Workforce and Education Needs: Scoping the Enhanced, Advanced and Radiography Consultant Challenges and opportunities (WE-SEARCH)

This work was commissioned and funded by NHS England.

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FINAL REPORT
March 2025

NHS England

SoR THE SOCIETY OF RADIOGRAPHERS

UNIVERSITY of BRADFORD

Sheffield Hallam University

Contents

Executive Summary 3
Background 4
Project plan 7
Education scoping 7
Clinical scoping 8
Gap analysis 9
Study assurances 9
Overview of the project plan and deliverables 10
Outcomes 11
Education Provision 11
Clinical scoping 17
Gap analysis 21
Recommendations 25
Limitations 27
Dissemination 27
Acknowledgements 28
References 28

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This work was commissioned and funded by NHS England (NHSE) and is part of a commissioned programme of work led by the Society of Radiographers

Executive Summary

The Workforce and Education needs - Scoping the Enhanced, Advanced and Radiography Consultant cHallenges and opportunities (WE-SEARCH) project was undertaken by a collaborative team from the University of Bradford (UoB) and Sheffield Hallam University (SHU). It sought to identify current and future service needs including workforce expectations and review whether present, and planned, academic provision is fit for purpose.

Objectives

1. Scope current and future service need in clinical radiography (diagnostic and therapeutic) relating to enhanced, advanced and consultant level practice.
2. Scope current postgraduate education, including recognition of prior learning, for enhanced, advanced and consultant level practice in radiography.
3. Determine future business plans across regions to develop services and thus emerging workforce needs.
4. Identify gaps between service need and education provision.

Deliverable

Key outcomes include:

- Mapping of postgraduate provision in radiography against levels of practice
- Identification of any challenges to provision including viability
- Workforce development needs and perspectives on current provision
- Gap analysis to identify any mismatch between service need and education offer
- Recommendations arising from the work

Conclusions

Continuing increased demand for imaging and oncology services underpins the need for growth in radiographer numbers at all levels of practice. Alongside expanded clinically focussed development, the requirement for research, leadership and educator skills were identified together with an emerging informatics need. Although some key risks were identified, clinical education provision is available for most speciality areas, however some regional challenges are identified. There are limited postgraduate programmes meeting the wider needs of advanced level practice and importantly preparation for consultant level practice is a critical gap.

Background

Radiographers work across, and beyond, the human lifespan and are one of the collective Allied Health Professions (AHPs). Regulated by the Health and Care Professions (HCPC) they work within the multiprofessional team to diagnose and treat disease as well as in wider healthcare roles.

Demand

Demand for diagnostic imaging and radiotherapy services is increasing, partly driven by population health needs and treatment developments, but also by technological advances.[1-4] The impact of the COVID-19 pandemic has been significant, with well-publicised backlogs, particularly in relation to diagnostic imaging. However, despite significant investment and work on addressing the capacity shortfall demand continues to outstrip supply across the sector. There is regional variation, both in referral patterns and challenges across diagnosis and treatment[5,6] however, the overall trend towards increasing activity remains and is expected to continue.

Workforce

The National Health Service (NHS) remains the largest employer within Europe,[7] with workforce representing its greatest cost and this is expected to grow with ambitious plans.[8] However, there are also a number of radiographers working outside the NHS for independent sector and private providers, some of whom supply care to NHS patients. National and regional network strategies have identified workforce as a key priority.[9-15] Alongside the medical, nursing and support workforce across diagnostic imaging and radiotherapy there is an acknowledged need to urgently increase the number of radiographers to maintain capacity and support an effective skill mix. However, there is an acknowledged need for time to be allocated within the clinical imaging and radiotherapy settings to enable staff development,[2] but this remains a challenge in the current climate.

Diagnostic radiography

A key theme across the national workforce strategies is the expansion of the diagnostic radiography workforce, including a focus on ethical international recruitment.[9-12] Radiographers have been performing and interpreting imaging investigations for decades and there is a clear ambition that this will continue and be further embedded into delivery models and workforce structures.[9-11,16] requires a ‘pipeline’ of radiographers to enable the

aspirations of many regions to expand the scope of radiographers within the clinical workplace.

Therapeutic radiography

Although the size of the therapeutic radiographer workforce is significantly smaller than its diagnostic counterpart the challenges are no less complex.[17] As well as the need to expand the workforce there is also opportunity to expand their contribution to cancer care.[18,19]

Advancing practice

From its initial inception as a profession radiography has extended the scope of practice and embraced new skills. Underpinned by national and profession-specific career frameworks[20-24] radiography has continued to develop new capabilities and roles to support the optimal care for patients and deliver effective services. It is also recognised that the advancing practice strategy for AHPs in Wales excludes radiography, which is defined as a healthcare science profession. National reports have signalled the need to increase the number of radiographers working in advanced[16] and consultant practitioner roles as well as specialist (enhanced) posts. Some of these publications do refer to clinical functions, e.g. sonographer, reporting radiographer, treatment review, rather than a level of practice, which is confusing both for practitioners, managers and education providers.

Additionally, there is recognised challenge in defining and implementing career structures in practice and ongoing confusion in professional expectations.[25] There are now clear standards which underpin the educational preparation for, and capabilities at, the enhanced, advanced and consultant levels of practice, collectively termed advancing practice. However, despite the enhanced level being represented in the latest edition of the College of Radiographers (CoR) *Education and Career Framework* (ECF),[20] and in the *Career and Progression Framework for Sonographers*[26] published by the British Medical Ultrasound Society, work on embedding this into clinical practice and academic programmes has been most evident within England.[27]

Key within the radiography workforce, and particularly in the advancing practice space is the development of capabilities across the four pillars, or domains, of practice: clinical, education, leadership and research, as outlined in the ECF.[20]

Education expectations

With three decades since the move to degree qualification, radiographers have transitioned to the challenge of postgraduate study,[28] and a plethora of academic programmes have emerged across the UK to underpin clinical career progression. These have supported the development of knowledge and expand clinical skills and with this have also demonstrated a positive impact on individuals and service delivery.[29] It is recognised that there are level 7 (postgraduate) pre-registration programmes in radiography, however this report will use the term *postgraduate* to describe post-registration provision only.

There are both intrinsic and extrinsic factors influencing the decision of radiographers to pursue postgraduate study[30] and the financial aspects are a key factor alongside course availability.[31] Advancing practice is expected to be underpinned by formal education with the expectation to achieve a postgraduate certificate (PgC) or postgraduate diploma (PgD) to meet the enhanced level[27] and a master's degree at the advanced level.[20] In addition, the consultant is expected to work at doctoral level,[20] although there is acknowledgement of the limited doctoral opportunities within the profession.[32]

A small number of cohesive practice standards exist across different professional groups involved with diagnostic imaging and radiotherapy, namely the reporting standards for musculoskeletal[33] and chest[34] radiographs and more recently the non-surgical oncology framework.[35] However, awareness of the training requirements for advanced practice is needed,[36] particularly amongst individual practitioners, their workplace and the education provider. As such, it is essential that clinical services work with education providers to ensure academic provision is fit for purpose, as well as meeting the needs of the current and future workforce.[13] Further, the CoR has a role through its Approval and Accreditation Board (AAB) in assuring educational standards.

Rationale for the Project

Radiography is well-placed to provide a contribution to the diagnostic imaging and radiotherapy services. Roles at the enhanced, advanced and consultant level in radiography are required to support service delivery and capacity expansion. The profession must evidence competency and credibility at these levels, with clear capability expectations underpinned by quality education programmes. However, it is currently unclear whether the current postgraduate education provision meets the needs of clinical services or emerging demands related to workforce developments and this project aims to fill this knowledge gap.

Project plan

Through a mixed method approach across three phases the project sought to identify the potential for growth in enhanced, advanced and consultant level practice through identification of clinical need and formal postgraduate education provision. Utilising information from UK-wide data collection, the nine-month project identified the current and emerging clinical development needs and review gaps in education provision.

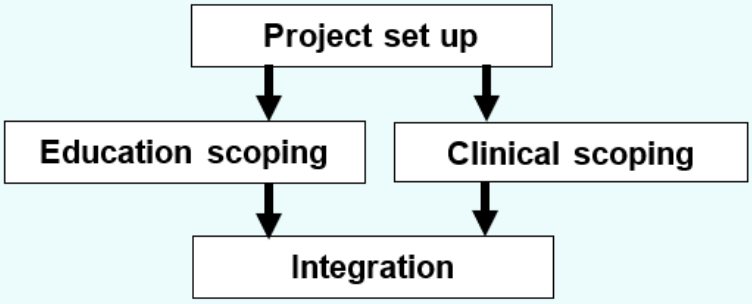
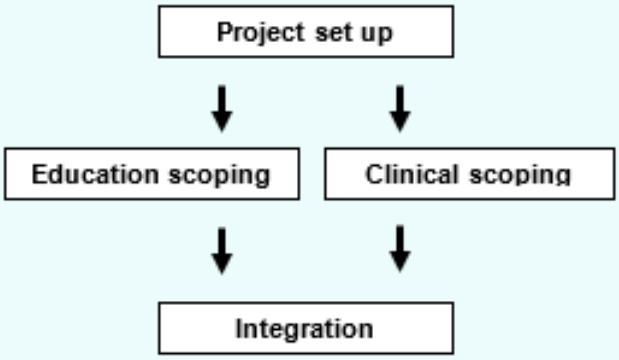


Figure 1: project delivery

To reduce the potential for bias parallel education and clinical scoping work streams led by different members of the project team ensured independence in data collection and with final integration to compare the findings.



Education scoping

Mapping current provision

A review of all postgraduate programmes of study offered by UK higher education institutions (HEIs) and aimed at diagnostic and/or therapeutic radiographers was conducted. Online data related to postgraduate provision was identified and content analysis of the programme information undertaken. Programmes were identified using national directories published by the CoR and NHSE, supplemented by manual searching of HEI websites. Data collection included the specific clinical focus/foci, academic award(s) level, review of any content describing the terms ‘enhanced’, ‘advanced’ and ‘consultant practice’, in addition to information

related to relevant external accreditation or approval. On review of HEI websites, it was noted that wider advanced clinical practice (ACP) master's awards were available but where these contained no radiography-specific content they were excluded from content analysis. In addition, provision aimed at a single pillar of (non-clinical) practice e.g. research or education was excluded.

Interviews with HEI providers

All HEIs identified in the mapping exercise were invited to an interview to discuss their educational offer. The interviews sought to confirm the accuracy of the information collated at the content analysis stage and the current status of programmes, including any that were suspended or closed. In addition, the interviews provided opportunity to identify additional provision currently in the approval process. The sustainability and demand of post registration provision was discussed at length including issues surrounding funding and staffing. They were also invited to make any other comments regarding post registration education provision that they felt relevant.

During the interviews individuals were also asked to explain how their programme(s) specifically addressed the requirements of the enhanced and advanced levels of practice and the four pillars of practice. Representatives were also asked how they envisioned the future of their post registration provision may develop over the next two years.

HEI workshop

In collaboration with the parallel *Championing Enhanced Practice in Radiography* (CHEERs) project HEI representatives were also invited to attend a 1-day workshop hosted in Sheffield in November 2024. Promotion of this event was by direct email and during the HEI interviews.

During the workshop, the attendees were asked to discuss and consider the delivery of education provision regarding all three levels of advancing practice. In particular they were asked to consider how HEIs can support the needs of education regarding the non-clinical pillars and also for consultant level practice.

Clinical scoping

Interviews with key informants

To ensure information reflected the regional and national picture interviews with key informants were undertaken. Invitations were extended through regional networks, steering group members and professional contacts. A total of 15 participants contributed either to individual interviews or focus groups. These represented all four home nations and the diagnostic and

therapeutic radiography communities across regional structures and included service managers together with regional, or national leads. As with the education scoping the interviews took place online with the conversation transcribed, anonymised and member checked for subsequent analysis.

The interviewees were asked to articulate regional workforce challenges affecting diagnostic imaging and/or radiotherapy services. Their perspectives on current staff development needs were also sought including expected changes over the next 3 to 5 years. Finally, their experiences and views on current postgraduate education provision was discussed.

Validation of findings

Two online focus groups were held with consultant radiographers from across the UK, with individuals recruited from a request posted on the national consultant discussion board. Their perspectives were sought to confirm the workforce challenges, recognizing local variation, and give their perspectives on current provision to support the enhanced and advanced practice levels. Based on lived experience it was also important to seek their views on the education needs and current availability of education provision to support consultant practice in the UK.

Gap analysis

Thematic analysis of the qualitative data collected during the education and clinical scoping supported the development of narrative themes and synthesis of the perspectives was undertaken to compare needs and availability. The quantitative data regarding programme provision was used to corroborate the findings, particularly in relation to regional and subspeciality provision.

Study assurances

As this project sought to generate new knowledge through synthesis of publicly available data together with primary data collection appropriate research governance approaches were followed.

Ethical considerations

Ethical approval was gained prior to any data collection (UoB E1234 on 6/8/24). Study information sheets were circulated to potentially eligible participants to outline the purpose of the project and define their expectations. Written consent to participation for all interviews or

focus groups was gained and member checking of transcripts was undertaken. All data was anonymised prior to analysis and retained on a secure drive only accessible by research team.

Steering group

A group of stakeholders from across the radiography community formed the steering group and included academics, and managers as well as consultant radiographers and regional network representatives. They met early in project delivery to discuss the approach and following the preparation of the draft report to provide feedback.

Patient and Public Involvement

A radiography PPI research group was established through the University of Bradford and discussed the perceptions by the public of the role of a radiographer (all disciplines) and the understanding of career development. For both aspects, understanding was limited. Key and paramount for patients, was the need for confirmation of the knowledge and qualifications that individuals have to do their role. They highlighted that job titles were a point of confusion, particularly in knowing what this means in relation to the training of the health professional and their scope of practice. Most apparent was that communication and patient-centred care should ultimately underpin all developments in this space.

Overview of the project plan and deliverables

Activity		2024								2025		
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
WP1	Steering group			1.			2.			3.		4.
	Literature and data review											
	Ethical approval											
	Team meetings											
WP2	Participants identified											
	Interviews											
	Consultant focus groups											
WP3	Provision data review											
	Programme review											
	Interviews with HEIs											
	HEI workshop											
WP4	Data analysis											
	Report writing											
	Wider dissemination											→

Figure 2: Project deliverables

Deliverables key:
1. Progress report 1
2. Progress report 2
3. Draft final report
4. Final report

Outcomes

Education Scoping

A key challenge in the evaluation of the education provision was the way in which information on postgraduate (post-registration) programmes, especially in terms of supporting enhanced, advanced, and consultant practice, is articulated. There is marked variability in the detail and clarity of information available when assessing programmes, yet these are in the public domain and represent the 'shop window' for the provision and HEI. The members of the project team undertaking the education scoping are experienced academics and knew what specifically to look for but were often challenged to navigate and source information on programme webpages. It should therefore be acknowledged that potential customers (students or managers) seeking course detail may also struggle to find, and understand, information when researching staff development opportunities.

Education provision

Content analysis of identified post-registration education provision specific to radiography (all disciplines) was undertaken in June and July 2024 and provided a snapshot of UK provision at that moment in time, based upon what was available on HEI websites.

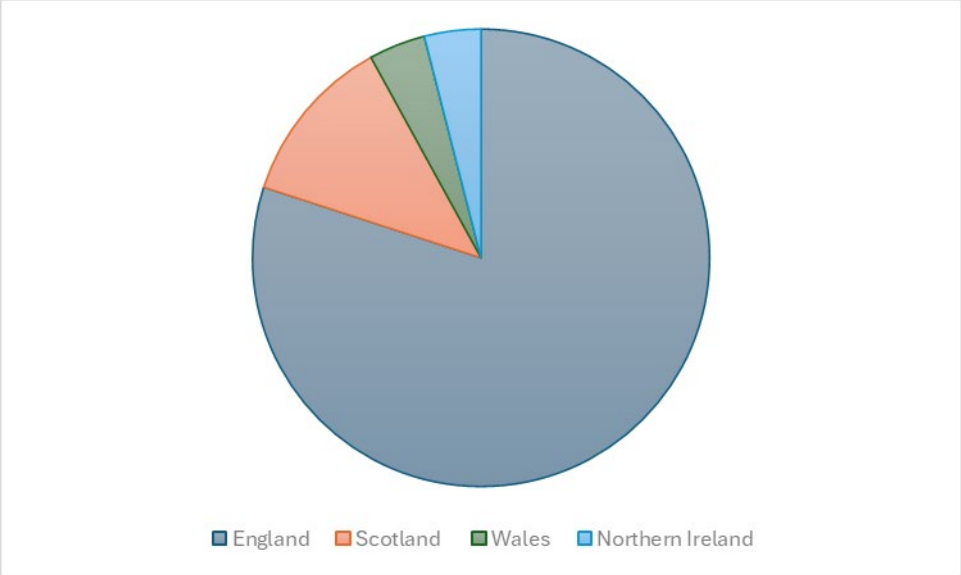


Figure 3: Number of HEIs offering Post-registration Education by Nation

Twenty-five HEIs were identified offering post-registration education pathways; 20 in England, three in Scotland and one each in Wales and Northern Ireland. Of the diagnostic pathways there were in three nuclear medicine (NM), seven breast imaging, 18 ultrasound, and 14 clinical reporting routes. Additionally, 17 other diagnostic domains were identified including CT and MRI. Of these 25 HEIs, seven also offer post registration education in therapeutic radiography, although only two of these are outside of England, and based in Northern Ireland and Scotland.

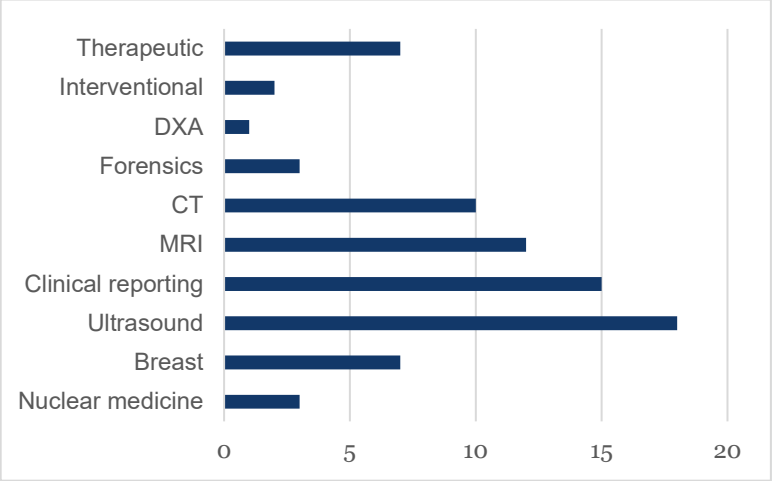


Figure 4: Number of Programmes / Routes

In some key other areas, particularly in the advancing practice space there was limited provision outside of England:

- Clinical reporting (15 total); two in Scotland, one each in Northern Ireland and Wales.
- Ultrasound (18 in total); one each in Scotland and Northern Ireland and no provision in Wales.
- Breast imaging; (seven in total); one in Scotland and one in Wales.
- Other diagnostic areas (e.g. CT/MRI); no provision in Wales

Programmes were often named for a particularly speciality route (e.g. reporting, CT/MRI, ultrasound), however, a number of institutions use a more generic programme title with a 'pick and mix' approach to routes or module selection which could mean students on the same programme might develop their skills across a range of different areas with some core competencies and/or capabilities. Additionally, a number of institutions utilise clinically focused work-based learning modules which allow a student to gain academic credit through the development of skills within an area of practice not available in the taught module provision. This seems to be a common approach to addressing more unique roles such as (non projectional) clinical reporting and/or interventional procedures

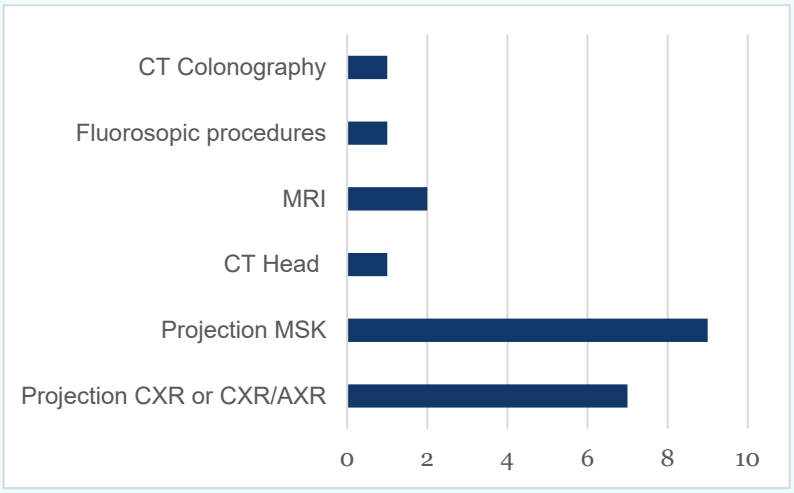


Figure 5: Clinical Reporting Provision (no. of HEI providers)

A key finding is there are limited numbers of specific bone densitometry (DXA), interventional, nuclear medicine and therapeutic radiography postgraduate programmes available across the UK, and further there was no identified nuclear medicine provision outside of England specifically.

Whilst the term 'advanced' was is referred to in a small number of programme titles, awards, and information, enhanced is only mentioned very occasionally. Similarly, reference to either the CoR Education and Career Framework[21] or HEE's Multiprofessional Advanced Practice framework[26] was uncommon. It is worth noting that only one programme for each of the diagnostic and therapeutic disciplines is currently accredited with the NHS England Centre for Advancing Practice. Importantly, there does not appear to be any specific provision directly aimed at consultant radiographers, however, a range of broader doctoral opportunities are noted.

Overall, the content analysis demonstrated there is a lack of demonstrable evidence of how the requirements for enhanced, advanced and consultant practice are being addressed by HEI academic provision in the UK. For therapeutic radiography and nuclear medicine in particular there is very limited provision to support advancing practice in the workforce. Aside from traditional projection radiography reporting, opportunities for other modality clinical reporting training are very limited and often only through the use of negotiated work-based learning modules.

Interviews

All HEIs identified at the content analysis stage (n=25) were invited to interview. Sixteen institutions (64%) responded and were interviewed with representation of all four nations and both diagnostic and therapeutic disciplines. No nuclear medicine education provider responded to the invitation.

The interviews confirmed that the information collated at the content analysis stage was accurate, whilst also allowing for the identification of any education provision that had either been subsequently suspended or closed, as well as identifying additional provision that had entered the approval stage. Most notably it was confirmed that several reporting routes were being suspended often due to a lack of demand, however, there was indication that some other new reporting provision was under development at other institutions.

The market for postgraduate provision within the UK remains relatively small, particularly in diagnostic areas such as reporting, breast imaging and ultrasound where there is a relatively large range of education provision (particularly in England). Similarly, with saturation and diversification of roles away from traditional advancing roles such as projection radiography reporting towards other areas such as cross-sectional reporting this means even existing routes in these areas may become less viable. In particular, the demand for musculoskeletal radiograph reporting was reported to have waned, with at least four programmes stating they have suspended their provision whilst a review is conducted on sustainability. Key causes for this were identified, particularly outside of England, and include a lack of funding and support for backfill during training. In contrast, it was suggested that there is a requirement for other areas (such as CT colonography, MRI and CT head reporting), however, demand is not necessarily sufficient to justify the development of new academic programmes.

> **It's just not sustainable…We can't run the modules with just one student, so we've shelved it…they're still sitting there. If there was funding to become available again**
>
> *Programme lead*

The clinical pillar was certainly dominant during exploration around addressing advancing practice requirements and there was evidence of some misunderstanding surrounding the different levels of practice. It was clear that leadership and research were often only considered to have been addressed if students progressed to PgD or MSc level. The education pillar was far less commonly demonstrable in programmes and there was also a misunderstanding of what may constitute appropriate development, with a perspective that trainees by virtue of being in education and engaging in critical writing alone would address it. Ultrasound

programmes accredited by the Consortium for the Accreditation of Sonographic Education (CASE) have very stringent expectations on the clinical requirements and it was considered that this may reduce the opportunities to integrate the other pillars.

> **I think that CASE focuses on the standard sonographer, getting them qualified**
>
> *Programme lead*

There are however some programmes that have identified innovative ways to incorporate the four pillars into their provision, including through assessment strategies and portfolio development whereby students need to evidence activity across all pillars and relevant capabilities. It should also be recognised that non-clinical or radiography-specific programmes, such as in leadership or clinical education are available in many HEIs and could potentially be appropriate for enhanced practitioners considering a management, education or research pathway, and not focusing solely on the clinical pillar, though evaluation of this was considered outside the scope of the project.

It was clear HEIs are facing extreme challenges in ensuring viability of provision with increasing pressure to ensure minimum student numbers. Funding restrictions across nations means some regions cannot access funding from NHS bodies for course fees, backfill or post-training on-costs and there was concern that this means that clinical departments are unable to support trainees. Universities, particularly in devolved nations, are relying more on international students to support course viability and shared learning causes challenges due to different expectations and required capabilities. Home students typically do not progress past PgC/PgD level because the benefit of a full MSc (or completion of non-clinical modules) is not valued by students or employers. In comparison, international students will typically complete a full MSc which is seen as more favourable by HEIs, therefore, there is a potential that a small number of programmes for home students are at risk related to financial viability.

> **those international bums on seats were propping up the home bums on seats, sadly…**
>
> *Programme lead*

It was apparent that some, particularly therapeutic radiographers, access the wider academic programmes aimed at multi-professional advanced practice either because there are no other relevant options or to seek development leading to national recognition through an accredited

programme (with NHSE) for roles within, or out with, the traditional imaging or radiotherapy settings. These normally, however, do not fulfil the profession-specific clinical requirements of radiographers working at the advanced practice level, therefore, trainees are undertaking additional learning, both additional postgraduate modules and/or informal education opportunities, to fulfil their requirements. In addition, it was acknowledged that restrictions on recognised prior learning (RPL) for accredited programmes mean often other postgraduate learning cannot be incorporated into the MSc award. A lack of local and/or discipline specific accredited routes is a main cause of this.

Workshop

The one-day workshop at Sheffield Hallam University in collaboration with the parallel *CHEERs* project further demonstrated a lack of understanding and confidence in articulating the levels of practice and incorporation of the 4 pillars in the delivery of current provision.

As identified through the interviews, some considered their current provision as 'full' and therefore had limited opportunity to include other content, in particular ultrasound programmes cited CASE accreditation as being quite restrictive. Others questioned why, if their programme was successful, they needed to consider a change and also identified that their 'pick and mix' modular approach does not appear to meet the requirements for programme accreditation with NHSE.

It was clear that besides specific named leadership and research modules, there was a relative lack of consideration of how to weave these topics into clinically focused modules. The misapprehension that as students were undertaking their own education and engaging in critical writing and evidence evaluation this would be sufficient to address these pillars was reinforced at the workshop. It is therefore clear that HEIs need to further consider how to support students in the understanding and development of the non-clinical pillars, especially in programmes which are very heavy on clinical content. The use of clinical portfolios of evidence and assessment strategies was suggested as one way to address this.

There appeared to be limited interest for those England based HEIs, both in interviews and workshop, in seeking accreditation of advanced practice programmes with the NHSE Centre for Advancing Practice, though certainly CASE/CoR approval was universally in place (as applicable). There were concerns raised about how advice from the Centre on recognition of prior learning might limit the options available for programmes to offer the breadth in routes

and modules on offer. It may mean that more dedicated routes would be required so that students have to follow a set programme of study which in turn affects viability.

It was also evident that collaboration across the sector is required to ensure sustainability and consistency of programmes ensuring appropriate provision of education delivery appropriate to the of levels of practice, clinical and non-clinical pillar content, as well as ensuring provision for more diverse pathways, potentially with the support of regional academies and networks. There is evidence in some areas where this is being done more successfully. Additionally, a key outcome from the day was that HEIs recognised the need to collaborate and support consultant level practitioners to ensure provision of education and development opportunities at this level.

Clinical scoping

Across the UK there was a similar picture from clinical informants, although it was perceived that greater progression in roles existed within England and there was a desire to learn more about successes and impact to inform local and regional service planning.

Workforce

Informants recognised that the ongoing clinical demand is not going to slow and there is a need to embrace the opportunities afforded by the higher levels of practice. Universally the persistent workforce shortages are however hindering innovation and reducing the potential for staff development. Many cited entry-level vacancies and the need for a pipeline to ensure the sustainable supply as a significant challenge. In addition, long-term workforce planning rather than short-term reaction and funding is required to enable real change.

A small number of interviewees did acknowledge the relatively limited deployment of assistant practitioners within their regions and recognised the potential for that to support the backfill of roles. The overwhelming challenge faced was that even those qualified for advanced and consultant level roles were unable to be used optimally due to service pressures. Retention was also identified as a key theme, particularly when there has been investment in their development, but individuals are attracted elsewhere with the lure of financial reward and further opportunities.

There was recognition that the focus of education currently is on clinical tasks. It was also perceived that other professions are able to achieve more in terms of career than radiographers, influenced by their development opportunities.

> **…radiographers in general, we come in and we start and we finish and it's all clinical.**
>
> *Strategic Lead*

Additional challenges were reported regarding funding, particularly in establishing training posts. There were notable differences across the four-nations, particularly where there has been no uplift in service funding over a number of years.

Advancing Practice

Many of those interviewed reported that roles had typically emerged from within their workforce structures with higher level clinical posts supported by academic education and/or in-house training. Although some entrenched views persist, in particular within diagnostic radiography, with evidence of ongoing resistance to radiographer role development. Whereas medical staff were cited in relation to blocks in clinical skill expansion, some identified that radiographers in operational lead roles felt 'threatened' by the clinical leadership expectations at the advanced and consultant levels

Across the advancing practice levels there was limited understanding, particularly by organisations, of the contribution radiographers can make. This was felt to be exacerbated by the clinical task focus, different qualifications and embedded use of the 'advanced' title without capabilities necessarily mapping to the national frameworks. Many of the regions were trying to harmonise expectations including job description and titles, partly to support potential flexible working arrangements in the future and also to maximise retention.

> **We [radiographers] don't necessarily align to the enhanced, advanced and consultant practitioner sort of qualifications as such, and I think probably the lack of kind of qualifications amongst the radiography workforce is probably a factor.**
>
> *Regional Workforce Lead*

There was a clear perspective across many that education is focused on the clinical practice element at the higher levels. The other pillars of practice were considered underserved, both within specific development programmes and within academic pathways. Research was

considered to be fulfilled if an individual completed a master's programme but it was felt that most staff only were able, or supported, to PgC or PgD level.

Some example of other funding routes to develop research skills were cited, for example the National Institute for Health and Care Research (NIHR) but this was most commonly to support development in research-specific roles rather than supporting advancement in professional practice. In addition, a lack of leadership development for operational and strategic managers was reported and particularly how succession planning can be supported.

Finally, across the levels of practice there was recognition that there is no consistent approach to pay and recognition, exacerbated by the Agenda for Change process. This is causing additional anxiety and uncertainty around role progression.

Enhanced Level

It was clear from the interviews that there persists a lack of understanding around the 'enhanced' term and how this relates to staff development. Furthermore, there was a nervousness around motivating staff to undertake academic study for the role they are already undertaking.

> **Enhanced practice is really a bit, not really catered for. I don't think quite we've got the definition of enhanced practice sorted out to understand what that means.**
>
> *Imaging Academy Lead*

From the perspective of the project, clinical skill development was considered under the enhanced level although there is recognition that some of these modules may underpin development towards advanced or consultant roles. Again, participants identified that content was clinically focused with limited support for the wider professional development, although it was recognised that the 'task' related education was considered to be based on clinical need.

In diagnostic imaging there was assurance that the current provision is relevant and of high quality, but a number of areas were considered either a risk, or an emerging need.

- Computed tomography (CT)
    - Workforce upskilling including managing critical findings
    - Cardiac CT
- DXA
- Ultrasound
    - Paediatrics

- PETCT
    - Recognised need for focused training as nuclear medicine inappropriate
- Reporting
    - Chest X-ray, and in particular paediatrics
    - CT and MRI
    - Cone beam CT for dental
- Informatics, and in particular artificial intelligence

In radiotherapy no specific new areas were identified in relation to enhanced clinical practice although a continued requirement was noted for specialist contouring and clinical assessment skills.

Across the four nations there was an aspiration for education to be delivered locally, not only for ease of access but also to reduce travel and backfill costs. Although this did come with an acknowledgement that it was not viable to offer the range of provision required at scale. Importantly, there was also a recognition there was a willingness to travel when the provider is high quality with a good reputation. The availability of some courses was further mentioned with small volumes of specialist provision but along with this was some concern around limited competition between providers.

Advanced Level

The key finding at the advanced level was the absence of education across the 4 pillars. There was an acknowledgement that a master's degree was an aspiration, but for many this was not evident within the wider workforce. There was recognition that developments in role have occurred over a period of time without a clear overarching strategy. Within diagnostic radiography there was reference to previous, but unsubstantiated, definitions with reporting radiographers and sonographers using the 'advanced' title because they report, although that perspective was not clear within the current interviews.

> **There's a little bit of a glass ceiling where they can't progress to that advanced and particularly consultant practice because there's not the training to support it in the four pillars.**
>
> *Regional Lead Radiographer*

A couple of the interviewees suggested that in diagnostic radiography there could be greater opportunity to develop roles which spanned modalities with a clinical focus such as across musculoskeletal radiography, MRI and ultrasound or models which are already in place within breast and gastrointestinal imaging.

At the advanced (and consultant) level the need for clinical supervision was recognised including, but not limited to, consultant medical staff. This in itself was causing a challenge for some with workforce shortages and to a more limited extent resistance.

Some of those interviewed had experience of students accessing wider academic provision aimed at the advanced level. There was however a view that these were more aligned to nursing models of practice and that the relevance to the imaging or radiotherapy setting was more limited. However, there was a recognition that funding for these routes had been available whereas radiography-specific master's programmes were not fully resourced.

Consultant Level

There was acknowledgement that the number of consultant radiographer posts would be small but there was an aspiration to increase this level of practice. However, there is a lack of coherent training provision beyond the expected master's degree. Examples of additional academic modules and non-academic training were cited as examples of the expected achievements of individuals prior to appointment as a consultant.

There were a reported number of organisations which had established trainee consultant roles supported by a formal or informal development plan. These were sometimes as a result of non-recruitment into consultant roles or as a recognition of the lack of preparation for the expectations of the strategic role.

> **a trainee consultant radiographer … I think that's the only thing that's going to work. And I think that's just acknowledging, not lack of ability, but lack of opportunity for our staff**
>
> *Service Manager*

Some solutions to the consultant development conundrum were proposed including the development of bespoke master's programmes to meet the needs of practitioners and services, however it was recognised that the need would be small and likely unviable.

Gap analysis

Levels of Practice

In general, there is a lack of specific awareness, education provision, and recognition of the different levels of advancing practice. Terminology used on university websites and in academic programme information is variable and may be confusing for readers. The term advanced is widely utilised within the profession yet the content and level of study is not

necessarily indicative of the level at which graduates would likely be working at on completion. The term enhanced is used in some instances but sometimes erroneously or in the wrong context. For clinical stakeholders looking to support or fund trainees through programmes of study, the education provision potentially is likely to be confusing.

There needs to be clearer articulation in academic award titles and supporting informationof the relevant level of practice this is preparing someone for and how this aligns to relevant benchmarks within the profession or nation. In particular, there needs to be a clearer distinction between programmes and awards designed to prepare individuals for the enhanced and advanced level practice and this needs to be consistent. The accreditation of advanced practice provision through bodies such as the Centre for Advancing Practice in England,[36] or wider programme approval through the CoR for post-registration programmes could act as a benchmark and support HEIs to clearly market their provision. Since projections are that the enhanced practice workforce will greatly outweigh that of the advanced/consultant workforce, the demand and provision for clearly defined programmes at the enhanced level should ultimately reflect this.

Whilst there is confusion, there does appear to at least be provision either currently or in development for enhanced and advanced practice. In contrast, despite a relatively small demand, there is nothing clearly defined for the education and development of consultant radiographers. A range of doctoral opportunities exist but development needs to be across the pillars and not the research strand alone, as this is insufficient to prepare individuals for the demands of consultant level practice.

Across the levels of practice, consideration of the need for appropriate educational and clinical supervision is essential, in line with the expectation of national bodies and the profession. No specific education to support supervisor development has been identified and support for this workforce must be identified. This is perhaps of most concern in ultrasound and has been cited as being a reason why ultrasound provision is not able to grow and expand to meet demand.

In general, promotion of the topics within the workforce is required, from student to senior manager, across clinical and academic settings to help socialise the different levels of practice. A greater understanding of the needs and opportunities related to radiography advancing practice and the current landscape is essential to ensure education provision matches the clinical demand for the different levels of practice.

Addressing the Four Pillars

It is clear that greatest emphasis within postgraduate education, and service delivery, is placed on the clinical pillar. This is perhaps understandable and expected due to the nature of roles, however, the other pillars cannot be undervalued.

Education provision is clearly designed around the clinical pillar and often unless a student progresses to PgD and MSc the other pillars are often not clearly addressed. Even then, the preparation of an individual as an educator of staff and patients may not be addressed. From the clinical perspective, the other pillars are not often regarded as important, and trainees may only be funded or supported to undertake relevant clinical modules. Progression to full MSc is relatively uncommon unless there is a specific 'advanced' role (funded often by NHSE in England) or the student is prepared to self-fund. Where there are very specific guidelines for educational delivery and design, such as through CASE for ultrasound or the RCR/SCoR guidelines for projection radiograph reporting, these have been cited as part of the challenge to 'squeeze' more content in. Within the clinical setting there still appears to be a lack of recognition of the demands for the non-clinical pillars to be built into roles. For consultants in particular there is a necessity to promote research and development alongside complex clinical tasks. However, examples of how HEIs can 'weave' the non-clinical pillars into clinical modules and the overall programme are evident and perhaps need to be shared as good practice.

In addition, there remains a requirement for leadership, managerial, practice educator and researcher roles; these are acknowledged within the NHSE enhanced schema,[26] which may provide a future opportunity but currently there are limited pathways on offer to prepare the workforce. Whilst not specifically considered in this review these perhaps need to be better promoted to those looking to enhance their practice, particularly where the clinical pillar is not their main focus.

Adequate and Appropriate Provision

In terms of advancing practice provision generally, the more traditional roles such as musculoskeletal radiograph reporting and ultrasound are clearly most widely offered, though there is concern (particularly in clinical reporting) that the demand may be levelling out or even decreasing given the suspension of some programmes particularly outside of England. There is clear and robust guidance for the content and delivery of these programmes through relevant CASE approval or national guidelines for reporting.

Provision for other areas of advancing practice, particularly in therapeutic radiography, nuclear medicine, and non-traditional reporting roles (e.g. CT and MRI, paediatrics and DXA) are far less accessible. This is most likely to a lack of strategically organised and consistent demand to warrant course development in an environment where HEIs are under increasing pressure to ensure module and programme viability. HEIs are more using negotiated / work-based learning credit-bearing modules to address demand in these areas, though clinical partners are perhaps more reticent to use these routes. The development of more robust guidance on reporting in these areas (as per the joint Colleges' reporting standards for projection radiography[32,33]) may in one aspect help to support provision in other areas of practice but may perhaps reduce the flexibility and diversity in roles.

A significant concern, therefore, is the gap between demand in the clinical setting on a local level and the ability of an HEI to support this, both from an availability and sustainability perspective. A more strategic (regional or national) supply and demand approach might be required to firstly ensure there is sufficient and consistent demand for the provision available (i.e. a minimum number of training posts) before a request for a programme development is made. There is also perhaps a need for HEIs and regions to be more collaborative in terms of the provision offered.

Key outcomes:

- Potential saturation in projection radiography reporting, yet lack of specific training in all other image reporting areas
- Limited educational opportunities in DXA, nuclear medicine and therapeutic radiography, in particular
- Ultrasound provision most widespread but limited capacity in defined programme content may inhibit opportunities for graduate to develop across all pillars.
- In general, programmes very clinical task focused, and other pillars not addressed, especially education, unless progressing to full MSc which is relatively rare.
- Programme viability and sustainability is at critical levels in many cases, leading to course suspensions.
- Small markets, lack of secured funding and HEI business models looking towards international market identified as main threats to HEIs.
- Advertised information on programme webpages can often be confusing, in particular to the development of enhanced, advanced and consultant practitioners.

Recommendations

Based on the findings of this study a number of recommendations are made. It is recognised that some of these may be relevant to multiple stakeholders and/or organisations, as such we have attempted to identify the key ownership of the recommendations to take these forward, this is not exhaustive and there are likely to be additional entities for whom the recommendations are relevant.

1. Promotion of the levels of practice
    - Increased awareness of all levels of practice and relevance of the education requirements for roles
    - Separate the level of practice from the clinical task and job title/pay level.
    - Collaboration across all the bodies involved in establishing standards of education is needed to minimise confusion and support future developments.

    Proposed action:

    - *Society and College of Radiographers*
2. Standardisation
    - To ensure provision meets the requirements for level of practice being advertised all mapping to the relevant national and clinical frameworks is essential during the approval and re-approval process.
    - Ensure that any guidelines, research, and policy documents are consistent in the use of terminology to reduce confusion across the profession.
    - Bodies involved in the approval/accreditation of programmes should ensure assessors have training regarding the levels of advancing practice.
    - There is a need for clear guidance for HEIs around the development and approval of programmes which are aimed at the enhanced and/or advanced levels.

    Proposed action:

    - *Society and College of Radiographers*
    - *CoR Approval and Accreditation Board*
3. Opportunities for information sharing and coordinated provision
    - Establish centres of excellence focussed to key radiography specialisms in the provision of education with the potential for a regional approach to provision.

- Create opportunities to facilitate networking and knowledge sharing amongst peers and experts to increase understanding of advancing practice.
- Ensure that HEIs clearly articulate information, within the public domain, regarding their programme provision, particularly regarding the level of practice.
- Ensure that all relevant national directories are accurate and clearly define the levels of practice that HEIs and their programmes are approved to deliver.
- Provide education and training to support the development of supervisors to ensure appropriate clinical supervision is available to support the different levels of practice.

Proposed action:

Society and College of Radiographers to lead
Heads of Radiography Education
Higher Education Institutions
NHS regional and national networks, academies

4. Further resource development
    - Clinical leads and managers need additional support to understand the levels of practice and how they can benefit service delivery.
    - There is an urgent need to develop materials to enable understanding of how the non-clinical pillars are essential to advancing professional practice.
    - Further support for HEIs to develop their provision and be able to clearly meet and articulate how programmes map to the levels of practice and attain appropriate approval and/or accreditation.
    - Provide and share examples of good practice of how HEIs can incorporate non-clinical pillar content into clinical modules.

Proposed action:

Society and College of Radiographers

5. Evidence of impact
    - Need for measures of the impact the different levels of practice can have on service delivery and care is essential.
    - Through relevant workforce census identify how developments in education have underpinned changes in clinical workforce (and vice versa)

Proposed action:

Society and College of Radiographers
Consultant Radiographer Advisory Group

Limitations

Across both the clinical and academic workstreams there were challenges with engagement of identified potential participants. It is recognised that this research has coincided with some of the busiest periods in both the clinical and academic settings and the current pressures on providers are perhaps unprecedented. To minimise the potential burden on stakeholders the researchers worked across the WE-SEARCH and CHEERs projects to reduce duplication and share information to support progress. Based on the recurring themes and triangulation of the data we are confident that the findings are valid and represent the key needs of the NHS in relation to the enhanced, advanced and consultant levels. However, we recognise there may be some nuances missing related to the perspectives of others.

The content analysis stage was also limited by the quality and amount of information available in the public domain, and that it was undertaken at a specific period of time. As has been noted, the quality of websites and information is variable, and conclusions can only be inferred and drawn from what is available. Whilst the interviews aimed to provide more clarity, it needs to be recognized that content analysis provides a snapshot at a specific time.

Dissemination

Following the conclusion of the project and submission of this report the project team plan to disseminate the findings through a number of fora. These are considered beyond the project scope but key to informing the profession and its future workforce and education planning.

Meetings

Results will be shared at a future *Heads of Radiography Education (HRE)* and the *NHSE Radiography Advancing Practice* meetings

Conference presentation

Abstracts have been submitted to *United Kingdom Imaging and Oncology (UKIO)* and *Leading The Way in Radiography Advanced Practice (LTWRAP)* to stimulate wider debate on educational preparation for the advancing practice workforce.

Publication

Peer review articles are in preparation for submission to relevant journals.

Acknowledgements

We would like to acknowledge the support and guidance provided by Dr Rachel Harris, Lyndsey Callion and the steering group in the oversight and delivery of the project. We are also grateful for the Society of Radiographers feedback on the draft.

References

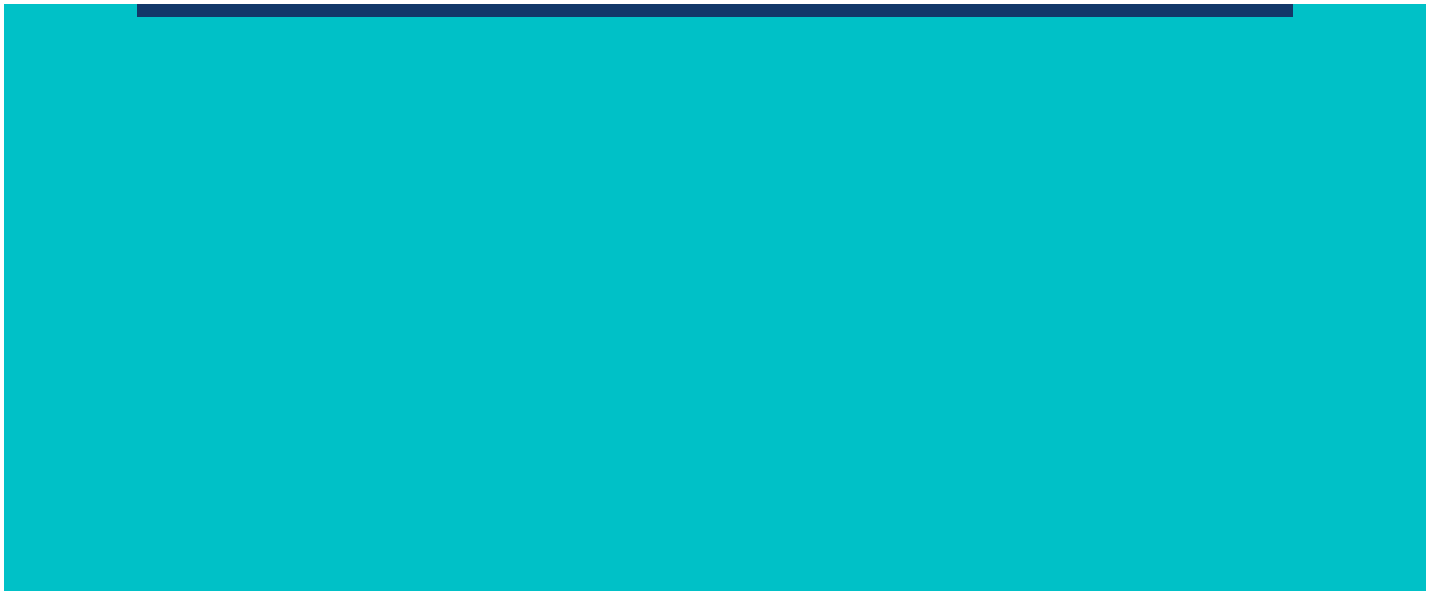
1. Rahman F. *Unnecessary delays in radiology are crippling the NHS*. Open Access Government. 2023. Available at: https://www.openaccessgovernment.org/unnecessary-delays-radiology-are-crippling-the-nhs-efficiency/152469/
2. Radiotherapy UK. *Flash Survey 2023*. IPEM: 2024. Available at: https://radiotherapy.org.uk/wp-content/uploads/2024/10/Radiotherapy-Survey23-100924-FINAL.pdf
3. Halliday K, Maskell G, Beeley L, Quick E. *Radiology GIRFT programme national specialty report.* 2020. Available at: https://gettingitrightfirsttime.co.uk/wp-content/uploads/2020/11/GIRFT-radiology-report.pdf
4. Society of Radiographers. *Radiotherapy radiographic workforce census 2023.* 2024. Available at: https://www.sor.org/getmedia/4fe04eb7-46c6-4856-913d-441e09f6c3e4/RR-Census-2023_D1-7
5. RCR. Clinical Radiology workforce census 2023. 2024. Available at: https://www.rcr.ac.uk/media/5befglss/rcr-census-clinical-radiology-workforce-census-2023.pdf
6. Radiotherapy Board. *Recovering radiotherapy services in England: Our plan for action.* 2024. Available at: https://www.rcr.ac.uk/media/3robzl4o/rcr-policy_radiotherapy-policy-briefing_may-2024.pdf
7. NHSE. *NHS Long Term Plan.* 2019. Available at: https://www.longtermplan.nhs.uk/online-version/chapter-4-nhs-staff-will-get-the-backing-they-need/#:~:text=The%20NHS%20is%20the%20biggest,quarters%20of%20whom%20are%20women.

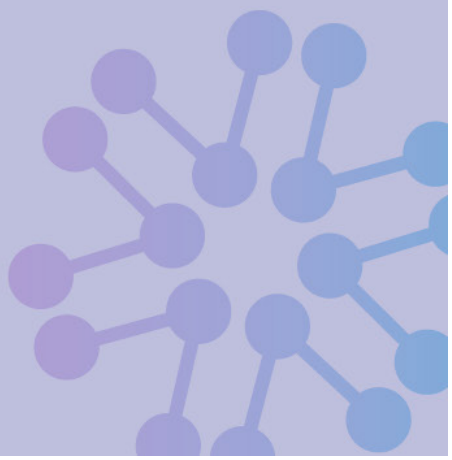
8. Institute for Fiscal Studies. *Implications of the NHS workforce plan*. 2023. Available at: https://ifs.org.uk/sites/default/files/2023-08/R272-Implications-of-the-workforce-plan-IFS%20%282%29.pdf
9. Department of Health (NI). *NI Department of Health AHP workforce review report: diagnostic radiographers*. n.d. Available at: https://www.health-ni.gov.uk/sites/default/files/publications/health/doh-diagnostic-radiography-workforce-review-2019-2029.pdf
10. NHS Scotland. *Diagnostic imaging workforce plan for Scotland*. 2023. Available at: https://www.radiology.scot.nhs.uk/wp-content/uploads/2023/06/Diagnostic-Imaging-Workforce-Plan-for-NHS-Scotland-v1.0.pdf
11. Health Education and Improvement Wales. *National Diagnostics Programme workforce plan*. 2024. Available at: https://heiw.nhs.wales/files/diagnostics-workforce-plan/
12. NHSE. *Long term workforce plan.* 2023. Available at: https://www.england.nhs.uk/wp-content/uploads/2023/06/nhs-long-term-workforce-plan-v1.2.pdf
13. West Midlands Imaging Network. *Workforce strategy 2023/24* Available at: wmidhttps://wmidsimagingnetwork.nhs.uk/wp-content/uploads/2023/08/WMIN-Workforce-strategy-2023.pdf
14. NW London Imaging Network. *Workforce*. n.d. Available at: https://www.nwlondonicb.nhs.uk/professionals/referral-guidelines-and-clinical-documents/nw-london-imaging-network/workforce
15. Holroyd G, Cunningham C, Ball F. *North West England imaging workforce strategy.* Available at: https://gmcancer.org.uk/wp-content/uploads/2022/03/NW-England-imaging-strategy.pdf
16. Richards M. *Diagnostics: Recovery and Renewal – Report of the Independent Review of Diagnostic Services for NHS England*. 2020. Available at: https://www.england.nhs.uk/wp-content/uploads/2020/11/diagnostics-recovery-and-renewal-independent-review-of-diagnostic-services-for-nhs-england-2.pdf
17. Society of Radiographers. *Achieving world-class cancer outcomes: the vision for therapeutic radiography*. Available at: https://www.sor.org/download-file/?f=ebcd1177-d5ee-4e1d-963f-b397b4dec6e9&t=m
18. Oliveira C, Barbosa B, Couto JG, et al. Advanced practice roles of therapeutic radiographers/radiation therapists: A systematic literature review. *Radiography* 2022; 28: 605-19.
19. Tsang Y, Harnett N. Advanced practice in radiotherapy: how to move to the next level? *Tech Innov Patient Support Radiat Oncol* 2021; 17: 57-58.

20. CoR. *Education and Career Framework for the Radiography Workforce*.4th Edn. 2022. Available at: https://www.sor.org/download-file/?f=b2f6bf07-668f-4155-950a-b9d96c48eae1&t=m
21. Health Education England. *Multiprofessional Framework for Advanced Clinical Practice*. 2017.
22. NHS Education for Scotland. *Advanced Practice Toolkit*. Available at: https://learn.nes.nhs.scot/63343
23. Health Education and Improvement Wales. https://heiw.nhs.wales/files/enhanced-advanced-and-consultant-framework/
24. Department of Health (NI). *Advanced AHP Practice Framework*. 2019. Available at: https://www.health-ni.gov.uk/sites/default/files/publications/health/AHP-Framework.pdf
25. Snaith B, Clarkson M, Whitlock K, et al. Recognition of advanced level practice against multiprofessional capabilities: Experiences of the first radiography applicants. *Radiography* 2024; 30: 1243-48
26. BMUS. *Preceptorship and Capability Development Framework for Sonographers.* Available at: Preceptorship_and_Capability_Development_Framework_for_Sonographers_Fina_aMU2QRO.pdf
27. NHSE. *Allied Health Professions enhanced level practice schemas with model curricula*. 2024. Available at: https://www.hee.nhs.uk/sites/default/files/documents/Enhanced-Level%20Practice%20AHP%20Schema%20Combined%20-%20Final%20May%202024%20%5Bfor%20pdf%20website%20upload%5D.pdf
28. Marshall G, Jones N. Does widening participation reduce standards of achievement in postgraduate radiography education? *Radiography* 2002; 8: 133-7.
29. Chaka B, Adamson H, Foster B, et al. Radiographers' self-perceived competencies after attending postgraduate courses in CT and MRI. *Radiography* 2022; 28: 817-22.
30. Mubuuke AG, Pope E. Factors that Influence Radiographers' Decisions to Pursue Postgraduate Education: An Exploratory Qualitative Study. *J Med Radiat Imaging Sci* 2015; 46: 223-30.
31. Murphy L, Nightingale J, Calder P. Difficulties associated with access to training and clinical support for Reporting Radiographers – A narrative evidence synthesis. *Radiography* 2022; 28: 1071-9.
32. McNulty J, Rainford L, Bezzina P, et al. A picture of radiography education across Europe. *Radiography* 2016; 22: 5-11.

33. RCR and CoR. Standards for the education and training of reporting practitioners in musculoskeletal plain radiographs. 2022. Available at: https://www.rcr.ac.uk/our-services/all-our-publications/clinical-radiology-publications/standards-for-the-education-and-training-of-reporting-practitioners-in-musculoskeletal-plain-radiographs/
34. RCR and SCoR. Standards for the education, training and preceptorship of reporting practitioners in adult chest X-ray. 2023. Available at: https://www.rcr.ac.uk/our-services/all-our-publications/clinical-radiology-publications/standards-for-the-education-training-and-preceptorship-of-reporting-practitioners-in-adult-chest-x-ray/
35. Clarkson M, Khine R, McDonald F. A training framework for multi-professional advanced level practice in non-surgical oncology: The journey through development and consultation to consensus. *Radiography* 2025; 31: 281-9.
36. Clarkson M, Khine R. Understanding the education and training requirements of advanced practice within specialist roles in therapeutic radiography. *Malta Journal of Health Sciences* 2024; 11: 4-7.
37. NHS England. *Accredited Programmes.* Available at: https://advanced-practice.hee.nhs.uk/our-work/programme-accreditation/accredited-programmes/

Workforce and Education needs - Scoping the Enhanced, Advanced and Radiography Consultant cHallenges and opportunities (WE-SEARCH)





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