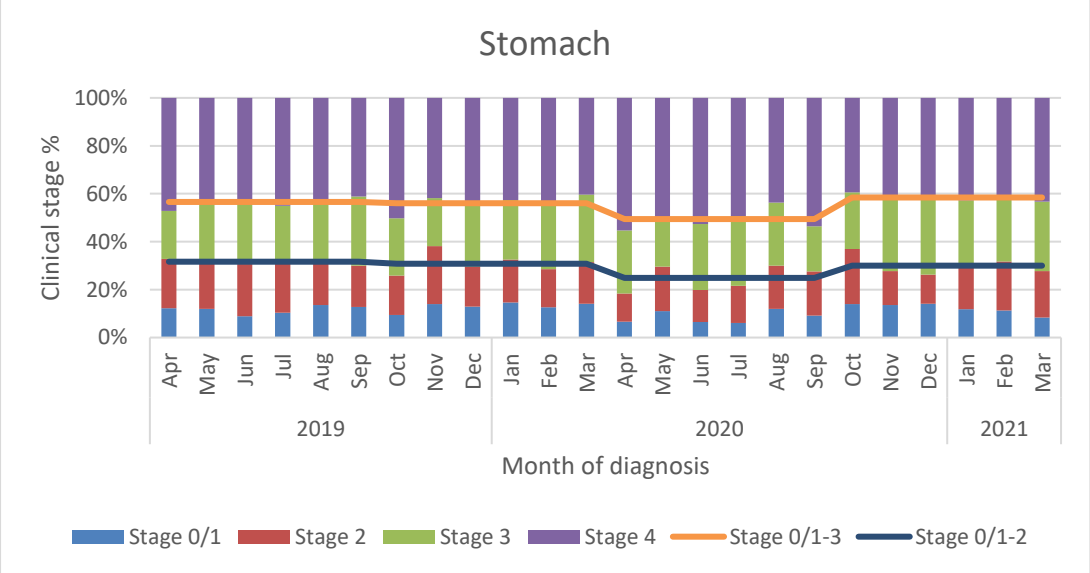
Table 3.1: Patient characteristics by type of OG tumour among patients diagnosed between April 2019 and March 2021 in England and Wales

	Oes SCC	Oes ACA Upper/Mid	Oes ACA Lower (w SI,SII)	Stomach (w SIII)	Total
Male (%)	49%	71%	81%	66%	70%
Median age (yrs)	72	73	72	74	72
Deprivation quintile (%)					
1 – Least deprived	18%	18%	20%	16%	18%
2	20%	22%	21%	19%	21%
3	20%	21%	22%	21%	21%
4	20%	20%	19%	21%	20%
5 – Most deprived	22%	19%	18%	23%	20%
Clinical stage (pre-treatment)					
Stage 0/1	3%	6%	5%	11%	7%
Stage 2	25%	7%	9%	18%	14%
Stage 3	39%	40%	40%	26%	36%
Stage 4	33%	47%	46%	45%	43%
Missing	605	356	1,350	1,006	3,317
Total	3,717	1,519	8,921	5,017	19,174

KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details

Figure 3.1: Clinical (pre-treatment) stage among patients diagnosed with OG cancer between April 2019 and March 2021, by month of diagnosis and tumour site, and overall percentage with stage 0/1-3 disease in each 6 month period





NOTE: Only patients with known stage are included. Orange line indicates overall % with clinical stage 0/1-3 in each 6 month period. Blue line indicates overall % with clinical stage 0/1-2 in each Audit year. SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details

4. Routes to diagnosis

Several routes can lead to a diagnosis of OG cancer. An individual may be referred after presenting to their general practitioner (GP) with symptoms [NICE 2018; Allum et al 2011], or referred by a hospital consultant following outpatient review. Diagnosis can also follow an emergency admission to hospital, with patients having acute symptoms that are often the result of late stage disease. Late stage disease is associated with poorer outcomes, therefore services should aim to reduce the proportion of emergency diagnoses.

Routes to diagnosis were affected during the first waves of the COVID-19 pandemic. In OG cancer care, routine diagnostic work was initially suspended and only urgent cases prioritised [BSG 2020], and many elective procedures cancelled. Furthermore, changes in health-seeking behaviour due to the pandemic led to reduced numbers of patients seeking care for symptoms of cancer [Philpotts 2021].

Table 4.1 summarises the routes to diagnosis for the 2019-2021 Audit cohort. Two-thirds of patients were diagnosed following referral by their GP, typically on the "two-week wait" suspected cancer pathway in England or formerly "urgent suspected cancer" pathway in Wales. In June 2019, a Single Cancer Pathway for all suspected cancers was implemented in Wales to include both urgent and not-urgent suspected cancers [NHS Wales 2019].

Among patients with oesophageal cancer, there was a small increase in the proportion diagnosed after emergency admission, from 9.5% in 2019/20 to 10.6% in 2020/21 ($p=0.038$). A larger increase was observed among those with stomach cancer, from 17.5% in 2019/20 to 21.4% in 2020/21 ($p=0.001$).

As highlighted in previous Annual Reports, the proportion of patients diagnosed after emergency admission among those with stomach cancer was almost double that for patients with oesophageal cancer. This is likely because stomach cancer symptoms are typically more non-specific than those of oesophageal cancer (notably dysphagia).

The risk was also strongly associated with age and deprivation (Table 4.2), with 17% of those aged ≥80 years diagnosed after an emergency admission, compared to 11% of patients aged 70-79 and 10% of those aged 60-69 ($p<0.001$). Table 4.2 also reveals a gradient across the deprivation quintiles. Overall, 14% of patients living in the most socially deprived areas were diagnosed after an emergency admission, compared to 11% of those in the least deprived areas ($p=0.001$).

There continues to be regional variation in rates of emergency diagnosis, even after adjusting for patient characteristics (site of cancer, presence of comorbidities and sociodemographic characteristics) (Figure 4.1).

Table 4.1: Routes to diagnosis among patients with OG cancer diagnosed between April 2019 and March 2021 in England and Wales

Route to diagnosis	Oes SCC	Oes ACA Upper/Mid	Oes ACA Lower (w SI,SII)	Stomach (w SIII)	Total
GP referral	70%	67%	69%	56%	66%
Urgent / 2 week wait	*67%*	*64%*	*66%*	*52%*	*62%*
Routine	*3%*	*3%*	*3%*	*4%*	*4%*
Emergency admission	10%	11%	10%	19%	12%
Other	20%	22%	21%	25%	22%
Total cases	3,662	1,505	8,765	4,935	18,867
Missing values	55	14	156	82	307

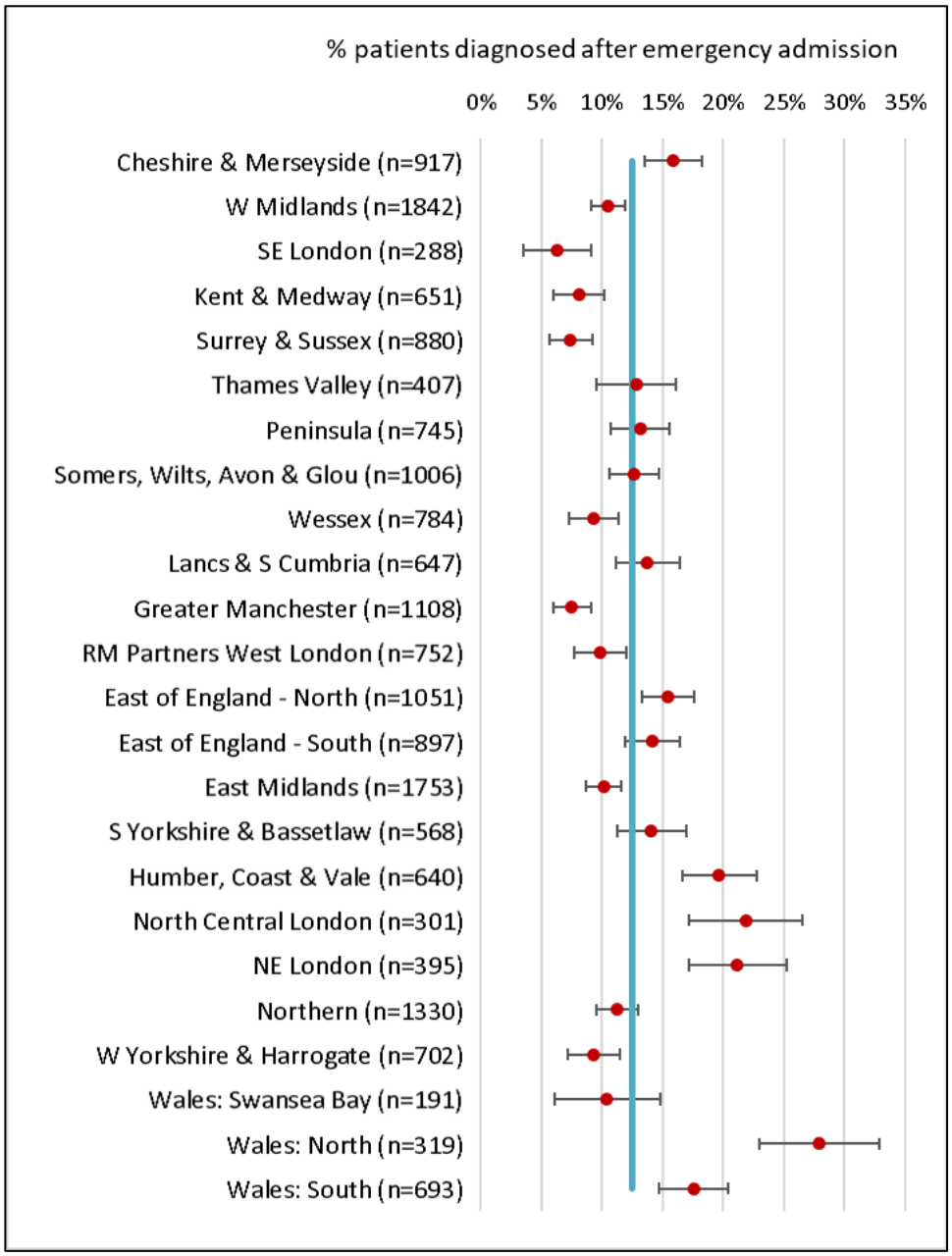
KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ).

Table 4.2: Predicted percentage of patients diagnosed after emergency admission between April 2019 and March 2021, by tumour type, age group and deprivation quintile

		Deprivation quintile				
		1 - least deprived	2	3	4	5 - most deprived
Oes SCC						
	<60	8%	9%	9%	10%	10%
	60-69	7%	8%	8%	9%	9%
	70-79	8%	9%	9%	11%	11%
	≥80	13%	14%	14%	15%	15%
OES ACA Upper/Mid						
	<60	8%	9%	9%	9%	10%
	60-69	8%	8%	8%	9%	9%
	70-79	8%	9%	9%	11%	10%
	≥80	12%	13%	14%	15%	14%
OES ACA Lower						
(w SI,SII)	<60	8%	8%	9%	10%	10%
	60-69	7%	7%	8%	9%	9%
	70-79	8%	9%	9%	11%	10%
	≥80	12%	13%	13%	15%	15%
Stomach						
(w SIII)	<60	15%	17%	17%	20%	19%
	60-69	13%	14%	15%	17%	16%
	70-79	16%	17%	17%	19%	18%
	≥80	22%	24%	24%	27%	26%

KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details.
Estimates from logistic regression model adjusted for site of cancer (oesophageal or stomach), sex and presence of significant comorbidities

Figure 4.1: Adjusted rates of patients diagnosed after an emergency admission by Cancer Alliance / Welsh region. Graph shows adjusted rates with 95% confidence interval (CI)



NOTE: Blue line indicates overall % in England and Wales (12.5%). Rates adjusted for age, sex, deprivation, site of cancer and presence of comorbidities.

5. Staging investigations

Clinical guidelines recommend that all patients diagnosed with OG cancer should have an initial CT scan to assess the spread of disease and look for evidence of metastatic disease (Box 5.1) [NICE 2018].

In the 2019-21 Audit cohort, 85.7% of patients were reported to have had a CT scan. This figure is likely to underestimate the true proportion as the completeness of staging data submitted to the Audit varied across NHS organisations. The overall proportion of patients with missing information was consistent across the Audit years, and 89% of organisations that had high levels of completeness (≥80%) for staging data in 2019/20 also had good completeness in 2020/21.

Using data only from those organisations that reported staging investigations for at least 80% of patients, the estimated proportion was 92.9%, and the values for the Audit years were similar: 92.6% in 2019/20 to 93.3% in 2020/21 (p=0.067).

The following statistics in this chapter are based on the organisations with more complete information.

5.1 Recommended staging investigations

If a CT scan indicates localised disease and a patient is considered sufficiently fit to be a candidate for curative treatment, further investigations will be carried out to determine the stage of cancer (Box 5.1). NICE guidance recommends that PET-CT scans should be offered to people with oesophageal and GOJ tumours that are suitable for curative treatment (except T1a tumours), while endoscopic ultrasound should only be offered if it helps guide ongoing management. Staging laparoscopy should be offered to all people with potentially curable stomach cancer.

Among patients with oesophageal and GOJ cancer who had a curative treatment plan (excluding those with T1a tumours), 69.0% were recorded to have PET-CT, although there was substantial variation between regions (range 26.5% to 100%) (Figure 5.1). Use of endoscopic ultrasound was reported for 23.6% of patients with oesophageal and GOJ cancer who had a curative treatment plan.

Among patients with stomach cancer, staging laparoscopy was reported for 39.2% of patients who had a curative treatment plan, while 35.6% had a PET-CT.

Box 5.1: Recommended staging investigations for oesophageal and gastric cancer

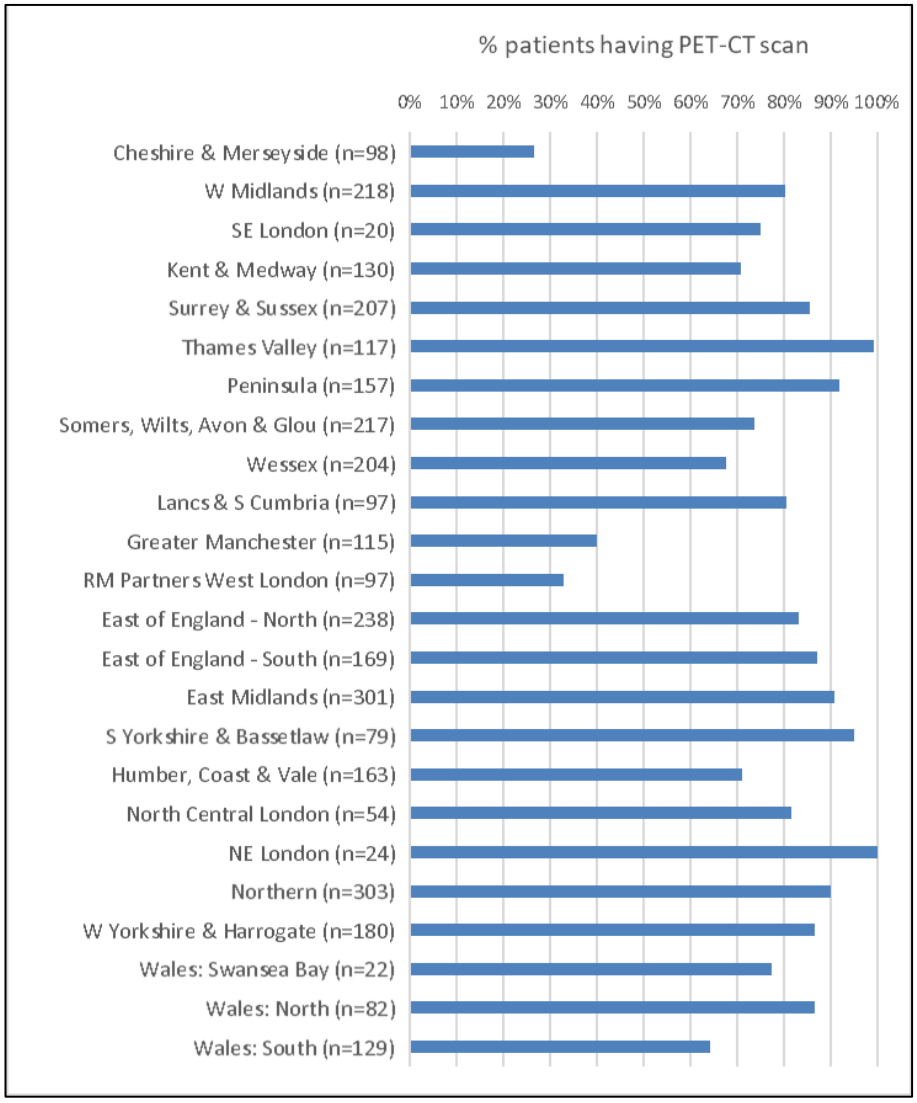
NICE 2018:

- CT scan of chest, abdomen and pelvis to provide an initial local assessment, and look for evidence of nodal and metastatic spread
- Offer a PET-CT scan to people with oesophageal and gastro-oesophageal junctional tumours that are suitable for curative treatment (except for T1a tumours).
- Do not offer endoscopic ultrasound only to distinguish between T2 and T3 tumours in people with oesophageal and gastro-oesophageal junctional tumours.
- Only offer endoscopic ultrasound (EUS) to people with oesophageal and gastro-oesophageal junctional cancer when it will help guide ongoing management.
- Offer staging laparoscopy to all people with potentially curable gastric cancer.

RCR 2022:

- Consider a PET-CT scan in people with gastric cancer if it will help guide ongoing management, including for staging and re-staging of confirmed gastric cancer if there is curative intent.

Figure 5.1: Use of PET-CT scans among patients with oesophageal and GOJ cancer (except for T1a tumours) with plan for curative treatment (diagnosed between April 2019 and March 2021), by Cancer Alliance / Welsh region



5.2 Impact of COVID-19 pandemic on staging investigations

During the COVID-19 pandemic, clinical guidance about the use of staging investigations was revised to reflect the changed risks and capacity issues associated with the pandemic. In particular, the BSG and Joint Advisory Group guidance on endoscopy activity during the first wave of the pandemic recommended that the use of endoscopic ultrasound (EUS) for cancer staging should be assessed on a case by case basis, to prioritise those for whom the procedure would significantly impact on treatment (www.bsg.org.uk/covid-19-advice/endoscopy-activity-and-covid-19-bsg-and-jag-guidance).

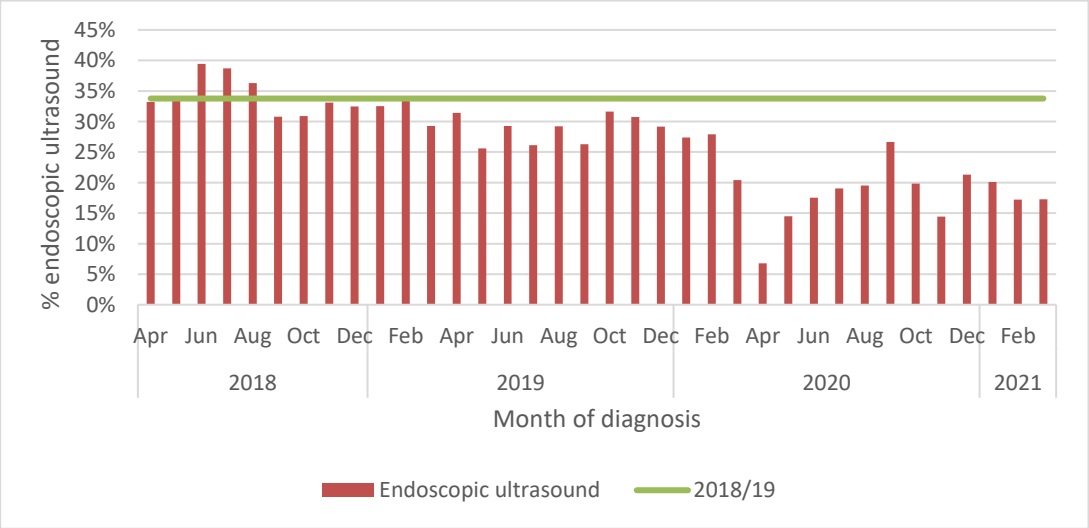
The 2019-21 Audit data reflect these changes to guidance, with greater use of non-invasive investigations (scans) and decreased use of EUS and laparoscopy compared to 2018/19.

Among patients with a curative treatment plan for oesophageal and GOJ cancer, the proportion who had a PET-CT scan increased from 66.6% in 2019/20 to 71.8% in 2020/21, compared to 64.9% in 2018/19 (p<0.001).

In contrast, the proportion of patients who had EUS declined from 28.0% in 2019/20 to 18.6% in 2020/21 (p<0.001). Whilst the biggest drop in use of EUS was observed during April 2020, use of EUS for staging remained lower than the 2018/19 average (33.8%) throughout 2019/20 and 2020/21 (Figure 5.2). This change in practice reflects the increasing evidence about the limitations of EUS in distinguishing between the earliest stages of oesophageal cancer [DaVee et al 2017; Krill et al 2019], which is also reflected in the NICE recommendation that its use should be limited to those cases where it would help ongoing management.

Among patients with a curative treatment plan for stomach cancer, the proportion who had a staging laparoscopy decreased (41.6% in 2019/20 to 36.0% in 2020/21, p=0.035), while the proportion who had a PET-CT increased from 33.0% to 38.9% (p=0.028).

Figure 5.2: Use of endoscopic ultrasound among patients with oesophageal and GOJ cancer with plan for curative treatment (diagnosed April 2018 - March 2021), by month of diagnosis



NOTE: Green line indicates overall % who had endoscopic ultrasound in 2018/19.

6. Treatment planning

Treatment options for people with OG cancer depend on several factors, including clinical stage, patient fitness and patient preferences. For people with localised disease who are relatively fit, the recommended treatment is generally surgery, with or without oncological therapy (see Box 6.1). For those with squamous cell carcinoma of the oesophagus, definitive chemoradiotherapy is also an option. Endoscopic treatment may be suitable for patients whose tumours are limited to the mucosa, with little risk of spread to the lymph nodes.

For patients with metastatic disease or those who are not sufficiently fit for surgery, chemotherapy can improve survival and is suitable for patients with a reasonable level of fitness. Therapies for managing symptoms such as dysphagia include endoscopic or radiological interventions, such as stents, and radiotherapy.

Box 6.1: Recommended curative treatment options for OG cancer [NICE 2018]

Oesophageal squamous cell carcinomas:

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

Oesophageal adenocarcinoma and GOJ tumours:

- Preoperative chemotherapy or chemoradiation is recommended to improve long term survival after surgery, compared to surgery alone.
- Peri-operative chemotherapy (pre and post-operative) can also be recommended as it increases survival for junctional tumours.

Gastric cancer:

- Peri-operative 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.

6.1 Treatment plans

Overall, 37.5% of patients diagnosed in the 2019-21 audit period had a plan for treatment with curative intent, with some variation by tumour type (Table 6.1).

Among patients without distant metastatic disease (stage 0-3), 58.5% had a plan for curative treatment. There was substantial variation by age and deprivation, with curative treatment being much less common among the oldest patients and those living in the most deprived areas (Figure 6.1). The associations between curative treatment, and age and deprivation remained, even after adjusting for tumour site, sex, performance status and the presence of significant comorbidities ($p<0.001$).

Planned modes of curative treatment varied by tumour type (Figure 6.2). Consistent with recommendations for patients with squamous cell carcinomas (SCC), definitive chemoradiotherapy was the most common planned treatment, particularly among older patients. Treatment combining oncology

(chemotherapy or chemoradiotherapy) with surgery was the dominant treatment among patients with oesophageal adenocarcinomas or stomach cancer, except among the oldest patients for whom surgery only was the most common treatment.

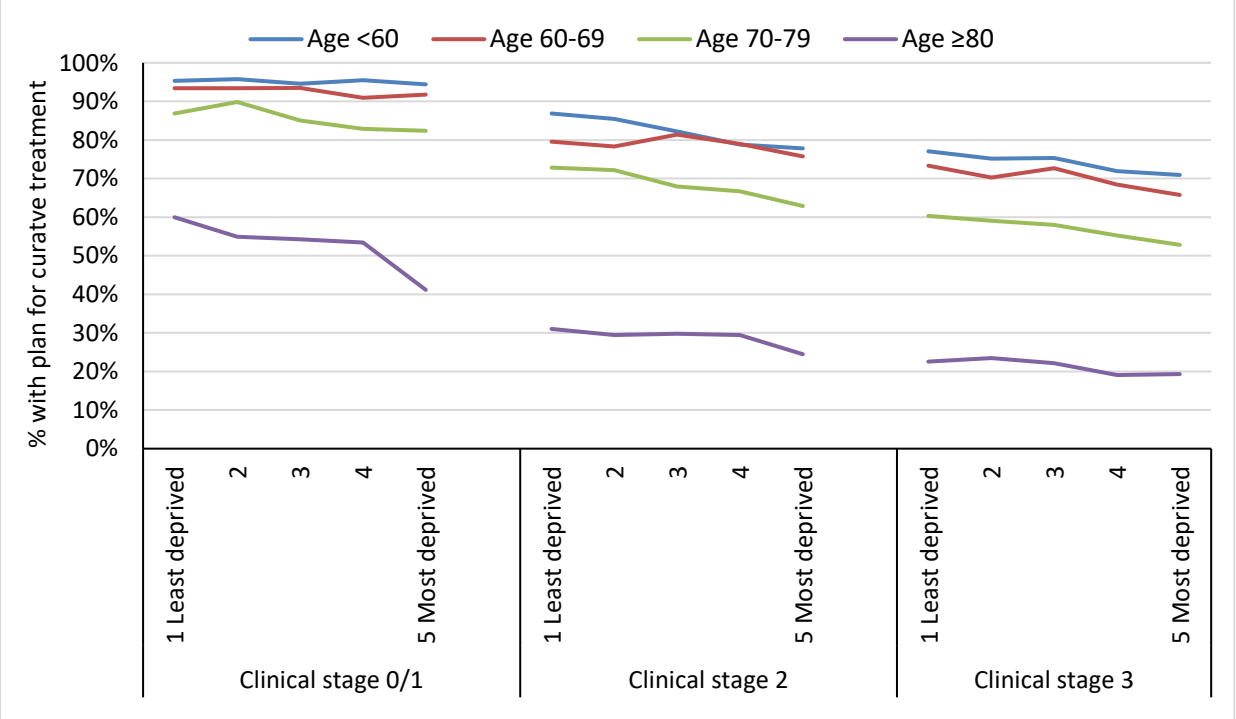
For patients with a plan for non-curative treatment, oncological therapy (chemotherapy or radiotherapy) was the planned therapy for 53% of patients during the 2019-21 audit period. A further 14% of patients had endoscopic / radiological palliative therapies, 5% had a plan for surgery, and 28% had a plan for best supportive care. Active treatment plans were less common for patients aged 80 years or over (Figure 6.3).

Table 6.1: Percentage of patients diagnosed with OG cancer between April 2019 and March 2021 with curative treatment plans

Treatment plan	Oes SCC	Oes ACA Upper/Mid	Oes ACA Lower (w SI,SII)	Stomach (w SIII)	Total
Total patients	3,717	1,519	8,921	5,017	19,174
Curative intent	39.7%	31.3%	40.6%	32.2%	37.5%
By clinical stage					
0/1	61.9%	70.0%	79.8%	65.8%	71.3%
2	60.1%	64.0%	67.1%	56.6%	61.2%
3	49.4%	44.1%	59.8%	52.1%	54.9%
4	15.0%	11.6%	16.8%	4.9%	13.0%
(missing data)	583	340	1,296	973	3,192

KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details.

Figure 6.1: Predicted percentage of patients with a plan for curative treatment, by clinical stage, age group and deprivation quintile (OG cancer diagnosed between April 2019 and March 2021)



Estimates from logistic regression model adjusted for tumour type, sex, performance status and presence of any significant comorbidities

Figure 6.2: Planned modality for patients with curative treatment intent for stage 0/1-3 OG cancer diagnosed between April 2019 and March 2021, by age and tumour location

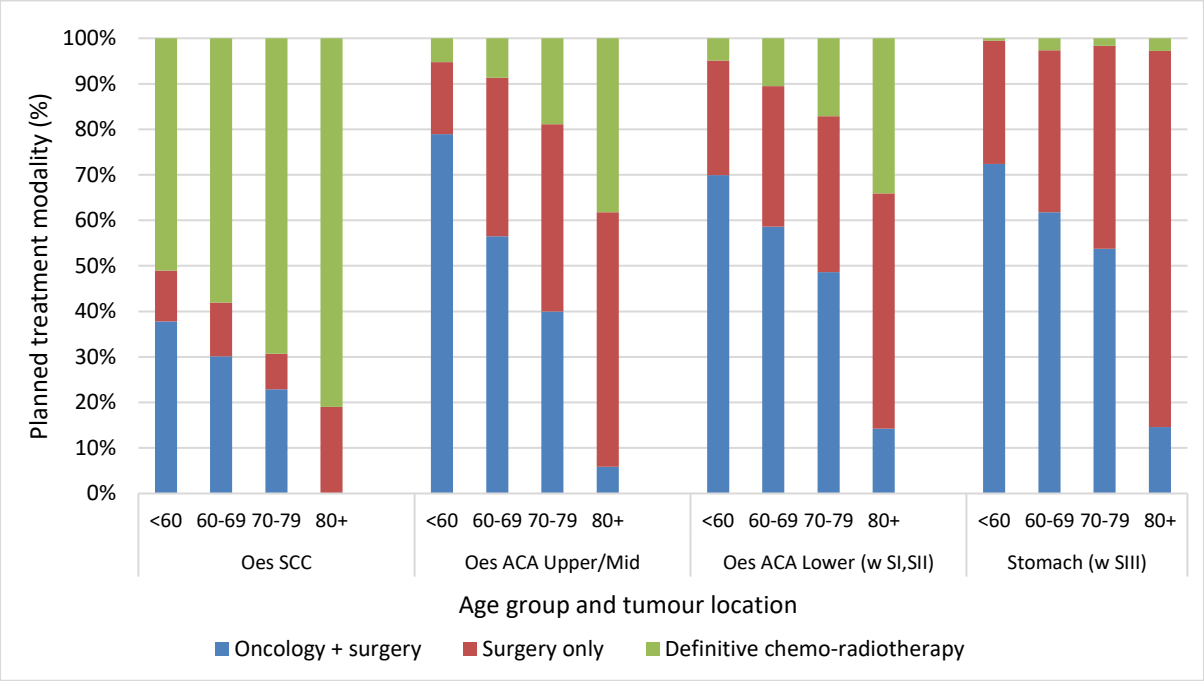
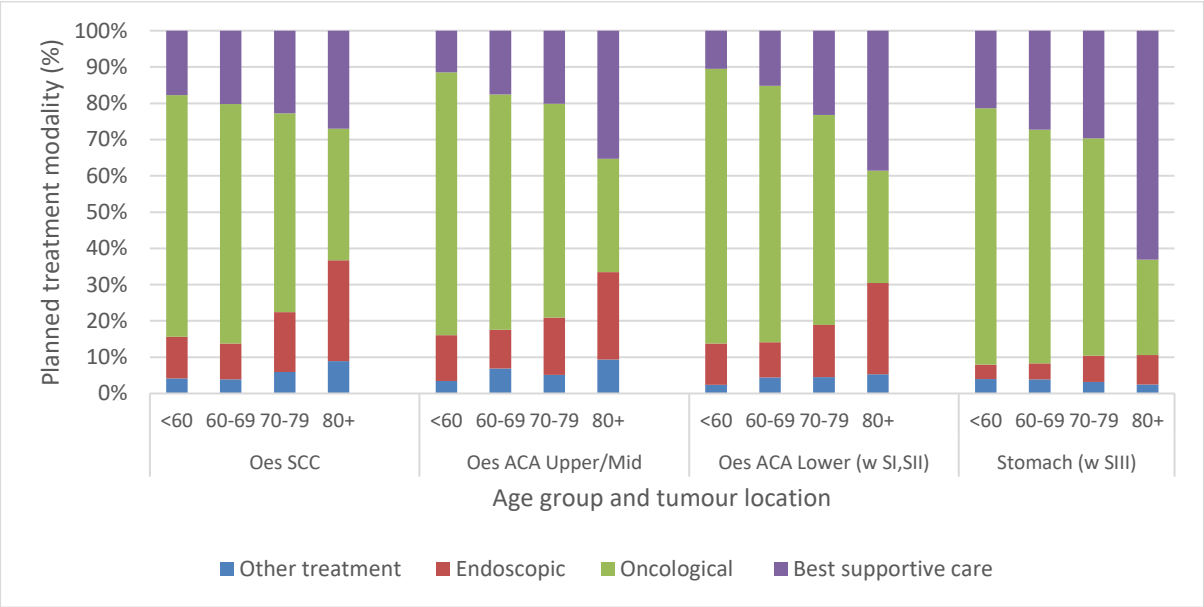


Figure 6.3: Planned modality for patients with non-curative treatment intent for OG cancer diagnosed between April 2019 and March 2021, by age and tumour location



KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details

6.2 Impact of COVID-19 pandemic on treatment plans

The proportion of patients with a plan for curative treatment declined over the Audit period, from 38.9% in 2019/20 to 35.9% in 2020/21 ($p<0.001$).

Information about planned curative treatment modality was available for 2,217 patients with stage 0-3 cancer in 2019/20, and 1,820 patients in 2020/21.

Although both the number and proportion of patients undergoing curative treatment was lower in 2020/21 compared to 2019/20, there was limited evidence to indicate a change in the choice of planned treatment. Among patients with clinical stage 0-3 cancer and a plan for curative treatment, the percentage with a plan for surgery (alone or in combination with oncological treatment) was 79.1% in 2019/20 compared to 79.9% in 2020/21; the remaining fifth of patients had a plan for definitive chemoradiotherapy.

There were 4,343 patients with information about non-curative treatment modality in 2019/20 and 3,701 in 2020/21. Among these patients, the proportion with a plan for best supportive care was 30.8% in 2019/20 and 25.5% in 2020/21, while the proportion with a plan for palliative endoscopic therapy increased from 12.8% to 15.0% ($p<0.001$). As the number of OG cancer cases declined during this period, it is not known the extent to which changes to treatment patterns reflect patients who are missing from the cohort, e.g. if patients who received best supportive care were more likely to be missing from the Audit.

6.3 Waiting times along the care pathway

In England, cancer services have the aim of ensuring at least 85% of patients diagnosed after an urgent "2 week wait" GP referral begin treatment within 62 days [NHS England 2019]. In Wales, the target is for treatment to begin within 62 days from the point of suspicion of cancer [NHS Wales 2018].

The Single Cancer Pathway in Wales states that diagnosis should be made within 28 days from the point of suspicion of cancer (the date of primary care referral or date of clinical suspicion) [NHS Wales Cancer Implementation Group 2019], while the Faster Diagnosis Standard in England states that 75% of patients who are referred urgently by their GP for suspected cancer should be diagnosed (or have cancer ruled out) within 28 days of referral [NHS England 2021].

The NOGCA dataset captures four key dates that allow us to describe patterns of waiting times along the patient pathway:

- Referral date to OG cancer team
- Date of diagnosis
- Date of treatment plan (treatment MDT meeting)
- Date of first treatment

For the 2019-21 audit cohort, patterns of waiting times were similar to those reported in previous years (Table 6.2).

- The time from referral to diagnosis was longest for patients seen via a routine GP referral, with an average waiting time of 28 days.
- The average waiting time from referral to diagnosis for urgent GP referrals was 19 days, with 27.7% of patients waiting more than the target 28 days.

- Median waiting time from referral to treatment was 69 days (IQR 56 to 91). 59.5% of patients diagnosed after an urgent GP referral waited longer than the target 62 days from referral to first treatment.
- Patients who had a curative treatment plan had a longer wait from diagnosis to a treatment plan than those with a non-curative plan, reflecting the additional staging investigations required for patients undergoing curative treatment. There were 68.6% patients who waited more than 62 days for curative treatment.

Table 6.2: Patterns of waiting times along the care pathway for patients diagnosed with OG cancer between April 2019 and March 2021

Time in days from	Referral to diagnosis		Referral to first treatment	
	Median	IQR	Median	IQR
GP referral: urgent/2WW	19	13 to 31	69	56 to 91
GP referral: routine	28	9.5 to 59	83	61 to 125
After emergency admission	7	3 to 14	50	28 to 76
Other consultant referral	8	1 to 23	64	47 to 95.5

Time in days from	Diagnosis to treatment plan		Diagnosis to first treatment		Referral to first treatment	
	Median	IQR	Median	IQR	Median	IQR
Curative: Surgery only	26	8 to 44	62	42 to 90	88	60.5 to 125
Curative: Definitive / Neoadjuvant oncology	26	14 to 39	55	42 to 69	74	60 to 92
Palliative: oncology	14	5 to 28	44	32 to 61	63	50 to 86
Palliative: ERPT	7	2 to 15	15	8 to 29	35	20 to 56

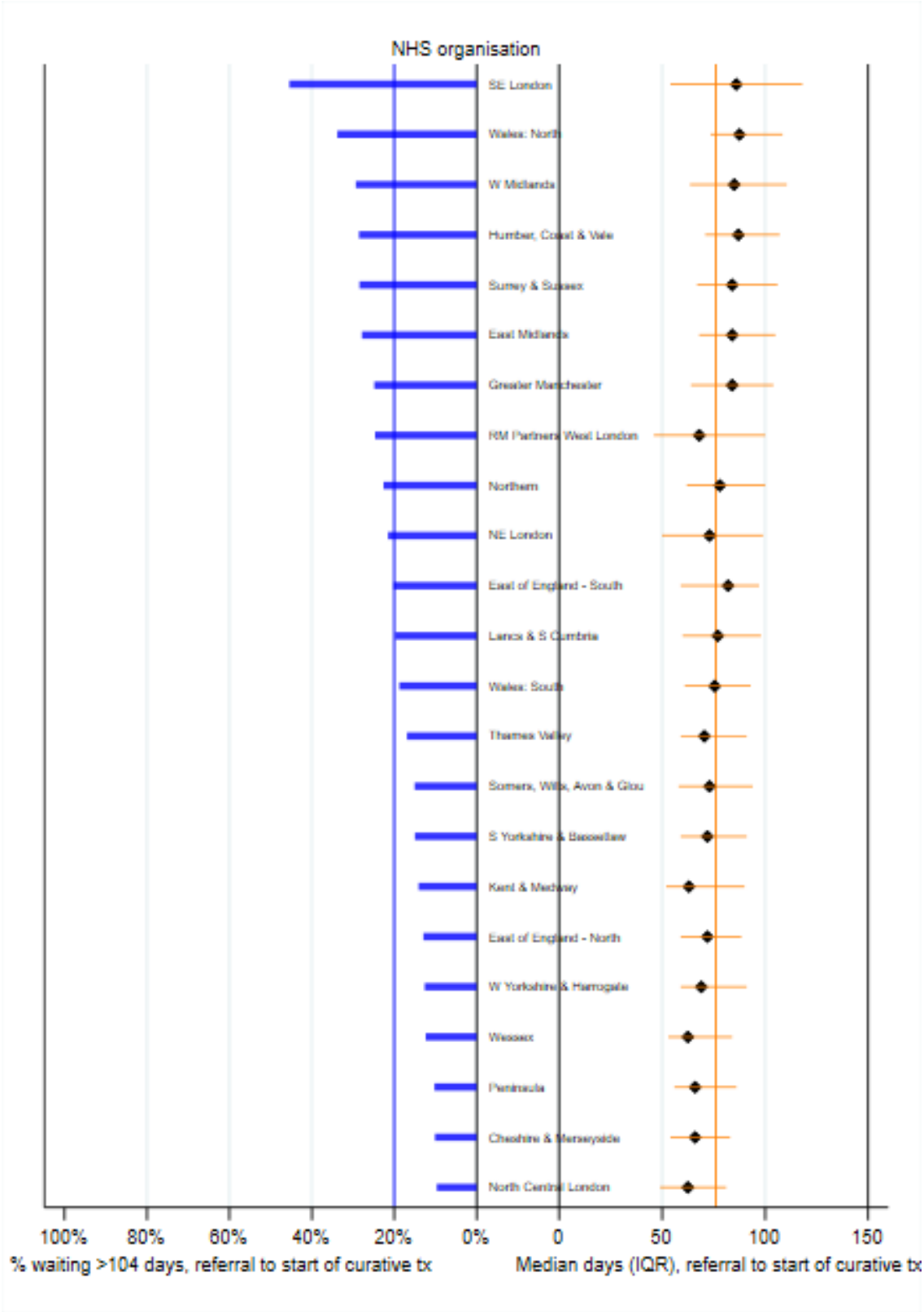
KEY: 2WW – Two week wait referral pathway. ERPT – Endoscopic / radiologic palliative therapy. IQR – Interquartile range

Distributions of waiting times from referral to curative treatment were similar across Cancer Alliances / Welsh regions (Figure 6.4). However, there were excessive waiting times for a significant proportion of patients in some regions. Overall, 20.0% of patients waited more than 104 days from referral to primary curative treatment.

Among patients having non-curative oncological treatment, 14.5% waited longer than 104 days from referral to the start of treatment.

The percentage of urgent GP referrals who waited longer than the target 62 days from referral to first treatment increased from 57.0% in 2019/20 to 62.1% in 2020/21 among all patients (p=0.001), and from 68.3% to 74.6% among those with a plan for curative treatment (p=0.001). The percentage of all patients who waited more than 104 days from referral to first treatment increased from 15.3% to 17.3% (p=0.033).

Figure 6.4: Median (IQR) waiting times from referral to start of curative treatment for patients diagnosed between April 2019 and March 2021 and % patients waiting >104 days, by Cancer Alliance / Welsh region



KEY: IQR – Interquartile range, tx - treatment. NOTE: Alliances/regions with data for <10 patients have been excluded.

7. Curative surgery

Outcomes of curative surgery are reported for a three year period to ensure that enough procedures are included in the analysis to produce robust statistics for individual organisations. For patients diagnosed in the three year period between April 2018 and March 2021, 5,672 surgical records were submitted. Of these, 95.2% were recorded as curative oesophagectomy or gastrectomy.

The majority of oesophagectomies were performed using the 2-stage Ivor-Lewis transthoracic approach, while procedures for stomach cancer were typically total or distal gastrectomies (Table 7.1). 18.4% of all curative oesophagectomies were full minimally invasive (MI) procedures, while 33.0% were hybrid operations (using an MI technique for only either the abdominal or chest phase). A small proportion (2.7%) began as MI procedures and were converted to open surgery. For curative gastrectomies, 19.1% were full MI procedures and 2.2% were converted from MI to open surgery.

Table 7.1: Summary of surgical procedures and type of lymphadenectomy performed in patients diagnosed with OG cancer between April 2018 and March 2021, in England and Wales

Type or procedure	No. of operations	2-field dissection
Left thoracic abdominal	236 (6%)	98.7%
2-Stage Ivor-Lewis	3,160 (87%)	98.4%
3-Stage McKeown	181 (5%)	82.9%
Transhiatal	55 (2%)	n/a
All curative oesophagectomies	3,632	
Cancer unresectable at surgery	20	
	No. of operations	**D2-dissection**
Total gastrectomy	831 (47%)	91.9%
Distal gastrectomy	699 (39%)	86.4%
Extended gastrectomy	194 (11%)	91.9%
Other gastrectomy	46 (3%)	63.9%
All curative gastrectomies	1,770	
Bypass	70	
Cancer unresectable at surgery	180	

7.1 Enhanced recovery after surgery (ERAS)

Enhanced recovery after surgery (ERAS) protocols can reduce rates of complications and shorten length of hospital stay after surgery for OG cancer [Markar et al 2015; NOGCA 2021]. ERAS protocols may include several components, such as pre-operative counselling, pre-operative carbohydrate loading, early mobilisation after surgery, and a standardised post-operative pathway.

In the 2018-2021 surgical cohort, use of an ERAS approach was reported for over two-thirds of patients following curative surgery (Table 7.2). The majority of ERAS protocols involved daily documentation in medical notes, and completion rates were high.

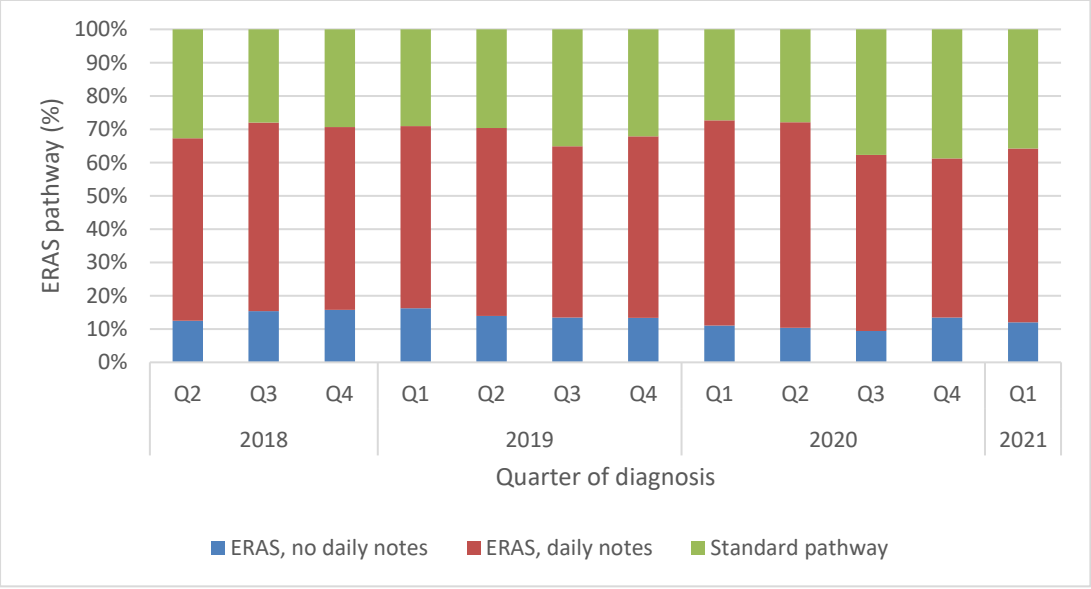
Previous reports described the increasing use of ERAS protocols since the audit began collecting these data in 2016. However, there

was a decline in the use of ERAS for patients diagnosed in 2020/21 compared to the previous two years, from 70.2% in 2018/19 to 64.1% in 2020/21 (Figure 7.1).

Table 7.2: Use of ERAS protocols following curative surgery in patients diagnosed with OG cancer between April 2018 and March 2021 in England

	Oesophagectomy		Gastrectomy	
Number of patients	3,632		1,770	
What best describes the surgical pathway that this patient followed?				
A protocolised enhanced recovery with daily documentation in medical notes	1,881	56.8%	766	50.2%
A protocolised enhanced recovery without daily documentation in medical notes	425	12.8%	218	14.3%
A standard (non-ERAS) surgical pathway	1,003	30.3%	541	35.5%
Missing	323		245	
Did the patient complete the ERAS pathway?				
Yes	1,870	89.1%	788	89.1%
No: but partial completion	188	9.0%	81	9.2%
No: non-completion	41	1.9%	15	1.7%
Missing	207		100	

Figure 7.1: Use of ERAS pathways following curative surgery in patients diagnosed with OG cancer between April 2018 and March 2021, by quarter of diagnosis



NOTE: Q1 – January-March; Q2 – April-June; Q3 – July-September; Q4 – October-December

7.2 Short-term outcomes of surgery

The short-term outcomes of curative surgery among patients in the 2018-2021 surgical cohort are summarised in Table 7.3.

Figures 7.2 and 7.3 show the risk-adjusted 30- and 90-day postoperative mortality rates for OG cancer surgical centres in England and Wales. The mortality rate for each centre is plotted against the number of operations, as the precision of estimates improves with larger numbers.

All centres had adjusted 30- and 90-day mortality rates that fell within the expected range (defined by the 99.8% control limits).

Table 7.3: Postoperative outcomes after curative surgery for patients diagnosed with OG cancer between April 2018 and March 2021 in England and Wales

	Oesophagectomy	Gastrectomy	Overall
30-day mortality (95%CI)	1.5% (1.1 to 1.9)	1.4% (0.8 to 1.9)	1.5% (1.2 to 1.8)
90-day mortality (95% CI)	3.3% (2.7 to 3.9)	2.6% (1.9 to 3.3)	3.1% (2.6 to 3.5)
Median length of stay in days (IQR)	11 (9 to 16)	8 (7 to 13)	10 (8 to 15)
Pathology indicators			
Nodes examined ≥15	91.2% (90.1 to 92.1)	85.6% (83.8 to 87.2)	89.3% (88.4 to 90.2)
Positive longitudinal margins	4.2% (3.6 to 4.9)	9.8% (8.4 to 11.3)	6.0% (5.4 to 6.7)
Positive circumferential margins *	20.3% (18.9 to 21.8)	n/a	n/a

* excludes NHS organisations that reported 0% positive circumferential margins. Circumferential resection margins are examined after oesophagectomy and are not applicable to gastrectomy. IQR – interquartile range

Figure 7.2: Funnel plot of adjusted 30-day mortality after curative surgery for OG cancer for patients diagnosed April 2018-March 2021 for NHS organisations in England and Wales

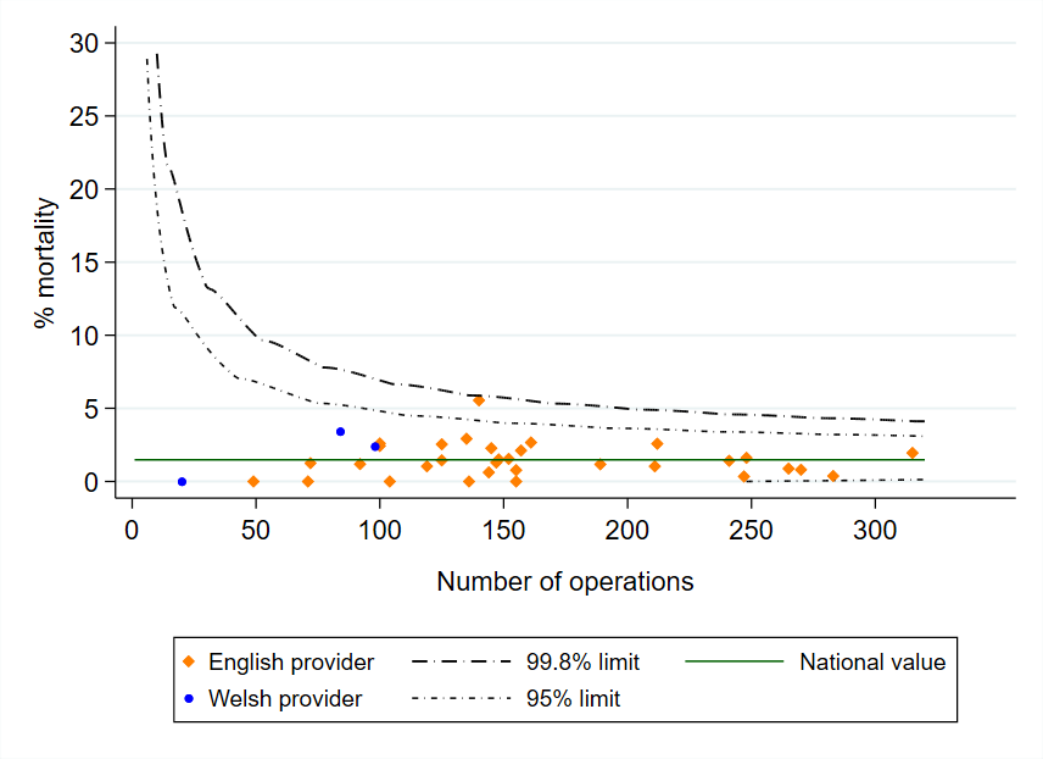
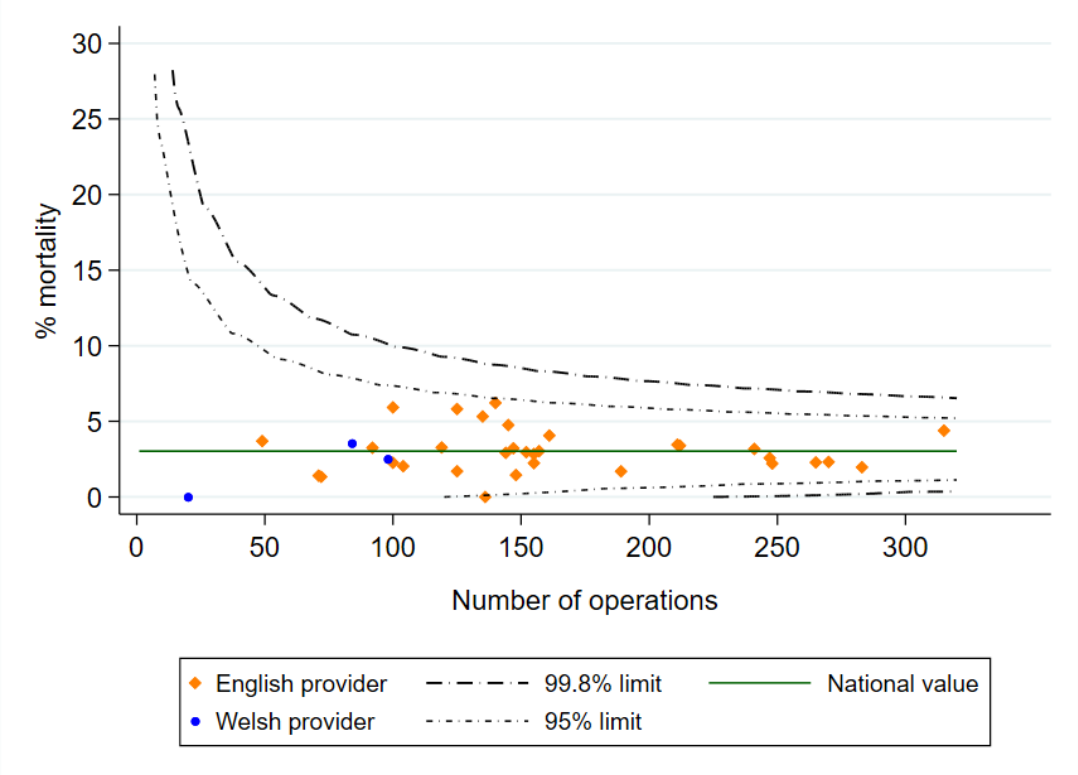


Figure 7.3: Funnel plot of adjusted 90-day mortality after curative surgery for OG cancer for patients diagnosed April 2018-March 2021 for NHS organisations in England and Wales



Since 2017, the Audit has published information on four surgical pathology indicators, to support the implementation of recommendations in the AUGIS Provision of Services document [AUGIS 2016]:

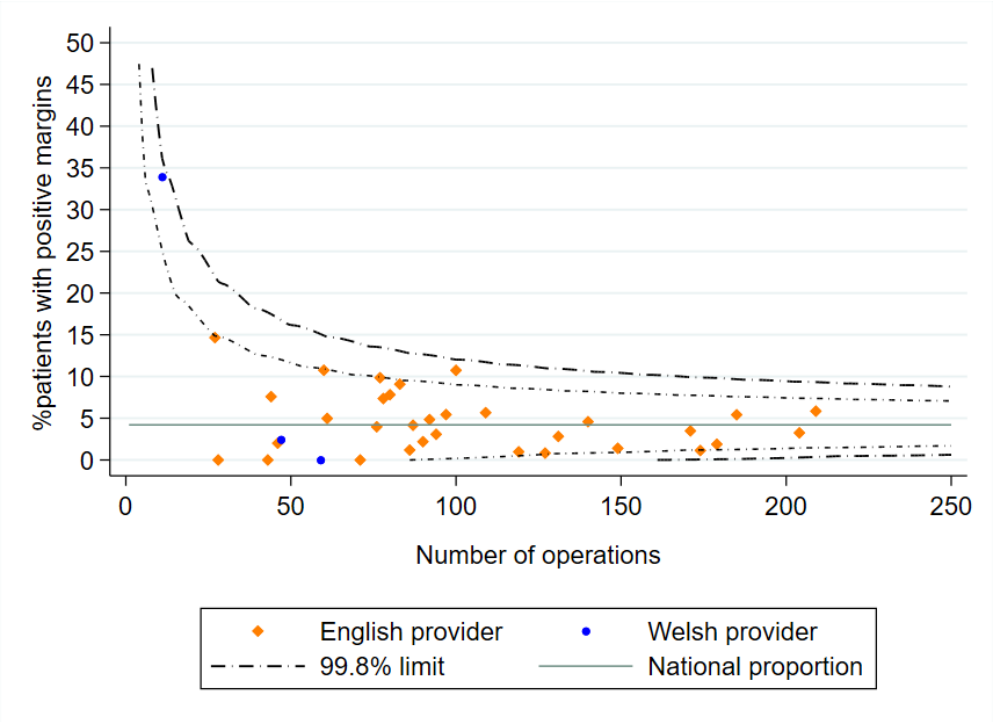
1. Proportion of patients with 15 or more lymph nodes removed and examined (oesophagectomies and gastrectomies)
2. Proportion of patients with positive longitudinal margins (oesophagectomies)
3. Proportion of patients with positive circumferential margins (oesophagectomies)
4. Proportion of patients with positive longitudinal margins (gastrectomies)

Risk-adjusted longitudinal margin indicators fell within the expected ranges (99.8% control limits) for both oesophagectomies and gastrectomies in the 2018-2021 surgical cohort (Figure 7.4). As reported previously, the overall positive longitudinal margin rate of 9.8% for gastrectomy exceeded the 5% target set by AUGIS (Table 7.3). This was higher for total gastectromy procedures (11.3%, 95% CI 9.2 to 13.7%) than distal gastrectomies (7.5%, 95% CI 5.6 to 9.8%). The overall rate of positive longitudinal margins for oesophagectomy was within the 5% target.

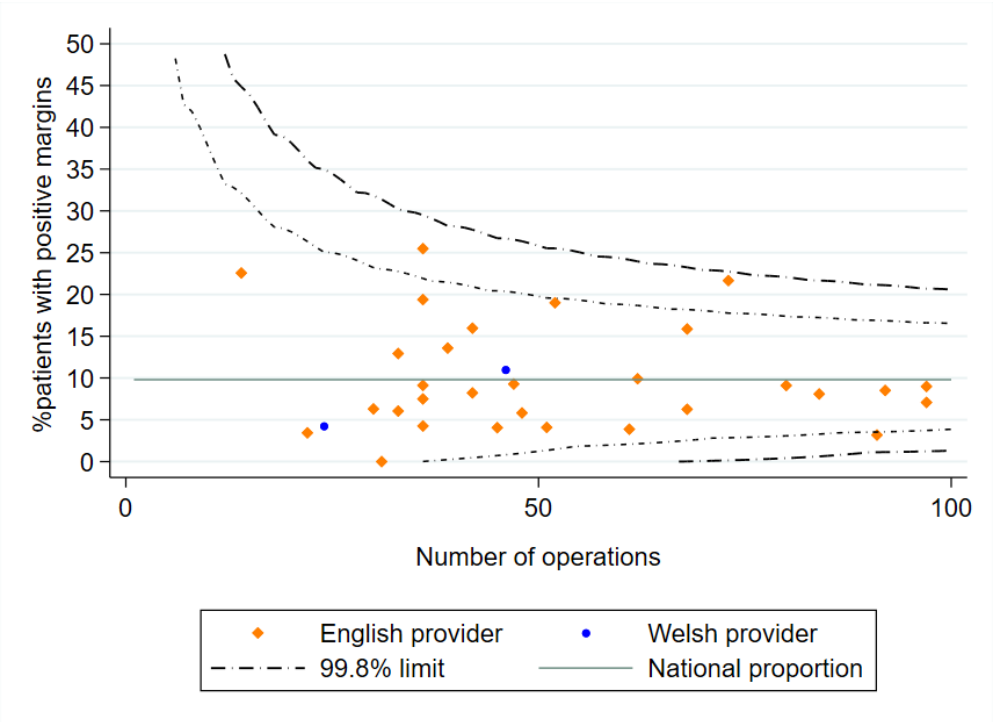
Circumferential margin and lymph node indicators continue to show large variation (Figure 7.5), but both have shown continued improvement over the last five years. The proportion of patients with 15 or more lymph nodes examined has increased from 85.8% among patients diagnosed in 2016/17 to 90.8% among those diagnosed in 2020/21. The proportion of patients with positive circumferential margins has decreased each year, from 25.4% in 2016/17 to 19.5% in 2020/21. There remains a need for greater standardisation of the preparation of surgical specimens for histological assessment, which will enable centres to benchmark themselves with confidence.

Figure 7.4: Funnel plots showing the organisational rates of positive longitudinal margins for patients diagnosed in England and Wales between April 2018 and March 2021

Adjusted rate of positive longitudinal margins after oesophagectomy. National proportion=4.2%



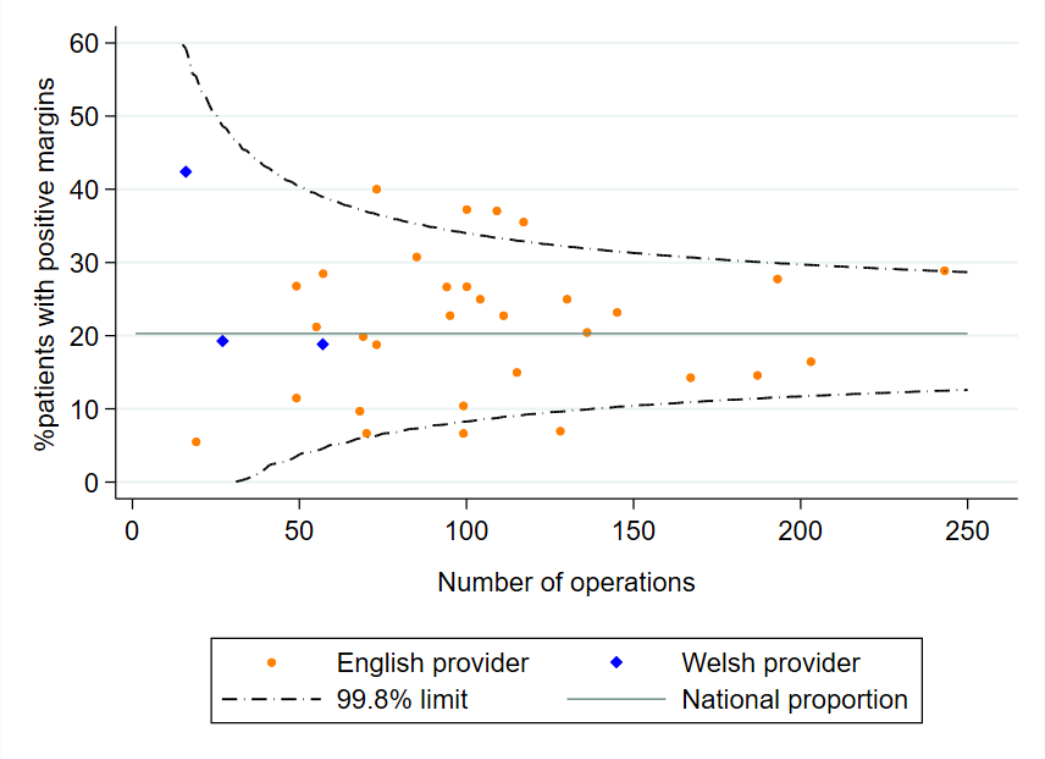
Adjusted rate of positive longitudinal margins after gastrectomy. National proportion=9.8%



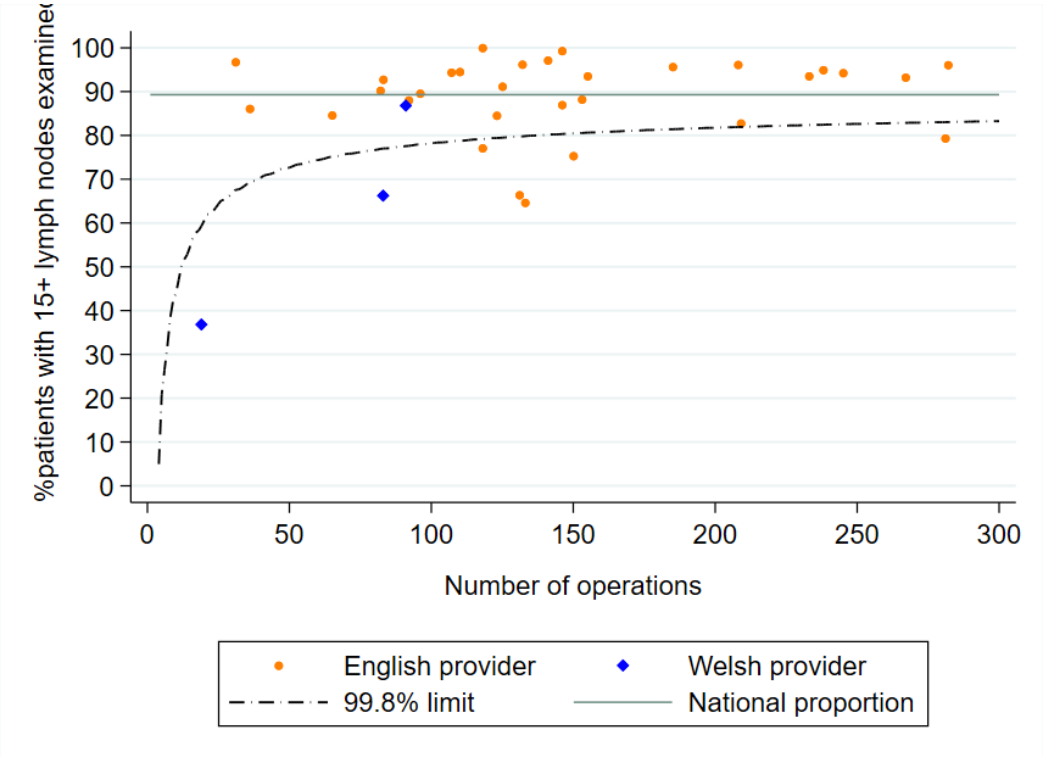
NOTE: excludes NHS organisations that reported data for <10 patients

Figure 7.5: Organisational rates of positive circumferential margin and lymph nodes examined for patients diagnosed in England and Wales between April 2018 and March 2021

Adjusted rate of positive circumferential margin after oesophagectomy. National proportion=20.3%



Unadjusted rate of lymph nodes examined after oesophagectomy & gastrectomy. National proportion=89.3%



7.3 Longer term outcomes after surgery

When combined with information on short-term outcomes, longer-term survival after surgery can provide insight into the adequacy of cancer staging and appropriateness of curative surgery.

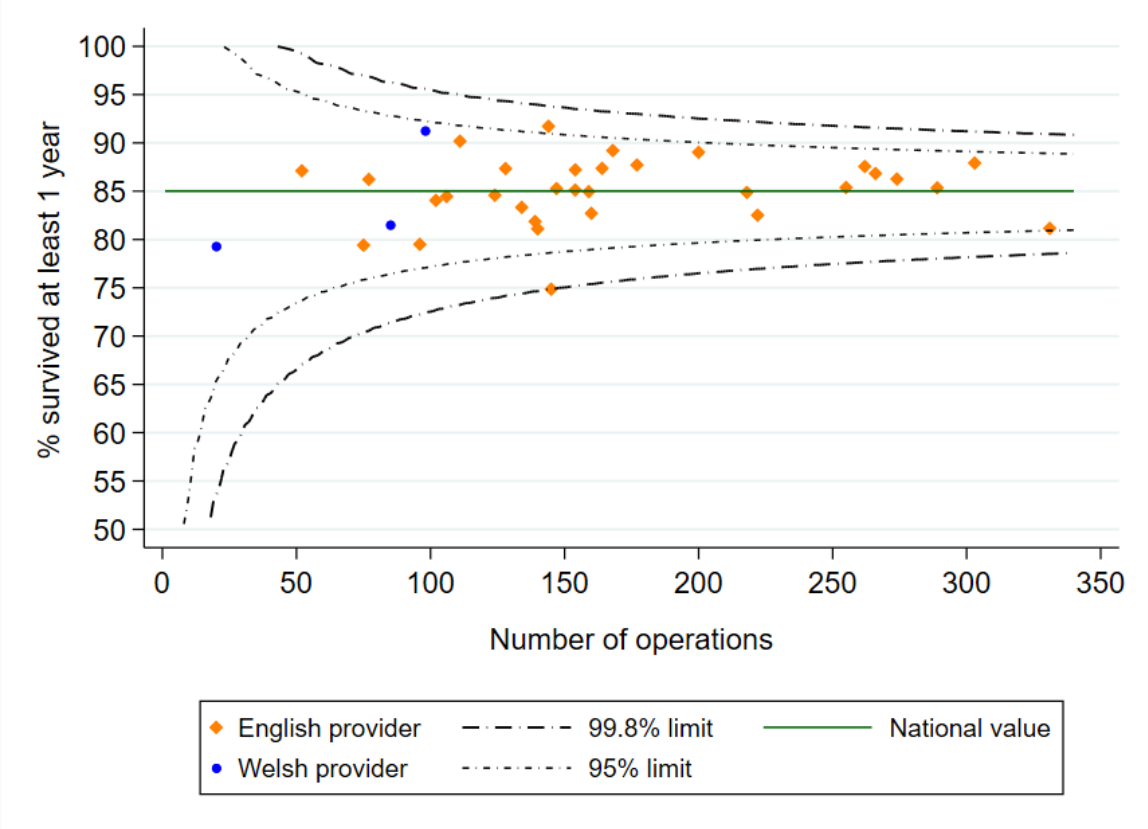
Postoperative survival figures were produced using a cohort of patients diagnosed over a five-year period (2016-2021). Estimated survival rates over four years are shown for each procedure in Table 7.4.

Figure 7.6 shows the risk-adjusted 1-year survival rates (2018-2021 cohort) for surgical centres in England and Wales. All centres had an adjusted survival rate that fell within the expected range (defined by the 99.8% control limits).

Table 7.4: Kaplan-Meier estimates of the percentage of patients diagnosed April 2016-March 2021 who survived after curative surgery. Figures shown with 95% confidence intervals

Time after surgery	Oesophagectomy	Gastrectomy
1 year	83.4% (82.2 – 84.6)	85.9% (84.1 – 87.5)
2 years	69.0% (67.3 – 70.6)	69.4% (66.9 – 71.6)
3 years	60.0% (58.1 – 61.9)	60.7% (57.8 – 63.4)
4 years	56.5% (54.0 – 58.8)	54.0% (48.3 – 59.4)

Figure 7.6: Risk-adjusted 1-year survival after curative surgery among patients diagnosed April 2018-March 2021 in England and Wales, by surgical centre



7.4 Use of perioperative chemotherapy

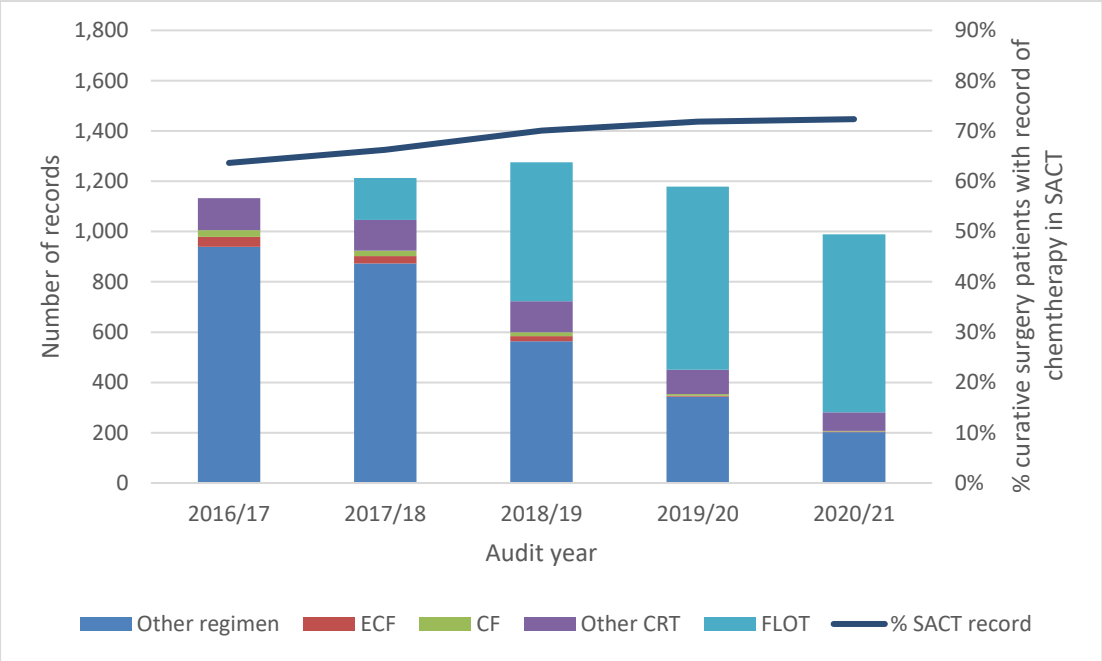
NICE clinical guidelines recommend that patients undergoing curative surgery for stomach cancer should be offered perioperative chemotherapy (chemotherapy that is given before and after surgery), while those with localised oesophageal and GOJ adenocarcinomas (excluding T1N0 tumours) should be offered a choice of perioperative chemotherapy or preoperative chemoradiotherapy.

Regimens of ECF (epirubicin, cisplatin and 5-fluorouracil) [Cunningham 2006] and CF (cisplatin plus 5-fluorouracil) [Ychou 2011] have been used in the perioperative setting for several years. More recent evidence has shown a regimen of FLOT (5-fluorouracil, oxaliplatin and docetaxel) to improve survival compared to ECF, with no increase in surgical complications [Al-Batran 2019].

We analysed data for 4,828 Audit patients diagnosed between April 2018 and March 2021 in England, who had a record of curative gastrectomy (n=1,770) or oesophagectomy for oesophageal adenocarcinoma (n=3,058):

- Overall, 3,443 patients (71.3%) had a record of chemotherapy in the Systemic Anti-Cancer Therapy database (SACT) within one year after diagnosis.
- Among surgical patients with a record of chemotherapy in SACT, 57.8% received FLOT, 0.8% received ECF and 0.7% received CF, while 8.5% received regimens consistent with chemoradiotherapy for oesophageal squamous cell carcinoma (capecitabine + cisplatin or paclitaxel + carboplatin). The remaining 32.3% received other regimens.
- As reported previously, the use of FLOT was associated with patient age and comorbidities, with lower rates of use among older patients and those with comorbidities: 67.4% of those aged <60 received FLOT, compared to 23.8% of those aged ≥80; 60.2% of patients with no significant comorbidities received FLOT, compared to 51.3% of those with 2 or more comorbidities.
- The proportion of surgical patients with a record of chemotherapy increased from 64% in 2016/17 to 72% in 2020/21, though the number of patients treated was lower during the most recent two Audit years, reflecting the reduced number of OG cancer cases diagnosed during the Audit period (Figure 7.7).
- The use of FLOT increased from 0% of all records in 2016/17 to 71.6% in 2020/21 (Figure 7.7), while the use of other regimens declined.

Figure 7.7: Frequency of different perioperative chemotherapy regimens, and percentage of patients undergoing curative gastrectomy or oesophagectomy for oesophageal adenocarcinoma with a record of chemotherapy in SACT, by audit year



8. Non-curative treatment

The majority of patients diagnosed with OG cancer have advanced disease or are too frail for curative treatment, and are therefore managed with non-curative treatment intent.

Several non-curative therapies that aim to control symptoms, improve quality of life, or lengthening survival are available (see Box 8.1). The choice of therapy will depend on a patient's condition and preferences [Allum et al 2011].

In the 2019-21 cohort, palliative oncological therapy (chemotherapy or radiotherapy) was the most common treatment, recorded for 36.4% of patients on a non-curative pathway. However, the majority of older patients had a plan for best supportive care (no active treatment beyond the immediate relief of symptoms). Endoscopic or radiologic palliative therapies (ERPT) were predominantly used for patients with oesophageal cancer (Figure 8.1).

Box 8.1: Non-curative treatment options for people with OG cancer

Palliative chemotherapy can improve survival in locally advanced oesophago-gastric cancer compared to Best Supportive Care alone. Similar results are seen in oesophageal cancer.

External beam radiotherapy can be used to relieve dysphagia, but its effect is slower to act than the insertion of an oesophageal stent.

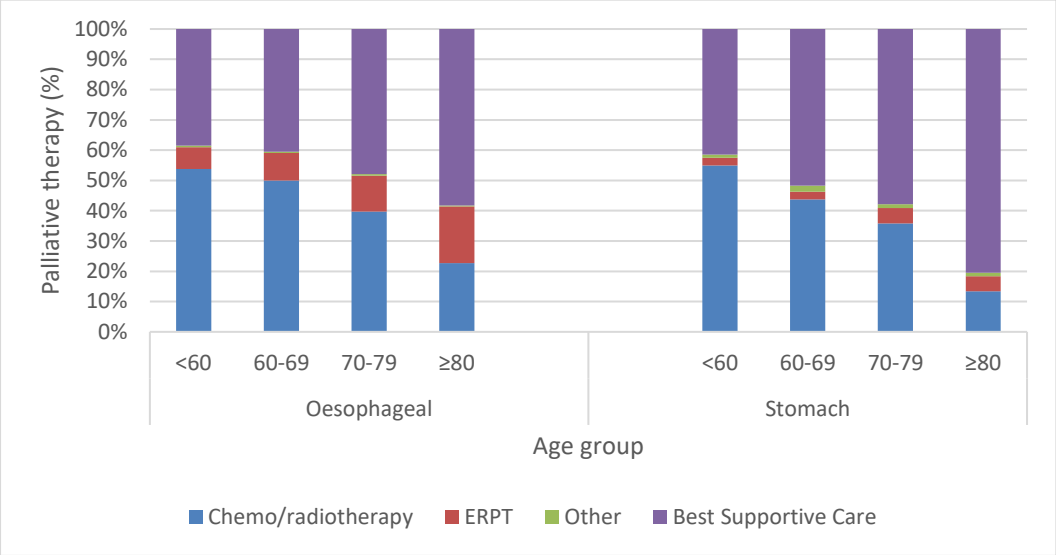
Brachytherapy can be used to treat dysphagia symptoms and improve quality of life in people expected to live more than 3 months.

Endoscopic / radiological palliative therapy

Stents provide immediate relief of dysphagia and are recommended for people with a short life expectancy.

Laser therapy and *argon plasma coagulation* (APC) can both be used to relieve dysphagia particularly when it is due to tumour overgrowth after a stent has been inserted.

Figure 8.1: Pattern of recorded palliative therapies (including best supportive care) among patients diagnosed with oesophageal and stomach tumours 2019-21, by age



NOTE: Oesophageal includes patients with Siewert I and II junctional tumours; Stomach includes patients with Siewert III junctional tumours

8.1 Endoscopic / Radiologic Palliative therapies (ERPT)

Among patients in the 2019-21 cohort with a record of endoscopic or radiological (ER) treatment and non-curative treatment intent, 96.5% had a stent insertion (Table 8.1).

The use of stents as a proportion of all palliative ER treatments was unchanged over the five year period from 2016/17 to 2020/21. However, the number of stent insertions increased during the Audit period, from 818 in 2019/20 to 947 in 2020/21 (Figure 8.2).

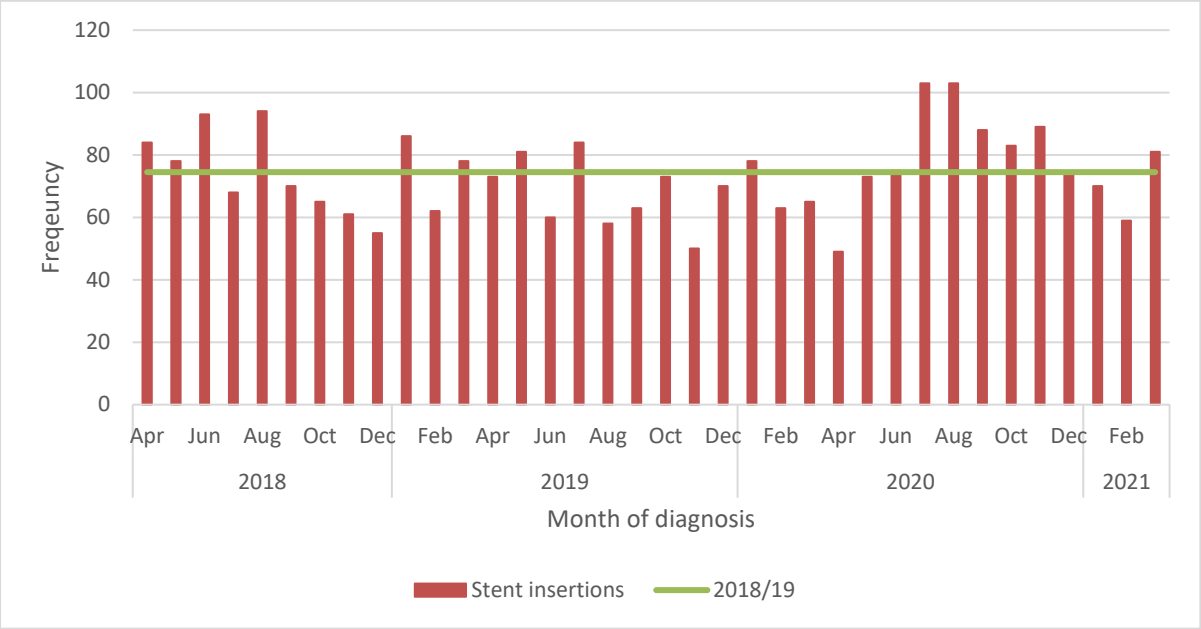
Among patients with stenting recorded as the sole therapy, 47.4% survived more than three months after the date of insertion. This proportion increased over a five year period, from 45.3% among patients diagnosed in 2016/17 to 48.1% in 2020/21 (p=0.476).

Table 8.1: Palliative endoscopic and radiological treatments received by patients diagnosed with OG cancer April 2019-March 2021 and with non-curative treatment plan, by tumour type

	Oes SCC	Oes ACA Upper/Mid	Oes ACA Lower (w SI,SII)	Stomach (w SIII)
Total patients with non-curative treatment plan	2,242	1,044	5,299	3,404
ERPT records	492	183	935	219
% patients w ERPT record	21.9%	17.5%	17.6%	6.4%
Stent insertions	462	178	914	211
% stent of all ERPT	93.9%	97.3%	97.8%	96.3%

KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ).

Figure 8.2: Number of palliative stent insertions among patients diagnosed with OG cancer April 2018-March 2021 and with non-curative treatment plan, by month of diagnosis



NOTE: Green line indicates average monthly number of stent insertions for 2018/19

8.2 Palliative oncology

Two-thirds of patients who received palliative oncology had chemotherapy (Table 8.2). Radiotherapy was used less frequently, and use of immunotherapy continued to be rare.

Completion rates for palliative radiotherapy were high across all tumour types (97.3% overall). (Table 8.2) The proportion of patients completing palliative chemotherapy was comparatively low, at 61.1% over the same period. However, the proportion has increased over the last five years, from 44.9% among patients diagnosed in 2016/17 to 61.4% in 2020/21.

In the 2019-21 cohort, 15.8% of patients receiving palliative chemotherapy (95% CI 14.5 to 17.3) died within 90 days of starting treatment. This figure was 8.3% (6.8 to 10.0) among those who completed treatment as planned, compared to 28.7% (25.6 to 32.0) among those who did not complete their treatment.

Table 8.2: Palliative oncological treatment received by OG cancer patients diagnosed between April 2019 and March 2021, by tumour type

	Oes SCC	Oes ACA Upper/Mid	Oes ACA Lower (w SI,SII)	Stomach (w SIII)	All
Chemotherapy	415 (48%)	230 (67%)	1,356 (69%)	790 (77%)	2,791 (66%)
Radiotherapy	381 (45%)	97 (28%)	542 (27%)	214 (21%)	1,234 (29%)
Chemo-radiotherapy	60 (7%)	15 (4%)	70 (4%)	17 (2%)	162 (4%)
Immunotherapy	1 (0.1%)	0	3 (0.2%)	3 (0.3%)	7 (0.2%)
Chemotherapy + immunotherapy	0	1 (0.3%)	3 (0.2%)	1 (0.1%)	5 (0.1%)
Outcome of chemotherapy					
% Completed	56.9%	65.0%	63.1%	58.8%	61.1%
Outcome of radiotherapy					
% Completed	96.7%	93.9%	98.2%	97.8%	97.3%

KEY: Oes – oesophageal, SCC – squamous cell carcinoma, ACA – adenocarcinoma, SI, SII, SIII - Siewert classification of the gastro-oesophageal junction (GOJ) [Siewert et al 1996]. See glossary for details

8.3 Evidence-based palliative radiotherapy regimens

The Royal College of Radiologists (RCR) guidelines on radiotherapy dose fractionation include a list of evidence-based (EB) regimens for palliative treatment of OG cancer (Table 8.3) [RCR 2019].

NOGCA has previously published a Short Report on the use of these regimens among patients diagnosed between April 2012 and March 2019 [NOGCA 2021].

Table 8.3: List of evidence-based palliative radiotherapy regimens for OG cancer patients [RCR 2019]

Oesophageal		Stomach	
Dose (Grays) / Fractions	**Duration of regimen**	**Dose (Grays) / Fractions**	**Duration of regimen**
12Gy / 1F	N/A	6-8Gy / 1F	N/A
12-16Gy / 2F	No recommendation	20Gy / 5F	1 Week
20Gy / 5F	1 Week		
30Gy / 10F	2 Weeks		
35Gy / 15F	3 Weeks		
40Gy / 15F	3 Weeks		

N/A – not applicable, single dose recommended

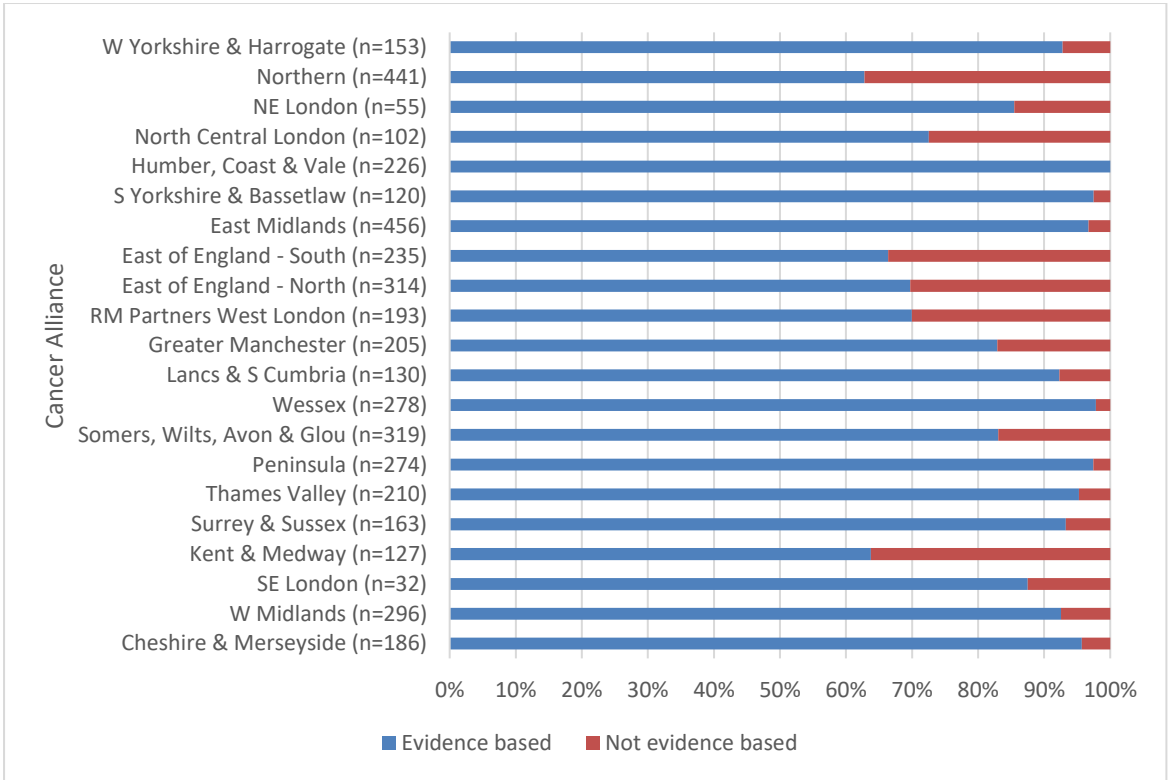
Planned radiotherapy regimens recorded in the Radiotherapy Dataset (RTDS) were analysed for 4,566 audit patients diagnosed over five years between April 2016 and March 2021, who were treated with non-curative intent in England. Among these patients, 84.8% had a prescription recorded in the RTDS that corresponded to an EB palliative regimen for OG cancer:

- Among 3,784 patients with oesophageal cancer, 84.1% had an EB planned regimen. Among patients with an EB planned regimen, the most frequently prescribed regimen was 20 Grays over 5 Fractions (20Gy/5F) (41.5%), followed by 30Gy/10F (37.9%). Some patients with oesophageal cancer and an EB prescription (18.8%) had a planned regimen recommended for the palliative treatment of stomach tumours (6- 8Gy/1F).
- Among 782 patients with stomach cancer, 88.0% had an EB planned regimen. The most frequently prescribed EB regimens were 20Gy/5F (44.5%) and 8Gy/1F (38.1%). 16.7% of patients were prescribed the 30Gy/10F regimen recommended for oesophageal tumours. This percentage was higher among just those with SIII junctional tumours (32.4%).
- 70.7% of EB regimens were completed as prescribed, compared to 53.9% of non-EB regimens ($p<0.001$).

There was substantial regional variation in the rates of planned EB palliative regimen use, ranging from 62.8% to 100% (Figure 8.3).

Over the five year period, the percentage of patients with an EB prescription fluctuated, ranging from 83.3% to 87.2%.

Figure 8.3: Planned evidence-based palliative radiotherapy regimens among patients diagnosed with OG cancer 2016-2021, by Cancer Alliance



Among patients with a non-EB planned radiotherapy regimen, the most common prescriptions were:

- 27Gy/6F (25.2%)
- 20Gy/4F (20.8%)
- 36Gy/12F (16.0%)
- 10Gy/1F (4.5%)
- Other (33.5%)

The use of the 20Gy/4F non-EB palliative regimen has increased over the five year period (Figure 8.4), but the use of the other regimens has declined. The use of the most commonly prescribed non-EB regimens was concentrated within a few regions, with Cancer Alliances tending to use one of the three regimens (Figure 8.5).

Figure 8.4: Most commonly prescribed non-evidence-based palliative radiotherapy regimens among patients diagnosed with OG cancer 2016-2021, by audit year

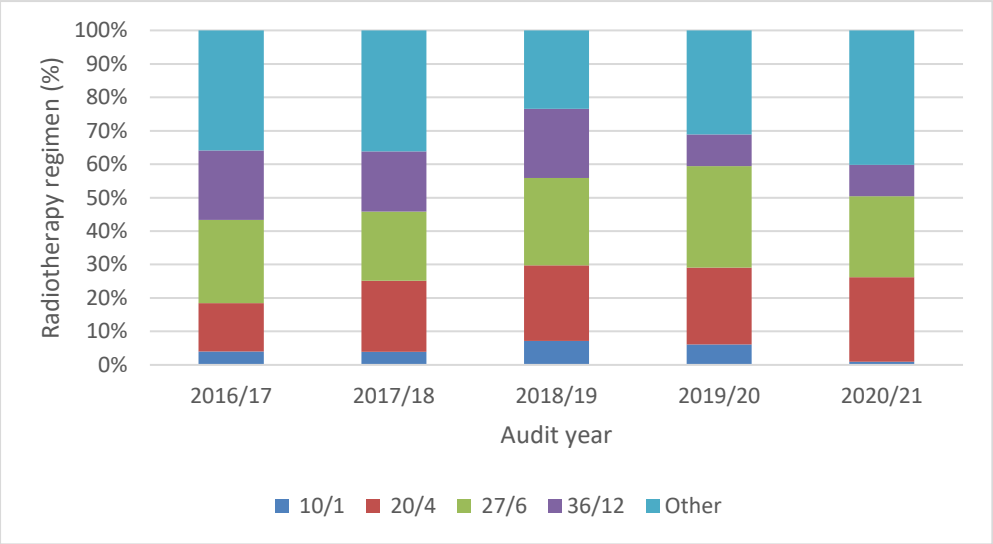
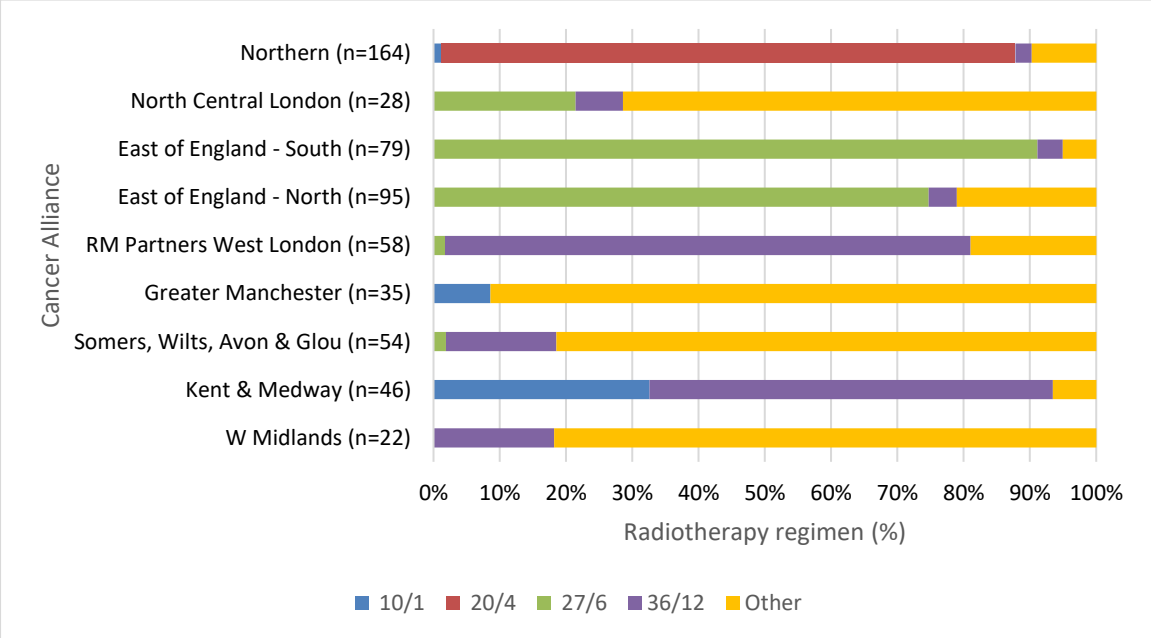


Figure 8.5: Most commonly prescribed non- evidence-based palliative radiotherapy regimens among patients diagnosed with OG cancer 2016-2021, by Cancer Alliance



NOTE: Data omitted for Cancer Alliances with <20 patients receiving non-EB prescriptions

8.4 Palliative chemotherapy regimens

Palliative chemotherapy regimens recorded in the Systemic Anti-Cancer Therapy (SACT) dataset were examined for 8,640 patients in England, who were diagnosed over a five year period from April 2016 to March 2021 and had a plan for palliative oncology recorded in NOGCA or palliative intent recorded in SACT.

Half of all patients (50.1%) had records indicating use of a triplet palliative regimen (consisting of a platinum-based agent, a fluoropyrimidine and an anthracycline), while 27.6% received doublet regimens (a platinum-based agent and a fluoropyrimidine). Trastuzumab was used for 8.5% of patients, taxane-based regimens for 4.5% and other regimens for the remaining 9.2%.

The use of doublet regimens has almost doubled over the five year period, from 22.4% among patients diagnosed in 2016/17 to 42.0% among those diagnosed in 2020/21, while the use of triplet regimens has decreased from 62.3% to 30.3% (Figure 8.6). The use of trastuzumab has remained fairly consistent (7.8% in 2016/17 compared to 8.5% in 2020/21), while the use of taxane based regimens has increased from 1.9% to 7.2%.

As reported in previous years, doublet regimens were used more commonly among older patients and those with squamous cell carcinomas. The use of doublet regimens for adenocarcinoma varied widely across regions, ranging from 2% to 43% among patients aged under 75 years, and from 3% to 74% among patients aged 75 and over (Figure 8.7).

Figure 8.6: Chemotherapy regimens recorded in the Systemic Anti-Cancer Therapy database for patients with palliative treatment intent for OG cancer, by audit year

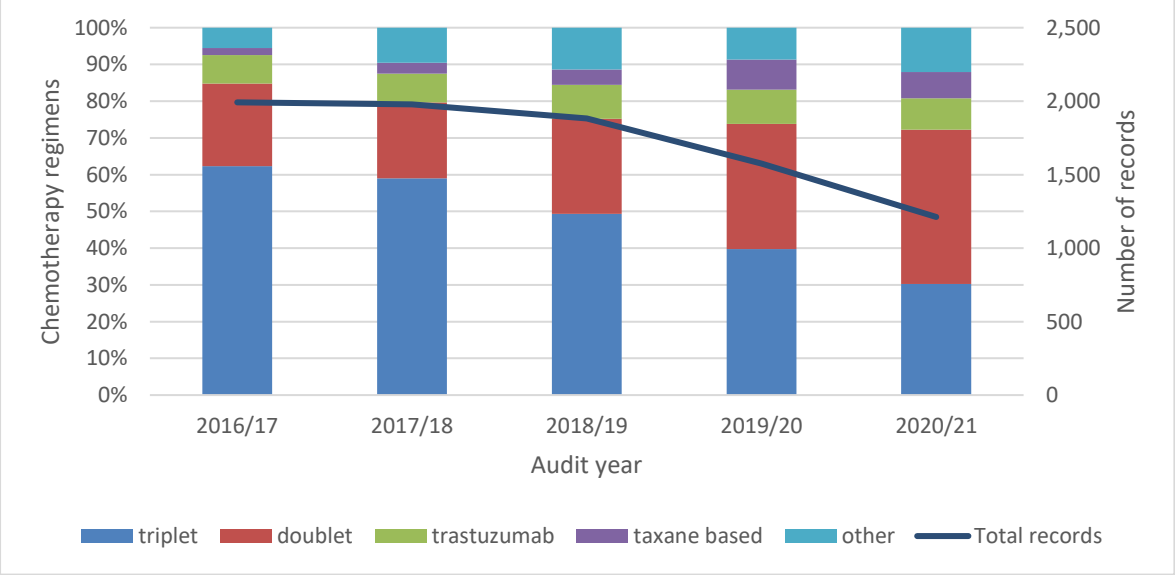
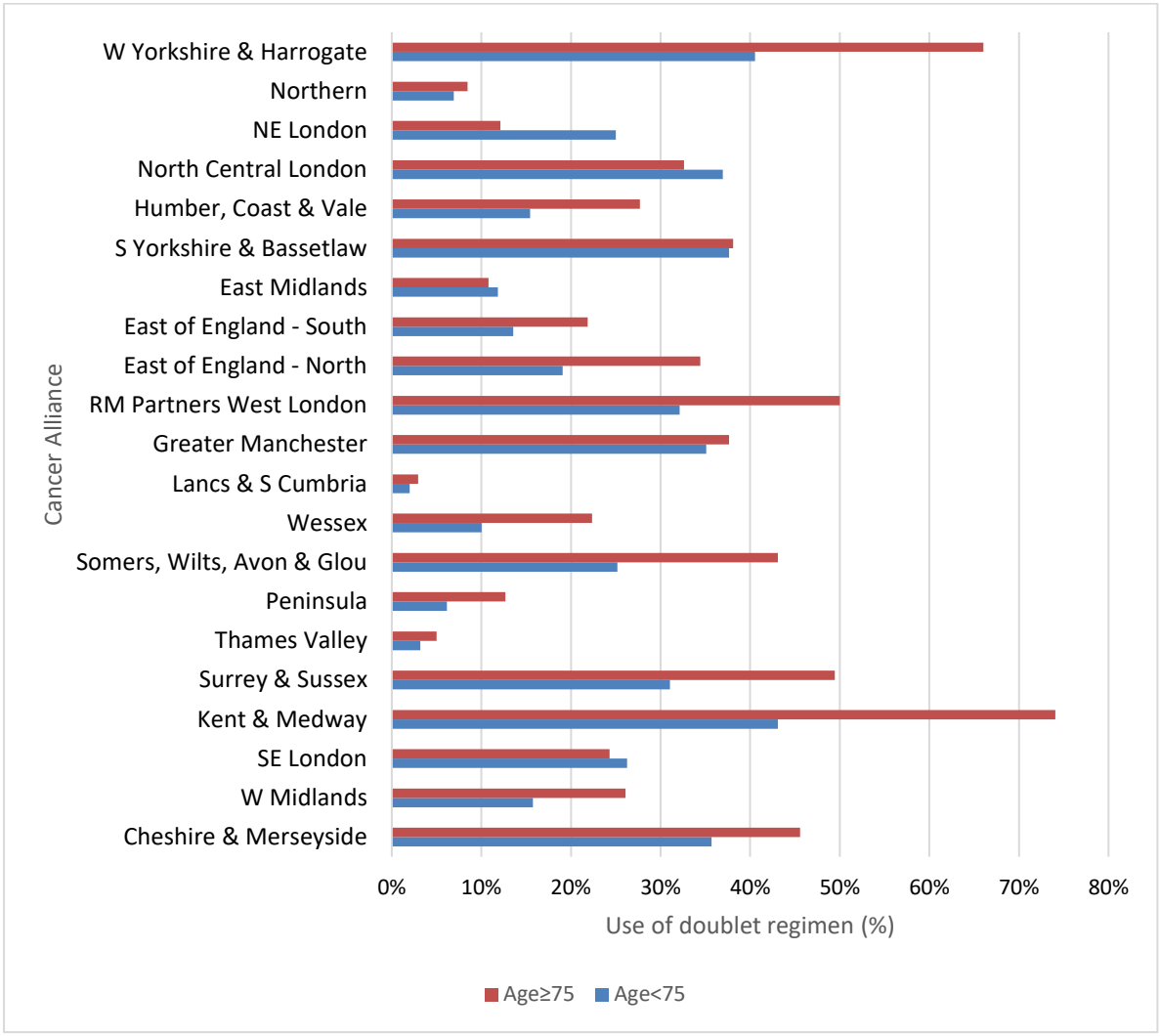


Figure 8.7: Use of doublet palliative chemotherapy regimens by age group and Cancer Alliance of diagnosis, for patients with oesophageal adenocarcinoma or gastric cancer diagnosed between April 2016 and March 2021



9. Patients with high grade dysplasia

Oesophageal dysplasia is a condition that occurs when the cells of the inner lining of the oesophagus become abnormal. For example, this occurs among patients with Barrett's oesophagus - a condition arising due to acid reflux that occurs at the junction of the oesophagus and the stomach. High grade dysplasia (HGD) is the most severe form of dysplasia and accounts for around 1 in 20 patients with dysplasia [Christine et al 2016] and if untreated, about 5% of those diagnosed with HGD can develop oesophageal cancer during the year after diagnosis [Rastogi et al 2008].

To evaluate the care received by patients with HGD, the audit uses performance indicators (Box 9.1) developed from the British Society of Gastroenterology (BSG) guidance on the management of Barrett's oesophagus [Fitzgerald et al 2013] and NICE clinical guidance on ablative therapy in the treatment of Barrett's oesophagus [NICE 2010 – Last updated in 2018].

Box 9.1: Recommendations from the BSG guidelines on the management of HGD

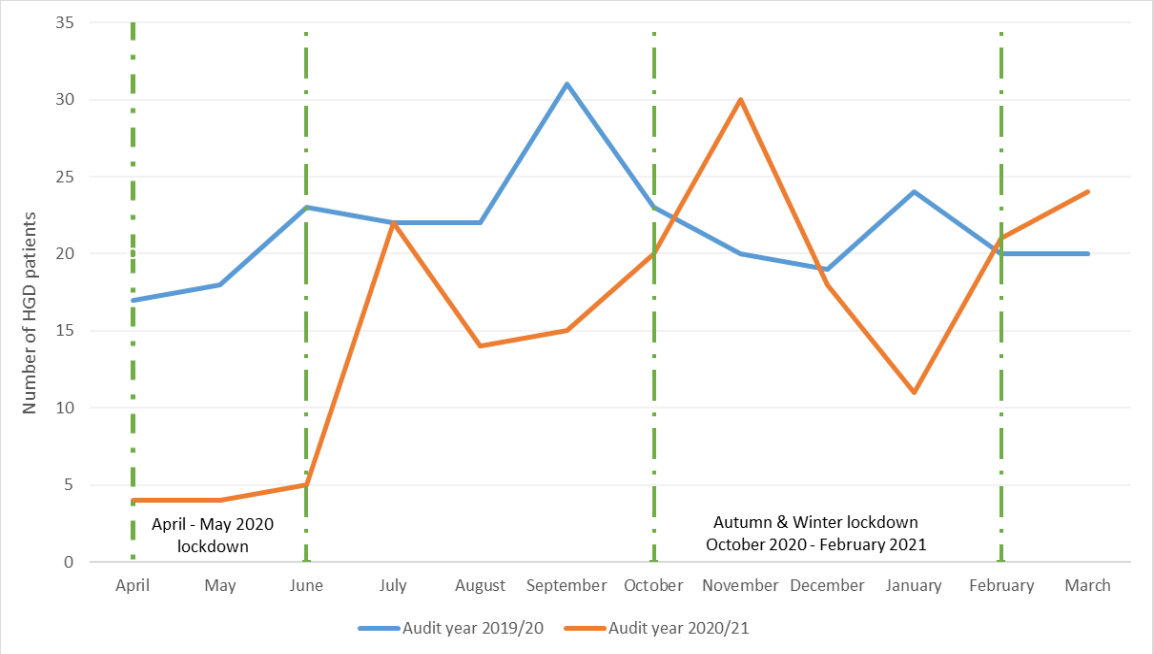
Recommendation and rationale	Indicator
All cases of suspected HGD should be confirmed by two gastrointestinal (GI) pathologists Grading dysplasia involves a degree of subjectivity. Studies have found that the rate of progression to cancer among patients with dysplasia is higher when the diagnosis is confirmed by two pathologists.	% of patients whose diagnosis was confirmed by a second pathologist
All patients with HGD for whom therapy is considered should be discussed by a specialist multi-disciplinary team (MDT) for OG cancer Discussion by the MDT ensures that the most appropriate treatment options are considered for patients.	% of patients considered for treatment who are discussed by specialist MDT for OG cancer
Endoscopic treatment of HGD (e.g. endoscopic mucosal resection and radiofrequency ablation) is preferred over oesophagectomy or surveillance Compared to surgery, endoscopic treatment is associated with lower morbidity and mortality. There is no evidence to support the use of surveillance.	% of patients who received endoscopic treatment

9.1 Submission of data on HGD patients

The Audit only received data on HGD patients from English NHS trusts. Data collection for Welsh patients diagnosed with HGD has not been possible via the Welsh IT system. In this report, we focus on data submitted to the Audit for patients diagnosed with HGD from April 2019 to March 2021. Some indicators are reported for a longer period of four years (2017 to 2021) to describe changes over time. The number of HGD records submitted to the audit decreased from 711 records in 2017/19 to 447 records in 2019/21.

Figure 9.1 explores the effect of the COVID-19 pandemic on the number of records submitted to the Audit. During the first lockdown period, the number of submitted HGD records dropped from 35 in April-May 2019 to 8 in April-May 2020. This may be due to NHS trusts not performing endoscopic procedures during the first wave of the pandemic [Rutter et al 2021].

Figure 9.1: Number of patient records submitted for audit years 2019/20 and 2020/21.



To explore case ascertainment, the incidence of HGD among people aged 40+ years (cases per 1,000,000 individuals) was estimated for each Cancer Alliance (Table 9.1). There remains considerable variation between the Cancer Alliances, which will partly be due to different levels of case ascertainment within each region, and a general downward trend in the number of HGD records submitted to the Audit over time.

Compared to the 2015/17 and 2017/19 audit periods, the incidence of HGD per 1,000,000 individuals decreased significantly for 2019/21. As noted above, this may be due to the COVID-19 pandemic when NHS Trusts were recommended not to perform endoscopic procedures [Rutter et al 2021]. It may also reflect a drop in the submission of records to NOGCA due to NHS trusts being under pressure to manage the pandemic.

For the period 2019/21, the median age at diagnosis was 71 (IQR: 64 to 77) and 76% of HGD patients were men. The proportion of patients in deprivation quintiles from the least deprived area (Quintile 1) to the most deprived (Quintile 5) was 25%, 19%, 23%, 20% and 13%, respectively.

Table 9.1: HGD cases submitted to the Audit per million population between April 2015 and March 2021, by English Cancer Alliance

Cancer Alliance	Adults of 40+ years	HGD cases per million individuals, by year of diagnosis		
		2015 - 17	2017 - 19	2019 - 21
Cheshire and Merseyside	1,311,713	40	21	<5
East Midlands	2,418,182	29	25	17
East of England - North	1,578,979	42	46	34
East of England - South	1,845,468	17	27	18
Greater Manchester	1,333,103	28	6	5
Humber, Coast and Vale	937,993	11	14	12
Kent and Medway	971,881	46	42	<5
Lancashire and South Cumbria	904,548	30	35	11
North Central London	646,619	5	8	40
North East London	789,625	5	15	5
Northern	1,582,043	52	58	48
Peninsula	1,018,959	29	11	18
North West and South West London	1,640,904	17	18	9
Somerset, Wiltshire, Avon and Gloucestershire	1,622,911	32	52	24
South East London	781,539	36	24	<5
South Yorkshire and Bassetlaw	758,199	30	37	29
Surrey and Sussex	1,881,176	9	5	11
Thames Valley	879,831	26	32	20
Wessex	1,416,865	42	23	17
West Midlands	2,951,262	18	19	<5
West Yorkshire and Harrogate	1,141,107	18	3	9

9.2 Diagnosis

Among those with a recorded referral route for their HGD diagnosis in 2019/21 (421 out of 447 patients), 56% had been on a surveillance programme and the remaining 44% were diagnosed after referral from a general practitioner.

The proportion of patients who had their original diagnosis confirmed by a second pathologist improved from 87% in 2017/19 to 92% in 2019/21. This proportion was slightly lower among older patients, decreasing from 93% for those aged 60 years or less to 90% among those aged 80 years or more.

The proportion of patients with HGD and Barrett's oesophagus decreased from 84% for the period 2017/19 to 76% for 2019/21.

There were 245 (55%) of 447 records submitted in 2019/21 with information describing the type of HGD:

- 66% of patients had glandular HGD and 34% of them were diagnosed with squamous HGD.

Among the 277 (62%) records with data describing the appearance of patients' high grade dysplasia:

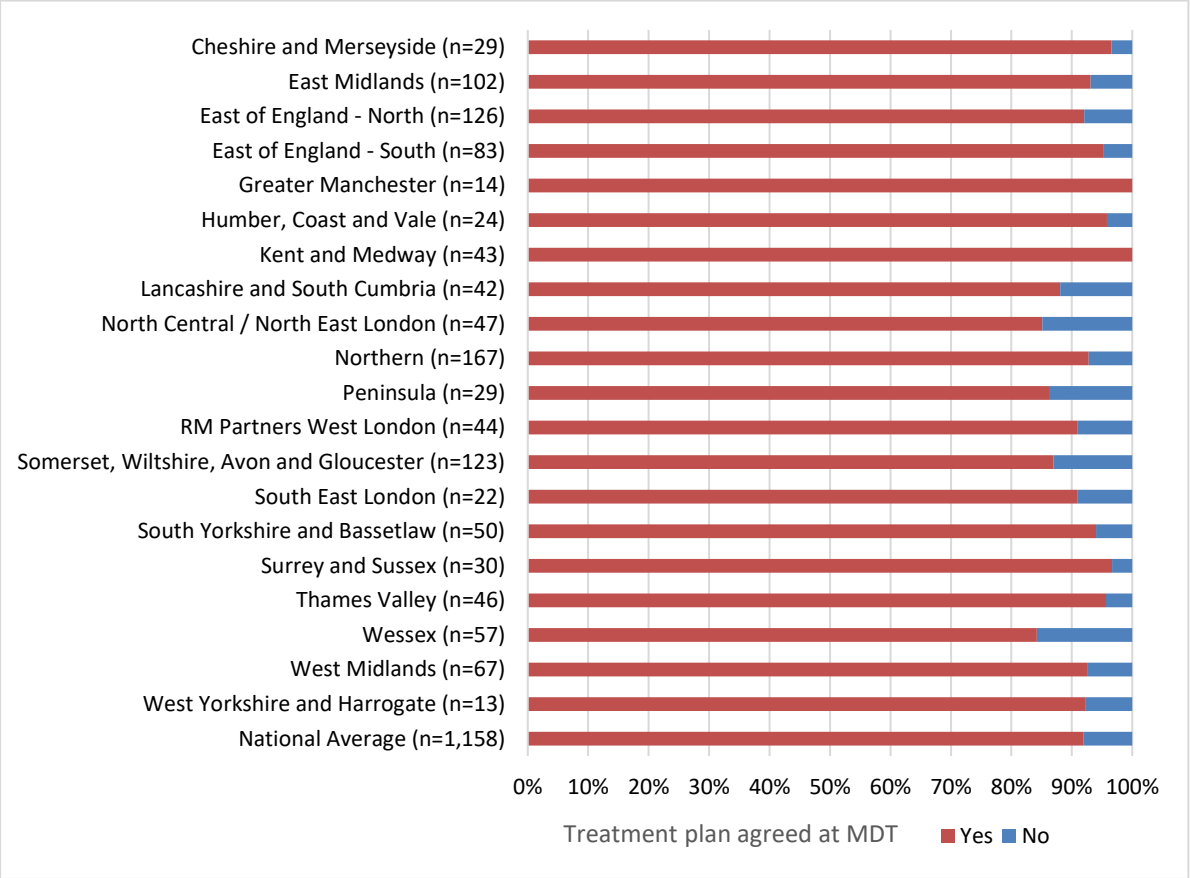
- 49% had a flat mucosa;
- 46% had a nodular lesion; and
- 5% had a depressed lesion.

9.3 Treatment planning

The proportion of HGD patients with a treatment plan agreed at an upper gastrointestinal MDT meeting has improved from 85% for 2015/17 to 92% for the period 2019/21.

There was some variation across Cancer Alliances (range: 84%-100%), as shown in Figure 9.2 below, with 15 out of 20 Cancer Alliances reporting that treatment plans were agreed at the MDT meeting for over 90% of their HGD patients.

Figure 9.2: Proportion of patients with treatment plan agreed at an MDT meeting between April 2017 and March 2021, by Cancer Alliance



Note: Data for North Central London and North East London cancer alliances are presented together as North Central / North East London cancer alliance. Number of patients in each cancer alliance are patient records with known information on treatment plan agreed at MDT.

9.4 Primary treatment modality

In the BSG guidelines on the management of HGD, endoscopic treatment is recommended as the preferred first line treatment, compared to surgery or surveillance alone [Fitzgerald et al 2013]. NHS Trusts submitting HGD records to the audit were generally complying with this BSG recommendation.

410 out of 447 patients had recorded information about their planned treatment modality for the audit period 2019/21 as follows:

- 78% had a plan for active treatment (n=321 patients)
- 14% had a plan for surveillance with endoscopic follow-up (n=56 patients);

- and 8% had no planned surveillance or active treatment (n=33 patients).

43 out of 56 patients with a plan for surveillance had recorded information about their next planned surveillance endoscopy. 86% had their next endoscopy planned within 0-3 months, followed by 12% within 4-6 months and 2% within 7-12 months.

Among those with a reported reason for no planned surveillance or no active treatment (25 out of the 33 patients), patients' choice was the most common reason (44%), followed by patients' physical fitness (28%) and lack of access to endoscopic or surgical treatment (28%).

Out of 321 patients with an active treatment plan:

- 311 patients (97%) had a planned endoscopic procedure. This includes endoscopic mucosal resection / submucosal dissection (n=240), radiofrequency ablation (n=62) and argon plasma coagulation (n=9);
- 12 patients (3%) either had an oesophagectomy or another treatment.

The proportion of patients with an active treatment plan varied significantly by age group (p-value<0.001) for the period 2019/21. Younger patients were more likely to have a plan for active treatment than older patients: 83% for <60 years, 86% for 60-69, 78% for 70-79 and 61% among the ≥80 age group.

Over a five year period from 2016/17 to 2020/21 (Table 9.2):

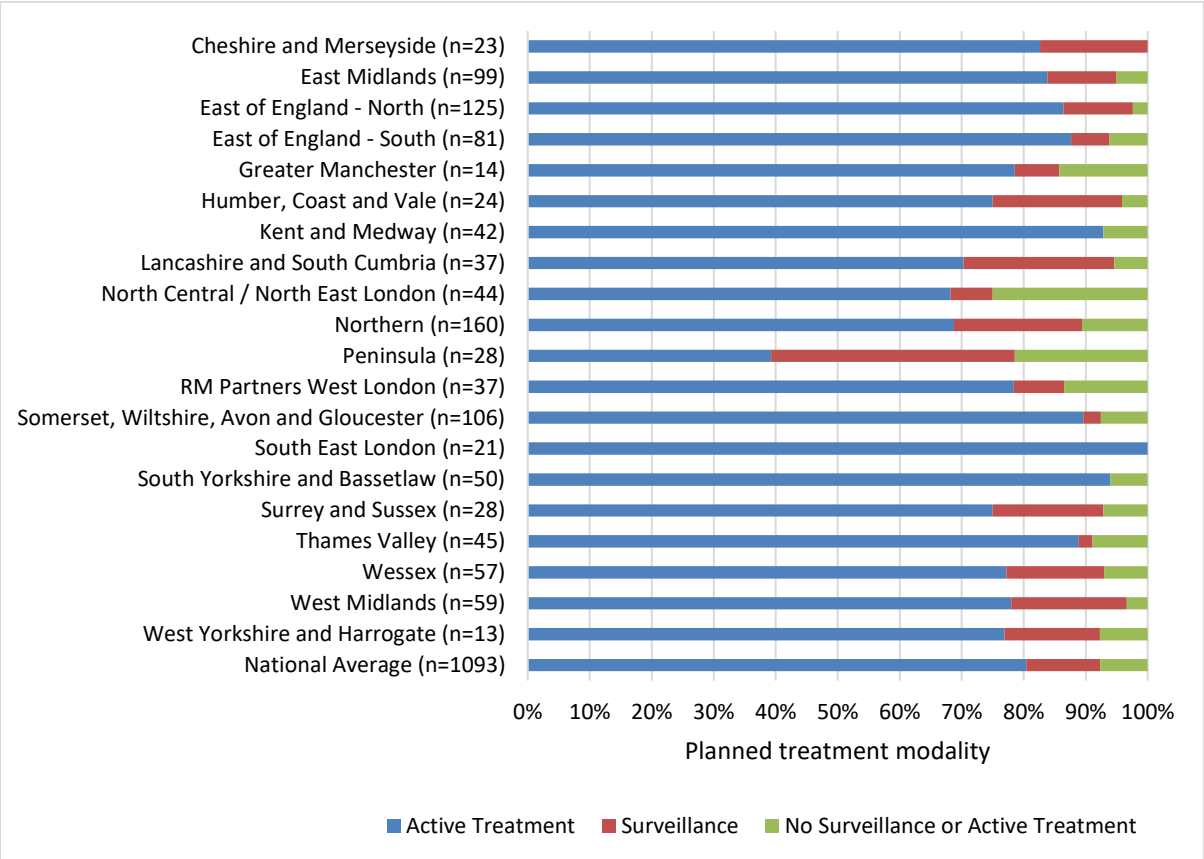
- The proportion of patients with an active treatment plan generally increased, from 77% in 2016/17 to 82% in 2019/20, but decreased to 74% in 2020/21.
- The proportion of patients with planned surveillance increased from 14% in 2016/17 to 16% in 2020/21.
- The proportion of patients with no active treatment or surveillance showed a downward trend until 2019/20 but increased in the most recent Audit year.

There was also some variation in the proportion of planned treatment modality between April 2017 and March 2021 across Cancer Alliances (Figure 9.3), with the percentage of patients with a plan for active treatment ranging from 25% to 100%, while the proportion of patients with a plan for surveillance ranged between 0% and 33%.

Table 9.2: Proportion of patients with active treatment plan, planned surveillance and no active treatment or surveillance, by audit years, between 2016-17 and 2019-20.

Audit year	No. of patients	Active Treatment	Planned Surveillance	No Active Treatment or Surveillance
2016-17	403	76.7%	13.7%	9.7%
2017-18	357	79.6%	11.8%	8.7%
2018-19	326	84.1%	9.8%	6.1%
2019-20	238	81.5%	11.8%	6.7%
2020-21	172	73.8%	16.3%	9.9%

Figure 9.3: Planned treatment modality among patients diagnosed with HGD between April 2017 and March 2021, by Cancer Alliance



Note: Data for North Central London and North East London cancer alliances are presented together as North Central / North East London cancer alliance. Number of patients in each cancer alliance are patient records with known information on treatment plan modality.

9.5 Outcomes after endoscopic procedures

Of the 311 endoscopic resection procedures recorded in the audit for patients diagnosed between April 2019 and March 2021, 129 (41%) and 126 (48%) of them had information on the involvement of lateral and deep margins recorded, respectively. Among them:

- 21% of resections had a positive deep resection margin.
- 15% of resections had a positive lateral margin.

Among patients with deep positive margin involvement and known ongoing treatment plan for the period 2019-21 (n=21),

- 33% had a plan for further endoscopic treatment;
- 55% had a plan for endoscopic surveillance; and
- 14% had a plan for oesophagectomy.

Annex 1: Organisation of the Audit

The National OG Cancer Audit is one workstream of the National GastroIntestinal Cancer Audit Programme, alongside the National Bowel Cancer Audit. The Programme is overseen by a single Project Board to ensure it fulfils the scope of the work commissioned by HQIP.

In addition, the NOGCA is assisted by a Clinical Reference Group (CRG), the membership of which is drawn from clinical groups involved in the management of oesophago-gastric cancer and patient organisations, and a patient panel.

Members of Clinical Reference Group for OG cancer workstream

Jan van der Meulen	London School of Hygiene & Tropical Medicine, Chair
William Allum	National Cancer Action Team
Matt Carter	Oxfordshire Oesophageal and Stomach Organisation
Adam Christian	Royal College of Pathologists
Bernadette Fairley	CNS Representative
Jamie Franklin	Radiologist
James Gossage	AUGIS
Rory Harvey	Cancer Programme of Care NHS England
Fiona Huddy	British Dietetic Association Oncology Group
Barry Laird	Palliative Medicine
Mimi McCord	Heartburn Cancer UK
Gareth Popham	Wales Cancer Network
Caroline Rogers	HQIP - Associate Director
Richard Roope	RCGP/CRUK Clinical Lead for Cancer
Sarah Walker	HQIP - Project Manager

with members of the project team.

Members of NOGCA Patient Panel

Matt Carter	Oxfordshire Oesophageal and Stomach Organisation
Jill Clark	Action Against Heartburn
Jennie King	Guts UK
Fiona Labrooy	Heartburn Cancer UK
Mimi McCord	Heartburn Cancer UK

Members of Project Board for the National GI Audit Programme

Neil Mortensen	Senior Council Member of RCS, Chair
Robert Arnott	Patient Representative (ACP)
Chris Dew	Programme head, NHS Digital
Martyn Evans	Welsh Representative
James Gossage	AUGIS Representative
Rebecca Muirhead	RCR Representative
Gareth Popham	NHS Wales
Alison Roe	Ops Manager - NHS Digital
Caroline Rogers	HQIP - Associate Director
Sarah Walker	HQIP - Project Manager

with members of the OG cancer project team and Bowel Cancer project team.

Annex 2: Audit methods

Inclusion criteria

The Audit prospectively collects both clinical and demographic details for patients diagnosed with invasive epithelial oesophago-gastric (OG) cancer (ICD-10 codes C15 and C16), or high grade dysplasia (HGD) of the oesophagus. Patients are eligible for inclusion if they were diagnosed in an NHS hospital in England or Wales, and were aged 18 or over at diagnosis.

Data collection

All NHS acute trusts in England involved in the care of both curative and palliative OG cancer patients are required to upload patient information into the Clinical Audit Platform (CAP) managed by NHS Digital. Information on the care pathway and outcomes are entered prospectively either manually or via a 'csv' file generated from other information systems. As many hospitals can be involved in the care of one patient, the hospital responsible for diagnosis or treatment uploads the relevant data, which is then de-identified by NHS Digital. Data for each patient is then collated and analysed by the Clinical Effectiveness Unit (CEU), Royal College of Surgeons. Information on the pro-forma for data collection, and the data dictionary are available from www.nogca.org.uk/.

Welsh data were provided by NHS Wales Health Collaborative. This dataset did not provide access to information on surgical complication rates, details of chemotherapy or radiotherapy regimens or on patients diagnosed with oesophageal HGD. Consequently, results requiring these data are not reported for Welsh patients.

Linkage to other data sets

The Audit dataset is 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:

- Registration and Death Register to provide accurate statistics on cancer survival
- Hospital Episode Statistics (HES) to provide additional information on hospital care both before and after the date of diagnosis, and to validate activity data provided by hospitals (eg, dates of procedures)
- Welsh hospital administrative database (Patient Episode Database for Wales PEDW)
- The national radiotherapy dataset (RTDS) that provides information on the episodes of radiotherapy received by patients in England
- The national systemic cancer dataset (SACT) that provides information on the regimens of chemotherapy delivered to patients in England
- The National Cancer Registration and Analysis Service dataset (NCRAS) to provide information on all cancer registrations in England and determine case ascertainment in the Audit

Data were linked using a hierarchical deterministic approach, which involved matching patient records using various patient identifiers (NHS number, sex, date of birth, and postcode).

Use of Hospital Episode Statistics

Hospitals Episode Statistics (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 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 oesophago-gastric (OG) 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 OG cancer patients in HES over the relevant timeframe, the date of diagnosis was taken as the admission date of the episode in HES where OG cancer was first recorded in the first diagnostic field.

Statistical analysis of data

The results of the Audit are presented at different levels:

1. by Cancer Alliance for England, with Wales considered as three separate areas (Swansea Bay, North Wales and South Wales), and
2. by English NHS trust / Welsh local health board.

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. When shown graphically, regional rates are plotted against the overall national rate. English patients were allocated to the Cancer Alliance based on their NHS trust of diagnosis and not by region of residence. Welsh patients were similarly allocated to the region based on the local health board of diagnosis.

In descriptive analyses of continuous variables, the distribution of values is described using appropriate statistics (eg, mean and standard deviation or median and interquartile range). We follow the Office for National Statistics policy on the publication of small numbers to minimise the risk of patient identification from these aggregate results.

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).

We derived risk-adjusted figures for each NHS surgical centre for the 30-day, 90-day and 1-year mortality indicators and the longitudinal and circumferential margin indicators. The rates were

adjusted to take into account differences in the case mix of patients treated at each centre using multivariable logistic models. The models were used to estimate the likelihood of the outcome (eg, death, a positive margin) for each individual having surgery, and these probabilities were then summed to calculate the predicted number of events for each NHS trust. The regression models were developed from the following patient characteristics: age at diagnosis, sex, deprivation quintile based on patient residential postcode, co-morbidities, performance status, T stage, number of positive nodes, site of tumour and ASA grade.

The risk-adjusted outcomes after curative surgery are presented using funnel plots. Two funnel limits were used that indicate the ranges within which 95.0% (representing a difference of two standard deviations from the national rate) or 99.8% (representing a difference of three standard deviations) would be expected to fall if variation was due only to sampling error. The control limits were calculated using the "exact" Binomial method. Following convention, we use the 99.8% limits to identify 'outliers' as it is unlikely for an NHS organisation to fall beyond these limits solely by chance.

If the Audit identifies an NHS organisation as an outlier, we follow the process outlined in the NOGCA outlier policy (available on www.nogca.org.uk website). This is based on the HQIP "Detection and Management of Outliers" policy (www.hqip.org.uk/resource/detection-and-management-of-outliers-for-national-clinical-audits) and involves giving the organisation an opportunity to review their data and ensure the submitted records are complete and free of errors. If the organisation remains an outlier after this review, the Audit will contact the organisation's clinical governance lead, Medical Director and Chief Executive. The CQC will also be informed.

The results of NHS trusts with a case volume of less than 10 were not included in the funnel plots because such small samples lead to unreliable statistical estimates due to the play of chance.

Annex 3: List of regional areas and NHS organisations

Cancer Alliance or Welsh Region	NHS Trust/ Health Board code	NHS Trust/Health Board name
Cheshire and Merseyside	RBT	Mid Cheshire Hospitals NHS Foundation Trust
	RJN	East Cheshire NHS Trust
	RBL	Wirral University Teaching Hospital NHS Foundation Trust
	RBN	St Helens and Knowsley Teaching Hospitals NHS Trust
	REM	Liverpool University Hospitals NHS Foundation Trust
	RJR	Countess of Chester Hospital NHS Foundation Trust
	RVY	Southport and Ormskirk Hospital NHS Trust
	RWW	Warrington and Halton Hospitals NHS Foundation Trust
	REN	The Clatterbridge Cancer Centre NHS Foundation Trust
East Midlands	RK5	Sherwood Forest Hospitals NHS Foundation Trust
	RFS	Chesterfield Royal Hospital NHS Foundation Trust
	RNQ	Kettering General Hospital NHS Foundation Trust
	RNS	Northampton General Hospital NHS Trust
	RTG	University Hospitals of Derby and Burton NHS Foundation Trust
	RWD	United Lincolnshire Hospitals NHS Trust
	RWE	University Hospitals of Leicester NHS Trust
	RX1	Nottingham University Hospitals NHS Trust
East of England - North	RCX	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust
	RDE	East Suffolk and North Essex NHS Foundation Trust
	RGN	North West Anglia NHS Foundation Trust
	RGP	James Paget University Hospitals NHS Foundation Trust
	RGR	West Suffolk NHS Foundation Trust
	RGT	Cambridge University Hospitals NHS Foundation Trust
	RM1	Norfolk and Norwich University Hospitals NHS Foundation Trust
East of England - South	RC9	Bedfordshire Hospitals NHS Foundation Trust
	RWG	West Hertfordshire Hospitals NHS Trust
	RWH	East and North Hertfordshire NHS Trust
	RQW	The Princess Alexandra Hospital NHS Trust
	RD8	Milton Keynes University Hospital NHS Foundation Trust
	RAJ	Mid and South Essex NHS Foundation Trust
Greater Manchester	R0A	Manchester University NHS Foundation Trust
	RBV	The Christie NHS Foundation Trust
	RM3	Northern Care Alliance NHS Foundation Trust
	RMC	Bolton NHS Foundation Trust
	RMP	Tameside and Glossop Integrated Care NHS Foundation Trust
	RRF	Wrightington, Wigan and Leigh NHS Foundation Trust
	RW6	Pennine Acute Hospitals NHS Trust
	RWJ	Stockport NHS Foundation Trust
Humber, Coast and Vale	RCB	York Teaching Hospital NHS Foundation Trust
	RCD	Harrogate and District NHS Foundation Trust
	RJL	Northern Lincolnshire and Goole NHS Foundation Trust
	RWA	Hull University Teaching Hospitals NHS Trust

Cancer Alliance or Welsh Region	NHS Trust/ Health Board code	NHS Trust/Health Board name
Kent and Medway	RN7	Dartford and Gravesham NHS Trust
	RPA	Medway NHS Foundation Trust
	RVV	East Kent Hospitals University NHS Foundation Trust
	RWF	Maidstone and Tunbridge Wells NHS Trust
Lancashire and South Cumbria	RXL	Blackpool Teaching Hospitals NHS Foundation Trust
	RXN	Lancashire Teaching Hospitals NHS Foundation Trust
	RXR	East Lancashire Hospitals NHS Trust
	RTX	University Hospitals of Morecambe Bay NHS Foundation Trust
North Central London	RAL	Royal Free London NHS Foundation Trust
	RAP	North Middlesex University Hospital NHS Trust
	RKE	Whittington Health NHS Trust
	RRV	University College London Hospitals NHS Foundation Trust
North East London	R1H	Barts Health NHS Trust
	RF4	Barking, Havering and Redbridge University Hospitals NHS Trust
	RQX	Homerton University Hospital NHS Foundation Trust
Northern	R0B	South Tyneside and Sunderland NHS Foundation Trust
	RNN	Cumbria Partnership NHS Foundation 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
Peninsula	RA9	Torbay and South Devon NHS Foundation Trust
	RBZ	Northern Devon Healthcare NHS Trust
	REF	Royal Cornwall Hospitals NHS Trust
	RH8	Royal Devon and Exeter NHS Foundation Trust
	RK9	University Hospitals Plymouth NHS Trust
RM Partners West London	R1K	London North West University Healthcare NHS Trust
	RAS	The Hillingdon Hospitals NHS Foundation Trust
	RQM	Chelsea and Westminster Hospital NHS Foundation Trust
	RYJ	Imperial College Healthcare NHS Trust
	RAX	Kingston Hospital NHS Foundation Trust
	RJ6	Croydon Health Services NHS Trust
	RJ7	St George's University Hospitals NHS Foundation Trust
	RPY	The Royal Marsden NHS Foundation Trust
	RVR	Epsom and St Helier University Hospitals NHS Trust
Somerset, Wiltshire, Avon & Gloucestershire	RA7	University Hospitals Bristol and Weston NHS Foundation Trust
	RA4	Yeovil District Hospital NHS Foundation Trust
	RH5	Somerset NHS Foundation Trust
	RD1	Royal United Hospitals Bath NHS Foundation Trust
	RN3	Great Western Hospitals NHS Foundation Trust
	RVJ	North Bristol NHS Trust
	RTE	Gloucestershire Hospitals NHS Foundation Trust
	RNZ	Salisbury NHS Foundation Trust
South East London	RJ1	Guy's and St Thomas' NHS Foundation Trust
	RJ2	Lewisham and Greenwich NHS Trust
	RJZ	King's College Hospital NHS Foundation Trust

Cancer Alliance or Welsh Region	NHS Trust/ Health Board code	NHS Trust/Health Board name
South Yorkshire and Bassetlaw	RFF	Barnsley Hospital NHS Foundation Trust
	RFR	The Rotherham NHS Foundation Trust
	RHQ	Sheffield Teaching Hospitals NHS Foundation Trust
	RP5	Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust
Surrey and Sussex	RA2	Royal Surrey County Hospital NHS Foundation Trust
	RDU	Frimley Health NHS Foundation Trust
	RTK	Ashford and St Peter's Hospitals NHS Foundation Trust
	RTP	Surrey and Sussex Healthcare NHS Trust
	RXC	East Sussex Healthcare NHS Trust
	RYR	University Hospitals Sussex NHS Foundation Trust
Thames Valley	RHW	Royal Berkshire NHS Foundation Trust
	RTH	Oxford University Hospitals NHS Foundation Trust
	RXQ	Buckinghamshire Healthcare NHS Trust
Wessex	RBD	Dorset County Hospital NHS Foundation Trust
	R0D	University Hospitals Dorset NHS Foundation Trust
	R1F	Isle of Wight NHS Trust
	RHM	University Hospital Southampton NHS Foundation Trust
	RHU	Portsmouth Hospitals NHS Trust
	RN5	Hampshire Hospitals NHS Foundation Trust
West Midlands	RBK	Walsall Healthcare NHS Trust
	RRK	University Hospitals Birmingham NHS Foundation Trust
	RXK	Sandwell and West Birmingham Hospitals NHS Trust
	RJC	South Warwickshire NHS Foundation Trust
	RKB	University Hospitals Coventry and Warwickshire NHS Trust
	RLT	George Eliot Hospital NHS Trust
	RLQ	Wye Valley NHS Trust
	RWP	Worcestershire Acute Hospitals NHS Trust
	RJE	University Hospitals of North Midlands NHS Trust
	RL4	The Royal Wolverhampton NHS Trust
	RNA	The Dudley Group NHS Foundation Trust
	RXW	Shrewsbury and Telford Hospital NHS Trust
West Yorkshire and Harrogate	RAE	Bradford Teaching Hospitals NHS Foundation Trust
	RCF	Airedale NHS Foundation Trust
	RR8	Leeds Teaching Hospitals NHS Trust
	RWY	Calderdale and Huddersfield NHS Foundation Trust
	RXF	Mid Yorkshire Hospitals NHS Trust
North Wales	7A1	Betsi Cadwaladr University Health Board
South Wales	7A2	Hywel Dda University Health Board
	7A4	Cardiff and Vale University Health Board
	7A5	Cwm Taf Morgannwg University Health Board
	7A6	Aneurin Bevan University Health Board
Swansea Bay	7A3	Swansea Bay University Health Board

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Glossary

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.

Ablation – a palliative technique (performed by laser or argon beam coagulation) that aims to reduce symptoms by destroying the surface of the tumour, thereby shrinking it in size.

Adenocarcinoma – Tend to occur in the lower third of the oesophagus or stomach in glandular cells that make and release fluids.

AUGIS – Association of Upper GI Surgery of Great Britain and Ireland

Brachytherapy – This is a type of radiotherapy in which a radiation source is placed inside a person's oesophagus, next to the area requiring treatment.

BSG – British Society of Gastroenterology

CARMS – The Clinical Audit and Registries Management Service Support Unit of NHS Digital manages a number of national clinical audits in the areas of cancer, diabetes and heart disease. It is one of the key stakeholders leading the Audit.

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).

CEU – The Clinical Effectiveness Unit 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 – (Computer Tomography) an imaging modality that uses X-ray radiation to build up a 3-dimensional image of the body. It is used to detect distant abnormalities (such as metastases) but has a limited resolution, so is less useful for detecting smaller abnormalities (such as in 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 OG cancer and is dependent on how far the disease has spread and the patient's general health and physical condition.

Dilatation – a procedure that involves inflating balloon or passing a bougie or dilator after inserting an endoscope into the oesophagus to increase the size of the opening through which food or liquids can pass.

Doublet regimen – a combination chemotherapy regimen for palliative treatment that use two drugs: a platinum-based agent and a fluoropyrimidine.

Dysphagia – A symptom where the patient experiences difficulty swallowing. They often complain that the food sticks in their throat or chest. 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 – A procedure to remove abnormal tissue from the digestive tract using a telescopic camera to guide instruments. This procedure can be used to treat high grade dysplasia or early cancers of the oesophagus, stomach or duodenum.

Endoscopic palliative therapies – These are treatments that aim to relieve symptoms, such as vomiting or swallowing difficulties, by using a telescopic camera to guide instruments that can relieve the blockage. Examples include stents, dilatation, laser therapy and brachytherapy.

Endoscopic ultrasound (EUS) – An investigation that uses an ultrasound probe on the end of a telescope. It is used to determine how deep into the surrounding tissues a cancer has invaded and to what extent it has spread to local lymph nodes.

FLOT – A chemotherapy regimen consisting of 5-fluorouracil, oxaliplatin and docetaxel, which may be given before and after curative surgery in the treatment of stomach cancer or localised oesophageal and junctional adenocarcinomas (excluding T1n0 tumours).

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.

Gy/F or Grays/Fractions – External beam radiotherapy treatment is usually delivered over several treatment sessions. A course of radiotherapy is described as the full planned dose of radiation in Grays (Gy), and the number of treatment sessions (fractions, F) over which the dose is delivered.

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.

High-grade dysplasia of the oesophagus – Precancerous changes in the cells of the oesophagus, which are often associated with Barrett's oesophagus.

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

Laparoscopy – This is often called "keyhole surgery" and involves inserting a small camera into the belly 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 oval bits of tissue that form part of the immune system. They are distributed throughout the body and are usually the first place to which cancers spread.

Margins – Margins are the edges of the tissue removed in resection procedures (endoscopic or surgical resections). When cancer cells are found at the edge of the removed tissue, the margin is described as positive or involved. Positive or involved margins suggest that not all of the cancer has been removed. Margins are described as negative or clear when no cancer cells are found at the edge of the tissue.

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, and is known as metastatic disease.

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

Minimally invasive surgery – A procedure performed through the skin or anatomical opening using a laparoscopic instrument rather than through an opening. Full minimally invasive oesophagectomies involve thoracoscopy for the chest-phase of the operation and laparoscopy for the abdominal phase.

Neo-adjuvant 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.

Neoplasm – A neoplasm or tumour is an abnormal mass of tissue that results when cells divide more than they should or do not die. Neoplasms may be benign (not cancerous), or malignant (cancerous).

NHS Digital – A special health authority that provides facts and figures to help the NHS and social services run effectively. The Clinical Audit and Registries Management Service (CARMS) is one of its key components.

NICE – The National Institute for Health and Care 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 foodpipe.

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.

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 (also called non-curative care) is the care given to patients whose disease cannot be cured. It aims to improve quality of life rather than just extend survival and concentrates on relieving physical and psychological distress.

PEDW – Patient Episode Database for Wales (PEDW) is an administrative database that contains data on all in-patients treated within NHS hospitals in Wales.

PET-CT – Positron emission tomography scan, an imaging technique that detects cancer spread or metastases by looking at how fast radioactive sugar molecules are used by different parts of the body. Cancer cells use sugar at a very high rate so show up brightly on this test.

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.

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.

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.

Siewert classification – Anatomical classification used for adenocarcinomas of the gastro-oesophageal junction. Type I (SI) – adenocarcinoma of the distal part of the oesophagus (tumour centre 1-5 cm above the gastric cardia). Type II (SII) – adenocarcinoma of the real cardia (tumour centre within 1 cm above or 2 cm below the gastric cardia). Type III (SIII) – adenocarcinoma of the subcardial stomach (tumour centre located 2-5 cm below the gastric cardia).

Squamous cell carcinoma – A tumour that is located in the cells lining the oesophagus and tends to occur in the upper or middle of the oesophagus.

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.

Stent – A device used to alleviate swallowing difficulties or vomiting in patients with incurable OG cancer. It is a collapsible tube that expands and relieves the blockage when inserted into the affected area.

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

Two-week wait referral – This is a referral mechanism used by General Practitioners (GPs) when they suspect the patient may have cancer.

Ultrasound – An imaging modality that uses high frequency sound waves to create an image of tissues or organs in the body.