The Royal College of Radiologists

10-Year Workforce Plan call for evidence

Evidence submission from The Royal College of Radiologists

About the RCR

The Royal College of Radiologists is the UK's professional membership body for clinical radiologists and clinical oncologists.

Clinical radiologists are specialist doctors who use medical imaging to diagnose, monitor and treat diseases and injuries. They are the backbone of the NHS, responsible for the vast majority of diagnoses, and they use the latest technologies and innovations. Interventional radiologists, a subspecialty of clinical radiology, undertake minimally invasive and often lifesaving surgical treatments.

Clinical oncologists are specialist doctors who are responsible for cancer management. They deliver cutting-edge treatments such as radiotherapy and systemic anti-cancer therapies, including chemotherapy, immunotherapy and biological targeted therapies.

The RCR's main recommendation for the 10-Year Workforce Plan

The RCR strongly recommends that the 10-Year Workforce Plan commit to increasing the radiology and clinical oncology workforce. Importantly, the Plan must include specific details of by how much the medical specialty workforce will be expanded. NHS organisations need to know how many radiologists, oncologists and other consultant doctors the government proposes to train and recruit over the next decade. The Plan should set out how the medical workforce at the specialty level will increase over time. As critical specialties for cancer care and diagnostics, clinical oncology and clinical radiology should be prioritised for growth.

The previous NHS long-term workforce plan did not set out any details for workforce expansion beyond medical school places. Though it noted that foundation and specialty training places would need to increase commensurately, it did not outline how this would be done. This was a major drawback to the previous plan because it prohibited trusts from undertaking future planning and risked creating a cliff-edge for new doctors, who would lack jobs to go into upon completion of foundation training. The new workforce plan must set out clearly how many additional clinical radiologists and clinical oncologists the NHS will train and recruit.

Section 1: the three shifts

Sickness to prevention: RCR analysis of NHS England turnaround times performance

The earlier a patient receives a diagnosis, the earlier they can begin treatment, and the more likely they are to be discharged and return to work without further complications. Early diagnosis is therefore crucial in delivering the NHS's ambition to shift from treating towards preventing illness.

- Research shows that every month's delay in commencing cancer treatment can raise the risk of death by 10%.[1]

[1] https://www.bmj.com/company/newsroom/every-month-delayed-in-cancer-treatment-can-raise-risk-of-death-by-around-10/

- Diagnostic imaging forms part of 85% of all clinical pathways in the NHS, so delays to diagnosis can have significant impact on individuals' and population health.[2]

The time taken from the point of image acquisition to the point at which the verified report is made available to the referring clinician is vital but often overlooked. This period is referred to as the 'turnaround time' (TAT) or 'time to report (tReport)'.[3] From August 2023, NHSE set a target of 100% of scans to be reported within four weeks, regardless of clinical pathway. Unfortunately, this target has not been met – and performance is deteriorating.

- In financial year 2024-25, 2.1% of scans were not reported within 28 days. This translates to over 995,000 patients waiting for longer than the nationally accepted standard.
- It also represents an increase of approximately 185,000 on the previous financial year.
- For complex scans specifically (CT, MRI, PET, SPECT and nuclear medicine), TAT performance was poorer still, with 3.5% of scans or 463,000 patients waiting for longer than four weeks to receive a diagnosis.
- Further analysis shows that, in 2025, only 46% of patients who ultimately had cancer confirmed received their diagnosis within 28 days, against a target of 75%. (This is the 'faster diagnosis standard' for cancer.) This is over twice the number of patients who ultimately had cancer ruled out after waiting over 28 days (22%). Poor TAT and diagnostic waiting times performance is adversely affecting patients who have cancer, delaying the start of their treatment.

What needs to happen?

The principal cause of poor TAT performance is the NHS's shortage of clinical radiologists – the specialist doctors who interpret the overwhelming majority of all complex scans, and who oversee all diagnostic activity in radiology departments. Currently, there is a 30% shortfall of consultant radiologists across England (see our submission to Section 2 of this call for evidence).[4] We need:

- Expansion of the clinical radiology workforce, via a permanent uplift in the baseline number of training places.
- Protected time in trainers' job plans to provide training, supervision and support to resident doctors in radiology.
- Creative approaches to maximise existing capacity, such as by allocating training places by WTE (rather than headcount), delivering training in all settings, and utilising skill mix to maximise training capacity.
- Further investment in the TAT dataset to track performance against not just the headline target, but also against the recommended reporting times for each clinical pathway.[5]

Sickness to prevention: cancer screening programmes

Where evidence supports their use, screening programmes can effectively boost rates of early diagnosis of cancer. This acts as a form of secondary prevention, whereby early intervention prevents the need for more intensive healthcare in future.

[2] McCaughey and Powis, Diagnostics: Recovery and Renewal. NHSE and NHS Improvement Board meetings held in common. Ref: BM/20/25(Pu)

[3] RCR (2025) *The diagnostic radiology life cycle*. https://www.rcr.ac.uk/our-services/all-our-publications/clinical-radiology-publications/the-diagnostic-radiology-life-cycle-guidance/

[4] RCR Clinical Radiology 2024 Workforce Census

[5] NHSE, Diagnostic imaging reporting turnaround times – table 1. https://www.england.nhs.uk/long-read/diagnostic-imaging-reporting-turnaround-times/

The Lung Cancer Screening (LCS – formerly known as the Targeted Lung Health Check (TLHC)) programme is a real success story. The evaluation of the programme found that of 735,000 people invited to participate, around 250,000 received a CT scan, and 85% of these scans were conducted using mobile scanning units – which tend to be located within the community. 2,700 people received a lung cancer diagnosis, and 76% of these were diagnosed at an early stage, versus 30% of lung cancers across all other referral pathways. The programme also helped to diagnose 1,697 patients with other cancers (Feb 2020 - Aug 2023); 75% of CT scan recipients were diagnosed with one or more conditions other than cancer, including coronary calcification and emphysema.[6]

The RCR supports the LCS and other screening programmes. Crucial to their success is a radiology workforce equipped and enabled to interpret the diagnostic images that the programmes produce and an oncology workforce equipped and enabled to treat those patients who are identified to have cancer. Workforce planning must account for the possible expansion of these programmes and the introduction of others, in terms of the radiology and oncology staff required to diagnose and treat patients who are detected via the screening pathways.

Analogue to digital: iRefer clinical decision support tool

iRefer clinical decision support (iRefer CDS) is interactive software which helps healthcare professionals determine the right scan to request for their patients at the first attempt. By seamlessly embedding evidence-based clinical radiology referral guidelines into clinicians' workflows, it provides recommendations and ensures more appropriate referrals into radiology services.

iRefer thereby allows trusts and GP practices to reduce waste and avoid unnecessary expenditure. This enables more resources to be made available for patient care and other improvement projects. This is essential, given the rise in demand for healthcare that is projected over the next few decades.

It is a digital initiative that leads to direct improvements to patient care. iRefer benefits both clinicians and patients by:

- Supporting rapid diagnosis by ensuring the most appropriate imaging test is requested and conducted at the right time
- Driving up productivity by reducing the number of unhelpful or unnecessary repeat imaging investigations
- Promoting the best use of resources to avoid waste and support a sustainable service
- Promoting uniform and best care for patients
- Protecting patients from unnecessary ionising radiation.

iRefer is already demonstrating these benefits in 38 trusts across NHS England, in which it has been live for 12+ months. In these trusts, we have observed that:

- An average "change rate" of 4.3% – 7% in primary care and 3% – 4.9% in secondary care (i.e. instances where the clinician changes the imaging investigation they are requesting in line with iRefer CDS recommendations)
- Average "cancellation rate" of 3.7% – 6.2% in primary care and 1.7% – 2.2% in secondary care (i.e. instances where iRefer CDS recommends no imaging investigation is required, and the clinician proceeds accordingly)

[6] Ipsos (2025) Evaluation of the targeted lung health check programme for NHS England. https://www.ipsos.com/en-uk/evaluation-targeted-lung-health-check-programme-nhs-england

These changes to clinician behaviour across the currently live 38 trusts have led to:

- Over 159,000 average annual spaces unlocked in the diagnostic waiting list
- Over 8,800 hours of clinicians' time saved (through reduced volume of scan requests requiring vetting)
- £12.3 million cost efficiencies across the 38 trusts

If all 134 suitable candidate NHSE trusts were live with iRefer CDS, we would forecast cost efficiencies of up to £40 million annually. Limited IT functionality and limited funding are the main barriers to further rollout of iRefer.

What needs to happen?

Further rollout of iRefer CDS promises to unlock huge cost efficiencies for the NHS and would result in significant benefits to patients in terms of faster access to the most appropriate healthcare. We need:

- Extension of existing iRefer subscriptions for all eligible trusts
- Provision of iRefer CDS to all NHSE trusts
- Expansion of iRefer CDS into A&E departments across NHSE, to optimise imaging demand.

iRefer can integrate within existing NHS digital infrastructure. It represents a huge opportunity to maximise the investment already made in IT systems by unlocking efficiencies and standardising care.

Analogue to digital: artificial intelligence – the need to upskill the workforce

Artificial intelligence (AI) holds significant promise to improve clinicians' working lives and patient outcomes, by enabling clinicians to spend less time on admin, and more time caring for patients. Radiologists and oncologists are at the forefront of AI adoption into the NHS; most approved AI tools in healthcare are used by radiologists and oncologists.

AI will not replace highly trained medical professionals. Research and reviews have concluded that AI systems are not currently and may never be able to replace radiologists – and moreover that there would be significant ethical and legal concerns of such an outcome.[7] Most importantly, there will always be complex, essential tasks that can only be performed by a human doctor, including providing direct clinical care, consenting patients, synthesising medical data to formulate care plans, and more.

Indeed, the most useful AI tools, in terms of time and cost savings, will be those that aid the administrative and clerical aspects of healthcare delivery, such as scheduling appointments, dictating and formatting written notes and reports, and compiling data dashboards.

In July-August 2025, the RCR surveyed its UK members about their attitudes towards artificial intelligence. Whilst 78% of respondents indicated that they support the use of AI in radiology and oncology, only 28% said they currently feel confident in using it. This is a gap in confidence that the NHS and wider healthcare system needs to address.

Further results indicate that clinicians believe:

[7] https://pmc.ncbi.nlm.nih.gov/articles/PMC12085355/ and https://www.sciencedirect.com/science/article/abs/pii/S1546144025004442

- AI tools are most promising to reduce the time clinicians spend on monotonous tasks (65% support) and to improve departmental efficiency (57%)
- AI tools could improve clinical decision-making (48%) and reduce patient waiting times (31%)
- There are risks to patient safety with AI, if there is insufficient clinical oversight (84%)
- More and better regulation is required for healthcare AI (59%)
- AI is not currently reducing their workload; just 13% of radiologists said that AI had reduced their workload.

Full survey data is unpublished but is available upon request.

To ensure AI is safe and beneficial, expert oversight is required, and its implementation will rely on the expertise of the doctors who will use it.

Where AI is used in clinical care, it is essential that there is always a human in the loop to ensure it is used to support and inform clinical decision making and prioritise patient safety. Therefore, clinicians need to be upskilled in the principles and practical aspects of using AI in healthcare. The RCR offers virtual and in-person training courses for doctors wishing to apply AI in their clinical practice, and is preparing to make updates to the core curricula in line with the 10-Year Health Plan and advice from the GMC.

Hospitals to communities: Supportive Oncology – the case for adoption
Supportive Oncology (SO) is a multidisciplinary approach that manages the physical, psychological, and practical impacts on patients of cancer and its treatment. It brings together cancer care with the wraparound support patients need to live with their condition. It is proven to improve quality of life, reduce emergency admissions, and increase survival.[8]

By reducing the need for secondary care in hospitals, SO is one of the most powerful actions the NHS could take to shift cancer care from hospitals and into communities.

However, access to supportive oncology is a postcode lottery, with workforce shortages and a lack of national infrastructure holding back wider rollout.

SO is proven to benefit patients and the wider NHS system by:

- Reducing physical symptoms, including pain
- Improving quality of life
- Promoting longer survival (due in part to better adherence to/tolerance of treatment)
- Reducing the need for emergency interventions
- Reducing hospital admissions and patients' length of stay in hospital
- Unlocking cost savings (via reduced admissions and reduced symptom burden)
- Relieving pressures on oncologists, enabling them to focus on cancer treatment, whilst the wider SO team addresses the patients' additional, holistic care needs.

Evidence of benefit:

[8] RCR, APM and UKASCC. *Supportive Oncology: the need for formal, funded services* (2025). https://www.rcr.ac.uk/media/21jfmryx/250711_supporting-oncology-v4.pdf

- Studies have shown that SO services have saved £8.5 million across eight hospitals over a 12-month period via reduction in secondary care for patients with treatable but incurable cancer.[9]
- Additional research has shown reduced hospital admissions by up to 35%, and reduced hospital bed stays by 28%.[10]
- A three-year SO pilot project at The Christie NHS Foundation Trust found that around 600 emergency admissions were avoided thanks to the programme – equal to a £1.4 million cost saving to the trust.[11]

What needs to happen?

The NHS needs to commit to the SO model and support its rollout across NHS England:

- A service specification for SO
- Funding to support cancer centres to develop a SO service
- Additional clinical fellowships in SO to facilitate service expansion
- A roadmap for how SO will be implemented equitably across cancer centres
- Metrics to measure uptake and impact of SO services.

There is also significant potential in the delivery of systemic anti-cancer therapies (SACT, which includes chemotherapy) in community settings or in patients' homes – further supporting the hospitals to community shift. Indeed, it has already been done at the local level by the Royal Marsden.[12] The success of programmes such as this relies on an adequate workforce and supply of suitable anti-cancer agents.

Hospitals to communities: Investing in interventional radiology services

Interventional radiology (IR) is a subspecialty of clinical radiology in which doctors provide a wide range of innovative image-guided treatments, often in emergency settings, for both adults and children.

IR procedures are often preferable to traditional surgery because they are minimally invasive, which means patients recover more quickly and spend less time in hospital. Many patients treated via IR do not have to be admitted as inpatients, but rather can leave the hospital that same day.

IR also delivers some of the most effective treatments in modern medicine. For instance, mechanical thrombectomy is a minimally invasive procedure to treat ischaemic stroke, which is proven to be clinically and cost effective. One study found it raised patients' functional outcome compared to the best medical therapy alone by 20%; it also found that the incremental net monetary benefit of providing mechanical thrombectomy alongside the best medical therapy was £36,484 per patient. The same authors estimate that, were thrombectomy to be implemented across the whole UK, cost savings over five years would be £1.3 billion.[13]

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[9] Monnery D, et al. 'Delivery Models and Health Economics of Supportive Care Services in England: A Multicentre Analysis.' Clin Oncol (R Coll Radiol). 2023 Jun;35(6):e395-e403. doi: 10.1016/j.clon.2023.03.002. Epub 2023 Mar 11. PMID: 36997458.

[10] Monnery, D. et al. (2018) 'Multi-professional-delivered enhanced supportive care improves quality of life for patients with incurable cancer', International Journal of Palliative Nursing, 24(10), pp. 510–514.

[11] https://www.hfma.org.uk/system/files?file=reshaping-cancer-care.pdf

[12] https://www.royalmarsden.nhs.uk/no-place-home

[13] White and Muir (2022) "Evidence base for mechanical thrombectomy in acute ischaemic stroke" in *Mechanical thrombectomy for acute ischaemic stroke: an implementation guide for the UK 2nd ed.* https://www.healthinnovationoxford.org/wp-content/uploads/2019/07/Mechanical-Thrombectomy-for-Ischaemic-Stroke-August-2019.pdf

Other studies have shown mechanical thrombectomy to be cost-effective across the UK and a range of comparable countries.[14]

IR services will have an important role in the NHS's efforts to shift care from hospitals to communities and to raise its productivity to meet demand to deliver better outcomes for patients.

However, IR services are facing significant challenges:

- There is a 28% consultant shortfall in the IR workforce.[15]
- Furthermore, 27% of trusts in England do not operate an adequate IR service. This means that they either do not run a 24/7 IR service with a 1:6 on-call rota themselves, and/or they do not have formal transfer arrangements to move patients to a trust that can provide IR care
- Of those trusts in England that do operate an IR service, over 4 in 10 do not operate a 24/7 service
- 56% of radiology clinical directors said that they did not have enough IR staff in 2024 to deliver safe and effective patient care. This figure rises to as high as 77% in the East of England and 71% in the North East
- Nearly 8 in 10 clinical directors reported a shortage of IR staff as a barrier to providing an efficient and effective IR service. They also reported a shortage of other IR team staff (e.g. nurses) and a lack of access to (day case/inpatient) beds.

These concerns are reflected in the views of individual IR doctors themselves. Survey data collected by the RCR of the views of IR doctors reveals that:

- The major challenges to expanding IR services include workforce shortages (63%), lack of funding (54%), and lack of physical space (54%)
- The major challenges to establish new IR services are a lack of funding (80%), lack of buy-in from trust leaders (58%) and workforce shortages (56%)
- 95% are concerned about the potential impacts to patient care of these barriers to providing IR services. 50% are very concerned
- Over half of respondents (52%) do not believe that IR services are accessible to all patients that require them.

Yet, IR staff remain enthusiastic and optimistic about their subspecialty. 60% report feeling optimistic about the future of IR, and 83% would be likely to recommend a career in IR to other medical professionals.

Full survey data is unpublished, but available upon request.

What needs to happen?

Interventional radiologists deliver life-saving care for many patients across the UK. But IR services face significant challenges, such as insufficient staff to meet demand and inadequate access to equipment and care facilities to carry out cutting-edge procedures.

IR will continue to be an increasingly important and valuable discipline, at the forefront of 21st century practice.

[14] https://jnis.bmj.com/content/15/7/629

[15] RCR Clinical Radiology 2024 Workforce Census

Policymakers must recognise its immense value to patients and the NHS, and act to champion IRs and the work they do. The 10-Year Workforce Plan should set out how the NHS plans to expand and support the IR workforce. Wider NHS plans need to address barriers to IR services such as a lack of access to beds and equipment.

Community diagnostic centres: lessons learned in shifting care into communities

CDCs are multi-diagnostic facilities created to bolster local diagnostic capacity; enhance patient access, experience and outcomes; alleviate hospital burden; and address regional disparities in healthcare. They provide a range of imaging, endoscopy, physiological science and pathology services.

In 2024, the APPG for Diagnostics published a report analysing the progress of the CDC programme. This was the first report to examine the programme.[16] It found that the vision for CDCs was sound, but that delivery was mixed, with several challenges limiting the success of the programme. Some key findings included:

- Analysis of CDC activity revealed a slow pace, with only around 5 million tests conducted at the time of the report since July 2021, against a target of 17 million by 2025. By March 2025, CDCs had performed a total of 15.1 million tests
- Questions over how many CDCs were truly community-based, with 5.2% and 41% of approved CDC sites located on acute hospital and community hospital estates, respectively, at the time of the report
- Persistent challenges in basic IT infrastructure, data sharing, and inconsistencies in digital advancements
- Ongoing staff shortages, compounded by insufficient workforce planning and funding, which limits CDC effectiveness.

Since the report was published, 100 CDCs began offering services out-of-hours. Though this speeds up image acquisition for patients, it creates an additional burden on radiologists at the image reporting stage. As more CDCs open and as they generate more scans, consideration of the demand implications on radiology is required.

What is needed?

The RCR supports the CDC programme, but further action is needed for the programme to achieve its ambitions and to do so sustainably:

- NHSE should assess the workforce requirements of CDCs and include these within the modelling for the 10-Year Workforce Plan
- NHSE should regularly review changing demographics and healthcare needs to ensure CDCs continue to be established in areas of greatest need
- NHSE should provide financial, legal and logistical support to encourage the establishment of CDCs in community-based sites like shopping centres
- NHSE should prioritise bolstering digital infrastructure and patient data sharing in CDCs, with periodic assessments to address integration challenges and promote interoperability.

Section 2: modelling assumptions

Workforce implications of increased demand for diagnostic testing

[16] RCR (2024) *CDCs Unveiled: challenges and triumphs*. https://www.rcr.ac.uk/news-policy/policy-reports-initiatives/representing-your-voice-in-uk-parliaments/cdcs-unveiled-challenges-and-triumphs/

A range of factors are and will continue to drive an increase in demand for diagnostic tests. These factors include the demographics of the UK's ageing population, increasing rates of survivorship for major illnesses like cancers, the rise of new treatments and diagnostic technologies that require adjunct imaging, genomic testing, and changes to clinical behaviour both informal and formal (e.g. set out in service specifications). This rise is already observable:

- Between 2016/17 and 2023/24, there was a 60% increase in the number of CT scans and a 31% increase in the number of MRI scans in England. The largest contributors to this rise were acute care settings and GP direct access (though there is significant variation by ICB).[17]
- Imaging demand is rising particularly rapidly in acute settings. Between 2023 and 2024, there was a 13% rise in the number of referrals for CT scans and a 15% rise in the number of referrals for MRI scans from emergency departments. In 2019, 33% of CT scans were unscheduled, but by 2024 this proportion had risen to 44%.

NHS workforce planning should properly account for this rise in imaging demand – currently running at approximately 5% per annum – by ensuring that additional clinical radiologists are trained and recruited to safely and effectively report on the rising number of medical images generated. Measures to optimise demand are also required – cf. our response to section 1 of this consultation, where we set out the potential for iRefer clinical decision support software to help reduce unnecessary imaging activity.

The sections below outline the RCR's workforce modelling, which includes forecasts for increased demand and the likely future composition of the radiology and oncology workforces.

RCR Workforce census: key findings and methodology

Key census findings

Each year, the RCR conducts a census of all the UK's radiology departments and cancer centres. With 100% response rates stretching back over 17 years, this is the single most comprehensive snapshot of the clinical radiology and clinical oncology workforce.[18]

The 2024 census reports revealed clear shortages in both staff groups:

- England is facing a 30% shortfall of clinical radiology consultants (equivalent to 1,670 full-time posts)
- England is facing a 15% shortfall of clinical oncology consultants (equivalent to 158 full-time posts)
- There are stark differences at the regional level. Whilst London has shortfalls of 16% and 5% in clinical radiology and clinical oncology consultants, the West Midlands is facing shortfalls of 39% and 22%, respectively.
- We also forecast England's shortage of clinical radiologists to rise to 39% and its shortage of clinical oncologists to rise to 17% by 2029, if current trends continue.

The workforce has grown, but is being outpaced by the rate of increase in demand for their expertise.

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[17] R. Swann, S. Dixon, K. Roberts, S. Black, K. Memon, F. Fardus-Reid, L. Ironmonger, G. Maskell, J. Shelton, M. Richards, CT and MRI activity in England: insights from the diagnostic imaging dataset, Clinical Radiology, 2025, 107087, ISSN 0009-9260, https://doi.org/10.1016/j.crad.2025.107087

[18] RCR, 2024 Clinical Radiology Workforce Census report: https://www.rcr.ac.uk/news-policy/policy-reports-initiatives/clinical-radiology-census-reports/

RCR, 2024 Clinical Oncology Workforce Census report: https://www.rcr.ac.uk/news-policy/policy-reports-initiatives/clinical-oncology-census-reports/

- In 2024, the radiology workforce in England grew by 5% (versus 2023), but the number of CT and MRI examinations performed grew by 8%.
- The clinical oncology consultant workforce grew by an average of 3.9% per year over the past five years; meanwhile, the average annual rise in demand for radiotherapy and systemic anti-cancer therapies (SACT) was 5%.

These national figures obscure regional variations, with some areas recording far less workforce growth, yet still facing a sharp rise in demand for care.

Shortfalls are exacerbated by the emergence of recruitment freezes. In England in 2024:

- 24% of cancer centres reported a freeze on recruitment to consultant or SAS oncology roles
- 13% of cancer centres said these freezes were limited to expanding their workforce, whilst 11% reported freezes on all recruitment (including to fill vacant posts)
- 19% of radiology departments reported a freeze on recruitment to radiology posts.

Recruitment freezes halt workforce growth and risk exacerbating persistent care backlogs. They also put at risk government ambitions to bring down waiting lists.

Moreover, staff are leaving the NHS at an earlier age than ever before. The median average age for a radiology consultant to leave the NHS in England in 2024 was just 49 years – down from 56 years in 2021. In clinical oncology, the median average age of leavers was 54 years, versus 59 years in 2023.

These shortages have worrying consequences for patients and patient care:

- 100% of radiology department heads are concerned that backlogs and delays to diagnosis are affecting patient care
- 100% of radiology department heads say they do not have enough staff to meet their reporting requirements
- 76% of cancer centre leaders report concerns for their services' safety and effectiveness caused by workforce shortages
- 94% of cancer centres report delays to patients accessing SACT and 92% of cancer centres report delays to patients accessing radiotherapy.

Workforce shortages mean that gaps are also emerging in sub-specialty expertise, which risks patient care and contributes to inequities in care access:

- Ten cancer centres (17%) rely on just one clinical oncology consultant to provide site-specialty expertise in one or more of the four most common cancers: breast, lung, colorectal and prostate. There should be at least two consultants per centre able to cover these sites for a safe service.
- 14 cancer centres do not have any clinical oncology consultants specialising in head and neck, gynaecological, upper gastrointestinal, central nervous system or skin cancer.[19]
- In both clinical radiology and clinical oncology, certain specialty areas are at greater risk than others. 27% of breast clinical oncologists and 22% of breast radiologists are forecast to retire within five years. Other 'at risk' areas include haematological expertise in clinical oncology (23% forecast retirement rate) and chest and lung and radionuclide expertise in clinical radiology (26% and 25% forecast retirement rate, respectively.)

[19] RCR (2022) Clinical oncology job planning guidance for consultant and SAS doctors. https://www.rcr.ac.uk/our-services/all-our-publications/clinical-oncology-publications/clinical-oncology-job-planning-guidance-for-consultant-and-sasdoctors-2022/

Shortages in radiology departments also mean that the NHS is increasingly reliant on costly alternatives to meet its reporting requirements.

- In England in 2024, over £278 million was spent on outsourcing, insourcing and ad-hoc locums by NHS trusts – a rise of 18%, or ~£42 million, within 12 months.
- This sum equates to 2,488 radiology consultant annual salaries – more than the number required to close the current shortfall.
- £185 million alone was spent on outsourcing radiology reports to private providers in 2024.
- Outsourcing expenditure is forecast to reach more than £476 million by 2029, should current trends continue.

Similar costly measures are being taken by cancer centres. For instance, the number of locum staff in clinical oncology rose by an average of 18% per year from 2019-24.

It is irrational to use public funds for short-term management of chronic problems, especially since those funds could instead be used to permanently address the root cause of those problems – in this case, by closing the workforce shortfalls in clinical radiology and clinical oncology.

What needs to happen?

The RCR recommends that:

- The 10-Year Workforce Plan should commit to a permanent increase in the number of specialty training posts for clinical radiology and clinical oncology.
- The Plan should include measures to preserve sub-specialty expertise to ensure all patients can access the care they need.
- Trusts or hospitals not meeting national cancer performance targets should not adopt nor be placed under recruitment freezes affecting clinical oncology or radiology consultant, SAS or specialty training posts.
- The NHS should adopt measures to make clinicians feel valued and encourage them to remain within the NHS; such measures would feature supportive leadership, greater staff autonomy, and a strong culture of teamwork.

Census shortfall calculation methodology

The workforce shortfalls are calculated using best available data and via multiple methods. For clinical radiology, the final shortfall is calculated from the mean average of three methods:

- Method A: Using reported imaging volumes (NHSE Diagnostic Imaging Dataset) and estimated reporting times for each imaging modality (as set out in RCR service planning guidance).
- Method B: Based on population size, given a recommended 12.8 radiologists per 100,000 population (as reported as the OECD average in 2015 and the EU average in 2025). (These comparisons are relevant, since broadly the same standards and expectations of care exist in these comparator countries as in the UK.)
- Method C: based on radiology expenditure, by calculating the number of full-time CR consultant salaries that could be funded by the money spent on insourcing, outsourcing and ad-hoc locum staff, and given NHSE pay and conditions.

For clinical oncology, the published shortfall is calculated from the average of two methods:

- Method A: the sum of reported vacancies (whole-time equivalent) and the reported excess contracted PAs (i.e. any above 10 PAs per week) expressed as WTE (whole time equivalent)

- Method B: the number of additional CO consultants required to achieve 4.84 oncologists per 100,000 older population (aged 50+ years). (This is the shortfall identified by method A, redistributed according to population aged 50+ years.)

The 2029 workforce shortfall forecasts assume that global recruitment rates, staff attrition rates and time to complete specialty training will all remain stable (compared to the previous five years). It also assumes that the prevalence of less-than-full-time working will increase linearly, and that consultants will retire at the age of 60 years. In radiology, it also assumes a 7% annual increase in demand over the next five years. For oncology, the assumption is a 5% annual increase in demand over the next five years.

Further details can be obtained from the census data worksheets, or by emailing census@rcr.ac.uk.

RCR economic modelling: the cost effectiveness of training as compared to outsourcing and global recruitment

Summary

- Economic modelling commissioned by the RCR shows that investing in clinical radiology and clinical oncology specialty training, rather than alternative workforce strategies, enables the greatest increase in Whole Time Equivalent workforce and delivers cumulative savings of between £85 and £385 million over a decade.
- The model considers working practices, salaries, pensions, tax contributions, productivity, and demand for care, amongst other factors.
- Increases in the baseline number of specialty training places are compared against two other strategies: 'business as usual' and increased reliance on some combination of outsourcing, insourcing (paid overtime) and overseas recruitment.
- The model does not account for the fact that capacity to train is a limiting factor.
- The model shows that workforce expansion is necessary, insofar as shortfalls cannot be closed under current conditions, even with efficiency gains and a significant uplift in specialty training places.

About the model

- The model was developed by WPI Economics, an independent consultancy, after being commissioned by the Royal College of Radiologists.
- The model estimates the future clinical radiology and clinical oncology workforce under multiple scenarios. It is designed to support strategic workforce planning by comparing the costs and outcomes of domestic training expansion with alternative strategies such as outsourcing, overtime, and international recruitment.
- The model is intended to:
  1. Provide evidence to inform long-term NHS workforce planning
  2. Compare cost-effectiveness and workforce impact across different supply-side strategies
  3. Enable scenario testing using modifiable assumptions and updatable data inputs.
- It allows users to test whether policy interventions (e.g. increased training places or improved retention) can help close projected workforce shortfalls more sustainably than existing, reactive measures.
- The model tracks three scenarios:
  1. Baseline – current trends and training numbers
  2. Reform – permanent uplift in training places (user-defined)
  3. Alternative – the same WTE uplift as in 'Reform', delivered through a mix of outsourcing, overtime, and/or overseas recruitment.

- Input data is from the RCR workforce census reports. Key inputs include (but are not limited to):
  - Consultant WTE
  - Resident doctor WTE
  - Prevalence of LTFT working
  - Attrition rates (retirement and non-retirement)
  - Average annual overseas recruitment
  - Current and 5-year forecast WTE workforce shortfalls.
- The model provides results, including the proportion of the shortfall closed, the increase in WTEs achieved, and the expected total costs or savings expected for each scenario.
- The data presented here pertains to England only. The model can also generate data at the UK level, and for each of the devolved nations.
- The work to develop the model was conducted in Winter 2024/Spring 2025 and was updated with the RCR's 2024 census data when this became available in Summer 2025.

Assumptions and estimates:

- The model makes various assumptions (and is based on several estimates), including those relating to:
  - Productivity (based on NHSE plans to 2029/30)
  - Yearly training costs (based on resident doctor salaries and the education and training tariff)
  - Attrition during and immediately post-training (RCR averages)
  - Consultant salaries, pension costs and NICs (NHS Employers figures)
  - Agency fees for overseas recruitment (RCR assumption of market rates)
  - Standard Programmed Activities (PA) for consultant radiologists and clinical oncologists (RCR recommended consultant job plans).
- NB. By default, the alternative scenario for clinical radiology assumes 90% of WTE increase is from outsourcing and 10% from overtime. For clinical oncology, the alternative scenario assumes 50% from overtime and 50% from overseas recruitment. These assumptions can be modified.
- The baseline number of specialty training places in England for clinical radiology is 305; for clinical oncology it is 83. These are based on the average number of people starting as a resident doctor per year over the past five years.
- Both the reform and alternative scenarios include 1.9% per annum productivity improvement by default.

Findings:

- Below are the findings of the model by varying the number of additional training places – i.e. the 'Reform' scenario – as compared against the 'Baseline' and 'Alternative' scenarios.
- NB. The model assumes the additional training places are a permanent uplift, i.e. an additional five places in year 1 will be replicated each year up to and including year 10.

Clinical radiology: results

In clinical radiology, the model suggests that large cost savings can be achieved, whilst the shortfall in the radiology workforce is significantly addressed, depending on the size of the increase in training places provided:

30 additional training places per year (a 10% uplift to the baseline) would, by the tenth year:

- Result in 156 additional WTEs (compared to the baseline)
- Fill 56% of the workforce shortfall
- Deliver £80 million in cumulative savings (versus the alternative strategy).

For a 20% uplift (61 additional places per year), 60% of the year-ten shortfall would be filled, and £150 million savings would be unlocked. For a 50% uplift (150 additional places per year), 73% of the shortfall would be filled and £380 million savings would be unlocked. In other words, the benefits of the reform scenario rapidly accumulate.

Clinical oncology: results

In clinical oncology, the model suggests that only small increases to the baseline number of training places can quickly close the workforce shortfall.

With 8 additional places per year (i.e. a 10% uplift to the baseline), by year five:

- An additional 22 WTEs are delivered
- 108% of the year-five workforce shortfall is closed
- Total savings are £2 million.
-

In other words, it is possible to close the shortfall in clinical oncology with relatively little investment. The benefits of the reform scenario are self-evident.

By year 10, the proportion of the year-10 shortfall closed by the reform scenario climbs to 159%, and cost savings reach approximately £10 million.

Naturally, uplifts of greater than 10% of the baseline number of CO training places result in an even more rapid closure of the shortfall and delivery of cost savings.

Note that RCR shortfall calculations are based on what is minimally required for a safe and effective service for all patients. For a world-class service, the NHS would require a larger oncology workforce than is minimally required to close the shortfall.

Conclusions and policy implications

- Across a range of scenarios, our model shows that investing in domestic specialty training places is more cost-effective than continuing with current trends or than relying even more heavily on outsourcing, overtime, and global recruitment.
- Indeed, even a permanent 10% uplift in the number of training places is cost neutral by year five (CO) or delivers modest cost savings by year ten (CR). Higher uplifts rapidly result in greater cost savings.
- Only a modest uplift to the clinical oncology workforce is necessary to close the shortfall in this profession.
- In radiology, the model shows that a suite of policies will be required to ensure the NHS can meet diagnostics demand. These will include demand optimisation for diagnostic testing, the use of efficiency-generating IT systems and tools like AI, and the safe and responsible use of skill mix. However, the inescapable conclusion is that none of these interventions alone has any hope of succeeding if the radiology workforce does not also receive significant investment and growth. The model demonstrates that investments in the radiology workforce rapidly generate cost savings and make huge inroads towards meeting the diagnostic demand facing the NHS.
- It should also be noted that an ambitious 1.9% per annum productivity improvement is built into both the Reform and the Alternate strategies. In other words, even with

ambitious productivity improvements enabled by technologies like artificial intelligence, there will still be a need for significant investment in the workforce.
- The training scenario requires a time commitment; reductions in the workforce shortfall and cost savings are realised in years four through six of the ten-year scenario.

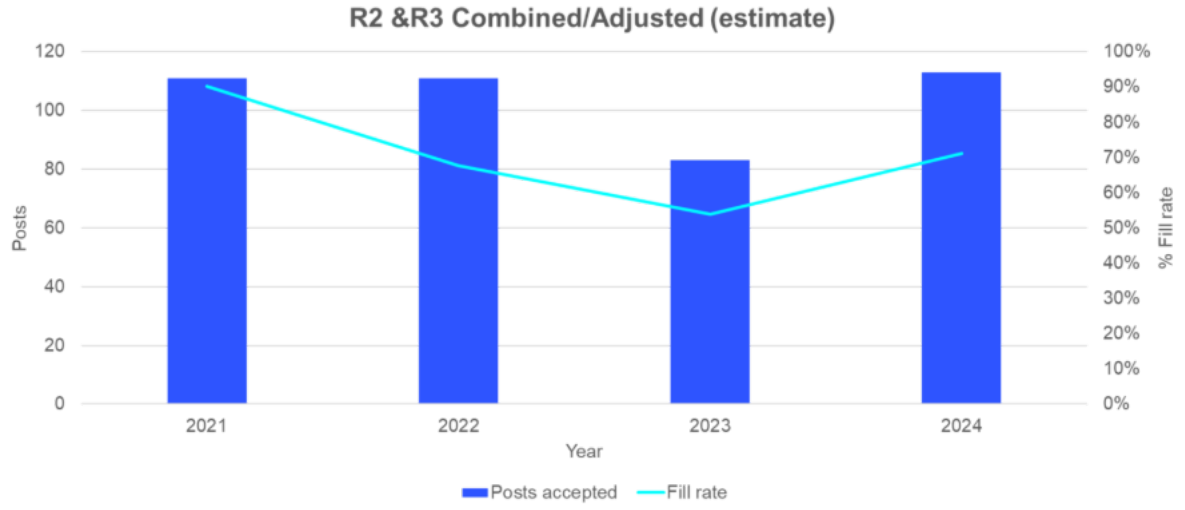
For further information, contact policy@rcr.ac.uk.

Clinical Oncology fill rates and training capacity

Though investing in specialty training is more cost effective than relying on costly alternatives, bottlenecks in the training pathway are limiting factor. The situation in clinical oncology illustrates this point. CO is one of ~30 specialties that recruit from the internal medicine training (IMT) pool. IMT consists of two years' training, and CO specialty training then consists of five years' training: the oncology common stem (ST3) and then ST4-7.

There is a bottleneck between IMT and CO specialty training, insofar as the number of CO training places made available each year is limited by the share of the total IMT pool on which CO can draw.

The fill rates for CO specialty training vary, but have struggled to reach 100%. This is for well-known reasons, including a lack of exposure to oncology at undergraduate, foundation and internal medicine training.



Over time, CO has received a relatively stable share of 5% of the IMT pool.

Year	CO Posts	IMT Pool for recruitment	% of IMT pool to CO
2015	66	1551	4%
2016	61	1560	4%
2017	79	1510	5%
2018	68	1651	4%
2019	76	1589	5%
2020	66	1635	4%
2021	109	1567	7%
2022	90	1624	6%
2023	65	1643	4%

To have filled all the available CO training posts offered in 2024, we would have needed to recruit 8% of that year's IMT pool.

Given the other specialties drawing from it, it is unfeasible for CO to take up a greater share of the IMT pool. To fill all CO training places, we would need to recruit 5% of the candidates from a larger IMT pool – namely, a 65% larger IMT pool.

What is needed?
Creative and concerted action is required to boost the NHS's training capacity:

- The NHS should expand the number of IMT posts available. This would deliver higher fill rates for clinical oncology specialty training posts.
- The NHS should increase the number of specialty training posts in clinical oncology to maintain strong workforce growth and progressively eliminate the shortfall.
- Trusts/health boards must ensure there is sufficient time in consultants' job plans to deliver training to junior staff. The number of Supporting Professional Activities (SPAs) must realistically reflect individuals' roles and responsibilities.
- Medical schools should increase students' exposure to oncology during undergraduate training, and local deaneries should increase exposure to oncology during foundation and internal medicine training.

Workforce planning in the context of changing working practices
Rising demand for care, exacerbated by longstanding workforce shortages, is increasing the workload and accompanying pressure on radiologists and oncologists. This in turn is contributing to declining staff wellbeing and rising levels of stress and burnout. In the latest RCR census:

- 100% of radiology clinical directors are concerned about workforce morale and stress – with 57% saying they are very concerned
- 98% of cancer centre heads of service are concerned about workforce morale and stress.

There is a further wellbeing impact arising from the general expectation of NHS staff that they should undertake work beyond what is reasonable or sustainable, on the basis that otherwise patients will come to harm. Staff are faced with the invidious choice of protecting their wellbeing or keeping patients safe.

These findings are mirrored in the latest GMC workplace experiences report, with 23% of doctors surveyed saying they had taken a leave of absence from work due to stress.[20] One result of rising pressures is that many doctors are opting to reduce their working hours and work less than full time (LTFT). This includes both resident doctors and consultants and SAS doctors.

- In 2024, 41% of clinical radiology consultants were working LTFT – up from 32% in 2019
- The prevalence of LTFT working rises with doctors' age, but even amongst those under 40 years of age, over one-quarter (27%) are working LTFT
- Similarly, 43% of clinical oncology consultants are working LTFT (up from 32% in 2019)
- Many doctors working LTFT are contracted to work at least the equivalent of 50% of full time, and most will be working at 0.6-0.9 WTE (whole time equivalent)
- Many of those doctors working LTFT use the time to undertake useful activities, such as research or further study

[20] GMC Workplace Experiences 2025. https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/the-state-of-medical-education-and-practice-in-the-uk/workplace-report

- Nevertheless, if all staff had worked full-time, there would have been an additional 9% of WTE in clinical radiology and an additional 10% WTE in clinical oncology.

RCR data reveals a sharp in the prevalence of LTFT working over recent years:

Group	Proportion working LTFT, 2024	Increase in proportion working LTFT, past 5 years	Forecast proportion working LTFT, 2029*	Potential additional capacity, 2024**	Increase in potential additional capacity, past 5 years	Forecast potential additional capacity, 2029*
CO consultants	42.9%	10.8%pt.	53.7%	10.4%	3%pt.	13.4%
CR consultants	40.5%	8.7%pt.	49.2%	8.7%	0.5%pt.	9.2%
CO SAS doctors	36.8%	0%pt.	36.8%	15.2%	0%pt.	15.2%
CR SAS doctors	19.7%	0%pt.	19.7%	3%	0%pt.	3%

* These forecasts assume that the increase seen over the past five years will be seen over the next five years (i.e. linear growth)
** Potential additional capacity % = 1-(WTE/headcount), i.e. it is the additional capacity that would be available if all LTFT workers worked FT

LTFT working has clear benefits for staff wellbeing, and may be helping the NHS to retain many staff. However, its prevalence highlights the need for additional workforce growth to reduce the pressures driving staff to reduce their hours. It also necessitates careful workforce planning, so its impact on training capacity can be managed. LTFT will most likely continue to be highly prevalent across the workforce. This reinforces the need for additional workforce and capacity, to enable the NHS to meet its performance targets and deliver excellent care for all patients.

The GMC's 2025 training survey found that 25% of resident doctors were working LTFT.[21] The medical training review: phase 1 diagnostic report came to a similar conclusion; for the radiology training cluster, it reported a LTFT prevalence of approximately 25%.[22]

This reduces the total number of residents that the NHS could train with existing training capacity. This is because training places are allocated by headcount (or National Training Number, NTN). For instance, if two residents are working LTFT at 0.6 WTE each, there is a total of 0.8 WTEs going 'spare' in the system, which could be allocated to another resident who wanted to work LTFT. Even in the case of two residents each working at 0.9 WTE, there is an additional 0.2 WTE in total – the equivalent of one working day – that could be reallocated.

What is needed?

- The NHS should explore the allocation of specialty training places by WTE numbers, rather than by headcount. This would enable any funding surplus from residents working LTFT to be reinvested in the provision of further training posts.

[21] GMC (2025) *National Training Survey 2025 Results*. https://www.gmc-uk.org/education/how-we-quality-assure-education-and-training/evidence-data-and-intelligence/national-training-surveys
[22] NHS England (24 October 2025) *The Medical Training Review: Phase 1 Diagnostic Report*. See figures 4 and 5. https://www.england.nhs.uk/long-read/the-medical-training-review-phase-1-diagnostic-report/

- The NHS should explore the use of skill mix to increase training capacity. Where their skills and scopes of practice allow, staff groups including SAS and locally employed doctors, senior residents, and advanced health practitioners could assist consultants in the delivery of specialty training. They will require time in their job plans to do this work. Consultant doctors should remain the leaders of multidisciplinary teams. Skill mix is already well advanced in clinical oncology and is delivering benefits to patients and the wider oncology department.
- The NHS should also double down on its efforts to retain staff and boost their wellbeing and morale, including by providing adequate facilities and support measures, alongside efforts to ensure staff feel valued and respected. The RCR supports the government's recent announcements to address staff wellbeing, particularly for resident doctors.

Workforce implications of digital innovations

It is vital that the workforce implications of new digital innovations are considered holistically, prior to implementation.

Take, for example, MRI scanners with inbuilt artificial intelligence (AI) software. Proposals to update 100 MRI scanners in May 2024 were estimated by the government to lead to an additional 3.71 patients per scanner receiving a scan each day (on top of the average of 24 scans per day). This would amount to an additional 130,000 scans per year, given 100 upgraded MRI scanners.[23]

RCR analysis of this data looked at the implications to radiology workload of this additional scanning activity. The analysis found that an additional 40.6 consultant clinical radiologists would be needed to meet the additional reporting requirements of these 100 upgraded [24]

	Per scanner per year	Per 100 scanners per year
Additional MRIs taken by AI-upgraded scanners	1,300	130,000
Minutes to report (at 15 mins each)	19,500	1,950,000
Hours to report (at 15 mins each)	325	32,500
Additional clinical radiology consultants required to report scans (at 800 hours per year)	0.4	40.6

These figures are based on an average 15-minute time to report an MRI scan, alongside average working patterns of consultant clinical radiologists. We have assumed for this calculation that the average consultant radiologist spends half their working hours on the primary reporting of images; 50% of a 40-hour working weak, across 40 weeks per year, equates to 800 hours per year. It is important to note that many will spend less than half their time on primary reporting, especially if their trust is struggling with a large shortage of radiology staff. The remaining time is spent supporting multidisciplinary teams (MDTs), giving advice, and reviewing patients or their scans.

[23] https://questions-statements.parliament.uk/written-questions/detail/2024-03-07/17634

[24] https://www.rcr.ac.uk/news-policy/latest-updates/workforce-requirements-for-ai-enabled-mri-scanners/

It is unclear whether the workload implications to radiology of this policy had been considered, despite the crucial importance of the reporting stage in delivering a diagnosis. This analysis does not argue against implementing innovations like AI-enabled scanners. Rather, it points to the need to consider changes to pathways and workflows holistically. In this case, the benefits from accelerated image acquisition would be only realised if the reporting stage were likewise accelerated. This could occur via increasing the radiology workforce to expand its capacity, or by introducing other changes to speed up the reporting process, such as improved IT systems or using AI tools to support the image reporting stage.

What needs to happen?
In general, impact assessments of major changes to care pathways must be made, and they must include the implications for clinical radiology. Many proposed changes – including new software, new scanners, new guidelines or new service specifications – imply or directly call for additional diagnostic imaging, without proper consideration of the workforce requirements for this activity.

Section 3: productivity gains from wider 10 Year Health Plan implementation

Reform to Multidisciplinary Team Meetings

Demand for cancer care continues to rise, and clinical decision-making is becoming ever more complex, with a greater range of options in both diagnostics and treatment and an older, more co-morbid population. Creative and ambitious thinking is required to manage these shifts, including a fresh approach to clinical decision-making.

Multidisciplinary teams are essential and, at their best, drive significant improvements in patient care. The Multidisciplinary Team (MDT) model was originally developed to improve cancer care by promoting collaborative, patient-centred decision-making and reduce unacceptable variations in treatment. More recently, it has been suggested that MDTs be used to consider wider service reforms to improve care for all patients. However, the main vehicle for MDT working – the MDT Meeting (MDTM) – has little or no focus on service development.[25]

It is common practice for all cancer patients to be discussed at MDTM – not just the most complex patients. This means that MDTMs can be extremely long, and therefore expensive. MDTMs are currently estimated to cost approximately £600m a year.[26] Reducing the number of patient discussions by 50% – an ambitious but achievable goal – could deliver cost efficiencies of around £300m per year.[27]

It would be possible to simultaneously reduce the overall length of MDTMs by taking only complex patient cases to them for discussion, whilst also utilising MDTM time differently to discuss service improvement and promote interdisciplinary working. This would bolster efforts for continuous improvement in cancer services. The potential cost savings would naturally

[25] RCR, RCN, ACP, RCP, RCPath. *Proposals for the reshaping of cancer services in England: patient pathways and decision-making* (2025). https://www.rcr.ac.uk/media/xkalybyb/multisociety-proposals-for-reforming-patient-pathways-and-decision-making.pdf
[26] Extrapolated and adjusted from £159m annual cost in 2014. From 'Meeting Patients' Needs', Cancer Research UK, 2016.
[27] This assumes that all patient discussions last the same length of time, such that halving them would halve total meeting time. This is an over-simplification. Further research would be needed to ascertain to what extent MDTM length could be reduced. This initial estimate indicates the scale of the potential cost efficiencies available.

depend on by how much patient discussion within MDTMs is reduced and by how much service improvement discussions are increased.

The many hours that clinicians spend in MDTMs could be far better spent by refocussing those discussions towards patients that truly need multiple clinicians' input and a multidisciplinary approach, and/or towards meaningful discussions about service improvement.
MDTM redesign should shift them towards:

- Discussing the most complex patient cases: it is not necessary to take every single patient to MDTM, but a forum is useful for clinicians to discuss how to deal with complex cases. Processes for selecting the appropriate cases are required, and established treatment protocols would likewise help.
- Activities like quality improvement and training: MDTs should review processes using patient outcome data and the latest audit and research findings. This would facilitate improvements to service quality. It would also help teams to integrate and train new members.
- Collecting and analysing high-quality and consistent data: currently, MDTM data on diagnosis and treatments are inconsistent and often inaccurate. Better data collection is needed to drive service evaluation and improve patient outcomes.

There is broad buy-in across the cancer care community for such reform. It will be essential to the NHS's efforts to meet cancer treatment targets, ensure that care is equitable and patient-centred, and to boost its productivity.

Rollout of AI tools in clinical practice – designing deployment to ensure intended benefits are realised

AI is already showing promise. Early studies, such as in breast screening, show promise where AI acts as a second reader under clinical oversight - helping to manage workload and reduce waiting times without compromising patient safety. A pilot programme at NHS Grampian, for instance, showed that an AI tool used as a "second reader" of breast mammograms was able to successfully detect all cases of signs associated with cancer in a sample of over 10,000 women, and moreover to identify eleven additional cases not identified by the first human radiologist. Initial results from this pilot include a 10% rise in the number of cancers detected without leading to a rise in reporting time – thereby enabling radiologists to deliver more direct clinical care than otherwise would be possible.[28]

In oncology, AI tools to aid radiotherapy treatment planning are saving time and boosting accuracy.[29] One recent study found that AI "auto-contouring" tools, under clinical supervision, reduced the wait times for patients to receive radiotherapy by 5.5 days in cases of breast cancer and by 9 days in cases of prostate cancer.[30]

In 2024, the RCR asked radiology departments and cancer centres whether they were using AI tools in clinical practice, and what effects these were having. We found that:

- Prevalence of AI tools in clinical practice had risen, from 54% of radiology departments in 2023 to 69% in 2024[31]

[28] https://ai.gov.uk/knowledge-hub/use-cases/mia/ and https://www.bbc.co.uk/news/technology-68607059
[29] https://doi.org/10.1016/j.adro.2023.101394
[30] https://pubmed.ncbi.nlm.nih.gov/39705202/
[31] RCR Clinical Radiology Workforce Census reports, 2023 and 2024. Available at: https://www.rcr.ac.uk/news-policy/policy-reports-initiatives/clinical-radiology-census-reports/

- Three-fifths (63%) of cancer centres implemented AI tools in 2024 – mostly AI tools to aid in auto-contouring for radiotherapy treatment planning.[32]
- Over half (56%) of radiology departments had seen no effect of AI tools on their workloads, where they had implemented them.
- However, over one-third (37%) of radiology departments said that implementing AI in 2024 had increased their workload, and just 6% reported a decline in their workload.

Our census found similar sentiment on the mixed workload impact of AI tools in cancer centres.

These results should be considered in context. Large IT deployments are complex and time consuming; it is reasonable to suppose that workload benefits and efficiency savings will not emerge until some time after deployment, once staff and wider processes have adapted to the new system.

Another potential explanation is that AI tools are actively changing radiologists' workloads and behaviour. Any time savings may simply be absorbed by the backlog for image reporting, or else the AI system could, in giving radiologists more information to consider in making a diagnosis, lengthen the time taken to complete a report. (This may be desirable insofar as it may help more diseases be diagnosed at a very early stage or with greater accuracy.)

Regardless, these results point to the need to consider the ways in which AI should be incorporated into services – how it will affect clinicians' workloads, and when system benefits can be expected. The NHS should undertake additional work to refine its aims for AI deployment and identify how AI can be implemented safely and effectively. This will need to include consideration of the adequacy of basic, underlying IT systems and adequate staffing in data, digital and technology roles across the NHS.

Patient participation in digital transformation: artificial intelligence (AI) in healthcare
The RCR commissioned JL Partners to conduct polling of the general public on their attitudes towards AI in healthcare.[33] The results can be used to inform actions to encourage public buy-in and participation in the NHS's AI initiatives. For instance, they reveal that public buy-in is conditional upon strong clinical leadership and oversight of AI in healthcare. Public support is vital, since well-deployed and effective AI tools could significantly improve NHS productivity. Indeed, previous digitisation efforts have stalled thanks to public backlash; these include the care.data programme and the General Practice Data for Planning and Research scheme.[34]

The polling reveals overwhelming support for doctors to lead and shape how AI is used, alongside a need for greater public education to build and protect trust. There is broad recognition of AI's potential benefits, but there remains significant hesitation about its implementation. The public are extremely sceptical about potential use cases which involve completely replacing human doctors with AI.

Key insights from the polling include:

[32] RCR, 2024 Clinical Oncology Workforce Census report
[33] RCR (2025) *The Future of AI in Healthcare: Public perceptions* of AI in radiology. https://www.rcr.ac.uk/media/poelyzlz/rcr-reports-the-future-of-ai-in-healthcare-public-perceptions-of-ai-in-radiology.pdf
[34] https://www.bbc.co.uk/news/health-26259101 and https://www.theguardian.com/society/2021/aug/22/nhs-data-grab-on-hold-as-millions-opt-out

- The public overwhelmingly believes that radiologists and oncologists should oversee healthcare AI, regardless of its capabilities. Only 5% thought AI should work independently, without radiologists' oversight.
- Less than half (46%) of the public have heard of AI being used in healthcare in the UK.
- Public engagement is critical as the more familiar people are with AI, the more comfortable they are with its use in healthcare. While just 40% overall say they feel comfortable with AI in healthcare, that figure rises sharply to 76% among those who are very familiar with AI.
- 4 in 5 (80%) members of the public support the use of AI in radiology in some capacity. In comparison, just 40% of the public said they felt comfortable with the use of AI in healthcare more generally.
- However, the public does recognise the value AI could bring. 57% believed that AI could save clinicians' time, 55% believed it could improve early detection of disease, and 49% believed it could save the NHS money.
- The public trust doctors and value their expert oversight when it comes to AI. The most important factor in AI's use, ranked by respondents, was its accuracy and reliability, and the second most important was the views of doctors and nurses.
- The public has far more trust in the use of public data to train AI models when it is managed by institutions such as the NHS (+34 net trust) or their local GP (+36 net trust) than they do when it is managed by more abstract entities such as "government" (-29 net trust) or "health technology companies" (-17 net trust).

What needs to happen?

This polling suggests further action is needed to bring the public along with the analogue to digital shift, as it involves AI in healthcare. Though pushing on an open door, public participation is not guaranteed. We need:

- Transparent engagement with the public on AI in healthcare to increase trust and confidence in its adoption in the NHS
- AI adoption to be clinician-led, with consistent clinical oversight over how it is used. Doctors can provide expert advice on where and how AI could improve care pathways, and they also possess the trust and confidence of the public to get this done safely and effectively.
- Expansion of and support for the medical workforce, particularly in radiology and oncology, to actively deploy and integrate AI systems into their workplaces, and to educate and bring the public along with them, where necessary and appropriate.

Methodology

On behalf of the Royal College of Radiologists J.L. Partners conducted a nationally representative poll of adults in Great Britain between 12 December and 15 December 2024 to gauge their views of AI in healthcare.

The sample consisted of 1,021 GB adults, with quotas applied to ensure representativeness across gender, age, region, education level, ethnicity, 2024 general election vote and political engagement based on British Election Study estimates.

The data was collected via an online panel and subsequently weighted to match the national demographic profile. The margin of error for the study is ±3.4%.

Investing in basic IT systems to enable digital innovations

Poor IT systems are a major blocker to NHS productivity and digital maturity. Old systems are slow, prone to outages, and cannot integrate with modern software. And different NHS

organisations employ different, non-interoperable systems, which constrains their ability to link their data and manage the movement of patients.

Poor IT disrupts doctors' work and therefore causes delays for patients. Estimates of the amount of time lost to inadequate IT systems and equipment reach up to 13.5 million working hours per year. This is equal to 8,000 full-time doctors' working hours.[35] Investigations by the HSSIB have also linked failing IT systems to poor patient outcomes.[36]

Such basic limitations prevent more advanced analysis and the subsequent service development that should be possible, given the large quantities of data available. This is both due to time losses and to a lack of functionality in many current NHS IT systems.

Deployment of innovative IT systems, including artificial intelligence tools, also relies on modern, functional IT systems.[37] This includes both hardware and software, such as PCs, Wi-Fi bandwidth, operating systems, Picture Archiving and Communication Systems (PACS) and Radiology Information Systems (RIS).[38] In our 2023 workforce census, the RCR asked radiology departments what barriers they faced to AI implementation:

- 63% reported a lack of IT staff and/or AI expertise
- 51% reported problems caused by underlying IT systems.
- 69% reported a lack of funding – which would impact both on AI deployment and on the ability to upgrade underlying IT systems.[39]

Conversely, there are examples of successful projects to update IT infrastructure and provide standard and interoperable systems. Regional PACS and RIS systems have generally succeeded in improving patient care and reducing delays; the radiology GIRFT review highlighted the shared PACS system in Essex as a success story.[40] NHS Wales and NHS Scotland have introduced a single national PACS, connecting all hospitals in the country.[41]

The NHS needs to go further and faster to address issues with basic IT systems across all regions – both to improve patient outcomes and experiences, and to facilitate the rollout of innovative digital solutions like AI.

Section 4: culture and values

Capacity to deliver medical specialty training

To deliver the three shifts in healthcare, along with productivity gains, the NHS will need a committed and empowered training workforce. Without this, it will be challenging to prepare the future medical workforce.

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[35] BMA (2022) *Building the future: Getting IT right*. https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/the-future/building-the-future-healthcare-infrastructure-reports/digital-infrastructure

[36] https://www.bbc.co.uk/news/health-67503126

[37] RCR (2023) *Overcoming barriers to AI implementation in imaging*. https://www.rcr.ac.uk/news-policy/latest-updates/overcoming-barriers-to-ai-implementation-in-imaging/

[38] NHS Providers (2024) *Digital transformation survey 2024*. https://nhsproviders.org/news/digital-transformation-hampered-by-budgets-nhs-pressures-and-poor-it-infrastructure

[39] RCR 2023 Clinical Radiology Workforce Census report.

[40] Halliday, Maskell, Beeley and Quick (2020) *Radiology GIRFT Programme National Specialty Report*. https://gettingitrightfirsttime.co.uk/medical_specialties/radiology/

[41] https://dhcw.nhs.wales/news/archived-news/one-digital-x-ray-and-imaging-system-now-national/ and https://www.nhsfife.org/services/all-services/radiology-x-ray/pacs/

As set out in our submissions to the other sections of this consultation, chronic workforce shortages and rising demand are increasing the pressure on all elements of the system – including its capacity to deliver training and supervision to resident doctors. Non-urgent tasks and activities other than direct patient care are the first to be cut from job plans.

Over the past decade, there has been an erosion of consultants' Supporting Professional Activities (SPA) time – a 12% decline in clinical radiology and an 11% decline in clinical oncology. Training is often delivered during SPA time, so this is having a significant impact on capacity to train. Training is also delivered during direct clinical care (DCC) time, but acute pressure can mean this is limited or does not occur, with consultants instead needing to focus on meeting immediate demand for patient care, rather than providing training.

One effect of this lack of training capacity is on trainers' wellbeing. Trainers are now over-stretched and struggling to meet the demands placed on them in terms of providing supervision and meeting their clinical commitments. This is reflected in RCR census data on staff wellbeing (cf. our submission to section 2 of this consultation.) It is also evidenced in the GMC's 2025 training survey, which found that:

- 47% of trainers were at risk of burnout
- 29% of trainers felt their trainees were adversely affected by rota gaps
- 29% of trainers in secondary care were not always able to use their allocated training time to deliver training.[42]

The GMC's 2025 workplace experiences report indicates that actions which could help to manage workload pressures and improve staff wellbeing include:

- Improvements to IT infrastructure
- Mental health support
- Doctors having greater control over their work patterns
- More time for non-clinical tasks
- Adequate and consistent support from the wider team and organisation.

The report includes a 'virtuous cycle' of improving workplace experiences which could be implemented if the correct conditions are met.[43]

What is needed?

- Trusts/health boards should ensure all doctors have sufficient SPAs protected in their job plans for their work in delivering training, clinical leadership, audit and service improvement, CPD and revalidation. The number of SPAs must realistically reflect individuals' roles and responsibilities. Workforce planning should reflect this.
- Training is a professional obligation and should be part of every consultant's job plan.
- As future leaders of medical teams, resident doctors' training must be prioritised. This includes maximising the training opportunities resident doctors have.[44]
- The NHS should explore the use of skill mix to increase training capacity. Where their skills and scopes of practice allow, staff groups including SAS and locally employed doctors, senior residents, and advanced health practitioners could assist consultants in the delivery of specialty training. They will require time in their job plans and weekly

[42] GMC (2025) *National Training Survey 2025 Results*. https://www.gmc-uk.org/education/how-we-quality-assure-education-and-training/evidence-data-and-intelligence/national-training-surveys
[43] GMC *Workplace Experiences 2025*. https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/the-state-of-medical-education-and-practice-in-the-uk/workplace-report. Cf. Figure 1.2
[44] RCR (2024) *Resident doctors: leaders of the future*. https://www.rcr.ac.uk/news-policy/policy-reports-initiatives/resident-doctors-leaders-of-the-future/

timetables to do this work. Consultant doctors should remain the leaders of multidisciplinary teams.

Empowering and valuing medical leadership

Strong and effective leadership is needed to manage the challenges facing the NHS. This includes the need to ensure patient safety. Medical leadership, in particular, is essential, since clinicians very often possess the very skills and knowledge required to drive service improvements and uphold standards.[45]

Unlike leaders from other staff groups, medical leaders usually retain a significant portion of direct clinical care in their job plans. This is a distinct advantage: it gives clinical credibility to the service improvements they may recommend and ensures they can link patient care directly to major decisions. But it does mean that medical leaders require support from their organisations, and that workforce planning needs to reflect these dual responsibilities on medical leaders' time.

The role of doctors optimising working environments is also critical, and includes nurturing positive cultures and behaviours, advising on workforce design and deployment, and enhancing professional development.[46] At their best, they can lead by example in demonstrating a professional approach to carrying appropriate clinical risk, set clear standards, and communicate these clearly. Leaders also need to feel that they are themselves accountable for setting standards and ensuring these are met.[47]

There is evidence that hospitals and other medical organisations led by clinicians perform much better than others, including in terms of positive patient outcomes.[48] Positive associations have shown that having doctors in leadership roles or on boards of directors is correlated with higher levels of hospital performance.[49,50]

There are barriers to doctors taking up leadership roles. Clinical lead roles in the UK are hard to fill, to the extent that doctors often have limited involvement in much strategic work and everyday management. These barriers include:

- Those progressing to senior roles in organisations (e.g. Clinical Director) typically do not receive sufficient time allocation in their job plans for their duties.
- Medical leaders may also receive far too little support to enable them to deliver effectively. Similarly, administrative and financial services support, including the sourcing of relevant and quality data, whilst essential, is also lacking.

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[45] https://www.bmj.com/content/387/bmj.q2207

[46] NHS Institute for Innovation and Improvement and the Academy of Medical Royal Colleges, *Engaging doctors: can doctors influence organisational performance?* (2008). Available at: https://www.fmlm.ac.uk/sites/default/files/content/resources/attachments/49794%20Engaging%20Doctors%20-%20Can%20doctors%20influence%20organisational%20performance.pdf

[47] Leonard M. and Frankel A. Health Foundation Thought Paper: *How can leaders influence a safety culture?* (May 2012). Available at: https://www.health.org.uk/sites/default/files/HowCanLeadersInfluenceASafetyCulture.pdf

[48] Clay-Williams R, Ludlow K, Testa L, et al. Medical leadership, a systematic narrative review: do hospitals and healthcare organisations perform better when led by doctors? BMJ Open 2017;7:e014474. doi:10.1136/ bmjopen-2016-01447

[49] Veronesi, G. Kirkpatrick, I. and Vallascas, F. Clinicians on the board: what difference does it make? Social Science and Medicine 2013, 77:147-155. https://doi.org/10.1016/j.socscimed.2012.11.019

[50] Bai, G and Kirshnan, R. Do hospitals without physicians on the board deliver lower quality of care? American Journal of Medical Quality 2015, 30(1):58-65. doi:10.1177/1062860613516668

- Senior doctors progressing to management and leadership roles in the NHS are not generally awarded additional recompense or recognition that is commensurate with their additional responsibilities.
- Poor experience of leadership at a departmental level deters people from applying for more senior roles so the pipeline of future leaders is limited. Excellent candidates are deterred from applying for senior roles by the system-wide barriers to their ability to excel in role and make the difference the NHS so desperately needs.

In radiology, effective medical leadership is needed to guide the appropriate use of imaging – including in reducing the volume of unnecessary or low-value imaging. Currently, there is a cultural shift across the NHS towards ever greater medical imaging, with tests being requested far more frequently and in many more care pathways that previously. Partly, this is due to a rise in risk aversion across the system. This trend generates a real challenge in radiology departments in terms of managing this demand. Much of this increased demand is valid, which creates a need for radiology departments to carefully and creatively manage their capacity. But some of this increased demand represents unnecessary or low-value tests. In those cases, empowering radiology medical leaders to say 'no', and to advise on the most appropriate course of action for those patients, will help to manage demand and, more importantly, to ensure imaging and radiology expertise is available when it is needed most. (See our submission to Section 1 of this call for evidence for further details on how image demand can be optimised via the use of iRefer clinical decision support.)

Whilst it is acknowledged that some leadership roles are specifically identifiable, all doctors in training are required to demonstrate capabilities in leadership and team working through the GMC's generic professional capabilities framework. This means that every consultant doctor is or should be a leader in their field and have the capabilities and responsibilities to innovate to meet emerging needs. They must be enabled to as leaders to understand how the workforce can be more efficiently or effectively deployed and how service design and delivery models should adapt to emerging needs.

What needs to happen?

The NHS needs a medically led, system-wide approach to service leadership. This would avoid the fragmented approach that has thus far often inhibited effective team working across all staff levels and within service delivery models. This new medical leadership approach should include:

- An environment must be created in which medical leadership is seen as a prestigious and valuable contribution so that the most able candidates compete to become leaders.
- Medical leaders need the right training and expertise, with a core set of competencies that they are supported to develop.
- Doctors should have more PAs in which to undertake their medical leadership roles.
- Medical leaders must have appropriate professional services support, including from staff with operational, administrative, HR, data, and finance specialist skills.
- Medical leaders also require authority to deploy the resources required to deliver on their objectives – including funds, people, and service design.
- Realistic goals with regards to addressing service challenges should be developed, and medical leaders should be supported to work to address these. It should be recognised that change is not always fast or easy; medical leaders should not be removed or demitted from post after only a short time, rather, they should be properly supported.
- Medical leaders should be enabled to reinforce positive behaviours across their teams. Wider organisational culture and provision of support and resource will enable this.

Artificial intelligence: training in AI and the use of AI in training

AI is hugely relevant for medical specialty training. Both resident doctors and trainers will need to learn about AI, including both the theory behind it and the practical aspects of selecting, deploying and regularly using an AI tool in clinical practice in a safe and responsible way. (See our submission to Section 1 of this call for evidence.)

Furthermore, further research is needed to fully understand the social and behavioural impacts of AI on clinicians. It is inevitable that AI tools integrated within care pathways will change clinicians' behaviours; we need to understand when and how this will occur. For example, AI tools could *increase* the time taken to analyse and report a scan, if the tool identifies more features of interest than the naked eye alone (cf. our submission to Section 3 of this call for evidence). Similarly, there is some concern that if residents do not gain experience *without* AI tools, e.g. in producing radiotherapy contours, then they could become de-skilled, which is a patient safety concern. Identifying these effects will enable mitigations to be implemented – e.g. modifying training programmes to ensure adequate experience with both AI systems 'on' and 'off', to assure competence in both scenarios.

Section 5: additional comments

Our main recommendation is that the 10-Year Workforce Plan set out specific numbers for the growth of medical specialty training. These should be based on modelling which is evidence-based, objective, transparent, and linked to delivery mechanisms. The RCR is well placed to support this, and can provide additional information regarding the data we have submitted in this consultation.

Radiology and oncology are two medical specialties in which investment is vital, given their centrality to diagnosing and treating cancer, heart disease (including stroke), musculoskeletal conditions and other major illnesses. Moreover, both are technology-centric specialties at the forefront of AI adoption in the NHS. We strongly recommend that the 10-Year Workforce Plan include commitments to increase these vital workforces.

Special consideration should, in all settings and situations, be taken to support and provide the conditions necessary for doctors and other medical professionals with neurodivergence to excel in their roles.