

HORIZON SCANNING

An evaluation of imaging capacity across the NHS in England

Written by 2020 Delivery

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Cancer Research UK is a Registered Charity in England and Wales
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Executive Summary

Around half of us will be diagnosed with cancer in our lifetimes.¹ There were around 280,000 new cancer diagnoses in England in 2013² and this is set to increase considerably as we live longer. Cancer survival is at its highest ever level, but the NHS in England is under considerable pressure. The '62-day wait' target - which states that 85% of cancer patients should receive treatment within 62 days of being urgently referred for suspected cancer by their GP - has now been breached for six consecutive quarters. This is indicative of pressures across the pathway - from seeing a specialist, to receiving a test, to getting results, and ultimately commencing treatment.

This rising demand for diagnostic tests, and subsequent pressure on services, means action is now needed. Cancer Research UK commissioned this research to understand the pressures facing imaging services in England and to identify solutions for addressing these issues. Addressing future demand and ensuring diagnostics can cope will be essential to improve cancer outcomes through early diagnosis. When cancer is diagnosed at an early stage, treatment options and chances of a full recovery are greater. Survival for some of the most common types of cancer is more than three times higher when the disease is diagnosed in its earlier stages¹.

Research Aims

The aims of this work were to model current and future demand for medical imaging, ascertain the barriers to meeting rising demand and determine how these can be overcome. We hope the findings of this work will influence national policy on imaging services, but also provide useful recommendations for actions that can be taken by commissioners and service providers to ensure imaging services are better equipped to deal with future demand. The intention is that this work will lead to better experience and outcomes, not just for people with (suspected) cancer, but for everyone who uses these services.

¹ Ten-year cancer survival by stage at diagnosis for the eight cancers (combined). Data for patients diagnosed in 1996-2000 in the Former Anglia Cancer Network area

The findings of this report were shared with the Independent Cancer Taskforce, to inform the recently published *Achieving World-Class Cancer Outcomes: a Strategy for England 2015-2020*. While this report shows a considerable gap between current capacity and demand for imaging services, if the Government and NHS bodies act to implement the recommendations of *Achieving World-Class Cancer Outcomes*, significant progress will be made towards delivering world class diagnostic services.

Findings

A number of challenges facing medical imaging services were identified through an evidence review, modelling and interviews:

- Imaging activity has been growing at nearly 6% per annum over the last ten years.
- It is likely that, in future, demand for MRI and CT will grow at 9% per annum or more².
- There is currently a lack of capacity to respond to this increasing demand.
- Workforce shortfalls are a crucial limiting factor to meeting rising demand, as workforce growth has not kept pace with increased activity. New projections suggest that there will be increasing shortfalls going forward.
- Equipment is also an issue as very few trusts have a planned, financially-supported approach to replacing or adding equipment.
- Some funding models can inhibit meeting future demand: funding on an activity basis was more helpful than a block contract to keep up with increasing demand.

Recommendations

Meeting rising demand

Imaging departments are struggling to keep up with increased demand, and this is only set to worsen as demand for imaging continues to grow. This has resulted in increasing numbers of patients waiting more than six weeks for their imaging examinations, evidence of substantial

² According NHS England figures, in 2013-14 there were 5.2m CT exams and 2.7m MRI exams. If current growth continues, in 2023-24 there would be 12.4m CT exams and 6.9m MRI exams

reporting backlogs and some Trusts making risk-based decisions not to report particular types of imaging examinations (for example, certain outpatient and sometimes inpatient plain X-ray studies).

Growth in MRI and CT use is clinically appropriate and inevitable, but local practice in the NHS has been to try to manage demand and hold activity flat. This has been counter-productive as activity growth has happened anyway and it has meant that Trusts have not been able to plan for activity growth in the most productive way.

Our research suggested that Trusts which fund their imaging departments on an activity basis – rather than on block contracts – have less difficulty in keeping up with demand as the funding enables steps to be taken to meet it.

- 1. The Government should increase investment in diagnostic services as set out in *Achieving World-Class Cancer Outcomes*, to ensure the NHS can meet rising demand and contribute to our cancer outcomes equalling the best in the world. Investment in diagnostics also has the potential to avert treatments costs later in the patient pathway. For imaging specifically, investment will be needed to train new members of the workforce, replace ageing equipment and buy additional new scanners.**
- 2. Commissioners should work with provider organisations to develop clear, funded plans that will deliver the capacity for the predicted increase in demand.**
- 3. Trusts should move to a budget system for imaging services that reflects changes in activity and funds it accordingly, based on the tariff, in particular for outpatient and GP direct access scans.**

Workforce

Over the last ten years there has been significant workforce growth of both diagnostic radiographers and radiologists. However, over the last five years, workforce capacity has not kept pace with the rate of growth in activity. This gap is evidenced by high vacancy rates across diagnostic radiographers, sonographers and radiologists, high amounts of overtime working, high expenditure on outsourced reporting and high prices for agency staff and locums.

In addition, the Royal College of Radiologists (RCR) reports that the UK has a low number of radiologists compared to our European counterparts. The UK has 48 radiologists per million population while Germany has 92, Spain has 112 and France has 130.³

The projections for the supply and demand of diagnostic radiographers and consultant radiologists produced for this report differ from those previously produced by Health Education England and indicate a likelihood that – based on current rates of training and attrition from training – shortfalls in the number of imaging staff will increase. The RCR workforce census indicates an even bigger shortfall than identified in this report.

- 4. Health Education England should conduct strategic planning around workforce at the national level, and be based on accurate modelling³. Health Education England and NHS England should work together to increase the number of places on radiographer training programmes, increase the number of places in radiologist specialist training and implement run-through programmes for sonographers⁴. Local Education and Training Boards should project demand for workforce using the expected growth in demand for imaging activity.**
- 5. Health Education England⁵ should implement a short-term international recruitment effort for sonographers, radiographers and radiologists as the only measure that can credibly reduce vacancy rates in the time before**

³ As stated in *Achieving World-Class Cancer Outcomes* (recommendations 83 and 84).

⁴ Figures for radiographers do not allow for accurate quantification of the number of places required. In order to reduce the gap between supply and demand, radiologist training places should increase at the same rate as demand growth, and in addition there should be 50 additional places per year for 3 years, beginning in 2016/17. Note that this is also factors in the 30 additional places for the preceding 3 years.

⁵ As per recommendation 85 in *Achieving World-Class Cancer Outcomes*.

increased training takes effect⁶.

- 6. Health Education England and the Society and College of Radiographers should work together to focus on reducing attrition rates from radiography degree courses.**

Effectiveness and Productivity

All Trusts visited for this project had moved towards extended-day and weekend scanning for MRI and in many cases CT. For MRI, the most common scenario is 8am-8pm scanning on weekdays, plus eight-hour days at weekends. This suggests there is little room for increasing the hours of operation. Trusts that have not achieved such extensive scanning hours identify staff shortage as the main constraint. Many Trusts have reached their MRI equipment capacity and are using independent sector scanners to make up the shortfall. Visits identified variation in the use of skill-mix in plain film reporting and releasing radiographers from tasks that could be done by healthcare assistants.

There is evidence that the level of surveillance scanning, i.e. scanning of patients following treatment, varies across the country. However it is not clear what the appropriate level of surveillance is, so there is a possibility that surveillance could be reduced, freeing up capacity.

- 7. Health Education England and the Society and College of Radiographers, in collaboration with the Royal College of Radiologists, should develop and publicise the career framework for radiographers and sonographers.**
- 8. NHS England should undertake an assessment of the national spend on overtime and locums versus investing in full time NHS staff, as well as the recent initiative to clamp down on the cost of paying agency staff, and the impact of this on overall value for money.**
- 9. NHS imaging providers, with support from NHS England and the Royal College of Radiologists, should develop 'imaging**

networks' to provide patients with appropriate support.

- 10. NHS England, supported by the Royal College of Radiologists, and as part of the Living With and Beyond Cancer programme, should develop clear, nationally evidence-based protocols for follow-up and surveillance scanning for appropriate cancers. NHS England should support its implementation in practice⁷.**

Equipment

Imaging equipment within CT and MRI is also a significant problem, albeit to a lesser extent than workforce. Prices for CT and MRI equipment have reduced over time, but Trusts continue to struggle with old equipment and progressing business cases for new equipment. Very few Trusts have a planned, financially supported approach to the replacement of existing equipment, or to expanding their number of scanners. As a result, many departments are working with equipment that is much older than the recommended seven years, for extended hours.

The UK has a very low number of CT and MRI scanners as compared with other OECD countries, with around 9 CT scanners and 7 MRI scanners per million population. Germany has 19 CT and 11 MRI, Spain has 17 CT and 15 MRI and France has 14 CT and 9 MRI per million population.⁴

- 11. NHS England should implement a long-term plan for replacing ageing machinery on a rolling basis, including earmarking national funding for new MRI and CT equipment and procure this at the national level. This should also include producing regular projections for England's future equipment needs based on accurate modelling of rising demand.**

A Patient-centred service

Our field research revealed strong support for a proactive approach to patients having access to the reports of their imaging studies. This is in line with the government's aim of shared decision making in health ('No decision about me, without me') and is supported by similar work of Cancer

⁶ Using the current vacancy rate as a proxy for the gap between supply and demand, figures show the current national shortfall in radiologists to be 290 WTE.

⁷ As per recommendations 67 and 68 of the Taskforce report which requires stratified follow-up pathways for some cancers and further research.

Research UK and Public Health England which demonstrates that patients want access to all the records of their care. One example of an existing project that achieves this is the 'Patient Portal'⁸, an initiative developed by the National Cancer Registration Service in partnership with brainstrust and Cancer Research UK, which gives patients with cancer or a brain tumour access to their pathology and imaging reports as well as a record of their treatment.

People enter diagnostic services via different routes and for different reasons. The majority of NHS Trust imaging departments have to balance their resources to support three overlapping but relatively distinct patient pathways:

- Emergency and inpatient care
- Cancer care
- Planned and community care

Where departments try to deliver such services, there are trade-offs of resources, which predominantly disadvantage the planned and community care pathway. New approaches to and 'streaming' of these pathways may be needed, including delivery in the community through innovative models, including multi-disciplinary diagnostic centres.

12. Services should be supported to deliver a strategy to ensure patients are at the heart of their care and can access the reports of their imaging tests should they wish to do so, as per recommendation 57 of the Taskforce report.

13. Acute providers should develop integrated systems that link the requesting acquisition and reporting of imaging tests to the patient pathway with clear information to the patient.

14. Acute providers should develop plans to approach delivery of diagnostics in new and innovative ways to meet the needs of people who may be on different patient pathways.



⁸ <https://portal.myregistry.org.uk/>