

Media Brief | March 2019



Key issues in clinical radiology

What is clinical radiology?

Clinical radiology is the use of medical imaging techniques to diagnose, treat and monitor diseases and injuries.

X-rays scanning was the first type of diagnostic imaging, developed following the discovery of X-rays in 1895. Today radiologists use a wide range of imaging methods, including ultrasound, computed tomography, magnetic resonance imaging, positron emission tomography and molecular imaging techniques.

Between March 2017-2018, [NHS hospitals in England performed 42.7 million imaging tests](#), including 22.9 million X-rays and 9.51 million ultrasounds.

What does a clinical radiologist do?

A clinical radiologist is a specialist doctor who uses their expert training in imaging to detect and diagnose disease and injury in patients who have been referred for diagnostic scans or are being scanned in an emergency.

Beyond reading scans, radiologists also run patient clinics, take biopsy samples and prepare patients for surgery, as well as using real-time imaging to perform minimally invasive surgery, called interventional radiology.

Radiologists tend to have an area of personal interest in a particular aspect of care, becoming experts in areas such as musculoskeletal, breast, cardiac, paediatric and gastrointestinal imaging. They can also work as “generalists”, meaning they work on all types of hospital imaging, as well as doing some interventional work.

What is interventional radiology?

Interventional radiology (IR) refers to minimally invasive, image-guided medical treatments. Procedures use real-time imaging techniques, including X-rays and ultrasound, to guide the operator.

Where available, IR can be used as a quicker and safer alternative to many types of traditional surgery, resulting in better outcomes for patients and shorter stays in hospital.

Many IR procedures are life-saving or life-altering. They can be used to remove the blood clot causing a stroke, drain organs with potentially deadly infections or stop severe, life-threatening bleeding caused by a variety of conditions. These include trauma injuries,

internal haemorrhages and problems during childbirth.

Important non-emergency treatments include procedures to destroy cancer tumours, open narrow or blocked arteries and treat painful uterine fibroids.

How important are good imaging and interventional radiology services?

Fast, accurate diagnosis using imaging techniques and interventional radiology can speed up treatment, prevent or reduce hospital stays and save the NHS money.

Radiology services should be available 24 hours a day to deal with emergency cases. However, in 2017 only [1 in 7 UK trusts and health boards had sufficient staff to operate effective and sustainable IR services](#).

How do you become a radiologist?

It takes at least 12 years to become a fully-qualified consultant radiologist in the UK.

After qualifying from medical school (usually a five-year degree), doctors do two years of foundation training in hospitals before training as a general practitioner or a specialist consultant.

If a trainee chooses to specialise in radiology, they then complete five years of specialist training and exams, set by The Royal College of Radiologists, to become dedicated clinical radiology consultants.

What is the difference between a radiologist and a radiographer?

Radiologists and radiographers both work in medical imaging, and the two professions work as a team on a daily basis.

Radiographers are degree-qualified allied health professionals who specialise in taking diagnostic scans.

Radiologists are doctors who use images to diagnose, treat and manage medical conditions and diseases. Clinical radiology is a medical specialism and a radiologist must have a medical degree and undergo specialised training before they are fully-qualified.

What is the workforce crisis in UK radiology?

The massive growth in the use of medical imaging and interventional techniques has resulted in a huge gap between demand and the supply of radiologists in the UK.

As of September 2017 there were 3,656 consultant clinical radiologists working in the NHS - the equivalent of 3,390 full-time doctors.

According to the RCR's [2017 Clinical Radiology UK Workforce Census](#), the UK currently needs another 1,004 full-time diagnostic radiologists to be able to keep up with scanning workload, and this is set to increase to at least 1,610 by 2022.

Demand for radiology services has also been increasing due to a growing and aging population, expanding screening programmes and higher demand for interventional

radiology. Growth in demand has been particularly high for time-consuming complex imaging. These pressures on radiology services are expected to increase.

Last year, shortages resulted in NHS hospitals across the UK spending £116m on outsourcing scans and related overtime - enough to cover the shortfall and pay for approximately 1,300 full-time consultant radiologists.

Similarly, previous forecasts for interventional radiology show that we are nearly [50 per cent short of the number of interventional radiologists](#) needed to run safe 24/7 services.

What will happen if we do not increase UK radiologist numbers?

Workforce shortages can result in delays in diagnosis and may even result in missed diagnoses. A shortage of interventional radiologists also limits access to life-saving and life-altering interventional radiology treatments, as was seen with a [lack of access to stroke thrombectomy procedures in Scotland in 2018](#).

The [NHS England Long Term Plan](#) relies heavily on diagnostic services and details a number of initiatives set to impact on radiologists in English hospitals over the coming decade, from the introduction of rapid diagnostic clinics and increased lung screening, to the nationwide rollout of interventional radiology techniques to combat strokes. However, these ambitions [will not be possible without more radiologists](#).

NHS imaging departments are spending £116m a year outsourcing scans – as scan workload is only set to increase, without more radiologists outsourcing costs will continue to rise.

While some diagnostic tasks can be delegated to other radiology team members or artificial intelligence, there are some jobs that only a consultant radiologist can do, such as reporting on complex imaging and performing interventional radiology procedures.

What needs to happen to improve the situation?

To improve things there needs to be more training places for budding radiologists.

There are almost four applicants for every radiology training place, demonstrating that UK doctors want to become radiologists but there are not enough training places available to teach them.

Increases in training places also must be supported by increases in the wider imaging workforce, including radiographers, sonographers, medical physicists, radiology nurses and others, as well as sustained investment in modern equipment.

What is the future of radiology?

Molecular imaging and genomics are growing areas of radiology. [Molecular imaging](#) allows biological processes within the body to be viewed at a cellular and molecular level. These techniques allow doctors to detect diseases at the earliest stages and can be used to diagnose and manage many different diseases and conditions. [Genomics](#) is the study of the body's genes, their functions and their influence on the growth, development and working of the body. These new forms of diagnostics will revolutionise radiology and wider healthcare,

allowing doctors to predict and more accurately diagnosis disease and to develop personalised treatments.

Artificial intelligence (AI) will also have an important role to play in the future of radiology. [AI will become part of radiologists' daily practice](#), helping clinicians improve efficiency and diagnostic capacity. AI has the potential to sift through a huge quantity of imaging data in seconds, assisting radiologists by helping to prioritise worklists and diagnoses. This in turn will give radiologists more time for direct patient care and vital research. As AI develops, its role in radiology will become more widespread and important.

Demands for interventional radiology procedures are growing year-on-year across the UK and we will need to train more doctors in interventional techniques. For example, the NHS England Long Term Plan has ambitious aims to expand the provision of stroke thrombectomy and the National Institute for Health and Care Excellence now recommends [artery embolisation for men with enlarged prostates](#) – both types of procedure depend on hospitals having enough interventional radiologists.

In many ways, the future of diagnostic and interventional radiology for patients will depend on whether the workforce crisis can be resolved. Without a sufficient workforce of clinical radiologists and other team members it will be difficult to effectively roll out these developments, or even maintain current standards of care.

For more information, comment and interviews on the latest issues in diagnosing disease and in cancer treatment, please contact our Communications Team on media@rcr.ac.uk / 020 7406 5941 (Out of office hours please call 07554 998197). You can also follow us on Twitter @RCRadiologists