

Policy priorities for clinical radiology 2021–2026

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PRIORITIES...

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This report identifies and contextualises priorities for clinical radiology and how to make them a reality. All of the priorities are interdependent and equally critical if we are to achieve a clinical radiology service that can provide the best possible treatment and outcomes for people with cancer.

Clinical radiologists use medical imaging techniques to investigate, diagnose and monitor diseases and injuries. Interventional radiologists use image-guided techniques to carry out minimally invasive procedures that improve patient experience, reduce hospital stays and save lives.

Diagnostic and interventional radiology (IR) services have been under considerable strain for many years. Demand outweighs capacity in most departments which poses a real threat to patient safety and costs the NHS millions per year in outsourcing, delayed diagnoses and poorer patient outcomes.^{1,2} The workforce needs considerable investment over the coming five years if this situation is to be improved.

Future developments such as community diagnostic hubs (CDHs), rapid diagnostic centres (RDCs), integrated imaging networks and adoption of innovative digital technologies are supported by the RCR as effective methods of streamlining pathways and maximising the extant workforce. However, the efficacy of these relies on equipment, a robust and well-resourced information technology (IT) infrastructure and sufficient staff, both clinical and non-clinical.

2020 saw many positive developments as a result of the COVID-19 pandemic – rapid facilitation of home reporting of images, a national impetus for community diagnostic hubs that act as a one-stop shop for patients in a COVID-minimal environment and a greater appreciation of interventional radiology as a non-invasive alternative to open surgery. These developments must be built upon and sustained.

Being either an enabler or a rate limiting step for the entire health system, imaging and IR services are essential to meeting NHS Long term plan national ambitions, especially for cancer, stroke and, in the shorter term, recovery in the era of COVID-19.³

Enabling radiology to provide the best possible service will be achieved through:

1. **Maximising the workforce**
 - Increase training places and capacity to train
 - Facilitate and encourage skillmix
 - Enable overseas recruitment
 - Enhance the working environment
2. **Providing the tools necessary for optimum patient care**
 - Rolling, funded equipment replacement
 - Fund and support a robust, connected information technology (IT) infrastructure across the NHS
 - Continued review of the tariff system
3. **Supporting and nurturing new ways of working**
 - Considered and effective roll-out of the RDCs and CDHs
 - Supported integrated imaging networks
 - Enable clinical use of artificial intelligence (AI) and machine learning (ML)

Priority one: Maximising the radiology workforce

Imaging is central to the diagnosis and treatment of many NHS patients. Two in five patients attending the emergency department undergo an imaging examination.^{4,5} In the case of major trauma – the most common cause of death for those under 40 – three-quarters of these critically unwell patients are examined with computed tomography (CT).⁶ **24-hour cover with CT and magnetic resonance imaging (MRI) on site is not deliverable for all emergency departments with the resources currently available.** Imaging services that are adequately funded and resourced are essential to guarantee the best possible care for a huge proportion of NHS patients.

The current lack of radiologists has resulted in failures to meet National Institute for Health and Care Excellence (NICE) guidance in several pathways such as whole body myeloma MRI and

cardiac imaging.^{7,8} The current severe shortfall of 1,872 radiologists (33% of optimum staffing levels) is forecast to rise to an alarming 3,326 (43%) in the next five years.⁹ The Mike Richards report *Diagnostics: recovery and renewal* from October 2020 estimates that demand for CT is set to increase by 100% over the next five years.¹⁰

This staffing crisis is expensive. **In 2019, radiology departments spent an estimated £193 million on outsourcing to teleradiology companies, insourcing and the employment of ad hoc locums.**⁹ This is equivalent to the combined salaries of more than half the existing consultant clinical radiology workforce and would fund the current shortfall of posts.

In 2019, there was a shortfall of 36% compared to the optimum number of interventional radiologists across the UK. Trusts and health boards need a minimum of six (WTE) interventional radiologists to provide an effective and sustainable 24-hour IR service.¹¹ In 2019, almost half of trusts and health boards (45%, n=77) did not provide adequate IR services, with insufficient interventional radiologists on their rotas and/or no formal transfer arrangements for patients needing IR procedures. Mechanical thrombectomy is not universally available in the UK due to the shortage of interventional neuroradiologists despite NHS England stating that 8,000 patients in England alone would benefit from this life-saving procedure each year.^{12,13}

Evidence-based developments in cancer pathways are often not put into practice because the radiologist workforce needed to support improvements is not available, as seen with multiparametric MRI of the prostate.¹⁴ If diagnosed early, people have the best chance of curative treatment and long-term survival.¹⁵ However, in the UK we currently only diagnose just over half of patients at an early stage.¹⁶ The importance of this challenge is recognised by the UK Government through their NHS *Long term plan* commitment to detect 75% of cancers at an early stage by 2028.^{3,17} Appropriate diagnostic capacity is integral to achieving this goal.

The excessive workload causes stress in radiologists, which has contributed to increasing numbers of consultant radiologists leaving the profession in recent years. Between 2017 and

2018 approximately 200 consultant radiologists left the profession, equivalent to 6% of the UK workforce. Working conditions where more is expected from fewer people have shown a trend for high levels of burnout, bullying and harassment and absence due to stress.¹⁸ The average age of retirement of radiologists is falling year on year.

To ameliorate the shortfall and release necessary capacity, we need:

- Investment to boost training places to meet the forecast demand. We calculate that to address the entire shortfall of consultant clinical radiologists predicted by 2024 will cost approximately £1.5 billion.¹⁹ This estimate is comprised of £1.2 billion to boost training places (including an increase in year-six interventional radiology training places) and £251 million to support overseas recruitment. However, we recognise that this is unrealistic in the context of wider NHS pressures, including the system's capacity to offer training. To be more realistic, funding for a minimum of 60 additional NTN's per rising to 100 additional for the following three, would greatly improve the situation. Furthermore, it is crucial that IR year-six training numbers are increased by 50 per year until 2026.
- Sustained and targeted investment in the wider diagnostic team including radiographers, healthcare scientists, staff and associate grade (SAS grade) doctors, nurses and wider administrative support
- Better use of the workforce's skills and experience through facilitation of skillmix and a comfortable, inclusive working environment
- Expansion of IR day case services and control of their own beds with an adequate support workforce and equipment to bolster increased capacity, which would lead to significant savings when compared to theatre and the cost of inpatient stays
- Capacity to be released for staff to dedicate time to service improvement and research for the benefit of patients and efficient service delivery.

Priority two: Providing the tools necessary for optimum patient care

The UK has fewer scanners than the majority of comparative Organisation for Economic Co-operation and Development (OECD) countries.²⁰

The latest available OECD data show the UK has 9.4 CT scanners per million population while France has 18.2 and Germany has 35.3. For MRI scanners, the UK has 7.2 per million population, France has 15.4, and Germany has 34.7. Previous industry surveys have shown one-in-ten CT scanners and **nearly a third of MRI scanners in UK hospitals are technically obsolete as they are ten or more years old.**^{21,22}

The NHS' aging IT base is well-documented and a consistent source of lost time and productivity for clinicians. Earlier this year the Department of Health and Social Care committed to reducing staff log-in times. However, hundreds of thousands of **NHS computers continue to run on obsolete hardware and software,** are unable to receive information from other trusts and health boards and do not have integrated electronic patient records systems.^{23–25}

Payment by results tariffs are often not an accurate reflection of actual radiology activity, stifling innovation and inhibiting resource allocation.^{26,27} Current tariff prices do not always fairly recognise the workload forming a clinical episode, particularly in relation to imaging. For IR, applied tariffs vary depending on whether it is classed as 'outpatient' or 'day case', despite the procedure being identical. A continued review of the tariff system with more realistic resource costs and protocols for imaging and IR will be an invaluable lever to realising the full potential of the service.

We must ensure that patients have access to the right examination at the right time, underpinned by a fully functional IT infrastructure. To this end, we recommend:

- Full implementation of the NHSE/| *Transforming imaging services: equipment replacement programme* so that no equipment is over ten years old, and a 100% capacity increase in CT²⁸

- Recognition of the essential role played by modern IT and digital infrastructure in supporting service delivery and the need to commit to further investment if funding of the workforce and equipment is to be optimised
- A continued commitment to review and optimise the tariff system with relevant NHS bodies
- Roll-out of CDS supported by *iRefer* to enable clinicians to choose the correct tests for their patients in a rapidly evolving clinical environment.²⁹

Priority three: Supporting new ways of working

Community diagnostic hub (CDH) and rapid diagnostic centre (RDC) models are designed to expedite diagnoses and improve early access to testing across a range of services, including imaging, endoscopy and cardiology. If fully functional, they will relieve pressure on acute hospital departments and provide a platform for streamlined patient pathways. However, they need dedicated staff and equipment.

Imaging networks could better enable shared expertise, flexible job planning and remote reporting, all serving to offer universal access to crucial radiology services for patients.^{30,31} However, they need to be planned carefully with clinical input from the outset, supported by ring-fenced funding for set-up and sustainability. NHS England has outlined a strategy for establishing 18 networks by 2023 and baseline local provision is still being mapped.²⁸ Some trusts may be at a more advanced stage of interconnectivity and have access to the committed funding and staff time needed to procure and oversee image-sharing platforms, but others will not.

Appropriately streamlined diagnostic pathways, using recommendations from the *Getting it right first time* (GIRFT) programme in collaboration with NICE and devolved nation equivalents would ensure the most appropriate imaging investigations are used in all clinical scenarios, across all relevant healthcare settings.³² These could be augmented by a funded national roll-out of referral guidelines delivered in

clinical decision support software – such as *iRefer* – and wider implementation of the *Quality Standard for Imaging*.^{29,33} Development of new standards with different turnaround times for ‘emergency/acute diagnostics’ and ‘routine referrals’ should be rolled out.

Looking to the future, **if properly funded and regulated, digital technologies will yield significant benefits for both diagnostic and interventional radiology and cancer care.** Alongside broad use across NHS operations, such as supporting and streamlining patient pathways and appointment bookings, AI solutions have the potential to revolutionise clinicians’ workflow, automate low-skilled, time-consuming tasks and provide new insights into patient care and population health.

We recommend the DHSC and relevant NHS national bodies work to enable and enact the following:

- Effective roll-out of community diagnostic hubs/rapid diagnostic centres with the underpinning sustained funding for dedicated staff, premises and equipment
- Centralised funding and support of cloud-based image-sharing software and image-sharing platforms to support networks with funding of infrastructure, leadership and support staff
- Funding for trust and health board IT teams to provide and support home reporting for consultants and trainees
- National roll-out of *iRefer* and the *Quality Standard for Imaging*^{29,33}
- Expand and support the function of the *Accelerated access collaborative* to evaluate the latest digital advances in AI and ML to drive practical and rapid adoption across the NHS.³⁴


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