A full diagnostic

Cancer Research UK's position on diagnostic services and cancer in England

May 2024

CANCER RESEARCH UK

Contents

About this report

Reference

This report should be referred to as follows:

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The research and insight underpinning this report was developed as part of Longer, better lives, our manifesto for cancer research and care.

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About Cancer Research UK

We're the world's leading cancer charity dedicated to saving and improving lives through research. We fund research into the prevention, detection and treatment of hundreds of cancer types through the work of over 4,000 scientists, doctors and nurses. In the last 50 years, we've helped double cancer survival in the UK and our research has played a role in around half of the world's essential cancer drugs. Our vision is a world where everybody lives longer, better lives, free from the fear of cancer.

Our values

Our values help guide our behaviour and culture in an ever-changing world, building on the best of what we do today and what we aspire to be in the future. They unite and inspire us to achieve our ambitious plans and our mission of beating cancer, together.

Bold
Act with ambition, courage and determination

Credible
Act with rigour and professionalism

Human
Act to have a positive impact on people

Together
Act inclusively and collaboratively

Executive summary

Diagnostic services are essential to almost every person that interacts with the NHS.[1] These tests, checks and scans are vital tools in figuring out what is wrong with a patient and the best way to treat them.

This is particularly true for cancer. Getting tests to patients in the right place, at the right time is essential – as for some cancers, just a few weeks can make the difference between whether or not a cancer has progressed, and therefore the treatment options available. But it's not just patient outcomes that can be improved by fast, reliable diagnostic services – it can save time and money too.[2,3] Robust diagnostic services are also essential to meeting the UK Government's early cancer diagnosis ambitions.

Despite how essential diagnostics are to millions of patients every year, and the tireless work of NHS staff, services are struggling to meet patient need. Waiting times targets – meant to represent the minimum standard of care patients can expect – are consistently missed.[4] Despite improvements, diagnostic activity remains below target levels[i], driven by shortages across diagnostic professions, and insufficient and outdated equipment.

The UK Government has treated diagnostics as a priority in recent years, including the largest central cash investment in MRI and CT scanning capacity in the history of the NHS through the Community Diagnostic Centre (CDC) Programme[5] and dedicated endoscopy budgets. We are now seeing some improvements such as meeting the Faster Diagnosis Standard (FDS) for the first time in February 2024. Similarly encouraging, rapid data on cancer diagnoses indicates a small uptick in the percentage of patients diagnosed at stages 1 and 2 in England (though we don't yet have the evidence to say if this increase is a genuine improvement that will be sustained).[6] But these moves only tackle part of the challenges facing diagnostics in England and come following a decade of underinvestment which has left the UK lagging behind on capital investment and cancer survival compared to similar countries.[7,8] With rising demand, driven by an expanding and ageing population and increasing cancer incidence the challenge is only growing.

We need to see the UK Government and NHS England (NHSE) take a long term,

[i] NHS England's Elective Care Recovery Plan stated that all systems and providers will be monitored, and should be monitoring themselves, against the key elective recovery performance priorities for 2022/23 including increasing diagnostic capacity to a minimum of 120% of pre-pandemic activity.

evidence led and strategic approach to diagnostic services. One that investigates current barriers to improvement, as well as the many possibilities on the horizon that could make diagnostics more efficient, more effective and more accessible, and improve NHS productivity. The rate of innovation in diagnostics is staggering, and we could soon be seeing genomics and artificial intelligence (AI) changing the way we understand disease and the ways patients are diagnosed. But without solving the underlying issues currently facing diagnostics we won't be able to take full advantage of the opportunity these innovations represent.

By taking stock of the current challenges and delivering forward-looking investment and reform we can create a diagnostics service fit to meet the demands of today and prepared to adopt the innovations of the future. By doing so we can be even more ambitious in reducing cancer waiting times (CWTs). Saving patients agonising waits to discover if they have cancer, ensuring we diagnose more people earlier when treatments are more likely to be successful, and reducing costs to the NHS.

We recommend	
	NHS England should commission an immediate refresh of 2020 Richards Diagnostics Review. This should identify the key actions and investment required to rapidly deliver diagnostic capacity to expedite improvements in early diagnosis of cancer.
	The UK Government must commit to consistently meeting all Cancer Waiting Times targets for England by the end of the next parliament, including a raised Faster Diagnosis Standard of 85%.
	The UK Government should instruct NHSE to develop a specific cancer workforce plan as a companion to the NHS Long Term Workforce Plan for England, to be delivered within one year of the next general election. The plan should consider the specialties essential to the diagnosis and treatment of cancer.

A full summary of our recommendations can be found at the end of this report. Through *Longer, better lives*, we aim to make driving earlier diagnosis a priority issue for the post-election UK Government. Our ambition is to diagnose more

cancers early and reduce inequalities in access, bring innovations to patients more quickly, and see the UK Government lead on cancer, building a national movement to beat cancer, sooner. These missions are underpinned by practical and actionable policies set out in our Programme for UK Government.

1. Diagnosing the problem

1.1 A Strategic approach to diagnostics

When a matter of weeks is all it takes for some cancer patients' condition to progress[9], it is deeply concerning that CWT targets continue to be missed. In England alone, the 62-day standard has been missed since 2015 meaning that by February 2024, almost 168,000 patients have waited longer to start treatment than if the target had been met consistently.[10] [ii] The biggest single barrier to improving CWT performance is lack of capacity in the health service – particularly diagnostic capacity.

The problems in diagnostics are problems for everyone. In England in 2018, almost half (48%) of cancers with a known route were diagnosed either via urgent suspected cancer referral (USCR – 'two week wait') or via screening, that means more than half (52%) of people diagnosed with cancer come through other, more generalist routes such as emergency presentation or GP referral (not USCR).[11]

Too many people continue to face unacceptably long waits for vital tests such as endoscopy and imaging in the UK. In February alone in England:

51,000

People have waited 6 weeks or more for an endoscopy

161,000

People have waited 6 weeks or more for a radiology scan[12]

That's despite NHS England's target that 99% of patients should have their diagnostic test less than 6 weeks from referral.

Without enough capacity in diagnostic services, we can't offer tests to people that need them in a timely way. In his 2020 Review of Diagnostic Services,

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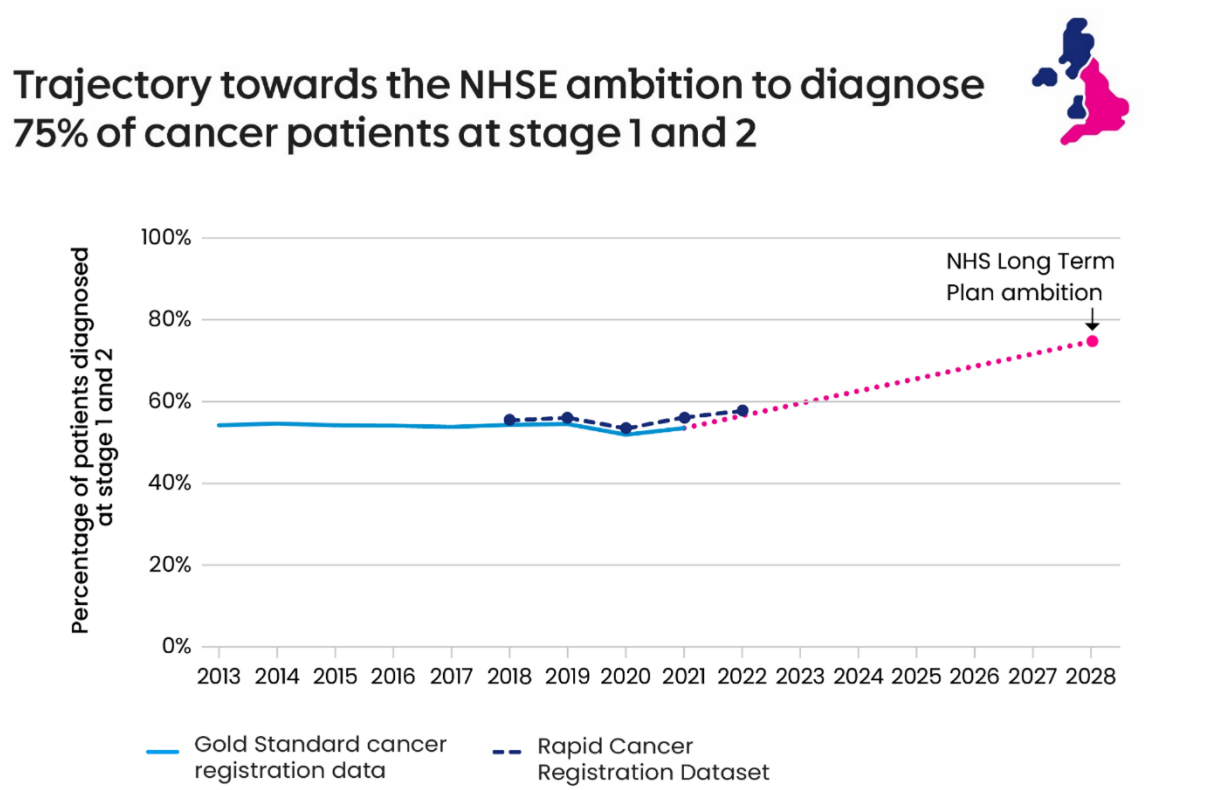
[ii] In England, 85% of patients should start their first definitive treatment within 62 days of an urgent suspected cancer referral, breast symptomatic referral, urgent cancer screening programme referral or consultant upgrade from October 2023. Previously this standard applied only to urgent suspected cancer referrals.

Professor Sir Mike Richards reported that diagnostic services were already at a 'tipping point' where they were no longer able to keep up with demand.[13] Yet, the UK remains far behind comparator countries in terms of diagnostic capacity.

Resilient diagnostics services are also essential to meeting ambitions to diagnose more cancers earlier, when treatments are more likely to be successful. The NHS Long Term Plan recognised the importance of early and timely diagnosis, committing to ensuring 75% of people receive a cancer diagnosis at stage 1 or 2 by 2028. But at current rates, we are off track to achieving this target. Fixing diagnostics will be essential to meeting early diagnosis targets, because it speeds up time from referral to diagnosis, allows for further optimisation of screening programmes and other early diagnosis interventions, and eases pressure on the workforce allowing more time to review patients and consider more complex cases.



And we now know that a focus on early-stage diagnosis is not enough. We also need to see action to reduce late-stage diagnosis, with a target to reduce the number of cancers diagnosed at stage 4. This is essential to save lives, and ensure we are not hitting the early diagnosis target through over-diagnosis, which is when a cancer is diagnosed that wouldn't have gone on to cause harm in a person's lifetime.

In recent years there has been a welcome recognition of the need to urgently

address the diagnostic crisis from UK Government. In September 2023, CDCs delivered 6.5% of all diagnostic tests, checks and scans, and the centres have performed over 7 million checks since their inception.[14,15] There have also been positive and innovative action to pick up more cancers earlier and save lives such as the commitment to roll out a national targeted lung cancer screening programme in England, and further optimisation of the bowel cancer screening programme across the UK.

But there is real concern that this won't be enough. And the lack of diagnostic capacity is already holding us back from getting the most out of these initiatives. For example, the implementation of targeted lung cancer screening is being held back by a lack of CT scanners, radiographers, and radiologists. And a lack of endoscopists and endoscopy suites has long held back progress on optimising the bowel cancer screening programme, even when we know more sensitive tests would catch more cancers at an early stage, and more pre-cancerous growths.

We have major gaps in the number of essential diagnostic staff needed to meet demand, with the shortfall only expected to grow as cancer incidence rises. Innovation can also help unlock capacity, making services more efficient and improving staff productivity. For example, even in the short term, AI could meaningfully improve efficiency within services and increase clinicians' capacity, with computers taking on simple routine tasks and assisting clinicians with decision making. But innovative technologies like AI are not a replacement for staff and equipment and can only ever be part of the picture.

Sufficient diagnostic capacity is critical, not just for cancer patients, but for all patients across the NHS. Over 1.6 million people in England are currently waiting for key diagnostic tests in the NHS.[16] To properly address the diagnosis challenge, we need to expand diagnostic capacity, and harness innovation. Any approach to expanding diagnostics capacity must take a broad view across different types of tests and different patient cohorts. Given the ambition of this task, we need a clear roadmap that brings together actions on workforce, capital, and service models.

Policy Recommendation

NHSE should commission an immediate refresh of the 2020 Richards Diagnostics Review. This should identify the key actions and investment required to rapidly deliver diagnostic capacity to expedite improvements in early diagnosis of cancer.

1.2 Achieving waiting times targets

To diagnose more cancers earlier, the NHS must have the right diagnostic equipment, workforce, and digital infrastructure in place. Lengthy waits for diagnostic tests can mean patients are waiting far too long to start their treatment. A key test for the UK Government after the general election will be whether they can turn around CWT failures and consistently achieve all targets. This, on its own, is not a sufficient test for whether we are providing world beating cancer care – but represent the absolute minimum we must offer cancer patients in terms of timely care. This is a minimum below which we must not fall - but currently continually do so.

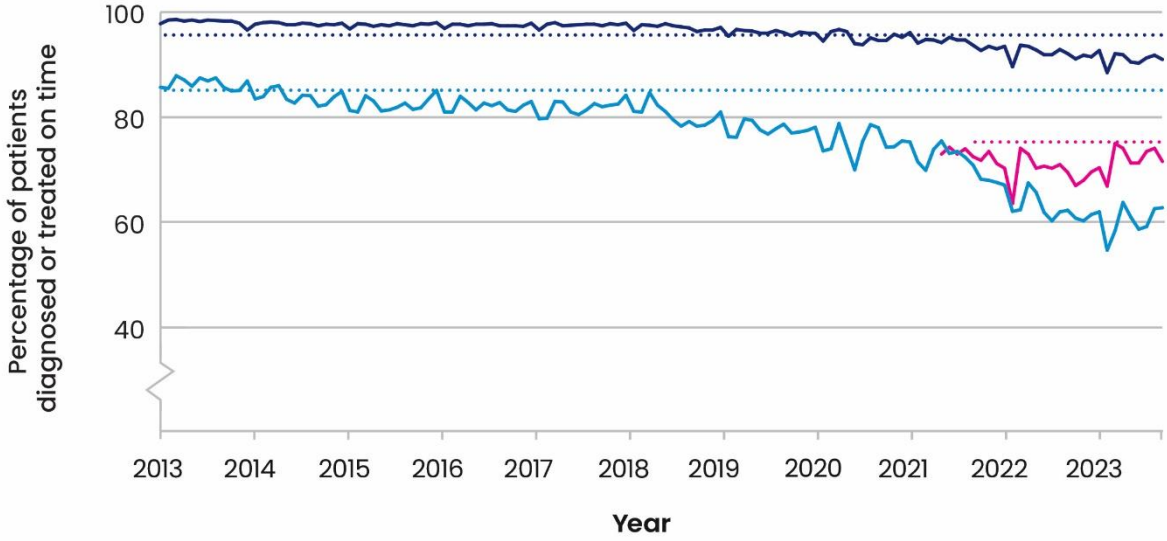
Recent analysis of cancer patients who waited 104 days or more between being urgently referred and starting treatment showed that the average length from urgent referral to treatment decision was more than five times longer than the wait between making a treatment decision and starting their treatment.[17]

A new standard, the Faster Diagnosis Standard (FDS), was introduced in 2021. The target for this standard is to diagnose or exclude cancer for 75% of patients within 28 days of their referral. It is welcome that the FDS of 75% was met for the first time in February 2024, which is testament to the hard work of NHS staff in responding to growing demands for diagnostic tests. But this target of 75% is set well below the originally recommended target of 95%, as per the 2015 Cancer Strategy for England.[18]

We estimate that meeting the FDS target at only the 75% performance threshold, compared to 95%, means that around 49,000 people per month could wait longer than 28 days to receive their diagnosis or have cancer ruled out.[19] NHSE has recently committed to raising the FDS target from 75% to 80% by March 2026.[20] While this is welcome, it does not constitute the gold standard for waiting times and is rather the bare minimum the public should expect. The UK Government should continue to work towards implementing the originally proposed 95% target in the longer term, with a commitment to raising it to 85% over the course of the next parliament.

Cancer waiting times targets have been consistently missed for years

Performance against cancer waiting times targets in England, Jan 2013–August 2023



NHS England has cancer waiting times standards which outline how quickly people should expect to be diagnosed and treated for cancer. They measure performance against these standards, and their associated targets.

Standards	Targets
Faster Diagnosis Standard - People should have cancer diagnosed, or ruled out, within 28 days of an urgent referral from a GP for suspected cancer or breast symptoms, or following an abnormal screening result	75%
62-Day Standard – Patients should begin treatment within 62 days of GP urgent suspected cancer referral	85%
31-Day Standard – Patients should start treatment within 31 days of a decision to treat	96%

Source: NHS England. Cancer Waiting Times. Data are for all cancers combined, Jan 2013–Aug 2023. England only. Data accessed October 2023.

Policy Recommendations

NHSE should raise the Faster Diagnosis Standard target to 85% during the next parliament.

The UK Government must commit to consistently meeting all Cancer Waiting Times targets for England by the end of the next parliament, including a raised Faster Diagnosis Standard of 85%.

2. Infrastructure

World-class cancer care cannot be delivered with failing infrastructure. Yet capital investment in estates, equipment and infrastructure like IT is inadequate across the health service. And cancer is only part of the story. A diagnostics strategy that delivers for cancer needs to be one that extends beyond consideration of the USCR pathway, and demands the UK Government and NHSE take a broad, bold, and ambitious stance of tackling the diagnostics challenge.

When we look beyond cancer, the situation becomes more concerning. For example, the number of patients waiting over 12 hours for an emergency admission in February 2024 was about 27 times higher than before the pandemic (in February 2020).[21] The problem in secondary care is being driven by workforce shortages, but also insufficient capacity to diagnose and treat due to a lack of capital investment. We see similar patterns in primary care where recent analysis estimates that in 2019, a patient was 12.2% less likely to receive a GP consultation than a patient with similar needs in 2012. And an additional 36.6 million consultations (+13.9%) would have been required to meet needs in 2019 as they were in 2012.[22] Infrastructure also remains a major issue in general practice, with around 2,000 of the 8,911 GP premises in England in 2022 deemed not fit for purpose.[23]

2.1 Capital spending

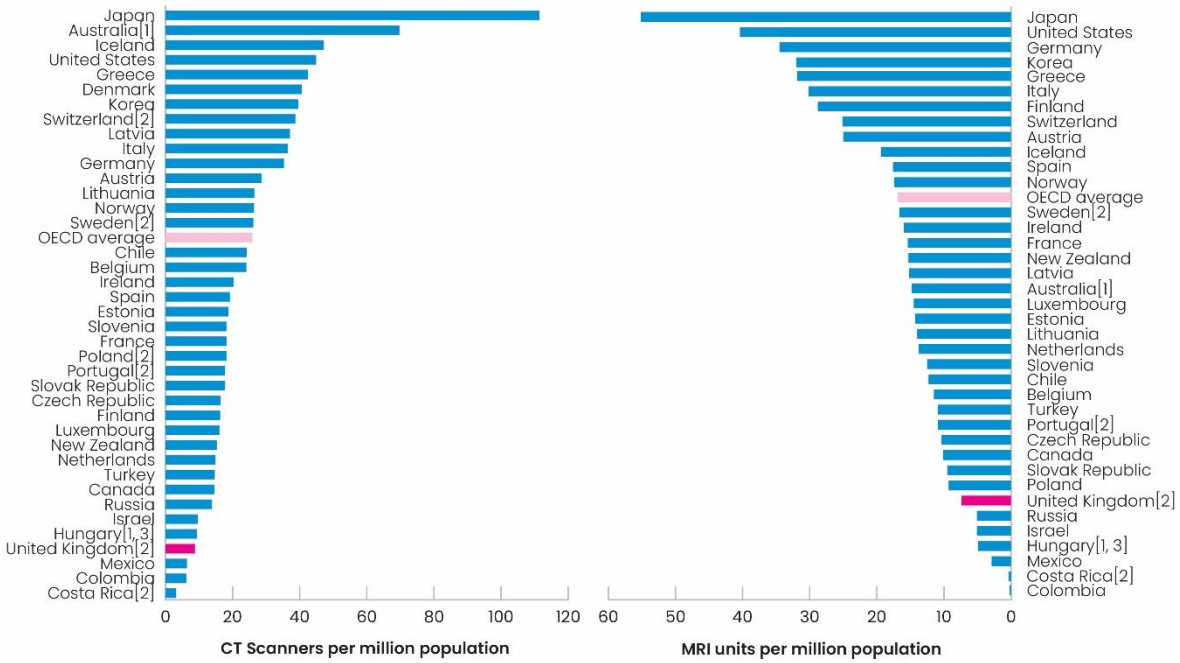
The UK's capital spending on health has long lagged behind its near neighbours. If the UK had matched EU 14[iii] average levels of health capital investment from 2010–19 (as a share of GDP), it would have invested an additional £33bn in health infrastructure.[24] In England, budgets do not even cover day-to-day maintenance costs, which has led to a maintenance backlog of £10.2bn (up from £4bn in 2013/14)[25]. The result is that scarce funds have often been diverted from efforts to expand or improve services and towards safety-critical works.[26] There has also been a worrying trend towards capital budgets being raided to cover day-to-day costs, a pattern which, along with other allocation challenges, has meant the Department of Health and Social Care (DHSC) has underspent against its capital budget in almost every year since 2010/11.[27] And this trend continues into 2023/34, with supplementary estimates placing this year's raid at almost £1bn, including

[iii] EU14 are countries who were members of the EU prior to 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain and Sweden

£200m from the New Hospitals Programme.[28]

This affects patients across all aspects of cancer care. Imaging is a key shortage area, with the UK ranking close to the bottom of 42 OECD countries on average number of CT scanners, MRI units and PET scanners per million population[29]. The UK also has the lowest number of PET-CT scanners per 100,000 population among International Cancer Benchmarking Partnership (ICBP) jurisdictions.[30] [iv]

International comparison of CT and MRI capacity in the UK compared to other OECD countries



1. Data include only equipment eligible for public reimbursement. 2. Data exclude equipment outside hospital. 3. Data include only equipment outside hospitals. Data source: OECD. 2021. 'Diagnostic technologies' in Health at a Glance 2021: OECD Indicators OECD Publishing, Paris

The commitment to establish 160 CDCs following the 2020 Richards Review of Diagnostics Services is welcome and much needed. But demand for diagnostics continues to grow. We estimate that, by 2035, around 3.8 million key tests for diagnosing cancer will be required just for those people referred through screening and urgent suspected cancer referrals in England – that's around 715,000 extra diagnostic tests compared to 2018.[31] The CDC programme has delivered a modest but much needed increase in testing, with analysis from the Royal College of Radiologists confirming that the programme has achieved its target of ensuring

[iv] International Cancer Benchmarking Partnership, see here for countries who participate: https://www.cancerresearchuk.org/health-professional/data-and-statistics/international-cancer-benchmarking-partnership-icbp/icbp-partnership#ICBP_partnership2

one regular or large sized CDC in every ICS in England, and that more diagnostic tests, checks and scans have been carried out in the past 12 months than the year before.[32] However, this increase in capacity is still not sufficient to meet growing demand, as evidenced by waiting times targets that continue to be missed even as more and more CDCs come online.[33] Similarly, there remains insufficient evidence to understand whether promises that the centres will be instrumental in speeding up the diagnosis of cancer[34] and contribute to reducing health inequalities[35] have yet been realised.

The programme is also being held back by outdated and ineffective digital infrastructure and a lack of workforce capacity to staff new CDCs reflected by the model of borrowing staff from local trusts, which while a practical short-term solution means that the full capacity of diagnostics across settings is not yet being fully realised. Additionally, too many CDCs are not meeting the programme's aims to place diagnostics at the heart of communities.[18,36,37]To ensure the CDC programme's continued success, we must see strategic planning, and crucially investment, in growing the diagnostic workforce and a recommitment to achieving the programme's aims on reducing barriers to access.

2.2 Technology

Capital budgets are also essential for embedding the digital infrastructure that underpins modern diagnostic and screening services. There is significant variation across the health system in the quality, interoperability, and maintenance of the underpinning digital infrastructure that's critical to digitisation of care. This limits its rollout and impact. For example, after problems with outdated IT systems resulted in 5,000 women not receiving invitations to their final breast screening in 2018[38], funding was promised to upgrade these systems – but the slow pace of capital investment means this will not be completed until at least late 2025.[39]

In pathology services, IT systems have become increasingly outdated.[40,41] The recent announcement from DHSC that it will take forward the recommendation of the UK NSC to increase the use of digital pathology to examine samples as part of screening programmes is welcome.[42] However, the announcement was not accompanied by any additional investment to support Trusts to upgrade their IT infrastructure, to deliver training to upskill pathologists in digital pathology technologies, or to address longstanding issues in interoperability between different IT systems.[43]

The potential of digital technologies in cancer care is huge. Services like surgery and pathology are becoming fully or partially digitised. And cutting-edge imaging technology is being used to improve radiology and endoscopy efficiencies and performance. There is strong appetite from the UK Government to seize the opportunities presented by digital technology, as evidenced in the recent MedTech

Strategy.[44] But for this ambition to be realised, it needs to be matched by long-term, strategic investment.

The Spring Budget made a welcome commitment to modernising IT infrastructure through the NHS productivity plan, including £2bn to upgrade NHS IT systems, scaling up the existing use of AI and ensuring all NHS staff are equipped with modern computing technology – with a commitment to ensuring all NHS Trusts have an electronic patient record (EPR) system by March 2026.[45] Whilst the renewed focus on modern digital infrastructure is positive, it is worth noting that a number of the stated aims are in fact reannouncements or weakening commitments - for example, the deadline for NHS Trusts to have an EPR has been pushed back several times. There is also risk that this investment may be reduced to cover day-to-day running costs. For instance, despite the publication of 'A plan for digital health and care' in 2022[46], in 2022/23, the NHS in England reduced budgets for investment in technology and new diagnostic capacity to fund the cost of that year's NHS staff pay award.[47] Actions like this means the NHS lacks the essential foundations necessary to implement the wide range of innovations that depend on strong digital infrastructure.

Policy Recommendations

The UK Government must provide ringfenced capital investment targeted to essential cancer infrastructure. This should be wide-ranging and engage the full range of cancer services, including diagnostics and specialist or less-visible services.

The UK Government should eliminate the NHS maintenance backlog in England by 2030. Alongside this, to support the NHS to replace aging equipment and make long-term strategic investment, the UK Government should ensure the DHSC capital budget at least matches the EU average by population.

2.3 The case for capital investment reform

The overall level of capital funding is only part of the problem. If the health system is to make the most of its capital budgets, there needs to be major reform of the UK Government's approach to capital investment in the NHS in England.

Recent high-profile examples of NHS capital schemes underline persistent issues with budget setting and approvals processes that has meant too often capital

investment hasn't delivered for the NHS.[48, 49, 50]

These challenges are further compounded by volatility in the processes for securing approval to access or spend capital. Approval for high values or certain categories of capital, including diagnostics and digital, must be sought from a potentially large number of external organisations including NHSE, DHSC and HMT.[51,52] And approval processes are known to be complex, onerous and beset by delays that can leave plans in limbo.[53]

Misalignment between capital and other planning processes in national programmes can also impede service improvement. For example, the NHSE Cancer Programme does not allocate capital funding on a routine basis, but has offered funding for things like the Targeted Lung Health Check Programme, which is reliant on CT scanning. Capital funding therefore may need to be sought through unconnected capital approval processes, making it vulnerable to deprioritisation, delays or non-approval.

In recent years, there have been positive changes in capital planning guidance, strengthening the role of system leadership in coordinating capital plans and introducing a three-year operational capital envelope from 2022/23 to 2024/25[54,55] (whereas previously, capital budgets were annualised). In theory, this will help with strategic allocation of these budgets.[56] But annual accounting and the approvals pipeline still continue to present difficulties – as was brought into stark relief last year, when it was reported that the future of up to 30 new CDCs was uncertain after the Secretary of State for Health and Social Care refused to give approval for centres that could not open by the end of 2023, despite the UK Government's own target to open 160 such CDCs.[57]

It is essential that the UK Government and NHSE continue to work towards a more flexible and navigable regime for allocating capital, cementing multi-year settlements alongside a reformed approvals pipeline that empowers systems and delivers far greater responsiveness to the strategic needs of the health service. The role of Cancer Alliances in contributing to system capital planning should be considered in any such regime.

Policy Recommendations

DHSC and HMT should consult on changes to the healthcare capital allocation and approvals regime with the aim of enabling more strategic use of capital budgets, including the role of expert organisations such as Cancer Alliances and Operational Delivery Networks.

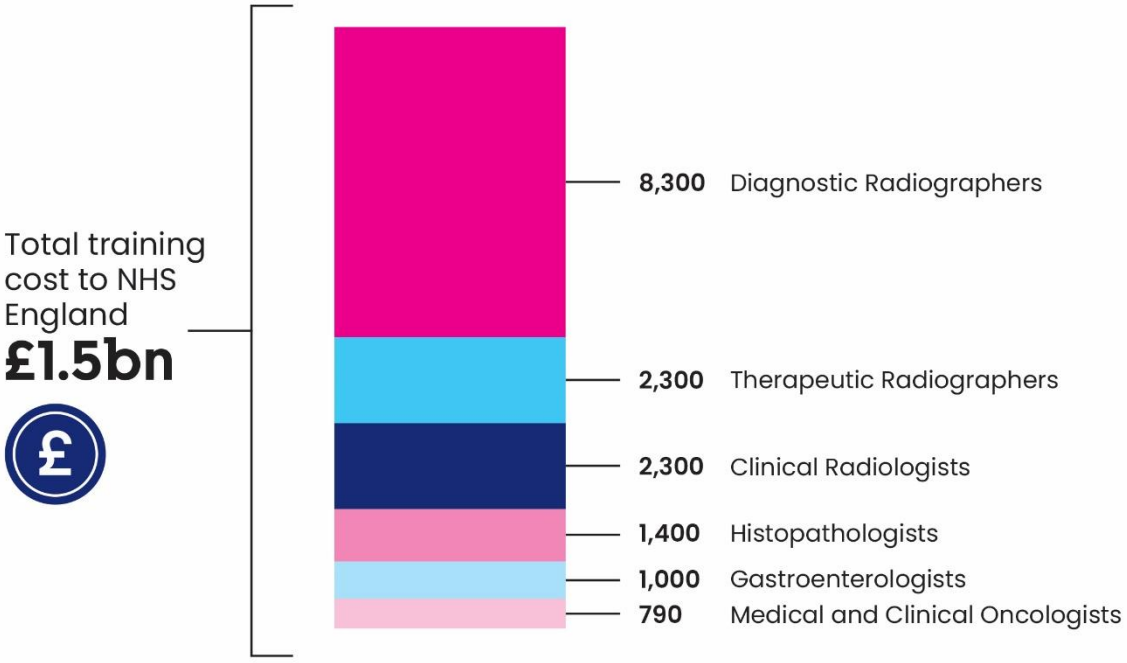
3. Workforce

The NHS Long Term Workforce Plan (LTWP) takes a long-needed strategic approach to workforce planning. But it does not go far enough to ensure that demand for diagnostic clinicians will be met.

In 2017, Health Education England (HEE) identified seven professions that are closely linked to the diagnosis and treatment of cancer.[58] Cancer Research UK modelled this small but essential subset of the many professions that are essential to the diagnosis and treatment of care to understand the workforce growth needed to see a 45% uplift in the cancer workforce by 2029. This modelling shows the NHS in England will need to either train or recruit enough people to fill approximately 16,000 full-time posts in these groups by 2029.[59] This includes key diagnostic professions such as 2,300 Clinical Radiologists and 1,400 Histopathologists. However, there are still big gaps in our understanding of the cancer workforce, particularly with regards to cancer nursing and specialist diagnostic roles such as colposcopy which must be addressed in ongoing NHS workforce planning.

Providing a world-class cancer workforce

NHS England needs to train or recruit enough people to fill around 16,000 FTE posts to meet Health Education England's workforce ambitions for a world-class cancer service by 2029*



*Achieving an overall 45% growth in the cancer workforce 2019–2029 and maintaining current projected growth 2024–2029. Calculated using Electronic Staff Record data provided by NHS England. Methodology developed in partnership with RAND Europe and the University of Cambridge, see "Estimating the cost of growing the NHS cancer workforce in England by 2029" for more details. Costing data from: NHS payment scheme 2023–25, Health Education England (HEE) study leave budget and NHS education and tariffs 2022–23.

The LTWP made positive moves to fund more medical school and nursing training places. But there is no firm commitment in the plan to increase staff numbers in the key cancer professions listed by HEE, or to invest in the foundation and specialty training needed to convert expanded student numbers into an expanded consultant workforce. This is despite the fact that HEE anticipated that the NHS would need to see 45% growth across these seven groups between 2019 and the end of the 2020s to meet demand for cancer care and support systemic transformation.

CRUK workforce modelling, coupled with analysis from across the sector, paints a deeply concerning picture of shortfalls which are only expected to rise. And shortfalls are already having severe consequences on our ability to diagnose patients quickly. In 2017, just 3% of histopathology departments across the UK

reported having enough staff to meet clinical need.[60] In radiology in 2022, 99% of departments reported being unable to manage their reporting demand without incurring additional costs, and across the UK, health systems spent £223 million on managing excess reporting demand in 2022, equivalent to 2,309 full-time consultant positions.[61]

Shortfalls across the diagnostic workforce[v]

29%	15%	5.2%	56%
Clinical Radiology[62]	Clinical Oncology[63]	Diagnostic Radiography[64]	Histopathology[32]

But workforce planning can't only account for the shortfalls today – we must also look to address the challenges of tomorrow. Cancer incidence is rising.[65] The population continues to grow, driving an increase in the number of people diagnosed with cancer each year, and an ageing population will likely have more complex health needs. And the pace of innovation is accelerating. Workforce plans will need to be reviewed and upgraded to account for skills needed to deliver the cancer care of the future.

Diagnostics is an area which is ripe to take full advantage of the potential of skill mix approaches. This may include continuing to expand tried and tested approaches such as enabling radiographers to report images or training clinical endoscopists and advanced biomedical scientists to undertake or report diagnostic tests[66,67,68]. We welcome recent efforts to support these approaches, such as the introduction of training academies for imaging and endoscopy[69,70]. But numerous barriers still exist to expanding the use of skill mix models, including a lack of funding for professional development, a lack of universally accepted accreditation models and practical barriers to accessing training such as lack of staff time. And these approaches will only take us so far in addressing the significant work shortages facing cancer.

The health service will also needs to prepare for the introduction of new service

[v] For histopathology and diagnostic radiography these are the estimated shortfall to meet HEE's workforce ambitions by 2029, based on current trends. For clinical radiology and clinical oncology these are estimates of the current workforce shortfall as estimated by the Royal College of Radiologists.

models and interventions. The lack of strategic planning in workforce needs has already hampered the benefits of the interventions – for example, though the rollout of CDCs has been largely successful, their benefits have been limited by system-wide shortages in the diagnostic workforce.[71]

Ensuring we have the right staff with the right skills will be critical to diagnosing more cancers, earlier.

Policy Recommendation

The UK Government should instruct NHSE to develop a specific cancer workforce plan as a companion to the NHS Long Term Workforce Plan for England, to be delivered within one year of the next general election. The plan should consider the specialties essential to the diagnosis and treatment of cancer, with an initial focus on sub-specialisms in endoscopy, pathology, radiology, tumour-specific oncologists and nurse specialists. This should include:

- A full audit of the range of workforce groups key to delivering cancer care, including both clinical and non-clinical staff.
- Fully published modelling on workforce growth needs across all identified staffing groups, with adequate consideration of rising cancer incidence and changing patient needs, as well as required workforce growth to facilitate the implementation of new service models and interventions in cancer care.
- Actions to support the adoption of 'skill mix' approaches in key areas of workforce shortage.

4. Screening

The national cancer screening programmes are an important part of the UK's arsenal for diagnosing cancers earlier. Some of them also have the benefit of preventing cancers by finding and treating pre-cancerous lesions. At present, 6% of cancers in England are diagnosed through screening.[72] Optimising and expanding existing programmes, including lung and bowel cancer screening programmes, should lead to more cancers being diagnosed through screening. Currently, screening programmes are being held back from reaching UK National Screening Committee guidance due to a lack of diagnostic capacity for follow-on testing (see figure below).

Cancer screening programmes at a glance

The UK National Screening Committee (UK NSC) provides independent, evidence-based recommendations for how a screening programme should be implemented to strike a favorable balance of benefits and harms. The UK NSC recommend 4 cancer screening programmes for bowel, breast, cervix, and lung.

Key (alignment with UK NSC recommendation) ● **full** ● **progress** ● **limited**

Bowel	UK NSC recommend	England	Scotland	Wales	Northern Ireland
Age	50–74	60–74 [a] ●	50–74 ●	51–74 [a] ●	60–74 ●
Frequency	2 years	2 years, on request from 75 ●		2 years	●
Threshold	20µg/g [b]	120µg/g ●	80µg/g ●	120µg/g [c] ●	120µg/g ●
Test	FIT	FIT			●

Breast	UK NSC recommend	England	Scotland	Wales	Northern Ireland
Age	50–70	50–70			●
Frequency	3 years	3 years, on request over 70			●
Test	Mammography	Mammography			●

Cervix	UK NSC recommend	England	Scotland	Wales	Northern Ireland
Age	25-64	25-64			●
Frequency	HPV +ve: 1 year HPV -ve: 5 years	25–49: 3 years ● 50–64: 5 years	HPV +ve: 1 year HPV -ve: 5 years ●		25–49: 3 years ● 50–64: 5 years
Test	HPV primary testing	LBC with HPV triage HPV primary testing ●			LBC with HPV triage in some circumstances ● HPV primary testing TBC

Lung	UK NSC recommend	England [d]	Scotland	Wales	Northern Ireland
Age	55–74 with smoking history	55–74 with smoking history ●	Waiting for ministerial approval		●
Frequency	2 years	2 years ●			
Test	LDCT	LDCT ●			

a. People aged 50–59 will be invited to participate, as a phased approach over the next fewyears.
b. A manageable threshold as low as endoscopy and pathology services allow (down to 20 µg/g).
c. Wales are planning a phased approach to reduce the threshold to 80µg/g in 2024/25.
d. Roll out will focus on reaching 40% of the eligible population by March 2025 and 100% coverage by March 2030. FIT: Faecal Immunochemical Test HPV: Human Papillomavirus LBC: Liquid Based Cytology LDCT: Low-dose Computerised Tomography

We want to see more people participate in screening if they choose to do so, but the resources need to be there to enable this. If screening uptake is successfully improved, current screening programmes optimised and new innovative screening programmes developed and rolled out in the future, there will be an unprecedented number of people participating in screening.

Even now, the system is struggling to cope. We are seeing long delays for follow-up testing. For example, the percentage of people being offered a timely first diagnostic test appointment following a positive bowel screening test has not met the acceptable standard since 2015-16 and in 2021-22 only 44.8% of people attended a first diagnostic test on or within 14 days of their onward referral[73]

In 2019, Professor Sir Mike Richards published the report of an Independent Review of Adult Screening Programmes in England.[74] This report identified several areas where the programmes faced challenges and noted the multi-pronged approach required to address them. Despite the reduction in screening activity caused by the COVID-19 pandemic[75], progress has been made on some key recommendations, including steps towards bowel screening optimisation and efforts to increase capacity to deliver screening. However, many recommendations remain outstanding, and some now require updating to reflect the latest data, evidence and insight.

One key advancement is the commitment to roll out targeted lung cancer screening in England, with the aim of reaching 100% coverage by 2030. Our provisional estimates indicate that at least 1,500 lung cancer deaths could be avoided in England each year with a 50% uptake of the national lung screening programme when fully rolled out. As the disease often affects working age people, estimates also suggest that every lung cancer death leads to a productivity loss to the economy of £32,000 (2023 prices) and a loss of 8.45 QALYs, leading to wider economic loses of around £940m per annum.[76] [vi]

But several enablers are needed to make the most of the lung screening

[vi] Analysis by Cancer Research UK. Assuming 1) 50% of lung cancer deaths in 55–74-yearolds are in people who would have been eligible for targeted lung health checks (based on Gracie et al 2019 (The proportion of lung cancer patients attending UK lung cancer clinics who would have been eligible for low-dose CT screening; European Respiratory Journal 2019; 54: 1802221), and using incidence as proxy for mortality); 2) 50% of those eligible will take part in a targeted lung health check (based on currently reported uptake and expert opinion of feasible maximum uptake); 3) targeted lung health checks will reduce lung cancer deaths by 24% in males and 33% in females (based on de Koning et al, Reduced Lung-Cancer Mortality with Volume CT Screening in a Randomized Trial N Engl J Med 2020; 382:503-513).

programme. This includes, sufficient staff, the digital transformation of screening including the implementation of a single national lung cancer screening IT system, and assurance that the implications of the programme are reflected in NHSE's investment in diagnostic capacity.

Progress is being made on building up diagnostic capacity through initiatives such as the Regional Endoscopy Training Academies (formerly known as the Clinical Endoscopist Training Programme)[77], funding for CDCs[78,79,80] and new breast cancer screening units.[81] But we've still got a long way to go, and patient need is only set to increase with new advancements in screening and rising cancer incidence.

Policy Recommendations

NHSE, with DHSC, should set the strategic direction and establish a robust governance framework to drive forward the transformation of screening. This should be actively supported through a tripartite agreement between the NHSE Screening team, Diagnostics team and Cancer Programme.

The UK Government should expedite the implementation of a high-quality national lung cancer screening programme in England to 2028, to help achieve its earlier diagnosis targets sooner. It must also provide the annual investment required for this, including the resource to develop robust data infrastructure, fully integrated smoking cessation services and measures to ensure its equitable rollout.

5. Innovation

The infrastructure of the health system needs to be better prepared for the successful adoption of innovations. This means embedding a culture of research and innovation into the NHS, with sufficient time given to health professionals to conduct research. It means upgrading and maintaining infrastructure, estate and equipment. And it means engaging with patients and the public and training healthcare professionals so that proven innovations can be effectively and equitably rolled out.

If we can strengthen the environment for innovation in the UK, the potential for improving cancer outcomes is enormous – from new detection and diagnostic tools, to digital technology and data platforms, through to the transformation of pathways for diagnosis.

5.2 Artificial Intelligence

To fully harness the potential of data-driven technologies such as AI tools, the health service's fundamental IT and data infrastructures must be fit for purpose, interoperable and regularly updated. Additionally, relevant, high-quality data must be collected and accessible for research and development purposes. And as some areas of the country have been quicker to digitise than others, adoption of AI innovation is not currently equitable.

The Chancellor's recent reference to the potential of AI tools to boost productivity in the Spring Budget we're welcome. But investment in modern digital infrastructure alone will not be enough to see the productivity gains desired. Successful implementation will also require investment to upskill staff, including creating short-term capacity for training to enable long-term benefits. And the creation of new support roles and investment in the digital workforce – essential to this will be the publication of the long overdue digital workforce plan.

Currently, there is ad hoc trialling, evaluation and implementation of AI technologies, resulting in patchy patient access. The recent creation of the AI Diagnostic Fund should go some way towards addressing this by giving NHS Trusts the ability to roll out the most promising AI imaging and decision support tools for diagnostics. However, national coordination and guidance on evaluation are needed to make sure there is consistency and the sharing of learnings across the system.

5.3 Genomics

Multi-cancer early detection tests (MCEDs) typically use liquid samples or breath biopsies to look for multiple cancers in one sample. One of the main ways that MCEDs are currently being explored is by looking at cell free DNA in the blood. All cells can release fragments of DNA into the blood when they die, but in people with cancer, some of this cell-free DNA comes from the death of tumour cells and is known as circulating tumour DNA (or ctDNA). Being able to identify and measure the presence of these fragments could be a non-invasive way to diagnose cancer at an early stage.

Traditional diagnostic tests that look for the presence of one type of cancer require a strong suspicion of where the person's potential cancer is, but MCEDs can be used without knowing the potential cancer location, meaning they could be used to aid referral decisions in primary care. MCEDs could also help detect cancer before the onset of symptoms. Screening for additional cancer sites, beyond current screening programmes, would be beneficial if we could detect cancers at an earlier stage, leading to improved mortality.[82]

Evidence suggests MCEDs could contribute diagnosing cancers earlier.[83,84,85] Our provisional modelling, using optimistic stage shift assumptions, has shown that a screening programme using MCEDs to detect 7–12 cancer types in people aged 50–77 could drive an overall stage shift of up to five percentage points, from stage 3 and 4 to stage 1 and 2 in all cancers in England[86], which could mean more treatment options in some cancer sites.[87]

Genomic medicine, including MCEDs, has huge potential in improving early and more precise diagnosis of cancer. But there are still many unanswered questions, and significantly more research is needed before we can safely and effectively implement any MCED within routine NHS care. There are also system challenges holding us back with genomics capacity already strained, workforce scarce and a system struggling to deliver against existing expectations, let alone prepare for future workforce needs supporting the rapid growth of precision medicine.

Securing regulatory approval for innovations can be slow – and it's only part of the challenge in getting an innovation into the hands of clinicians across the country. Properly implementing innovations and ensuring best practice is ultimately the responsibility of individual organisations, but a lack of capacity means adopting innovation is difficult. But if the UK Government can optimise the innovation process, it could make the UK a world-leader in pioneering new tools and technologies that help us beat cancer.

Policy Recommendations

DHSC, the MHRA and NICE, collaborating with NHSE, should clearly define routes to adoption from pre-market authorisation to commissioning for emerging innovations, including AI applications, digital technologies and diagnostic tests. This should involve outlining the accountabilities and responsibilities of the relevant partners, as well as evaluation criteria, evidence thresholds and cost-effectiveness requirements.

The UK Government and NHS England should direct Integrated Care Boards and Health Innovation Networks to accelerate the translation of innovation to better detect, diagnose and treat cancer.

6. Policy recommendations

1. Diagnosing the problem

NHS England should raise the Faster Diagnosis Standard target to 85% during the next parliament.

The UK Government must commit to consistently meeting all Cancer Waiting Times targets for England by the end of the next parliament, including a raised Faster Diagnosis Standard of 85%.

NHS England should commission an immediate refresh of 2020 Richards Diagnostics Review. This should identify the key actions and investment required to rapidly deliver diagnostic capacity to expedite improvements in early diagnosis of cancer.

2. Infrastructure

The UK Government must provide ringfenced capital investment targeted to essential cancer infrastructure. This should be wide-ranging and engage the full range of cancer services, including diagnostics and specialist or less-visible services.

The UK Government should eliminate the NHS maintenance backlog in England by 2030. Alongside this, to support the NHS to replace aging equipment and make long-term strategic investment, the UK Government should ensure the DHSC capital budget at least matches the EU average by population

DHSC and HMT should consult on changes to the healthcare capital allocation and approvals regime with the aim of enabling more strategic use of capital budgets, including the role of expert organisations such as Cancer Alliances and Operational Delivery Networks.

3. Workforce

The UK Government should instruct NHSE to develop a specific cancer workforce plan as a companion to the NHS Long Term Workforce Plan for England, to be delivered within one year of the next general election. The plan should consider the specialties essential to the diagnosis and treatment of cancer, with an initial focus on sub-specialisms in endoscopy, pathology, radiology, tumour-specific oncologists and nurse specialists

4. Screening

NHS England, with DHSC, should set the strategic direction and establish a robust governance framework to drive forward the transformation of screening. This should be actively supported through a tripartite agreement between the NHSE Screening team, Diagnostics team and Cancer Programme.

The UK Government should expedite the implementation of a high-quality national lung cancer screening programme in England to 2028, to help achieve its earlier diagnosis targets sooner. It must also provide the annual investment required for this, including the resource to develop robust data infrastructure, fully integrated smoking cessation services and measures to ensure its equitable rollout.

5. Innovation

DHSC, the MHRA and NICE, collaborating with NHS England, should clearly define routes to adoption from pre-market authorisation to commissioning for emerging innovations, including AI applications, digital technologies and diagnostic tests. This should involve outlining the accountabilities and responsibilities of the relevant partners, as well as evaluation criteria, evidence thresholds and cost-effectiveness requirements.

The UK Government and NHS England should direct Integrated Care Boards and Health Innovation Networks to accelerate the translation of innovation to better detect, diagnose and treat cancer.

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