Difficulties associated with access to training and clinical support for Reporting Radiographers – A narrative evidence synthesis

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Abstract

Objectives

This narrative synthesis of evidence identifies and explores issues that impact upon the expansion or effectiveness of Reporting Radiographers working in all diagnostic modalities within the United Kingdom (UK). The publication focuses on accessibility to training for prospective Reporting Radiographers as well as clinical support within and beyond training.

Key findings

Fifteen studies informed the themes of this article, they were published between 2014 and 2021. Reporting Radiographers often found it difficult find support during training and once qualified, this was usually due to the availability and workload of supervising staff. Although resistance and obstruction were experienced by many.

Concerns relating to pay, promotion and interest were expressed by some respondents whilst access to courses and finance were highlighted as areas of variance across the UK.

Conclusion

Inadequate support of Reporting Radiographers is impairing expansion of the specialism, whilst impacting capability and morale. This increases risk of patient harm, delays to care and inefficiency, it also threatens the sustainability of services. Negative interactions between Reporting Radiographers and Radiologists or managers is disappointing considering development of the specialism; evidence of Reporting Radiographer effectiveness and current collaboration between Royal College of Radiologists and Society of Radiographers.

Issues raised in relation to pay/promotion and litigation could be clarified with ease, this should be considered when guidance is updated.

Access to finance and courses is a major barrier in some regions of the UK. Scope exists for further exploration of training. England has used grants to facilitate uptake, these may prove to be an important tool in other countries.

Implications for practice

Drivers to increase recruitment should be implemented alongside measures to facilitate accessibility to training and improvements to support infrastructure.

Introduction

As the radiography profession has evolved, formal training has become available in the United Kingdom (UK) to equip Radiographers with the skills to independently report images, this first occurred in 1980 for Ultrasound and 1994 for examinations using X-rays[1].

The accuracy of Reporting Radiographers has been endorsed across a range of modalities including: MRI[2,3], Chest X-ray[4-7]; CT head[8]; Musculoskeletal X-rays[9]; CT colonography[10,11]; A&E immediate and delayed reporting[12]. In addition, Radiographer Reporting has been found to be more efficient than existing provision in some studies[12-15]. However, some of these investigations have been conducted in an academic setting or with small samples.

Expansion of the Reporting Radiographer workforce is consistent with UK National Health Service (NHS) strategy[16]. The Royal College of Radiologists' (RCR) have called for increased training places for both Radiologists and Reporting Radiographers[17]. Similarly, subsequent independent reviews of UK Radiology services have encouraged expansion[19,20]. Nevertheless, difficulties associated with working as or training to become a Reporting Radiographer have been reported in published literature, usually as secondary findings or within free text comments[20-22].

This narrative evidence synthesis of the literature identified and explored issues which may impact upon the expansion or effectiveness of Reporting Radiographers working across the UK in all diagnostic modalities. This publication focuses on accessibility to training for prospective Reporting Radiographers as well as clinical support within and beyond training. A subsequent publication will explore issues relating to working practices affecting trainees and qualified Reporting Radiographers.

Methods

The project is a narrative evidence synthesis[25]. It integrates and compares the experiences of study participants, to broaden the knowledge base relating to Reporting Radiographer training and working[23].

Searching

Searching was performed with the guidance of an information scientist, several scoping searches refined technique to ensure an inclusive strategy. After early scoping searches, it became apparent that searching with more key words excluded relevant papers. Final scoping searches have been summarised in the Supplementary Material.

Searching was completed in three phases:

1. Database searching: AMED, BNI, CINAHL, EMBASE, EMCARE, HMIC, MEDLINE, PsycInfo and Pubmed databases, hosted by National Institute of Clinical Excellence (NICE).

2. A grey literature search, using The Connecting Repositories (CORE) database.

3. Review of the reference lists of articles selected in earlier phases and citations to those selected articles.

Inclusion criteria

- Studies containing primary data, relating to barriers limiting effectiveness or expansion of the Diagnostic Reporting Radiographers, generated from stakeholders based in the UK, relating to all radiological modalities except ultrasound.
- Based in an academic or clinical setting.
- Accessible in full text format via Athens or University logins, 19 results from databases searches were not accessible.
- Published in English language since 2000.

Exclusion criteria

- Studies based outside the UK – The UK is unique as the only country to have implemented role advancement that includes independent reporting in Radiography, studies from other countries would have lacked transferability to UK practice[24].
- Studies focussed on Consultant Radiographer practice or Ultrasound Sonographers - These were excluded based on variance in comparison to Diagnostic Reporting Radiographer practice.
- Articles not containing primary data, including systematic and narrative reviews.

Selection

The lead researcher undertook screening by title and then by abstract, if articles appeared to meet the inclusion criteria then full text was assessed. Additional researchers provided a 'cross check' of a minimum of 10% of decisions made at each stage. Disagreements and borderline selections were discussed and adjudicated by an experienced researcher. After full text assessment the final selection was proposed, discussed between the team and the final 17 articles were agreed upon by all members. This ensured reflexivity and guarded against researcher bias, increasing reliability[25,26].

Data analysis

The Consolidated Criteria for Reporting Qualitative Studies (COREQ) tool[27] formed the basis of an instrument used to assess author reflexivity, methodological design, and application of each study. It was chosen for its robust developmental process, which involved streamlining and simplifying domains from twenty-two checklists. Aspects were added to suit the survey methodology of many of the selected studies[28,29].

No articles were excluded following quality assessment, but the process helped evaluate findings and make suggestions for future research. Findings were extracted from each study and analysed thematically; this was done using an inductive semantic approach with a staged process[30].

Results

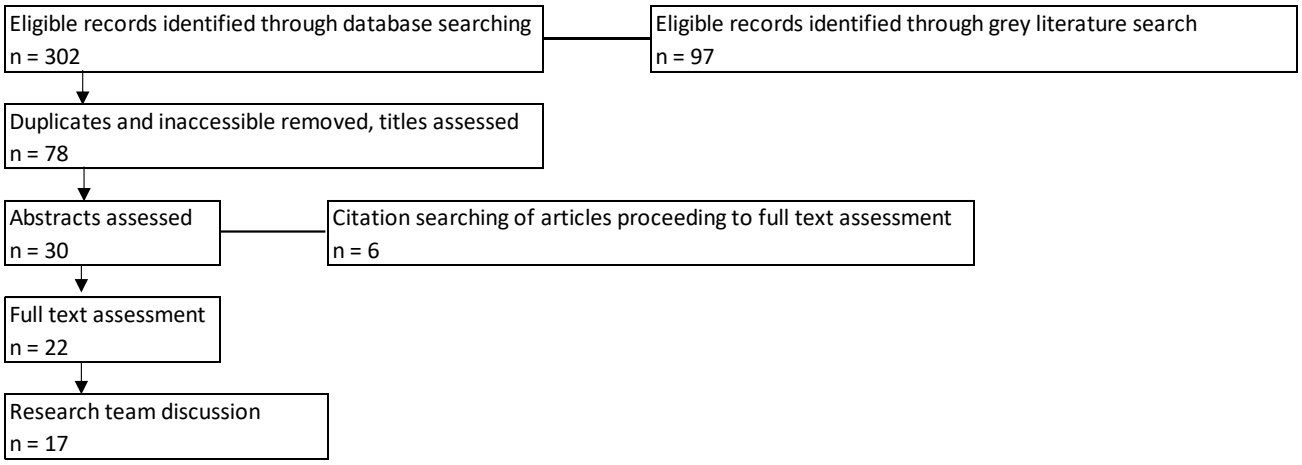


Figure 1 – PRISMA Diagram

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)[60] Flow diagram in Figure 1 demonstrates the process of literature selection.

Seventeen studies met inclusion criteria but not all were relevant to the themes discussed in this article. The selected studies used in this publication are summarised in the Supplementary Material. Articles were published between 2014 and 2021, however the earliest data was generated in July 2011[20]. Some studies used data generated earlier, for example Cuthbertson established themes for interviews by analysing reflective diaries from 2009-2011[31,32]. The age of some data is an inherent limitation of the study but to be expected in an area with limited published works.

All articles explored the clinical experiences of respondents, most also collected 'census-style' data relating to roles and working practices. In some cases, studies collected similar or the same data, therefore it is possible some respondents are represented in more than one study. However, the type of; questioning, context and point in time varied so these findings remain valid. Non-response bias is also likely to be a limitation to these types of studies.

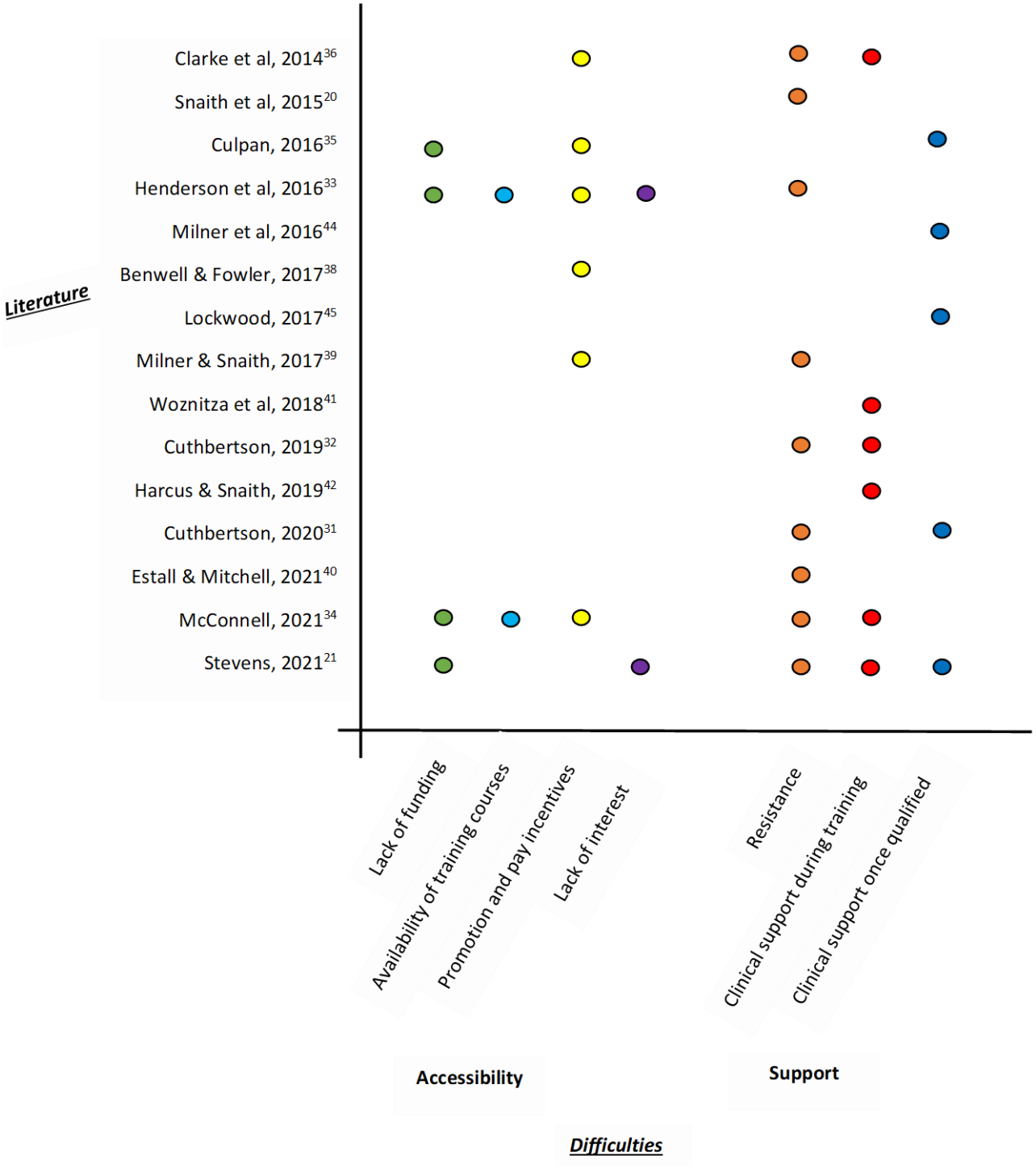
There was a wide distribution of sample sizes. As expected, studies using interview or focus group methodologies had the smallest. In almost all studies, some or all data were collected using a survey or questionnaire - these studies mostly had 40-100 respondents, but four publications had samples exceeding 100 participants.

The majority of participants were based in England, even when authors attempted to sample all devolved nations. Two studies sampled regions of England and four publications had participants based solely in Scotland. No studies focussed on Northern Ireland and Wales, but small numbers of participants from each were collected in seven studies with UK-wide samples.

Research teams were usually small, some authors are represented on more than one occasion suggesting the number of active researchers in this specialism is also small.

The prevalence of themes in literature has been represented visually in Figure 2.

Figure 2 - Prevalence of themes in literature



Accessibility

In this section, practical factors such as availability of funding or proximity to universities are explored alongside motivational drivers for trainees.

Lack of Funding

Funding issues were faced by some respondents, this was most prevalent in Scotland where 82% (n = 23/28) of respondents stated lack of training budget was a barrier to post-graduate education; despite sampling urban and rural departments, no geographical differentiation was made[33]. Managerial respondents in another survey also said there was a lack of finance to support expansion of Reporting Radiographer services in Scotland[34].

In England, 65% (n = 30/54) of respondents cited funding for training as an influencing factor in Radiographer involvement in mammography image interpretation and reporting[35]. Similarly, another study found 14.6% of CT head reporting trainees were not fully sponsored[36].

In 2018, Health Education England offered financial support to train up to 300 Reporting Radiographers in England[37]. The only study in our review to collect data relating to funding in England after this showed just 4% (n = 3) of departmental manager respondents cited lack of funding as a factor[21], possibly indicating this has been a successful intervention.

Availability of Training Courses

Scottish studies reported difficulties in access to courses, 62.5% respondents (n =15/24) agreed it was a barrier to post-graduate education, the authors felt this often related to geography but locations were not given[33].

Departmental manager respondents described issues with access to non-musculoskeletal reporting courses at Scottish universities but the study author argues development of Reporting Radiographers in Scotland could be supported by English higher education providers[33].

Promotion and Pay Incentives

Radiographer Reporting roles did not always lead to promotion; in one publication, over a third (32.4%, n = 11/34) had not been promoted after completing a post-graduate reporting course, although authors did not collect gradings prior to training[36].

One study discovered that in 23.8% (n = 19) of cases a reporting qualification had no impact on staff grade; 6.3% (n = 5) stated they were already on a higher banding[38]. This style of questioning is important in future studies, asking staff grading in relation to their role provides more reliability when assessing whether respondents are paid correctly. Some studies[33,35,38,39] found evidence of respondents in reporting roles employed at Agenda for Change Band 6 or with split banding arrangements.

The Chisholm agreement of 2003 currently protects the earnings of some Scottish Radiographers following adoption of Agenda for Change terms and conditions[61]. Interestingly, this could lead to a loss of earnings for Radiographers who were promoted but changed contract in Scotland[33].

Lack of interest

A lack of interest in post-graduate education was cited by 48% (n = 12/25) of respondents as a barrier in one study but there was no further exploration[33]. Surprisingly, 6.6% (n = 5/75) of

departments in one sample stated there was no desire among their radiographers to take on a Chest X-Ray Reporting role, one free text comment suggested 'potential litigation'[21].

Support

Relationships with colleagues, particularly Radiologists and managers are often influential to Reporting Radiographer working and training. In this section we will explore the experiences described in the selected literature.

Resistance

Radiologists were found to be the professional group most likely to obstruct Advanced Practice for Radiographers, 69.5% (n = 16/23) of one Scottish sample felt lack of support from Radiologists was a barrier to post-graduate education[33]. However, they also found more Radiologists were supportive than obstructive of Extended and Advanced Radiographer practice[33].

Resistance to Reporting Radiographer training was explained in the context of concerns over the impact of Radiographer Reporting on training opportunities for Radiologists and loss of funds from Radiologist staffing budgets[33]. A Reporting Radiographer trainee respondent in one publication mentioned Accident & Emergency referrals were reserved for Registrar training[20]. Managerial respondents in Scotland also mentioned Radiologist resistance and 'protecting images' for radiologist training[33]. Interestingly, one Radiographer respondent stated resistance from Radiologists was experienced despite enthusiasm for Radiographer Reporting in their department[20]. Only one study found evidence of transfer of funds from Radiologist staffing budgets, this occurred in just two centres (n = 2/46)[40].

Instances of resistance, pressure or 'lack of support' from Radiologists were also identified as causes of qualified Reporting Radiographers not utilising their skills[21,31,32,36,39,40]. In many cases, the context of 'support' is not explored further and provides limited insight. In Cuthbertson's qualitative study, one participant commented some radiologists 'did not see the point of Radiographer Reporting'[32]. Cuthbertson also explained concerns over obstruction of Registrar training had been raised[32]. Another respondent in the sample described how Radiologists would complain about not having time to report trauma images but obstruct others[32]. A different respondent described lack of support from management and occasions where she was asked to vacate a workstation in favour of Registrars or Locum Radiologists[32]. Interestingly, most of these respondents reported greater acceptance from Radiologist colleagues came with time qualified[32,33].

Clinical Support during Training

Several studies[21,33,36] found lack of Radiologists or lack of Radiologist time was a barrier to supporting trainees. Despite this, one respondent explained that her Radiologist mentor often extended their working day to support her learning[32].

Managerial respondents from one sample stated that insufficient radiologists were in post to support Scottish Radiographer Reporting initiatives[33]. Similarly, lack of available Radiologists was a stated reason for not employing Reporting Radiographers in all English regions except 'North East & Yorkshire'[21].

One approach to address this shortage is to pool the available training resources between neighbouring clinical centres. Such centralised support models were evaluated in terms of trainee and managerial experience, feedback was positive for impact and preservation of departmental resources[41,42]. One trainee mentioned it made a considerable difference, 'work would have pulled

me out, they wouldn't have been able to support me'[42]. Interestingly, Reporting Radiographers played a substantial role in teaching and mentorship with both models. However, both publications received criticism from departments for requesting the release of Reporting Radiographer trainees for scheduled sessions, this gives some insight into Radiographer workforce pressures.

The nature of centralised methods of support was found to reduce variance of learning experiences from the perspective of managers and trainees[42], but trainees did face challenges understanding differing reporting styles in academy, university, and clinical environments. Such disconnect was also reported by a study with a more conventional support structure[32], suggesting it is not exclusive to an academy model.

Clinical Support once Qualified

Reporting Radiographers still require clinical support from Managers and Radiologists once qualified to report independently. This should take the form of working together to establish and maintain an effective team structure as well as associated governance tools, there is also an expectation that Reporting Radiographers will be able to seek advice from Radiologists[43]. Managerial and Reporting Radiographer respondents both identified lack of support from Radiologists and Managers[44]. Again, the meaning of 'support' is somewhat subjective, in this case comments were said to describe 'interprofessional challenges'.

Some publications gave more detail regarding barriers to radiographer reporting in their samples. Radiologist availability (70%, n = 38/54); Managerial support (61% n = 33/54) and staffing levels (43%, 23/53) were the most common influencing factors in one sample[35]. Another found 55% (n = 125/227) of respondents were not provided with a mentor, even though 78% (n = 180/231) agreed it would provide a safe and supportive working practice[45]. Respondents in other studies said it was difficult to approach a mentor and described 'competition' with Radiologists for resources and some types of work[21,31,32].

Discussion

England is the only nation in the UK that has used specific direct funding initiatives specifically for Reporting Radiographers. Health Education England (HEE) grants accounted for 150 Reporting Radiographers in post or training in April 2019 according to a progress update published in August 2019[46]. Findings suggest an improvement in availability of funding for Radiographer Reporting training[21], but it is important this is evaluated fully to assess impact and effectiveness.

Uptake of Reporting Radiographer funding appears to be high but findings relating to lack of interest in post-graduate education and Radiographer Reporting training were highlighted with low prevalence. This offers scope for further investigation, if proven valid it could threaten the sustainability of the specialism.

Access to training programmes was identified as a barrier in Scotland. A map of current institutions offering Post-Graduate Radiographer Reporting courses is included in Figure 3. A range of courses were available, but access to all specialisms is not comparable in all regions or nations. This indicates regional disparity in access to training as suggested by our studies, which could lead to clinical service inequalities. With 1.88% of staff estimated to be in some form of Reporting training[48], it would be interesting to explore capacity, accessibility and associated factors relevant to educational providers.

Currently there is no nationally agreed curriculum for Reporting Radiographers, in contrast to the detailed curriculum for Radiologist training[49]. This may contribute to variation in Radiographer

Reporting roles; however the College of Radiographers does approve and accredit courses to ensure consistency of standards and alignment with their guidance[50]. Agreed standards for training and assessment of Reporting Radiographers are in development by Royal College of Radiologists (RCR) and Society of Radiographers.

Evidence of Radiographers paid at a higher rate for their reporting sessions was found[38]. Three studies[33,35,39] also found clear evidence of Radiographers in reporting roles being paid at Band 6. These instances are seemingly in breach of NHS Terms and Conditions of Service Handbook (annex 28, part 2, section 1)[51], which declares practitioners should be paid at the highest specialist pay band for all their service and gives reporting diagnostic images as a specific example of a duty of the Advanced Radiographer (Band 7).

Concerns relating to litigation[21] possibly arise due to a lack of clarity, familiarity or understanding of governance. NHS indemnity insurance applies when the individual is under a contract of employment or contracted to an NHS body to provide services 'in accordance with the duties of their post'[52]. Those providing reporting services are expected to 'work within an agreed contract of engagement, which defines their areas of practice and accountability'[43]. Guidance specifically states support would not be provided to members working outside their clinical governance framework. For Scottish practitioners, further guidance is provided by the Scottish Clinical Imaging Network (SCIN)[53]. With this in mind, clear documented scopes of practice are vital to protect practitioners and the public.

Many of our publications[20,32,33,34,36,39,40] collected data that showed evidence of resistance, obstruction or protectionism. Resistance is disappointing because clear expectations of Radiology departments in relation to support for professional development are outlined in The Quality Standard for Imaging 2021[59]. Radiologists and managers are crucial to creation, growth and maintenance of Reporting Radiographer initiatives through advocacy, training and clinical support. Nevertheless, it is important to consider that our data has been collected in an environment of increasing Reporting Radiographer contribution and scope of practice[20,54], which would not have been possible without integration of effective Reporting Radiographers, support of Radiologists and entire Radiology departments. Taking this into account, alongside RCR's recognition of Reporting Radiographers[54,55]; collaboration between professional bodies and progress in the portrayal of the Reporting Radiographer role in literature[56] we can be hopeful instances of resistance will become less common.

In the only study to focus on the relationship between Radiologists and Reporting Radiographers in detail, nearly two-thirds (63%, n = 83/132) of Consultant Radiologists in Scotland expressed concern that Radiographer role development would impact Registrar training[57]. Nevertheless, a high proportion also acknowledged advantages of Reporting Radiographers relating to increased capacity, reduced service pressures and service improvements. Given the age of this data and subsequent development of the specialism, it would be interesting to conduct a similar study across the entire UK to reflect current perceptions. Reporting Radiographer's relationships with referrers is another area with scope for further study[4].

Difficulties in relation to clinical support during training and once qualified were raised by many studies [21,33,35,36,44,45]. When explored, this often referred to Radiologist availability and workload, this is likely a consequence of increasing demand and widespread, chronic workforce issues[54].

Failure to adequately support qualified and trainee Reporting Radiographers risks poor performance and increased clinical errors. It is also likely to cause stress to practitioners themselves; lack of career

progression, failure to support development, burnout and mental health demands have been found to be key contributors to Radiographers leaving the profession[58]. An example of a formal support mechanism during and beyond training is mentorship. Current guidance does not specify that qualified Reporting Radiographers should have an allocated Radiologist mentor[43], however the Scottish National Framework for the Reporting Radiographer[53] expects Radiology leadership to be involved in mentorship but examples only related to regular audit and support of trainees.

Radiology academies have been involved in training Radiology Registrars since 2005, they have evaluated well in terms of increased capacity, outcomes and satisfaction[37]. Similar centralised support mechanisms for Reporting Radiographers were included in this review[41,42]; they evaluated well and protected departmental resources. A hybrid, multi-professional format of reporting training for Radiologists and Radiographers could contribute to improving capacity and efficiency, this opportunity has already been recognised by Health Education England in Cancer Workforce Plan[37].

Conclusion

Reporting Radiographers are inadequately supported. This is impairing expansion of the specialism, whilst potentially impacting capability and morale. It also likely risks patient harm, delays care, increases outsourcing and threatens sustainability of services. However, the provision of centralised, regional support evaluated well for trainees - it offers an efficient and robust model to increase support capacity for Reporting Radiographers and Radiologists whilst minimising impact on service delivery.

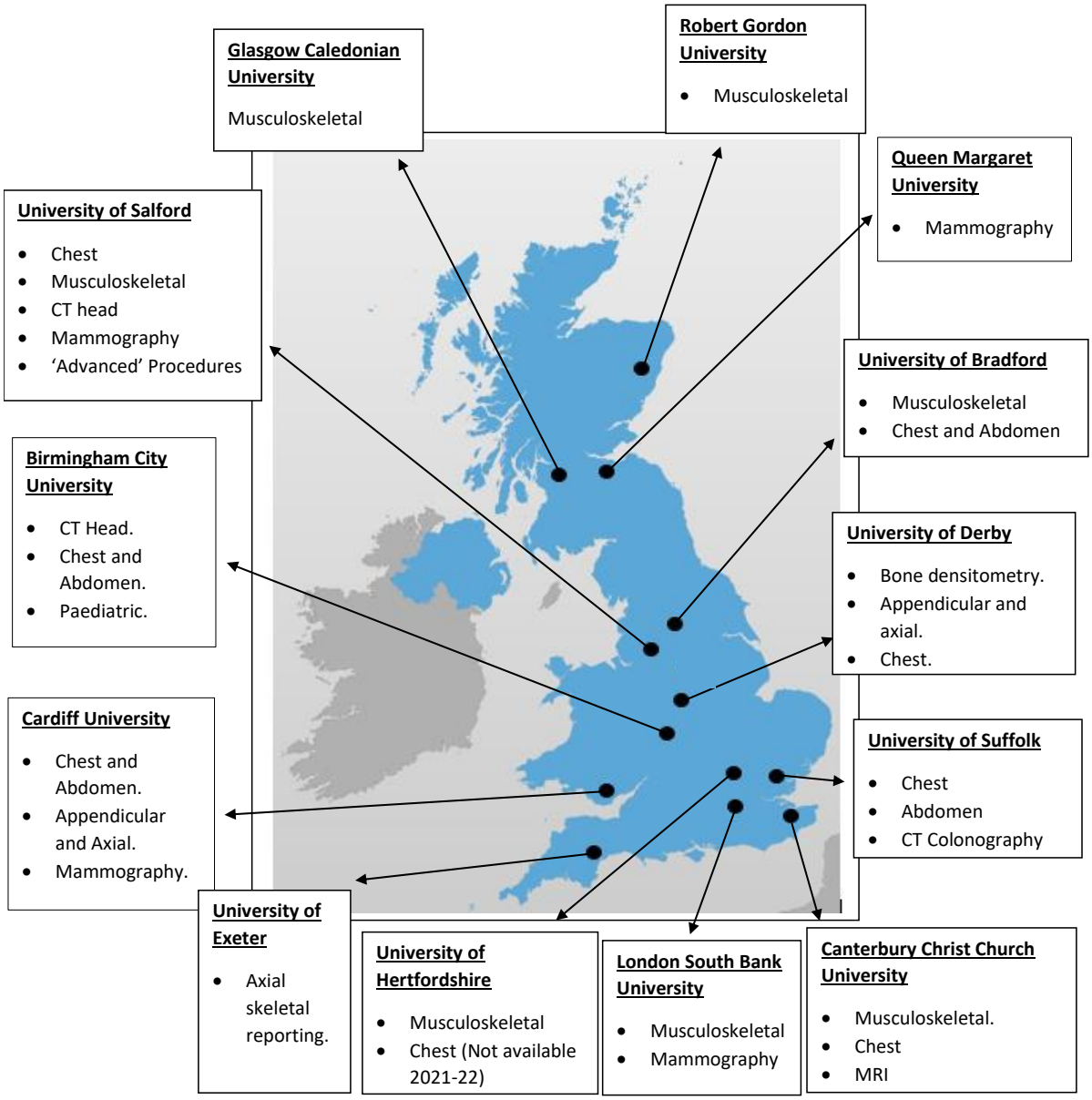
Evidence of negative interactions between Reporting Radiographers and Radiologists or managers is disappointing but should be viewed alongside development of the specialism, increasing evidence of Reporting Radiographer effectiveness and current collaboration between Royal College of Radiologists and Society of Radiographers.

Issues raised in relation to pay/promotion and litigation could be clarified with ease, this should be considered when guidance is updated. Access to necessary finance and the availability of courses was a major barrier for some departments. This varied between nations and regions of the UK, our results suggest both are a particular concern in Scotland, scope exists for further exploration. England has a record of using grants to quickly facilitate uptake of training, these grants are still being evaluated but may prove to be an important tool across the entire UK.

In summary, the findings of this aspect of the review suggest drivers to increase training and recruitment, although desperately needed should be implemented alongside measures to facilitate accessibility and improve support mechanisms.

Figure 3 – Map of higher education institutions currently hosting Post-Graduate Radiographer Reporting courses

The Society of Radiographers (SOR) directory[47] was verified manually using University websites and email enquiries in December 2021.



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Appendix A – Summary of scoping searches

	1. AMED	2. BNI	3. CINAHL	4. EMBASE	5. HMIC	6. PsychINFO	7. EMCARE	8. PubMed	9. Medline
Radiographer AND reporting (TITLE AND ABSTRACT)	0	3	172	49	0	2	32	33	75
Radiographer adj3 reporting (TITLE AND ABSTRACT)	0	1	107	83	1	0	48	33	35
Radiographer near Reporting (TITLE AND ABSTRACT)	0	1	1	0	0	0	0	1	36
Radiographer AND reporting (TITLE AND ABSTRACT) from 2000 & English language	0	1	126	45	0	0	29	33	68
Proceeded to abstract assessment	0	1	51	8	0	0	4	4	7

	10. CORE
Radiographer reporting (ALL OF WORDS IN TITLE AND ABSTRACT)	196
Radiographer reporting (ALL OF WORDS IN TITLE AND ABSTRACT) 2000-2021	97

Notes…

- Articles extracted from highlighted search.
- 78 articles proceeded to assessment after duplicate removal and title assessment.
- Databases searched in sessions, numbered chronologically.
- 20 articles inaccessible with University and Athens logins.
- Duplicate and non-UK articles leading cause of rejection at this stage.
- Bank of articles extracted, duplicates removed at source.

Appendix B – Brief Summary of Selected literature

Reference	Description	Sample
Clarke et al, 2014[36]	Cross-sectional structured survey sent to alumni Radiographers from two universities and their managers which explored factors that have influenced Radiographer role development in CT head reporting within the UK. Experiences of training and working from the perspective of current and past students as well as their managers were collected.	71 Participants – 48 students, 23 managers.
Milner et al, 2016[44]	Qualified Reporting Radiographers from every trust in the UK were invited to participate in this online cross-sectional survey. Snowball sampling of the researcher's professional network was also employed. Data related to; number of Reporting Radiographers, their personal demographics, location, time spent reporting and scope of practice in terms of both anatomical and referral types.	259 Respondents, estimated by authors to be approximately one-third of practicing UK Reporting Radiographers.
Milner & Snaith, 2017[39]	The same sample as Milner et al 2016 was used, in this publication the roles; working practices and perceptions of Reporting Radiographers were explored and compared with each other as well as relevant guidance for Advanced Practice roles.	259 Respondents, estimated by authors to be approximately one-third of practicing UK Reporting Radiographers.
Stevens et al, 2021[21]	This study collected job role information relating to Chest X-Ray reporting radiographers as well as factors their participants (role not specified) believed enabled or impaired training and employment in acute hospital sites in England. An online survey was used.	75 trusts are represented.
Wozntiza et al, 2018[41]	This publication described and evaluated a new format of supporting trainee chest X-ray reporting radiographers based in London during their post-graduate studies.	13 Trainees and 4 managers.
Estall & Mitchell, 2021[40]	Data collected from qualified and training UK MRI Reporting Radiographers (active and inactive) in relation to number of staff, location, sign of criteria and governance. Factors causing inactivity were also gathered.	52 responses were received, representing 46 trusts.
Lockwood, 2017[45]	This study collected data from Reporting Radiographer participants, across the UK using an online questionnaire, in relation to their working practices then used National guidelines and standards in Advanced Clinical Practice to assess conformity or variance with regulations.	261 respondents.
Benwell & Fowler, 2017[38]	This study randomly sampled acute NHS trusts in England – data collection was done using a paper survey from Reporting Radiographers in relation to working practices and experiences.	81 respondents from 30 sites.

Culpan, 2016[35]	This study collected data in relation to demographics, working practices and experiences of Radiographers involved in mammography image interpretation and reporting. A hardcopy survey was posted to all service managers offering breast screening services in the UK, purposive sampling of former students was also done.	66 responses.
Cuthbertson 2019[32] ***& 2020***[31]	These publications explore perceptions and experiences of practitioners as they journey through training and into a skeletal reporting role. Reflective diaries from during training were analysed using interpretive phenological analysis, which generated themes for discussion in semi-structured interviews.	12 diaries were used, 6 of these individuals participated in interviews.
Snaith et al, 2015[20]	This large-scale paper survey collected census data relating to presence, expertise and working practices of Reporting Radiographers working across UK. Free text comments gave insight into experiences of respondents and reference to earlier data provides a longitudinal view on development of the specialism.	325 UK sites, 179 sites had Reporting Radiographers present.
Henderson et al, 2016[33]	This project explored extended and advanced scope of practice roles in diagnostic radiography across Scotland. A paper questionnaire with a link to an online portal collected data in relation to what sort of roles existed, associated working practices and influencing factors.	42/111 sites replied. Follow up telephone interviews were then done to explore questionnaire responses in more detail (n = 8/42).
McConnell, 2021[34]	This study shows how Radiographer Reporting output has changed between 2015 and 2019 in Scotland for all health boards. Gap analysis survey was sent to the Scottish Radiology Managers group in 2017 & 2019.	• 2017 (n = 10/15 health boards). • 2019 (n = 9/15 health boards).
Harcus & Snaith, 2019[42]	This publication explains and evaluates a pilot radiology academy used for additional clinical support for Reporting Radiographer students.	A survey was completed by all 8 trainees and 9 managers/mentors prior to commencement. • A focus group of trainees and telephone interviews of managers/mentors were then done to evaluate afterwards.