Cancer in the UK
Overview 2023

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CANCER RESEARCH UK

Foreword

Over the last year, Cancer Research UK has been celebrating its 20th anniversary, offering us a moment to reflect on the impact we've had together. Over that time, cancer outcomes have continued to improve thanks to advances in life-saving research and the efforts of dedicated staff across the NHS, with survival doubling since the 1970s.

However, the challenge of improving cancer outcomes remains and is set to grow. New modelling in this report shows that by 2038-40, more than half a million people will be diagnosed with cancer each year across the UK, with rising cancer incidence driven by our growing and ageing population. As more cancers are diagnosed in older people who may be living with other long-term health conditions, a greater number will also have more complex needs which must be met.

With overall cancer incidence rising, it is imperative to prevent the around 4 in 10 cancer cases each year linked to risk factors such as smoking and obesity – action which could not only see fewer people diagnosed with cancer, but reduce pressures on our health systems. Whilst most UK nations have set a smokefree ambition (less than 5% of people smoking), none are currently on track to achieve this and will not do so without concerted action.

Diagnosing cancer at an early stage is vital to giving patients the best chance of surviving their disease and is rightly a priority across the UK. Before the pandemic, progress was already too slow in diagnosing more cancers at an early stage and these challenges persist. Many people with potential cancer symptoms don't contact their GP, some cancer screening programmes in parts of the UK have seen declining uptake and too many cancer patients are still diagnosed in an emergency setting, when their disease is more likely to be at late stage. Reducing the number of cancers diagnosed at a late stage requires action on all fronts.

The long-standing failure to plan ahead has led to critical shortages in key staff and equipment. Key cancer waiting time targets were missed long before COVID-19, but growing pressures now mean we have seen record low performance in recent months. The public recognise the strain on NHS cancer services, with 79% in 2022 agreeing that they don't think the health service has enough staff or equipment to see, test and treat all the people with cancer they need to.

Ensuring we have a long term, comprehensive plan for cancer that tackles these challenges and harnesses the opportunities – backed with the necessary leadership, ambition and funding – is vital if we want to go further and faster in improving cancer outcomes. We must close the gap in survival between the UK and other comparable countries, and research has found a link between improvements in survival and published policies supported by implementation and funding plans.

Later this year, Cancer Research UK will set out our vision, priorities and targeted actions for how the UK can transform cancer research and care.

Research is integral to improve our understanding of how we prevent, diagnose and treat cancer – improving both the health and wealth of the nation. However, to maintain our status as a global leader in cancer research, the research environment in the UK must keep up with global competition. To maximise the potential for cancer research to improve outcomes, we must invest to build our research capacity and foster a diverse, collaborative and sustainable life sciences ecosystem.

The progress we have made in improving cancer survival over the past 50 years should give us hope. It shows us what can be achieved when we harness the power of research and innovation alongside dedicated staff in our health service striving to deliver world class cancer outcomes.

There are real challenges ahead, but unprecedented opportunities for progress too. We must rise to both of them so that we can bring about a world where everybody can live longer, better lives, free from the fear of cancer.

Michelle Mitchell OBE
Chief Executive, Cancer Research UK

Contents

Compiled by the Cancer Intelligence team, Cancer Research UK; February 2023

Comments, questions or feedback to stats.team@cancer.org.uk

Introduction

This annual report summarises key metrics and data across the cancer pathway, including prevention, early diagnosis and treatment. It sets out the top line view of key challenges facing cancer services, and people affected by cancer, today, looking at where progress is being made and what challenges remain in the UK.

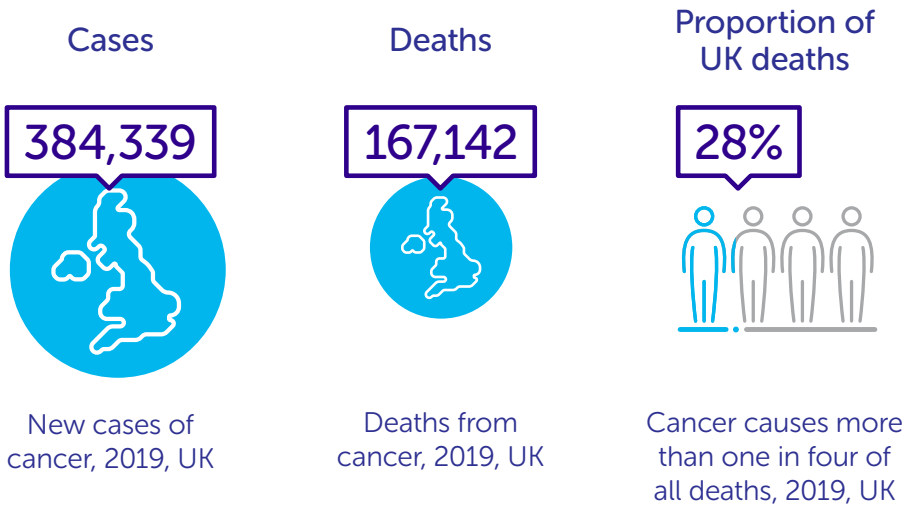
COVID-19 has undoubtedly had a huge impact on cancer services, and people affected by cancer. It exacerbated long-standing chronic problems in the UK's health systems, with effects felt across many aspects of care. Where available, the report has highlighted data from the pandemic and how services are coping with recovery across the UK. However, it is not intended to offer a comprehensive view on the effects of COVID-19, as it may be many years before the full picture of the implications and long-term impact from the pandemic becomes clear.

In this report, we provide a brief overview of key metrics, but we know that there are health inequalities – unfair, avoidable and systemic differences in health between different groups – evident in cancer prevention, diagnosis and outcomes. Inequalities are part of a complex web of wider determinants of health and therefore this summary report would not be able to cover, or do justice to, the health inequalities experienced by the public and people affected by cancer. While exploring inequalities is not the focus of this report, beating cancer must mean beating it for everyone. Our Cancer in the UK series publishes separate reports to summarise the evidence on cancer inequalities, which has included recent reports on socio-economic deprivation and cancer inequalities in the UK and a separate report specifically looking at these inequalities in Scotland.

Here we show that improvements can be made right across the cancer pathway. From preventing cancers, diagnosing and detecting patients early and quickly, ensuring patients have the best treatment options and attaining outcomes that are amongst the best in the world.

Cancer is the UK's biggest killer

Cancer is the leading cause of death in the UK, ahead of heart disease and dementia [1]. Despite mortality rates falling by 19% since the 1970s, still around 460 people die from the disease every day in the UK [2]. 1 in 2 people born in the UK will get cancer in their lifetime [3]. There are more than 1,000 new cases of cancer every day in the UK. The most common cancers are breast, lung, prostate and bowel cancer.



New cases of cancer, 2019, UK

Deaths from cancer, 2019, UK

Cancer causes more than one in four of all deaths, 2019, UK

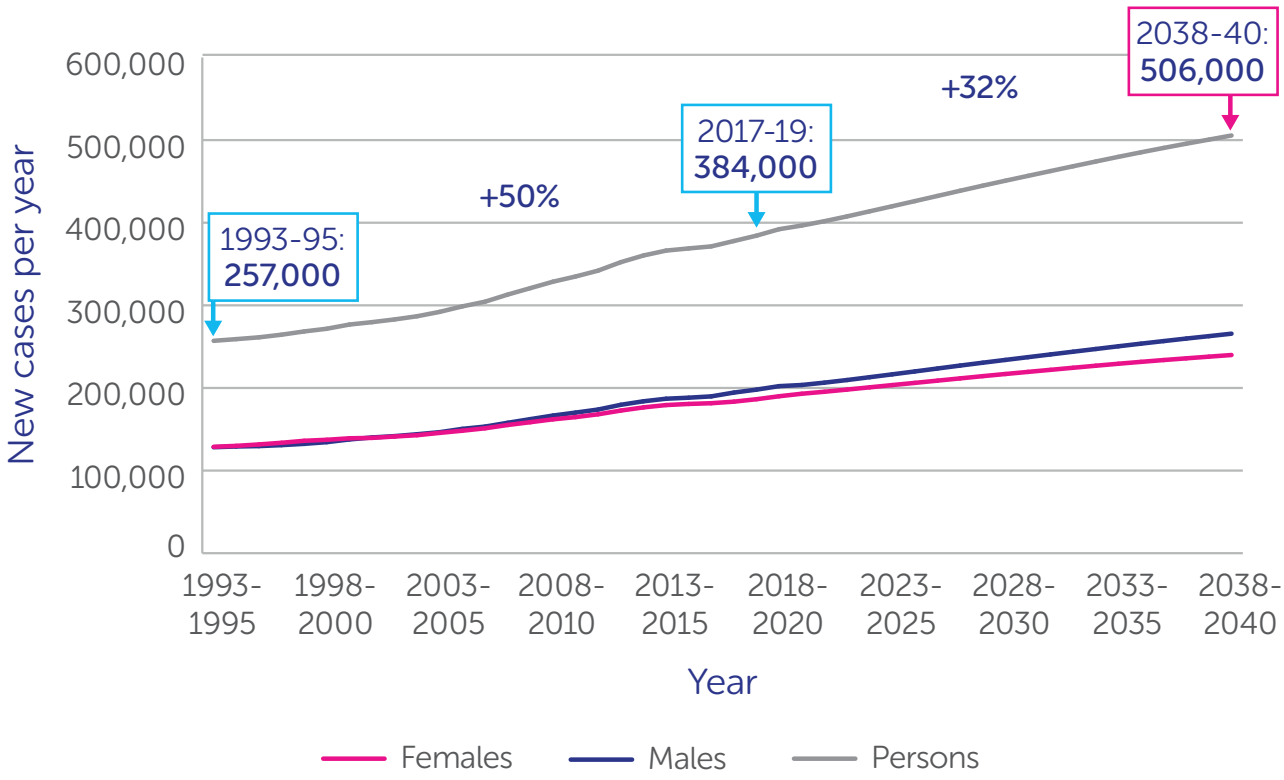
Incidence rates in the UK have increased by 13% since the early 1990s. However, in 2020 in England, incidence fell by 12% due to the impact of the pandemic but by 2021 had broadly returned to the pre-pandemic trend [4]. The trend in other nations will likely follow a similar pattern and long-term impact from the pandemic will need to be monitored.

The number of cancer cases will continue to grow

The number of cancer cases in the UK is projected to rise by around a third, to around 506,000 new cases per year by 2038-40 [5]. This increase is mainly due to the growing and ageing population, though cancer incidence rates (which account for these population changes) are also projected to increase, by around 3% by 2038-40. This means that individuals will be, on average, more likely to be diagnosed with cancer than they are now.

The cancer patient population is projected to become older: in the late 1970s, 42% of new cancer diagnoses were in people aged 70+; by 2040 this figure could be 60%. Prostate cancer may overtake breast cancer as the most common type of cancer in the UK.

Cancer incidence projected to 2038-2040



Annual averages, all ages combined, all cancers excluding non-melanoma skin cancer (C00-C97 excluding C44).

Though UK cancer mortality rates are projected to be around a tenth lower than today, population growth and ageing means absolute numbers of deaths could increase by almost a quarter, to around 208,000 by 2038-40. Around three-quarters of deaths could be in the over-70s, compared with around half in the late 1970s.

With number of people affected by cancer set to grow in coming years, it is vital that governments in each UK nation ensure they have a long-term, strategic plan across the cancer pathway. This will help to ensure we can prevent more cancers, reduce late-stage disease and provide the best treatment to every cancer patient.

Four in ten cancer cases in the UK can be prevented

That's more than 135,000 cases every year [6]. Many things can help reduce the risk of cancer, such as enjoying the sun safely, cutting back on alcohol, eating less processed meat and being more physically active.

Smoking and excess bodyweight are the two largest preventable causes of cancer in the UK. Together they cause more than 73,000 cancer cases and up to 64,000 cancer deaths every year in the UK – that's more than 200 cases and up to 175 deaths every day.

Preventable cancer cases in the UK

Larger circles indicate more UK cancer cases

Source: Brown et al, British Journal of Cancer, 2018

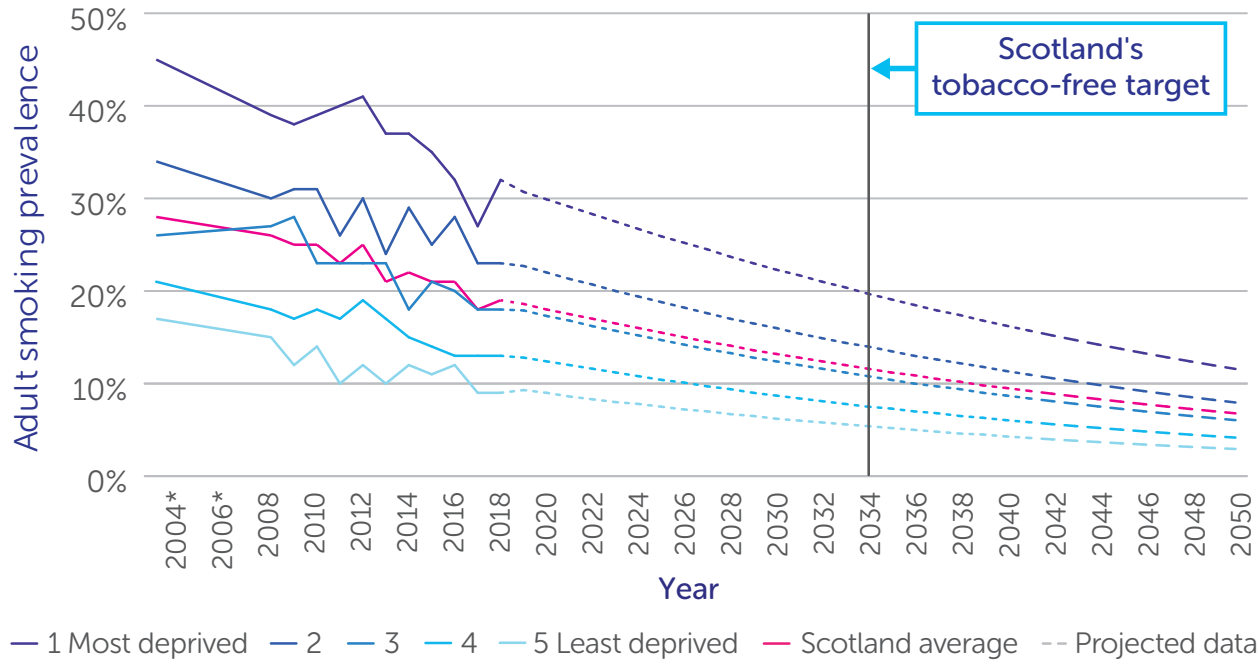
Governments across the UK must do more to help people reduce their risk of cancer by prioritising prevention and measures to improve public health.

Smoking is still the largest cause of cancer

Smoking causes around 55,000 cases of cancer every year in the UK and is a risk factor for at least 15 types of cancer [6].

Smoking levels are currently at their lowest recorded point – around 14% of the UK adult population smoke [7]. But UK nations are not on track to reach their smokefree ambitions of 5% average adult smoking prevalence. Projections indicate that England will not reach 5% smoking prevalence until 2039 [8], Wales not until 2037, and Northern Ireland and Scotland not until the late 2040s and after 2050 respectively [9].

Smoking prevalence projections for adults (aged 16+) in Scotland



* Smoking prevalence data by deprivation quintile not available for 2004-2007

Projections 2041 onwards (shown with longer dashes) should be interpreted with caution due to inherent uncertainty of projections looking this far ahead.

Most people who smoke want to quit, but smoking is an addiction and they need support to do so. Funding cuts mean not everyone has access to local,free stop smoking services, and the pandemic caused disruption to them.

The proportion of people who smoke who are accessing stop smoking services has not recovered to pre-pandemic levels, where it dropped by almost a fifth.

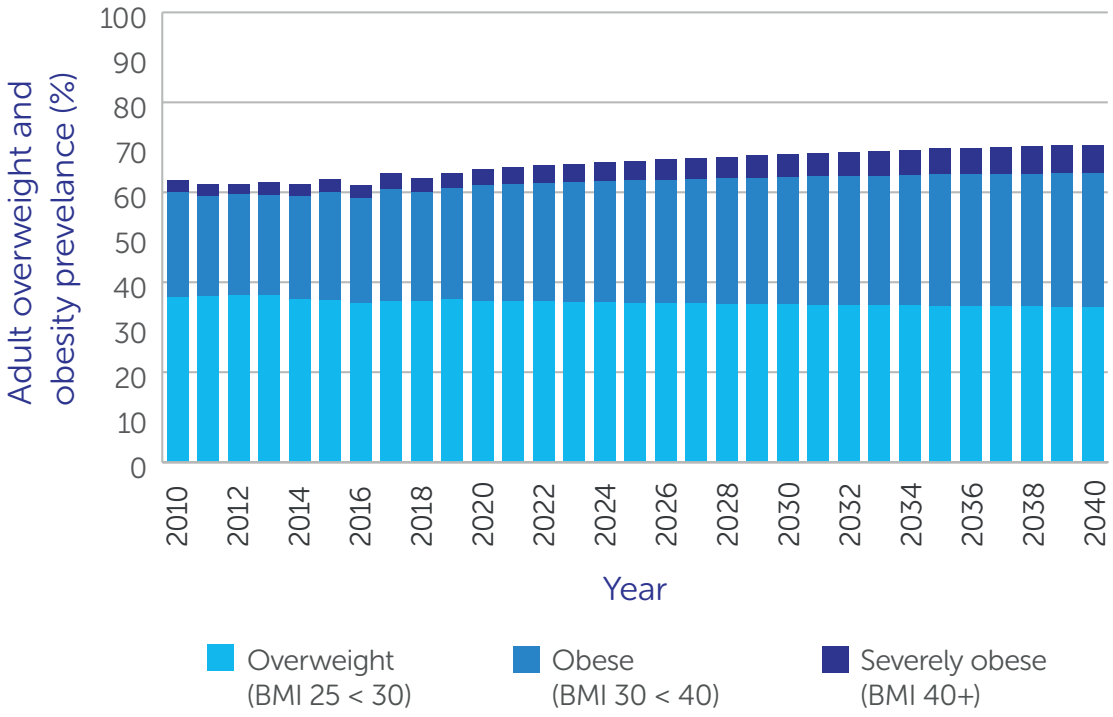
Cancer Research UK's Smokefree UK campaign highlights that increased investment is needed for the stop smoking services that help people quit, as well as for the mass media campaigns that encourage them to do so in the first place. If UK Government cannot fund this themselves, then they should introduce a Smokefree Fund, making the industry foot the bill, but without letting them influence how the funds are spent.

The number of cancer cases attributable to overweight and obesity is rising

Overweight or obesity causes around 23,000 cases of cancer every year in the UK and is a risk factor for 13 different cancer types [6].

Overweight and obesity prevalence is currently at its highest recorded level across the UK nations. If current trends continue, there could be more people who are obese than a healthy weight in the UK by 2040 [10]. And growth in overweight and obesity is expected to lead to growth in cancer incidence.

Overweight and obesity prevalence projections for adults (aged 16+) in the UK



There's substantial evidence that obesity starts early: children with obesity are much more likely to become obese as adults [11]. Today, around 4 in 10 children in Year 6 (age 11) in England are overweight or obese [12], and this proportion has risen steadily since recording began in the early 2010s.

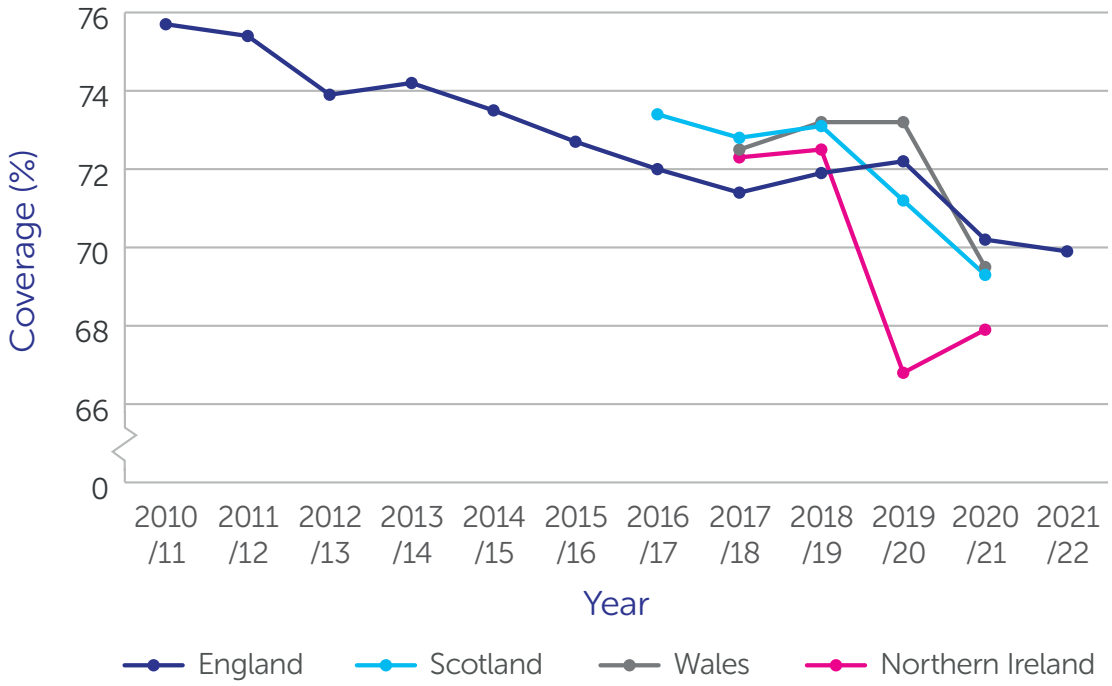
Governments across the UK must do more to reduce the incentives that push people towards unhealthy food and drink. The UK Government must protect children's health by reversing its decision to delay important advertising restrictions on unhealthy food and drink. Governments across the UK must keep their commitments to implement promotions restrictions to take unhealthy food out of the spotlight.

There are currently three national cancer screening programmes in each of the UK nations, which are designed to either prevent cancer or detect it early. There is some variation in how these programmes are delivered across the UK.

Cervical screening coverage has been declining

Cervical screening and the human papillomavirus (HPV) vaccination are both effective ways to prevent cervical cancer. The HPV vaccine doesn't protect against all types of HPV, so cervical screening is still important. Coverage of cervical screening has been declining in recent years [13–16]. Common barriers to cervical screening include previous experience of pain, worry that screening might be painful and previous bad experiences [17].

Coverage of cervical screening in the UK



Uptake of the HPV vaccination dropped in 21/22 due to school closures in the pandemic [18,19] and cervical screening was effectively paused for several months. In 2020, those eligible for cervical screening reported being less likely to attend than prior to the pandemic [20]. In 2022, 80% of eligible people intended to go for cervical screening at their next invitation [17].

Vaccination teams across the UK should continue to deliver the HPV vaccination programme, ensuring hard to reach groups are positively engaged, to reduce inequalities in vaccine uptake.

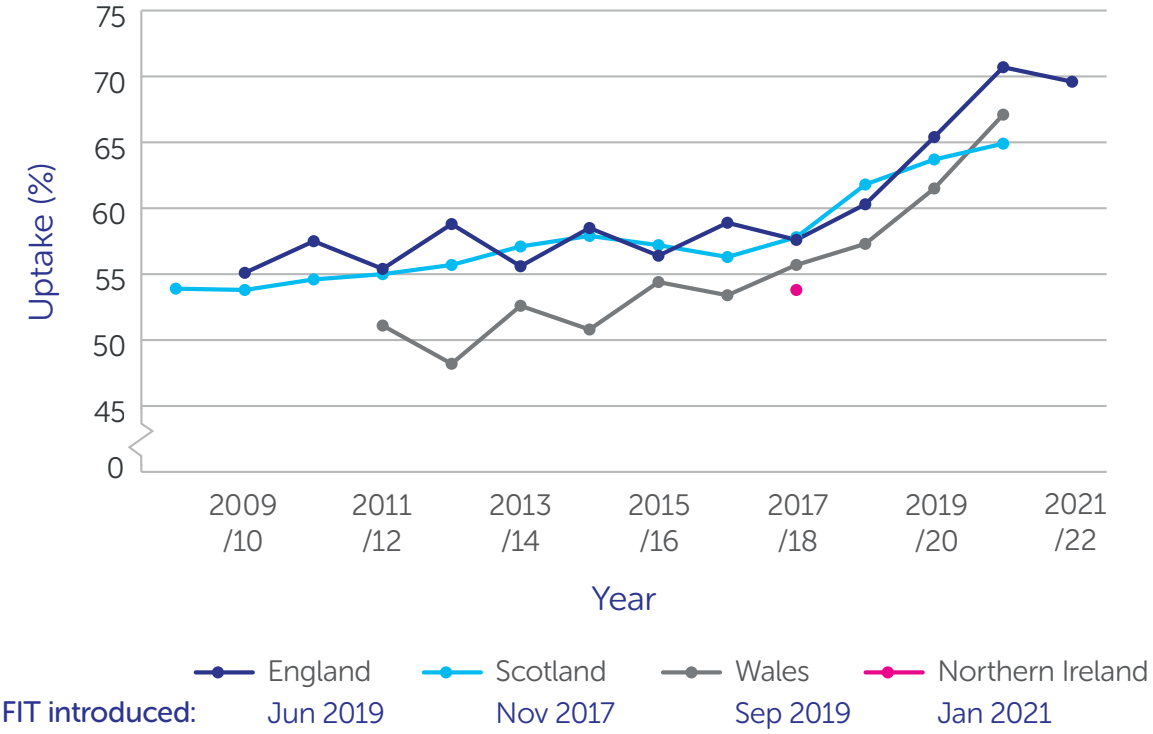
Governments and health systems should ensure that everyone invited can make an informed choice on whether to attend cervical screening. This should include public campaigns, tailored to communities where we have seen the biggest fall in screening attendance and addressing the barriers to cervical screening uptake.

Bowel cancer screening uptake has increased

In each of the UK nations, bowel cancer screening has previously had the lowest uptake of the three screening programmes (between 54%–71% across the nations) [21–24]. Early indications show that a move to a new bowel cancer screening test, faecal immunochemical testing (FIT) helps to increase uptake for bowel cancer screening.

There are differences in how FIT is used in each UK nation, in terms of the age people are invited and how sensitive the test is to detecting blood in poo. There are common barriers to participation with the most common in the UK being finding the test too messy and not having any symptoms of bowel cancer [17].

Uptake of bowel cancer screening in the UK



The pandemic does not appear to have had a large impact on uptake of bowel cancer screening in Scotland, Wales and England. This may be partly because people can complete their bowel cancer screening kit at home. However, restrictions did create huge pressure on endoscopy services which are used as a follow-up test for bowel cancer screening.

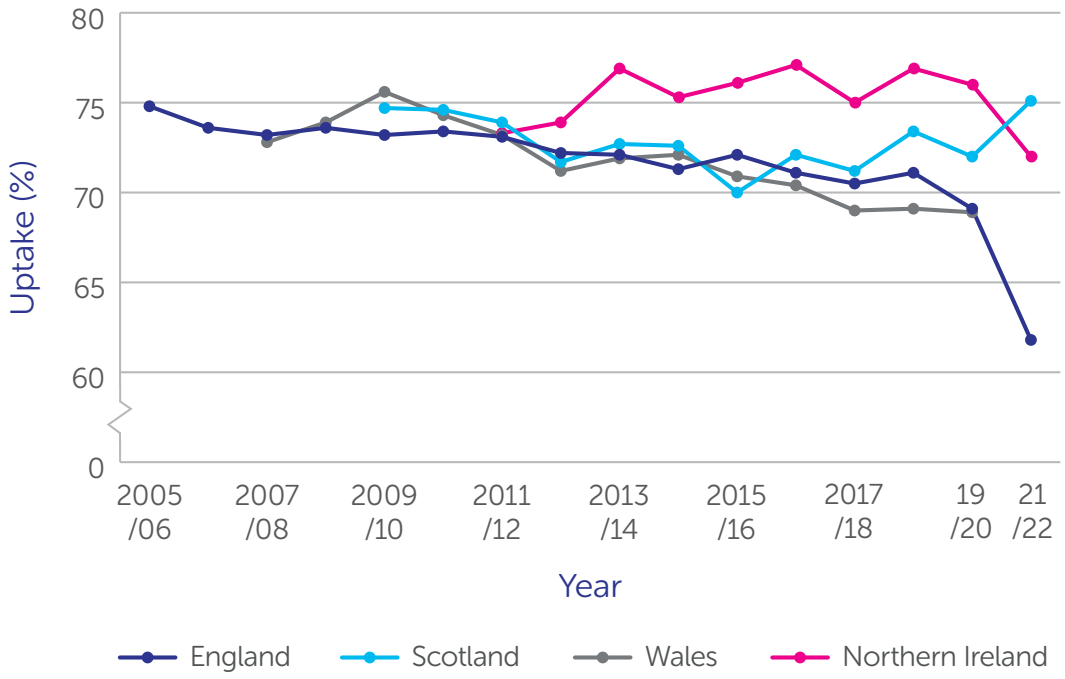
Each UK nation must set out a clear roadmap to optimising the bowel cancer screening programme aligned to recommendations put forward by the UK National Screening Committee, with biannual screening for people aged 50-74 years old, using the highest possible FIT sensitivity threshold. Resource must be committed to expand capacity across the bowel screening pathway by investing in workforce and equipment, as well as in IT.

Breast cancer screening uptake has decreased in England

In 2020/2021, England breast cancer screening uptake dropped below bowel cancer screening uptake for the first time to 61.8%, a pattern not seen in other nations [25–28]. In Scotland, breast cancer screening uptake has increased to 75.1%. Pre-pandemic uptake of breast cancer screening across the UK was steady ranging between 69%–77% across the nations in 2019.

The most common barriers to attending breast cancer screening are previous experience of pain and worry screening might be painful. However, intention to take part at next invitation remains high (85%) [17].

Uptake of breast cancer screening in the UK



The pandemic significantly impacted breast cancer screening, with the screening programme effectively paused for several months across the UK. The number of women being screened dropped by 44% in 2020/21 compared to 2019/20 [25].

Governments and health systems must make efforts to ensure everyone eligible who wants to take up the offer of breast screening can do so. This should include measures to address the barriers to breast screening uptake and ensuring that the service model does not create barriers to participation.

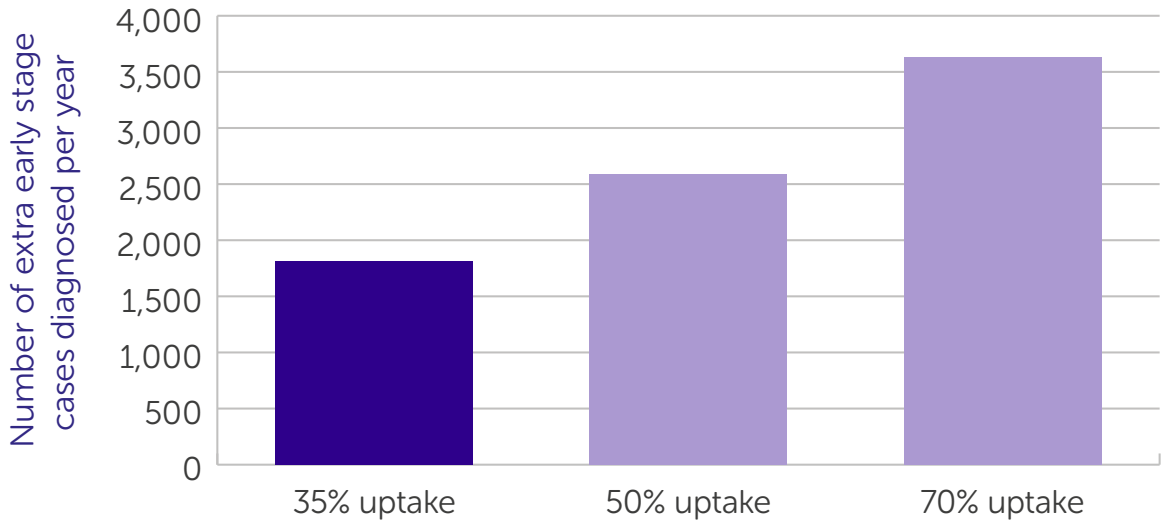
A targeted lung cancer screening programme has the potential to detect thousands of early-stage lung cancer cases

Targeted Lung Health Check pilots have been running in parts of England since 2020, but there has been little piloting of this approach in the devolved nations. In 2022, the UK National Screening Committee recommended a UK-wide targeted lung screening programme for people identified with a history of smoking, as they are at an increased risk of lung cancer.

Uptake of the pilot in England has been low, with 35% of people taking up the invitation [29]. Based on this uptake, a UK-wide programme has the potential to detect 1,800 more early-stage lung cancer cases each year [30].

If uptake was to increase to 70% (more in line with uptake in other cancer screening programmes) more than 3,600 early-stage cases could be detected each year. Data from public surveys indicate that 9 in 10 people would attend a lung cancer assessment if invited, however, people who currently smoke are less likely to attend [31].

Estimated additional early-stage cases that could be detected through a targeted lung cancer screening programme



Each UK nation must commit to, and set clear timelines for implementing, a targeted lung screening programme as recommended by the UK National Screening Committee. The collection and integration of high quality smoking status data must be part of implementation, alongside smoking cessation services.

When a national targeted lung screening programme is adopted, there is likely to be significant implications for radiologists and other NHS staff in diagnostic services, and greater demand on treatment services. Therefore workforce, kit and infrastructure must be matched to cope with additional demand on services.

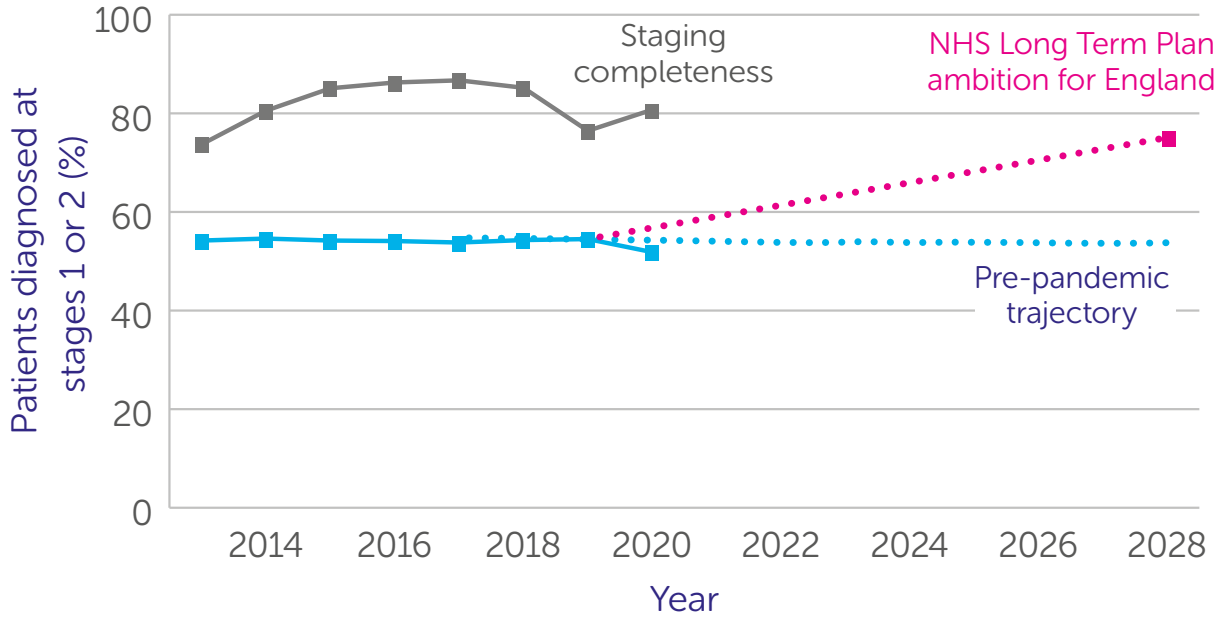
We need to diagnose more people earlier

Patients diagnosed with cancer at an early stage are more likely to survive their disease for longer [32]. Around 52% of cancers in England (2020) and 55% of cancers in Northern Ireland (2015-2019 average) are diagnosed early (stage 1 and 2) [33,34].

In England, the NHS has set an ambition for 75% of cancers to be diagnosed early by 2028 [35]. To reach this ambition, from 2028 around 100,000 additional cancer cases will need to be diagnosed at stage 1 or 2 per year [36].

The pandemic had a large impact on the number of early-stage cases being diagnosed in England, with fewer people seeking help from GPs and the effective pausing of screening programmes. The overall proportion dropped nearly 3 percentage points between 2019 and 2020. Overall, around 27,500 fewer people were diagnosed in 2020 compared to pre-pandemic and these 'missing' cases were disproportionately early stage – we estimate around 72% were early-stage cases [37]. There remains a lot of uncertainty about the full impact of the pandemic on early diagnosis and the challenge remains reducing the number of cases diagnosed at late stage.

Observed and projected percentage of patients diagnosed at stage 1 or 2 in England



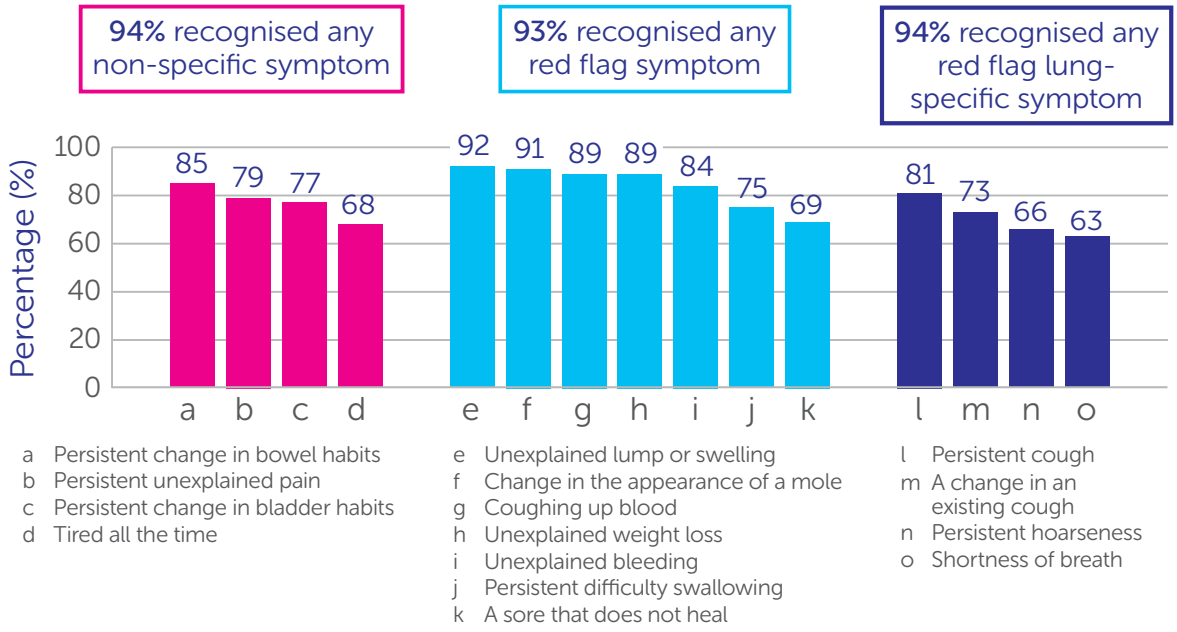
Cancers with known stage only.

We must make concerted efforts to reduce the number of cancers diagnosed at a late stage. There is no 'silver bullet' intervention that will improve early diagnosis – action is needed on all fronts to make progress and ultimately improve cancer outcomes.

People recognise many common cancer symptoms, but too many do not contact a doctor if they experience them

Public awareness of the potential signs and symptoms of cancer and prompt help-seeking can increase the chance of an earlier diagnosis. In the UK on average, people recognise 12 out of 15 common cancer symptoms. The most commonly recognised symptoms are lump/swelling, change in the appearance of a mole, unexplained weight loss, and coughing up blood [17].

Percentage of people that recognise common signs and symptoms of cancer



Q32: Which of following, if any, do you think could be warning signs or symptoms of cancer? Base: All UK adults 2022 N=2,387)

It is concerning that many people are experiencing possible cancer symptoms, but not talking to their doctor about them. In the UK, around 55% of people had noticed a potential symptom of cancer in the last 6 months. However, under half of those contacted their GP within 6 months, with younger people (aged 18-34) being the least likely to contact their GP about a potential cancer symptom [17].

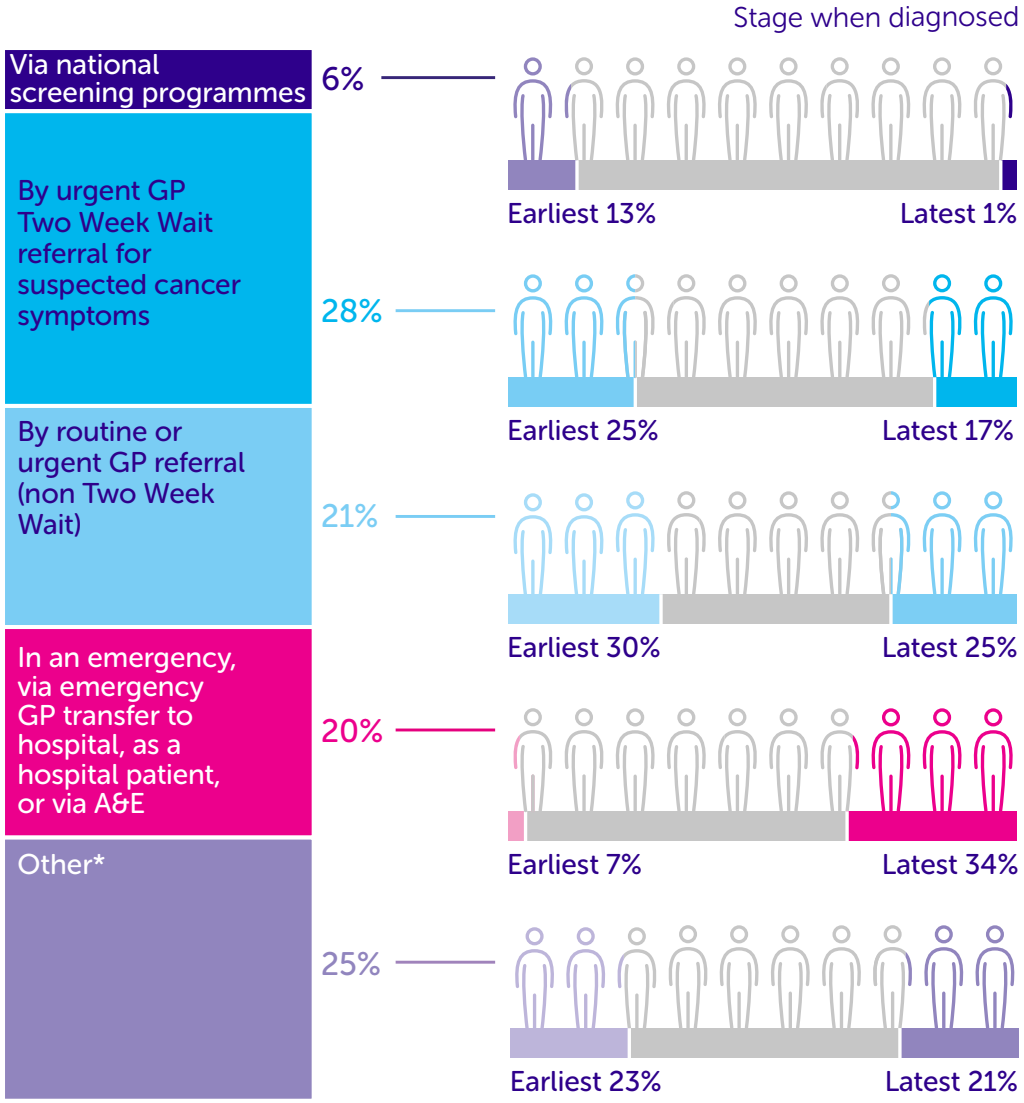
The biggest barriers to seeing a health professional in the UK include finding it difficult to get an appointment, not wanting to be seen as someone who makes a fuss and worrying about wasting the healthcare professional's time.

Governments across the UK should make a commitment to sustained, multi-year funding for public awareness campaigns. These campaigns should include both population-wide communications raising awareness of cancer symptoms and encouraging help seeking, and targeted, tailored messaging for communities that face the greatest barriers to help seeking. This must be matched with expanding capacity and introducing innovative service models to improve access to healthcare, particularly targeting areas and communities where currently there is limited primary care capacity.

Too many patients are diagnosed as an emergency presentation

Around a fifth of all cancers in Northern Ireland and England are diagnosed via an emergency route [38]. Patients diagnosed via this route are more likely to have late-stage disease, which not only impacts their treatment options, but patients diagnosed via this route also report a worse experience of cancer care.

Percentage of patients diagnosed in Northern Ireland, 2012-2016



For this infographic, Earliest = Stage 1, Latest = Stage 4

*Inpatient elective, other outpatient, death certificate only, or unknown route to diagnosis

Source: Public Health Northern Ireland, Pathway to a cancer diagnosis, 2012-2016, Queen's University Belfast.

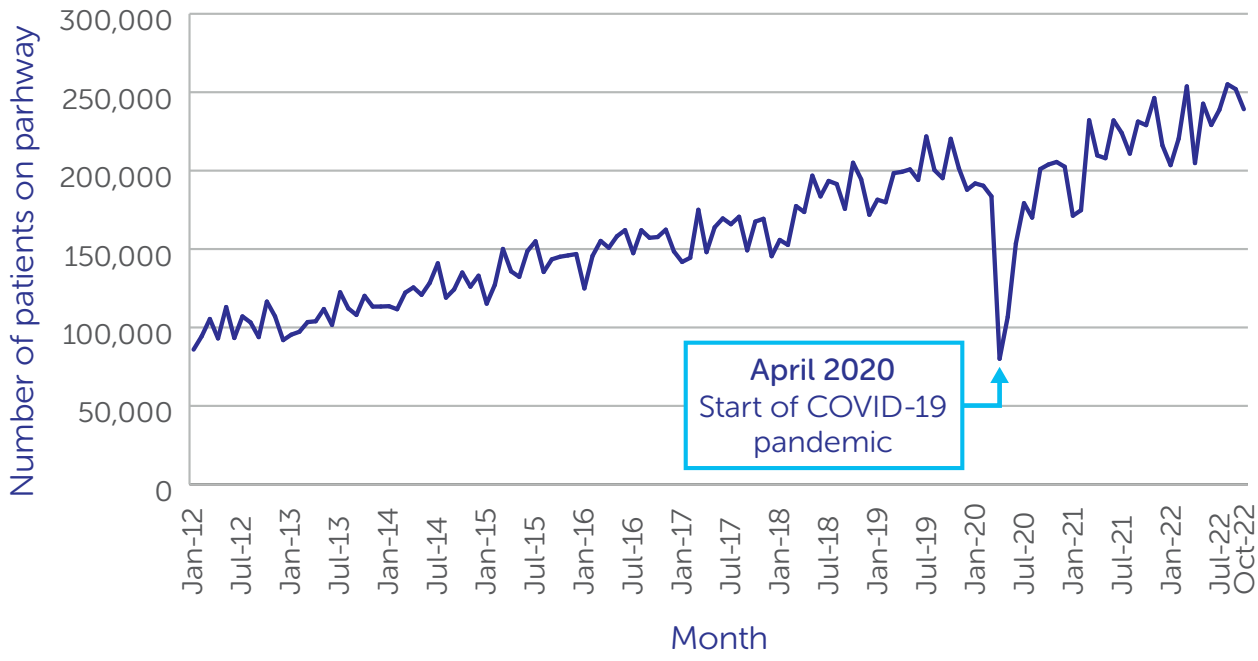
Emergency presentations are driven by a range of factors. Each UK nation must tackle these where possible and set an ambition to reduce the proportion of patients diagnosed in an emergency setting.

More people are being referred for suspected cancer than ever before

In England, an urgent suspected cancer referral (commonly known as two week wait (TWW) referrals) refers patients with possible cancer symptoms for investigation and diagnosis.

The number of TWW referrals increased steadily between 2012 and 2020 [39]. At the start of the pandemic, TWW referrals dropped by 60% compared to pre-pandemic levels. However, they recovered in a few months and the number of referrals has now surpassed pre-pandemic levels.

Number of patients on TWW pathway from January 2012–October 2022 in England



Too many patients are facing unacceptably long waits to get their diagnostic tests and results, leaving them and their loved ones facing unnecessary worry at an already anxious time – and for some people with cancer, risking their disease progressing.

Governments and health systems across the UK must work to ensure every cancer patient receives a timely diagnosis, which will require expanding capacity across diagnostic services.'

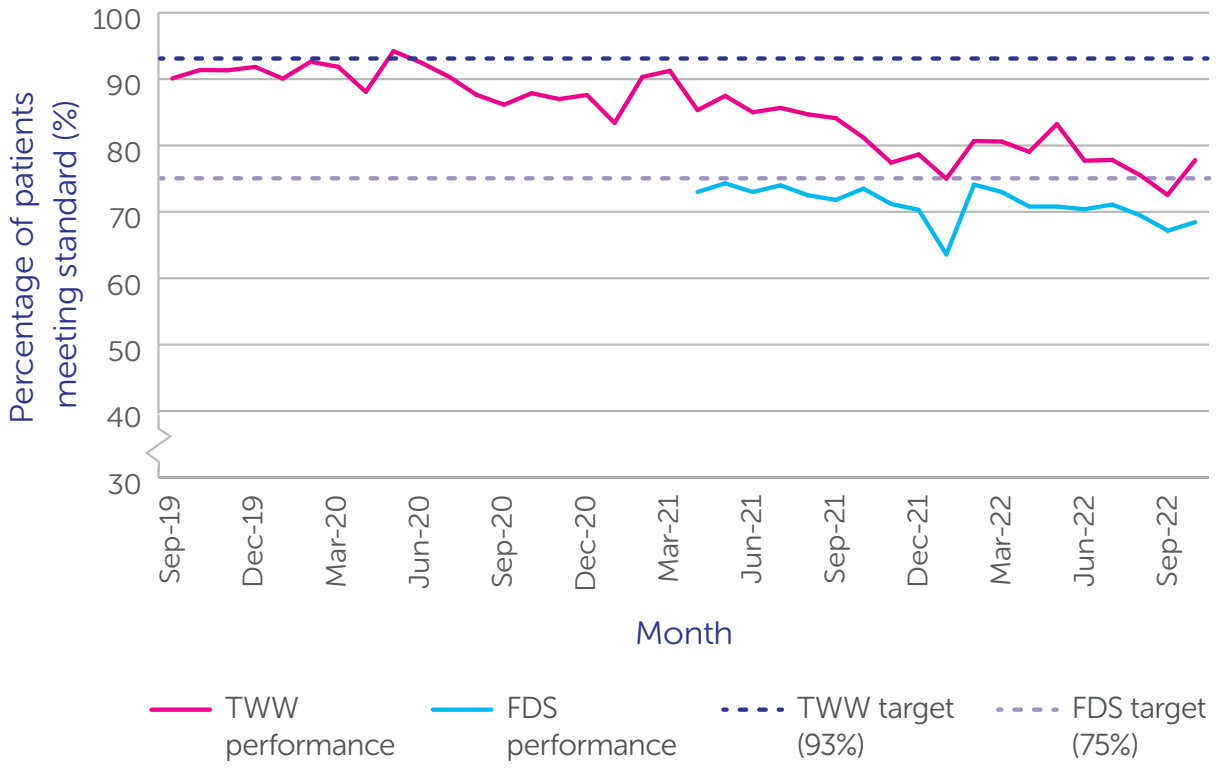
Diagnostic services are struggling to keep up with demand

Endoscopy and radiology are two key types of diagnostic tests for cancer. In September 2022, there were more than 1.5 million people waiting for these key diagnostic tests in the UK [40].

Many people also face long-waits for these tests. For example, at the end of June 2022 the number of patients waiting more than six weeks for a key diagnostic test in Scotland was five times higher than pre-pandemic, with waiting lists continuing to grow [41].

The Faster Diagnostic Standard (FDS) was introduced in England in 2021 and aims to diagnose or rule out cancer for 75% of patients within four weeks. This target is due to replace the TWW target in England however it has yet to be met [39].

Performance for TWW and FDS following an urgent GP referral for suspected cancer in England



As the number of urgent suspected cancer referrals continues to rise, it is vital that there is sufficient capacity to offer a timely appointment in the most appropriate, accessible format for patients.

Cancer waiting times are the worst on record

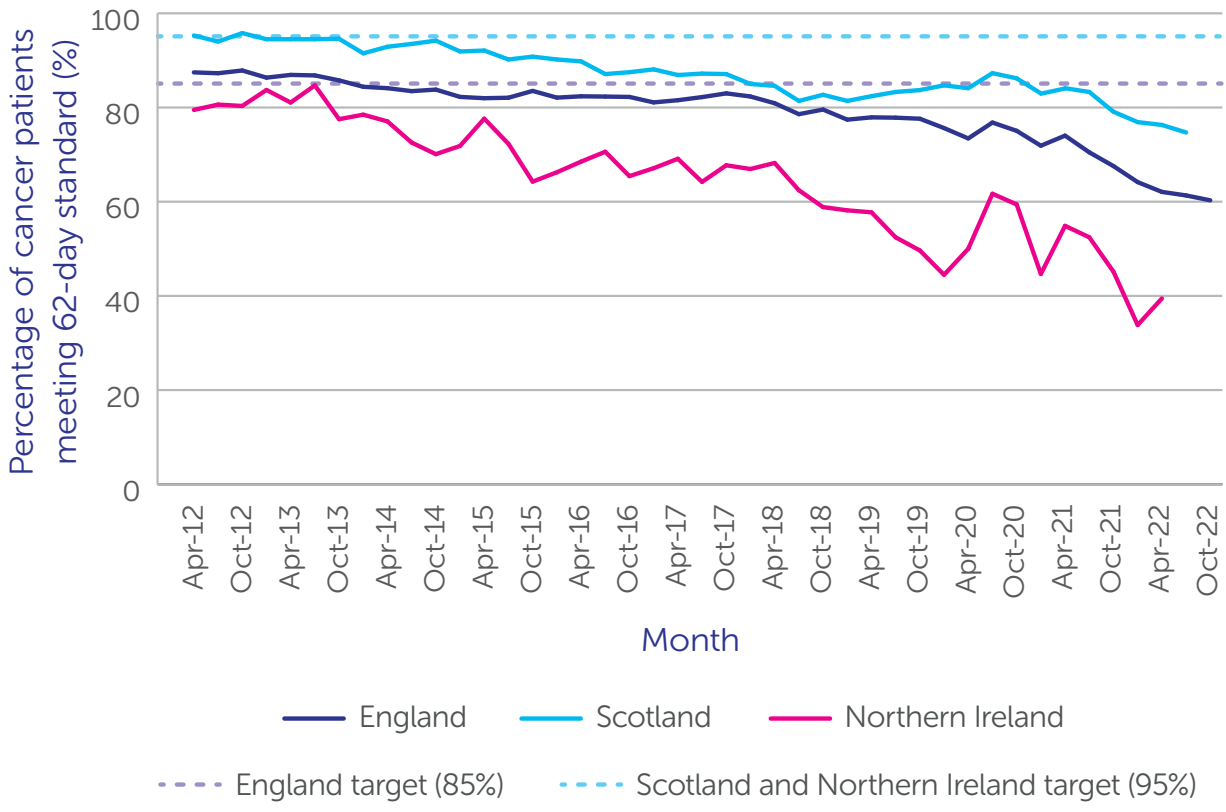
Cancer waiting times targets outline the maximum time most patients should expect to wait for cancer diagnosis and treatment. These targets act as a barometer for cancer services and meeting them is important for securing a better experience and outcomes for patients.

The 62-day standard states that patients should begin treatment within 62 days (2 months) of an urgent suspected cancer referral. England aims to meet this standard for 85% of patients, and Scotland and Northern Ireland aim for 95%. These targets have not been met since 2015 in England, 2012 in Scotland and in Northern Ireland has never been met since it was introduced in 2009 [39,42,43].

The 31-day standard states that patients should begin treatment within 31 days of a decision to treat. England aims to meet this standard for 96% of patients, Scotland for 95% and Northern Ireland for 98% of patients. Scotland has been meeting their target; however England and Northern Ireland have not met these targets since 2020 and 2013, respectively [39,42,43].

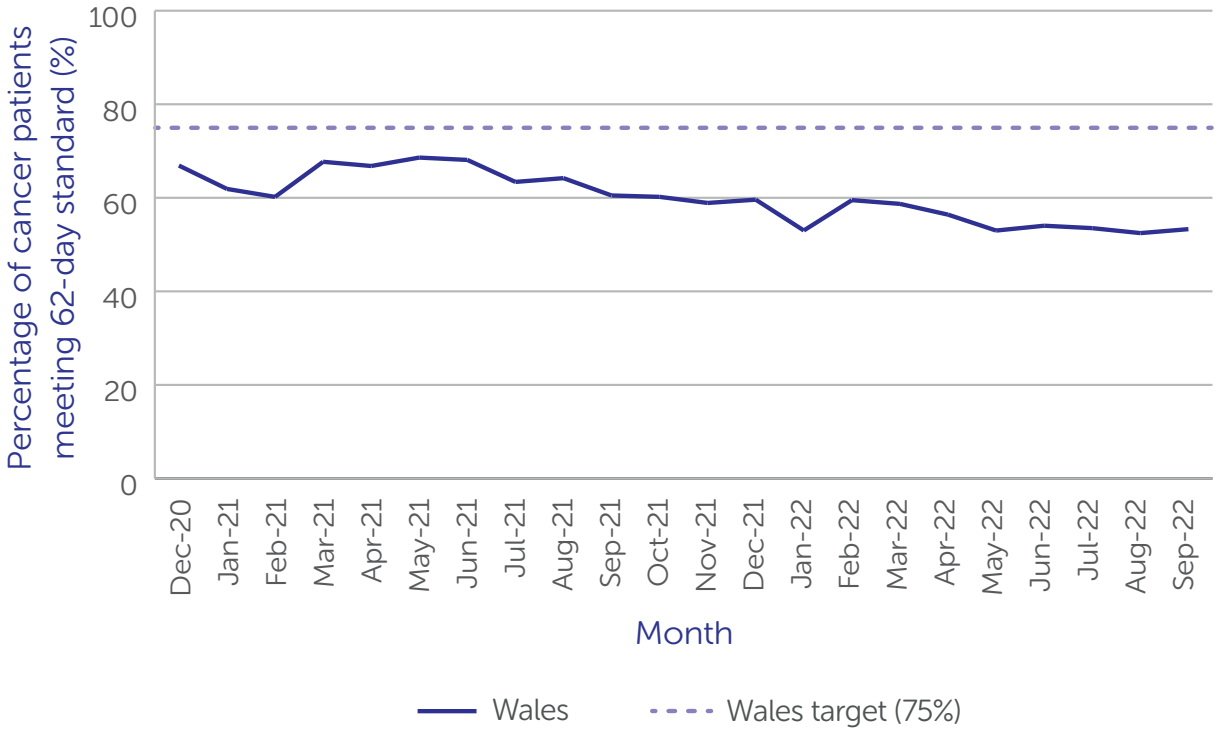
Across many cancer waiting times targets in the UK, performance was declining or was never met even before COVID-19, but the pandemic saw things quickly get even worse and the last six months have seen among the worst performances on record.

Performance against the 62-day standards in England, Scotland and Northern Ireland



Wales is also yet to meet its target for their 'Single Cancer Pathway' which was implemented from December 2020, aiming to begin treatment within 62 days of the point of suspicion for 75% of both urgent and non urgent cancer referrals. In September 2022 only 53% of patients had started treatment within 62 days from point of suspicion of cancer, the target is yet to be met [44].

Performance against the Single Cancer Pathway in Wales



The key factor in addressing unacceptably long waits for diagnosis and treatment is a lack of capacity within cancer services, in particular shortages of key diagnostic equipment and NHS staff vital to diagnosing and treating cancer. Each UK nation must plan and invest to address shortages in equipment and staff, addressing both short term constraints and expanding capacity to meet growing patient demand in coming years.

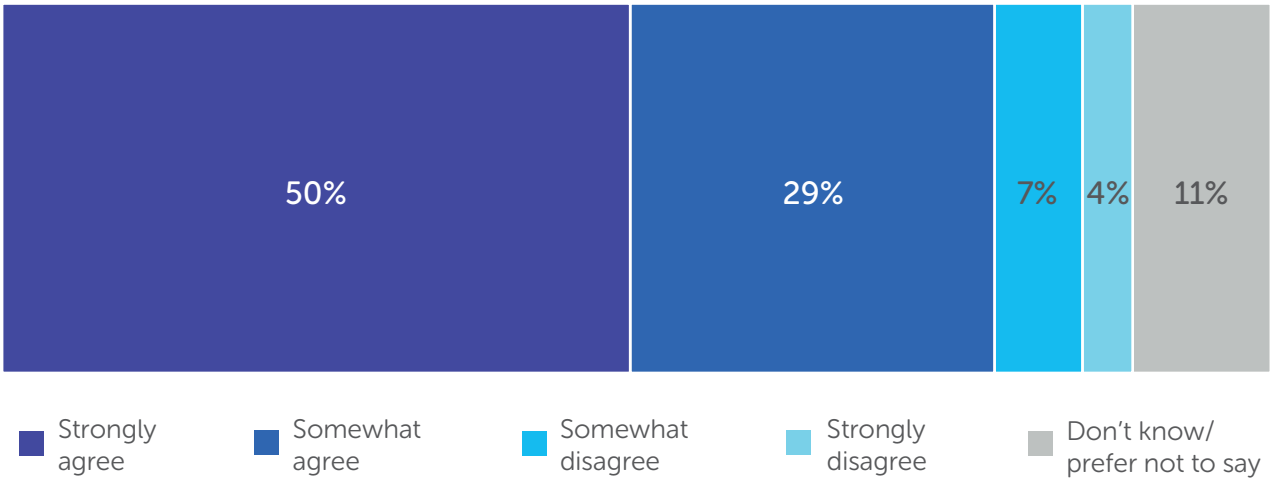
Patients feel positive about the care they receive, but people are concerned about NHS resources

Despite the pressure on the NHS in recent years, patients score their overall care positively. In England, in the 2021 Cancer Patient Experience Survey, the average score of a patient's overall experience on a scale of 0 (very poor) to 10 (very good) was 8.9 [45]. The latest Scottish Cancer Patient Experience survey from 2018 also showed a similar pattern [46].

Qualitative results highlight that patients are grateful for the care they receive. However, long waits, coordination of care between departments, communication and aftercare support from GPs were common areas for improvement.

CRUK survey data shows confidence in the health system's ability to tackle cancer is also low among the public. Across the UK, 79% of people don't think that the health service has enough staff or equipment to see, test and treat all the people with cancer [17].

Percentage of people that agree with the statement: "I don't think the health service has enough staff or equipment to see, test and treat all the people with cancer that need to be seen, tested and treated."



In every part of the UK, the public recognise and are deeply concerned by the significant challenges facing cancer services today.

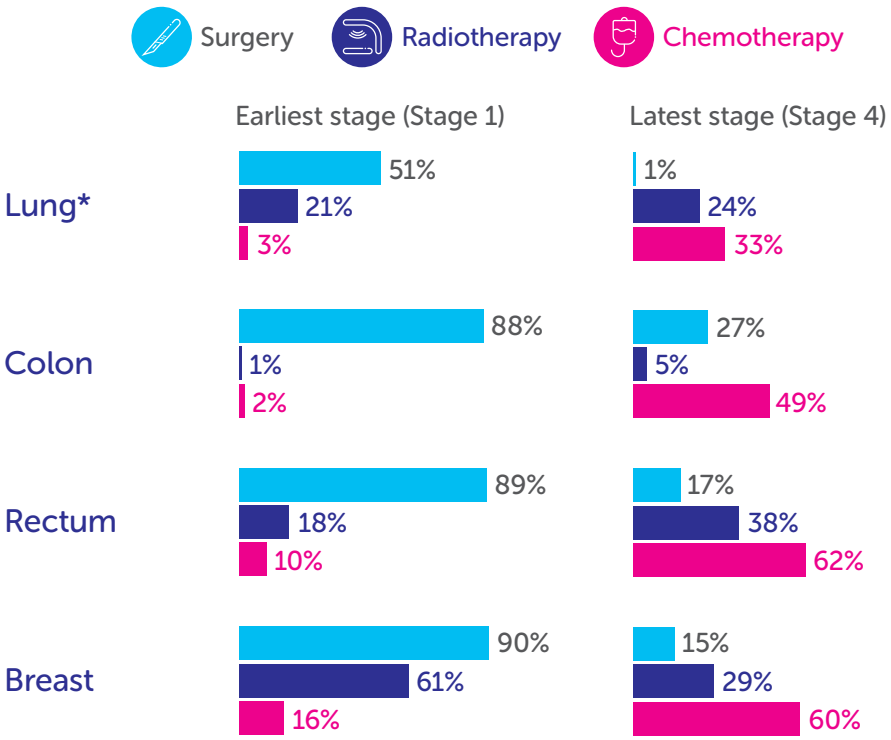
Governments must step up and ensure that cancer services have the staff and equipment to see, test and treat every cancer patient they need to.

Treatment regimens vary by cancer type

Alongside early diagnosis, ensuring access to optimal treatment is essential for improving cancer outcomes. Surgery, radiotherapy and chemotherapy are the main ways of treating cancer and may be used alone or in combination with each other.

In England, almost half (46%) of all patients in 2019 received surgery to remove their tumour as part of their primary treatment, making it the most commonly used primary treatment, while 27% had radiotherapy and 26% chemotherapy. However, treatment varies widely between different cancer sites and stage at diagnosis [47].

Patients in England diagnosed early are more likely to have surgery than chemotherapy



*Non-small cell only
Source: NHS Digital/CRUK

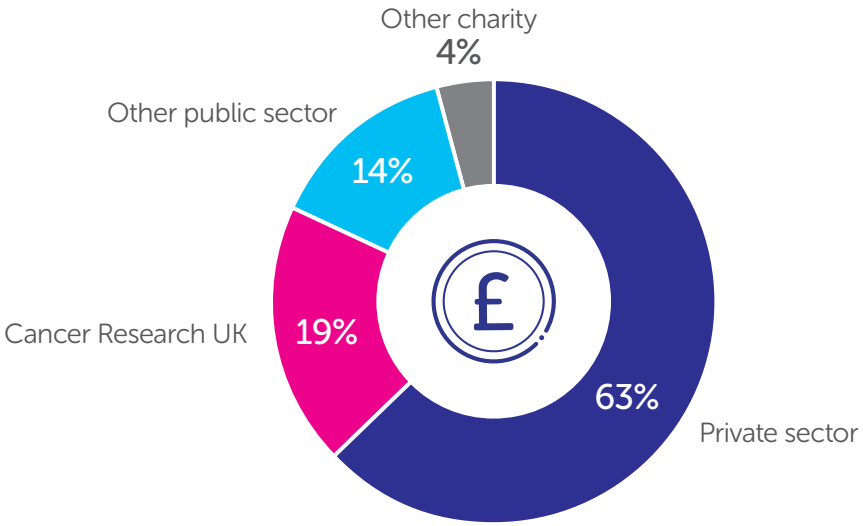
Results from the National Lung Cancer Audit show that in England, rates of curative treatment (surgery and/or radiotherapy) for early-stage lung cancer patients in good overall health fell from 81% in 2019 to 73% in 2020, with a drop in surgery from 20% to 15%. In Wales, 16% of lung cancer patients received surgery in 2019, remaining below the target of 17% [48].

All patients should be offered optimal treatment for their cancer, based on clinical advice and patient choice. More work is needed to assess variation across different cancer types, geographies and other demographic factors, and what may be driving it. However, that does not mean we cannot act now. Where there is evidence of unwarranted variation, health systems must work with cancer services to address it.

We need a supportive research environment and culture

There was an estimated £1.8 billion of investment in UK cancer research in 2020/21, with £700m from public and charitable sources [49]. As well as health benefits, research improves the economy – every £1 invested in cancer research generates £2.80 of economic benefits. Investment in and support for research from Government provides the foundations on which charities and industry can invest.

Contribution of funding sources to the cancer research sector



Analysis by PA Consulting

In 2021 in England, around 44% of cancer patients reported that they discussed whether they would like to be involved in research as part of their care. This is an increase of over 10 percentage points from 2019, but variation between regions remains [45].

Key barriers for the health service's research capacity are a lack of dedicated time for research, limited research culture and insufficient levels of research training. An issue reported by 64%, 43% and 41% of NHS staff working in research inactive trusts, respectively [50].

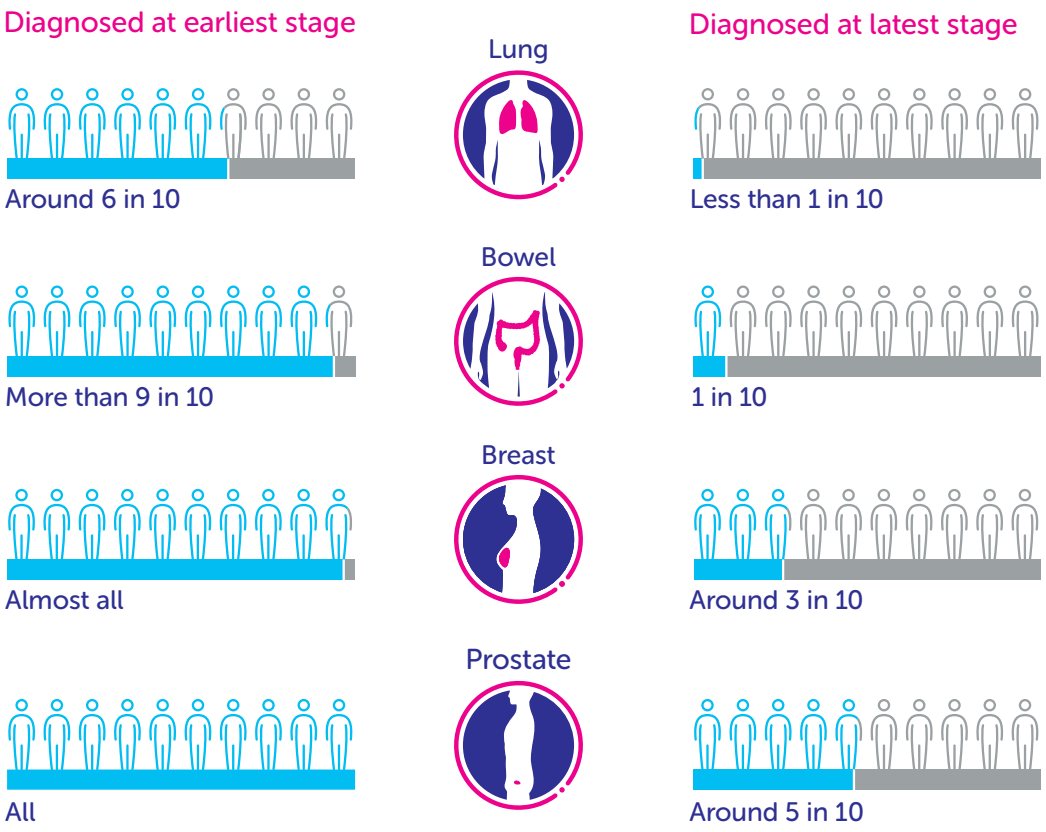
Research is critical for driving progress – and medical research charities play a vital role in the UK research ecosystem. Governments across the UK must continue to increase investment in research, including increasing the annual budget for the National Institute for Health Research and its devolved equivalents, and support medical research charities. Governments and health systems must also expand research capacity, including through offering health service staff contracts with dedicated research time and increasing staff access to research training.

Finding and treating cancer early increases survival

Patients diagnosed at an early stage are more likely to survive their cancer for longer. This improved survival is partly because patients diagnosed at the earliest stage have more, often curative, treatment options than those diagnosed later. Many patients miss out on potentially curative treatment because they are diagnosed at a late stage of disease.

For example, for bowel cancer, more than 9 in 10 people survive their disease for five years or more when diagnosed at the earliest stage, compared to 1 in 10 when diagnosed at the latest stage [51].

5-year cancer survival by stage at diagnosis



Earliest stage = stage 1; latest stage = stage 4.

Data for lung, bowel and breast cancer is age-standardised net survival for adults (aged 15 to 99 years) in England in 2015-2019 followed up to 2020. Data for prostate cancer is age-standardised net survival for adults (aged 15 to 99 years) in England in 2013-2017 followed up to 2018. Breast cancer data is for females only.

Source: Cancer survival in England, NHS Digital 2022.

We also don't yet know how the pandemic will have affected long term cancer outcomes yet and may not for some time.

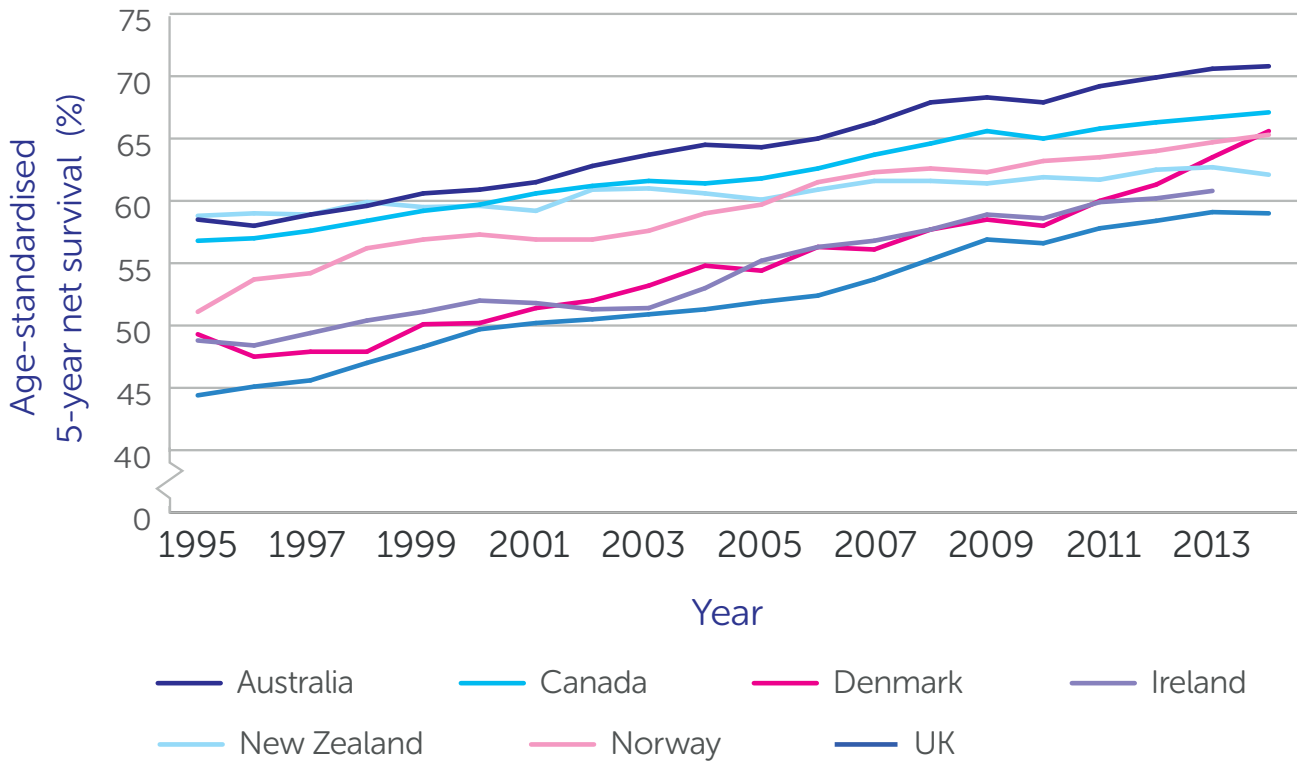
To give cancer patients the best chance of surviving their disease, governments and health systems across the UK must radically accelerate efforts to diagnose more cancers at an early stage.

Survival in the UK is lagging behind comparable countries

Half of people diagnosed with cancer in Wales and England survive their disease for ten years or more [52]. While survival has improved over the last 50 years, it is concerning that survival in the UK is lagging behind comparable countries [53].

For example, data from the International Cancer Benchmarking Partnership shows that, despite improvements in colon cancer survival between 1995-2014 in the UK, the UK remains bottom among seven comparable countries, and meanwhile survival improvements in Denmark have accelerated.

Trends in age-standardised 5-year net survival (15-99 years), colon cancer, both sexes



We don't fully understand why these differences exist, but differences in routes to and stage at diagnosis and access to optimal treatments are likely to be the most important factors [54,55]. Recent research also suggests that differences in policy between countries may also explain some of this international variation [56].

After decades of progress, we cannot allow the rate of improvement in cancer survival to slow. We must accelerate improvements in cancer outcomes across the UK and catch up with the best performing countries internationally.

To achieve this, action is needed across the cancer pathway to reduce late-stage diagnoses, offer optimal treatment to every patient and address chronic shortages in workforce and equipment so that every patient is diagnosed and begins treatment quickly.

Together we will beat cancer

This report sets out the challenges facing cancer services, and people affected by cancer, today. Tackling these challenges is vital if we are to improve cancer survival and save more lives.

As around 4 in 10 cancers are preventable, doing more to reduce the prevalence of modifiable risk factors such as smoking and overweight and obesity is vital. This would save many more people from the heartbreak of a cancer diagnosis, reduce pressure on overstretched cancer services and help to address cancer inequalities.

Early diagnosis is key to improving cancer survival, and as we have set out there is no one intervention that will make the difference in reducing late stage cancer diagnoses. Rather, a concerted action on all fronts is necessary. That means optimising cancer screening programmes, introducing new screening programmes such as targeted lung screening where there is robust evidence and making sure that everyone with potential cancer symptoms can access the services they need and be quickly referred for testing.

With cancer services stretched to near breaking point, we also need to ensure that diagnostic and treatment services have the capacity to offer every patient a timely diagnosis and begin the most appropriate treatment for their disease as quickly as possible. Much of this will rely on governments across the UK investing to guarantee we have the staff and skills, as well as key equipment and facilities, in cancer services so that capacity matches patient demand.

But achieving this also means looking to how we can transform cancer services. We must ensure that where there are new interventions, service models or pathways which could maximise current limited capacity as well as improve patient care, health systems are able to quickly adopt these innovations equitably and at pace.

As the following section sets out, while there are many great strengths to the UK's cancer data, significant barriers remain in particular to accessing data for research and analysis. Understanding the challenges and opportunities to improving cancer services is reliant on a solid foundation of data and research.

For governments and health systems across the UK, and the whole cancer community, the priority now is to address the fundamental issues that hold back our ambitions to prevent more cancers, reduce late stage cancer diagnoses and offer the best treatment to every patient – and ultimately, improve cancer outcomes.

Each UK nation is either developing or implementing a national cancer plan. These are the vehicles for real transformation in cancer services, and it is vital that they see the necessary political support, investment and leadership to make good on their promise. Alongside this, Cancer Research UK will now take the priorities identified in this report and later this year set out the comprehensive actions which must be taken to build a world-class research ecosystem and deliver world-class cancer outcomes across the UK.

This report is a call to action – all of us must come together to make progress in our ambition to beat cancer. People affected by cancer deserve no less.

CANCER RESEARCH UK

Data saves lives

This work uses data provided by members of the public and cancer patients and collected by the health services and cancer registries in each UK nation as part of their care and support. This report uses data that was available up to the 31 December 2022.

By analysing and interpreting data right across the cancer pathway, we can identify where improvements could be made for patients. To do this we need access to complete, up-to-date information, including patient data.

Access to and the availability of data for analysis and research has become much more challenging over the last decade. The data collected across the UK for cancer patients is world leading, but the process for accessing the data differs between all four countries, in many cases lacks transparency, and the process can take years from application to receiving data. The ability to conduct data-driven research is therefore compromised.

Furthermore, not all UK nations collect and report on key metrics such as stage at diagnosis and where they do some are not comparable. There are gaps in this overview report as to where data aren't available in every UK nation. We will be working closely with other organisations to try and improve the process for safe and secure access to cancer data and advocate for the collection and release of more granular data for service improvement and research. Effective safeguards are essential to maintain the confidentiality and anonymity of patient data, as is a process that allows those safeguards to exist and for analysis and research to be undertaken in a timely and transparent process.

The routine collection of data on demographics, diagnosis, treatment and outcomes for every patient is invaluable in tackling the disease and improving outcomes for everyone. While variation is not the focus of this report, relevant breakdowns in data across the cancer pathway are critical for identifying where disparities exist. Patient confidentiality is critical, but aggregated data removing identifiable information needs be regularly reported in order for inequalities to be understood and addressed. Beating cancer must mean beating cancer for everyone.

Other relevant publications

Cancer in the UK: Overview 2023: devolved nations summaries

- Cancer in the UK: Scotland overview 2023
- Cancer in the UK: Wales overview 2023
- Cancer in the UK: Northern Ireland overview 2023

Previous cancer in the UK reports:

- Cancer in the UK: Deprivation and cancer inequalities in Scotland (2022)
- Cancer in the UK: Socioeconomic deprivation (2020)
- Cancer in the UK: 2019
- Cancer in the UK: 2018

References

1. Cancer Research UK. **Cancer Mortality for all cancers combined, 2019** [internet]. Available from: https://www.cancerresearchuk.org/health-professional/cancer-statistics/mortality/all-cancers-combined#heading-Four

2. Calculated by the Cancer Intelligence Team at Cancer Research UK: **based on all cancers combined excluding non-malignant melanoma (ICD10 C00-C97 excluding C44) in the UK in 2019.** Available from: https://www.cancerresearchuk.org/health-professional/cancer-statistics/mortality/all-cancers-combined#heading-Zero

3. Lifetime risk estimates calculated by the Cancer Intelligence Team at Cancer Research UK. Based on Office for National Statistics (ONS) 2016-based Life expectancies and population projections using published findings from Smittenaar CR, Petersen KA, Stewart K, Moitt N. **Cancer Incidence and Mortality Projections in the UK Until 2035.** Brit J Cancer, 2016.

4. NHS Digital. **Cancer Registration Statistics, England 2020** [internet]. [Cited January 2023]. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/cancer-registration-statistics/england-2020/cancer-diagnoses-in-2020

5. Calculated by the Cancer Intelligence Team, Cancer Research UK. February 2023. **Cancer incidence and mortality projections for UK and constituent nations**, using data to 2018.

6. Brown KF, Rumgay H, Dunlop C et al (2018). **The fraction of cancer attributable to modifiable risk factors in England, Wales, Scotland, Northern Ireland and the United Kingdom in 2015.** Br J Cancer DOI: 10.1038/s41416-018-0029-6.

7. Office for National Statistics (ONS): **Adult smoking habits in the UK: 2019**. London: ONS; 2019 [internet]. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2019

8. Calculated by the Cancer Intelligence Team, Cancer Research UK, December 2022. **Smoking prevalence projections for England** based on data to 2021. Available from: https://www.cancerresearchuk.org/health-professional/our-reports-and-publications#risk

9. Calculated by the Cancer Intelligence Team, Cancer Research UK, February 2020. **Smoking prevalence projections for England, Scotland, Wales and Northern Ireland**, based on data to 2018/19.

10. Cancer Research UK (2022). **Overweight and obesity prevalence projections for the UK, England, Scotland, Wales and Northern Ireland, based on data to 2019/20**. Available from: https://www.cancerresearchuk.org/sites/default/files/cancer-stats/adult_overweight_and_obesity_prevalence_projections_18-05/adult_overweight_and_obesity_prevalence_projections_18-05.pdf

11. M Simmonds, A Llewellyn, C G Owen et al. **Predicting adult obesity from childhood obesity: a systematic review and meta-analysis**, Obesity Reviews, 2016;17(2):95-107.

12. National Child Measurement Programme, England, 2021/22 school year [internet]. [Cited January 2023]. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2021-22-school-year

13. NHS Digital. (2022) Cervical Screening Programme England 2021-22. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/cervical-screening-annual/england-2021-2022

14. Public Health Wales (2022) Cervical Screening Programme Reports. Available from: https://phw.nhs.wales/services-and-teams/cervical-screening-wales/information-resources/programme-reports/

15. Public Health Scotland (2021) Scottish cervical screening programme statistics. Available from: https://publichealthscotland.scot/publications/scottish-cervical-screening-programme-statistics/scottish-cervical-screening-programme-statistics-annual-update-to-31-march-2021/

16. HSC Public Health Agency. Northern Ireland Cervical Screening Programme. Available from: https://cancerscreening.hscni.net/cervical-screening/. [Cited December 2022].

17. Cancer Research UK Cancer Awareness Measure Survey (September 2022) Unpublished findings. Data collected via the YouGov's online panel that surveyed 2,387 UK representative adults.

18. Human papillomavirus (HPV) vaccine coverage estimates in England: 2021 to 2022 [internet]. [Cited January 2023]. Available from: https://www.gov.uk/government/statistics/human-papillomavirus-hpv-vaccine-coverage-estimates-in-england-2021-to-2022?utm_medium=email&utm_campaign=govuk-notifications-topic&utm_source=fa7628e8-ddaa-4ff3-8717-17549f99d615&utm_content=daily

19. Annual HPV vaccination coverage in Northern Ireland [internet]. [Cited January 2023]. Available from: https://www.publichealth.hscni.net/sites/default/files/2022-11/website%202021-2022.pdf

20. Wilson R, Quinn-Scoggins H et al. Intentions to participate in cervical and colorectal cancer screening during the COVID-19 pandemic: A mixed methods study, Preventive Medicine, 2021, Vol 153.

21. Office for Health Improvement and Disparities. (2022) Fingertips Public Health Data: Cancer Services. Available from: https://fingertips.phe.org.uk/profile/cancerservices/data#page/1

22. Public Health Scotland (2022) Scottish bowel screening programme statistics. Available from: https://publichealthscotland.scot/publications/scottish-bowel-screening-programme-statistics/scottish-bowel-screening-programme-statistics-for-the-period-of-invitations-from-may-2019-to-april-2021/

23. Public Health Wales (2021) Bowel Screening Programme Reports. Available from: https://phw.nhs.wales/services-and-teams/screening/bowel-screening/programme-reports/

24. HSC Public Health Agency. **Northern Ireland Bowel Cancer Screening Programme.** Available from: https://cancerscreening.hscni.net/bowel-screening/. [Cited December 2022].

25. NHS Digital (2022). **NHS Breast Screening Programme, England 2020-2021.** Available from: https://digital.nhs.uk/data-and-information/publications/statistical/breast-screening-programme/england---2020-21

26. Public Health Scotland (2021). **Scottish breast screening programme statistics.** Available from: https://publichealthscotland.scot/publications/scottish-breast-screening-programme-statistics/scottish-breast-screening-programme-statistics-annual-update-to-31-march-2020/

27. Public Health Wales (2022). **Breast Screening Programme Reports.** Available from: https://phw.nhs.wales/services-and-teams/screening/breast-screening/programme-reports/

28. HSC Public Health Agency. **Northern Ireland Breast Screening Programme.** Available from: https://cancerscreening.hscni.net/breast-screening/. [Cited December 2022]

29. **Hundreds of people diagnosed with cancer early through life-saving NHS lung checks** [internet]. [Cited January 2023]. Available from: https://www.england.nhs.uk/2022/04/hundreds-of-people-diagnosed-with-cancer-early-through-life-saving-nhs-lung-checks/

30. Calculated by the Cancer Research UK Cancer Intelligence Team. Based on 2018 annual cancer incidence, assuming people aged 55-74 with lung cancer would be eligible for targeted lung cancer screening. The impact of targeted lung cancer screening on early stage cases was based on the observed impact of the Accelerate, Coordinate, Evaluate (ACE) Programme.

31. Cancer Research UK (2022). **Lung cancer screening project conducted by YouGov and supported by Scottish Power**.

32. S McPhail, S Johnson, D Greenberg et al. **Stage at diagnosis and early mortality from cancer in England,** Br J Cancer, 2015; 112.

33. **Case-mix adjusted percentage of cancers diagnosed at stages 1 and 2 in England,** 2020 [internet]. [Cited January 2023]. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/case-mix-adjusted-percentage-of-cancers-diagnosed-at-stages-1-and-2-in-england/2020

34. Northern Ireland Cancer Registry, Queens University Belfast (2019). **Cancer incidence, survival, mortality and prevalence data.** Available from: https://www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics/

35. **NHS England: The NHS Long Term Plan**; 2019 [internet]. [Cited January 2023]. Available from: https://www.longtermplan.nhs.uk/

36. Calculated by the Cancer Research UK Cancer Intelligence Team (2022). **Number of additional cases needing to be diagnosed to meet the 75% NHS ambition.**

37. 27,528 fewer 'All Cancers Combined' cases (including missing and unstageable) were diagnosed in 2020 when compared to a composite pre-pandemic baseline. For most sites, a 2018 baseline was selected due to a dip in staging completeness for 2019 data (76.5%) compared to previous years (85.3% in 2018). This is with the exception of **prostate cancer** which was compared to 2017 cases (due to unusually high incidence of prostate cancer diagnoses in 2018 from the 'Fry and Turnbull effect'), and **oropharyngeal cancer** which was compared to 2019 cases (due to changes in TNM classification causing more tumours to be classified as 'oropharyngeal cancer' from 2019 onwards).

    Data source: **Case-mix adjusted percentage of cancers diagnosed at stages 1 and 2 in England, 2020; NHS Digital,** https://digital.nhs.uk/data-and-information/publications/statistical/case-mix-adjusted-percentage-of-cancers-diagnosed-at-stages-1-and-2-in-england/2020

38. **Routes to Diagnosis, 2018** [internet]. [Cited January 2023]. Available from: https://digital.nhs.uk/ndrs/our-work/ncras-work-programme/routes-to-diagnosis

39. NHS England. **Cancer Waiting Times** data [internet]. [Cited December 2022]. Available from: https://www.england.nhs.uk/statistics/statistical-work-areas/cancer-waiting-times/

40. Calculated by the Cancer Research UK Cancer Intelligence team, based on waiting list data.
    Data sources: NHS England, Monthly Diagnostic Waiting times and Activity.
    Public Health Scotland. NHS waiting times - diagnostics.
    Public Health Wales. NHS Hospital waiting times; diagnostic and therapy services
    Department of Health. Northern Ireland waiting time statistics: diagnostic waiting times September 2022

41. Public Health Scotland. **Scotland NHS waiting times; diagnostics** [internet]. [Cited January 2023]. Available from: https://publichealthscotland.scot/publications/nhs-waiting-times-diagnostics/diagnostic-waiting-times-waits-for-key-diagnostic-tests-22-february-2022/

42. Public Health Scotland (2022) **Cancer waiting times.** Available from: https://publichealthscotland.scot/publications/cancer-waiting-times/cancer-waiting-times-1-july-to-30-september-2022/

43. Department of Health (2022) **Northern Ireland waiting time statistics: cancer waiting times April-June 2022.** Available from: https://www.health-ni.gov.uk/publications/northern-ireland-waiting-time-statistics-cancer-waiting-times-april-june-2022

44. Welsh Government (2022) **Waiting times by month.** Available from: https://statswales.gov.wales/Catalogue/Health-and-Social-Care/NHS-Hospital-Waiting-Times/Diagnostic-and-Therapy-Services/waitingtimes-by-month

45. **2021 National Cancer Patient Survey** [internet]. [Cited December 2022]. Available from: https://www.ncpes.co.uk/2021-national-results/

46. **Scottish Cancer Patient Experience Survey, 2018** [internet]. [Cited December 2022]. Available from: https://www.gov.scot/collections/scottish-cancer-patient-experience-survey/

47. England treatment breakdowns for all defined malignant cancer types excluding NMSC [internet]. [Cited December 2022]. Available from: https://nhsd-ndrs.shinyapps.io/treatment_by_demographic_factors/ http://www.ncin.org.uk/cancer_type_and_topic_specific_work/topic_specific_work/main_cancer_treatments

48. National Lung Cancer Audit annual report, 2022. Report available from: https://nlca.rcp.ac.uk/content/misc/NLCA%20annual%20report%202022.pdf

49. Cancer Research UK, Understanding the economic value of cancer research. Available from: https://www.cancerresearchuk.org/sites/default/files/economic_value_of_cancer_research_-_cruk_full_report_29-06.pdf

50. Cancer Research UK, Identifying and improving the capacity of healthcare staff to conduct research. Available from: https://www.cancerresearchuk.org/sites/default/files/creating_time_for_research_february_2021_-_full_report-v2.pdf

51. NHS Digital (2022) Cancer survival in England; cancers diagnosed 2015 to 2019, followed up to 2020. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/cancer-survival-in-england/cancers-diagnosed-2015-to-2019-followed-up-to-2020

52. Calculated by the Cancer Intelligence Team at Cancer Research UK: ten-year age-standardised net survival for patients diagnosed during 2010-2011 in England and Wales. Available from: https://www.cancerresearchuk.org/health-professional/cancer-statistics/survival

53. The ICBP SURVMARK-2 project [internet]. [Cited January 2023]. Available from: https://gco.iarc.fr/survival/survmark/

54. Weller D, Menon U, Zalounina Falborg A, et al. Diagnostic routes and time intervals for patients with colorectal cancer in 10 international jurisdictions; findings from a cross-sectional study from the International Cancer Benchmarking Partnership (ICBP), BMJ Open 2018; 8.

55. Norell CH, Butler J, Farrell R, et al. Exploring international differences in ovarian cancer treatment: a comparison of clinical practice guidelines and patterns of care. International Journal of Gynecologic Cancer 2020; 30: 1748-1756.

56. Nolte et al. Exploring the link between cancer policies and cancer survival: a comparison of International Cancer Benchmarking Partnership countries; The Lancet Oncology, 2022; 23 (11).

Cancer Research UK (CRUK) is the world's leading cancer charity dedicated to saving lives through research, influence and information. In 2021/22, we spent £443 million on new research. We support research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses. This pioneering work into the prevention, diagnosis and treatment of cancer has helped save millions of lives. Cancer Research UK wants to accelerate progress so that 3 in 4 people survive their cancer for 10 years or more by 2034.

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