Current and Future Roles of Diagnostic Radiographers

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SoR
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Diagnostic radiographers provide a range of types of diagnostic imaging to enable screening services and imaging for the diagnoses of diseases and trauma, and to facilitate treatments that include curative, palliative, ongoing imaging surveillance, end of life interventions, and care and forensic investigations.

Diagnostic radiographers collectively examine and treat thousands of people across the UK each day.

Current roles

In the UK, diagnostic radiographers are the largest workforce in clinical imaging (radiology) departments. They are the Health and Care Professions Council (HCPC) registered professionals who work directly on the front line with patients, families, carers and service users. The roles that they carry out vary according to local need.

Diagnostic radiographers who work in healthcare organisations must therefore perform a range of roles each day, including the following:

- Provide patients, service users and families with information and support, including benefit and risk conversations to facilitate fully informed consent or withdrawal of consent.
- Work with patients, service users and families to facilitate and acquire imaging and/or provide an immediate preliminary or definitive clinical report for images.
- Manage the local environment and or wider services.
- Provide quality control and quality assurance.
- Lead, teach, train, supervise and mentor others.
- Enable audits, service evaluation, service improvements and innovations.
- Undertake clinical trials and/or primary research projects.
- Undertake a public health system role for radiation protection and safety, as defined by their responsibilities as a duty holder under Ionising Radiation (Medical Exposure) Regulations 2017 and the Ionising Radiations Regulations 2017.

Patients, families, and carers are at the centre of these services, surrounded by frontline radiographers and the clinical imaging workforce, including support workers, assistant practitioners, volunteers, students, administration staff, imaging department nurses and porters.

Diagnostic radiography teams, places and pressures

Diagnostic radiography team members typically include imaging assistants/support workers, assistant practitioners, pre-registration students, diagnostic radiographers, sonographers, nuclear medicine technologists, radiology nurses, porters and administration staff. Diagnostic radiographers may seek advice from the wider imaging team of physicists, dosimetrist, and radiologists.

Diagnostic radiographers regularly liaise with teams from orthopaedic surgery, emergency medicine, neurology, neurosurgery, general practice, hospital wards, outpatient clinics and oncology departments, among others. These are essential interactions, particularly for the smooth running of 'red flag' patient pathways.

Diagnostic radiographers also work beyond the setting of clinical imaging departments with multi-professional colleagues, particularly undertaking mobile work in emergency departments, cardiology, resuscitation, theatres, intensive care, wards, care homes and mortuaries.

Clinical imaging departments are often managed by clinically qualified radiographers who take on management roles. As a result of service reconfiguration and modernisation, diagnostic radiographers also manage and staff static community diagnostic centres, integrated care centres1 and mobile screening and imaging services tailored to meet the needs of local populations. A 2020 review of diagnostic capacity in England commissioned by NHS England called for a new diagnostic model and significant reform with requirements for new equipment and facilities.[2]

The NHS England review report makes specific recommendations with respect to radiography teams:

> Recommendation 12: There should be a major expansion in the imaging workforce – an additional 2,000 radiologists and 4,000 radiographers (including advanced practitioner radiographers, who undertake reporting) as well as other support staff and 'navigator' roles. Additional training places should be provided for radiologists and radiographers and initiatives will be needed to meet demand, as well as expansion in assistant practitioner and support staff roles.[2]
>
> Recommendation 13: There should be an increase in advanced practitioner radiographer roles, including for reporting of plain X-rays (to a minimum of 50%); and expansion of assistant practitioner roles to take on work currently undertaken by radiographers.[2]

The radiography workforce is pivotal in delivering timely, efficient, and reliable clinical imaging examinations while liaising with referrers and caring for people who are often worried and anxious. To do that effectively, diagnostic radiographers efficiently lead radiography teams and delegate duties while working under pressure and maintaining high levels of patient service and care. They are required to do so while managing the clinical acuity of each patient in relation to available staffing and resources.

The prioritisation of services according to the availability of equipment and staff, along with high volumes of demand and the time-sensitive clinical acuity of extremely ill patients, can be stressful, placing a range of pressures on diagnostic radiographers.

Person-centred care

Alongside ensuring evidence-based practice and safe services, diagnostic radiographers select and tailor their skills, methods and approaches according to the needs of each patient; they provide person-centred care. A range of approaches may be required, including the ability to empower people in shared decision making, acting as a patient advocate or to undertake time-sensitive safeguarding duties and raise alerts. Cross-organisational working is necessary in those cases.

Diagnostic radiographers are therefore the people who directly care for people and are the interface between technology and human in clinical imaging; they are the faces that patients and families remember.

The interface between technology and people: range of knowledge required

Diagnostic radiographers use science and employ technology to support the health and wellbeing of local populations from before birth to after death. To ensure that each patient and family does experience person-centred care, diagnostic radiographers must therefore understand a vast range of clinical presentations and patient pathways. That depth of understanding is essential to support each patient's biopsychosocial needs, to ensure that consent to imaging is fully informed and care is individualised, and to have the breadth of understanding to direct or redirect pathways across the whole range of trauma and pathologies. At the same time, they must fulfil their radiation protection responsibilities and duties for each person and for each other.

Diagnostic radiographer training therefore must be expansive to work with the UK nations' populations, not just across their life course but beyond it. For example, at one end of the spectrum of life they undertake ultrasound imaging for people in fertility clinics before and during pregnancy, and at the other undertake forensic imaging work, which includes the investigation of suspected physical abuse or post-mortem imaging for a person after they have died.

> **The demands placed upon diagnostic radiographers and the range of skills that they use each day are both hard to comprehend and easy to underestimate.**

Diagnostic radiographer regulation, professional body and scope of practice

Diagnostic radiographers are allied health professionals (AHPs), a group of 15 professions regulated by a statutory body, the HCPC. The term diagnostic radiographer is a protected title.

For initial registration with the HCPC, diagnostic radiographers must have completed either an HCPC-approved BSc (Hons), an MSc programme or the equivalent in a relevant radiography course. This pre-registration training includes their time at university and a large proportion (generally around 50%) of training spent on clinical placement, working directly with patients. Diagnostic

radiographers may then progress to complete a range of relevant master's degree and doctoral level awards supporting higher levels of professional practice at enhanced, advanced and consultant levels.

To maintain registration with the HCPC, diagnostic radiographers must continue to meet HCPC standards and undertake reflective learning through continuing professional development (CPD) each year to demonstrate their competence to perform within their scope of practice. Each registrant must also be covered by personal indemnity insurance as a requirement of the registration renewal process, which takes place every two years. Diagnostic radiographers must pay a fee to the HCPC for their registration. Healthcare organisation employers in the UK require all diagnostic radiographers to have that registration.

The Society of Radiographers (SoR) is the professional body for diagnostic radiographers. SoR defines the scope of practice for members by stating that it sees no boundaries to professional practice in clinical imaging provided that a radiographer practitioner is sufficiently trained and educated, with underpinning knowledge, skills and proven competencies, and regular audit of practice and written agreement from their employer. Together with the College of Radiographers (CoR), the SoR produces guidance for radiographers to support scope of practice and potential development and improvement in the care of the people who visit clinical imaging departments.

Requirements for diagnostic radiographer research, service evaluation, quality improvement and audit

SoR regards research as a key component in processes to support all evolving or changing scopes of practice, to enhance services for people, and to develop innovative technologies. For radiographers, research is essential to both provide an up-to-date evidence base and ensure that it is in use by the profession. Development of research skills is a requirement at registration level.

For assurance that scope of practice is safe, it must be based on evidence; radiographers must therefore participate in regular and timely lifelong learning, continuing professional development (CPD), research, service evaluation, quality improvement and audit, which are necessary for the benefit of patients, their families, and all members of the radiography team in clinical imaging. A 2021 report by the Parliamentary and Health Service Ombudsman[3] urges all NHS-funded providers that have a radiology service to provide staff working in those services with sufficient allocated time in their job plans for meaningful learning and reflection.

Diagnostic radiographer career pathways

The CoR Education and Career Framework (ECF) includes standards for support workers, assistant practitioners and registered diagnostic radiographer practitioners. The ECF supports the development of pre-registration programmes and assists clinical imaging staff, including registered radiographers, to plan onward education and careers according to the needs of local departments and populations, alongside the interests, skills, and capabilities of each individual. The career pathways are conceived on a continuum, from support worker to assistant practitioner, followed by initial HCPC registration through to enhanced practice radiographer, advanced practice radiographer and, eventually, consultant radiographer level for those people who wish to develop their clinical

expertise across patient pathways and lead strategically. Diagnostic radiographers may also choose to employ their skills in education and research roles in higher education, in leadership and service management roles in local organisations, or in national roles and healthcare policy bodies.

Multiprofessional AHP frameworks for the UK devolved nations complement the CoR Education and Career Framework. There is an expectation outlined in all the frameworks that diagnostic radiographers working at advanced level will achieve at least master's (level 7) training and awards and that consultant radiographers will achieve doctoral (level 8) training and awards. Level 7 and 8 training and education support advanced and consultant radiographer practice, which consists of four core domains: clinical practice; leadership, management and consultancy; education; and research. For an example career trajectory, see Figure 1 below.

Figure 1: Example of diagnostic career trajectory. To enlarge the image, please see here.

Future roles of diagnostic radiographers

Growing use of artificial intelligence and machine algorithms in this highly technologically enabled profession will provide diagnostic radiographers with greater time to care for people.

Diagnostic radiographers will enable informed and shared decision making, fulfil duties associated with public health, community referral/social prescribing, work to reduce health inequalities, and increase community access to health and wellbeing for the populations they serve.

As the needs of people in society and healthcare evolve, with a progressive move to not just treating illness but keeping people mentally and physically well, the future roles of diagnostic radiographers will also need to grow. SoR expects that a shift of emphasis from simply diagnosis and treatment to screening, prediction, prevention, diagnosis and treatment will shape the way that diagnostic radiographer roles are employed in the future.

Research has demonstrated that when enhanced, advanced and consultant diagnostic radiographers include clinical reporting in their roles then this is a cost-effective service development that improves patient outcomes.[4–9] Radiographers have streamlined a range of diagnostic pathways including, for example, lung cancer diagnosis and emergency care services.[4,7] Diagnostic radiographers as a profession are regarded as pivotal in the implementation and success of community diagnostic centres.[2]

Given the wide range of knowledge, skills, and competencies that diagnostic radiographers have proved they are capable of, combining and using them in clinical practice every day (for example, see Figure 1 above), they are well placed to progress services and adapt to changing healthcare needs. Diagnostic radiographers know patient journeys intimately; they understand multiple routes across healthcare, interact with multiple teams, and are in a strategic position to manage care across those diagnostic pathways. SoR expects that the growing use of machine algorithms (artificial intelligence) in this highly technologically enabled profession will provide diagnostic radiographers with more time to care for people, enable informed and shared decision making, fulfil duties associated with public health and community referral/social prescribing, and work to reduce health inequalities for the populations that they serve. The goals of operational optimisation together with the diagnostic radiographer's humanisation of technology and care will remain central to services but with new focus.

For example, this ethos of healthcare and wellbeing is currently travelling in the direction of community diagnostic centres in England. This is an exciting time for advanced and consultant radiographers who have long honed their skills, knowledge and capabilities in secondary care settings but more rarely in community and integrated care centres. They are well placed to transfer and expand their services to ensure no person should anxiously wait for weeks or months for their imaging, results and treatment. Diagnostic radiographers can progress work with multidisciplinary teams and colleagues to revolutionise these centres. With planning and foresight, radiographers are well placed to lead the specific patient care journeys for which these centres will become essential; to provide 'one stop' diagnostic screening, prediction, prevention, imaging, diagnosis, and treatment services. This will truly enable diagnostic radiographers and AHP colleagues to work to their full potential.

Diagnostic radiographers know patient journeys intimately. They understand the requirements and needs of multiple health conditions and routes across healthcare. They interact with multiple teams, patients, carers and families.

Advanced and consultant radiographers are therefore in a strong position to make decisions and facilitate and manage same-day care across the diagnostic pathways of community diagnostic centres.

Summary current and future roles of radiographers

Diagnostic radiography has a long history of changing and evolving practice. With the introduction of new modalities and technologies in clinical imaging – for example, ultrasound, computed tomography (CT), nuclear medicine, magnetic resonance imaging, computed radiography, positron emission tomography–computed tomography and digital radiography – diagnostic radiographers have proved flexible and able to learn new skills and competencies. That flexible and agile approach, along with extensions to scope of practice and service redesign, mean that there is a comprehensive evidence base to demonstrate that there are multiple benefits of radiographer enhanced, advanced and consultant practice to healthcare.

There are currently large waiting lists to access cancer treatment[10] and elective care[11] where imaging services are crucial[3]. Demand has been increasing by around 4% a year for most modalities, whereas demand for CT is likely to increase by at least 100% over the next five years.[2]

Clearly, the professionals who work in clinical imaging are under pressure, with a pressing need to increase workforce numbers. The CoR Education and Career Framework demonstrates how individuals may progress from support worker and assistant practitioner level roles to registration with the HCPC following suitable degree-level qualification (see Figure 2 below).

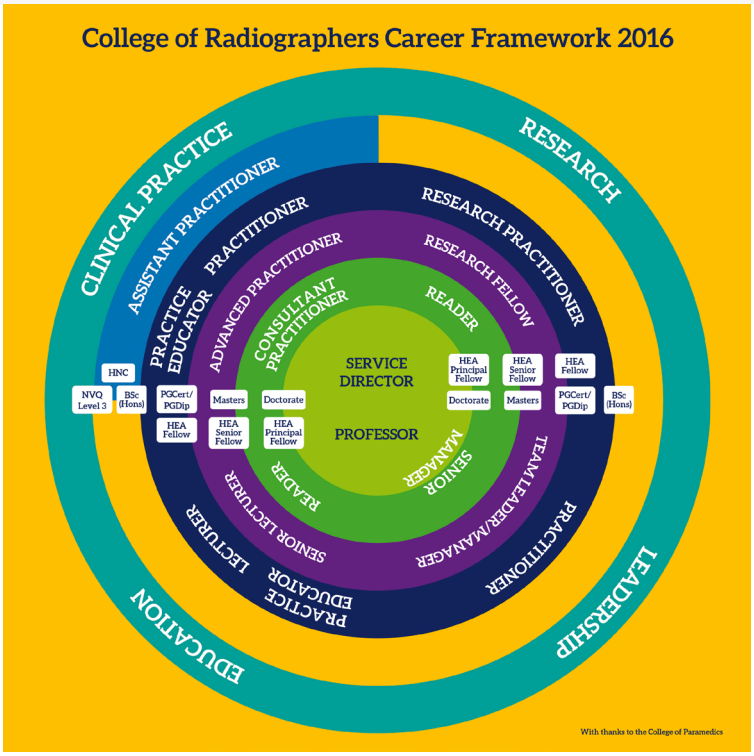

Figure 2: College of Radiographers Career Framework | www.sor.org/career-progression

Consequently, these careers escalation routes, together with an additional anticipated major expansion of the imaging workforce[2], will aid the recruitment, retention, and career progression of crucial imaging staff.

The impact that diagnostic radiographers have on the care of patients is immense, yet perhaps currently underestimated and not realised to its full potential. Recommendation 18 of the

independent review of diagnostic services carried out for NHS England[2] is that alongside the necessary expansion of key professional groups, all relevant organisations should work together to deliver changes in the diagnostics workforce, with a particular emphasis given to driving skill-mix initiatives across the whole country. This will require concerted action at team, NHS trust and network levels.[2] SoR will explore and support those actions because, ultimately, the current and future roles and skills of diagnostic radiographers are essential to lead and manage redesigned and better diagnostic services for patients, families and carers.

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