



Cancer in the UK 2025: Socioeconomic deprivation



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About this report

Reference

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About Cancer Research UK

We're the world's leading cancer charity, dedicated to saving and improving lives with our research, influence and information. In the last 50 years, our pioneering work has helped double cancer survival in the UK. And today it's continuing to save lives, here and around the world.

Our vision is a world where everybody lives longer, better lives, free from the fear of cancer. And step by step, day by day, our researchers are making this vision a reality thanks to our dedicated community of supporters, partners, donors, fundraisers, volunteers and staff.

Together we are beating cancer.



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Foreword



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This report updates our **Cancer in the UK 2020: Socioeconomic deprivation report** and highlights that little has changed in progress towards tackling cancer inequalities. Stark differences between the most and least deprived continue to be seen across the cancer pathway, from prevalence of risk factors, cancer diagnosis, through to survival and mortality. Depressingly, cancer-related deaths are almost 60% higher in the most deprived areas of the UK than in the least deprived.

Socioeconomic deprivation is an umbrella term encompassing income, employment, health, education, housing, crime and access to services. But while the link between deprivation and cancer inequalities may be multi-faceted and complex, this must not be an excuse for inaction. We know there are evidence-based strategies that we can adopt to tackle inequalities. Whether that is legislation and investment to address the wider determinants of health; actions to make services more accessible through more effective and community focused service design; or the rapid and consistent implementation of innovation and best practice. Cancer Research UK recognises our own role in efforts to reduce health inequalities, through advocating for a more diverse and inclusive research community, investing in research to understand inequalities, collaborating with health systems and governments and wider partners to make progress. That's why we published our **Cancer and Health Inequalities Strategy** to outline our commitment to ensuring no one is left behind.

National cancer plans for Scotland, Wales and Northern Ireland all highlight action on inequalities as a priority, and early diagnosis of cancer is one of five clinical priorities in NHS England's Core20Plus5 approach to reducing health inequalities. It will be important that tackling cancer inequalities is a focus of the upcoming National Cancer Plan for England, alongside the UK Government's bold ambition to halve the gap in healthy life expectancy.

Though the scale of the inequalities challenge may be daunting, with concerted action, there are real opportunities for meaningful progress to reduce inequalities across the cancer pathway.

A handwritten signature in black ink, appearing to read 'Naser Turabi'.

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Introduction

Health inequalities are unfair, avoidable and systemic differences in health between different groups of people.

Life expectancy and likelihood of developing different diseases vary because of differences in age, comorbidities, ethnicity, environment, gender identity, geography, language, sex and sexual orientation. Many people belong to multiple demographic groups, and so they may face numerous barriers to good health, resulting in increased health inequalities. More specifically, cancer inequalities mean that some groups are more likely to develop cancer, be diagnosed at a later stage, receive different treatments and have lower chances of surviving.

Socioeconomic deprivation is uniquely connected to many demographic factors, making it arguably the most influential measure of inequalities in developing cancer and in cancer outcomes across the UK. However, this is just one part of the complex web of wider determinants of health and health inequalities.

In this report we summarise key metrics and data in relation to socioeconomic deprivation from across the cancer pathway, including prevention, diagnosis and treatment. The scale of deprivation is measured in each nation using indices of multiple deprivation [1-4], which is used throughout this report, except where stated otherwise.

This report provides an update on our previous report published in 2020 [5] and unfortunately, there has been little progress in reducing the inequalities observed across socioeconomic groups.

The data-driven evidence contained in this report is not at an individual level, but a population level, so it's illustrative of wider challenges. This report highlights where more focus is needed to reduce inequalities by showing what we should be achieving across all population groups, not just a few.

Throughout, we give illustrative examples from the four UK nations, with similar patterns observed across the countries. Where possible, UK-wide data, or data from each UK nation, is presented. However, not all UK nations report on all metrics included in this report, or in some instances different approaches mean data are not directly comparable between nations.

Some recent data has not been included in this report due to the impact that the COVID-19 pandemic had on data collection and completeness, and the impact this can have when comparing trends over time. We've made decisions to include or exclude the most recent data for each section individually based on the specifics of the data. The pandemic impacted many aspects of cancer care, but it may be many years before the full implications and long-term impact become clear, and indeed any impact this had between socioeconomic groups.

Overview

Across the UK, people living in the most deprived areas have worse cancer experiences and outcomes than those in the least deprived areas:

- Cancer incidence is higher in people living in more deprived areas largely due to the higher prevalence of cancer risk factors like smoking and obesity.
- People living in more deprived areas have lower awareness of symptoms that could indicate cancer and they experience more barriers to seeking help for those symptoms. This contributes to higher proportions of cancer cases among people living in more deprived areas being diagnosed via an emergency presentation and at a later stage.
- People living in more deprived areas are more likely to experience long waits from urgent referral for suspected cancer to

starting treatment. For some cancer types, they are less likely to receive certain treatments.

- Cancer survival is lower in people living in more deprived areas. This is linked to later-stage diagnosis, due partly to lower uptake of screening for early diagnosis, and treatment differences.
- People living in more deprived areas have significantly higher cancer mortality rates compared with those in less deprived areas. This reflects their higher cancer incidence rates and lower cancer survival.

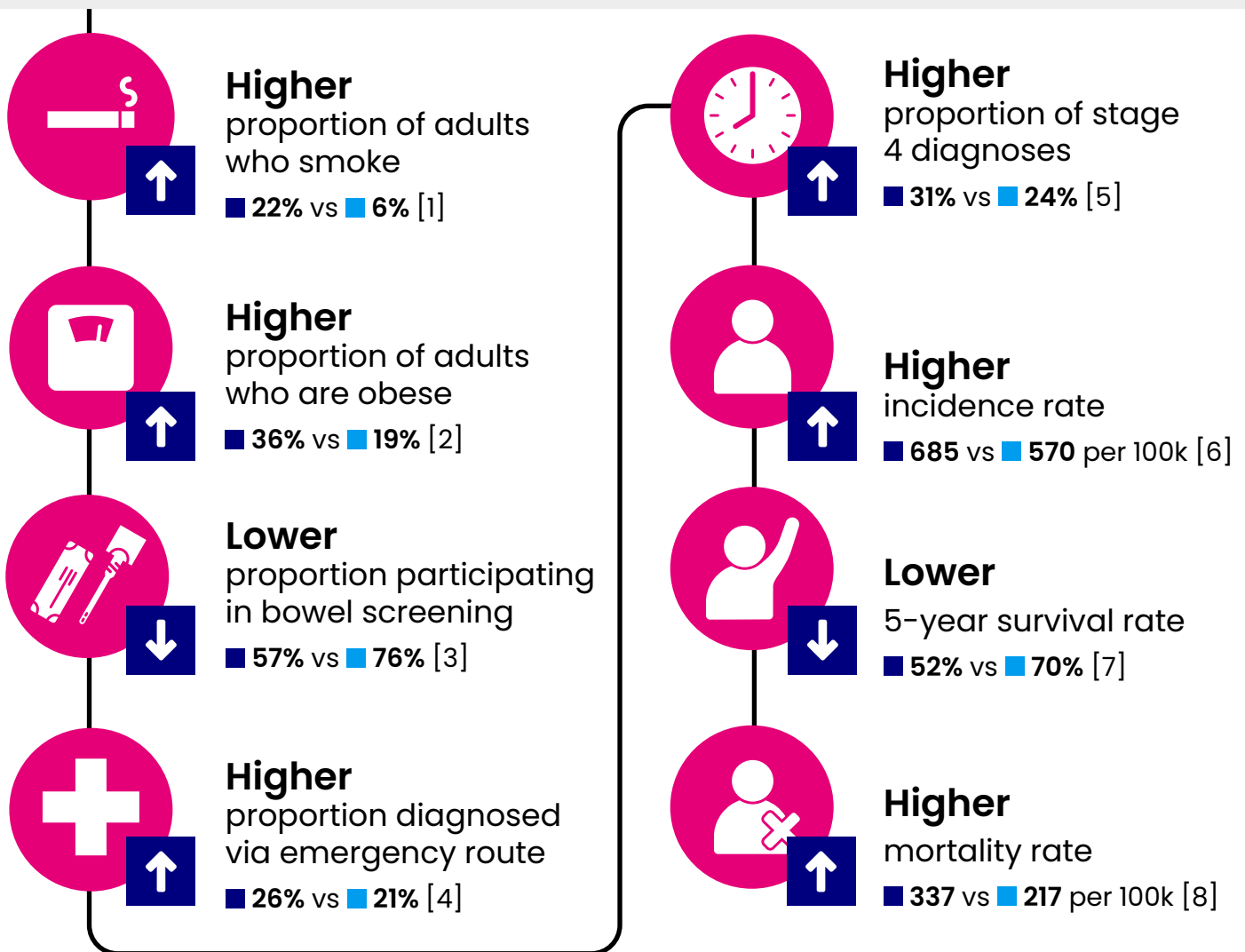
To improve our understanding of cancer inequalities, high-quality routinely collected data, which researchers can access in a timely and safe way, is vital. Inclusive research is essential to make sure interventions effectively reduce inequalities.



Deprivation inequalities across the cancer pathway

■ Most deprived* ■ Least deprived*

Compared to least deprived areas, people living in the **most deprived** areas have a...



Based on UK/Country and Year(s) as below:

1. England (2023)
2. Scotland (2022)
3. England (May 2021–April 2023)
4. Northern Ireland (2018–2020)
5. England (2014–2018)
6. Wales (2018–2020)
7. Wales (2015–2019)
8. UK (2017–2021)

*Based on deprivation quintiles where small geographic areas are categorised into five groups established by their level of deprivation with an increasing level of deprivation between each quintile, from least to most deprived. The quintiles are based on an Index of Multiple Deprivation, which is a measure of relative deprivation for small areas within each nation in the UK. (Note: the smoking rate for England is based on deciles, where ten groups are used instead of five.)

For further details about terminology used here, please see: [Cancer Statistics terminology explained, CRUK](#)

Cancer incidence is higher in more deprived areas

Inequalities in cancer incidence rates, in part, reflect inequalities in the historic prevalence of key risk factors. For example, incidence rates for all cancers combined in Wales are almost 20% higher in the most deprived areas versus the least (685 per 100,000 vs 570 per 100,000) [6]. The deprivation gap for all cancers combined is of a similar size to this within England, Scotland and Northern Ireland [7–9]. In England and Wales, the deprivation gap for all cancers combined has narrowed over the

past decade in males but increased over the same period in females.

For some cancer sites, the deprivation gap is much wider and has grown over time. For example, in lung cancer in England, the deprivation gap has increased and the incidence rate in the most deprived areas is now more than two and half times that of the least deprived areas (128 per 100,000 vs 48 per 100,000).

Age-standardised incidence rates by deprivation for lung cancer, UK, 2015–2021



Source: Office for National Statistics, Dept of Health Northern Ireland, Scottish Govt, Welsh Govt

Cancer mortality is higher in more deprived areas

Cancer mortality figures reflect the entire cancer pathway, from prevention and incidence, through diagnosis, to treatment. For all cancers combined in the UK, mortality rates are almost 60% higher in people living in the most deprived areas compared to the least (337 per 100,000 vs 217 per 100,000) [10–13].

In the UK, around 28,400 cancer deaths each year are associated with deprivation. These are excess cancer deaths which may have been avoided if the whole country had the same age- and sex-specific mortality rates

as seen in the least deprived areas, within each UK nation.

Almost half (47%) of these deprivation-associated deaths are due to lung cancer. In England, the most deprived areas have a lung cancer mortality rate almost three times that of the least deprived (90 per 100,000 vs 32 per 100,000). This disparity in lung cancer mortality rate between the most and least deprived groups is also evident across Scotland, Wales and Northern Ireland.

Age-standardised mortality rates by deprivation for all cancers combined, UK, 2017–2021



Source: Cancer Research UK, NISRA, ONS, National Records of Scotland

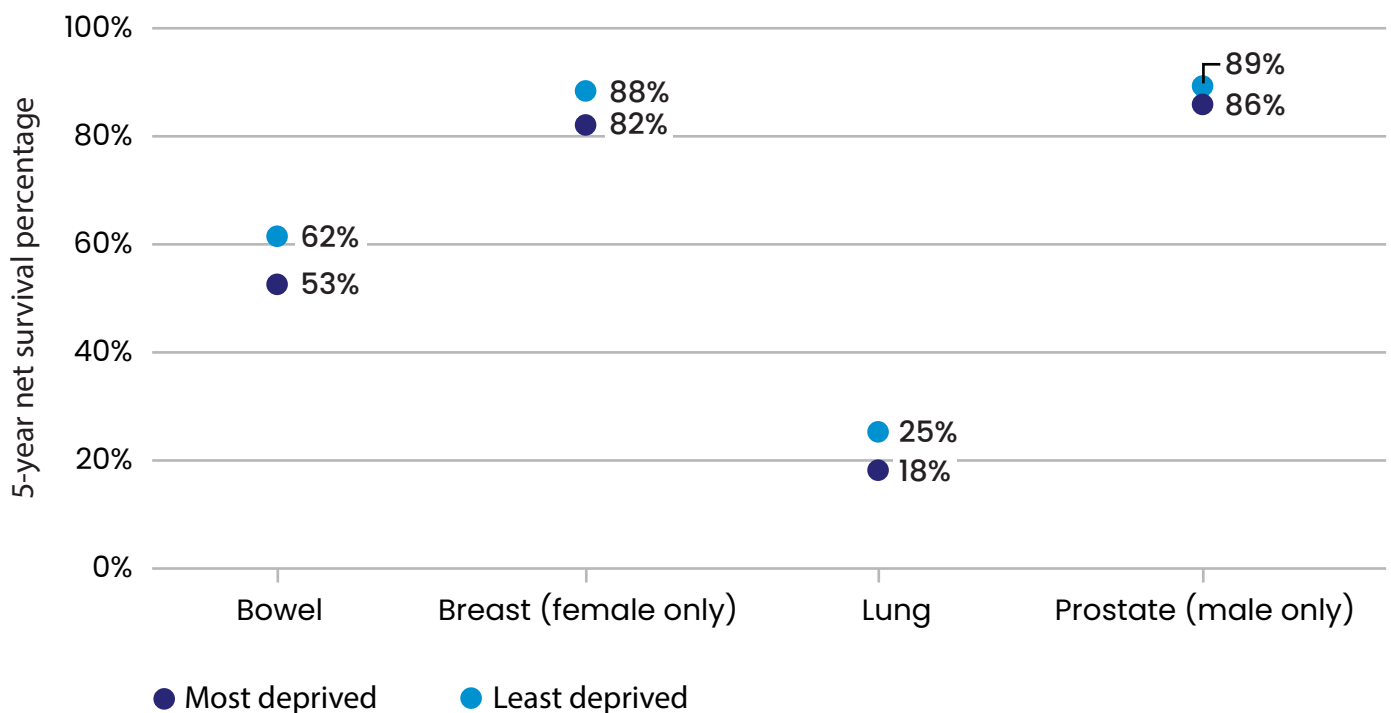
People living in more deprived areas have worse cancer survival

The proportion of cancer patients who die from their disease varies within cancer sites, primarily driven by the stage of disease at diagnosis. Deprivation impacts both the diagnosis and treatment of their cancer, with comorbidities affecting treatment options as well as the likelihood of surviving the disease. People living in more deprived areas have worse cancer survival compared to those in the least deprived areas, for many cancer sites, across the UK [14–17].

For example, for bowel cancer in England, the proportion of people who survive their disease for at least five years is lower (52.6% vs 61.5%) in the most deprived areas compared to the least.

In Wales, five-year survival for all cancers combined is lower in the most deprived areas compared to the least (51.5% vs 69.8%), and this gap has remained stable since the early 2000s.

5-year net survival by deprivation (for select cancer sites), England, 2016–2020



Source: NHS England

Smoking rates are higher in the most deprived areas compared to the least, and the gap is not narrowing

Smoking is the biggest preventable cause of cancer in the UK [18] and is responsible for around 3 in 20 cases in the population overall [19]. Smoking rates in the UK have been falling for decades, but this decline has been slower in more deprived areas [20–23].

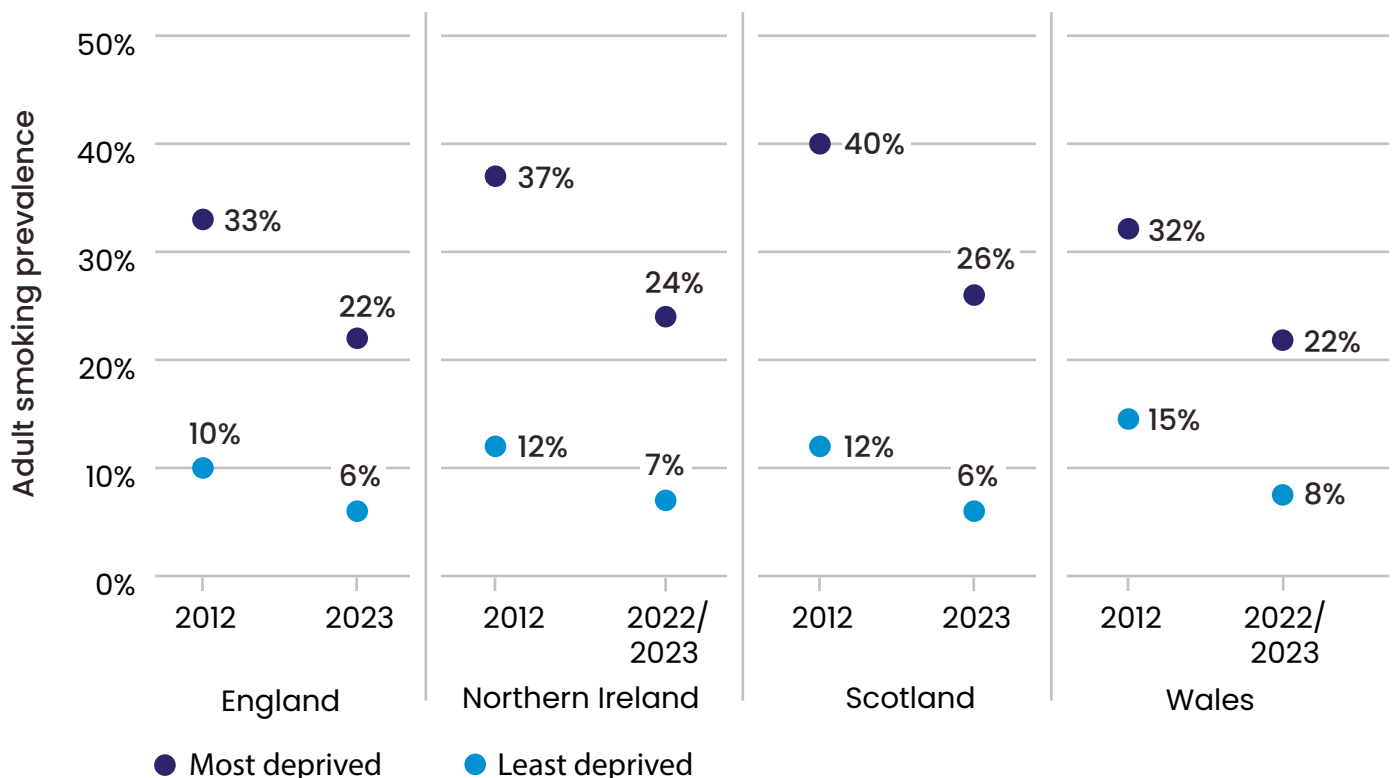
Data on smoking prevalence is published by deprivation decile in England, and by deprivation quintile in Scotland, Wales and Northern Ireland.

Smoking rates are at least three times higher in the most deprived areas compared to the least, across all four nations of the UK, and this gap has been present for many decades. For example in England, smoking rates were more

than three times higher in the most versus least deprived areas in 2012 (33% compared to 10%) [24], and around three and a half times higher by 2023 (22% compared to 6%) [25]. Similar trends are seen across UK nations, and projections suggest the deprivation gap in smoking prevalence will persist if current trends continue [26].

These differences in smoking rates are expected to manifest in higher rates of cancer in more deprived areas for many decades to come.

Change in smoking prevalence by deprivation, UK, 2012–2023



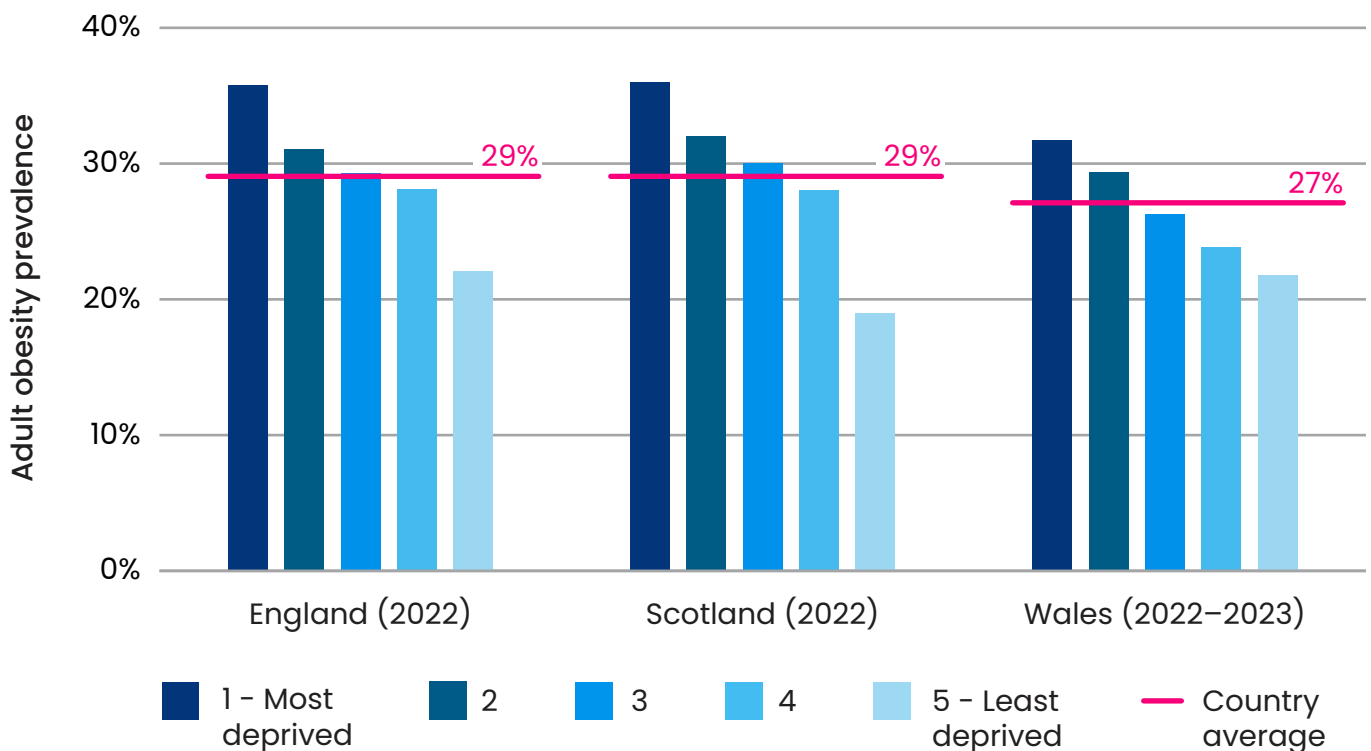
People in more deprived areas are more likely to be obese, across all four nations of the UK

Overweight and obesity is the second biggest cause of cancer in the UK [18]. Obesity rates (BMI 30+) are higher in more deprived areas versus less deprived, across the UK [21–23,27].

The deprivation gap has widened over time across Great Britain. For example, in Scotland in 2003, obesity rates were higher in the most versus least deprived areas (29% compared to 21%), but by 2022, obesity rates among the most deprived had increased to 36%

compared to only 19% in the least deprived [21]. Projections suggest the deprivation gap in obesity prevalence will continue to widen if current trends continue [28]. There is evidence of a more pronounced deprivation gradient for obesity in women than men in England and Scotland [27,29]. In addition, there is a clear deprivation gradient in overweight and obesity in UK children [30–33].

Obesity prevalence in adults (16+) by deprivation



Sources: NHS England, Scottish Govt, Welsh Govt

Screening participation is lower in more deprived areas

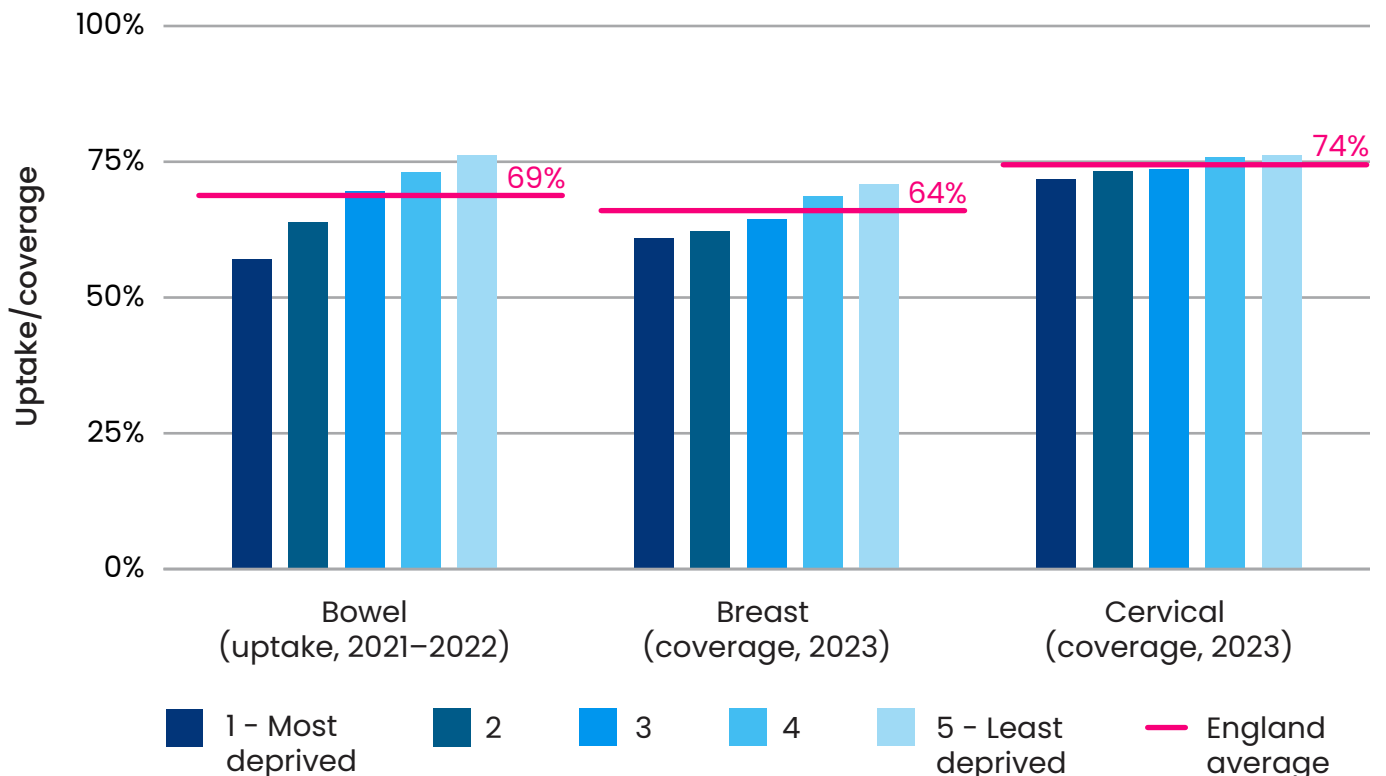
Cancer screening programmes are estimated to save over 5,000 lives each year in the UK [34–36]. However, participation in bowel, breast and cervical screening programmes is lower in more deprived areas. For targeted lung screening, it's too early in the programme to assess inequality in uptake.

Bowel screening uptake is lower in the most deprived (57%) compared to the least deprived (76%) areas in England [37]. Similar inequalities are seen in Wales and Scotland [38,39]. Across Great Britain, the deprivation gap in bowel screening uptake has either remained stable or widened. It's estimated that the number of bowel cancers diagnosed through screening in England could be 7% higher if inequalities in uptake were removed [40].

Breast screening coverage is lower (61% vs 71%) in the most versus least deprived areas in England [41]. In Scotland and Wales, the deprivation gap for breast screening uptake (a slightly different metric from coverage) is wider than this, though it has slightly reduced over time in Scotland [42,43].

Cervical screening coverage is lower in the most versus least deprived areas in Scotland for 25–49-year-olds (61% vs 68%, respectively) and for 50–64-year-olds (65% vs 81%, respectively), and some evidence suggests that this gap is widening [44,45]. There is a slightly narrower deprivation gap in England and Wales [43,46].

Screening programme uptake/coverage by deprivation, England



People living in more deprived areas are more likely to be diagnosed following an emergency presentation

Patients diagnosed via emergency presentation are more likely to have later-stage disease [47–49], which impacts their treatment options. They are also more likely to report worse experiences of cancer care [50,51].

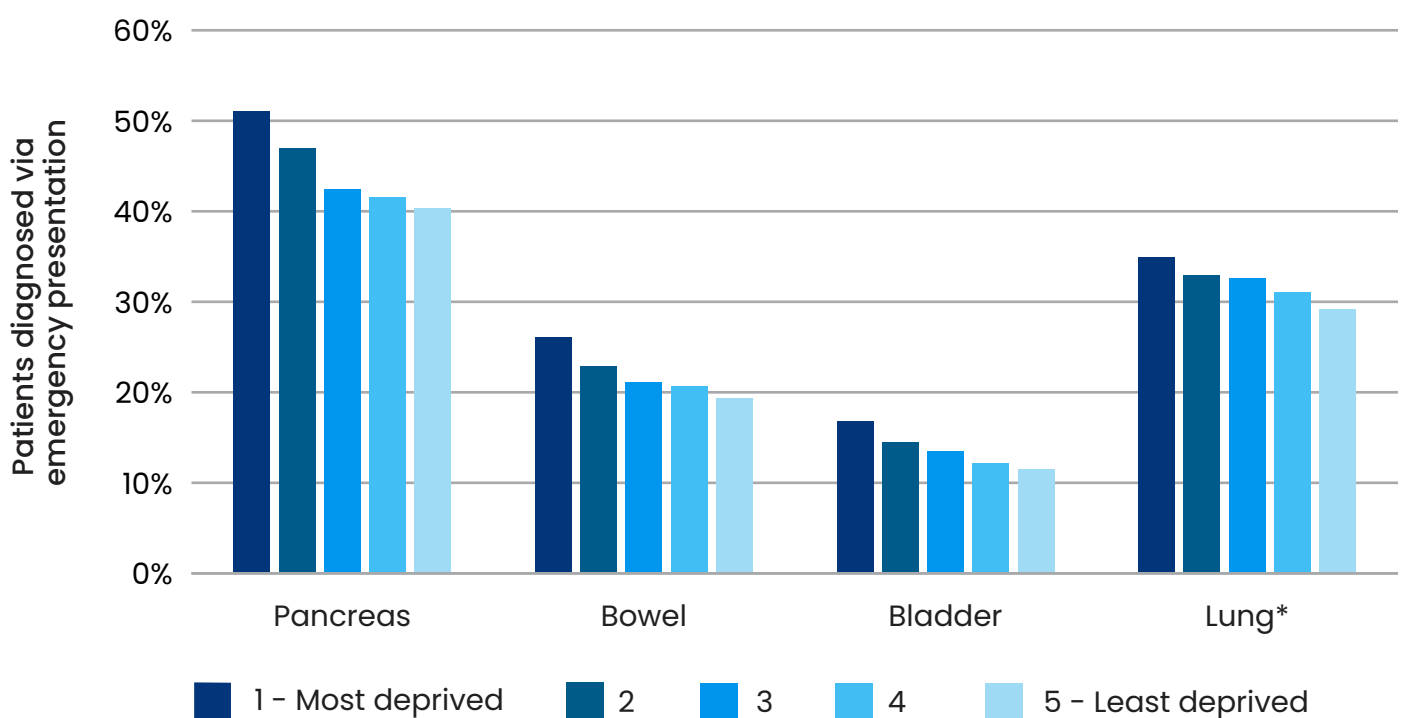
In England, a higher proportion of patients living in the most deprived areas are diagnosed through an emergency presentation route for most cancer types including pancreas, bowel, bladder and non-small cell lung cancers [47].

For all cancers combined, the likelihood of presenting through an emergency presentation route in England is more than 50% higher for people living in the most deprived areas compared to the least, even after controlling for age and sex [52].

Similar results are seen for Northern Ireland, where the proportion of all cancer cases diagnosed via emergency presentation is higher for those living in the most deprived areas than the least (26% vs 21% respectively) [48,49].

Trends for England show the proportion of cases diagnosed via emergency presentations has largely been decreasing, aside from a large increase at the onset of the COVID-19 pandemic [47]. However, this decrease is largely driven by a reduction in the proportion of cases diagnosed via GP-instigated emergency presentations while the proportion instigated by patient attendance at A&E has remained consistent and the gap between people living in the least and most deprived areas remains.

Proportion of patients diagnosed via an emergency presentation by deprivation, England, 2019



*Lung - Non-small cell lung cancers

Source: NHS England

People living in more deprived areas are more likely to be diagnosed at a late stage for some cancer sites

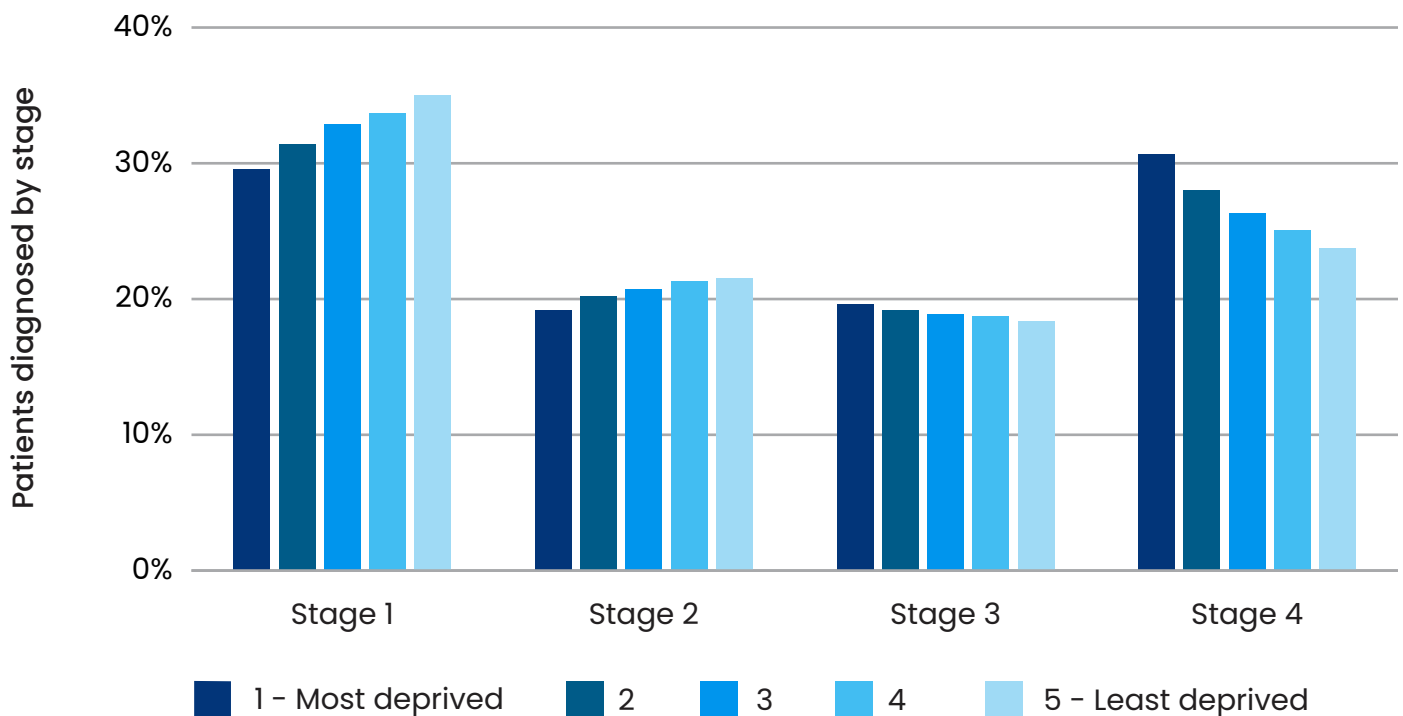
People with cancer diagnosed at an early stage (stage 1 or 2) have better survival than people diagnosed at a later stage (stage 3 or 4) [9,14,16]. For some cancer sites in England, people living in more deprived areas are more likely to be diagnosed with late stage of disease [53].

The proportion of all cancer cases diagnosed at stage 1 is lower among patients living in the most deprived areas in England compared to the least (30% vs 35% respectively), while the proportion diagnosed at stage 4 is higher compared to the least (31% vs 24% respectively) [54]. This pattern is also seen

for several individual cancer sites, including bladder, bowel and larynx. Similar results are also seen for Scotland [55].

The deprivation gap in the proportion of patients in England diagnosed at stages 1 and 2 has remained consistent over time (since first reported for 2013) [56]. It's estimated that if deprivation disparities in stage at diagnosis for select cancer sites were eliminated, the number of late stage cancer cases in England could be reduced by around 2,300 each year [53].

Proportion of patients diagnosed at each stage by deprivation, England, 2014–2018



Source: NHS England. Staged cancers only; a small proportion of staged cancers are reported as 'Other early' or 'Other advanced'

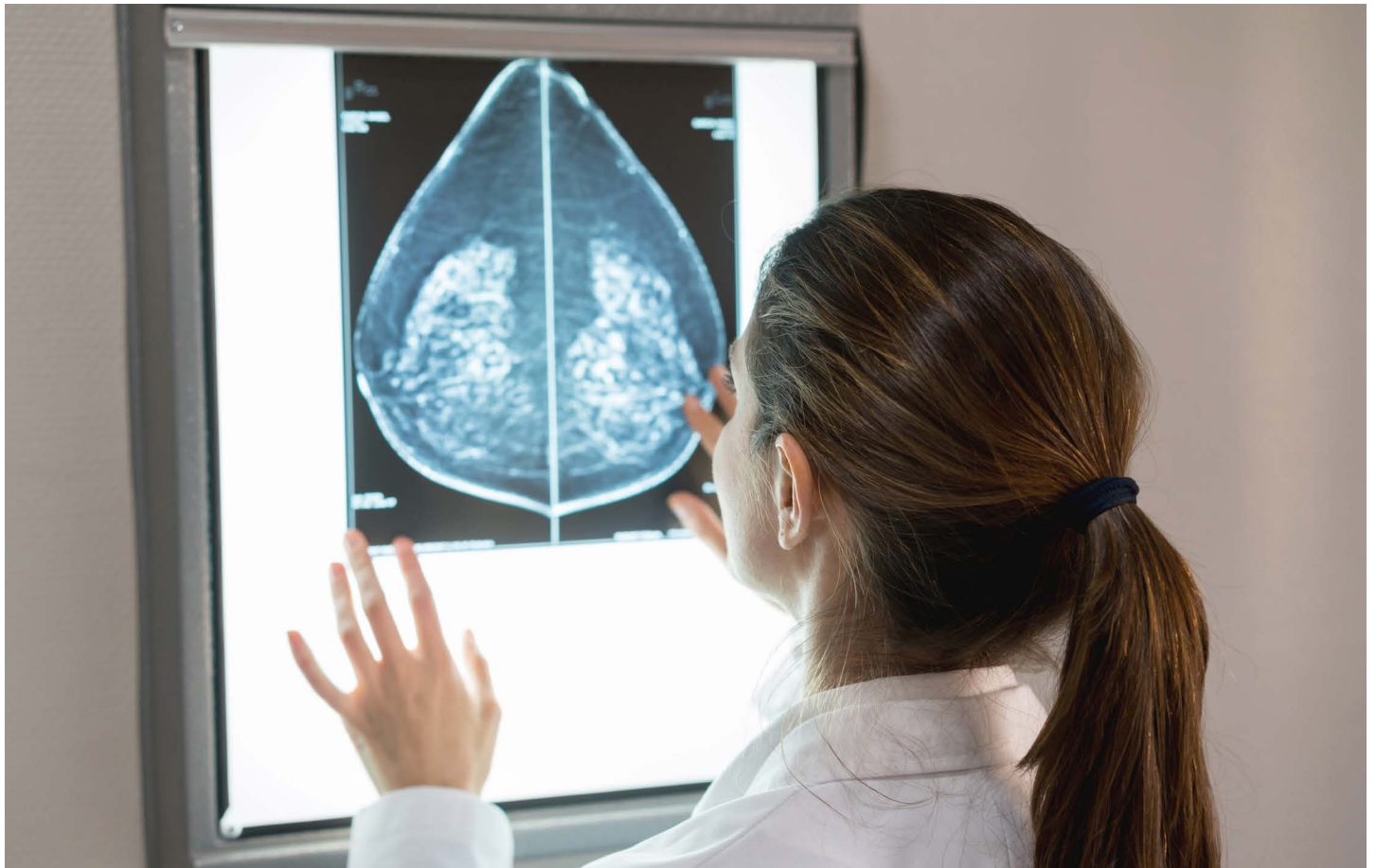
People from more deprived areas are less likely to recognise potential cancer symptoms and more likely to report barriers to help-seeking

People from lower social grade groups (in 'routine and manual' occupations, used as a proxy for more deprived groups) [57] are less likely to recognise any cancer symptoms, as well as non-specific, red-flag and lung-specific cancer symptoms than those in higher social grade groups (in 'managerial and professional' occupations, used as a proxy for less deprived groups) [58].

There's also significant variation in attribution of symptoms by social grade, which could cause misattribution or potential delays to seeking help if people think their symptoms are not urgent. Specifically, people from lower social grade groups are more likely to think

their potential cancer symptoms are caused by an existing health problem or medication/vaccination side effects, compared to people from higher social grade groups [58].

Even if people are aware of potential cancer symptoms, they may still face barriers to seeking help for their symptoms. People from the lowest social grade groups are more likely to report being put off/delaying seeking help because they were worried their symptom(s) wouldn't be taken seriously or they were worried about the possibility of having treatment, compared to people in higher social grade groups [58].



Patients in more deprived areas are more likely to have to wait too long for treatment and receive different treatment at the same stage of diagnosis

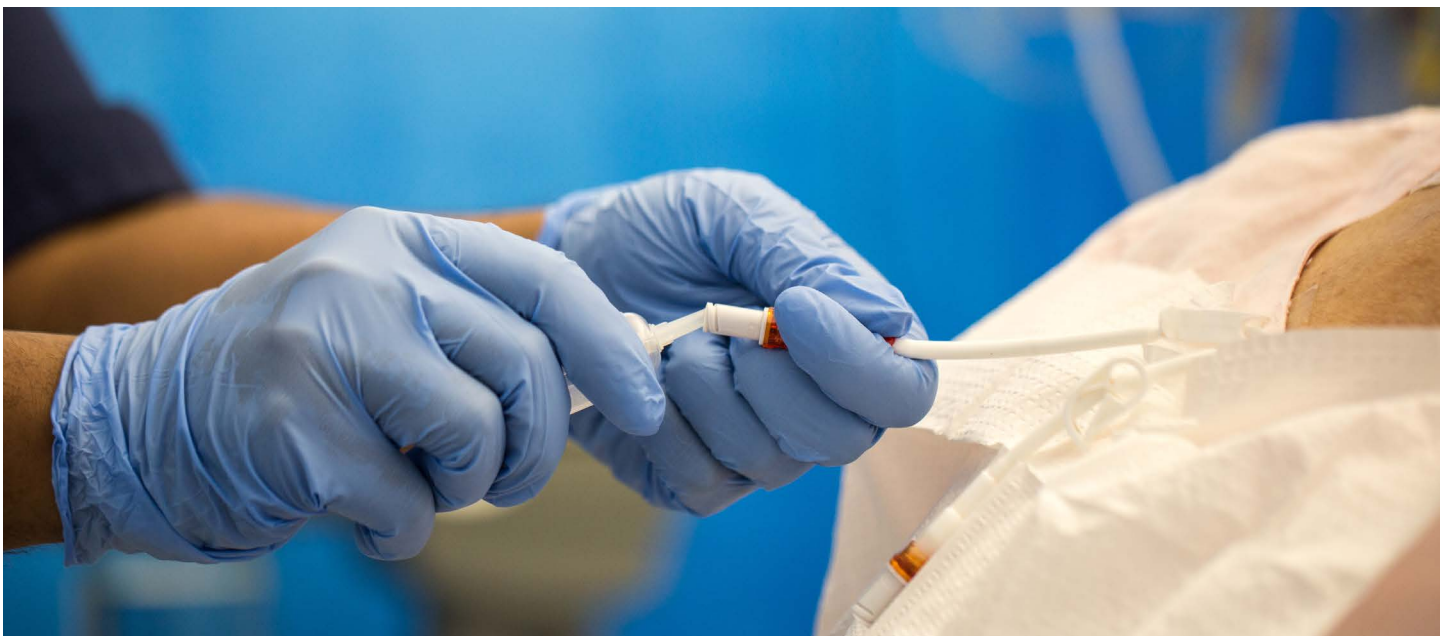
Inequalities in treatment type and timeliness could contribute to survival inequalities. There are many reasons why treatments for cancer could differ between patients, including clinical factors and patient choice. There's evidence that cancer treatment may vary between people living in more and less deprived areas with similar patient and disease characteristics, and the reasons for this are not yet clear.

A study in England found that people living in the most deprived areas were 33% more likely to wait over 104 days from an urgent suspected cancer referral to starting treatment when compared to the least deprived areas – even when gender, age and cancer site were controlled for [59]. Another study found that bowel cancer patients in England living in the most deprived areas had a higher probability of being untreated or dying from the disease, compared to those in the least deprived areas, with this related to delayed access to treatment and premature death [60].

For some cancer types, patients from more deprived areas are less likely to receive surgery or chemotherapy for their cancer compared to patients from less deprived areas [61–63]. And, for stage 4 non-small cell lung cancer, patients in more deprived areas are around half as likely to receive any novel treatment interventions compared to patients in less deprived areas [64].

It's important to understand the causes of these differences in treatment and the impact they may have on outcomes. Deprivation may be associated with other valid reasons for treatment differences, but it's vital we unpick this. Improved data quality and availability for a wider range of demographic and patient characteristics would support further exploration of this. While these findings are the latest available, they include patients treated several years ago and so may not fully reflect variation by deprivation seen today.

Imperial Science Imagery



Together we are beating cancer

Almost five years on from Cancer Research UK's first landmark **report on socioeconomic deprivation and cancer**, it is clear that governments and health systems across the UK have not made sufficient progress in reducing cancer inequalities. The reality remains that there are stark inequalities in who is diagnosed with cancer, how and when they are diagnosed, and ultimately which population groups have the best chances of surviving their cancer.

Higher prevalence of cancer risk factors is a significant contributor to increased cancer incidence in more deprived areas. Tackling higher smoking and obesity rates in the most deprived areas must be a central priority. A critical step on the road to a Smokefree UK will be passing the legislation to raise the age of sale for tobacco, which is currently progressing through all four UK legislatures. This must be backed up not only with funding for enforcement of the legislation, but also with sufficient and sustainable funding to ensure that stop smoking support is accessible to all who need it, no matter where they live in the UK.

Diagnosing more cancers at an earlier stage in deprived areas is vital to closing the survival gap between the most and least deprived. To achieve this, we need to do more to improve symptom awareness, break down barriers to help seeking and support informed screening uptake. There needs to be long-term funded commitments to a sustained programme of national campaigns matched with targeted communications to populations that face additional barriers to help-seeking.

There is clear evidence that people from deprived areas face poorer access to timely healthcare. Access to primary care needs to be strengthened and measures to encourage people to come forward must be backed up by sufficient resources in primary care and

across the cancer pathway more broadly so that everyone can be seen, diagnosed and begin treatment as soon as possible.

Reducing unwarranted variation is important to ensuring everyone receives access to timely and effective treatment for their disease. But the factors driving this variation, and how to address them, are incredibly complex. Therefore, governments and health systems need to take a strategic, evidence-led approach to addressing unwarranted variation in access to treatment.

Despite the challenges, there are positive developments that we can build on. The COVID-19 pandemic, while having a devastating impact on so many, also brought greater attention to health inequalities facing too many communities and has led to a greater focus on these issues.

In Scotland, Wales and Northern Ireland, their national cancer plans all highlight action on inequalities as a priority. Redoubled efforts to deliver on these commitments is key. And in England, the UK Government has set a bold ambition to halve the gap in healthy life expectancy between different regions. Ensuring there is a real focus on tackling cancer inequalities in the upcoming National Cancer Plan for England must be a core component of delivering on this ambition as well as the UK Government's wider cancer commitments.

It is also clear that health systems are motivated to work on tackling health and cancer inequalities. For example, the Core20PLUS5 framework in England has helped national and local systems in driving targeted action to improve inequalities in healthcare. But there is more that governments and national health system leaders can do to support local systems by ensuring that there is strong leadership, and sufficient resourcing

and prioritisation, behind making progress on health and cancer inequalities.

In another five years' time, it cannot remain the case – as it is today – that around 28,400 cancer deaths annually are associated with deprivation across the UK. To make the change that people affected by cancer deserve will require concerted action to reduce inequalities right across the cancer pathway. The challenge now is to ensure that we work together to bring about longer, better lives free from the fear of cancer for everyone.

Data saves lives

Much of the evidence in this report uses data provided by patients and collected by the health service as part of their care and support. The data is collated, maintained and quality assured by different organisations across the UK, including the four cancer registries. By analysing and interpreting data from across the cancer pathway, we can identify where improvements can be made for patients. This report uses the latest data available as of 30 November 2024.

The routine collection of data on demographics, diagnosis, treatment and outcomes for every patient is invaluable in improving cancer outcomes for everyone. While variation beyond deprivation isn't the focus of this report, there are also many other patient characteristics where evidence of inequalities isn't available, as there isn't appropriate data collection. This limits our ability to understand where improvements need to be made for people affected by cancer in some of the most disadvantaged communities. Patient confidentiality is critical, but aggregated data removing identifiable information needs to be regularly reported so inequalities can be understood and addressed. 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 whilst building patient/public trust.

Many challenges exist in access to and the availability of data for analysis and research. The data collected across the UK for cancer patients is world-leading, but the process for accessing data differs between all four nations, in many cases lacks transparency and the process can take years from application to receiving data. This means our ability to conduct data-driven research is compromised. In addition, not all UK nations collect and report consistently on key metrics across the cancer pathway and where they do, some aren't comparable. There are gaps in this overview report where data isn't available for every UK nation.

Accessing data across the whole of the UK is vital to further our understanding of improvements for patients. A UK-wide approach would help speed up access to data for the research and healthcare community without compromising data security, improve the consistency and completeness of key cancer datasets, and rationalise cancer data flows and data linkage. Working across the four UK nations brings valuable insights, and Cancer Research UK continues to work with other charities and organisations, as well as the data custodians in each country, to collaborate in improving access to data.

Beating cancer must mean beating it for everyone.

Other Cancer in the UK publications

- [Cancer in the UK: 2024](#)
- [Cancer in the UK: 2023](#)
- [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](#)

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