

Levelling up: what does it mean for the less survivable cancers in England?



Foreword

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More people are surviving cancer than ever before.¹ But a closer look at the data reveals that for certain cancers – including lung, pancreatic, liver, brain, oesophageal and stomach cancers – survival remains extremely poor. Today, only 16% of patients with a less survivable cancer live beyond five years,² whereas most other cancers have five-year survival rates exceeding 50%.³ Behind these numbers are real people and real families. The Less Survivable Cancers Taskforce brings together six charities to highlight the need for urgent action and work with policymakers to drive meaningful improvements in patient outcomes and experience. We can – and must – do better.

Eliminating unwarranted geographical variation in cancer care and ‘levelling up’ across all elements of the patient pathway should be a top priority. As outlined in this report, publicly available data indicates that a patient’s postcode influences how early they are diagnosed, the treatment they are offered and, ultimately, how long they live. This should not be the case. For example, for stomach cancer, the percentage of cases diagnosed early (at stage 1 or 2) from 2017-2019 ranged from approximately 11% in the worst performing local area to 50% in the best performing local area⁴ – although even this is 25% below the NHS Long Term Plan target of diagnosing 75% of all cancers at an early stage by 2028.

It is difficult to unpick the causes of this variation, not helped by the lack of high-quality data collected and published on the less survivable cancers – something that needs to be addressed urgently. This report does, however, feature emerging evidence suggesting that people with a less survivable cancer from the most deprived backgrounds face significant health inequalities compared to their counterparts from the least deprived backgrounds. By levelling up cancer care in the most deprived areas to match that in the least deprived areas, it is estimated that thousands of less survivable cancer cases could be prevented,^{5,6,7,8,9} and thousands more deaths could be avoided,¹⁰ each year.

People with a less survivable cancer have been overlooked for too long. While the Government and the NHS have committed to accelerating early diagnosis, increasing survival rates and tackling health inequalities,¹¹ there are currently no specific ambitions or targets relating to the less survivable cancers. Without greater focus on, and investment in, the less survivable cancers, it is difficult to see how things will improve for people diagnosed with these cancers, and how the Government and the NHS will succeed in their bold ambitions. **The time to change this is now.**

The Less Survivable Cancers Taskforce is pleased to have provided advice and input to MSD in the development of this report. We now urge policymakers – working with partners including patients and patient groups – to reflect on the report’s findings and take action in response to its recommendations. It is time to level up the less survivable cancers.

Anna Jewell
Chair, Less Survivable Cancers Taskforce



DISCLAIMER

This report was funded and developed by MSD, with advice and input from members of the Less Survivable Cancers Taskforce.

The Less Survivable Cancers Taskforce is an independent coalition of charities representing each of the six most common less survivable cancers. Its founding member organisations are: Action Against Heartburn; British Liver Trust; Guts UK; Pancreatic Cancer UK; Roy Castle Lung Cancer Foundation and The Brain Tumour Charity. For more information about the Less Survivable Cancers Taskforce, please visit lessurvivablecancers.org.uk.

Summary of recommendations

There is widespread geographical variation in diagnosis, treatment and outcomes for people with a less survivable cancer in England, and a growing body of evidence to suggest that, in some cases, deprivation is a driver of this variation. Furthermore, the less survivable cancers often lag behind other cancers – for example, only 16% of people with a less survivable cancer live beyond five years,² whereas most other cancers have five-year survival rates exceeding 50%.³ Without greater focus on, and investment in, the less survivable cancers, it will not be possible to deliver on the ambitions of the NHS Long Term Plan (NHS LTP) and it will not be possible for the UK to lead the world in cancer care.

To level up the less survivable cancers – by addressing unwarranted variation and closing the gap to other cancers – this report makes the following recommendations:

1 
The Government should make a specific pledge to double survival rates for people with a less survivable cancer over the next decade.

2 
As recommended by the Health and Social Care Committee, **NHS England should produce an overarching national action plan for the less survivable cancers.** This should include commitments aimed at preventing more cases, accelerating early diagnosis, ensuring equitable access to treatment and increasing survival rates.

3 
Integrated Care Boards (ICBs) and Cancer Alliances should develop local action plans for the less survivable cancers informed by population health data and direct engagement with patients. ICBs should publish regular progress reports, including performance against measurable targets, and be held to account by NHS England.

For example:

- Investing in prevention initiatives, particularly in areas with the highest incidence rates
- Developing, funding and implementing best practice timed pathways for all six less survivable cancers
- Reporting on performance against cancer waiting times targets for all six less survivable cancers
- Taking action to understand and address variable treatment rates across the country

4 
NHS England, NHS Digital, Cancer Alliances and Integrated Care Systems (ICSs) should work together to improve the timeliness, completeness, granularity and accessibility of data on the less survivable cancers. This includes addressing data quality issues, publishing more cancer data broken down by cancer type, deprivation and ethnicity, and investing in analytical capacity and capability.

5 
The Healthcare Quality Improvement Partnership (HQIP) should commission national audits for liver and brain cancer, and accelerate the planned audit for pancreatic cancer, building on the existing audits for lung and oesophago-gastric cancer. The audits should be designed and delivered in collaboration with relevant charities and healthcare professionals, and the results should be used to address unwarranted variation and support service improvement.

Introduction

Over 90,000 people are diagnosed with a less survivable cancer every year in the UK: lung cancer, pancreatic cancer, liver cancer, oesophageal cancer, stomach cancer or brain tumours. These cancers make up a quarter of all diagnoses, but more than 40% of all deaths from the disease.¹² Survival rates for the less survivable cancers have remained stubbornly low since the early 1970s¹³ and, currently, only 16% of patients live beyond five years.² Nearly all other cancers have five-year survival rates exceeding 50% and a small number exceed 75%.³ It should not be acceptable for the less survivable cancers to lag so far behind.

The Government and the NHS have made numerous commitments to improving cancer outcomes in England. When the NHS Long Term Plan (NHS LTP) was published in 2019, it set a clear ambition to diagnose 75% of all cancers at stage 1 or 2 by 2028. The plan stated that this would lead to 55,000 more people each year surviving their cancer for at least five years.¹ However, there are currently no specific commitments or targets relating to the less survivable cancers.

More recently, particularly in the wake of the COVID-19 pandemic, there has been an increased focus on levelling up the United Kingdom and addressing the core drivers of inequalities in health outcomes – not just in cancer. A White Paper on Health Disparities in England, due for publication later in 2022, is expected to “set out a bold ambition for reducing the gap in health outcomes, with a strong focus on prevention and disparities by ethnicity, socioeconomic background and geography.”¹⁴ At a local level, all 42 Integrated Care Boards (ICBs) across England have a statutory duty to reduce health inequalities.¹⁵

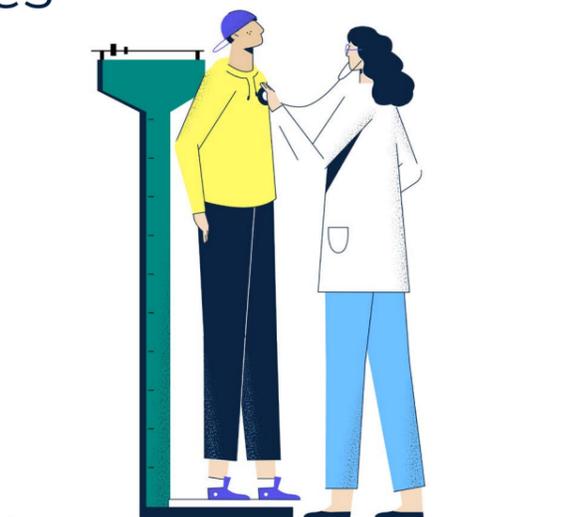
Using the most up-to-date publicly available cancer data from NHS England and the National Cancer Registration and Analysis Service (NCRAS, which is part of NHS Digital), this report presents heat maps and graphs to highlight widespread geographical variation in diagnosis, treatment and outcomes for people with a less survivable cancer in England. It also draws on published literature to explain how deprivation may be a driver of variation. We hope it will help both national and local decision-makers identify opportunities to level up the less survivable cancers.

Throughout this report, we refer to Clinical Commissioning Groups (CCGs), ICBs, Integrated Care Systems (ICSs) and Cancer Alliances:

- CCGs used to be responsible for planning and paying for (or ‘commissioning’) most healthcare services in their area. At the end of June 2022, there were 106 CCGs across England.¹⁶
- In July 2022, CCGs were abolished and replaced with ICBs, which took over their commissioning responsibilities. Each ICB is part of a broader partnership of health and care organisations called an ICS. There are 42 ICSs across England.¹⁷
- Cancer Alliances bring together key organisations in their area to coordinate cancer care and improve patient outcomes. This includes leading the development and delivery of ICB cancer plans. There are 21 Cancer Alliances across England.¹⁸

The data in this report is presented at the most local level possible which, depending on the dataset, will be provider (NHS trust or NHS foundation trust), CCG or Cancer Alliance level. Data is presented at CCG level, rather than ICS level, because cancer data is not yet available broken down by ICS. However, the report’s insights are still highly relevant to ICSs.

Variation in diagnosis, treatment and patient outcomes



Incidence

Over 90,000 people are diagnosed with a less survivable cancer every year in the UK, making up a quarter of all cancer diagnoses.¹²

Many less survivable cancers are preventable: in England, it is estimated that 78.8% of lung cancer cases, 58.7% of oesophageal cancer cases, 53.1% of stomach cancer cases, 48.3% of liver cancer cases and 31.2% of pancreatic cancer cases are caused by avoidable risk factors such as smoking, overweight and obesity, and alcohol consumption (brain cancer is not listed because most cases are not preventable).¹⁹ Risk factors are often more prevalent in the most deprived areas of the country, which may help explain why we see a link between cancer incidence and deprivation.²⁰ Out of all cancers, lung cancer has the largest difference in age-standardised incidence rates between those living in the most and least deprived areas.²¹ It also appears that incidence rates for some cancer types vary by ethnicity. For example, people from Black backgrounds are more likely to get pancreatic, liver or stomach cancer, and people from Asian backgrounds are more likely to get liver cancer.²²

The data in this section describes less survivable cancer diagnoses in 2019 at Clinical Commissioning Group (CCG) level.²³ CCGs with fewer than 20 diagnoses have been excluded from the ranges because a small number of diagnoses can affect the reliability of age-standardised incidence rates.²⁴ The national age-standardised incidence rate for brain cancer is 8.4 per 100,000,²⁵ but no local data is available and therefore it is not possible to comment on variation in brain cancer incidence across England.

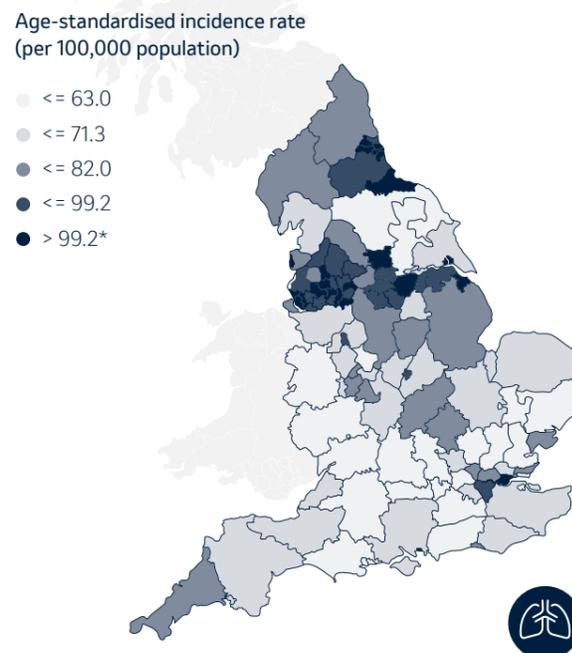


Figure 1 | Lung cancer
C33-C34 = malignant neoplasm of trachea, bronchus and lung

39,990 people were diagnosed with lung cancer in 2019 and the overall age-standardised incidence rate was 74.9 per 100,000. Across CCGs, age-standardised incidence rates ranged from 50.0 per 100,000 to 160.7 per 100,000 (a difference of 110.7 people per 100,000).²³

*The data for each heat map in this report has been split into quintiles. For example, in this case, the best performing 20% of CCGs have age-standardised lung cancer incidence rates that are less than or equal to 63.0 people per 100,000 (shown in the lightest blue) and the worst performing 20% of CCGs have age-standardised lung cancer incidence rates that are more than 99.2 people per 100,000 (shown in the darkest blue). As each heat map uses a different scale, they should not be compared to one another.

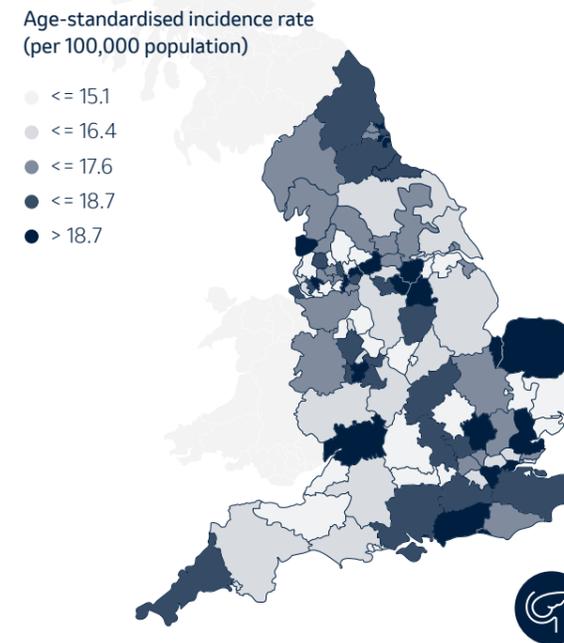


Figure 2 | Pancreatic cancer
C25 = malignant neoplasm of pancreas

9,263 people were diagnosed with pancreatic cancer in 2019 and the overall age-standardised incidence rate was 17.3 per 100,000. Across CCGs, age-standardised incidence rates ranged from 11.2 per 100,000 to 24.9 per 100,000 (a difference of 13.7 people per 100,000).²³

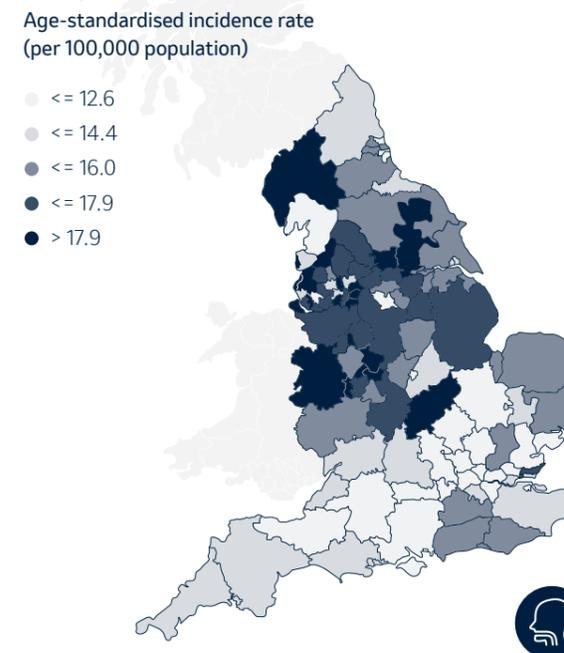


Figure 4 | Oesophageal cancer
C15 = malignant neoplasm of oesophagus

7,810 people were diagnosed with oesophageal cancer in 2019 and the overall age-standardised incidence rate was 14.6 per 100,000. Across CCGs, age-standardised incidence rates ranged from 9.6 per 100,000 to 27.9 per 100,000 (a difference of 18.3 people per 100,000).²³

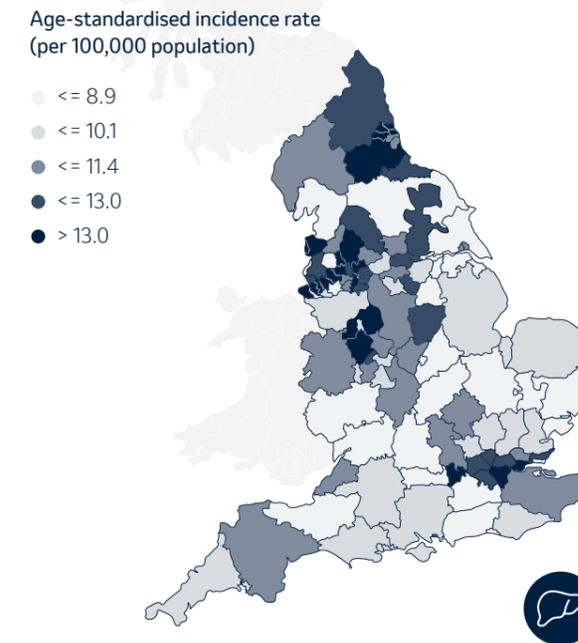


Figure 3 | Liver cancer
C22 = malignant neoplasm of liver and intrahepatic bile ducts

5,741 people were diagnosed with liver cancer in 2019 and the overall age-standardised incidence rate was 10.7 per 100,000. Across CCGs, age-standardised incidence rates ranged from 4.0 per 100,000 to 28.5 per 100,000 (a difference of 24.5 people per 100,000).²³

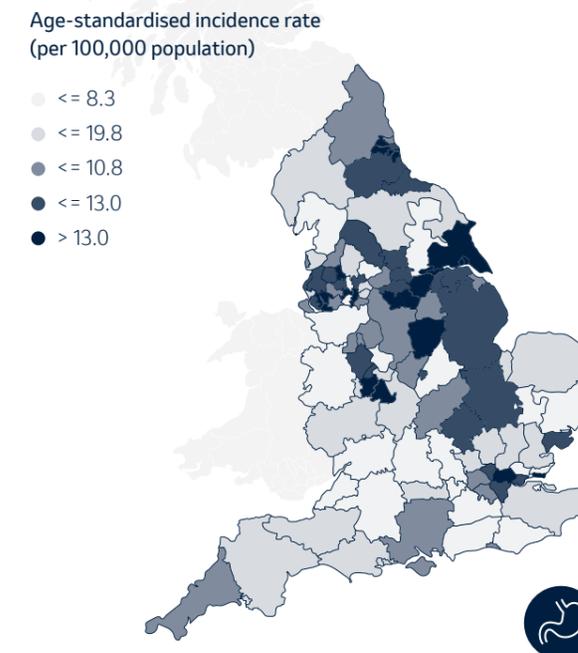


Figure 5 | Stomach cancer
C16 = malignant neoplasm of stomach

5,609 people were diagnosed with stomach cancer in 2019 and the overall age-standardised incidence rate was 10.4 per 100,000. Across CCGs, age-standardised incidence rates ranged from 5.4 per 100,000 to 18.6 per 100,000 (a difference of 13.2 people per 100,000).²³

Earlier and faster diagnosis

The Government and the NHS are committed to diagnosing cancer both earlier and faster. The NHS Long Term Plan (NHS LTP), published in January 2019, set a target to diagnose 75% of all cancers at an early stage (stage 1 or 2) by 2028.¹ Since October 2021, local health systems have also been expected to achieve the Faster Diagnosis Standard (FDS). This states that at least 75% of patients should receive a diagnosis or have cancer ruled out within 28 days of being urgently referred for suspected cancer.²⁶

In pursuit of these ambitions, NHS England began rolling out Rapid Diagnostic Centres (RDCs) in 2019 to accelerate the diagnosis of cancer and other serious conditions.²⁷ It has also published four national best practice timed pathways covering lung, prostate, colorectal and oesophago-gastric cancer to support systems to meet the FDS.²⁸ Most recently, early cancer diagnosis has been included as a clinical area of focus in NHS England's 'Core20PLUS5' framework, which is designed to support Integrated Care Systems (ICSs) to reduce health inequalities.²⁹

As reporting on the FDS is still in its infancy, the data in this section focuses on the NHS LTP target by describing the percentage of less survivable cancers diagnosed at stage 1 or 2 in England from 2017-2019 at Clinical Commissioning Group (CCG) level (see appendix 1a for calculation details).⁴ The data is unadjusted, meaning that some variation between CCGs may be driven by population characteristics such as age, sex and deprivation. Furthermore, data completeness varies considerably between CCGs, which may affect the reliability of some estimates. No local data is available for liver or brain cancer. In the case of brain cancer, this is because it has no formal staging system,³⁰ illustrating how overarching cancer targets can sometimes risk overlooking and under-resourcing less survivable cancers. **It is essential that steps are taken to accelerate early diagnosis for all – not just some – cancers, for example the development of proxy markers to monitor progress.**

Overall, only 27.9% of less survivable cancers were diagnosed at stage 1 or 2 from 2017-2019, compared to an all-cancer average over the same time period of 53.9% (see appendix 1a for calculation details). In many cases, even the best performing CCGs – the ones that diagnose the highest percentage of less survivable cancers at stage 1 or 2 – do not meet the all-cancer average, which is already more than 20% below the NHS LTP ambition of 75%.⁴ It is reported that people with oesophageal cancer from more deprived areas are significantly less likely to be diagnosed at stage 1 or 2 compared to those from less deprived areas.³¹

Ultimately the 75% target is welcome, but completely unachievable without tailored improvement strategies to accelerate the early diagnosis of less survivable cancers. It is therefore positive that the NHS is reportedly developing “a clear set of actions to improve earlier diagnosis amongst the less survivable cancers.”³² If every CCG had matched the top quintile for lung, pancreatic, oesophageal and stomach cancer from 2017-2019, it is estimated that an extra 4,650 patients could have been diagnosed at an early stage (1,550 each year). This would have increased the percentage of less survivable cancers diagnosed at stage 1 or 2 from 27.9% to 30.8% (see appendix 1a for calculation details).⁴

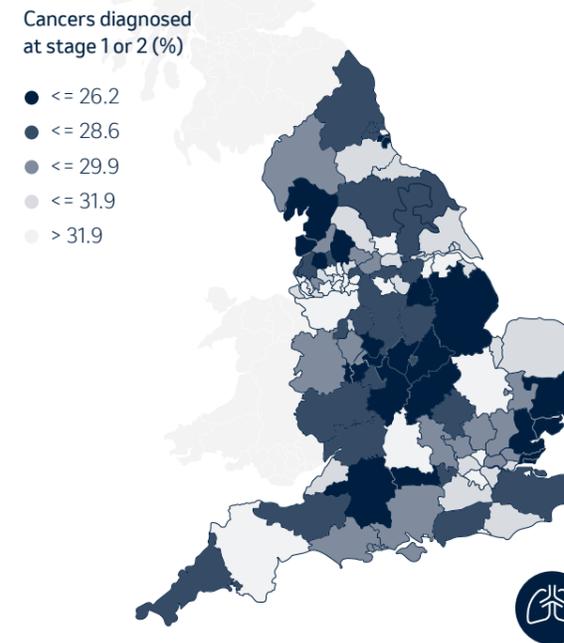


Figure 6 | Lung cancer
C34 = malignant neoplasm of bronchus and lung

At a national level, 29.6% of lung cancer patients were diagnosed at stage 1 or 2 from 2017-2019 and average data completeness was 91.6%. **Across CCGs, the percentage of lung cancer patients diagnosed at stage 1 or 2 ranged from 19.0% to 42.6% (a difference of 23.6 percentage points).**⁴

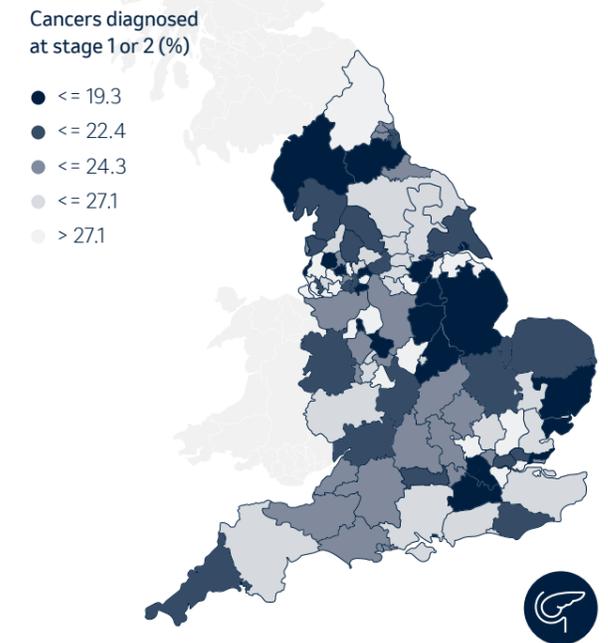


Figure 7 | Pancreatic cancer
C25 = malignant neoplasm of pancreas

At a national level, 23.1% of pancreatic cancer patients were diagnosed at stage 1 or 2 from 2017-2019 and average data completeness was 78.4%. **Across CCGs, the percentage of pancreatic cancer patients diagnosed at stage 1 or 2 ranged from 10.5% to 32.8% (a difference of 22.3 percentage points).**⁴

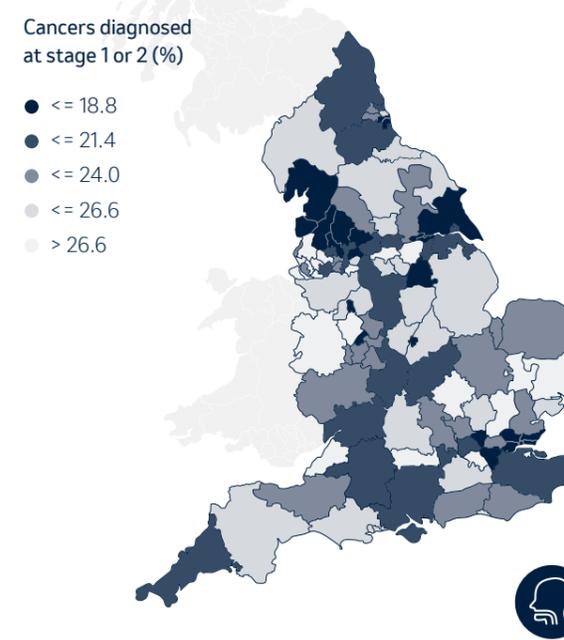


Figure 8 | Oesophageal cancer
C15 and C16.0 = malignant neoplasm of oesophagus and malignant neoplasm of cardia

At a national level, 22.9% of oesophageal cancer patients were diagnosed at stage 1 or 2 from 2017-2019 and average data completeness was 79.8%. **Across CCGs, the percentage of oesophageal cancer patients diagnosed at stage 1 or 2 ranged from 7.8% to 37.3% (a difference of 29.5 percentage points).**⁴

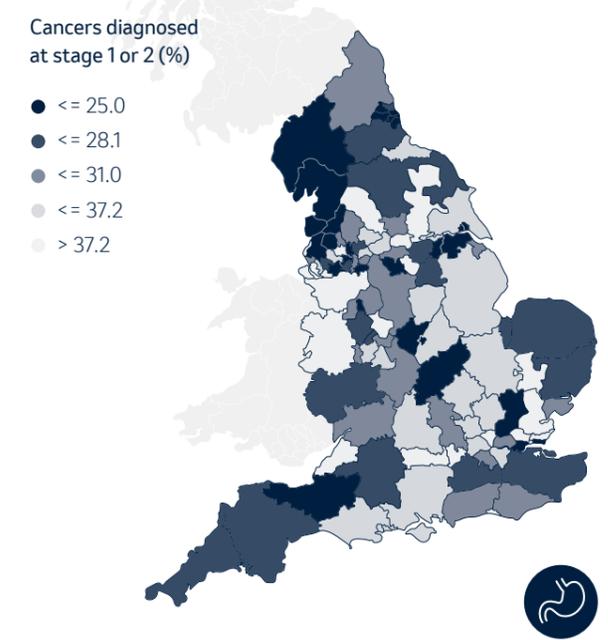


Figure 9 | Stomach cancer
C16 excluding C16.0 = malignant neoplasm of stomach excluding malignant neoplasm of cardia

At a national level, 31.0% of stomach cancer patients were diagnosed at stage 1 or 2 from 2017-2019 and average data completeness was 72.8%. **Across CCGs, the percentage of stomach cancer patients diagnosed at stage 1 or 2 ranged from 10.8% to 50.0% (a difference of 39.2 percentage points).**⁴

Waiting for treatment

The introduction of the Faster Diagnosis Standard (FDS) means there is a strong focus on accelerating the time from referral to diagnosis – but it is equally important to understand trends in the time from referral to treatment.

This is captured by the 62-day target, set by NHS England, which states that at least 85% of patients should receive their first treatment within 62 days of an urgent referral for suspected cancer.³³ This target is important because evidence for some cancers suggests that even a four-week delay in treatment can increase mortality.³⁴ However, it is important to note that it is still too slow for some cancers – for example, 1 in 4 people with pancreatic cancer die within a month of diagnosis.³⁵

The data in this section shows the percentage of lung cancer patients starting treatment within 62 days of referral between January and March 2022 at provider level,³⁶ compared to an all-cancer average of 63.9%.³⁷ Providers treating fewer than 10 patients during this time have been excluded from the range. No national or local data is available for pancreatic, liver, brain, oesophageal or stomach cancer. **This is a prime example of how gaps in the data severely limit our ability to gain a complete understanding of the care that patients with a less survivable cancer receive, consequently making it difficult to hold local health bodies to account, identify areas for improvement and monitor trends over time.**

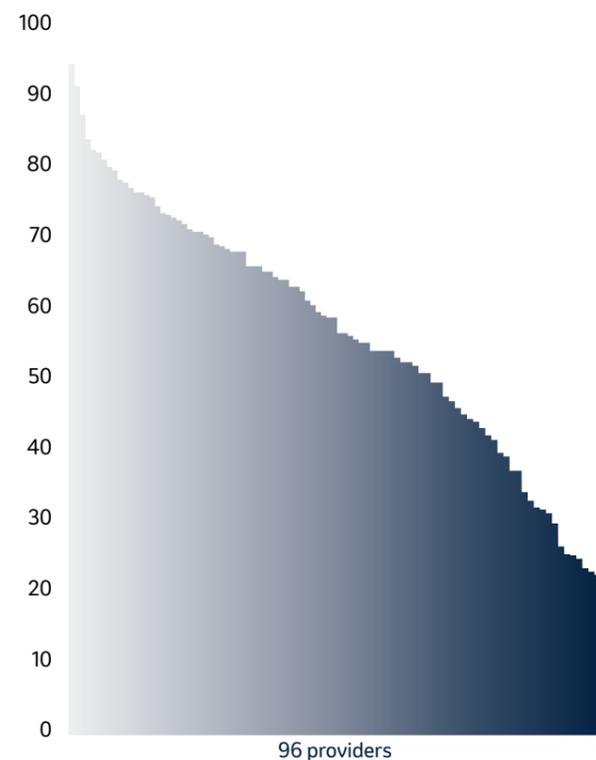
Figure 10 | Lung cancer

C33-C39 and C45 = malignant neoplasm of trachea, bronchus and lung, malignant neoplasm of thymus, malignant neoplasm of heart, mediastinum and pleura, malignant neoplasm of other ill-defined sites in the respiratory system and intrathoracic organs, and mesothelioma

At a national level, between January and March 2022, 57.9% of lung cancer patients started treatment within 62 days of referral.³⁷ **Across providers, the percentage of lung cancer patients starting treatment within 62 days of referral ranged from 14.3% to 95.5% (a difference of 81.2 percentage points).**³⁶

While performance during this period is likely to have been impacted by the COVID-19 pandemic, it is worth noting that, between January and March 2019, only 64.2% of lung cancer patients started treatment within 62 days of referral. This is still more than 20 percentage points below the operational target of 85%.³⁸ Local health systems have been asked to restore their performance against the 62-day wait to pre-pandemic levels by March 2023,³⁹ but this target clearly does not go far enough for lung cancer patients and it will do nothing to ensure that patients with other less survivable cancers receive treatment in a timely fashion.

Performance against 62-day (urgent GP referral to treatment) wait (%): lung cancer



Treatment rates

As well as variation in the length of time that people have to wait for treatment, there are also considerable differences in treatment rates across the country.

The data in this section shows the percentage of less survivable cancer patients diagnosed in England from 2013-2018 and recorded as receiving chemotherapy, radiotherapy or surgical tumour resection – alone or in combination – at Cancer Alliance level (see appendix 1b for calculations).⁴⁰ The data is unadjusted for factors that may affect treatment such as stage, age, sex, deprivation, ethnicity and comorbidities, meaning that not all variation between Cancer Alliances will be unwarranted.⁴¹ In some cases, it may have been the patient's choice not to undergo treatment. A National Lung Cancer Audit report on treatment for people with early stage non-small cell lung cancer found that 15% of patients chose to decline surgery.⁴² In other cases, it may not have been clinically appropriate to proceed with treatment or a particular treatment modality.

Nonetheless, evidence suggests that there is room for improvement. Møller et al. describe widespread geographical variation in lung cancer treatment rates across England (even after adjustment for potential confounders) and state that, if everywhere matched the best radiotherapy and surgery rates in the country, 561 deaths could be avoided within two years.

If everywhere matched the best chemotherapy rate in the country, a further 318 deaths could be avoided within six months. Møller et al. go on to explain that even the highest treatment rates are below the levels required for optimal survival outcomes.⁴³ This tallies with other research showing that, in 2018, the UK's cumulative uptake of lung cancer medicines ranked 21st out of the 25 European countries studied.⁴⁴

Deprivation also appears to influence access to treatment. Compared to people from less deprived backgrounds, people from more deprived backgrounds reportedly have a lower likelihood of: receiving surgery for non-small cell lung cancer;^{45,46} receiving chemotherapy for non-small cell lung cancer, oesophageal cancer, stomach cancer and lung cancer;⁴⁷ and receiving chemotherapy and radiotherapy combined for non-small cell lung cancer, small cell lung cancer and oesophageal cancer.⁴⁷ Limited recruitment to clinical trials – which are crucial in facilitating rapid access to the most innovative treatments – is another concern.⁴⁸ Cancer patients in the most deprived areas receive only half the number of referrals to early stage clinical trials compared to their counterparts in the least deprived areas.⁴⁹

Figure 11 | Lung cancer

C33-C34 = malignant neoplasm of trachea, bronchus and lung

At a national level, 55.9% of lung cancer patients diagnosed from 2013-2018 received chemotherapy, radiotherapy or surgical tumour resection. **Cancer Alliance treatment rates ranged from 50.3% to 60.2% (a difference of 9.9 percentage points).**

Regarding specific treatment types:

- Chemotherapy rates ranged from 25.8% to 36.5% (a difference of 10.7 percentage points)
- Radiotherapy rates ranged from 22.0% to 33.1% (a difference of 11.1 percentage points)
- Surgical tumour resection rates ranged from 13.0% to 21.1% (a difference of 8.1 percentage points)⁴⁰

Patients receiving chemotherapy, radiotherapy or surgical tumour resection (%)

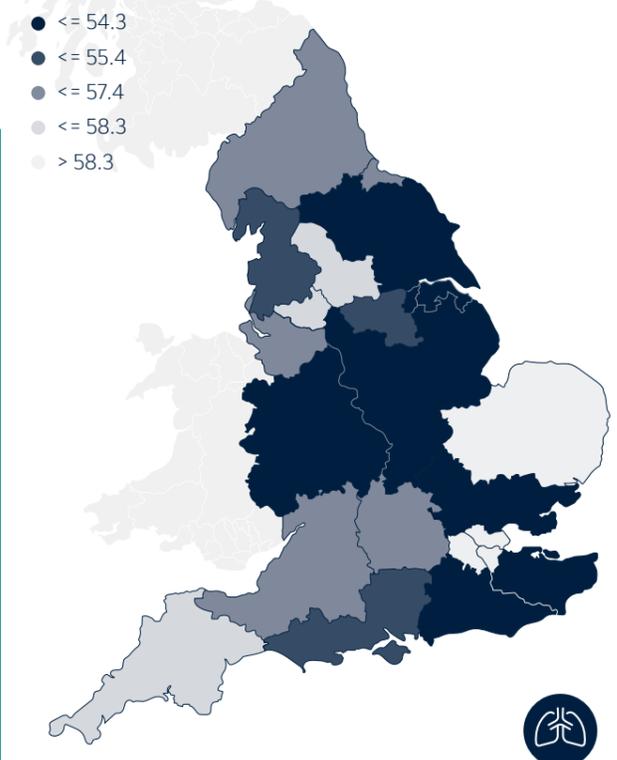


Figure 12 | Pancreatic cancer

C25 = malignant neoplasm of pancreas

At a national level, 33.8% of pancreatic cancer patients diagnosed from 2013-2018 received chemotherapy, radiotherapy or surgical tumour resection. Cancer Alliance treatment rates ranged from 29.6% to 41.0% (a difference of 11.4 percentage points). Regarding specific treatment types:

- Chemotherapy rates ranged from 24.1% to 35.3% (a difference of 11.2 percentage points)
- Radiotherapy rates ranged from 2.4% to 9.4% (a difference of 6.9 percentage points)
- Surgical tumour resection rates ranged from 7.1% to 14.1% (a difference of 7.0 percentage points)⁴⁰

Patients receiving chemotherapy, radiotherapy or surgical tumour resection (%)

- ≤ 32.1
- ≤ 32.8
- ≤ 34.1
- ≤ 37.9
- > 37.9

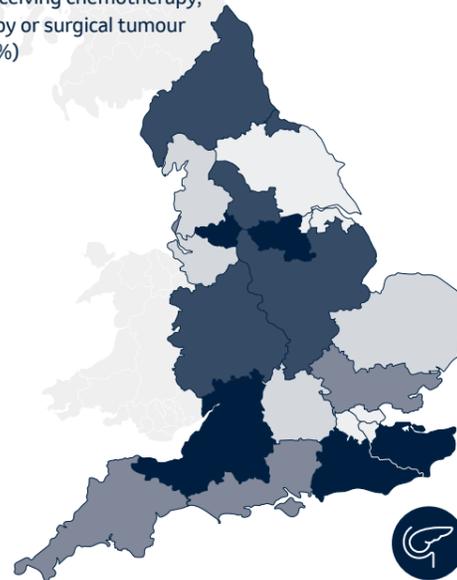


Figure 15 | Oesophageal cancer

C15 = malignant neoplasm of oesophagus

At a national level, 61.7% of oesophageal cancer patients diagnosed from 2013-2018 received chemotherapy, radiotherapy or surgical tumour resection. Cancer Alliance treatment rates ranged from 55.4% to 70.3% (a difference of 14.9 percentage points). Regarding individual treatment types:

- Chemotherapy rates ranged from 32.4% to 55.2% (a difference of 22.8 percentage points)
- Radiotherapy rates ranged from 20.6% to 43.5% (a difference of 22.9 percentage points)
- Surgical tumour resection rates ranged from 11.8% to 23.0% (a difference of 11.2 percentage points)⁴⁰

Patients receiving chemotherapy, radiotherapy or surgical tumour resection (%)

- ≤ 58.8
- ≤ 61.4
- ≤ 62.7
- ≤ 65.1
- > 65.1

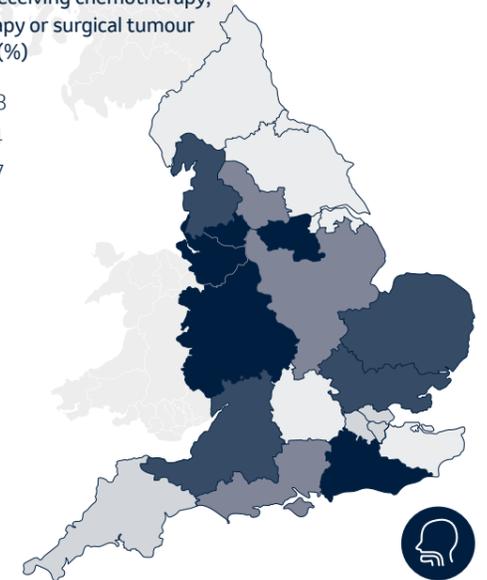


Figure 13 | Liver cancer

C22 = malignant neoplasm of liver and intrahepatic bile ducts

At a national level, 36.4% of liver cancer patients diagnosed from 2013-2018 received chemotherapy, radiotherapy or surgical tumour resection. Cancer Alliance treatment rates ranged from 28.5% to 47.6% (a difference of 19.1 percentage points). Regarding specific treatment types:

- Chemotherapy rates ranged from 17.3% to 32.9% (a difference of 15.6 percentage points)
- Radiotherapy rates ranged from 3.1% to 6.6% (a difference of 3.5 percentage points)
- Surgical tumour resection rates ranged from 13.8% to 30.9% (a difference of 17.1 percentage points)⁴⁰

Patients receiving chemotherapy, radiotherapy or surgical tumour resection (%)

- ≤ 33.7
- ≤ 35.3
- ≤ 37.5
- ≤ 38.9
- > 38.9

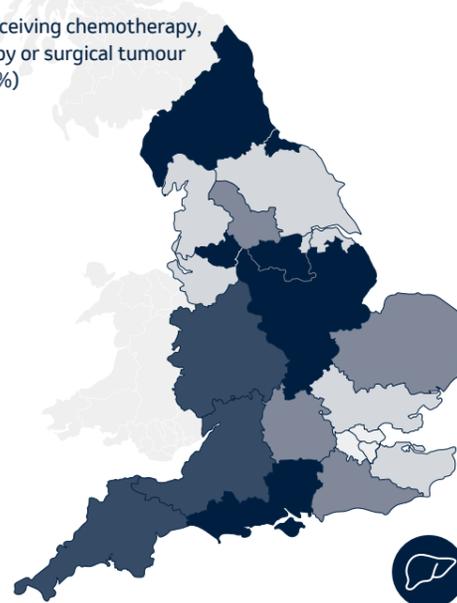


Figure 16 | Stomach cancer

C16 = malignant neoplasm of stomach

At a national level, 49.6% of stomach cancer patients diagnosed from 2013-2018 received chemotherapy, radiotherapy or surgical tumour resection. Cancer Alliance treatment rates ranged from 44.2% to 59.4% (a difference of 15.2 percentage points). Regarding individual treatment types:

- Chemotherapy rates ranged from 24.8% to 42.4% (a difference of 17.6 percentage points)
- Radiotherapy rates ranged from 3.0% to 22.9% (a difference of 19.9 percentage points)
- Surgical tumour resection rates ranged from 15.5% to 26.6% (a difference of 11.1 percentage points)⁴⁰

Patients receiving chemotherapy, radiotherapy or surgical tumour resection (%)

- ≤ 46.1
- ≤ 49.0
- ≤ 51.4
- ≤ 55.7
- > 55.7

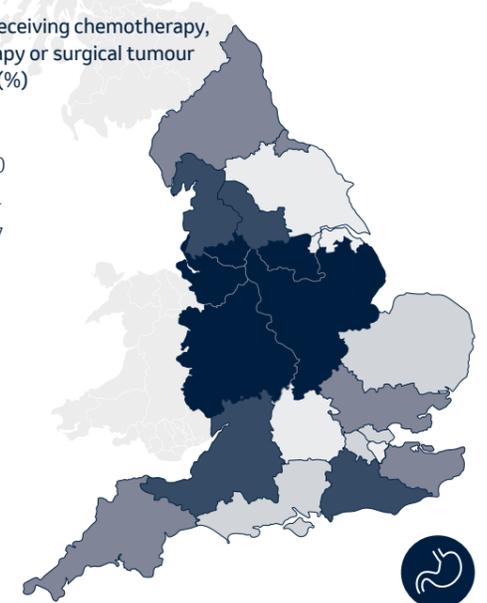


Figure 14 | Brain cancer

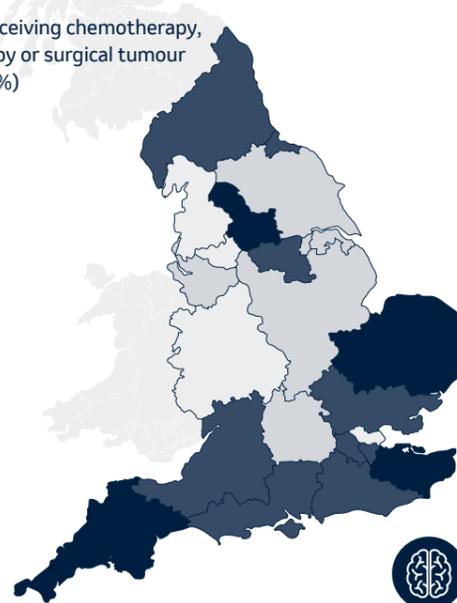
C70-C72 = malignant neoplasm of meninges, malignant neoplasm of brain and malignant neoplasm of spinal cord, cranial nerves and other parts of the central nervous system

At a national level, 66.1% of brain cancer patients diagnosed from 2013-2018 received chemotherapy, radiotherapy or surgical tumour resection. Cancer Alliance treatment rates ranged from 56.9% to 76.8% (a difference of 19.9 percentage points). Regarding individual treatment types:

- Chemotherapy rates ranged from 27.3% to 46.9% (a difference of 19.6 percentage points)
- Radiotherapy rates ranged from 39.2% to 58.2% (a difference of 19.0 percentage points)
- Surgical tumour resection rates ranged from 37.3% to 60.7% (a difference of 23.4 percentage points)⁴⁰

Patients receiving chemotherapy, radiotherapy or surgical tumour resection (%)

- ≤ 59.5
- ≤ 64.8
- ≤ 66.2
- ≤ 69.5
- > 69.5



* NCRAS, which is responsible for collecting data on cancer patients in England, notes that surgical tumour resection rates are lower than expected based on clinical experience and states that further investigation is needed to understand whether all resections are being properly captured.⁴¹

Survival

In general, patients diagnosed early, at stages 1 and 2, have the best chance of curative treatment and ultimately long-term survival.¹¹

A key ambition of the NHS Long Term Plan (NHS LTP) is for 55,000 more people each year to survive their cancer for at least five years by 2028.¹ If the NHS is to achieve this, significant survival gains will need to be made. Data from the CONCORD programme shows that, out of 29 countries, the UK's five-year survival rate ranks 14th for oesophageal cancer, 21st for liver cancer, 22nd for brain cancer, 25th for pancreatic cancer, 26th for stomach cancer and 27th for lung cancer.⁵⁰ Across the UK, only 16% of patients with a less survivable cancer live beyond five years.²

The data in this section describes one-year survival rates in England for patients diagnosed with a less survivable cancer from 2015-2019 and followed up to 2020 at Cancer Alliance level.⁵¹ Robust estimates of five-year survival rates are not available at a local level because the numbers of patients with a less survivable cancer living beyond five years in each Cancer Alliance are too small. It is notable that, out of all cancers: one-year survival is lowest for pancreatic cancer (26.8%);^{51, 52} variation in one-year survival between the best and worst performing

Cancer Alliances is largest for brain cancer (a difference of 12.2 percentage points);⁵² and variation in one-year survival between the least and most deprived areas is largest for oesophageal cancer (a difference of 10.0 percentage points).⁵³ Most cancers have one-year survival rates above 75%, but none of the less survivable cancers exceed 50%.³

While an exploration of the psychological consequences of living with a less survivable cancer goes beyond the scope of this report, the impact on patients is clearly significant. Office for National Statistics (ONS) data on suicides among people diagnosed with severe health conditions shows that, one year after diagnosis, the suicide rate for patients diagnosed with a 'low survival cancer' (defined as liver cancer, oesophageal cancer, mesothelioma, lung cancer, pancreatic cancer or meningeal cancer) is 2.4 times higher than that of matched controls (defined as people with similar demographic characteristics).⁵⁴ **It is imperative that all less survivable cancer patients have their psychological needs assessed and addressed from the point of diagnosis and as clinically appropriate.**

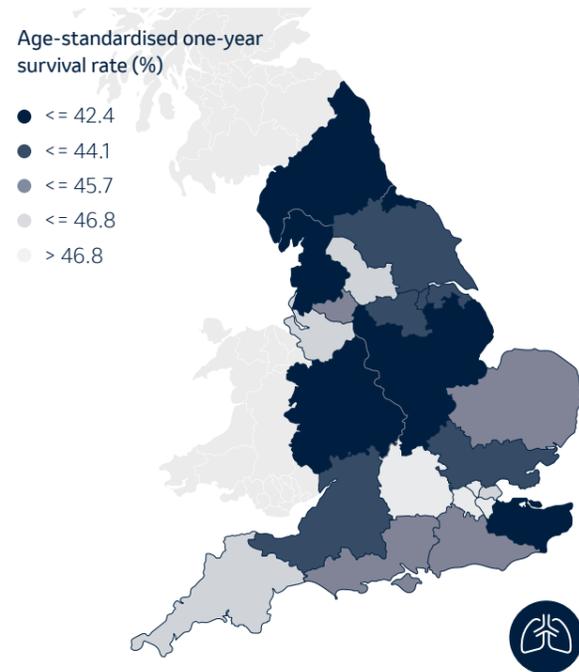


Figure 17 | Lung cancer
C33-C34 = malignant neoplasm of trachea, bronchus and lung

At a national level, 44.4% of lung cancer patients survived for at least one year after diagnosis. **Across Cancer Alliances, the age-standardised one-year survival rate ranged from 40.7% to 50.6% (a difference of 9.9 percentage points).**⁵¹

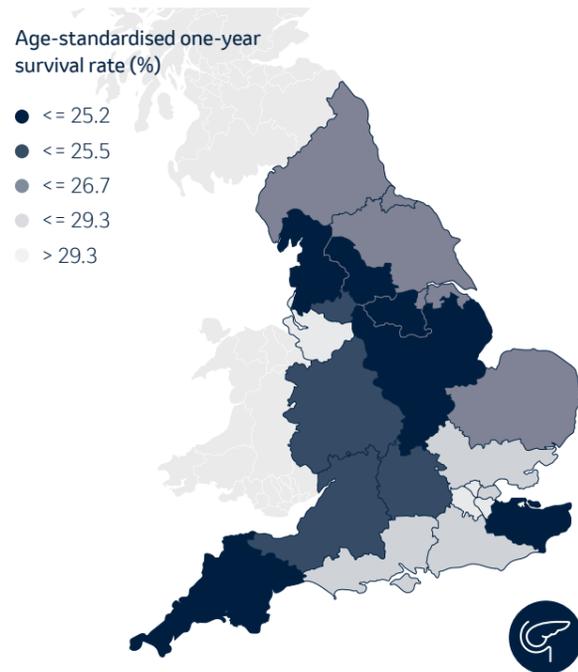


Figure 18 | Pancreatic cancer
C25 = malignant neoplasm of pancreas

At a national level, 26.8% of pancreatic cancer patients survived for at least one year after diagnosis. **Across Cancer Alliances, the age-standardised one-year survival rate ranged from 22.5% to 33.3% (a difference of 10.8 percentage points).**⁵¹

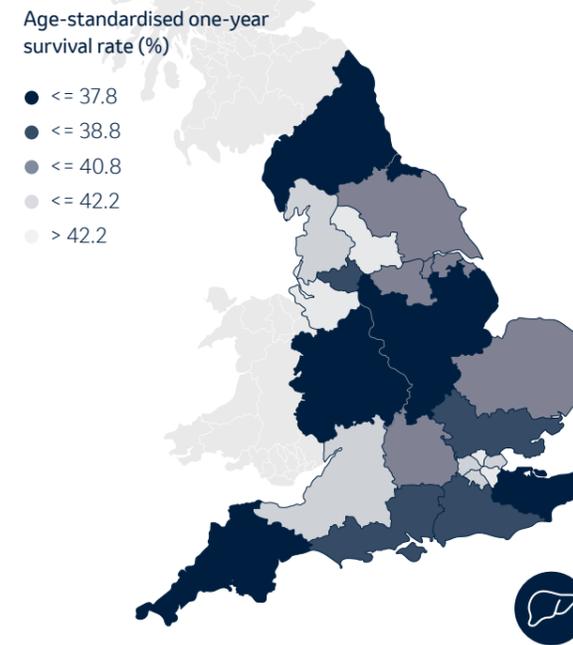


Figure 19 | Liver cancer
C22 = malignant neoplasm of liver and intrahepatic bile ducts

At a national level, 39.9% of liver cancer patients survived for at least one year after diagnosis. **Across Cancer Alliances, the age-standardised one-year survival rate ranged from 35.8% to 47.5% (a difference of 11.7 percentage points).**⁵¹

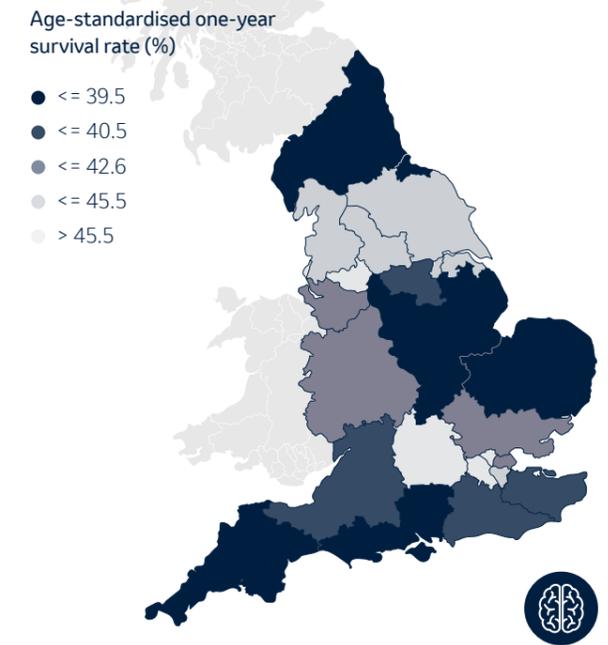


Figure 20 | Brain cancer
C71 = malignant neoplasm of the brain

At a national level, 41.2% of brain cancer patients survived for at least one year after diagnosis. **Across Cancer Alliances, the age-standardised one-year survival rate ranged from 37.2% to 49.4% (a difference of 12.2 percentage points).**⁵¹

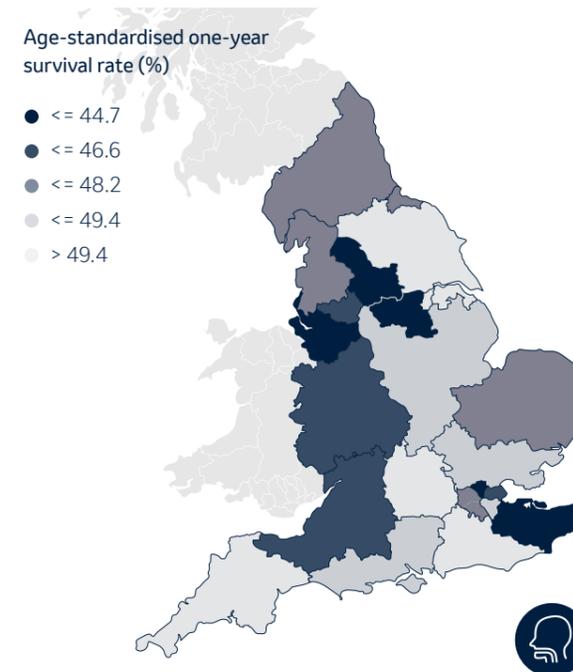


Figure 21 | Oesophageal cancer
C15 = malignant neoplasm of oesophagus

At a national level, 47.3% of oesophageal cancer patients survived for at least one year after diagnosis. **Across Cancer Alliances, the age-standardised one-year survival rate ranged from 41.1% to 51.8% (a difference of 10.7 percentage points).**⁵¹

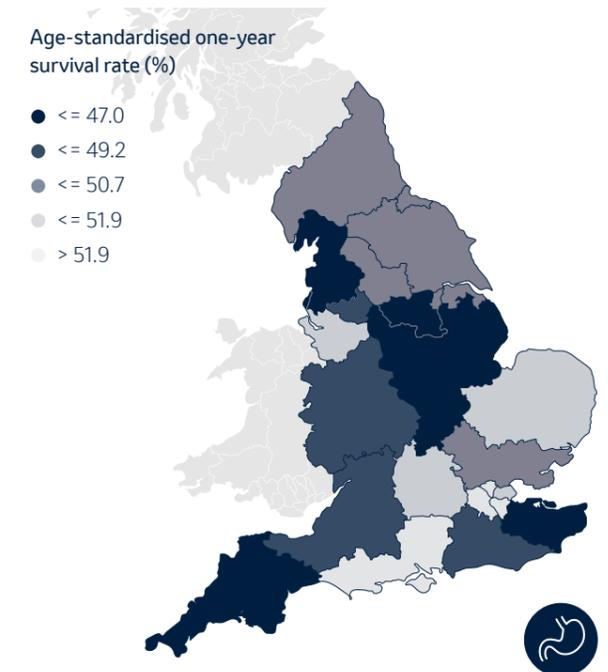


Figure 22 | Stomach cancer
C16 = malignant neoplasm of stomach

At a national level, 49.6% of stomach cancer patients survived for at least one year after diagnosis. **Across Cancer Alliances, the age-standardised one-year survival rate ranged from 45.2% to 54.2% (a difference of 9.0 percentage points).**⁵¹

Potential drivers of variation

There is no doubt that people diagnosed with a less survivable cancer receive variable levels of care depending on where they live. The drivers of this variation are less clear. A major issue is the lack of high-quality data on the less survivable cancers. For example, as has been shown throughout this report, the data may be unavailable, incomplete or unadjusted for potential confounders such as age and sex, making it difficult to understand how much variation is warranted and how much is unwarranted.

There are, however, interesting trends in the data that provide some clues as to where action is needed for the less survivable cancers. For example, it has been shown throughout this report that more deprived areas often have higher incidence rates, but lower treatment and survival rates, compared to less deprived areas. **National audits for liver, brain and pancreatic cancer - building on the existing audits for lung and oesophago-gastric cancer - would go a long way towards further developing our understanding of the drivers of variation and opportunities for service improvement.**

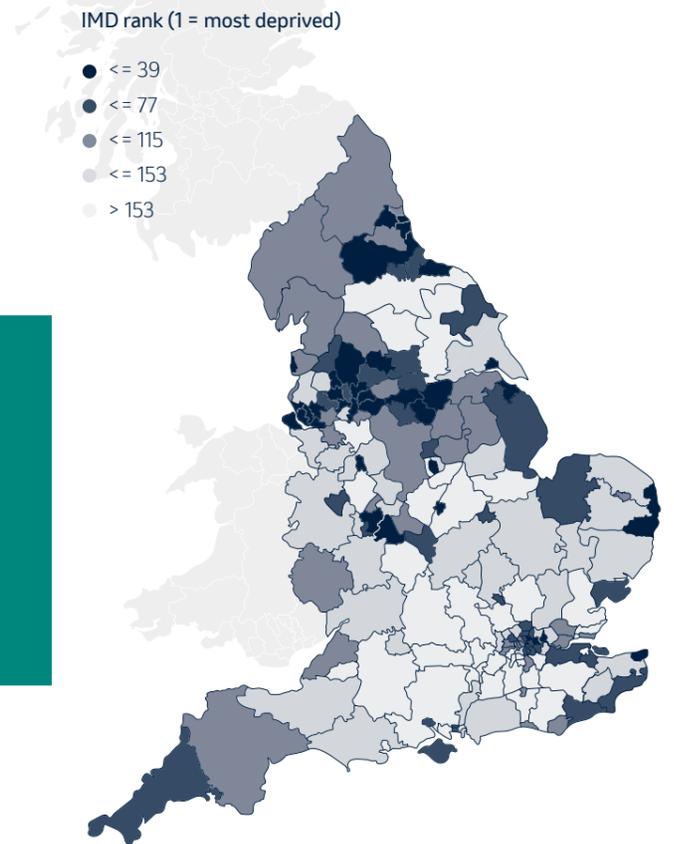
Cancer Research UK estimates that, each year in England, around 14,300 cases of lung cancer, 540 cases of pancreatic cancer, 1,200 cases of liver cancer, 1,200 cases of oesophageal cancer and 1,300 cases of stomach cancer are attributable to deprivation - 18,540 less survivable cancers cases in total.^{5,6,7,8,9} Similarly, it has previously been estimated that upwards of 13,000 less survivable cancer deaths could be avoided each year if mortality rates in the most deprived areas matched the least deprived areas (this does not include brain cancer as there is no evidence of an association between brain cancer deaths and deprivation in England⁵⁷).¹⁰

To tackle the health inequalities experienced by less survivable cancer patients, it is vital that more work is undertaken to understand exactly how deprivation drives variation. For example, research indicates that people living in the most deprived areas tend to have lower awareness of cancer symptoms and greater difficulty accessing help (including challenges arranging transport to the doctor's surgery) which, in turn, could contribute to delayed diagnosis.⁵⁸ People from more deprived backgrounds have also been shown to sometimes have worse experiences of care, such as not having test results explained to them in a way they could fully understand and not having all the information needed about their diagnosis.⁵⁹ It could be hypothesised that this might affect the decisions a patient makes about their care.

Finally, while this section focuses on deprivation, it is important to recognise that there are many other health determinants - including, but not limited to, ethnicity, sexual orientation, gender identity, comorbidities and health literacy - that may influence the care that patients with a less survivable cancer receive. Building the evidence base in these areas is essential. The Department of Health and Social Care has acknowledged that cancer data around ethnicity in particular needs to be improved.⁶⁰



Figure 23 | Index of Multiple Deprivation (IMD)



The official measure of relative deprivation in England is the Index of Multiple Deprivation (IMD). Its seven domains account for a wide range of health determinants: income; employment; education; health; crime; barriers to housing and services; and living environment. The patterns of deprivation are complex, with the most and least deprived neighbourhoods spread throughout the country, although the most deprived local authorities tend to be found in the North West.^{55,56}

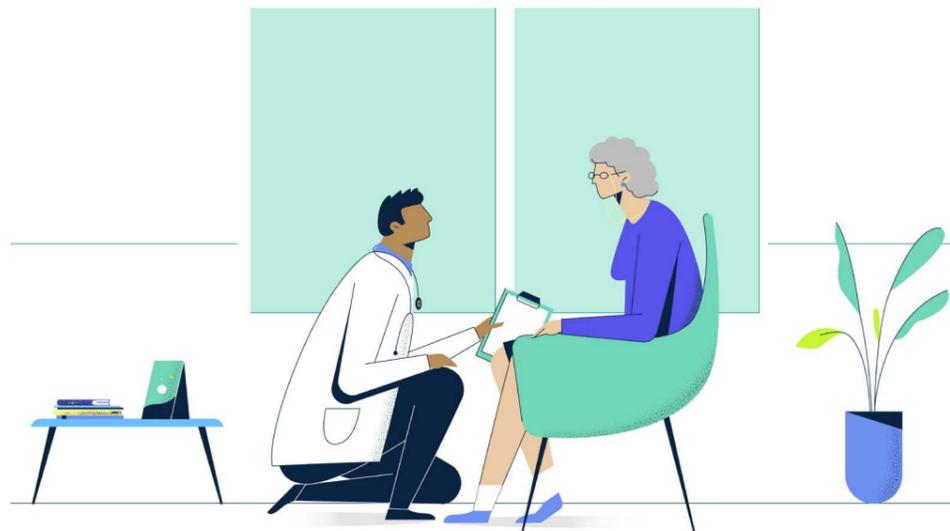


Conclusion and recommendations

There is widespread geographical variation in diagnosis, treatment and outcomes for people with a less survivable cancer in England, and a growing body of evidence to suggest that, in some cases, deprivation is a driver of this variation. Furthermore, this report has shown how the less survivable cancers often lag behind other cancers right across the patient pathway.

Without greater focus on, and investment in, all six of the less survivable cancers – lung cancer, pancreatic cancer, liver cancer, oesophageal cancer, stomach cancer and brain tumours – it will not be possible to deliver on the ambitions of the NHS Long Term Plan (NHS LTP), and it will not be possible for the UK to be a world-leader in cancer care. As stated by the Health and Social Care Committee in its recent report on cancer services, “it is not clear that sufficient focus is being given to rare and less common and less survivable cancers” and, therefore, urgent action is needed “to address key issues around the diagnosis and treatment of those cancers.”⁶⁰

This is not just a national issue. The formal establishment of Integrated Care Systems (ICSs) creates new opportunities for local areas, working with Cancer Alliances, to better understand the specific needs of their populations, and collaborate with a wide range of partners to develop and implement tailored improvement plans. There is the potential to save thousands of lives across England every year.



To level up the less survivable cancers – by addressing unwarranted variation and closing the gap to other cancers – this report makes the following recommendations:

1



The Government should make a specific pledge to double survival rates for people with a less survivable cancer over the next decade.

2



As recommended by the Health and Social Care Committee, NHS England should produce an overarching national action plan for the less survivable cancers. This should include commitments aimed at preventing more cases, accelerating early diagnosis, ensuring equitable access to treatment and increasing survival rates.

For example:

- Investing in prevention initiatives, particularly in areas with the highest incidence rates
- Developing, funding and implementing best practice timed pathways for all six less survivable cancers
- Reporting on performance against cancer waiting times targets for all six less survivable cancers
- Taking action to understand and address variable treatment rates across the country

3



Integrated Care Boards (ICBs) and Cancer Alliances should develop local action plans for the less survivable cancers informed by population health data and direct engagement with patients. ICBs should publish regular progress reports, including performance against measurable targets, and be held to account by NHS England.

4



NHS England, NHS Digital, Cancer Alliances and Integrated Care Systems (ICSs) should work together to improve the timeliness, completeness, granularity and accessibility of data on the less survivable cancers. This includes addressing data quality issues, publishing more cancer data broken down by cancer type, deprivation and ethnicity, and investing in analytical capacity and capability.

5



The Healthcare Quality and Improvement Partnership (HQIP) should commission national audits for liver and brain cancer, and accelerate the planned audit for pancreatic cancer, building on the existing audits for lung and oesophago-gastric cancer. The audits should be designed and delivered in collaboration with relevant charities and healthcare professionals, and the results should be used to address unwarranted variation and support service improvement.

Appendix 1a. Early diagnosis calculations

i) Percentage of less survivable cancers diagnosed at stage 1 or 2 at Clinical Commissioning Group (CCG) level

At a CCG level, the percentages of lung, pancreatic, oesophageal and stomach cancers diagnosed at stage 1 or 2 from 2017-2019 were calculated by:

- adding the number of patients diagnosed at stage 1 or 2 from 2017-2019; and
- dividing this by the number of patients diagnosed at stage 1, 2, 3 or 4 from 2017-2019

Following the approach used by the National Cancer Registration and Analysis Service (NCRAS), only cancers with known staging information were included in the calculation. Cancers with unknown staging information were excluded. It should also be noted that data completeness varies considerably between CCGs.

ii) Percentage of less survivable cancers diagnosed at stage 1 or 2 at a national level

At a national level, the combined percentage of lung, pancreatic, oesophageal and stomach cancers diagnosed at stage 1 or 2 from 2017-2019 was calculated by:

- adding the number of patients diagnosed at stage 1 or 2 from 2017-2019 (= 44,588); and
- dividing this by the number of patients diagnosed at stage 1, 2, 3 or 4 from 2017-2019 (= 44,588 / 159,732 = 27.9%)

Following the approach used by NCRAS, only cancers with known staging information were included in the calculation. Cancers with unknown staging information were excluded. It should also be noted that data completeness varies considerably between CCGs.

iii) Percentage of all cancers diagnosed at stage 1 or 2 at a national level

At a national level, the combined percentage of all cancers diagnosed at stage 1 or 2 from 2017-2019 was calculated by:

- adding the number of patients diagnosed at stage 1 or 2 from 2017-2019 (= 396,955); and
- dividing this by the number of patients diagnosed at stage 1, 2, 3 or 4 from 2017-2019 (= 396,955 / 736,551 = 53.9%)

Following the approach used by NCRAS, only cancers with known staging information were included in the calculation. Cancers with unknown staging information were excluded. It should also be noted that data completeness varies considerably between CCGs.

iv) Number of additional patients that could have been diagnosed at stage 1 or 2

The number of additional patients that could have been diagnosed at stage 1 or 2, if every CCG had matched the top quintile for lung, pancreatic, oesophageal and stomach cancer from 2017-2019, was estimated using the following approach:

- For each cancer, the percentage of patients diagnosed at stage 1 or 2 from 2017-2019 in the top CCG quintile was determined (lung cancer = 31.9%, pancreatic cancer = 27.1%, oesophageal cancer = 26.6%, stomach cancer = 37.2%)
- For each cancer, this percentage was applied to all CCGs to calculate the number of patients that could have been diagnosed at stage 1 or 2 from 2017-2019 (lung cancer = 34,649, pancreatic cancer = 5,677, oesophageal cancer = 5,962, stomach cancer = 2,950, total = 49,238)
- The difference between these figures and the actual number of patients diagnosed at stage 1 or 2 from 2017-2019 was used to calculate the number of additional patients that could have been diagnosed at stage 1 or 2 (lung cancer = 2,482, pancreatic cancer = 837, oesophageal cancer = 842, stomach cancer = 489)
- These figures were added to calculate the total number of additional patients that could have been diagnosed at stage 1 or 2 from 2017-2019 (= 4,650 which, on average, equates to 1,550 each year)

v) Percentage of less survivable cancers that could have been diagnosed at stage 1 or 2

The combined percentage of lung, pancreatic, oesophageal and stomach cancers that could have been diagnosed at stage 1 or 2, if every CCG had matched the top quintile for lung, pancreatic, oesophageal and stomach cancer from 2017-2018, was calculated by:

- calculating the number of patients that could have been diagnosed at stage 1 or 2 from 2017-2019, as described above (= 49,238); and
- dividing this by the number of patients diagnosed at stage 1, 2, 3 or 4 from 2017-2019 (= 49,238 / 159,732 = 30.8%)

Appendix 1b. Treatment rate calculations

At a Cancer Alliance level, the percentages of lung, pancreatic, liver, brain, oesophageal and stomach cancers diagnosed from 2013-2018 and recorded as receiving treatment were calculated by:

- adding the number of patients receiving treatment; and
- dividing this by the total number of patients

Percentages were calculated for patients receiving:

- Chemotherapy, radiotherapy or surgical tumour resection alone or in combination
- Chemotherapy alone or in combination
- Radiotherapy alone or in combination
- Surgical tumour resection alone or in combination

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