

Published on *Society of Radiographers* (<https://www.sor.org>)

Home > Scope of Radiographic Practice 2008: A report compiled by the University of Hertfordshire in collaboration with the Institute for Employment Studies for the Society and College of Radiographers.

# Scope of Radiographic Practice 2008: A report compiled by the University of Hertfordshire in collaboration with the Institute for Employment Studies for the Society and College of Radiographers.

**Responsible person:** Christina Freeman  
**ISBN:** 978-1-871101-55-7

## Summary

This work was commissioned by the Society & College of Radiographers to identify practice developments over the past five years, to quantify the scope of current practice and to explore possible future roles within the UK radiographic workforce. The scope of the research included the NHS primary and secondary sectors, the independent sector and higher education.

**Published:** 1 November, 2008



**Archive:**

No

**Disable view online:**

## Foreword

Research undertaken by the University of Hertfordshire in collaboration with the Institute for Employment Studies

Contributors:

- Dr Richard Price, (Project Lead).
- Hazel Edwards
- Fraser Heasman
- Dr Anthony Herbland
- Dr Sue Le Masurier
- Dr Linda Miller
- Amy Todd
- Martin Vosper

**For further information about this project contact:**

Dr Richard Price  
School of Health and Emergency Professions  
University of Hertfordshire  
College Lane  
Hatfield  
Herts  
AL10 9AB

Tel: 01707284962

Email [R.C.Price@herts.ac.uk](mailto:R.C.Price@herts.ac.uk) <sup>[1]</sup>

August 2008

**Acknowledgement**

The research team would like to thank all those who willingly gave their time to contribute to the project.

## **Executive Summary**

### **1.0 Background and Nature of the Research**

This work was commissioned by the Society & College of Radiographers to identify practice developments over the past five years, to quantify the scope of current practice and to explore possible future roles within the UK radiographic workforce. The scope of the research included the NHS primary and secondary sectors, the independent sector and higher education.

### **2.0 Exploring the Diagnostic Radiographic Workforce in the NHS acute sector**

The scope of practice for the diagnostic radiographic workforce in the acute sector is diverse and expanding. There are many examples of emerging new roles undertaken by radiographers. Significant numbers perform interventional procedures and specialist gastrointestinal studies; many radiographers report independently of radiologists, especially in ultrasound where numbers exceed 80%. Almost all diagnostic radiographers are involved in audit. There are few examples of extended practice which have been withdrawn once implemented. The greatest driver for

implementation of successful new roles is service demand, whilst radiologists' resistance, although generally subsiding, continues to be an inhibitor. The implementation of Agenda for Change, nationally, shows inconsistency; in some cases it is enhancing career prospects but in others it is proving to be a barrier to career advancement. There is, however, evidence that the career progression framework is being adopted but not by all trusts. From the sample of 108 trusts there were fourteen diagnostic consultant radiographers; 885 advanced practitioners employed in 79 sites and 185 assistant practitioners at 68 sites. A number of trusts had plans to appoint consultant radiographer posts in the future.

### **3.0 Exploring the NHS Therapeutic Radiotherapy Workforce**

The scope of practice for the therapeutic radiographic workforce continues to expand. There are examples of radiographer involvement in pre-treatment simulation leading to autonomous planning and treatment prescribing by radiographers. Developments in specialist brachytherapy are reported from nine centres. Radiographers are staffing on-treatment reviews in 21 centres and in 10 centres are involved in patient follow up clinics. Nearly two thirds of cancer centres have research radiographers and in 14 centres there is radiographer led research. New roles are emerging in more holistic aspects of patient management including palliative care and counselling. The implementation of Agenda for Change in enhancing career prospects is variable but 26 centres have assistant practitioners; over half of all centres have advanced practitioners but consultant radiographers are employed in only three centres. Four centres are seeking to introduce consultant posts and have established training posts.

### **4.0 Focus Groups with Radiography Consultants and Managers**

Consultants and managers within the radiography workforce are pivotal for recognising and matching role development with service demand. Agenda for Change is generally viewed as a positive tool but some trusts are reluctant to introduce higher bandings which has a detrimental effect on staff seeking career progression. Although diagnostic and therapeutic radiographer consultant posts did not exist five years ago, the evidence now points to a growing number of appointments. Additionally, a number of departments are planning to introduce consultant posts in the future. However, both managers and consultants require greater clarification around the roles of advanced and consultant practice in order to progress further the implementation of the career progression framework. In particular setting priorities for individual consultants within the core areas of consultant practice, expert clinical practise; leadership; education and professional development and research and evaluation would seem to be an issue that needs to be resolved urgently.

### **5.0 Identifying the Radiographic Workforce in the Primary and Independent Sectors**

The survey was probably the first of its kind in attempting to identify the workforce in the primary and independent sectors. The findings suggested that the majority of primary and independent sector radiographers are concentrated in urban localities. There were no national geographical variations to emerge but the impression gained is of a highly mobile workforce. Generally, increased radiographer role expansion and independent practice was apparent for staff in the higher Agenda for Change bandings. Collaboration with non-radiological clinicians, beyond the confines of traditional imaging and oncology departments, is occurring more frequently and further opportunities for radiographer role extension within the community setting are likely to arise in the

future. Very few radiographers within the online survey had relinquished extended roles during the last five years. This appeared to suggest that demand for these services and roles continues.

## **6.0 Examples of Emerging and Advancing Radiographic Practice**

There is evidence that radiographic practice continues to diversify within the primary and secondary sectors. Although numbers of staff in these environments are relatively low, the majority work autonomously. Therapy radiographers are involved in palliative care, and health promotion. A radiographer with counselling skills is providing a high quality, research-based support for patients receiving radiotherapy where patients can self-refer or can be sent from other radiographers, specialist nurses or doctors. Diagnostic radiographers have also taken on a range of new roles in the last five years and much of this practice is now becoming embedded as standard. There are practice innovations for radiographers such as guidewire insertions for stents and feeding tubes and radiographers are practising interventional procedures in a range of settings. Few roles have been relinquished and there are opportunities for exciting new prospects within multidisciplinary teams beyond the radiology department. There is evidence of radiographers moving away from large specialist centres to support developing services in community-based settings but there appears to be less opportunity for radiographers to adopt unusual roles in London, Scotland, and Northern Ireland. Radiographers are adaptable and flexible opportunists with an appetite for new roles. Today, they occupy niches in almost all fields of patient services and are performing many roles previously the domain of nurses or doctors.

## **7.0 The Radiographic Workforce in Higher Education**

Higher education institutions (HEIs) offering radiographic programmes recognise the importance of providing education designed to support local and national needs. Most now provide common modules for interprofessional learning. Conversely, radiography education centres report increased numbers of clinicians other than radiographers accessing focused imaging courses. Some institutions believe this may lead to erosion of roles for radiographers. A broad range of collaborative research is being undertaken by significant numbers of university-based radiographers. The majority of HEIs have radiographic staff who are members of national and professional body committees. Some HEIs describe apathy within radiography as a potential barrier to further role development.

## **8.0 Summary, Conclusions and Recommendations**

The scope of practice for UK radiographers is broad and continues to expand. A number of key findings and recommendations emerge from the project. The implementation of the career progression framework is viewed by the SCoR as a success, and whilst it is acknowledged that there needs to be more consultants in post, numbers are growing as are numbers in the other tiers in both diagnostic and therapeutic radiography. Given that there were no practising radiographer consultant posts some six years ago developments are highly significant and vital to the acceptance and promotion of the career progression framework. Alliances with non-radiological colleagues are likely to result in further role expansion. There is a need for more radiographer-led clinical research to improve patient outcomes and to strengthen the profession. To support further the implementation of the career progression framework, especially at consultant and advanced practitioner levels, HEIs may need to review and modify their programmes in order to meet the requirements of

the radiographic workforce at both pre- and post-registration levels. Greater efforts to fortify, define and evaluate the role of the consultant radiographer and advanced practitioner are imperative if the career progression framework is to be integrated fully within the radiographic workplace. As a matter of urgency the Society and College of Radiographers is recommended to commission an independent evaluation of the impact of implementation of consultant and advanced practitioner such as Skills for Health has recently done for the roles of anaesthesia practitioner, endoscopy practitioner, surgical care practitioner, peri-operative specialist practitioner and physician assistant in order to assess the cost benefits of introduction of the new radiography grades.

## **Chapter 1: Background and Nature of the Research**

### **1.0 Introduction**

This report was commissioned by the Society and College of Radiographers (SCoR) at the end of 2007 to identify the current scope of practice for the radiographic workforce across the spectrum of clinical imaging and radiotherapy in the United Kingdom (UK). The work undertaken for the report originates from the School of Health and Emergency Professions at the University of Hertfordshire in collaboration with the Institute for Employment Studies (IES), an independent applied research institute with charitable status based at the University of Sussex. Team members are listed in Appendix 1. The research was wide ranging in its scope covering radiotherapy and diagnostic imaging practice in the National Health Service (NHS) both primary and secondary and independent sectors.

### **1.1 Background**

Diagnostic imaging has been subject to powerful forces for change since the late 1970s when advances in micro-processing and image acquisition enabled the capacity of imaging to increase significantly. In particular, computed tomography (CT), magnetic resonance imaging (MRI), digital radiography and the growth of ultrasound have been at the forefront of technological innovation. In the five year period from 1999 to 2004 alone there was a 10.5% increase in all imaging activities, from just over 29 million examinations in 1999 to over 30.5 million examinations in 2004 (Department of Health, 2004a). Increased capacity due to technological innovation has meant an expansion in the scope of diagnostic radiographic practice which in turn has resulted in a number of tasks previously considered to be the remit of medical personnel being undertaken by radiographers (Paterson, 1994; Price, Miller & Mellor, 2002; Price & Le Masurier, 2007; Cantin & Richards, 2007). Such tasks included giving intravenous injections, gastro-intestinal studies and image interpretation. The importance of changing practices in radiography was recognised by Government in the publication "Radiography Skills Mix" (Department of Health, 2003). A more recent perspective was presented by the Royal College of Radiologists and College of Radiographers (2007), in a report which highlighted the changes taking place, including the growth of advanced imaging options and the utilisation of skills mix to meet the increasing demand for services.

In radiotherapy, the service delivery has been changed by the introduction of designated cancer centres with networked computerised linear accelerators, together

with support facilities including complementary therapies. This has been instrumental in determining the skills needed by therapeutic radiographers (Price, Le Masurier, High & Miller, 1999; Colyer, 2000). For example, external beam radiotherapy is recommended as part of the optimal management for around 52% of patients diagnosed with cancer (Delaney, Jacob, Featherstone, Barton, 2005). Three dimensional planning, conformal therapy and the progress to intensity modulated radiation therapy (IMRT) and its related imaging have made extra demands on radiographers (Rybovic, Halkett, Banati, & Cox, 2007) while developments in brachytherapy are resulting in the treatment of many more conditions using high dose rate machines (Hoskin & Bownes, 2006). The report by the National Radiotherapy Advisory Group (NRAG, 2007) has set targets for an increase in the provision of radiotherapy by 91% in the number of fractions delivered per year to 2.8 million by 2016 and recommending the expansion of the therapeutic radiographers' role (*ibid*). However role development has proved far from easy. Whilst most NHS trusts are currently operating with a tight financial budget, the radiotherapy profession is estimated to have a current vacancy rate of 11% which limits the introduction of the changing working practices (*ibid*). The advances in technology over the past few years has meant changes both in the delivery of treatment via more complex techniques including image guided radiotherapy (IGRT) and IMRT (Bucci, Bevan, & Roach, 2005). Together with the new tomotherapy treatment units promised they will redefine the skills required for practice and open up new opportunities for specialisation. Gradually therapeutic radiographers have taken on roles more traditionally associated with the oncologist and specialist nurses (NRAG, 2007) but the perceived extent of this is far from clear. NRAG estimated that around 80% of the current cancer centre workload could be carried out by advanced or consultant grade practitioners along with the appropriate oncologist support. Implementation of this would provide further developmental opportunities for the therapeutic radiographer. The demands on therapeutic radiographers will not relent; it is currently estimated that 40% of patients cured from cancer will have had radiotherapy as part of their treatment (Bentzen, Heeren, Cottier, Slotman and Glimelius, 2005) which is an indication of the increasing workload for therapeutic radiographers.

In both diagnostic and therapeutic radiography therefore technological developments and the change in emphasis brought about by a series of Government health reforms have shaped the patterns of delivery of healthcare. Despite the evidence of radiographer role extension, there appeared to be little attempt to introduce a new framework to support and recognise the developments in practice until Evans (1999) described a framework for the breast screening service which became known as the '*four-tier structure*'. Since then, the SCoR has published strategy and policy documents to define and support the scope of practice including '*A Strategy for the Education and Professional Development of Radiographers*' (2002), '*A Strategy for the Education and Professional Development of Therapeutic Radiographers*' (undated), and '*Educational and Professional Development: Moving Ahead*' (2003a).

The first Scope of Practice document was published in 2003(b) and in the same year the career progression framework for the radiography support workforce was made available (SCoR, 2003c). The curriculum framework (SCoR, 2003d) identified skills, attributes and education outcomes for assistant practitioners, practitioners, advanced practitioners and consultant practitioners. The four-tier concept originally described by Evans was subsequently expanded, primarily by the Department of Health (Department of Health Learning and Personnel Development Division, 2003; Department of Health, 2003) to embrace both diagnostic imaging and therapeutic radiography. This has subsequently become known as the career progression framework and the SCoR has been active in promoting the framework (College of Radiographers, 2003c).

The subsequent introduction of *Agenda for Change* (AfC) (Department of Health 2004b), *The NHS Knowledge and Skills Framework and the Development Review Process* (Department of Health, 2004c) gave greater urgency to the need to consider career advancement within the radiography profession. These were major initiatives designed to provide a more extended career and reward structure for the workforce and to encourage staff, through a strategy of lifelong learning, to constantly renew and extend their skills and knowledge, thereby enabling them to move up the 'skills escalator'.

Given the extent of the initiatives taken over recent years it was therefore opportune to review the state of UK radiographic practice in 2008.

## **1.2 Aims of the Research**

The aims of the work undertaken and reported here were to:

1. Identify and quantify the different healthcare environments in which the radiography workforce function.
2. Quantify the current radiography workforce within the career progression framework.
3. Quantify the different roles undertaken by the radiography workforce within clinical practice, management, education and research.
4. Identify role developments which have occurred within the profession over the past 5 years and to describe current trends and future prediction.

The work will form the basis for drafting a Scope of Practice for consideration by the Council of the Society of Radiographers and the College Board of Trustees. The aims of the research were matched to key areas identified in the project specification published by the College of Radiographers. In meeting the stated aims of the project and in producing the report, the following key areas were considered.

- The healthcare environment: including acute/general sector, primary sector, independent sector and tertiary provision.
- The career progression framework: assistant practitioner, practitioner, advanced practitioner and consultant practitioner.
- Individual roles: in clinical practice, management, education and research.
- Individual Specialisms: across the entire spectrum of clinical imaging and radiotherapy.

## **1.3 Structure of the Report and Research Methods**

The structure and presentation of the report is sub-divided into eight chapters. To investigate the key areas a combination of methodologies was used; postal questionnaires, focus groups, interviews and online survey. Ethical Approval for the research was obtained from the School of Health and Emergency Professions Ethics Committee (HEPEC/0108/19).

Chapters 2 and 3 present data obtained from national postal surveys addressed to the superintendent radiographer/clinical manager at NHS acute hospitals and cancer centres across the United Kingdom. Chapter 2 reports the diagnostic radiography findings and Chapter 3 on the therapeutic radiography findings; each chapter includes data on extended clinical roles, research, education and radiographers' positions in respect of the career progression framework and *Agenda for Change*. The questionnaires are presented as Appendix 2 and 3 respectively.

Chapter 4 reports the findings from focus groups and interviews which provided opportunities for in-depth exploration of information emerging on the scope of current roles and in order to predict the likely future developments. Consultant radiographers and managers were invited to participate in the focus groups. Additional telephone interviews were arranged with a small number of consultants who were unable to attend the group discussions. The sample briefing notes and question prompts are provided in Appendix 4.

The extent to which the workforce was being used in the primary and independent sectors was investigated using the Bristol Online Survey (BOS) instrument; the findings are reported in Chapter 5. As there was no data base of radiographic staff working in the primary and independent centres sectors, notices were placed in Synergy and Rad Magazine and by an announcement at the British Medical Ultrasound Society Scientific Meeting to invite staff working in the sectors to participate in the survey. The online questionnaire appears as Appendix 5.

Chapter 6 describes innovative roles reported by radiographers and presents further information on future trends in practice. It highlights current activity within special interest groups and identifies unusual radiographic practice. Information was obtained via a number of methods: key individuals including professional and regional leads were identified and contacted via either email or telephone and invited to answer a short list of questions. The President of the Society and College of Radiographers (SCoR) was asked to consider key challenges facing radiographers over the next five years and the effect on radiographer role development as radiologist numbers increase.

In Chapter 7, information is presented on roles and developments in the radiographic workforce within the education sector. Heads of radiography departments in higher education institutions (HEIs) were contacted initially by email or telephone to ask whether they would participate in the research. Those who agreed were sent a list of predetermined questions which provided a template on which telephone interviews were based. Details of the questions asked are presented in Appendix 6.

Finally Chapter 8 presents a discussion on the developments, emergent issues, likely future trends in practice and conclusions and recommendations arising out of the research.

## **1.4 Summary**

The research was undertaken over a three month period and provides a comprehensive report of practice developments in radiography. With the range of initiatives and strategies introduced over the past five years the commissioning of the research reported here was timely and provides valuable information on the state of the radiographic profession in 2008.

# **Chapter 2: Exploring the Diagnostic Radiography Workforce in the NHS acute sector**

## **2.1 Introduction**

This chapter reports data on the diagnostic radiography workforce in the NHS across

the United Kingdom. A structured postal questionnaire was utilised to seek information on roles and developments in the workforce.

In particular, information was sought to:

- i. identify the different roles undertaken within clinical practice
- ii. quantify the current radiography workforce within the career progression framework
- iii. highlight the factors that encourage or deter the establishment of extended roles
- iv. identify role developments that have occurred within the profession over the past five years.

The significance of the five year period is that this is the length of time that has elapsed since publication of the College of Radiographers' previous Scope of Practice document in 2003.

## **2.2 Methodology**

### **2.2.1 Participants**

Questionnaires were addressed to diagnostic imaging managers/superintendent radiographers at 230 acute/general hospitals throughout the UK. Managers were selected because their position in their organisation would enable them to provide accurate and authoritative responses to the questions asked. Postal addresses of the hospitals were identified from the Health and Social Care Yearbook 2007-2008. The survey was targeted at the total population as this would ensure that the samples were representative and not biased in any way.

### **2.2.2 Materials and questionnaire design**

The research tool was a structured postal questionnaire. Questionnaires were divided into three sections: Section 1 - Demographics; Section 2 – Roles and Section 3 - The Radiographic Workforce. A copy of the questionnaire is presented in Appendix 3.

In Section 1 managers were asked a) to indicate the type of health board or trust in which their hospital or centre was situated i.e. foundation, teaching, non-teaching or other and b) the country or strategic health authority (SHA in which their site or centre was situated).

Section 2 asked about roles undertaken by radiographers in their department, the year of implementation of these roles if they had been implemented in 2003 or later and the numbers of radiographers involved. In the case of image reporting a follow-up question was asked regarding whether the report was independent of a radiologist. Additional questions in this section enquired if there were any barriers to introducing extended roles in their departments; any factors which encouraged the adoption of extended roles; and whether any extended roles had been withdrawn from radiographers within the last five years. For the purpose of the study, extended roles were defined as those which have been adopted by radiographers after previously being undertaken by other health care professionals, usually medical practitioners.

Section 3 focussed on the Career Progression Framework (four-tier structure) and asked about the numbers of assistant practitioners, practitioners, advanced practitioners and consultant practitioners. For each tier additional information was sought on the numbers in post, the year in which individuals were first employed at that

level, the range of Agenda for Change (AfC) bandings and their areas of practice.

### 2.2.3 Procedure

The questionnaire received ethical approval from the School of Health and Emergency Professions Ethics Committee. Questionnaires were placed in envelopes addressed to the imaging manager at a named hospital. A letter was included with each questionnaire explaining the purpose of the survey. A pre-paid addressed envelope was included for convenience of return.

## 2.3 Results

### 2.3.1 Demographic Data

Questionnaires were received from 108 managers in all of the home countries and SHAs in England, giving a 47% response rate. The overall response rate of 47% was deemed acceptable for a postal survey. Unfortunately six responses were received after the closing date and were not included. The highest response was 18 from Scotland with three from the East Midlands the lowest. The region and type of hospital for those responding are shown in Table 2.1.

**Table 2.1 Region and type of hospital**

<b>Region</b>	<b>Foundation</b>	<b>Teaching</b>	<b>Non-teaching</b>	<b>Total</b>
East of England	1	3	1	5
East Midlands	2	1	0	3
London	1	6	4	11
North East	4	2	0	6
North West	6	7	4	17
South Central	5	5	1	11
South East Coast	1	2	6	9
South West	3	2	2	7
West Midlands	1	1	3	5
Yorkshire and Humber	2	0	2	4
Northern Ireland	0	4	1	5
Scotland	0	13	5	18
Wales	0	2	5	7
<b>Total</b>	<b>26</b>	<b>48</b>	<b>34</b>	<b>108</b>

### 2.3.2 Roles

Questions 3 to 14 presented specific roles which were identified by the research team as tasks which fell into the scope of radiographic practice; ultrasound and image reporting were excluded from this section. Managers were asked to indicate whether

the roles were performed, the date of implementation if after January 2003 and the approximate number of radiographers involved. The numbers of sites undertaking the roles are presented in Table 2.2.

**Table 2.2 Role frequencies**

<b>Role</b>	<b>Number of sites</b>	<b>%</b>
IV Injections	102	94.4
Audit	101	93.5
Red Dot	91	84.3
Radiographer-led IVU	38	35.2
Radiographer-led CT	37	34.3
Radiographer-led MRI	20	18.5
Hot Reporting	19	17.6
Supplementary prescribing*	13	12.0
Pharmacological stressing in RNI	13	12.0
ATLS	9	8.3
Exercise stressing in RNI	8	7.4
Cardiac or physiological measurement	6	5.6

\* See qualifying comments on next page about supplementary prescribing.

### **Red Dot**

Of the 91 hospitals (84.3%) undertaking red dot only four had introduced it in the past five years, one in 2004, two in 2005 and one in 2006. The total number of radiographers undertaking the task at the responding sites was 2525, although eight centres did not provide a number. The numbers involved at individual sites ranged from three to 100 radiographers.

### **Audit**

At 101 hospitals (93.5%) radiographers were undertaking some form of audit and only four had commenced in the past five years; one each in 2003, 2004, 2006 and 2007 respectively. The numbers of radiographers involved across the sample was 1693 ranging from one to 100 radiographers per site; however, 31 sites did not indicate the number of radiographers involved in this activity.

### **Hot Reporting**

Nineteen hospitals (17.6%) stated that radiographers performed hot reporting. Of these, 13 had been undertaking this work prior to 2003. Within the last five years one hospital had commenced this procedure in each of the years 2004, 2005 and 2008 and three in 2007. The number of radiographers involved across all sites was 130, with the number per site ranging between 1 and 48.

### **ATLS (Advanced Trauma Life Support)**

Radiographers were involved with ATLS at only nine sites (8.3%). With the exception of two sites that began in 2006 and 2007 respectively the remainder were undertaking this work prior to 2003. A total of 153 radiographers were involved in this work ranging

from one to 45 individuals across sites.

### ***IV Injections***

IV injections were performed by radiographers at 102 (94.4%) sites; all had commenced before 2003 with the exception of two which started in 2005 and 2006 respectively. A total of 1682 radiographers from the sample were involved ranging from one to 80.

### ***Radiographer-led IVU Examinations***

Thirty eight (35.2%) of the sample utilised radiographers for this task; 11 had commenced since 2003; two in 2004; four in 2005; two in 2006; two in 2007 and one in 2008. There were 229 radiographers involved with this task ranging from one individual to 60 across all sites. *Supplementary prescribing*

It was claimed that supplementary prescribing was undertaken in 13 (12%) of the sample sites. However, the question may well have been misinterpreted and included those administering a healthcare product or medicine under a patient group direction or a patient specific direction as the HPC website (March 2007) only listed 7 radiographers as supplementary prescribers.

### ***Radiographer-Led CT Examinations***

There were 37 sites (34.3%) which reported radiographer-led CT examinations. Of these, three sites commenced in 2005; five in 2006 and four in 2007. The great majority (25) had introduced this role prior to 2003. The numbers involved across all sites was 215 radiographers.

### ***Radiographer-led MRI Examinations***

Twenty hospitals (18.5%) reported involvement of 95 radiographers overall, ranging from one individual to ten across all sites. Of those commencing the activity after 2003, one site commenced the activity in 2006 and four in 2007. Numbers at each site ranged from 1 to 25.

### ***Cardiac and physiological measurement***

Six sites (5.6%) had radiographers involved in this activity. All six sites commenced this activity after 2003; three in 2006 and one in 2007.

### ***Pharmacological stressing in radionuclide imaging***

Thirteen (12%) of the sites utilised radiographers in this role; five of these had commenced since 2003 with one each in 2005 and 2006 respectively and four in 2007. A total of 45 radiographers were involved in the activity overall.

### ***Exercise Stressing in Radionuclide Imaging***

Eight sites (7.4%) undertook this role; of these one adopted the role in 2004 and one in 2007. Overall there were a total of 28 radiographers from the sample participating in the activity.

### ***Research***

To the question 'do you have any radiographers with a substantive role in research (>0.2 whole time equivalent (WTE))' only five sites (4.6%) answered 'YES'. Three sites had one person, the fourth had two and the fifth had five. Their AfC bands ranged from 6 (three people) to 8a two people). The sites reported the areas of research respectively as:

- Ultrasound
- Clinical trials, Gamma Camera PET, MR Spectroscopy

- MRI, CT, DEXA
- Vascular intervention
- MRI

Of these only one was radiographer-led and that was in MR Spectroscopy.

### **Clinical Education**

In respect of clinical education, 45 sites (41.7%) had radiographers with a substantive role in education (>0.2 WTE). The total number of staff employed in this role was 62 with an overall WTE of 43.9; of these 16 were employed on a full-time basis. The full range of WTE employed staff are shown in Table 2.3.

**Table 2.3 Clinical education WTE**

<b>WTE</b>	<b>No. of Staff</b>
0.2	3
0.4	8
0.5	8
0.6	2
0.8	4
1.0	16
Total	62

The number of staff (not WTE) involved across the sites was 62. The AfC bands of those working in clinical education ranged from one person at band 6 to ten at 8b.

### **Radiographer-led referrals**

There were 68 sites (62.9%) with a total of 509 radiographers with responsibility for making referrals. At each site the numbers ranged from one to 60 radiographers. Twenty sites had adopted the practice in the past five years which meant that the other 60 sites had the practice established for more than five years. The areas of referral were varied and covered a number of examinations; MRI for intraocular foreign body exclusion had the highest frequency with 29 sites undertaking the activity followed by 13 sites with radiographers requesting plain films after nuclear medicine examinations. However, the great majority comprised of single occurrences. Referrals are shown in Table 2.4.

**Table 2.4 Radiographer-led Referral Area**

<b>Referral Area</b>	<b>Sites</b>	<b>Referral Area</b>	<b>Sites</b>
MRI - ?IOFB	29	US and CT	1
Plain films following nuclear med scans	13	NM, Fluorography	1
Plain films from ultrasound	7	MRI & NM plain film requests	1

Additional views from appendicular reporting	4	Lateral skull prior to MRI	1
Mammography	4	CXR following lung biopsy, CT following abnormal US, KUB after US	1
Other modalities e.g. U/S, MRI	3	General, CT, DEXA	1
Plain films	2	US to CT after discussion with radiologist	1
Further plain films GI radiographers to CT for staging CT, plain films, US	2	Sonographers - CT or x-ray following US scan	1
Plain film for KUB from sonographers	3	CT staging, chest and musculoskeletal images for RNI,	1
Orbit for MRI, plain film from nuclear medicine	1	Reporting radiographers refer for further imaging, Sonographers ref for e.g. KUB	1
GI imaging, Nuclear Med	1	Mammography. Sonographers for KUB	1
Further CT imaging if required	1	US obs/gynae	1
Plain film, Ultrasound, MRI, CT	1	US	1
A&E reporters request additional views	1	KUB, Pelvis for ? NOF at Community hospital	1
Nuclear Med - Chest	1	Radiographer judged examination - community hospital with clinical notes on form	1
Mammography by advanced breast radiographer	1	KUB / abdomen for renal stones or residual barium	1
Skull & Chest x-rays for MRI	1	Abdomen post lithotripsy follow-up	
A&E	1	Sonographers for further examinations - CT or plain film	1
US? renal calculi ref KUB, If metastases are found in abdomen CXR requested	1	Supplementary imaging after mammography by reporting radiographer	1
Plain film - chest, orbit ?FB	1		

### ***Diagnostic Ultrasound Practice***

Managers were asked to indicate against a predetermined list whether sonographers offered a service in the areas shown in Table 2.5

**Table 2.5 Ultrasound service provided by sonographers**

<b>US Area</b>	<b>Number of Hospitals</b>	<b>%</b>
Early Pregnancy	83	76.9

Nuchal	52	48.1
Gynae	92	85.2
Transrectal	21	19.4
Vascular	81	75.0
US Cardiac	7	6.5
Contrast examinations	11	10.2
Obstetrics	85	78.7
Neonatal Head	45	41.7
Abdominal	102	94.4
Small Parts	78	72.2
Musculoskeletal	42	38.9
Breast	22	20.4
Nerve blocks	0	0

## Reporting Practice

### *Ultrasound*

Excluding obstetric reporting, managers were asked to identify which phrase best fitted their departmental reporting practice in ultrasound. The options presented were:

1. A proforma or tick chart is completed by the sonographer, but verified by another person (e.g. a radiologist).
2. A proforma or tick chart is completed and verified by the sonographer.
3. An independent (free text) report is produced by the sonographer but verified by another person.
4. An independent report is produced and verified by the sonographers.

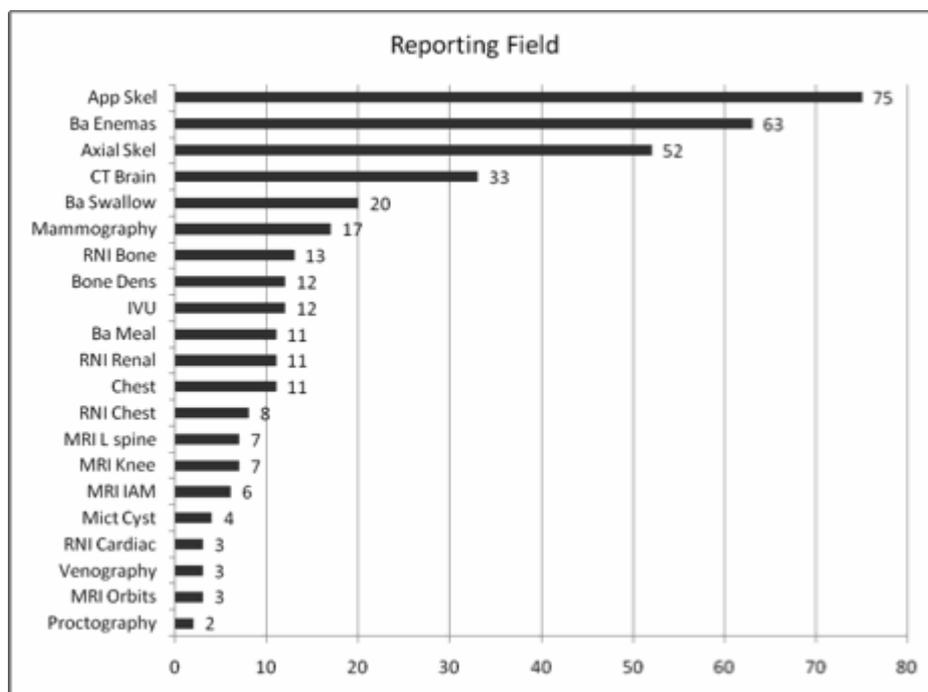
With the exception of eight managers who did not answer this question, responses are shown in Table 2.6.

**Table 2.6 Ultrasound reporting**

<b>Classification</b>	<b>Responses</b>	<b>%</b>
Sonographer tick chart but verified by another person	1	0.9
Sonographer tick chart completed and verified	5	4.6
Sonographer independent report but verified by another person	3	2.8
Sonographer independent report and verified	89	82.4
Both 2 and 4	1	0.9
3 and 4 - depending on experience	1	0.9
Total	100	92.6

## Diagnostic Imaging

The reporting fields and the number of sites are presented in Figure 2.1.



**Figure 2.1 Radiographer Reporting**

Reporting fields with a single response were breast ultrasound; CT colonoscopy intraocular foreign body for pre-MRI scans; bone ages; and hand MRI. For the most part radiographer reporting was established before 2003. For each field the numbers of hospitals commencing over the past five years are shown in Table 2.7.

**Table 2.7 Sites with radiographer reporting commencing since 2003**

Reporting Field	Sites commencing since 2003	Reporting Field	Sites commencing since 2003
Appendicular Skeleton	19	Proctography	0
Axial Skeleton	11	CT Brain	11
Chest	3	CT Other	3
Mammography	6	MRI IAM	3
IVU	2	MRI Knee	4
Paediatrics	2	MRI Other	6
Bone densitometry	4	RNI Renal	2
Barium meal	3	RNI Bone	4
Barium swallow	7	RNI Chest	3

Barium enema	15	RNI Cardiac	2
Venography	0	RNI Other	0
Micturating cystography	0	Other	5

The numbers of radiographers reporting in each area from the sample are shown in Table 2.8.

**Table 2.8 Radiographer reporters**

<b>Reporting Field</b>	<b>Numbers of Radiographers</b>
Appendicular Skeleton	144
Barium enema	92
Axial Skeleton	78
CT Brain	28
Mammography	25
Barium swallow	24
Bone densitometry	20
Paediatrics	19
IVU	17
Venography	15
Barium meal	14
MRI Other	14
Chest	10
Micturating cystography	10
RNI Renal	9
RNI Bone	8
MRI Knee	6
RNI Other	6
MRI IAM	5
RNI Cardiac	4
RNI Chest	4
Other	3
Proctography	2
CT Other	1

For each reporting field, the proportion of sites (from those where reporting is undertaken) where radiographer reporting is independent of a radiologist is shown in Table 2.9.

**Table 2.9 Radiographer reporting independent of a radiologist**

<b>Reporting Field</b>	<b>No of Sites</b>	<b>%</b>
Appendicular Skeleton	70/75	93
Axial Skeleton	48/52	92
RNI Chest	10/11	91
Paediatrics	9/11	82
RNI Bone	10/13	77
RNI Renal	9/11	82
RNI Chest	6/8	75
Bone densitometry	8/12	67
RNI Cardiac	2/3	67
Venography	2/3	67
CT Brain	21/33	64
Mammography	8/17	47
Barium enema	29/63	46
Barium swallow	9/20	45
MRI Knee	3/7	43
MRI Lumbar spine	3/7	43
Barium meal	4/11	36
MRI IAM	2/6	33
Micturating cystography	1/4	25
IVU	2/12	17
Proctography	0/2	0

### **Other extended or additional roles**

Managers were asked whether there were any other extended or additional roles which radiographers were undertaking in addition to any of those which had been presented earlier in the questionnaire.

There were 47 (44%) responses with a total of 113 roles identified across the sites. However, of these, some were a variation of the given roles presented in the questionnaire. Table 2.10 identifies the 'new' roles presented by managers and the number of sites where they had been adopted.

**Table 2.10 New or additional roles**

<b>New or Additional Roles</b>	<b>Sites Adopted</b>	<b>New or Additional Roles</b>	<b>Sites Adopted</b>
Barium studies	15	Flow rate testing & bladder screening post mict for residual volume - one stop haematuria clinic	1
Hystersalpingography	9	Intradermal areolar area injections for sentinal node imaging	1
Barium enema imaging	4	Lithotripsy	1
Video fluoroscopy	4	Liver biopsy	1
Central line insertion	3	Mammography fine needle aspiration	1
Barium swallows	2	MCU examination	1
Hickman and PICC line insertion	2	Non independent reporting of HSG	1
Sialography	2	Oesophageal dilatation angiography stenting	1
Stero core breast biopsy	2	Paediatric micturating cystogram	1
Urodynamics	2	Palatal screening	1
Abscess drainage	1	Passing guide wires through strictures prior to stent insertions	1
Advanced breast imaging, stereotactic biopsies. aspiration inc reports	1	Peripheral angiography	1
Barium enema imaging and reporting	1	Pre-op assessment for interventional patients	1
Barium enemias, swallows and meals	1	Reading of NHS BSP mammograms	1
Blood cell labelling and NM imaging	1	Sialography and dacrycystography	1
Breast cancer follow-up	1	Small bowel studies	1
Breast interventional biopsies and localisations	1	Triage for CT	1
Breast ultrasound and clinical examination	1	Triage for MRI	1
CT colonography	1	US breast biopsy	1
Dysphagia swallow screening	1	Venography	1
Endoscopy	1		

## **Barriers to introducing extended roles**

From the 75 managers (69%) who identified barriers to introducing extended roles, two main themes emerged: lack of support by radiologists and limited funding. However, a majority of respondents indicated more than one barrier or suggested barriers which were interrelated such as the expense of back filling posts in order to release staff for training. Other responses were: restricted training opportunities, unenthusiastic radiographers and poor staffing levels. There were also a number of single issues that related to individual hospitals.

### ***Radiologists as a barrier***

This was the major barrier identified by 30 respondents (28%). There were two main subsets within this group of responses: firstly strong opposition, with statements such as

*“Barium enema qualified staff blocked by radiologists.”*  
*“Clinical director does not approve of radiographer-led service or reporting except in ultrasound.”*  
*“Lack of commitment of radiologists to oversee radiographers’ training in reporting.”*  
*“Some radiologists not wanting radiographers to report.”*  
*“Radiologist resistance to CT reporting.”*  
*“Radiologists feel roles not required.”*

Secondly, some justification was offered in some cases because of junior radiologist training.

*“Teaching hospital so competing with junior radiologists.”*

In one case there were two different trends in play:

*“Training of registrars so radiologists won’t support new roles.”*  
*“More staff to train for US and plain film reporting but GI, Chest/CT head reporting stopped by radiologist.”*

### ***Funding as a barrier***

Issues around the lack of funding were the second most prominent with 25 managers (23%) claiming this was a barrier. Within this theme there were issues around the lack of funding for back-fill of posts during training and unsatisfactory outcomes of AfC.

*“Reluctance of trust to remunerate extended role practitioners.”*  
*“Cost - cannot afford to pay too many staff at band 7-8 (but money found if service needs and financial needs met).”*  
*“Expensive to release staff for training.”*  
*“Funding difficulties for appropriate AfC banding following training.”*  
*“Our service would benefit from a service to train sonographers - where backfill can be funded to allow people to train.”*

In one case there appeared to be a lack of flexibility in financial management of a department. The comment was that extended roles were excellent, especially in reporting, but the budget was not transferred from the radiologists’ reduced workload to compensate.

Training The non-availability of courses was an issue for three managers. One was specific in identifying the areas:

*“Lack of courses for chest and abdominal reporting.”*

For some respondents training was linked to funding issues such as: *“Shortage of staff to allow training combined with budget constraints.”*

### **Staffing**

Six responses indicated that a shortage of radiographers prevented adoption of extended roles. In one case this concerned the specialised nature of work (paediatric) and lack of paediatric radiographers. Two managers stated that there were high numbers of radiologists which meant that there was not a need. Of the other barriers quoted, lack of enthusiasm from some radiographers was stated in two cases. There were three managers who cited issues around AfC giving unacceptable outcomes and lack of recognition of bandings which deterred the adoption of extended roles. In another two cases the remoteness of the hospitals and a lack of radiologist support were seen as barriers. Single issue barriers included limited opportunities at an oncology centre and being a tertiary referral hospital.

### **Encouragement of extended roles.**

There were sixty responses (56%) to the question *“are there any factors that encourage the adoption of extended roles in your department?”* The most frequently reported factor was meeting the service need. Sub sets within this included supportive radiologists and management prerogatives and a positive work environment.

### **Service needs**

The issues raised were largely around the shortage of radiologists (23 responses) with two responses relating to the retirement of older, specialised, radiologists; the implication being; that they had not been replaced. Other related issues were related to workload pressures:

*“Time pressures, weekly targets and radiologists developing skills in other areas”*  
*“MRI reporting becoming increasingly necessary due to patient numbers and we will be looking to the future.”*

In another case it was said that radiologists’ interests were focussed elsewhere, the implication being that this allowed opportunities for radiographer role development. Another manager gave an example of where proven role extension in one area had subsequently led to developments in another:

*“In areas where role extension has been adopted the benefits are seen and it is encouraged e.g. - now virtual colonoscopy.”*

Waiting list targets and government initiatives were cited by 12 respondents, such as this comment from a manager who summed up the issue as follows:

*“The waiting list initiative has put pressure to increase plain film reporting by radiographers.”*

It was clear that a supportive work environment was important and it was evident that a number of managers felt that support from radiologists was important in promoting role extension, for example:

*“A forward thinking clinical director and radiologists.”*

Another respondent saw *“progressive management and a positive work environment to*

role development as being critical factors.” This sentiment was echoed by several more managers:

*“Band 7 for reporters and most courses are fully funded.”*

*“Professional recognition, CPD requirement and financial benefit.”*

*“Foundation trust is keen to develop staff; appointed a department training and Development manager.”*

*“Financial incentive more roles accepted.”*

*“Management and appraisal system plus general culture of department encourages development”.*

*“AfC and implementing 4 tier structure.”*

*“To aid recruitment and retention.”*

*“This department will provide the time, training and finance to any member of staff who wishes to undertake an extended role.”*

In a similar vein another manager probably summed up the key factors as being:

*“Enthusiastic staff and middle management, lack of interest in areas by radiologists such that that they may want to relinquish certain roles.”*

As well as support within the department, support through funding for pilot initiatives was also helpful:

*“Financial support from NES [NHS Education for Scotland], pilot site for the four tier structure.”*

While some managers suggested that having a remote and rural location was a barrier, others felt that this situation lends itself to multitasking and role extension. Finally, an important ingredient recognised for radiographers wishing to adopt new roles was stated by one manager as:

*“Plenty of enthusiastic radiographers.”*

## **Withdrawn Roles**

Only four roles had been withdrawn over the past five years; these are shown in Table 2.11.

**Table 2.11 Withdrawn Roles**

<b>Role</b>	<b>Frequency</b>	<b>Date</b>	<b>Reason for withdrawal</b>
CT head reporting	1	2005	One radiologist out of seven against therefore staff trained but service not implemented
Barium enema independent reporting	1	2006	Audit identified need for dual reporting, consultants had very different technique
Red dot	1	2006	Technical reasons with PACS but radiographer comment sheets now used
Enema radiographer	1	2006	Lack of practice to maintain skills

### **2.3.3 The Radiographic Workforce**

This section presents research on the career progression framework. The overall representation of assistant practitioners, practitioners, advanced practitioners and consultants in the Career Progression framework across the sample by region is shown in Table 2.12.

**Table 2.12 Career progression tiers by region**

<b>Region</b>	<b>Assistant Practitioner</b>	<b>Practitioners</b>	<b>Advanced Practitioners</b>	<b>Consultants</b>	<b>Consultants in the future</b>
East of England	4	4	5	0	1
East Midlands	3	1	3	1	0
London	7	5	5	1	0
North East	5	5	4	2	1
North West	13	15	12	3	4
South Central	8	8	9	1	4
South East Coast	8	7	8	1	3
South West	4	7	7	3	2
West Midlands	3	3	5	0	0
Yorkshire and Humber	2	3	3	1	0
Northern Ireland	3	5	4	0	2
Scotland	5	9	9	0	2
Wales	3	5	4	1	1
<b>Total</b>	<b>68</b>	<b>77</b>	<b>78</b>	<b>14</b>	<b>20</b>

Overall, 14 hospitals had consultant radiographers in post but only nine had radiographers in all four tiers. Thirty eight sites had all tiers except consultant and 15 sites had advanced practitioners and practitioners. Two hospitals had all levels of staff except assistant practitioners; however these sites did have assistant practitioners in training. A point to note is that only 77 hospitals (70%) stated that they had practitioners in post; 14 (13%) did not respond to the question and the remaining 18 (17%) stated 'no'.

### ***Assistant practitioners***

There were 68 sites (63%) with a total of 185 assistant practitioners in post; the number per site ranged from one to seven with a mean of 2.8. The percentage of sites within the sample that employed assistant practitioners within each region is shown in Figure 2.3.

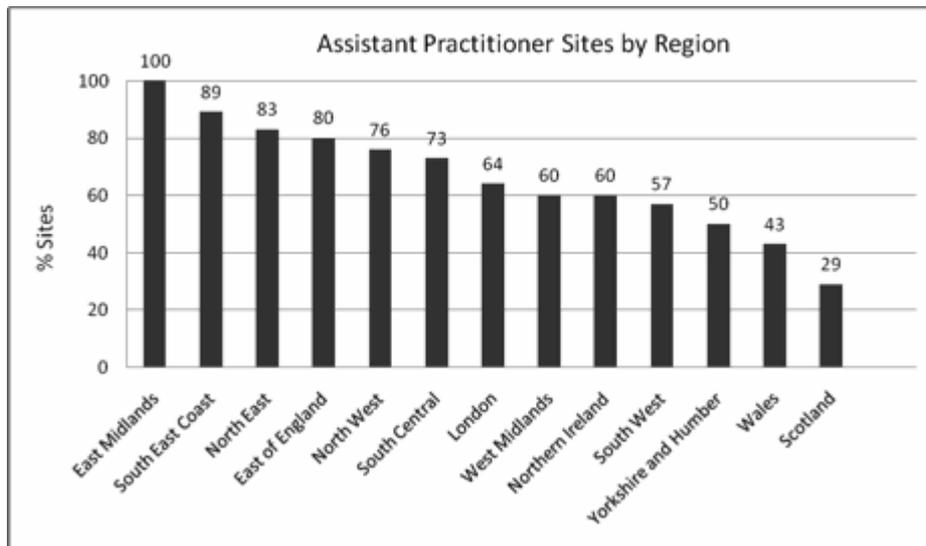


Fig 2.3 Percentage of hospitals employing assistant practitioners by region

Fifty three respondents provided the date when assistants were first employed if it was after 2003. The year of first employed by site is shown in Figure 2.4.

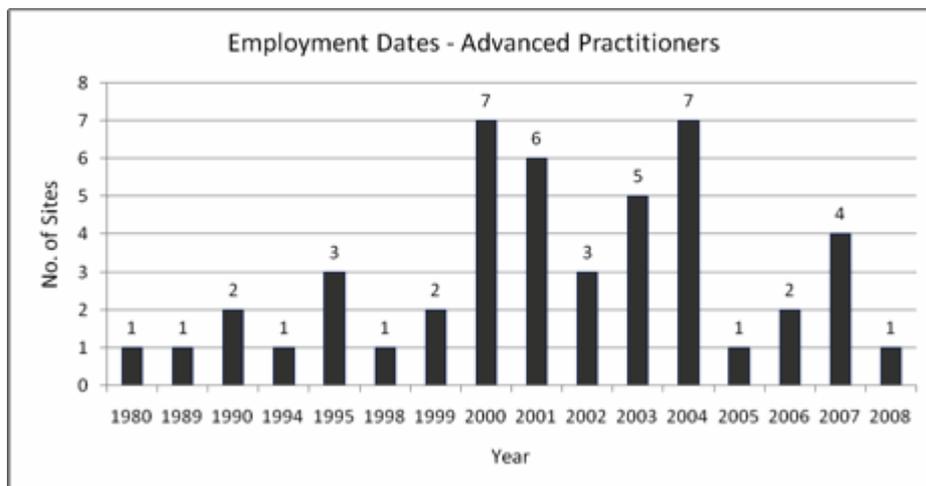


Figure 2.4 First employment of assistant practitioner by site

AfC bandings for assistants are presented in Table 2.13

Table 2.13 Assistant Practitioners AfC Bands

Bands	Frequency	Percent
3-4	9	8.3
3	2	1.9
4	55	50.9

Areas of practice of assistant practitioners are presented in Figure 2.5.

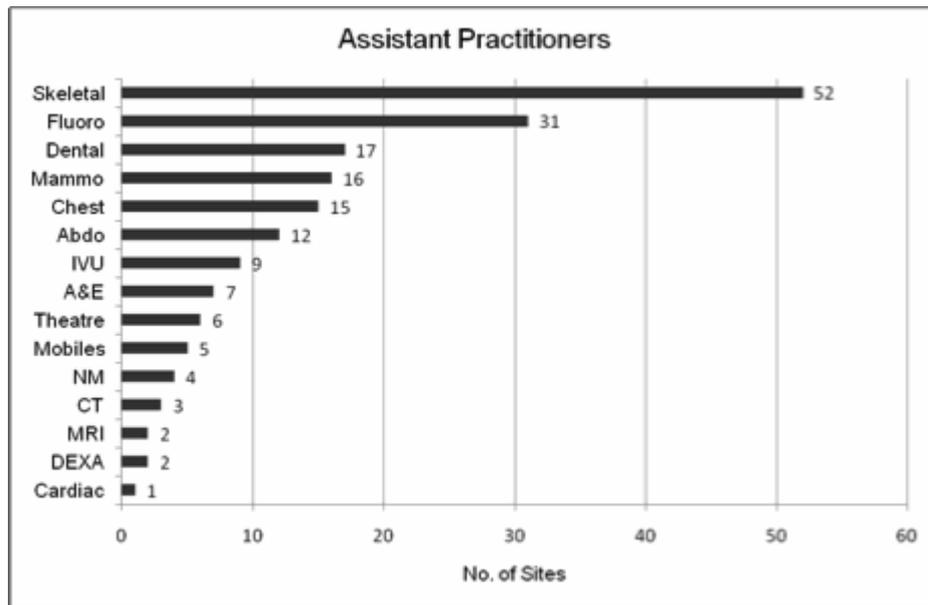


Figure 2.5 Assistant practitioners area of practice

Responses from 21 (19.4%) sites stated that they would be introducing assistant practitioners in the future and only 15 (13.9%) stated they had no intention of doing so.

### ***Practitioners***

From the sample there were 2308.66 WTE practitioners declared from 76 hospitals (70.4%). Fifteen respondents did not complete this question and a further 17 (15.7%) stated that they did not classify staff as practitioners. The stated AfC bandings for those sites declaring are presented in Table 2.14.

Table 2.14 AfC Practitioners Bandings

Bands	Frequency	Percent
5 to 7	17	15.7
5 to 6	28	25.9
5 to 8a	12	11.1
4.0	1	0.9
5.0	3	2.8
6.0	3	2.8
7.0	1	0.9
7 to 8a	1	0.9

5 to 8b	3	2.8
6 to 7	5	4.6
5 to 8c	1	0.9
3 to 8b	1	0.9

The range of practice areas that respondents reported practitioners undertaking covered the entire spectrum of imaging: A&E; angiography; bariums; bone densitometry; CT; cardiology; coronary angiography; dentals; fluoroscopy, general radiography, interventional; MRI, mammography (including localisation), mobiles, nuclear medicine; orthopaedics; reporting; theatre, ultrasound and vascular imaging. Practice areas are shown in Figure 2.6.

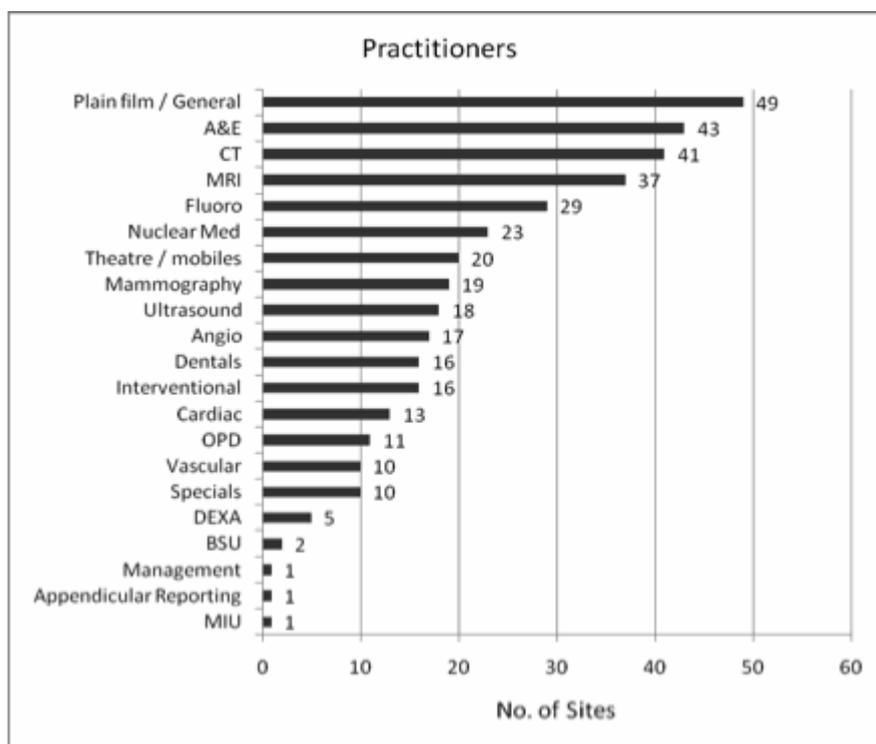


Figure 2.6 Practitioners' areas of practice

### **Advanced practitioners**

Some 79 hospitals (73.1%) employed a total of 885.7 WTE advanced practitioners. The percentage of hospitals employing advanced practitioners is shown in Figure 2.7.

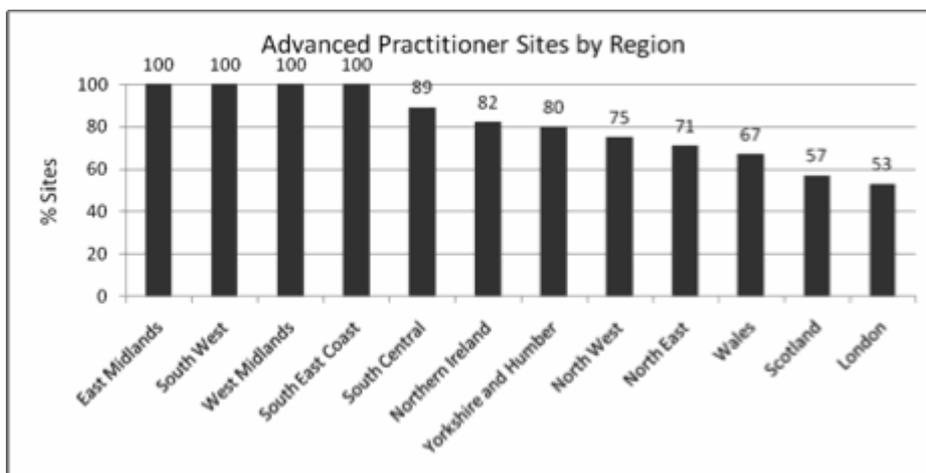


Fig 2.7 Percentage number of sites employing advanced practitioners by region

The dates when the appointments were first made were provided in 47 responses and these are presented in Figure 2.8.

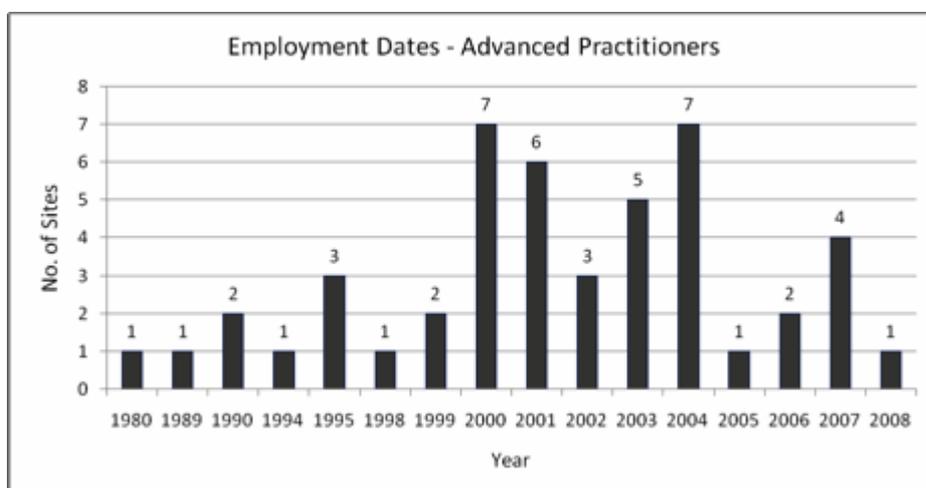


Figure 2.8 First employment of advanced practitioners by site

The AfC bands for advanced practitioners are presented in Table 2.15.

Table 2.15 AfC Advanced Practitioners' Bandings

Frequency	Percent
6 to 8a	3
6 to 7	8
5 to 6	1
7 to 8	5
7 to 8a	16
8a to 8b	2
7	37
7 to 8b	6

Areas of practice were again varied and included: A&E reporting; barium enemas; barium reporting (Lower GI); breast imaging; breast screening unit (BSU); CT; cardiac; DEXA; fluoroscopy; IVU; IVU reporting; MRI; mammography; paediatrics; plain film; plain film reporting; reporting; 'specials'; ultrasound; ultrasound reporting; urodynamics, venous access under implementation. The frequency of distribution of these activities is shown in Figure 2.9.

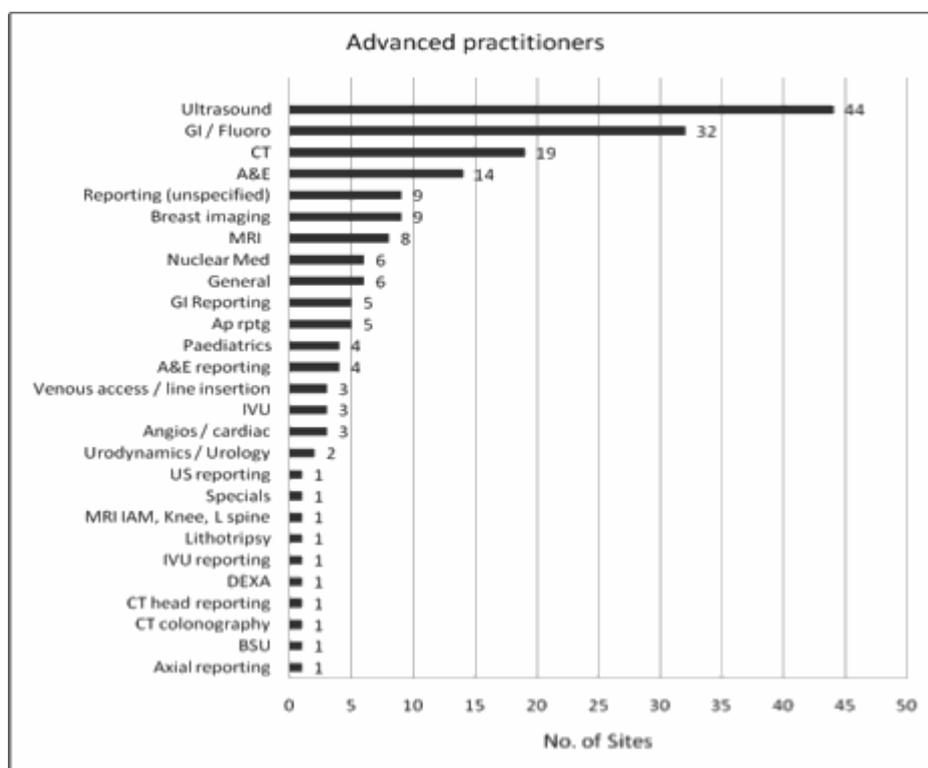


Figure 2.9 Advanced practitioners' areas of practice

When asked about future intentions to introduce advanced practitioners, nine respondents indicated they would be introducing these posts and ten indicated that they would not. For the sites that intended to appoint advanced practitioners in the future, the practice areas in which they would be introduced are shown in Table 2.16.

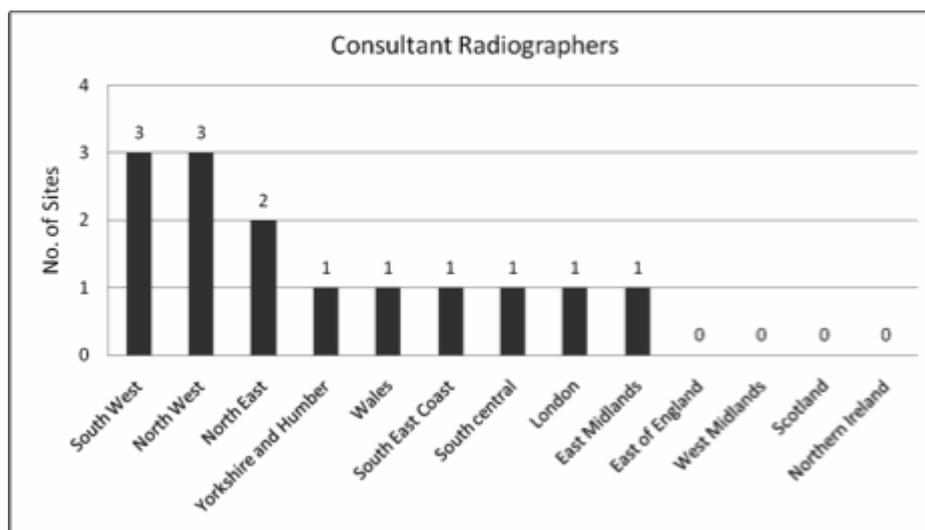
Table 2.16 Areas in which advanced practitioners would be appointed in future

Practice Area	Frequency
Mammography, Upper & Lower GI Tract	1
Plain film / barium enema reporting	1
Reporting of PF	1
Musculoskeletal reporting	1
Chest reporting (adults only)	1
Reporting appendicular skeleton	1
Musculoskeletal plus chest reporting, CTC reporting	1

Barium enema reporting	1
Unsure	1

### ***Consultant practitioners***

From the sample, 14 hospitals stated they had consultants in post. Thirteen sites reported having one consultant in post and one had five, giving a total of 18 from the sample. However, it was noted in the response from the centre claiming to have five consultants that their AfC bandings ranged from 6 to 7, which would suggest that these individuals were not, in reality, consultants. The geographical distribution of sites employing consultant radiographers are shown in Figure 2.10.



**Figure 2.10 Hospitals employing consultants by region**

Their AfC bandings ranged from five at bands 6 to 7; nine at 8b and three at band 8c and one was not stated. Their specialisms were stated as:

- Ultrasound 3 posts;
- A&E 2 posts;
- GI imaging 2 posts;
- Management 5 posts;
- Mammography 3 posts;
- BSU 1 post;
- Chest 1 post;
- Reporting 1 post.

Nineteen respondents (17.6%) stated that they had developmental posts for consultants and twenty (18.5%) said their hospital was planning to introduce consultant radiographer posts in the future. The extent of proposed future employment of consultant radiographers by region is shown in Figure 2.11.

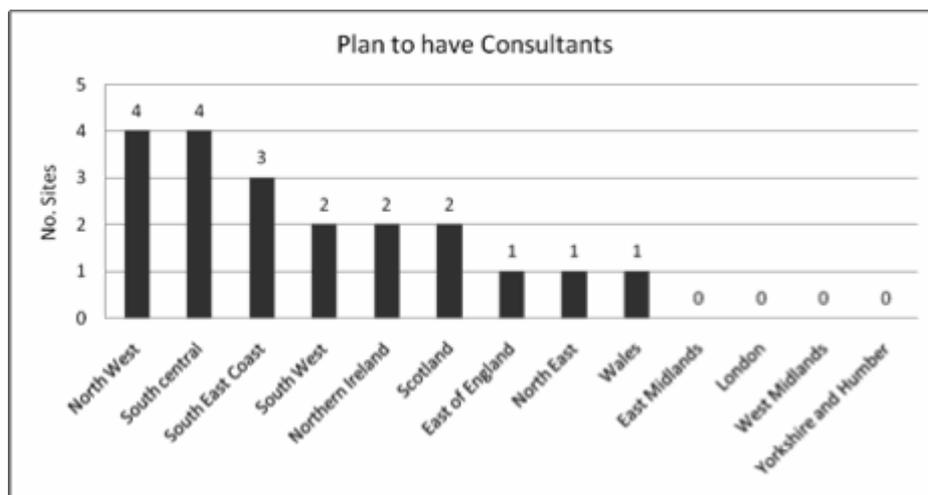


Figure 2.11 Plans for future employment of consultant radiographers

The consultant specialisms which were being considered for these future posts are presented in Table 2.17.

Table 2.17 Specialisms identified for future consultant posts

Identified areas for future consultant posts	Number of Sites	Identified for future consultant posts	Number of Sites
Ultrasound	11	CT or MRI	1
A&E imaging	4	CT reporting, colorectal service	1
Plain film reporting	5	Colorectal imaging	1
Nuclear medicine	3	Fluoroscopy, endoscopy	1
Breast imaging	6	Fluoroscopy	1
GI specialist	2	Musculo-skeletal imaging	1
Research/audit	2	MRI	1
U/S, CT, MRI imaging	1	Ultrasound biopsies	1

#### Other comments

Respondents were asked if they wished to add any additional comments to what they had provided in the questionnaire. Issues around AfC raised concerns for some managers; typically these were regarding outstanding appeals of bandings. For example, one manager stated that:

*"Bandings are not all settled yet - there are several staff who have not been assimilated so bandings are speculative."*

In one region restructuring was seen as problem.

*"The re-structuring in [the trust] has put departments under stress due to staff shortages and frozen posts."*

One final comment worthy of note was a perceived lack of opportunity of role development in an oncology setting for diagnostic radiographers.

## 2.4 Discussion

It was clear that radiographers' roles are continuing to develop and become consolidated within the scope of practice. The involvement of radiographers in image interpretation reporting is now well established and at many sites those reporting are doing so independently of a radiologist. Interestingly, evidence on the withdrawal of roles was provided by only four centres. In one of these, technological advancement had meant that red dot had been dropped in favour of radiographer comment forms introduced alongside PACS. However, of concern was the fact that, in one centre, one radiologist out of seven was against independent reporting by a radiographer for barium enemas and despite the fact that staff had been trained for the role the service had not been implemented.

Nearly 43% of sites had radiographers working for a substantive part of their time in clinical education, with 10 posts banded at 8b, which shows the importance now assigned to this area of work. With regard to research, the results were disappointing with a substantive role for radiographers being identified in only five centres and with research being radiographer-led in only one of these. Audit, on the other hand, was undertaken by the great majority of centres (some 94%).

It was observed that in some cases similar issues were cited both as barriers to extended roles and as factors encouraging their introduction. For example, in one rural hospital the lack of a radiologist was seen as a barrier but in another it was seen as a factor that encouraged role extension. Funding and issues around AfC were also provided as reasons for deterring role development as well as its encouragement.

Overall, it was clear that radiologists were viewed as the main barrier to the adoption of extended roles but in other centres they were advocates of role extension. In any rational situation it is to be expected that decisions regarding the introduction of role extension would be determined on grounds of service need and implemented on an evidence based approach rather than being blocked because of the objection of one person because they do not agree with the concept.

The career progression framework is being implemented by the majority of centres but clearly has not been embraced by all and there was no consistency across regions. Assistant practitioners were employed in every region but with London having the lowest percentage. The North East and Wales had the least number of sites employing advanced practitioners 45% and 53 % respectively but all sites responding from the East Midlands, London, West Midlands and Yorkshire and Humber all employed advanced practitioners. Consultants were the least represented with none reported in the East of England, West Midlands, Northern Ireland and Scotland. A number of sites, however, indicated that they will be introducing assistant practitioners, advanced practitioners and consultant posts at some time in the future. With regard to consultant posts, the survey identified 14 such posts but The Society and College of Radiographers' own data base indicates that more than 20 consultants are currently in post across the UK and so these data are probably a conservative estimate of the current numbers. Given that just under half of radiography managers responded, it appears likely that numbers across the UK as a whole may well be double those reported above.

# Chapter 3: Exploring the NHS Therapeutic Radiography Work Force

## 3.1 Introduction

This chapter reports data on the therapeutic radiographic workforce in the NHS across the United Kingdom. Structured postal questionnaires were utilised to seek information on developments in therapeutic practice.

In particular, information was sought to:

- i. Identify the different roles undertaken within clinical practice.
- ii. Quantify the current radiography workforce within the career progression framework
- iii. Identify factors that encourage or deter the establishment of extended roles
- iv. Identify role developments, which have occurred within the profession over the past 5 years.

The significance of the five-year period was the time of the publication of the College of Radiographers previous Scope of Practice document in 2003.

## 3.2 Methodology

The methodology used for the therapeutic questionnaire was similar to that used for the diagnostic questionnaire described in Chapter 2. This section will only describe those aspects of the procedure that were modified for the therapeutic questionnaire.

### 3.2.1 Participants

Questionnaires were addressed to radiotherapy managers at 63 cancer centres throughout the UK.

### 3.2.2 Materials and questionnaire designs

The questionnaire was divided into three sections; Section 1 - Demographics, Section 2 - roles and Section 3 - Radiographic Workforce. The full questionnaire is presented in Appendix 3.

## 3.3 Results

### 3.3.1 Demographic Data

Questionnaires were received from 33 managers giving a 53% response rate. No replies were received from Northern Ireland or the South East Coast within the specified timescale. Table 3.1 indicates the number of responses detailed by region and type of centre.

Table 3.1 Type of hospital by region

---

Region	Foundation	Teaching	Non Teaching	Total
--------	------------	----------	--------------	-------

East of England	2	2	1	5
East Midlands	0	2	0	2
London	4	2	1	7
North East	1	1	0	2
North West	1	0	0	1
Scotland	0	1	0	1
South Central	1	1	0	2
South West	4	2	0	6
West Midlands	1	2	0	3
Yorkshire & Humber	1	1	0	2
Wales	0	2	0	2
<b>Total</b>	<b>15</b>	<b>16</b>	<b>2</b>	<b>33</b>

### 3.3.2 Roles

Questions 3 to 17 presented specific roles which were identified by the research team as tasks which fell into the scope of radiographic practice. Managers were asked to indicate whether the roles were performed, the date of implementation if after January 2003 and the approximate number of radiographers involved. Table 3.2 shows the number of departments with therapeutic radiographers with extended roles in specified areas.

**Table 3.2 Extended role activities reported by departments**

<b>Role</b>	<b>Number</b>	<b>% of Respondents</b>
Research	20	61
Clinical Education	23	70
Multi disciplinary teams (MDT)	24	73
Pre-treatment simulation	33	100
Dosimetrist	19	58
Counselling	4	12
Information & Support	15	45
Quality assurance	26	79
Acupuncture	0	0
Treatment verification	33	100
Brachytherapy	20	61
Treatment Review	21	64
Patient Follow Up	10	30

### **Research**

Research radiographers were involved in a variety of projects. The following activities presented in Table 3.3 were reported as being within their remit.

**Table 3.3 Research radiographer activities**

<b>Activity</b>	<b>Number of Centres</b>	<b>% of Centres</b>
Clinical Trials	20	61
Radiographer-Led Audit	14	42
Oncologist-Led Audit	10	30
New Technologies	11	33
Radiographer-Led Research	14	42
Oncologist-Led Research	12	36

The number of radiographers involved in research within each cancer centre varied. Ten departments had only one radiographer in post, whilst five had 2 and four had 3. One centre had a 0.5 WTE post. Of those departments with a research radiographer the reported bandings were in the range of 5-8a, although with only one radiographer in post they were in the range of 6-8a. One site reported a research radiographer who was working within the centre but was employed by a university, whilst another had a post that was funded by their own grant income.

### **Clinical education**

Therapeutic radiographers involved with clinical education were reported by 22 (67%) of the departments. Their bandings ranged from 7 to 8a and teaching involved a wide range of students including undergraduate radiotherapy, nursing and medical students. Other staff being taught included assistant practitioners, helpers and booking staff. One centre also incorporated within the role the provision of educational talks to groups outside the centre including schools and the Women's Institute.

### **Multidisciplinary team (MDT) meetings**

Twenty-four centres (73%) had therapeutic radiographers involved in multidisciplinary team (MDT) meetings. Their roles varied from being an observer or nominal member to extended team member. A significant number of reported roles (42%) involved coordinating the patients' journey through the radiotherapy treatment. Other roles included identifying patients suitable to enter clinical trials, advising on radiotherapy and generating new ideas. In one centre The MDT specialising in anal cancer is run by a therapeutic radiographer.

The following graph, Figure 3.1 identifies the number of departments with radiographers involved in MDT meetings and for which cancer site they represented.

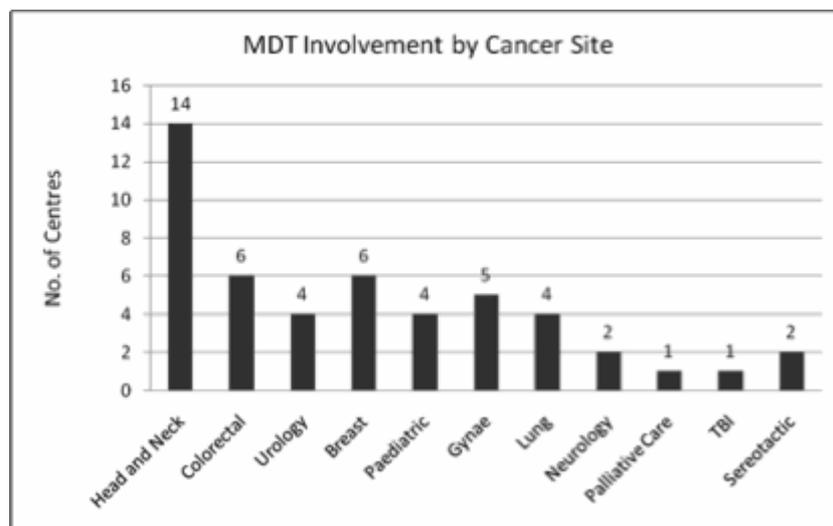


Figure 3.1 MDT involvement by cancer site

### **Information and support radiographers**

Of the 15 (45%) departments having information and support radiographers, eleven were funded by the NHS. One was funded by the Macmillan Cancer Charity, and three were co-funded. Bandings ranged from 6 to 8a.

### **Pre treatment simulation**

All departments had therapeutic radiographers working in pre treatment simulation. Figure 3.2 shows their range of bandings.

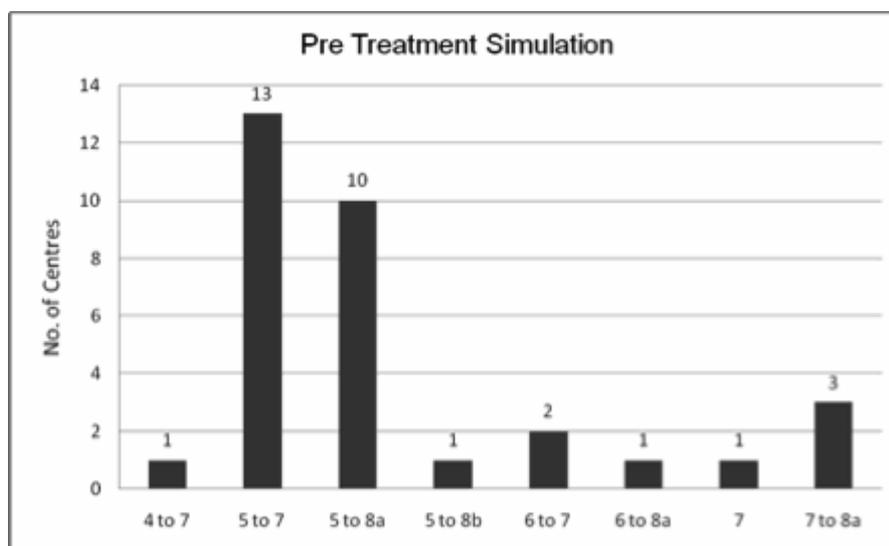


Figure 3.2 Range of radiographer bandings for pre treatment simulation

Within the roles of pre simulation, the following activities were reported.

Table 3.4 Roles in pre treatment simulation

Activity	Numbers	% of Respondents
CT Planning	27	82
Virtual Simulation	24	73

MRI Planning	3	9
PET/CT Planning	1	3
Radiographer-Led Planning	26	79
Autonomous Planning	24	73
Treatment Prescribing	2	6

The areas covered by the autonomous protocols were mainly breast and palliative work. One centre also included vaginal vault insertions. Of those involved in autonomous planning, it was indicated that a clinical oncologist had to be involved at some stage either to consent the patient or to prescribe and approve the final plan.

The developing roles within the pre treatment area reported by departments included breast mark up (5), prostate outlining (2) IV contrast (6) and radiographer led CT planning and virtual simulation (3).

The majority (20 centres, 61%) had therapeutic radiographers working as dosimetrists within their departments, although one indicated that dosimetrists at their site were employed by the physics department. The number employed ranged from 0.8 WTE to 9 WTE. In ten departments the posts were rotational. Their agenda for change bandings ranged from 5 to 8a. Eleven of the departments indicated that the radiographers could define the planning target volume with nine signifying that this was to a pre-defined protocol. The anatomical sites covered by these protocols included most sites overall, but did vary between departments. Some were allowed to denote organs at risk, whilst others were limited to palliative treatments only.

### ***Counselling***

Only four departments reported having counselling radiographers. One had two in post whilst a second reported a 0.2 WTE post. The bandings ranged from 6-7. All were NHS funded and covered general aspects of patient anxiety related to their treatment and diagnosis. One radiographer was reported as extending their role to include the support of radiography staff as well as patients.

### ***Quality Assurance***

Radiographers involved in leading the quality assurance accreditation process were present in 28 (85%) departments.

### ***Alternative therapies***

Only one centre indicated that it had therapeutic radiographers involved in alternative therapies, this being reflexology and hypnotherapy. A second had a radiographer undertaking training for acupuncture.

### ***Treatment verification***

All departments had radiographers undertaking on-treatment verification. The numbers involved varied from as many as 50 to as few as three. Their AfC bandings covered from 5 to 8b. Within the role their responsibilities were broken down as follows and are presented in Table 3.5.

**Table 3.5 Radiographers roles in image verification**

<b>Activity</b>	<b>Numbers</b>	<b>% of Respondents</b>
-----------------	----------------	-------------------------

Image Approval	32	97
Developing Verification Protocols	31	94
IMRT/IGRT Verification	17	52
IMRT Image approval	17	52
Implementing New Technologies	17	52

### ***Brachytherapy***

Radiographers working within brachytherapy were reported by 21 (64%) departments, with nine (27%) working independently. Radiographers trained in insertion techniques were in nine (27%) departments, whilst ten (30%) had extended roles including running the implant service, preparation for seed implants for prostate cancer, supplementary prescribing and therapeutic radiographer-led MRI planning. One centre had radiographers involved in the network service co-ordination.

### ***Treatment review***

On-treatment review clinics were staffed by therapeutic radiographers in 21(64%) departments. The numbers involved at each centre ranged from 0.2 WTE through to 10 WTE, whilst their AfC bandings spanned from 5-8a. Only 7 (21%) had radiographers involved in supplementary prescribing. As mentioned in Chapter 2, supplementary prescribing could have been confused with other prescribing arrangements. Ten (30%) departments had therapeutic radiographers involved in patient follow up clinics, with numbers involved ranging from 0.25 WTE through to 7 WTE. Bandings extended from 6 to 8a. The patients in these clinics had received treatment in the following areas; head and neck (3), gynaecology (2), urology (3), breast (2), neurology, Lung (CHART), brachytherapy and colorectal.

### ***Other roles***

The implementation of new technologies revolved largely around IMRT and IGRT, with 14 (42%) respondents citing this as being within their role. Other areas under development included the use of respiratory gating (3), new breast techniques, in vivo dosimetry and cone beam imaging. Six departments had radiographers involved in multidisciplinary technique development groups for specific areas. One centre indicated that the radiographers are encouraged to “consider their techniques” and then to “make changes as appropriate”.

Other role developments included the use of ultrasound for prostate verification prior to treatment, consenting patients, supplementary prescribing and on-treatment review for breast patients. Site specialist radiographers were present in nine (27%) departments; actual numbers ranged from 1.7 WTE to 8 WTE. Their bandings were 6-8a. Specialist areas which were identified fell into three main categories. These covered treatment sites, research and others.

Site specialism included Breast (2), Prostate (2), Head and neck, Lung (CHART), Paediatrics, Stereotactic Radiosurgery and TBI. In addition gynaecological sites were mentioned along with related issues including sexual health (2) and Feminine care (2).

The research specialist areas included Trial randomisation and Research, Clinical governance and audit (2). Other roles ranged from Systems administration (2) Lymphoedema specialist, Professional Development specialist through to Consenting patients, Pre treatment assessment (2) and intra muscular injections of anti hormone treatments for breast and prostate patients. Two departments indicated that they had specialist roles included within the superintendent’s role and that these posts were rotated.

Planned roles to be implemented in the near future included: site specialists (8) including breast (2), colorectal, lung, prostate, a Head and Neck advanced practitioner to cover patients from MDT through to follow up, radiographer led palliative planning (4) and advanced imaging practitioners. Others included review radiographers (3), technical leads for IMRT, IT specialists, research and professional development and training. Only four departments indicated that roles had been withdrawn within the last five years. These included an information and support role, a research radiographer (“replaced by a band 5 nurse”), a counsellor/liason radiographer and a mould room radiographer.

**Barriers to extended roles**

The main barriers to implementing extended roles were largely financial with 10 (32%) saying that their limited budget prohibited the adoption of specialist roles. Unfilled staff vacancies were identified by eight (24%) departments and difficulty in recruiting with AfC bandings was cited by a further two (6%). One centre had lost staff following the allocation of its AfC bandings. Only two (6%) departments had experienced resistance from medical consultants in developing extended roles, whilst three (9%) identified nurses as providing resistance to change as they were “unable to accept that therapy radiographers have ability and knowledge” to undertake roles within review and follow up. One also felt that nurses had “beaten us to it” as they already had these specialists in place. Another reported that the employment of a staff grade oncologist had “stalled the previous enthusiasm” for radiographer role development.

Twenty-one (64%) were considering the introduction of consultants within the near future. The roles envisaged for them included research (2), brachytherapy (3), breast site specialist (3) and palliative care (5). Two departments felt that they would be developed “where the greatest benefit would be” and “as the need was identified”, whilst a further three departments were uncertain of the role.

Regarding the current changes, one centre felt that many of the new roles were “too specialised for smaller centres” and consequently would not have a workload to justify advanced practice or consultant status. One centre commented how, with the increase in the data to be manipulated, the contact with the patients had been drastically reduced. Another stated that the centre had become more flexible in its work patterns in order to provide a “demand led service”. Another had radiographers involved on the planning team for their new cancer centre. It was felt that changing technology had led to an increase in the use of cross sectional anatomy and that the advanced practitioner and consultant roles were gradually taking over roles more traditionally associated with the specialist registrars.

**3.3.3 The Radiographic Workforce**

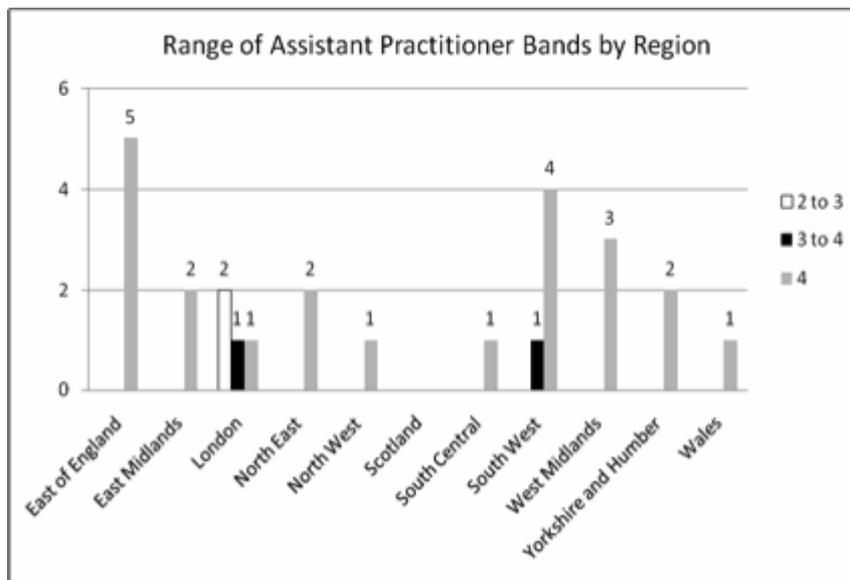
This section presents the findings regarding the position of staff on the career progression framework, namely in each of the four named tiers. Table 3.6 summarises the number of departments operating the given tiers for therapeutic radiographers.

**Table 3.6 Career progression tiers by region**

<b>Region</b>	<b>Assistant Practitioner</b>	<b>Practitioner</b>	<b>Advanced Practitioner</b>	<b>Consultant Radiographer</b>	<b>Consultant Training Post</b>
---------------	-------------------------------	---------------------	------------------------------	--------------------------------	---------------------------------

East of England	5	4	4	2	1
East Midlands	2	2	2	1	0
London	4	3	3	0	0
North East	2	1	2	0	0
North West	1	1	0	0	1
Scotland	0	1	1	0	0
South Central	1	0	0	0	0
South West	5	6	3	0	1
West Midlands	3	3	0	0	0
Y'shire & Humber	2	1	2	0	1
Wales	1	1	1	0	0
<b>Total</b>	<b>26</b>	<b>23</b>	<b>18</b>	<b>3</b>	<b>4</b>

From the data supplied the following ranges of bandings were reported for the different titles allocated within the career progression framework and are shown in Figures 3.3 to 3.5.



**Figure 3.3 Assistant practitioner bands by region**

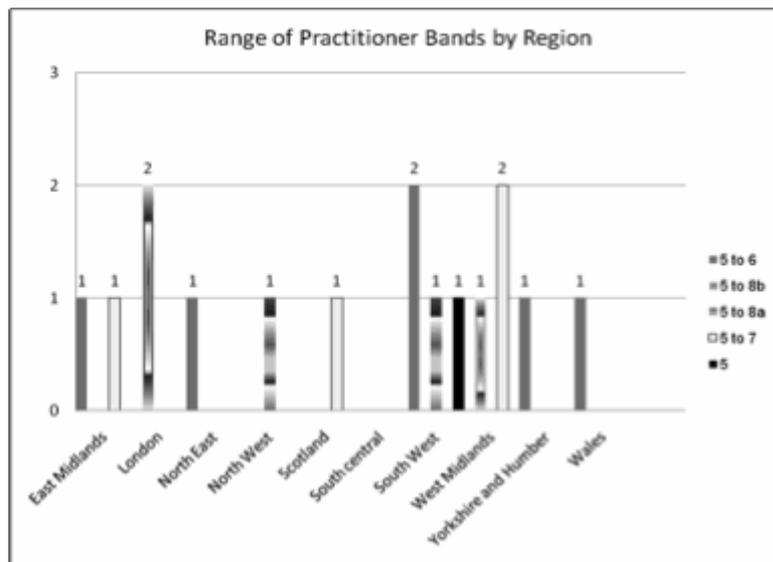


Figure 3.4 Practitioner bands by region

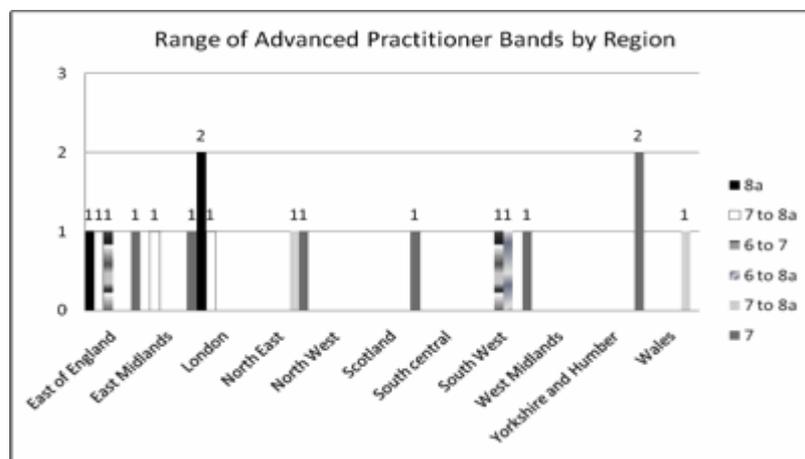


Figure 3.5 Advanced practitioner bands by region

Of the three departments that reported consultant radiographers, the bandings given were two at 8a and one at 8b. Their roles covered neuro-oncology, gynae-oncology, palliative oncology and the introduction of new technologies.

### 3.4 Discussion

The role of the therapeutic radiographer is expanding. Involvement in pre treatment simulation is beginning to allow autonomous planning and treatment prescribing by more radiographers (table 3.4). This is further supported by specialist brachytherapy radiographer developments reported by nine (27%) sites.

Radiographer led follow up clinics and on-treatment review clinics are being supported. Seven (21%) departments have therapeutic radiographers involved in supplementary prescribing. With respect to unfilled vacancies, the results of the questionnaires correlate with the NRAG report (2007) findings in that ten (30%) departments indicated that staffing vacancies were a barrier to implementing role extension.

Since 61% of departments have research radiographers, and 94% have radiographers involved in the development and implementation of both verification protocols and the implementation of new technologies and techniques, the requirement for research

within the profession, as highlighted by both the ACCORN working party (2007) and the SoR (2005), seems to have been met. Although only two (6%) departments have reported resistance from medical consultants for role development, it was disappointing to note three (9%) had experienced resistance from nursing staff.

The data provided evidence that the career progression framework is being introduced but, from the sample, in only two regions were there posts in all four tiers. The appointment of consultant grades is being implemented slowly and with only three (9%) of the centres indicating their presence. Whilst a further 21 (63%) were considering their appointment, only four (12%) stated that they had a consultant training post in existence. Moreover only 18 (54%) of centres had advanced practitioners in post and five (15%) were unsure as to where the consultants could best be utilised.

## **Chapter 4: Focus Groups with Radiography Consultants and Managers**

### **4.1 Introduction**

This chapter describes the outcomes of focus groups and interviews that explored in-depth issues concerning the implementation and scope of current roles and factors influencing implementation. The discussions also provided an opportunity to discuss likely future developments in the profession.

A total of three focus groups were conducted during February and March 2008 at the College of Radiographers' premises in London with managers of therapy and diagnostic services and with diagnostic consultants. Because there were insufficient numbers of therapeutic consultants in post at that time to enable a focus group<sup>1</sup>, therapeutic consultants were invited to take part in telephone interviews. Additional telephone interviews were also arranged with a small number of diagnostic consultants who were unable to attend the group discussions.

### **4.2 Methodology**

In February and March 2008 letters of invitation were sent out to radiography consultants (with contact details being provided by SCoR) inviting them to participate in focus group sessions to be held at SCoR headquarters in London. Managers had been offered an invitation to participate via the earlier survey, and those who had replied to that invitation were contacted by email. The College of Radiographers also assisted in recruiting participants by circulating an email to appropriate contacts. Information about the focus groups was sent to participants prior to the meetings along with joining instructions; the briefing paper is shown in Appendix 4.

#### **4.2.1 Profile of participants**

The proposal to the Society and College of Radiographers had indicated that three focus groups would be conducted with the following participants:

- managers of diagnostic imaging departments,
- managers of therapeutic radiography departments and
- diagnostic radiography consultants.

These groups were selected because the research team believed that they would be

the best groups from whom to gain detailed information relating to issues in local implementation, as they are the individuals who are spear-heading role development at a local level. They are also key influencers of education provision.

Five therapy managers took part in the focus groups; these represented departments with between 30 and 150 members of staff. Ten diagnostic managers represented departments in small District General Hospitals through to large specialist trusts, with staffing levels of up to 100 staff. Four diagnostic consultants participated in the consultant focus group. The views from these participants were supplemented by interviews with three additional diagnostic consultants and two with therapeutic consultants who were unable to attend the focus groups.

#### **4.2.2 Procedure**

The focus groups were held at the SCoR premises in London, with participants having the cost of travel to the events refunded. No incentives other than this were offered.

Prior to commencing the discussion, all participants were asked to sign a form confirming that they had given informed consent to participate and indicating their understanding that they could leave at any time. Assurances were given that, while excerpts from the discussions would be used in the final report, any quotes would be anonymised and no quotes would be used where there was a risk that the content could identify the individual or organisation.

The facilitator then commenced the discussion, with the topics of discussion following a structure that had been pre-determined by the research team. The discussion guide is shown in Appendix 4. For convenience of the reader, the topics covered in the discussion are summarised as follows:

##### ***For managers***

Extent to which the career progression framework had been implemented, current grade population and future intentions; types of 'extended role' activities undertaken by radiographers.

Background to implementation of extended roles and/or advanced practitioner and/or consultant positions, individuals involved in leading the initiative and approving introduction of the roles/grades.

Barriers to radiographers adopting extended roles/introduction of the advanced practitioner and consultant roles.

Recruitment; training, development and qualification for the advanced practitioner and consultant posts - approaches and issues; future education and training requirements.

Organisational impacts of radiographer role extension; future plans for further role development.

Whether radiographers have ceased undertaking any roles within the past five years and, if so, which roles and which personnel.

Views on likely main areas of service demand for radiotherapy/diagnostic radiography services over the next five years and capacity to respond; staffing implications and development needs.

Implications of current developments for pre-registration education and training; for

CPD; or for career structure.

### ***For consultants***

Motivation for becoming a consultant; experience of recruitment to the post.

Preparation and development for consultant roles before/after moving into post.

Current nature of consultant roles and expectations of activities within and outside scope of the consultant position.

Nature of any barriers or opposition to their taking up the consultant role.

Extent of embedding of consultant role within organisational structures and planning procedures.

Appropriateness of current definition and scope of practice for consultants; likely future role developments (own and more widely).

Possible reasons for current lower than expected take-up of consultant posts.

The sessions lasted on average around two hours. Permission was gained from participants to record the sessions, along with agreement to use appropriately anonymised quotations from the proceedings.

## **4.3 Results**

The themes emerging from the discussions are presented in the following sections in this chapter. Typically the discussions revealed a situation in which there is currently no broad consensus and the quotes used to illustrate the views expressed exemplify the diversity of opinion currently held within the profession.

### **4.3.1 Implementation of extended roles, advanced practitioner and consultant posts at the participating organisations**

Extended role activities were being undertaken by diagnostic and therapeutic radiographers in all of the sites represented by participants in the focus groups. The majority of sites had advanced practitioners either in post, in training or planned, but fewer had consultants. One therapy manager was working on a bid to introduce a 'specialist consultant' role based on a specific identified service need while another was planning development in order to progress an individual into the consultant role:

*"We have one advanced practitioner but they are undergoing the process to become a consultant through accreditation at [university] in expert practice." - Therapy manager*

Much of the advanced practice appears to have developed through extension of normal working practice and local custom and practice. Consultant posts were more likely to have been deliberately designed by Trusts to meet a specific service need; many felt that the best way for posts to be developed is for consultant roles to be customised to the needs of each site. As a result participants felt that it is not really possible to specify in precise terms the nature of the role; rather, they suggested that:

*"The post should be written for what the department requires rather than written for the person. There needs to be a business case developed for the consultant role. Steer the appointee in the direction the department requires." - Diagnostic consultant*

*“The therapeutic consultant role needs to be customised at each hospital; these roles differ in each site due to differing needs, and this needs to be recognised in scope of practice for therapeutic consultants.” - **Therapy manager***

There was one account of a consultant position being introduced on a contract basis by a new unit and, while the post had been factored into that unit’s business plan, at the time the interview was conducted the Trust had no plans to incorporate the post into its staffing establishment:

*“It’s not a trust post. The trust has no interest in developing radiographers. I am employed by the [unit], but [my] contract is due to end [soon], after which my future is uncertain.” - **Diagnostic consultant***

Overall there appeared to be less perceived need for consultant roles within therapeutic than in diagnostic radiography:

*“We need to ensure that the technology-driven service is covered. I could see that the consultant role is needed in [some places] but we are awash with clinical oncologists so there is no perceived need for the consultant role at present.” - **Therapy manager***

*“I have been looking at streamlining the service, identifying gaps and blocks and identifying extended roles. But in radiotherapy it is not so easy, our roles are more multidisciplinary rather than needing advanced practitioners”. - **Therapy manager***

In some areas it is proving difficult for diagnostic radiographers to gain consultant positions:

*“To get consultant positions three of us had to leave the trust. The trust said there would only be one consultant post.” - **Diagnostic consultant***

In some departments however, consultant posts had been developed with a specific remit in mind:

*“It is viewed as an expert practice function. The expert practitioner is viewed as a resource in information and advice in radiotherapy and oncology services as a whole.” - **Therapy consultant***

*“It was advertised as a development post at the time, it was not advertised as a research consultant but a project lead, but the role had research consultant duties and job description. It was then recognised as a consultant role after one year in post.” - **Therapy consultant***

*“The consultant role was originally advocated as a new technology project lead and then morphed into the consultant role.” - **Diagnostic consultant***

There remain areas in which practitioners feel the career structure has yet to be fully developed:

*“Dosimetry is another area of advanced practice. I would like to see a career structure for dosimetrists. There is a huge number of people who specialised very early on and have no career structure and nowhere to go”. - **Therapy manager***

The focus groups indicated that implementation of the career progression framework had not been consistent. We turn next to consider the views of managers and consultants on the nature of those advanced practitioner and consultant roles that have

been introduced so far.

#### **4.3.2 The nature of advanced practitioner and consultant roles**

The research commissioned by SCoR appears timely, as there is emerging concern over a lack of agreed definition of extended, advanced or consultant practice.

*“There is no agreed definition of ‘extended practice’, it varies even across the three departments I work in. Advanced practice is defined as ‘outside normal scope of practice’ and includes, for example, tasks such as breast mark-up. It requires work at advanced or extended level. Normally there is a requirement that the individual does some sort of work-based learning module.” - **Therapy manager***

*“The College of Radiographers have not realised the range of consultant jobs out there.” - **Diagnostic consultant***

Distinguishing the requirements for practice at consultant level from those required at advanced practitioner level presents challenges for departments. Whilst the Department of Health (2001) described the four essential components of consultancy as comprising expert practice, professional leadership, education, and research, they are not quantified or detailed. Clearly, these descriptors apply to all allied health professionals and inflexible definitions could restrict the practice and scope of some groups. Nevertheless, the lack of an explicit guide is seen by some participants as a barrier. There are quite different points of view regarding the extent to which the consultant post should be seen as evolving from, or should constitute a step change from, the advanced practitioner post:

*“The consultant role should grow out of the advanced practitioner role (rather than be different.” - **Therapy manager***

*“I know of consultants who have restricted roles, they are ‘glorified advanced practitioners’ they are not doing the role that was envisaged for them.” - **Diagnostic consultant***

*“Autonomy is the main factor discriminating between an advanced practitioner and consultant role...[and] a consultant radiographer would need a wide range of activities, while an advanced practitioner has a single area of advanced practice.” - **Diagnostic consultant***

#### **Individual caseload**

One issue which appears to be particularly vexatious is the question of individual caseload. Individuals mentioned this issue frequently, in focus groups and in interviews.

*“Everyone is confused about it, especially in terms of what is a consultant radiographer. We have to have certain criteria but there is a real misconception, people think you have to have a patient workload. In radiotherapy, there is such confusion regarding what’s a consultant and what’s not, and to think ‘one size fits all’ is particularly naïve.” - **Therapy consultant.***

*“The [consultant] role is 50 per cent clinical – does that mean five clinics? What do you do about writing up the notes, writing letters? That’s clinical too, and that’s another session. Clinical is more than just those sessions in front of patients.” - **Diagnostic consultant.***

## **Research**

In spite of research being one of the elements of the consultant role, some consultants reported being prevented by pressure of work from undertaking research:

**Consultant 1:** Can you do your research, do you have time for that and for the other tasks that are part of the consultant role?

**Consultant 2:** No, not for studying, not for research. I feel I am on a treadmill, there is always more work to do. No extra pay, no time off....it is very hard.

**Consultant 3:** My employer doesn't like me taking time out to do research. It is possible that some consultants are expecting too much of themselves. Some consultants queried quite what was implied by the term 'research' in the context of the consultant role:

*"Audit is the area the consultants are doing to a greater or lesser extent and that is a form of research in action and that is the role and the way it should go in future, or organising other people's research". - Diagnostic consultant*

However, not all would agree with this assessment; at one therapy site there was an expectation that advanced practitioners would undertake research:

*"We also have research embedded in our job descriptions [for APs] and they will be studying or have completed a postgraduate qualification, post graduate diploma or masters." - Therapy manager*

## **Involvement in education and training**

The way in which consultants have interpreted and complied with the requirements for involvement in education and training also differ. Some see this as meaning they should be directly involved in the professional development of other practitioners; others feel the role is about identifying training needs rather than responding to them.

*"I am the education and training lead, I participate in staff training and practice and service development and professional development." - Therapy consultant*

*"My role is to identify gaps in the knowledge base but not necessarily to do the work to fill them but to develop a culture that encourages people to go off and [develop]." - Diagnostic consultant*

In some cases the realities of the post did not appear to match the requirements that had been set out in the job description. One person described how the job had ended up comprising mostly of basic training input.

*"It is not at all what the job description outlined. I was meant to do four sessions teaching and six sessions high level clinical practice but the reality is ten sessions doing basic teaching and training. I feel [they] do not utilise all my skills." - Diagnostic consultant*

### **4.3.3 Recruiting to advanced practitioner and consultant posts**

At present it appears easier for departments to fill advanced practitioner roles than consultant positions. This is largely because, as indicated in the earlier section, much of the advanced practice appears to develop out of involvement in extended roles, which in turn rests on what is now often seen as normal working practice and local custom and practice.

One therapy manager reported how an advanced practitioner's position had developed out of that individual's interest in a particular specialism at a time when a medical practitioner had concerns regarding level of care in that area; the result was that they were developing an advanced practitioner role for that situation, although the role was not yet formally recognised.

A shortage of people with the right skill levels was identified as a current barrier to implementation of the career progression framework at some sites. However, some managers observed that, where staff are encouraged to develop, this can lead to improved retention and therefore help to alleviate local recruitment difficulties; there was broad agreement amongst managers that this was probably the best way in which to develop such roles:

*"That's the way to do it, and if you try to recruit [to advanced practitioner roles] you often can't."* - **Therapy manager**

"I've just tried to recruit...it was an additional advanced practitioner role in the department and I had no external interest at all, and we do not normally have a problem with recruitment. But all the band 8As in the department we have 'grown'." - **Diagnostic manager**

"We give them room to grow and develop and that's why they stay." - **Diagnostic manager**

They found this was true at all levels, not just within the higher bands:

*"Some of the best students we have are people we managed to recruit and paid at a helper's salary to do the degree. And because we recruited and paid them and they are local they have stayed and are dedicated and enthusiastic."* - **Therapy manager**

"We ran a cadet programme and had people coming into that and they became extraordinarily competent members of our workforce." - **Therapy manager**

#### **4.3.4 Embedding the career progression structure/succession planning**

Several sites had already seen their advanced practitioners move on. Replacement of advanced practitioners and consultants was mostly ad hoc and there was only limited succession planning:

*"At least one consultant has told me that if they leave they believe they will not be replaced and I suspect it would be the same here. The first consultants got their roles on grounds of personal qualities and personal credibility. Many of the roles have built on what individuals were doing before."* - **Diagnostic consultant**

"We have one advanced practitioner at present who will be leaving. We are not planning to appoint or train any further advanced practitioners. We do not see much future in the advanced practitioner role." - **Diagnostic Manager**

"The trust is not convinced of the value of the roles. Continuation of my own post is dependent on Department of Health funding and, arguably, once we have enough radiologists they will withdraw the funding and I will not be replaced." - **Diagnostic consultant**

Managers and consultants felt that their Trusts were not giving sufficient support to implementation of these roles. Furthermore, departments felt there was room within the

staffing structure and activities only for limited numbers of advanced practitioners. Given that many of the managers and consultants had described how existing consultant posts had been developed reactively, that is, in response to departmental needs, it is perhaps not surprising that departments in general were not proactively planning to increase the number of consultants in place (or indeed, to introduce them where they did not already exist).

*“We have four advanced practitioners, we have no plans to train any more as we have run out of roles.” - **Diagnostic Manager***

*“I am considering [succession planning] in terms of concentrating on the advanced practitioner role but not necessarily the consultant role. We have site specialist radiographers but this is more of an advanced practitioner role than a consultant.” - **Therapy consultant***

Where managers were training individuals to move into advanced practitioner roles, the rather restricted educational options were not helping attempts to provide development for staff. This issue is taken up in the next section.

#### **4.3.5 Qualification routes and continuing professional development**

In general, consultants and managers agreed on the expected qualification levels required for advanced practitioner posts.

*“We are working on a framework for the advanced practitioner role, on four core functions. We would expect them to have a certain level [of competence] in those, and to be working at masters level in at least one module or else we would call them a trainee.” - **Therapy manager***

*“We expect all band 7s to have at least one module at masters’ level. And they all have clinical and research expertise.” - **Therapy manager***

There is some tension however in the views of different managers regarding the training programmes that are currently on offer for developing advanced practitioners. Some managers felt that universities were not providing the types of programme that were needed to develop advanced practitioners and so were keen to see more direct Trust involvement in the delivery of training; in contrast, others felt they wanted the universities themselves to improve their offer regarding the programmes available for developing advanced practitioners.

*“The course does not exist where you can say ‘if you do this you will be an advanced practitioner at the end of it.’ HEIs say they do exist but they don’t. It needs hospitals themselves to develop courses internally instead of looking to HEIs. That is why I am designing my own programme.” - **Therapy manager***

*“The best thing is to ‘grow your own’ but there is a need for [more] academic input for advanced practitioner work. To extend level or to move to advanced practitioner level some sort of workbased learning module is usually involved..... it is good to have an accredited programme at masters’ level. You have assessment of competence by clinician on site and academic assessment of e.g. case studies by the HEI, but there is little academic backup or input and no standardisation and it is of insufficient academic rigour at present.” - **Therapy manager***

In addition, managers also felt that shortcomings in the skill levels of new entrants to

the profession meant that in some cases employees did not have the right basis for further progression. Some therapy managers in particular felt that degrees were now failing to deliver the sorts of practitioners they required, but this was not a universal point of view:

**Therapy manager 1:** *“There is such a lag in revalidation that the technology has always moved on. I do not have a simple Linacc and so how would those students cope when they have been trained on [such basic] equipment?”*

**Therapy manager 2:** *“But the degree gives learners the building blocks to become a practitioner, it does not ‘spit out’ practitioners.”*

**Therapy manager 1:** *“But the workforce is based on expecting new grade 5s to ‘hit the ground running.’”*

Therapy managers in general were largely dissatisfied with postgraduate provision for advanced practitioners. One manager commented:

*“[One site] has a stranglehold on postgraduate provision at the moment. [The provision] is very attractive but academically there are gaps and it does not necessarily produce advanced practitioners, they can talk the talk but do not necessarily have the right academic background. There is a huge problem with postgraduate radiotherapy education....no-one [offers] brachytherapy.” - **Therapy manager***

The diagnostic consultants focus group identified one particular difficulty in gaining access to training. The shortage of bespoke programmes for those wishing to progress to consultant status had led some individuals to assemble their own masters’ level programme from modules available at several different universities. However, they had encountered difficulties in negotiating with the various universities involved regarding the awarding of module credit under the CATS2 system and this had subsequently led to some radiographers having to undertake more modules than should have been necessary. Given the low numbers of potential consultants at present, this means it is unlikely to be financially worthwhile for any individual institution to provide bespoke courses for some time and therefore contribution of modules under the CATS system is likely to be the most practical way forward for the moment. It is difficult therefore to see the reasons for institutions behaving in this way, especially given that modular programmes that allow practitioners to ‘pick and mix’ modules were viewed as the best approach to development by one consultant and some of the managers.

*“Consultants feel that ‘a training course’ is not the appropriate course of action. A modular programme is needed that you can pick modules from other courses. The best programmes are multi-professional and multidisciplinary.” - **Diagnostic consultant***

One of the therapy managers described an approach that had been adopted at their site, in which a generic module had been developed by an HEI which was applicable to a range of different situations. The manager had then worked on developing specific learning outcomes for the programme that were appropriate for her setting.

#### **4.3.6 Barriers to implementation**

The barriers to implementation and the factors that currently militate against introduction of extended roles, advanced and consultant practitioner roles and the career progression framework were discussed.

### **Agenda for Change**

Agenda for Change (AfC) had been a factor in many of the organisations' decisions to introduce the advanced practitioner and consultant roles. One head of a radiotherapy centre said:

*"AfC was a good tool to help us look at what we do and to look at people's job descriptions, and if we are paying them a band 7 wage then make sure they are doing a band 7 job. Bands 5 and 6 are similar to what they were in the past."* - **Therapy manager**

However, while some sites had used AfC as a vehicle for introducing advanced practitioner and consultant grades, at other sites the new grading structure had proved to be a barrier:

*"Agenda for Change is working against us – we have old style Senior 1s and 2s on Band 6, but advanced practitioners are 7s and the Trust is reluctant to give the higher grades."* - **Therapy manager**

*"[After the introduction of] Agenda for Change the hospital decided that reporting radiographers were band 6. The radiographers who had started training completed it but have not commenced reporting because they have not got the band they expected."* - **Diagnostic manager**

### **Finance and added value**

In addition, the increased focus on finance within the health sector in recent years also caused problems for some services:

*"There is a big problem for hospitals with radiotherapy specialisms. There is no national tariff for radiotherapy, and so the service is not generating appropriate returns."* - **Therapy manager**

A related issue for managers is the question of whether there is 'added value' to be had from a consultant radiographer or an advanced practitioner. Some viewed consultant positions as having a high cost and bringing few benefits (compared to an advanced practitioner), elsewhere the business case had been made on the basis of the relatively lower costs of a consultant radiographer compared to a consultant radiologist.

*"An advanced practitioner can do nine or ten sessions a week and then if they become a consultant they go down to half that number of sessions and more salary and a massive big ego. We would prefer an advanced practice specialist so at the end of the day we would still get seven or eight clinical sessions and they could have their CPD, but it bothers me that we pay [consultants] a big salary to do less."* - **Diagnostic manager**

Whether or not departments believe that anything would really be gained through introduction of the advanced practitioner and consultant roles also depends on the size of the department. Therapy managers felt that, in smaller departments, managers might struggle to find enough work of appropriate level to justify the appointment of an advanced practitioner or consultant. Even in large departments however there were concerns about the extent to which a consultant would contribute towards the 'core business' of the department:

**Diagnostic manager 1:** *"Part of our idea in introducing the consultant radiographer grade was that we gave all of our clinical governance and student training and other*

*trust [ie, non-radiography] work to that person.”*

**Diagnostic manager 2:** *“Perhaps if I put the clinical governance and other work together in one person they could be a consultant radiographer...but that’s a lot of non-productive time to have in one job description.”*

### **Staffing difficulties**

However, where departments did wish to develop advanced practitioner or consultant roles these attempts could be impeded by wider staffing issues that have affected departments in recent years. These included staff shortages caused by local funding difficulties and recovery from high staff turnover levels:

*“We are further down the line now but we had hit a bad staffing pattern so we are just emerging from that and starting to think about [it].” - Therapy manager*

*“It’s a fundamentally young profession, this means we are increasingly ‘growing our own’ and bringing them through the grades but you can’t go too quickly, they need some time in those grades. Many people who left five or six years ago have not returned. There are problems in succession planning for me and my advanced practitioners and we are very fortunate in having a stable team. But bringing people onto Team Leader role is a huge job and there is a shortage of people with advanced skills.” - Therapy manager*

*“We have a problem with recruiting and retaining staff in general. We have had two vacancies for a year now.” - Diagnostic manager*

### **Attitudes**

While some felt that the attitudes of some individuals in the profession did not readily encourage the development of advanced practitioners and consultants, others held the opposite point of view.

*“There is a difference in attitudes between radiographers and nurses. If you were to offer staff development for an advanced practitioner role to a nurse they would bite your arm off. But a radiographer would say ‘How much would I get? Would I get time off to go?’” - Diagnostic manager*

*“Not everyone wants to do advanced practice. I have posts I would have given my eye teeth for but we have had to advertise them externally as people are only interested in doing ‘nine-to-five.’” - Diagnostic manager*

However, it is not just the attitudes of radiographers that can constitute barriers. We have reported in previous research (Price et al., 1997; Price, 2007) that the attitudes of radiologists can be a barrier to implementing extended roles and, where radiographers are based in teaching trusts, there can be additional pressure from the need for radiologists to gain experience (Price et al., 2002).

The discussions here raised similar issues. However, there was no common theme to where such barriers existed, or why. They differed from centre to department and while in some cases there was resistance to just one area of radiographer activity, elsewhere there was more generalised, widespread, hostility.

*“There is pressure because it is a teaching hospital. We do have two advanced practitioners doing CTCs, and one has started doing reporting. And two advanced practitioners in angio; one is training for line insertion but there is much opposition from radiologists. It is demarcation issue for that, though, rather than teaching.” - Diagnostic*

## **manager**

“We were one of the first trusts to go for barium enemas. But radiologists have a hold on ultrasound. We do have some radiographers doing ultrasound but some would like to take on other roles and this is being restricted by radiologists.” - **Diagnostic manager**

“We have nine sonographers who report their own work but not as widely as we would like because of radiologist demarcation.” - Diagnostic manager

“We have one person reporting in nuclear medicine but there is an amount of resistance from the clinical director”. - **Diagnostic manager**

However, conversely, lack of interest on the part of radiologists in activities such as plain film or barium enemas can mean that these activities are left as the sole province of radiographers while radiologists move into areas such as cross sectional CT or ultrasound.

In addition, factors such as the age profile of radiologists can impact on radiographer opportunities: while older radiologists may be less concerned about retaining areas of responsibility as they near retirement, younger consultants may have concerns about professional updating requirements.

*“The radiologists I work with are very conscious of the need to keep up their skills”.* - **Diagnostic manager**

*“Older radiologists who are late on into their careers don’t worry much [about radiographers doing these tasks].”* - **Diagnostic manager**

Senior managers are also central to implementation and their opposition can therefore cause problems in introducing the new roles:

*“There is still concern amongst some managers, senior managers think these roles [consultants] are a potential threat to their role and that is sad, it should be seen as a complement. If that continues there will be no progress on numbers”* - **Therapy Consultant**

“There is still resistance in some quarters to the whole idea of the four-tier structure. It appears to run counter to some individuals’ philosophical approach to the profession: I do not particularly believe in the four-tier structure. I don’t perceive a pyramid of assistant and advance practitioners fitting our environment or the quality of service we are being asked to provide.” - **Therapy manager**

Given that support from senior management is central to successful introduction of advanced and consultant practitioner positions it is not surprising that a change of management can either facilitate or stall the implementation process.

“The consultant practitioner was graded as an 8b, and the delay was not due to radiologists but because the management were not on board. But there has been a change of management and so now we are planning a second consultant practitioner.” - **Diagnostic manager**

“One manager said the consultant post had been introduced just because the hospital wanted to be able to say it had ‘ticked all the boxes’. He influenced the attitudes of all the other staff on that site. It’s a very prescriptive department, it does not allow people

to work 'outside the box.'" - **Diagnostic Consultant**

### **Availability of training and development**

Managers' concerns about the training options for staff have already been noted in the earlier section and as might be expected, qualifications (or the lack of availability of access to appropriate qualifications) constitute a further barrier to progression of staff into the more advanced roles.

*"Making the jump between the grades, between 6 and 7 [is a barrier] and we don't have the tools yet to bridge that gap, even if you do a masters."* - **Therapy manager**

"I thought that the MSc in Clinical Science would be a good grounding for the advanced practitioners, it is clinical placement driven and they get moved around departments. But it has now been discontinued." - **Therapy manager**

There can be difficulties with locating appropriate training programmes to allow for the development of advanced practitioners and consultants. However, even where an appropriate programme is found, funding for such programmes can be a further barrier. Furthermore, obtaining funding for training may then leave a department with a staffing shortfall while individuals are away on a training course. While one diagnostic manager reported that they had obtained funding to allow them to backfill the post and develop the helper staff, others had not been so fortunate:

*"The other problem with training is it is difficult to backfill posts so there is less staff and less ability to refill [posts] during the time it takes to train someone."* - **Diagnostic manager**

As was noted earlier, where trusts are unable to provide grades commensurate with the advanced practice responsibilities expected after training, this can make it difficult to encourage staff to take up the training offer:

*"The training budget is not enough to send people out, so we have developed in-house courses but if you cannot offer band 7 afterwards then they ask what's in it for them at the end."* - **Diagnostic manager**

#### **4.3.7 What roles are being lost?**

Introduction of the career progression structure, as well as changes to technology, have led to radiographers starting to drop some of their previous administrative roles.

**Radiotherapy manager 1:** *"Things such as booking the radiotherapy patients. It used to be the superintendent radiographer who would do this, or in other departments you would have booking co-ordinators."*

**Radiotherapy manager 2:** "We are going in the same direction."

**Radiotherapy manager 3:** "We have an automated system, doctors do it."

The introduction of junior staff roles had meant that some more technical aspects of the role had also been delegated. In some cases these tasks had become specified learning outcomes for junior staff in training:

*"A lot of things like the mould room, the radiotherapy aides would do this, those who are in learning do these tasks. I have made it a year 2 competency. They make*

*posicast shells and lead cut-outs. Year 2s do CT scan info and bladder screening. Year 3 is Linacc based. Year 4s are going towards becoming a radiographer. And we do not do any statistics or data entry now that is done by the year 1s on the 4 year programme, or by clerks, and then validated by supervisors, although it might mean more work for the senior grades by doing this. Completing treatment sheets has been moved out too.” - **Therapy manager***

For some, loss of these roles can lead to the job becoming less, rather than more, satisfying:

*“They want us to drop the things that sometimes we enjoy and are what keeps people in the industry. Talking to people is more interesting than close checking.” - **Therapy manager***

However, sometimes intensification of practice – asking senior staff to focus only on higher level (and mainly technical) tasks – can potentially risk reducing the job satisfaction amongst staff and lead to isolation of individual practitioners. Some consultants also felt that they had become so specialised that they now felt they were trapped and, in some respects, less employable than previously:

*“I was the service manager so I gave up the HR components. The other thing I have given up is the opportunity to attend a large number of meetings at which it was possible to maintain strategic involvement. Many consultants express concern regarding the relative isolation of the role and the difficulty of keeping a finger on the pulse except at departmental level.” - **Diagnostic consultant***

*“Before I took this job I influenced practice at a national and international level. Now, at [name of employer] those roles are considered less important...[they] underestimate my need to be doing other things. Their first priority is for me to train others. They prefer me not to take time out to do presentations, research, take on working party roles etc”. - **Diagnostic consultant***

#### **4.3.8 Further role developments**

Participants were asked how they saw roles within the profession developing. Five years ago there were no consultant radiographers in post, therefore, it is very encouraging to have in excess of two dozen exemplary individuals occupying this role today. Nevertheless, overall there are still only small numbers of consultants in post, and relatively few advanced practitioners either.

In addition to the small number of consultants in post, they tend to occupy discrete roles within their trusts, rather than forming part of a generalised community and scope of practice as is more conventionally seen at entry grade and subsequent staff bands. This means that, at present, there is little development of the role (or implementation of the career progression structure) at some sites:

*“The role needs to have some work done on it, it is not developing, because of the [small] numbers involved; there are few applications for those posts that are advertised. So it’s not reaching the staff and not giving them what they want. The role of consultant is not giving them what they want, rather than the education programme not meeting the needs of the consultant role.” - **Therapeutic consultant***

*“It may not [develop], because of the output from the radiology academies, and narrow-mindedness and lack of strategic planning by trusts.” - **Diagnostic consultant***

“We should continue to progress the extended roles for radiographers with continued vigour as I can see reversal of this initiative. This is in light of the additional radiologists produced by the academies. Once there is an abundance of radiologists I can see them fighting for jobs and radiographers losing out on some of the extended roles which were created essentially to cover the shortfall of radiologists.” - **Diagnostic manager**

Some, though, were starting to consider the implications for future development of these practitioners:

*“Most of the first consultants were people who were already fulfilling the clinical aspects already. Nobody is getting any training...there are no training schemes, but once people are in post then they may take advantage of eg the West Midlands Leadership development programme. The NHS modernisation agency ran a leadership programme for first two years. The opinion of people I have spoken to is the training that is required [for the consultant position] is management in its widest conceptualisation...there is no perception amongst other consultants of a need for clinical skills training.”* - **Diagnostic consultant**

One consultant suggested that future developments will hinge more on culture change issues than on simply facilitating further career progression within the profession.

#### **4.4 Discussion**

Numbers of consultant and advanced practitioners in radiography seem to be increasing slowly but from the sample included in this study it remains difficult for radiographers to enter consultant posts and (to a lesser extent) advanced practitioner roles. This is for a range of reasons. Firstly, the first is a shortage of the roles themselves; the career progression structure is far from fully-implemented and consultant roles are available in a minority of sites.

Secondly and linked to the above is the lack of wider understanding regarding the intent and value of the role and a feeling that the roles themselves in some cases run counter to the prevailing professional ethic of teamwork. Probably as a consequence some consultants feel their post is unlikely to be replaced if they leave. Thirdly, there appears to be some concerns from some people over whether the roles really meet service needs. This is linked to uncertainty and, perhaps, a lack of clarity regarding the definition of the consultant role and the standards or criteria for these roles and (to a lesser extent) for advanced practitioners. Possibly because of this there is also little agreement on what now constitutes advanced practice (or extended role activities).

One further barrier to introducing consultant roles is a lack of clarity of the role itself; any increase is likely to be slow until and unless the impact of such roles is evaluated. Whilst it is accepted that the consultant post involves clinical duties, these do not appear to be prescriptive. In other areas in which advanced practitioner roles have been developed (e.g. such as surgical care practitioner and endoscopist roles) there have been local evaluations to attempt to demonstrate the added value of such developments. However none of the participating sites indicated that any evaluation had been undertaken to gauge the impact of introduction of advanced practitioner or consultant roles within diagnostic or therapeutic radiography. Overall the situation is not helped by the shortage of appropriate qualifications to support development into higher level roles. It is of concern, given this shortage of provision that some universities appear to be deliberately not co-operating with CATS systems that would enable practitioners to combine modules into an appropriate masters' programme.

Finally, where development programmes are available, managers may not be able to access funding either to pay for the training or to replace the individual while they are being trained. Some of this is because funding varies between SHAs; however, some of the difficulties arise because it can be difficult for managers to keep track of the various sources of funding available for staff development. It would be of value if some central database of funding for development activities could be established to make it easier for managers to access funds in future.

## **Chapter 5: Identifying the Radiographic Workforce in the Primary and Independent Sectors**

### **5.1 Introduction**

The online survey was designed in order to identify and quantify the radiographic workforce practising in the NHS primary sector and the independent health sector across the United Kingdom. Within this remit the survey set out to identify:

- the working environments of radiographers
- geographical variations
- AfC bandings (where relevant) and responsibilities
- the nature and frequency of radiographic roles
- role developments within the last five years
- principal specialisms

The radiographic workforce for this part of the survey was taken to include all staff employed within diagnostic imaging, ultrasound and radiotherapy within the primary and independent sectors. Findings are presented below for diagnostic radiographers (excluding ultrasound), sonographers and radiotherapists, as distinct working categories.

### **5.2 Methodology**

An online survey method was adopted in view of anticipated difficulties in reaching radiographers working in the primary or independent sectors by postal or e-mail approaches. Electronic online surveys have the ability to contact large audiences instantly, even in “hard-to-reach” categories and also ensure the privacy and confidentiality of each participant.

Potential respondents were alerted to the survey via advertisements placed in “Synergy” and “RAD Magazine” and through announcements at the British Medical Ultrasound Society Scientific Meeting in December 2007 and notices circulated by the Society and College of Radiographers. It was decided at the start of the project to use the Bristol Online Survey (BOS) instrument. This is a user-friendly survey tool, which allows the design, deployment and analysis of web-based surveys. It was developed by the University of Bristol and has been made available to a large number of institutions in the UK.

The BOS system permits any structured questionnaire survey to be readily adapted to an electronic format. A wide range of question types was available in open (free text box) and closed (tick box) response formats. As in a paper-based survey, the format permitted a range of multi-choice and single options, with the added advantage of automatic “funneling” to subsequent follow-on questions, depending on the nature of the previous responses.

The online survey questions were grouped into the following categories:

- employer
- personal details
- role
- specific role
- second specific role (if any)
- further comments

The web address <http://sdu-surveys.herts.ac.uk/scope> [2] was established for the survey, which went “live” on 10th January 2008 following the granting of ethical approval and closed on 9th March 2008. The questionnaire appears as Appendix 5.

The importance of survey advertising in relevant publications such as “RAD Magazine” and “Synergy” was illustrated by the response rate progression shown in Figure 5.1 below.

**Table 5.1. Radiographers within the UK NHS primary health sector**

<b>Primary sector working environment</b>	<b>Number of staff</b>
Community or cottage hospital	30
Diagnostic centre	28
Health screening or cancer clinic	6
Mobile (lorry-based) unit	3
Walk in centre	2

**Table 5.2. Radiographers within the UK independent health sector**

<b>Independent sector working environment</b>	<b>Number of staff</b>
Private hospital	86
Diagnostic centre	28
Mobile (lorry-based) unit	19
Health screening or cancer clinic	9
Health centre	2
Health promotion	1

There were no respondents from GP practices or telephone call centres within the survey. The diversity and variety of radiographic roles is illustrated by Tables 5.3 and 5.4:

**Table 5.3. Radiographer roles within the UK NHS primary health sector**

<b>Radiographic role</b>	<b>Community hospitals</b>	<b>Diagnostic centres</b>
	<b>Number of staff</b>	<b>Number of staff</b>
Non trauma imaging	19	12
Training	19	21
Trauma imaging	18	18
Fluoroscopy	17	12
Quality assurance	11	15
Management	10	11
Audit	10	19
CT	9	8
Information technology	6	9
Forensic radiography	6	4
Endoscopy	6	2
Image reporting	5	6
Radiographer-led GI studies	5	1
MRI	4	1
Radiographer-led urological studies	4	5
Research	3	6
Counselling	1	2
Cardiac catheterisation	1	1
Lithotripsy	1	0
Nuclear medicine	1	2
Radiographer-led drug prescribing	1	0
Radionuclide imaging	1	0

SPECT	1	0
Bone densitometry	0	4
Mammography	0	2
Medical physics	0	2

**Table 5.4. Radiographer roles within the UK independent health sector**

<b>Radiographic role</b>	<b>Private hospitals</b>	<b>Diagnostic centres</b>	<b>Mobile (lorry) units</b>
	Number of staff	Number of staff	Number of staff
Quality assurance	60	17	6
Fluoroscopy	56	17	0
Non-trauma imaging	48	15	1
Training	47	17	8
Management	42	11	6
Audit	39	13	4
Mammography	39	8	1
CT	26	9	8
Information technology	24	5	2
MRI	16	9	17
Bone densitometry	16	7	4
Health promotion	8	3	1
Cardiac catheterisation	7	3	0
Sales	6	2	2
Trauma imaging	5	6	3
Image reporting	3	0	1
Radiographer-led prescribing	3	1	0
Radiographer-led urological studies	3	1	0
Research	2	1	0

Cardiac measurement	1	0	0
Counselling	1	0	1
Lithotripsy	1	-	0
Medical physics	1	1	1
Radiographer-led GI studies	1	2	0
Endoscopy	0	1	0
Forensic radiography	0	1	2
PET	0	1	0

The frequency of roles in the independent sector is further illustrated by Figures 5.2 to 5.5 below.

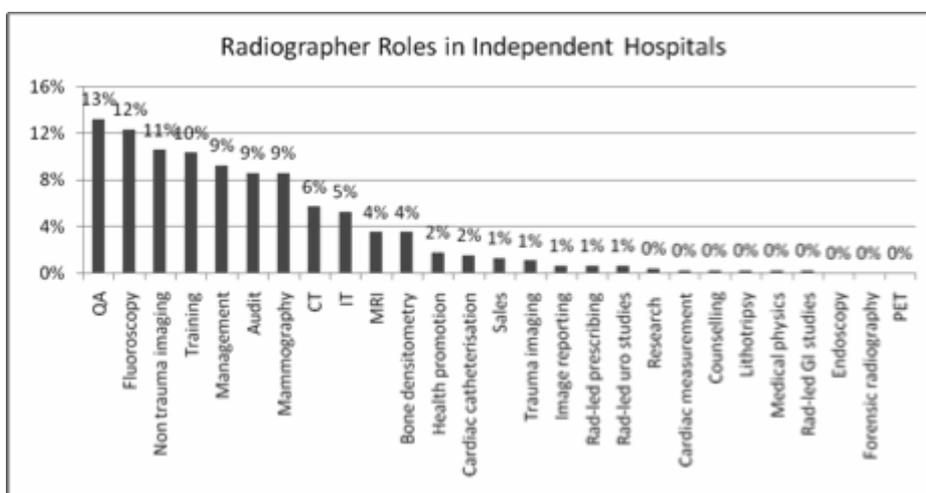


Figure 5.2. Radiographer roles by percentage in independent sector hospitals

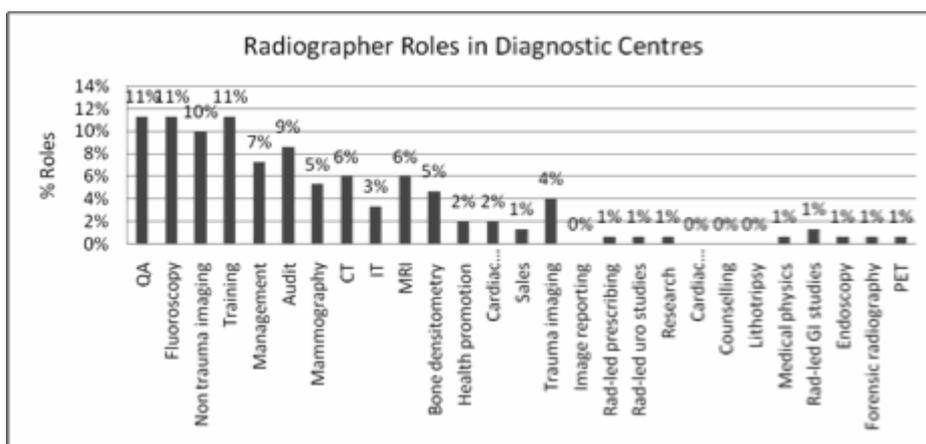
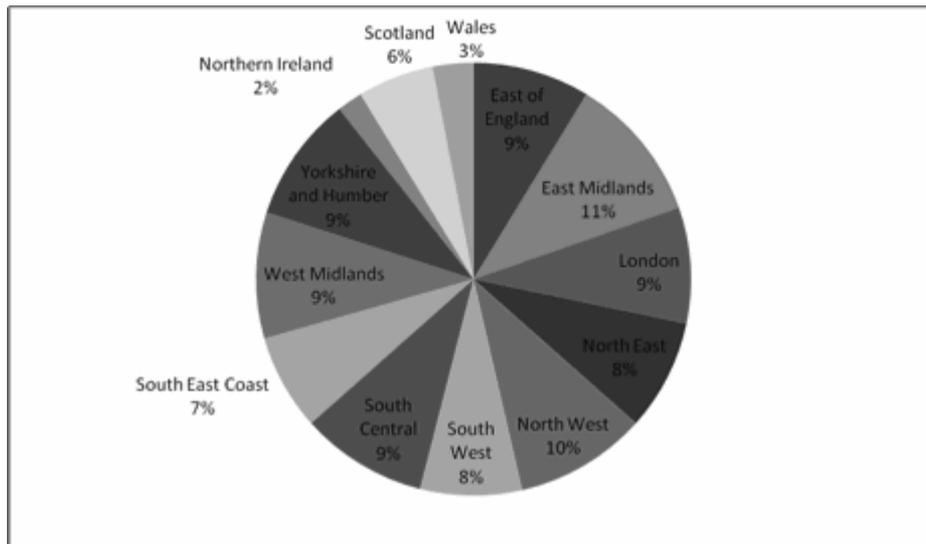


Figure 5.3. Radiographer roles by percentage in independent sector diagnostic units

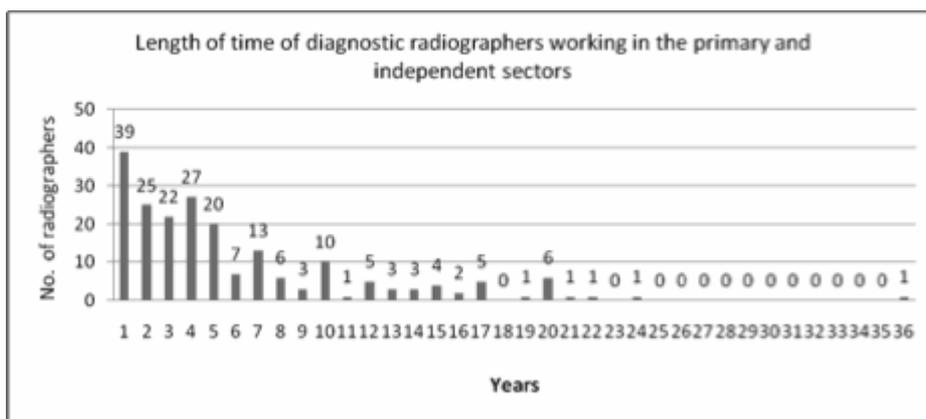
No regional trends or variations emerged for numbers of diagnostic (excluding ultrasound) radiographers employed in the primary and independent sectors, with the exception of low response rates from Wales and Northern Ireland, as indicated by

Figure 5.4 below. Some 85% of the radiographers worked in an urban environment.



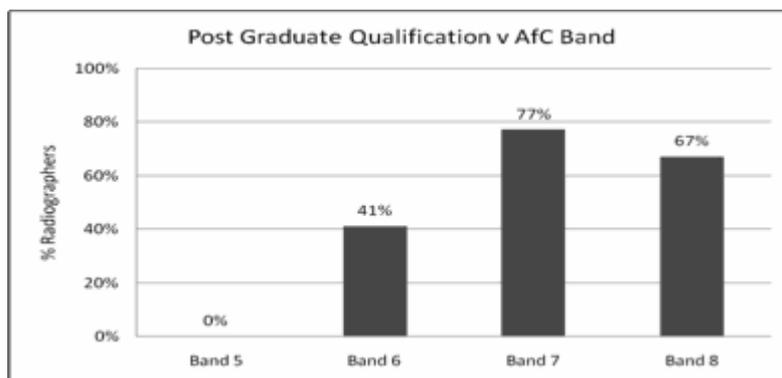
**Figure 5.4. Health regional distribution of diagnostic (not ultrasound) radiographers in the primary and independent health sectors**

The time spent working in current role for diagnostic radiographers working in the primary and independent sectors is illustrated by Figure 5.5 below.



**Figure 5.5. Time working in current role for diagnostic radiographers**

About a quarter (23%) of diagnostic radiographers in the primary and independent sectors were involved in the delivery of formal education. Radiographers employed within the higher AfC bandings were frequently gaining postgraduate qualifications, as illustrated below in Figure 5.6.



**Figure 5.6. Percentages of diagnostic radiographers with a postgraduate qualification versus AfC banding**

The nature of the new extended roles taken on by diagnostic radiographers within the last five years is expressed in Table 5.5 below:

**Table 5.5. New extended roles taken up by diagnostic radiographers in the primary and independent sectors within the last five years**

Extended role	Number of staff undertaking
Intravenous injections	41
Reporting	12
Plain film orbit reporting prior to MRI	4
Radiographer-led barium enemas	3
Breast biopsy	2
Patient referral	2
Radiographer led contrast procedures	2
Radiographer-led barium meals	1
Requesting x-rays	1
Counselling	1
Independent reports to GPs	1
Radiographer-led clinics	1

Diagnostic radiographers working in the primary care sector were highly likely to have taken on extended roles. New roles had been acquired by 53% of staff in community hospitals, 64% in diagnostic centres and 83% in health screening clinics. Within the independent sector the incidence of new extended roles was 25% of staff in diagnostic centres, 31% in hospitals and 68% in mobile (lorry) units. These comparisons are illustrated by Figures 5.7 and 5.8 below.

Only 9% of diagnostic radiographers working in either the primary or independent sector had relinquished any extended roles within the last five years.

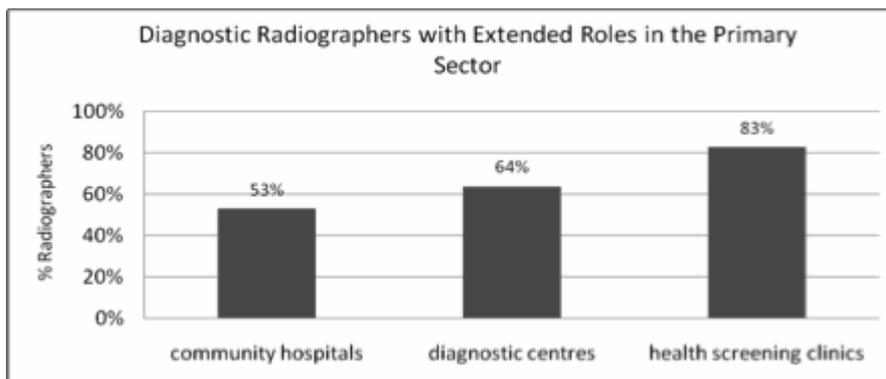


Figure 5.7. Incidence of new extended roles amongst diagnostic radiographers in the primary sector, by working environment

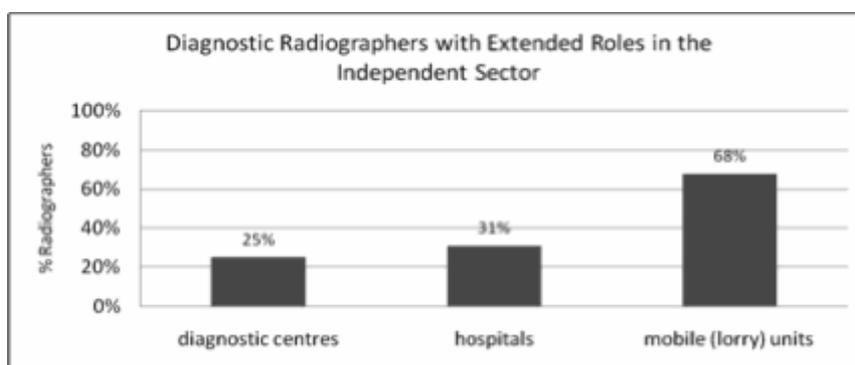


Figure 5.8. Incidence of new extended roles amongst diagnostic radiographers in the independent sector, by working environment

Diagnostic radiographers in the primary sector in the higher AfC bandings were highly likely to have taken up extended role activities within the last five years, as illustrated in Figure 5.9.

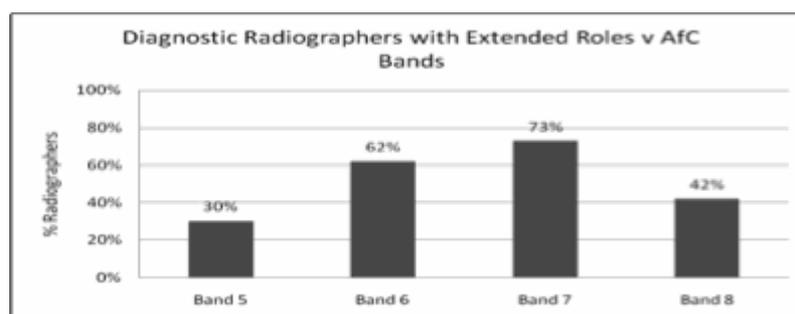


Figure 5.9. Percentages of diagnostic radiographers taking on new extended roles, versus AfC banding

Independent referral of patients for further diagnostic tests was being carried out by diagnostic radiographers in higher AfC bandings. The activity was undertaken by 38% of band 7 staff and 58% of band 8 staff. Radiographers were found to be independently referring patients for further diagnostic tests. Within the primary care sector this role was undertaken by 17% of staff in community hospitals, 21% of staff in diagnostic centres and 33% of staff in health screening clinics. Within the independent sector this role was undertaken by 8% of staff in hospitals, 7% of staff in diagnostic centres and

21% of staff on mobile (lorry) units. The vast majority of diagnostic radiographers were working alone without direct supervision by more senior radiographers or medical practitioners. The prevalence of staff working in ‘unsupervised’ conditions is summarised in Table 5.6.

**Table 5.6. Percentages of diagnostic radiographers working without “direct supervision” versus working environment**

<b>Working environment</b>	<b>Frequency</b>
Independent sector hospitals	97%
NHS primary sector community hospitals	77%
NHS primary sector diagnostic centres	89%
NHS primary sector health screening clinics	100%

There was no relationship between the level of direct supervision received by diagnostic radiographers and their professional qualifications. Nearly a quarter (23%) of the diagnostic radiographers were involved in the delivery of formal education. Within this group 38 respondents were involved in undergraduate education and 19 involved in postgraduate education.

Involvement in a range of diagnostic procedures not normally considered to fall within the remit of imaging practitioners was reported:

*“We also undertake echocardiograms, 24 hour BP and ECG tapes.”*

It was also noted that in the independent sector, multi functional roles are common.

Another practitioner reported that

*“I work as an autonomous practitioner reporting all trauma images. I am at present training to undertake MSK ultrasound.”*

### **5.3.3 Radiographers whose principal role was in medical ultrasound**

Twelve responses were received from radiographers whose main work was in medical ultrasound. Thus any trends reported within the following section should be treated with caution, due to small sample sizes. Three additional respondents practising medical ultrasound were non-radiographers and were therefore excluded from the analysis.

Most of the respondents (9) worked in the NHS primary sector, while there were two in the independent sector and one was employed by a charitable organisation. Three were practitioners and seven advanced practitioners. AfC banding distribution was: band six (2), band seven (6), band eight (1). Ten health regions were represented but regional distribution was uniform with no obvious trends in evidence. The majority (83%) of the radiographers worked in an urban setting.

As mentioned above there were nine NHS primary sector staff, working in community hospitals and/or diagnostic centres. However the total responses received in this

category were eleven, indicating that two of the staff worked in more than one clinical environment. A breakdown of radiographers' roles in medical ultrasound is given in Table 5.7 below.

**Table 5.7. Roles undertaken by radiographers working in ultrasound within the primary health sector**

Role undertaken	In community hospitals	In diagnostic centres
	Number of staff	Number of staff
Abdominal scanning	5	6
Gynaecological scanning	5	5
Obstetric scanning	4	5
Vascular scanning	4	3
Training/supervision	3	3
Nuchal scanning	2	5
Audit	2	4
Counselling	2	3
Quality assurance	2	2
Research	2	1
Health promotion	1	1
Information technology	1	1
Management	1	1

One additional radiographer worked in a health screening clinic undertaking abdominal, gynaecological, nuchal and obstetric scanning, as well as counselling, health promotion, quality assurance, research and training.

There were two responses from radiographers undertaking medical ultrasound within the independent sector. The roles of these staff are illustrated in table 5.8 below.

**Table 5.8. Roles undertaken by radiographers working in ultrasound within the independent health sector**

Role undertaken	Diagnostic centre	Health centre
	Number of staff	Number of staff

Abdominal scanning	1	1
Audit	1	1
Gynaecological scanning	1	1
Information technology	1	1
Management	1	1
Musculoskeletal scanning	1	0
Obstetric scanning	0	1
Quality assurance	0	1
Small parts scanning	1	0
Training	1	0
Vascular scanning	0	1

Extended roles taken up within the last five years consisted of: delegated authority for referral for further imaging (such as MRI of the liver); reporting; intravenous injection. Only one radiographer had given up an extended role within the last five years, this being in postgraduate education provision.

A third of the radiographers practising medical ultrasound were involved in the delivery of formal education. This was at both undergraduate and postgraduate level. There was some association between the level of radiographers' direct supervision by other staff and professional qualifications held. All radiographers who held a postgraduate diploma or MSc worked in an unsupervised capacity.

Unchecked reports were issued by radiographers with postgraduate qualifications working at AfC band seven or eight. The two band six radiographers in the survey submitted either a proforma or a report which was checked by another member of staff.

#### **5.3.4 Radiotherapy**

Eighty six responses were received from radiotherapy radiographers. However analysis revealed that only 15 radiotherapy respondents were genuinely working in either the primary or independent health sectors. The other respondents hailed from major NHS hospitals and were discounted. All fifteen of the eligible radiotherapy radiographers were employed in the NHS primary sector, with twelve of these being in community hospitals and four in health screening or cancer clinics (one radiographer worked in both environments). There were no respondents from the independent sector. In view of the small sample sizes, any reporting of trends should be treated with caution.

The majority, some 93% of the sample, worked in an urban setting. The respondents worked in the following health regions: East of England (4), London (4), South East Coast (3), East Midlands (2), North West (1), North East (1), Yorkshire and Humber (1). The clear majority (82%) of the radiotherapy radiographers worked without "direct

supervision". Some 44% of the sample was involved in the delivery of formal education, principally at undergraduate level.

Roles undertaken in the two radiotherapy environments are detailed in Table 5.9.

**Table 5.9. Roles undertaken by radiotherapy radiographers in the primary sector**

<b>Role undertaken</b>	<b>In community hospitals</b>	<b>In health screening or cancer clinics</b>
	<b>Number of staff</b>	<b>Number of staff</b>
Training/supervision	7	4
Audit	6	3
Management	5	2
Dosimetry planning	4	2
Simulation	4	1
Verification	4	2
Brachytherapy	3	0
Health promotion	2	1
Palliative care	2	1
Research	2	4
Quality assurance	2	0
Care team	1	1
Counselling	1	1
Treatment review	1	1
Radiographer drug prescribing	1	1

Two thirds of the radiotherapy radiographers working in community hospitals and 50% of those in health screening or cancer clinics had taken on new extended roles within the last five years. The nature of the roles is presented in table 5.10.

**Table 5.10. New extended roles taken up by radiotherapy radiographers in the primary sector within the last five years**

<b>Extended role</b>	<b>Number undertaking</b>
Intravenous injections	2
Information and support	2

Patient consent	1
Patients' organs of interest outlining	1
Radiographer-led gynaecological insertions	1
Radiographer-led treatment mark-up	1
CT planning scans	1
Complementary therapies	1

No radiotherapy radiographers had given up any extended roles within the last five years. One respondent commented that he or she was developing a new role: 'I am currently advancing the role of the gynae brachy radiographer to have involvement in patient support with a view to psychosexual counselling'.

#### 5.4 Discussion

This survey was probably the first of its kind in attempting to identify the radiographic workforce in the primary and independent sectors. The online survey demonstrated that radiography practice in these sectors is associated with a widening range of examinations and treatments. The diagnostic radiography findings appear to indicate that a considerable breadth of procedures are being undertaken, many of which are now becoming accepted on a wide scale. A small number of responses were obtained from radiographers practising ultrasound in the primary or independent sectors. This may indicate that the numbers of practitioners operating in these sectors is low, or that promotion of the online survey to this group was only partially effective.

Survey response rates suggested that there may be only a relatively small number of radiotherapy radiographers working in the primary care sector. However radiotherapy role extensions in the primary sector appear to be broad-ranging and innovative, including palliative care, health promotion and counselling. Overall, the findings suggested that the majority of primary and independent sector radiographers are concentrated in urban localities. No national geographical variations emerged but the impression gained is that of a highly mobile workforce.

Generally, increased radiographer role expansion and independent practice was apparent for staff in the higher AfC bandings.

The majority of radiographers were working free from direct supervision by other staff. In this context "other staff" means radiologists, other medical practitioners and senior colleagues. Diagnostic radiographers (excluding ultrasound) working in the primary sector were highly likely to have taken on new extended roles. Very few radiographers within the online survey had relinquished extended roles during the last five years. This appeared to suggest a continuing and expanding need for radiographers to fulfil these activities.

## Chapter 6: Examples of Emerging and Advancing Radiographic Practice

### 6.1 Introduction

This chapter showcases emerging and innovative practice among the radiographic workforce. It highlights current activity within special interest groups and identifies unusual radiographic practice. It also reflects participants' views on anticipated role development in the future.

## 6.2 Methodology

Data were obtained via a number of methods: key individuals including professional and regional leads were identified and contacted via either email or telephone and invited to answer a short list of questions. The President of the Society and College of Radiographers (SCoR) was asked to consider:

1. Key challenges facing radiographers over the next five years.
2. The effect on radiographer role development as radiologist numbers increase.

The President was also invited to comment on other issues affecting emerging practice, role development and career structures, which will be discussed in the concluding chapter. Chairs of special interest groups were targeted and asked for views on current role developments, barriers to new role implementation and anticipated future roles. Lastly, professional websites carried links inviting radiographers who identified themselves as having an unusual role to contact one of the research team.

Responses were received from 13 separate sources including the President (SCoR), and therapy and diagnostic radiographers working in both tertiary and secondary environments. Further information was obtained from special interest groups including the Trauma Imaging Group, Gastro-Intestinal Radiographers, Association of Paediatric Radiographers, and the British Nuclear Medicine Society.

## 6.3 Findings

Radiographers in the UK are involved in an extremely diverse range of activities but greater role development and specialisation appear to be most prevalent in smaller departments and in district general hospitals of England and Wales. There is evidence of radiographers moving away from large specialist centres to support developing services in community-based settings. This was reported by a number of individuals and reflects an opinion of the president (SCoR):

*"[Radiographers need to be involved in] developing and delivering services that are more locally based in primary and community settings, or in outreach type facilities."*

There appears to be less opportunity for radiographers to adopt unusual roles in London, Scotland, and Northern Ireland. This may be because of continued radiologist dominance, lack of radiologists' support, competition from medical registrars, or a lack of demand for the service. Furthermore, for many of the responsibilities reported in this chapter, it is not known what grades or remuneration apply, and this may also influence some radiographers' enthusiasm for specialising.

### 6.3.1 Extended roles

Some of the roles described by the participants are fairly widespread, and correlated well with the findings from the postal questionnaire. These include requesting radiographs and 'plain film' reporting, and barium enema reporting. The continuation of

such roles is likely to ensure that they will come to be recognised as standard practice within the profession of radiography. However, other roles identified are much rarer among radiographers and are in the domains of cutting edge clinical practice, psychological support, and research.

### **6.3.2 Innovative clinical practice**

Firstly, it is evident that radiographers are practising interventional procedures in a range of settings. Scrub procedures such as guidewire insertions for stents and feeding tubes are performed by radiographers in some centres. At least one was performing angiograms, but that role ceased once the radiographer gained promotion. Another neuroscience radiographer (sonographer) works closely with neurosurgeons, neurologists and neuroradiologists.

*“I use transcranial ultrasound intraoperatively during carotid endarterectomies and balloon occlusions to monitor cross flow and cerebral reserve. I monitor, analyse and report on xenon CT scans (performed by other radiographers) also to assess brain perfusion in pre- and post-extracranial /intracranial (EC-IC) carotid artery bypass patients.”*

Currently this radiographer is co-ordinating a £1.4 million, international, multicentre trial investigating statins in subarachnoid haemorrhage and has an established track record of previous published research in imaging and surveillance of intracranial aneurysms. At another site a radiographer (sonographer) carries out ultrasound-guided amniocenteses.

Radiographer-led focused abdominal sonography in trauma (FAST) is underway at a small number of centres in both the north and south of the UK. There is much interest currently from emergency physicians for adopting this role but it is difficult to see why it should not continue to be undertaken by radiographers as it appears to be a popular emerging area of imaging practice.

Within radiotherapy, at one site practitioners are using Grenz rays for superficial dermatological therapy, and have undertaken further training to provide a skin laser therapy service, which provides treatment for tattoos, haemangiomas, and pigmented skin lesions.

Many new practices for radiographers are evolving within the field of gastrointestinal (GI) imaging. Some centres have radiographers performing colonoscopies and sigmoidoscopies. Other examples of emerging radiographic clinical practice include fluoroscopic gastric band screening in the obese, enterocyclis and wireless capsule endoscopy. On the same GI theme, radiographer-led CT colonography studies are increasing in many centres, but this is at the expense of barium enema practice and reporting. Future government initiatives are likely to influence this trend. Geographically, there is patchy uptake of radiographer-led barium meal studies and very little involvement in proctograms.

### **6.3.3 Research**

Many, if not most, radiographers are involved in clinical audit. Fewer are active within clinical research and of these, few have established research profiles. However, there is evidence to suggest that the importance of research within the profession is starting to become recognised formally by at least three Trusts where radiographers are allocated time for this purpose. In addition to the major trial already described, another

individual also supports hospital-led research, and coordinates research within radiology. Most importantly, at this centre there is collaboration with a neighbouring university, research park and radiology academy all sited within close proximity of the hospital. The research radiographer sees this location as

*“...a great opportunity to expand and facilitate a supported research base within the department of radiology and for external sources including commercial companies, other directorates within the Trust and professionals from the university.”*

Such activity is encouraged by the President (SCoR) who sees ‘Increasing our input to research’ as one of the main challenges currently facing radiographers.

#### **6.3.4 Counselling**

In at least one centre in the UK a radiographer is providing high quality, research-based support for patients receiving radiotherapy. Patients can self-refer or can be sent from other radiographers, specialist nurses or doctors.

*‘I deal with patients (and families) of all types and ages and with any practical or emotional difficulty. I am an extra resource to help patients manage this very difficult time. I can build a rapport in a safe, comfortable and confidential atmosphere to enable them to explore practical and emotional issues that they may have found impossible to express to their families. I believe this can only aid their recovery.’*

This post was originally funded by the Macmillan Cancer Charity but is now funded by the trust.

#### **6.3.5 Multidisciplinary responsibilities**

There is much emerging evidence of radiographers’ involvement in more holistic patient care. There are accounts of radiographer-led patient discharge services, radiographers making onward referrals, and radiographers’ involvement in advanced trauma life support (ATLS) in at least three UK centres. However, the diagnostic postal questionnaire indicated there are at least nine centres involved. This kind of activity is likely to support the introduction of future anticipated roles for radiographers including community-based trauma ‘practitioners’ and multiskilled ‘diagnosticians’ in the future polyclinics. The President (SCoR) suggests that ‘local clinical champions’ and ‘managers with strong leadership skills’ are essential to identify and exploit service deficits. For example, few radiologists are currently filling posts within breast imaging. She continues ‘[the profession needs] willing radiographers to go the extra distance in terms of their own personal and professional development.’ Radiographers are seen by the Department of Health as being fundamental in meeting referral to treatment targets, and therefore role development is expected to continue in spite of increasing numbers of radiologists emerging from the radiology academies. New radiologists may be unwilling or unable to reprise well-established radiographer-led procedures and continued collaboration with other clinicians will only strengthen existing alliances.

#### **6.3.6 Additional roles**

Within the time constraints of this work it was impossible to explore details of many of the accounts of innovative roles held by radiographers. In the absence of any kind of central register it is likely that many roles will remain unknown except at a local level. Nevertheless, there is evidence of radiographers performing fast CT trauma lists and

working as lung cancer specialists. The prescribing of drugs by radiographers practising in nuclear medicine is reported by the British Nuclear Medical Society as an area of current role development although this was identified in only one centre in the postal questionnaire returns.

Some paediatric radiographic specialists catheterise children in preparation for cystograms while others perform the full examination. Other radiographers have become paediatric ultrasound specialists, or have chosen to focus on paediatric image reporting. Unfortunately, in spite of these developments, it is anticipated that there is unlikely to be much further scope for further radiographer-led paediatric services since they remain largely in the grip of radiologist dominance. It was suggested that opportunities for future developments may lie in identifying and adopting additional roles at children's outreach clinics.

## **6.4 Discussion**

This account of unusual and emerging practice is far from complete and represents merely a convenience snapshot obtained within the available timeframe. However, equally, there is no reason to assume that any of these roles are occurring in isolation. Some may be more prevalent within general radiography practice than at first thought. Many radiographers are adaptable and flexible opportunists with an appetite for new roles. Today, they occupy niches in almost all fields of patient services and are performing many roles previously the domain of nurses or doctors. While there appears, in some quarters, to be uncertainty over future expansion, mainly due to the anticipated influx of newly qualified radiologists from the academies, others, however, see exciting new prospects within multidisciplinary teams beyond the radiology department, in some cases arising from funding outside their trust, and perhaps located within the community rather than the clinical setting. There are no reasons why new allegiances cannot be formed with a whole range of medical practitioners (including radiologists), allied health professionals and nurses: radiographers are not dependent wholly on radiologists to practise. Clearly there is evidence emerging already to support these predictions. Government initiatives, patient demand, increased radiographer led-research and innovative ideas to support new ways of working will continue to be the main drivers of radiographic diversity.

# **Chapter 7: The Radiographic Workforce in Higher Education**

## **7.1 Introduction**

The main purpose of this section of the study was to quantify the different roles undertaken by the radiographic workforce within education and research.

## **7.2 Methodology**

A survey was undertaken of heads of radiography and radiotherapy departments in HEIs in the UK that provide diagnostic and/or therapeutic radiography undergraduate education. Data was collected via telephone interviews using a semi-structured interview schedule (for interview schedule see Appendix

From a potential sample of 25 HEIs, 21 respondents consented and participated in the survey. The remaining four institutions were contacted by both telephone and email

but failed to respond before the cut-off point for data collection. Respondents included 17 radiography programme leads and four heads of school. All of the 21 institutions provided diagnostic radiography undergraduate education and seven institutions provided radiotherapy undergraduate education.

Quantitative data included: departmental size; clinical links to healthcare providers; research activity within the radiography department and additional roles and responsibilities that radiography-trained university staff members were undertaking.

Qualitative data was collected on the participants' views of the role of education in supporting radiography scope of practice; perceived future role expansion opportunities in radiography and the barriers to continuing role expansion. Interviewees were also given the opportunity to provide any additional comments on the scope of practice.

## 7.3 Results

### 7.3.1 Staffing

Table 7.1 shows the number of therapeutic and diagnostic radiographers employed across the HEI sample group. The numbers employed are shown in Table 7.1.

**Table 7.1 Radiographers employed in higher education**

Speciality	Number Employed	Full Time	Part Time	WTE
Radiotherapy	82	64	18	69.5
Diagnostic	232	182	50	186.3

Of the institutions replying, just over three-quarters (76%) indicated that academic staff undertook regular clinical (non-teaching) sessions. Nearly all of the institutions invited clinical radiographers to teach as guest lecturers. Guest lecturers covered mainly specialist topics in diagnostic or therapeutic radiography.

Nine institutions had a radiographer in a higher management position within the institution including three heads of school covering several health professions and six deans or associate deans.

Postgraduate qualifications held by academic staff ranged from postgraduate certificates to PhD. Most institutions reported having staff working towards an MSc, with one institution stating that it was the minimum level of qualification for all academic staff. Twelve staff across the institutions had PhDs, and in one department all staff were working towards this award.

### 7.3.2 Clinical links to healthcare providers

Lecturer practitioners were employed in nine of the institutions. Alternative posts covering similar roles were employed by a further four institutions which included a 'consultant senior lecturer' role, a 'radiography tutor' role and an 'associate lecturer.' Another institution employed a lecturer practitioner who was wholly funded by the university. One institution had lost their lecturer practitioner due to the withdrawal of trust funding, whilst another commented that they "had them in the past" but felt "the role didn't work." Twelve institutions reported having practice educators/clinical tutors in

post.

### 7.3.3 Research activity within the radiography department

Nineteen of the institutions reported being research active in the past five years with only one stating that it was not research active. It was notable that the organisation that was not research active had one of the smallest departments. One institution had not published any research articles for journals but considered itself as being research active as they had produced a popular radiography textbook. One participant declined to answer any questions relating to their research activity.

There was a combination of funded, non-funded and collaborative research projects reported. Funding was obtained from: international funding councils; charitable organisations including Cancer Research UK; a Government Agency; a research council such as the Engineering Physical Sciences Research Council (EPSRC); The College of Radiographers; The Royal College of Radiologists and the European Union.

Research was undertaken both solely within the universities and on a collaborative basis with other healthcare providers and agencies. Collaboration with healthcare providers included working with teaching hospitals, local clinical sites, radiography and medical consultants and specialist clinical sites including paediatric hospitals. Research with disease-specific experts included osteoarthritis endocrinologists and a diabetologist. On an international level there were alliances with USA healthcare providers. Co-research was also reported between HEIs which included both joint collaborations with NHS organisations and a centre of excellence in teaching and learning consortia which represented a collaboration of five universities. Further collaborations with the College of Radiographers, the Department of Health, and the Wellcome Trust were also identified.

The nature of the research was diverse. The main research areas were: radiography specific skills and techniques; disease specific investigations; multidisciplinary working; professional development and practice evaluation. These are listed below in Tables 7.2 to 7.5:

**Table 7.2 Radiography specific skills/ techniques**

---

Assessment of conditions on electric monitors	Interventional radiology
Capsule endoscopy	LINEX virtual radiotherapy training
Clinical reporting	Medical imaging
Computer modelling and breast cancer	Microscopy
Dosage levels	Montecarlo medical physics
Dosimetry	Nuclear medicine
Forensic radiography on museum artefacts	Radio-symmetry
Functional MRI and neurology	Radiotherapy dose measurements
Computed radiography - the development from photographic to electronic image	Reproducibility of radiotherapy treatments - clinical data

recording	
General radiotherapy skills	Teaching aids in CT and MRI
Image intensifier radiotherapy	Theatre dose survey
Image interpretation	Ultrasound film reporting
Image perception	Virtual Environment Radiotherapy Training (VERT) development

**Table 7.3 Disease specific investigations**

Bone marrow health screening	Hearing disability and MRI
Bone marrow oedema evaluation through MRI	Neonatal and adolescent brain scans of prematurely born individuals.
Breast imaging	Neonatal MRI
Breast screening and pain	NICE guideline development - head injuries
Cardiovascular disease	Osteoarthritis
Colorectal cancer	Osteoporosis
Diabetes and bone health	The use of radiation fluoroscopy to distinguish between benign and malignant tumours

**Table 7.4 Multidisciplinary working**

Inter-professional learning	Music and health
Multidisciplinary dual tasking and effects in gait	The role of midwife sonographers
Multidisciplinary team initiatives	

**Table 7.5 Professional development and practice evaluation**

Advanced professional restructuring	Learning technologies
Basic life support	Marketing
Change management	Patient communication
Communication	Teaching and learning
Communication in radiography	Student experience
Distance learning for clinical educators	Return to practice project
E Learning	Recruitment & retention in radiography
Education and learning technologies	Patient satisfaction
Education strategies	Problem based learning

Ethics	Radiographer role extensions
Health policy developments	Scope of practice review of local services
Health professions education and modernisation	Service user opinions
Higher Education Authority conference work	The use of mobile devices in teaching and learning of students on clinical placements.
Infection control	User group opinions

#### 7.3.4 Additional responsibilities of radiographers in HEIs:

Six institutions had radiography professorial posts. At one institution this was an honorary position. One institution was supported by a professor who holds a chair and undertook consultancy work but was not directly employed. One institution employed two professors; one in medical imaging and another in medical imaging education. Another with two professors had one in problem based learning and one in general radiography. In the same institution two staff members held the title of Professors for the American Society of Radiology Technology. One institution employed a professor in teaching and learning who has a background in radiography. Only one institution had a professor in therapeutic radiography. Finally, one site was working towards employing a chair and a reader.

#### **Committee Work**

All 21 respondents reported that members of their radiography-qualified staff served on a range of committees, boards and councils external to the institution. One respondent had a staff member who undertook committee work for the Higher Education Network for Radiography in Europe (HENRE). In all the other institutions, staff were serving on a range of regional and national committees. These are summarised below in Tables 7.6 and 7.7.

**Table 7.6 National committee work**

Abdominal aortic aneurysm screening	Radiotherapy Advisory Group - College of Radiographers
Academic Clinical Oncology and Radiotherapy Research Network	Scientific Advisory Group of the National Osteoporosis Society
College of Radiography Research Committee/ Group	Society of Radiography Advisory Group
Consortium for Accreditation of Sonographic Education (CASE)	Special Interest Groups - Practice Education; Trauma and Orthopaedics, Nuclear Medicine, Diagnostic Ultrasound Group
Department of Health	The Approvals and Accreditation Board of the SCoR
External Programme Approvals College of Radiographers	The Association of Radiography Educators

Foetal Screening	The Bone Density Forum
Heads of Radiography Education Committee	The Higher Education Institution Group
National Cancer Research	The National Gastrointestinal Radiographers Special Interest Group GIRSIG
National Level NHS Cancer Planning	The National Heads of Radiography Group
National Osteoporosis Society	The Research Assessment Expertise Panel

**Table 7.7. Regional committee work**

---

Hospital trust ethics committees	The Northern Ireland Council of the Society of Radiographers
Local committees of the Society of Radiographers	The Wales Scientific Committee
Local ethics committees	Therapeutic Radiography in Scotland
North West Business Managers Group	UK Council of Radiographers
Regional non-medical prescribing committees	University ethics and research committees
Scottish Council of the Society of Radiographers	Welsh Council for Radiographers
The Northern Ireland Allied Health Professionals Research Forum	The Northern Ireland Council of the Society of Radiographers

### ***Additional Roles***

From the 21 institutions, nine reported having staff who work as HPC Partners/Visitors and eight institutions had staff who worked as accreditors for the College of Radiographers. One institution had a staff member who was a Specialist Advisor for the National Institute for Clinical Excellence. Other roles included: Quality Assurance Agency Major Reviewers; Vice President for the Society of Radiographers; Royal College of Radiologists Research Group members, Heads of Radiography group; Vice Chairman of the Society of Radiography Research group; A member of the Board of Trustees of the Society of Radiology; Chair of the Association of Radiography Educators Special Interest Group; Secretary Elect for the National Gastrointestinal Radiographers Special Interest Group and a member of the British Institute of Radiology.

As well as undertaking committee work and specialist roles for professional and statutory bodies, 20 institutions reported that members of their staff undertook consultancy work in an expert or advisory capacity. These roles are summarised in Table 7.8:

**Table 7.8 Expert and advisory roles**

Academic leadership consultancy- heads of department	Forensic radiography
Advising dentists and vets on radiation protection	General Dental Council- advisory capacity
Advisory consultant for under-performing departments	International educational programme design & development
Allied Health Professions in Scotland - Workforce Planning	Local clinical site educational programme development
Approvals and accreditations accreditors	Mentoring for radiography consultants
Director of Sports Medicine	Plain film reporting in CT
Expert Advisors for Postgraduate CT courses	Private imaging consultancy (3 institutions)
Expert witness (3 institutions)	Private MRI
External course development advisors (2 institutions)	Research Fund Management
External examiners	Forensic radiography

In addition to this, eight institutions were involved with journal editorial boards. Specific journals that were named included: Radiography; Ultrasound; Synergy; The Journal of Radiotherapy in Practice. There was also involvement in un-named journals in topic areas such as MRI, social care and other healthcare practices.

### 7.3.5 The role of education in radiography scope of practice

Analysis of the role of education in advancing scope of practice in radiography revealed the following key themes:

Respondents identified the importance of providing training that supports local and national needs including the provision of appropriate postgraduate training and CPD short courses to aid advanced practitioners and clinicians to develop new skills. Supporting closer working partnerships between clinical practice and education was another key aim, as was the facilitation of evidence-based practice and role development. Provision of interprofessional learning and acting as a resource to share best practice, both within the profession and for other healthcare professions, was also mentioned as key.

Respondents felt that educational institutions had the ability to influence clinicians, employers and decision makers as well as raising the profile of the profession. They should endeavour to move education up the political agenda and to drive changes within the profession as a whole.

One respondent emphasised the importance of engaging in research and linking with journals to support clinical learning and to be aware of international practices and new emerging techniques. Another felt that the educational institutions have a responsibility to *“support people who are moving from a traditional NHS role into community/ PCT roles”*.

One respondent felt that facilitation of training in isolated areas should adopt more of a distance learning approach in order to reduce the cost of running courses. A further

comment indicated that evening classes could help accommodate working professionals since clinicians often find it difficult to be released during working hours. However, it was noted that this would have resource implications for HEI.

When asked, *“What is the role of education in advancing scope of practice?”* a variety of responses included:

*“To be ‘ahead of the game’ for undergraduate image interpretation.”*

*“To underpin new roles by offering appropriate training.”*

*“Putting forward the vision.”*

*“Creating dialogue.”*

*“Exploring ambition and boundaries.”*

*“Education providers are in the best position to push for change.”*

*“Absolutely fundamental.”*

*“You can’t have advancement of the profession without advancement of education.”*

*“This is difficult to answer as higher education sees itself as underpinning practice, yet trusts are not sending clinicians on courses as much as they should be and therefore aren’t accessing the knowledge that is available.”*

*“In theory the education provider should be approached by the trust and work with them to identify need.” (The inference is that this does not happen in practice).*

All 21 HEIs reported being involved in the training of other healthcare professionals in radiography specific areas including: image interpretation which was the most frequently cited area of training identified by 16 (76%) institutions; basic radiation; radiation protection; intensive care imaging; ethics and legality; dental imaging; oncology and palliative care; radiotherapy treatment planning; prostate outlining; medical imaging; diagnostic ultrasound; barium studies; x-ray referral training; fluoroscopy; and nuclear medicine. The professional groups who were most commonly accessing this training included: physiotherapists (12 institutions); medics (4); undergraduate nurses (8); operating department practitioners (4); and midwives (3). Other professions that were accessing radiography skills training included: speech and language therapists; nurse practitioners; radiologists; podiatrists; chiropractors; dieticians; paramedics; cardiac consultants; accident and emergency nurses; sports scientists; vets and a number of unspecified health professionals.

In addition to radiography specific training, 17 institutions also reported their use of interprofessional undergraduate shared learning with other allied health professions and nursing. This training focused on generic healthcare skills such as ethics; legality; CPD; communication skills and management skills. In Scotland the development of a common ground two year training programme for all allied health professionals, followed by a discipline-specific year was reported.

### **7.3.6. Opportunities for role expansion in radiography**

Role development was predicted to take place in three areas: radiography specific role extension; interdisciplinary roles and non-clinical roles. The participants believed that, in diagnostic radiography, role extension would largely occur through diagnostic radiographers taking on roles and responsibilities traditionally covered by the radiologist due to a drop in radiologist staffing levels - e.g. prescribing; angiography; CT head reporting; MRI reporting; US biopsies.

For therapeutic radiographers, HEI heads believed that future expansion would occur through work across the cancer pathway, by leading MDT work in hospitals, by being

involved in pre-referral and post-treatment stages of cancer care, and marking up of patients with different types of tumours.

Heads predicted that for both specialities new roles will be as a result of changing clinical environments such as moving out into community health, primary care environments, satellite and polyclinics. Interdisciplinary role opportunities included undertaking interprofessional roles in A&E such as minor injuries and discharging (as this would improve waiting times and patient satisfaction), and further additional roles such as patient assessment and treatment. One respondent felt that if A&E was staffed by a nurse, physiotherapist and a radiographer waiting times would be reduced significantly since together these professionals would have the breadth of knowledge to manage most minor injuries.

Non-traditional healthcare roles included health policy involvement, education of radiographers and non-radiographers, GP and nurse support; leadership and managerial roles.

Some comments are included below:

*"The opportunities are out there; we just need the vision and to be in the right place at the right time!"*

*"Distance learning so that education isn't taking the clinician out of the Trust may be the way forward but it would rely on clinicians using up their free time."*

*"Most radiographers advance by moving away from clinical practice into more management and teaching. There doesn't seem to be as much opportunity to advance clinically."*

*"Radiographer role is intrinsically linked to what goes on in trusts. Radiography reporting seemed to be the way forward but now it is hard to decide."*

### **7.3.7 Barriers to role expansion in radiography**

The main barriers to expansion were identified as those within the profession of radiography itself, interprofessional barriers, management and government level issues and barriers within training and education.

#### ***Barriers within Radiography***

Potential barriers to extension from within the radiography profession were identified by eight interviewees. These included resistance to change; apathy; insular outlooks; clinicians not being open to non-traditional roles; lack of motivation and lack of vision. One respondent felt that in some instances there was not enough post-training experience in areas such as reporting and that this prevents the individual from building expertise.

Two respondents described how the small size of the therapy branch of radiography can result in individuals being isolated. They felt that this may result in less peer support which restricts research and skill development and impedes the individual from having drive towards role expansion. Also it was felt that in a small department the focus must be on treatment and therefore staff may be unable to be released for extra study.

Disappointingly, one respondent stated that another limitation within therapy radiography was: *"In radiotherapy there are not enough people who are good enough for consultant roles."*

Another asked:

*“How will clinicians [therapy radiographers] undertake CPD in small teams? Will they become insular? They need to maintain networks outside their immediate environment.”*

One respondent said:

*“Radiographers are not as motivated [to expand their scope of practice] as other professional groups such as nurses and physiotherapists.”*

Another offered an explanation as to why radiographers were not pushing to extend their scope, stating:

*“Radiography is inextricably linked as a subservient role to the radiologist.”*

Also highlighted was the opinion that often radiographers refused to take on additional duties without pay. He felt that radiographers needed:

*“To extend scope before [they] get extra money rather than wait for the money to come first.”*

One respondent felt that other professions have a stronger research and evidence based background:

*“Radiography is behind other allied health professions. It needs to catch up before it can expand. Radiographers need to engage more.”*

Interprofessional barriers

Interprofessional barriers were identified by eight respondents. The strongest theme was the relationship between staffing shortages within medical professions and the ability of radiographers to extend their role. Although in past years radiologists and other medical practitioners had been open to role expansion in radiography due to staff shortages within their own professions, this was about to change as their own numbers start to increase. Medical staff want to take back these responsibilities, particularly reporting duties. One respondent described medical staff as “taking back their bread and butter work”. Some observed that medics were unwilling to allow allied health professions to undertake roles/ responsibilities that they saw as their own. One respondent reported frustration that “The NHS is ruled by doctors”. It was remarked that it would be cheaper to employ a radiographer to undertake some roles that were traditionally undertaken by medics. One respondent felt that the tradition of isolated training of therapeutic radiographers and oncologists prevented understanding between the two professional groups. Another respondent felt that there was a history of tension between therapy radiographers and physicians and oncologists.

Other respondents reported a lack of support from other allied health professionals and nursing staff: One said “radiographers are not maintaining their professional boundaries which could lead to the death of the profession”. This respondent explained that in their experience other professional groups were keen to learn radiography-specific skills to expand their roles and questioned why radiographers were not taking on skills from other professionals, such as patient assessment. In one university, all the people studying on the postgraduate ultrasonography course were from other professional groups. However, this was not the case in another institution where the postgraduate ultrasound course mainly recruited radiographers.

One respondent was concerned that “there is a lack of interprofessional understanding between AHPs. If they worked together more they would be stronger”. This respondent felt that the total numbers of allied health professionals represented a large percentage of NHS staff and together they could have more influence in the running of the NHS. Another concern was that “assistant practitioners are gradually encroaching on the

radiographer role". This respondent found it "worrying" that assistant practitioners are not HPC registered but are expanding their role into traditional radiography duties.

### ***Management and government level barriers***

Eleven respondents identified barriers from management and government levels including a lack of funding/investment, lack of resources and equipment and pressure on staff to balance work pressures and targets were identified. It was noted that the main way to extend practice for radiographers was to go into management, research or teaching and that it was more difficult to extend practice in a clinical environment. One respondent described an "us and them" mentality in the NHS where staff do not want to become involved in managerial roles as they are "almost seen as traitors" by their peers. This culture was restricting their development.

There was criticism of Government planning, "The pace of change is slowing largely due to Agenda for Change not working in clinicians favour". The respondent felt that AfC had "failed to take educational and training needs into account."

The government was also criticised for creating an environment where there was a "lack of commitment and sustainability" within the NHS due to constantly changing initiatives and targets. It was felt that realistic long-term planning was needed at a Government level. One described a clash between what the Government advocates and what happens in practice. An example of this is the proposal for multi-professional roles in the future, when in reality people are still being appointed to profession specific roles.

One respondent felt that future scope of practice will be limited by Government moves and targets, for example, cancer targets.

### ***Barriers within training and education***

The final area of identified barriers to role development in radiography was within training and education. Issues included the time and expense required to develop courses for new roles, qualification issues within the profession e.g. 'ultrasonographer' not being a protected title, and Trusts not having the money or staff to cover training requirements.

Comments and criticisms include:

"In the NHS there is no real requirement for education or research: Agenda for Change has not significantly taken educational needs into account."

"Often a trust can afford to train a consultant but not to employ them on a top salary once they are qualified."

"Trusts do not want to put things into practice; it has been said that education pushes and directs practice but now maybe there is a change, maybe trusts should direct education."

One felt that the degree programme for radiography needs to do more to reinforce a culture of ambition in students. He felt that bringing advanced practitioners in to speak to the students would help to create drive and innovative thinking. He explained that university institutions should "stimulate it [enthusiasm], not squeeze it out". Another felt there was a lack of drive due to the history of radiography as a diploma-based profession:

"Radiography is not using its graduate knowledge to the best of its ability. [Many clinicians are happy to] live a 9-5 existence."

Similarly, another felt that radiographers are not as driven and motivated as other professional groups. He described how all his postgraduate students are from other professional groups, and he was "frustrated" that radiographers are not seeking to further themselves through additional qualifications. One identified a risk associated

with running new courses if the university is unable to recruit adequate numbers: "There needs to be a risk and market analysis before a course is implemented."

### 7.3.8. Additional comments on scope of practice

Other comments regarding the scope of radiographic practice included that there had been a "blurring between the allied health professions" and that "other professions are encroaching into radiography skills."

This is a particular problem as it was felt that "radiographers are not reciprocating and diversifying into other professions' skills" in the same way. This was supported by a further comment that therapy radiographers have "the best cancer training of all professional groups" but despite this they felt that therapy radiographers were restricted in their access to community roles as nurses often get priority for specialist clinical roles.

One respondent predicted: *Eventually there won't be a protected radiography title; roles will blur into a more generic type of worker. There will be a move towards the right person for the job rather than worrying about maintaining titles.*

Furthermore, two respondents felt that the title "therapy radiographer" actually limited the profession as it did not explicitly explain the role. They questioned whether the title should be changed to a more explicit name such as "Cancer Therapist" or "Radiation Therapist." The clash between governance recommendations and the inability to implement them was also identified as having caused problems as had the implementation of Agenda for Change. The introduction of the assistant practitioner role was also thought to have had an impact.

One participant felt that the results of this review would enable him: *"To learn the difference between wants and needs in the clinical environment and help him identify the courses that higher education could provide that would be popular."*

One respondent felt that often 'high flying' radiographers lack management skills. He felt that managers should all undertake a professional doctorate, which he believes would turn them into strategic thinkers, improve their leadership and change management skills.

One respondent questioned whether the College of Radiographers could do more to make the various HEIs more cohesive. The rationale being that by creating a stronger institutional network could ensure that countrywide education requirements were being fulfilled, could drive research and could have students register at one university but study modules from another university. The respondent felt that this would "take the profession forward".

## 7.4 Discussion

The telephone interviewee approach was successful in identifying the views of heads of radiography within the United Kingdom with contributions from 84% of HEIs.

The role of radiography education was identified as seeking to underpin the national training and development needs at both undergraduate and postgraduate level. Activities in research and education were diverse. A broad range of research activities are being undertaken currently by both therapeutic and diagnostic radiographers within the majority of HEIs and with only one institution declaring itself non-research active.

Areas of research were identified as incorporating both single and collaborative projects attracting funding from a wide range of agencies.

The majority of institutions have radiographic staff who are actively involved in national committees and bodies representing education, health, accreditation and forward planning. This is clearly positive and will need to continue to ensure that the views of education are taken into account.

## **Chapter 8: Summary, Conclusions and Recommendations**

### **8.1 Discussion and summary of the work undertaken**

This research, commissioned by the Society and College of Radiographers and conducted over a three month period from January to March 2008 generated both a breadth and depth of data on the scope of radiographic practice in 2008.

The project specification was ambitious for the timescale set for the work and included the requirement that the different roles undertaken by the radiographic workforce within clinical practice, management, education and research and across different health care environments should be quantified. The research team used a range of different methodologies to capture the various types of information required: an online survey of the NHS primary sector and the independent sector; postal surveys directed to managers of imaging and therapy departments; interviews with special interest groups and other stakeholders; focus groups with managers of imaging and therapy departments and with consultant radiographers.

Postal surveys were sent to imaging and radiotherapy managers at all NHS acute trusts and cancer centres, achieving acceptable return rates at just under 50% return for the diagnostic questionnaire and just over 50% for radiotherapy. In both disciplines it emerged that adoption and diffusion of new roles was continuing while the number of extended roles withdrawn had been minimal. The focus group with diagnostic managers indicated that increasing numbers of radiologists were involved in interventional work and moving away from more traditional areas such as plain film reporting. Perhaps unsurprisingly therefore there is growth in the number of radiographer-led referrals and evidence of hospitals introducing innovative roles to meet their service needs.

The adoption and diffusion of extended and specialist roles continue and a high percentage of diagnostic radiographers are reporting independently of radiologists; in ultrasound the figure is more than 80%. Although it may be too early to fully assess the impact of the Radiology Integrated Training Initiative, this is an issue that will need to be taken into account as it may have a negative impact on any further expansion of radiographic practices as numbers of radiologists increase. However if the main focus of a radiologist's work is interventional radiology which is consistent with their training and skills then there should not be any reason for radiographers to give any ground on their current scope of practice. Certainly any argument alone based on the fact that there are more radiologists would be an insufficient reason to reduce the scope of practice, for example, in reporting where once again it is firmly established. The evaluation of key factors such as service delivery, quality of care and financial expediency should decide the best practices.

In therapy there is evidence of the therapeutic radiographer increasingly taking on

responsibility for autonomous planning and treatment prescribing and the growth of site specialist radiographers coupled to appropriate multi disciplinary team membership.

The research has unearthed several examples of some new and innovative roles for radiographers; such as colonoscopies and sigmoidoscopies; intraoperative transcranial ultrasound; stereotactic biopsies in breast imaging; Grenz rays for superficial dermatological therapy with staff given further training to provide a skin laser therapy service, which provides treatment for tattoos, haemangiomas, and pigmented skin lesions. In some cases these have been funded initially by external bodies and later adopted by the trust once success of the role has been proven. This suggests a way in which further development opportunities for radiographers may be introduced which otherwise may not initially be financially viable. On the other hand, barriers to radiographer role extension still exist in many trusts. While overall the opposition of radiologists appears to be diminishing there were still fairly frequent reports of this being a major factor preventing implementation. Other significant barriers cited were financial constraints and the impact of dissatisfaction amongst staff with their AfC bandings making staff reluctant to take on extended roles. Service improvement need was the factor that was most often cited as encouraging the implementation of extended roles but it was evident that supportive radiologists remain the key factor in many cases. Geographically, however, radiographers are less likely to take on extended role tasks in London, Northern Ireland and Scotland.

The surveys indicated that radiographers were increasingly involved in both disciplines in clinical education and these posts were in higher bands. Involvement in clinical research activity was minimal in diagnostic radiography but there were more reports of radiographer-led clinical research within radiotherapy. Within higher education, a large number of radiography departments are now research active: 19 institutions reported being research active over the past five years. There are more reports of radiography practitioners being involved in audit, with greater than 90% of the diagnostic radiographers undertaking this work; while in radiotherapy, 42% of audit was radiographer-led.

There is clear evidence of the implementation of the career progression framework. Of the new grades available, the number of assistant practitioners remains relatively low against the total number of trusts with advanced practitioner positions the most likely to have been introduced. However, only 55% of cancer centres reported advanced practitioners in post whereas in diagnostic imaging it was 73%. Advanced practitioner roles tend to evolve out of local extension to normal radiographer working practice and local custom and practice whereas consultant radiographer roles are more likely to be designed to meet a specific service need. There had also been some local difficulties in filling advanced practitioner posts and managers felt it was both easier and better to develop people into advanced practitioner roles than to try to recruit to them, as the additional career development options often assisted with staff retention.

Although the 'four pillars' of the consultant post viz. expert clinical practise; leadership; education and professional development and research and evaluation were clearly recognised, there were concerns regarding whether consultants could realistically undertake all four components. As far as practice is concerned there is less similarity between consultant roles across organisations than there is for advanced practitioner positions. One of the barriers to introducing consultant roles seems to be a lack of clarity of the role itself; any increase is likely to be hampered unless the impact of roles is evaluated. Furthermore, there were particular concerns that workload levels made it difficult for consultants to comply with requirements to undertake research which endorsed the concern expressed above of consultants engaging with all of the 'four pillars' to a meaningful extent. In fact, there was confusion regarding the precise

definition of 'research' in this context and queries regarding whether this requirement might be satisfied through involvement in clinical audit.

There is a lack of sound evidence for the impact arising out of introducing both consultant posts and to a certain extent advanced practitioners. Possibly because of this, negative perceptions have developed in some cases. This negativity might be reduced were there to be empirical evidence available for the 'added value' arising out of implementation of these posts along with implementation of the career progression framework. It is important that research be commissioned to explore the costs and benefits of appointing consultant radiographers, as there is a view that in some areas they are as effective as consultant radiologists yet cost the service far less. Evidence to show that the consultant radiographer brings cost-benefits would be likely to promote the introduction of more of these posts.

While it was evident that there was inconsistency in banding across all of the tiers The College of Radiographers believe that implementation of the career progression framework has been a success and they have set up a Career Progression Board to deal with framework issues. In addition the College supports the consultant radiographer network and provides a dedicated officer. The College, however, does acknowledge the fact that there are fewer consultants than anticipated and believe that the service needs more. It was suggested by the research that a shortage of people with the right skill levels was a barrier to implementation of the career progression framework in the higher bandings at some sites. However, in radiotherapy, four centres were addressing this issue by providing consultant training posts and this is clearly identified as good practice and could be adopted as a strategy by other trusts.

Access to funding for training for progression into advanced practitioner and consultant roles is identified as another barrier to progress at some sites but in many cases it is keeping track of funding availability that is the issue, rather than funding per se. The nature of training or indeed absence of suitable courses was a worry for some and this is surely an area where clinical departments and HEIs could work together to close any gaps in training.

There was also a view that future developments will hinge more on culture change issues than on simply facilitating further career progression within the profession. Disappointingly, there was some evidence from the diagnostic manager's focus group that, some managers will not be seeking to appoint additional radiographer consultant posts but taken against this finding, the postal survey revealed that there are a number of trusts with consultant training posts and plans to appoint consultants in the future in both disciplines. Notwithstanding the above, the fact is that there are practising radiographer consultants in both disciplines where six years ago there were none. In this respect the profession of Radiography has never been stronger. There is no reason why any radiographer cannot aspire to become a consultant; the value of consultants as role models and for promotion of the profession as a career must not be underestimated.

The online survey was targeted at the NHS primary and independent sectors. The survey was strongly promoted and received 315 responses. The survey captured a wide range of roles undertaken. There is no previously published data relating to radiography roles in these sectors and so this part of the work provides an entirely new snapshot of the development of radiographer roles outside more conventional settings. For this reason it is not possible to publish a response rate from each of the sectors; however, should the survey be repeated the data provided in this report will act as a useful baseline for comparison. The data revealed that the regional distribution of diagnostic radiographers in the primary and independent sectors appears to be quite

uniform, with the majority of diagnostic radiographers in both primary and independent sectors being concentrated in urban localities. Within the primary and independent sectors diagnostic radiographers are undertaking a wide range of imaging investigations. However, within these sectors, role expansion for diagnostic radiographers has focused on a relatively narrow range of additional skills but which are now becoming accepted practice.

There were some useful comparisons between the primary and independent sectors although examples of unusual and innovative practice in both were quite limited. There was a relatively higher incidence of role expansion for diagnostic radiographers in the primary sector compared to that seen in the independent sector. Very few radiographers in these sectors appear to have given up extended roles within the last five years, in line with findings from the acute sector and cancer centres. There was little evidence of widespread “multi-skilling” by radiographers across professional boundaries in the primary or independent sectors, although isolated examples exist. The findings for diagnostic radiographers practising ultrasound and for radiotherapy were based on small samples and no definitive conclusions can be drawn. However the survey suggests that the number of radiotherapy radiographers employed within the primary sector may be low.

The higher education institutions offering radiographic programmes recognise the importance of providing education designed to support local and national needs. The majority of HEIs have academic staff who are members of national committees and professional and other bodies; an important facet of their roles in contributing to the development of the profession and education in general. It was noted that radiographers were attaining senior positions in institutions with responsibility for multi professional groups. Most HEIs provide common modules for interprofessional learning and there are reports of increased numbers of clinicians other than radiographers accessing imaging courses. Some believed this could lead to erosion of roles for radiographers. A broad range of funded collaborative research is being undertaken by significant numbers of university-based radiographers, much of it of a collaboration nature with other institutions and health care providers.

## **8.2 Key conclusions**

This work has provided important data on radiographic practise in a wide range of healthcare environments: the acute/general sector, primary sector, independent sector, tertiary provision and in higher education.

The key conclusions are presented below.

1. Since the publication of the first College of Radiographers Scope of Practice document in 2003 the profession of Radiography has advanced significantly. The establishment of consultant and advanced practitioner posts; the extent of radiographer-led research in radiotherapy and the quantity of research in HEIs are but three key indicators.
2. The number of centres adopting new roles across the spectrum of radiographic practice continues to grow; the number of extended roles withdrawn in the past five years is minimal.
3. There appears to be more opportunity for role development in the provinces and smaller general centres rather than in London, Northern Ireland, Scotland or the larger specialised units.
4. The regional distribution of diagnostic radiographers in the primary and independent sectors appears to be fairly uniform with the majority concentrated in

urban localities.

5. Diagnostic radiographers undertake a wide range of imaging investigations within the primary and independent sectors but role expansion for diagnostic radiographers remains focused on a relatively narrow range of additional skills.
6. In imaging, scope for future development may lie in community-based centres and by forming alliances with clinicians outside the imaging department.
7. Radiographers are embracing more holistic patient care roles, including counselling in difficult situations.
8. There is a lack of consistency in AfC bandings for each tier of the career progression framework.
9. Service need and supportive radiologists are key factors in supporting role extension. Barriers to role extension include lack of funding, dissatisfaction with AfC bandings and the attitude of some radiologists.
10. Nearly 42% of cancer centres have radiographer-led research but there are fewer examples of diagnostic radiographers actively leading or taking part in clinical research.
11. A broad range of research activities is being conducted in HEIs in both radiography disciplines. These include both single and collaborative research projects.
12. The implementation of the career progression framework is viewed by the SCoR as a success, and whilst it is acknowledged that there needs to be more consultants in post, numbers are growing as are numbers in the other tiers in both diagnostic and therapeutic radiography.
13. Career development into both advanced practitioner and consultant positions is being hampered by the restricted number and types of course available to support development.
14. Advanced practitioner roles tend to evolve out of local extension to normal radiographer working practice.
15. Consultant radiographer roles are more likely to be designed to meet a specific service need. There is less similarity between consultant roles across organisations than there is for advanced practitioner positions.

### **8.3 Key recommendations arising from the research**

1. Follow-up studies should be undertaken to map the progress of the profession and to identify the scope of practice; while ideally this would be undertaken every two years, the threat of response fatigue may make three or four years a more pragmatic option.
2. The College of Radiographers is urged to commission an independent evaluation of the impact of implementation of consultant, advanced practitioner and assistant practitioner such as Skills for Health has recently done for the roles of anaesthesia practitioner, endoscopy practitioner, surgical care practitioner, peri-operative specialist practitioner and physician assistant in order to assess the cost benefits of introduction of the new radiography grades.
3. Further development work with consultants and advanced practitioners to clarify the content of their current roles and the direction in which they should be developed, would be beneficial.
4. Further guidance on implementing consultant advanced practitioner posts would be helpful; this could include clarification of the various requirements, such as whether audit counts towards the 'research' strand of the post and the need for an individual caseload.
5. There is a need to review the education and training that is provided to support the career progression framework in order to ensure that HEIs provide appropriate courses and CPD opportunities.

6. The professional body should consider the various means available to it for promoting and supporting radiographer-led clinical research.
7. The professional body should consider commissioning case studies to demonstrate the clinical effectiveness of extended role tasks, especially those that are considered to be emerging and innovative.
8. Higher education institutions should re-examine their postgraduate portfolio to ensure that it supports the clinical development needs of advanced practitioners and consultants.

## References

ACCORN Research Radiographer Working Party (2007). Gap Analysis of Role Definition and Training Needs for Therapeutic Research Radiographers in the UK. *BJR* 80 693-701.

Bentzen, SM. Heeren, G. Cottier, C. Slotman, B. Glimelius, B. (2005). Towards Evidence-Based Guidelines for Radiotherapy Infrastructure and Staffing Levels in Europe: The ESTRO QUARTS Project. *Radiotherapy and Oncology* 75 355-65.

Bucci, MK. Bevan, A. Roach, M. (2005). Advances in Radiation Therapy: Conventional to 3D, to IMRT, to 4D and Beyond. *CA: Cancer J Clin* 55 117-34.

Cantin, P. Richards, J. (2007) Developing the Role of the Consultant Sonographer. *Ultrasound*. 15, 3, 170-172

Colyer, H. (2000). The role of the radiotherapy treatment review radiographer. *Radiography* 6 253-260

Delaney, G. Jacob, S. Featherstone, C. Barton, M. (2005). The Role of Radiotherapy in Cancer Treatment. *Cancer* 104 1129-37.

Department of Health (2001) Advance Letter PAM(PTA)

Department of Health (2003). Radiography Skills Mix: A report on the four-tier service delivery model. London, Department of Health.

Department of Health Learning and Personnel Development Division (2003) Radiography Skills Mix. London: Department of Health.

Department of Health (2004a) [http://www.performance.doh.gov.uk/hospitalactivity/data\\_requests/downloa...](http://www.performance.doh.gov.uk/hospitalactivity/data_requests/downloa...) [3] (accessed 5/11/04).

Department of Health (2004b) Agenda for Change: Final Agreement, December 2004. London, Department of Health.

Department of Health (2004c) The NHS Knowledge and Skills Framework and the Development Review Process, October 2004. London, Department of Health.

Evans, S. (1999) The NHS Breast screening programme. *Synergy*, May 12-13.

Hoskin, PJ. Bownes, P (2006) Innovative Technologies in Radiation Therapy: Brachytherapy. *Seminars in Radiation Oncology* 16:209-17.

National Radiotherapy Advisory Group. (2007). Radiotherapy: Developing a World Class Service for England. Report to Ministers from the National Radiotherapy

Advisory Group.

Paterson, A. (1994) Role Development - Towards 2000. A survey of role developments in Radiography. London: The College of Radiographers.  
Price, RC.

Price, RC, High, J. Miller, LR. (1997) The Developing Role of the Radiographer. Hatfield, University of Hertfordshire.

Price, RC. Le Masurier, SB. (2007) Longitudinal changes in extended roles in radiography: A new perspective Radiography 13, (1) 18-29

Price, RC. Miller, LR. Mellor, F. (2002) Longitudinal changes in extended roles in radiography, Radiography 8: 223-234

Price, RC. Le Masurier, S. High, J. Miller, L. (1999) Changing times: a national survey of extended roles in diagnostic radiography. Radiology 1999 - Imaging Science and Oncology. Programme and Abstracts, Supplement to Volume 72 of the British Journal of Radiology 7.

Royal College of Radiologists and Society and College of Radiographers, (2007). Team working within clinical imaging: A contemporary view of skills mix, January 2007. London, Royal College of Radiologists and College of Radiographers

Rybovic, M. Halkett, GK. Banati, RB, Cox, J. (2007) Radiation therapists' perceptions of the minimum level of experience required to perform portal image analysis. Radiography Available online 27 August 2007

The College of Radiographers. (2002) A Strategy for Professional Development of Radiographers. London: The College of Radiographers.

The College of Radiographers (2003a) Educational and Professional Development: Moving Ahead. London: The College of Radiographers

The College of Radiographers (2003b) The Scope of Practice. London: The College of Radiographers.

The College of Radiographers (2003c) Radiography Career Progression Framework: Radiography support workforce, April 2003. London, College of Radiographers.

The College of Radiographers (2003d) A Curriculum Framework for Radiography. London: The College of Radiographers

The College of Radiographers (2005). Research and the Radiography Profession: A Strategy and Five year Plan. London: The College of Radiographers

The College of Radiographers A Strategy for the Education and Professional Development of Therapeutic Radiographers (Undated). London: The College of Radiographers

## **Appendix 1**

### **The Research Team**

The core team in alphabetical order, School of Health & Emergency Professions, University of Hertfordshire unless otherwise stated was:

- Hazel Edwards, Senior Lecturer.
- Fraser Heasman, Senior Lecturer, Radiotherapy Research Lead for Radiotherapy,
- Dr Anthony Herbland, Educational Technologist
- Dr. Sue Le Masurier, Post Doctoral Research Fellow.
- Dr Linda Miller, Senior Research Fellow, Institute of Employment Studies (IES).
- Dr Richard Price, Head of School (Project Lead).
- Amy Todd, Research Assistant.
- Martin Vosper, Senior Lecturer, Diagnostic Radiography & Research Lead,

## Appendix 2 - Diagnostic Radiography Workforce Questionnaire

### NHS Hospital Questionnaire - Diagnostic Imaging Manager

*Please tick relevant box(es) or enter data*

#### Section 1 – Demographics

---

**Please indicate the type of health board or trust in which your department is situated**

- 1**
- Foundation
  - Teaching
  - Non-teaching
  - Other (please state):

**Please indicate the SHA or country in which your trust is situated**

- 2**
- East of England
  - South West
  - East Midlands
  - West Midlands
  - London
  - Yorkshire and Humber
  - North East
  - Northern Ireland
  - North West
  - Scotland
  - South Central
  - Wales
  - South East Coast

#### Section 2 – Roles

- 
- 3 Is there a “red dot” scheme running in your department? – YES/NO**
- 3a. Please give date of implementation if after January 2003
- 3b. Approximate number of radiographers involved
- 4 Do radiographers undertake audit in your department? – YES/NO**
- 4a. Please give date of implementation if after January 2003
- 4b. Approximate number of radiographers involved
- 5 Is there a radiographer-led ‘hot-reporting’ service in A&E? – YES/NO**
- 5a. Please give date of implementation if after January 2003
- 5b. Approximate number of radiographers involved
- 6 Do radiographers form part of any advanced trauma life support team? – YES/NO**
- 6a. Please give date of implementation if after January 2003
- 6b. Approximate number of radiographers involved
- 7 Do radiographers perform intravenous injection/ cannulation in your department? – YES/NO**
- 7a. Please give date of implementation if after January 2003
- 7b. Approximate number of radiographers involved
- 8 Are there any radiographer-led IVUs undertaken in your department? – YES/NO**
- 8a. Please give date of implementation if after January 2003
- 8b. Approximate number of radiographers involved
- 9 Is there any supplementary prescribing (of drugs) undertaken by radiographers in your department? – YES/NO**
- 9a. If you answered YES, please state the areas of practice in which they prescribe
- 9b. Please give date(s) of implementation if after January 2003
- 9c. Approximate number of radiographers involved
- 10 Are there any radiographer-led CT examinations? – YES/NO**
- 10a. Please give date of implementation if after January 2003
- 10b. Approximate number of radiographers involved
- 11 Are there any radiographer-led MRI examinations? – YES/NO**
- 11a. Please give date of implementation if after January 2003
- 11b. Approximate number of radiographers involved
- 12 Do any radiographers undertake cardiac and/or physiological measurements (ECG etc)? – YES/NO**
- 12a. If YES, please specify

- 12b Please give date of implementation if after January 2003
- 12c Approximate number of radiographers involved
- 13 Do radiographers undertake pharmacological stressing in radionuclide imaging? – YES/NO**
- 13a Please give date of implementation if after January 2003
- 13b Approximate number of radiographers involved
- 14 Do radiographers undertake exercise stressing in radionuclide imaging? – YES/NO**
- 14a Please give date of implementation if after January 2003
- 14b Approximate number of radiographers involved
- 15 Do you have any radiographers with a substantive role (0.2 WTE and above) in research – YES/NO**
- If you answered **YES** above
- 15a How many such staff do you have in post?
- 15b What is their range of Agenda for Change bandings?  
From:.....to.....
- 15c In what areas do they undertake research?
- 15d Which of these areas, if any, are radiographer-led?
- 16 Do you have any radiographers with a substantive role (0.2 WTE and above) in CLINICAL EDUCATION? – YES/NO**
- If you answered **YES** above:
- 16a How many such staff do you have in post?
- 16b What is their WTE equivalent?
- 16c What is their range of Agenda for Change bandings?  
From:.....to.....
- In which areas of education do they operate?
- 16d
- Undergraduate
  - Postgraduate
  - Assistant Practitioners
  - CPD
  - Non-Radiographer education – Who?
  - Other – Please detail

## Diagnostic Ultrasound

---

- 17 In which areas do your sonographers offer a service? (please tick all that apply)**
- Early pregnancy

- Obstetrics
- Nuchal thickness
- Neonatal head
- Gynaecology
- Abdominal
- Transrectal
- Small parts
- Vascular
- Musculoskeletal
- Cardiac
- Breast
- Contrast examinations
- Nerve blocks
- Other (please specify)

**18 Excluding obstetric reporting, please identify which phrase best fits your departmental reporting practice in Ultrasound:**

- 18a A proforma or tick chart is completed by the sonographer, but verified by another person (eg radiologist)
- 18b A proforma or tick chart is completed and verified by the sonographer
- 18c An independent (free text) report is produced by the sonographer but verified by another person
- 18d An independent report is produced and verified by the sonographer  
Radiographer-led referrals

**19 Do radiographers make any requests for imaging in your department? – YES/NO**

- 19a If you answered YES, please state the areas of practice in which they refer
- 19b Please give date(s) of implementation if after January 2003
- 19c Approximate number of radiographers involved

**Reporting practice**

---

**20 Do radiographers in your department issue written reports in the following categories?**

---

	<b>Reporting Field</b>	<b>Tick if yes</b>	<b>Year if implemented after Jan 2003</b>	<b>Approx number of staff involved</b>	<b>Is the report independent of a radiologist?</b>
20a	Appendicular skeleton				YES/NO
20b	Axial skeleton				YES/NO
20c	Chest				YES/NO
20d	Mammography				YES/NO
20e	IVU				YES/NO

20f	Paediatrics	YES/NO
20g	Bone densitometry	YES/NO
20h	Barium meal	YES/NO
20i	Barium swallow	YES/NO
20j	Barium enema	YES/NO
20k	Venography	YES/NO
20l	Micturating cystography	YES/NO
20m	Proctography	YES/NO
21n	CT Brain	YES/NO
21o	CT other (please state)	YES/NO
20q	MRI IAM	YES/NO
20r	MRI knee	YES/NO
20s	MRI other (please state)	YES/NO
20t	Radionuclide renal	YES/NO
20u	Radionuclide bone	YES/NO
20v	Radionuclide chest	YES/NO
21w	Radionuclide cardiac	YES/NO
20x	Radionuclide other (please state)	YES/NO
20y	ANY OTHER (please state)	YES/NO

---

**Are there any other “extended” or additional roles for radiographers in your department? – YES/NO**

*NB For the purpose of this study an extended role is one which has been adopted by a radiographer after previously being undertaken by another health care professional usually a medical practitioner.*

**21**

Please identify such roles in the following table

---

<b>Nature of the role</b>	<b>Year if implemented after Jan 2003</b>	<b>Approx number of staff involved</b>
---------------------------	---	--

- 22 **Are there any barriers to introducing extended roles within your department?**
- 23 **Are there any factors which encourage the adoption of extended roles within your department?**
- 24 **Have any extended roles been withdrawn from radiographers within the last 5 years? – YES/NO**

If you have answered YES please identify the role and the year in which it was withdrawn

24a

---

**Role Reason for withdrawal Year withdrawn**

### Section 3 – Radiographic Workforce

**Do you have any radiographic staff in the following designations in your department?**

---

**25 ASSISTANT PRACTITIONERS – YES/NO**

**(If No go to 25e)**

If you answered **YES** above:

- 25a How many such staff do you have in post?
- 25b In what year did you first employ an assistant practitioner?
- 25c What is their range of Agenda for Change bandings?  
From:.....to.....
- 25d In which areas of radiographic practice do they operate? e.g. skeletal radiography, fluoroscopy
- 25e If you answered NO to question 25 above, do you plan to introduce assistant practitioners in the future? – YES/NO
- 25f If so, in what area(s) will they practise?

**26 PRACTITIONERS – YES/NO**

If you answered **YES** above:

- 26a How many whole-time equivalent (WTE) staff do you have in post?
- 26b What is their range of Agenda for Change bandings?  
From:.....to.....
- 26c In which areas do they practise e.g. MRI, ultrasound, A/E?

**27 ADVANCED PRACTITIONERS – YES/NO**

**(If No go to 27e)**

If you answered **YES** above:

- 27a How many WTE staff do you have in post?
  - 27b In what year did you first employ an advanced practitioner?
  - 27c What is their range of Agenda for Change bandings?  
From:.....to.....
  - 27d In what areas do they practise? e.g. MRI, ultrasound, A/E etc
  - 27e If you answered **NO** to question 27 above, do you plan to introduce advanced practitioners in the future? – YES/NO
  - 27f If so, into what area(s) of practice?
- 28 CONSULTANT RADIOGRAPHERS – YES/NO**

**(If No go to 28d)**

If you answered **YES** above:

- 28a How many WTE staff do you have in post?
  - 28b What is their range of Agenda for Change bandings?  
From:.....to.....
  - 28c What is their specialism
  - 28d Do you have any posts for developing future consultants? – YES/NO
  - 28e If you answered **NO** to question 28 above, do you plan to introduce consultant radiographers in the future? – YES/NO
  - 28f If so, what will be their speciality?
- 29** If you would like to add any additional comments please enter these below

Thank you very much for completing this questionnaire, please return in the prepaid envelope. If you have any questions regarding this research please contact the Lead Researcher:

Dr Richard Price  
School of Health and Emergency Professions  
University of Hertfordshire  
College Lane  
Hatfield  
Herts AL10 9AB

## **Appendix 3 - Therapeutic Radiography Workforce Questionnaire**

**NHS Hospital Questionnaire - Therapeutic Manager**

Please tick relevant box(es) or enter data

## Section 1 – Demographic Details

---

**Please indicate the type of health board or trust in which your Cancer Centre is situated**

- 1
- Foundation
  - Teaching
  - Non-teaching
  - Other (please state)

**Please indicate the SHA or country in which your trust is situated**

- 2
- East of England
  - South West
  - East Midlands
  - West Midlands
  - London
  - Yorkshire and Humber
  - North East
  - Northern Ireland
  - North West
  - Scotland
  - South Central
  - Wales
  - South East Coast

## Section 2 – Radiographic Roles

---

- 3 **Do you have any RESEARCH RADIOGRAPHERS working in your Centre? – YES/NO**

**(If No go to Q4)**

If you answered YES above:

- 3a How many such staff do you have in post?

- 3b What is their range of Agenda for Change bandings?  
From:.....to.....

In which areas of research do they operate?

- 3c
- National/International Clinical Trials – YES/NO
  - Radiographer led Audit – YES/NO
  - Oncologist-led audit – YES/NO
  - Implementing new technologies – YES/NO

- Radiographer led Research – YES/NO
- Oncologist led Research – YES/NO
- Other – Please detail

**4 Do you have any therapeutic radiographers with a substantive role (0.2 WTE and above) in CLINICAL EDUCATION? – YES/NO**

**(If No go to Q5)**

If you answered YES above:

4a What is their range of Agenda for Change bandings?  
From:.....to.....

In which areas of education do they operate?

- 4b
- Undergraduate
  - Postgraduate
  - Assistant Practitioners
  - CPD
  - Non-Radiographer education – Who?
  - Other – Please detail

**5 Do you have any therapeutic radiographers attending MULTI-DISCIPLINARY TEAM meetings in your Centre? – YES/NO**

**(If No go to Q6)**

If you answered YES above:

5a Which meetings do they attend?

5b What is their level of responsibility within the team?

**6 Do you have any INFORMATION AND SUPPORT RADIOGRAPHERS working in your Centre? – YES/NO**

**(If No go to Q7)**

If you answered YES above:

6a How many such staff do you have in post?

6b What is their range of Agenda for Change bandings?  
From:.....to.....

6c Are they employed by the NHS or private/joint funded?

## **Appendix 4 – Focus Group Information**

## **Research Briefing**

Thank you for agreeing to participate in the diagnostic imaging managers' focus group on Monday 10th March. The focus groups will last around two to two-and-a-half hours and are to be hosted at the SCoR premises in London (directions are included at the end of the briefing note).

Each session will discuss issues pertinent to the changing scope of practice and will be recorded. The meeting will start the meeting at 1.00 pm but lunch will be available from 12.30.

### **Background to the Study**

The impact of developing technologies and the change in emphasis brought about by a series of Government health reforms have shaped the patterns of delivery of health care. As a consequence, the range of tasks and activities undertaken by radiographers has expanded since the early 1990s. This expansion to the scope of radiography practice means that it now includes some tasks previously considered to be the remit of medical personnel. The College of Radiographers has therefore commissioned this project to explore changes in the scope of radiographic practice.

The aims of the research are to:

- explore issues relating to the scope of current roles
- predict likely future developments, and
- discuss the factors that impact on rate of change of radiographers' roles

There are four different components that make up the research programme as a whole:

- An on-line survey of radiographers working outside the NHS
- A paper-based survey of radiographers working within the NHS
- Interviews with consultant therapeutic radiographers and a selection of radiography managers
- Focus groups

### **Confidentiality**

You will be free to make comments as you deem appropriate – indeed, gaining your views is the main purpose of the sessions! Equally, if you feel unable to give a view on any of the topics discussed, you will not be pressed to do so. You may also leave at anytime without having to give a reason and without prejudice.

It is our intention to record the sessions, and the recordings will be transcribed, as we would like to use comments from these sessions to illustrate the report. However, these comments will be anonymous, and no individual or organisation will be identified in the ensuing report. In some cases it is possible that the content of a remark would potentially render an individual or organisation identifiable. If this is the case then we will request the individual's permission prior to inclusion of the comment, and, if this is not given, then we will not use it.

The results of this study will be used along with the results from the surveys and interviews and will form the basis of a revised scope of radiographer practice report that will be submitted to the CoR in March. The results may also be published in appropriate journals and conferences. We would be happy to let you know about any

publications that emerge from the work if you would like to be kept informed of the outcomes.

### **Will I be paid?**

Participation in the focus groups is entirely voluntary and no reward is being offered. However, your travel costs will be refunded and light refreshments will be provided.

### **Directions to the Society**

Address  
The Society and The College of Radiographers  
207 Providence Square  
Mill Street  
London  
SE1 2EW.

[View a Google Map of our location in a new window](#) <sup>[4]</sup>.

### **Travel by public transport**

The nearest main line railway station is London Bridge. To exit London Bridge Station use direction signs indicating HMS Belfast, escalator will take you into Tooley Street, head for bus stop located in Tooley Street outside Hays Galleria. Buses 47 and 381 (approximately 3 stops).

The nearest underground stations are London Bridge (Northern and Jubilee Lines), Bermondsey (Jubilee Line) and Tower Hill (District and Circle Lines). It is also possible to walk from London Bridge to Mill Street along the riverside walkway - accessible via Hays Galleria (London Bridge), past HMS Belfast, under Tower Bridge, across Shad Thames bridge (iron bridge), which leads into Mill Street (approximately 20 minutes).

### **Travel by car**

Please note that car parking restrictions operate in the Bermondsey area and there are no parking facilities at The Society and College of Radiographers. If you are planning to arrive by car please contact the Society and College for advice.

### **Any queries?**

Should you have any questions about the project please do not hesitate to contact either:

Dr. Linda Miller, Senior Research Fellow,  
[linda.miller@employment-studies.co.uk](mailto:linda.miller@employment-studies.co.uk) <sup>[5]</sup>  
01273 873114

or

Dr Richard Price, Head of Department of Health and Emergency Professions  
[r.c.price@herts.ac.uk](mailto:r.c.price@herts.ac.uk) <sup>[6]</sup> 01707 284962

### **Prompts for focus groups with consultants**

Have any of you implemented the full four tier structure within your departments?

(If no), do you have a consultant radiographer in post? Advanced Practitioners?  
Assistant radiographers?

*Need to note how many have all four grades, how many have just one or two. (Those with AP and/or consultant posts )How many people do you have in these grades? (ie, how many ARs, APs,?)*

1. For how long have you had these grades in place?  
Was there a particular motivation for introducing this/these grades? Did you push for their introduction, or was it led from elsewhere in the organisation?
2. (For those who do not have 4-tier structure) Do your radiographers undertake any extended roles? How many do so?  
Are there any plans to introduce the 4-tier structure in the near future?  
If yes, what is driving these plans?  
If no, why is that?
3. Is your preference to develop people into these roles/activities or to recruit people of an appropriate standard?  
If preference to develop, how do you identify those to offer development? How do you develop them? Are there appropriate programmes/courses?  
If you expect the applicants to have received any particular type of development or qualification before they applied for these posts, what type(s) of development were you looking for?  
Did all of the applicants actually have this development or qualification?
4. What is the nature of the consultant and AP roles within your department? What roles/tasks do these staff groups perform?  
Are any of these roles or activities exclusive to their AP/consultant status?
5. Was there an expectation that these individuals would stop doing any particular types of task when they moved into the consultant role?  
(If yes) What are these?  
(If not mentioned above) Does the staffing structure within your department allow consultants to fulfil their role?
6. Have any staff groups expressed any opposition to the consultant role?  
(If yes) Which types of staff groups?
7. Is there any structure in place for developing future Advanced Practitioners and/or consultants (succession planning)? Do you think there should be?
8. Why do you think there are still relatively few consultants in post?
9. Do these changes to the career structure for radiographers have any implications for initial training (ie, pre-registration) training?  
(If yes), What are they?

IES is an independent, apolitical, international centre of research and consultancy in employment policy and human resource management issues, and is a not-for-profit organisation.

Institute for Employment Studies,  
Mantell Building,  
Falmer,  
Brighton, BN1 9RF.  
Tel: 01273 873689 Fax: 01273 873114  
[linda.miller@employment-studies.co.uk](mailto:linda.miller@employment-studies.co.uk) <sup>[7]</sup>

## **Appendix 5 – Online Questionnaire**

**The Scope of Radiography Practice Survey 2008**

The Society and College of Radiographers have commissioned a national study on the present scope of radiographic practice.

Within this remit the research team at the University of Hertfordshire has produced this online survey. This is particularly to seek information on the working roles and environments of radiographers in the primary and independent sectors.

Thus to enter the online survey you should be a radiographer who is working for the NHS in primary care or employed by the independent sector in any environment.

The survey aim is "To identify and quantify the different healthcare environments in which the radiography workforce function".

Your responses to this survey are valuable and will help to support the development of the profession. No personal identifying information is required and all responses will be treated in confidence.

It is possible that you may work in more than one area of radiography (eg x-ray, diagnostic imaging, MRI, nuclear medicine, ultrasound or radiotherapy) within the independent or primary care sectors. If this is so, please click on the duties within your principal area of work. You will also have the opportunity to mention any additional roles.

Note: Once you have selected a particular option, you may find some responses are not available as they do not apply to you. For your information, the survey should not last more than 10 minutes.

If you have any queries please contact Anthony Herbland ([a.j.m.herbland@herts.ac.uk](mailto:a.j.m.herbland@herts.ac.uk)<sup>[8]</sup>)

## You and your employer

---

### Please state whether you are a

- 1
  - Other health professional (please state)
  - Radiographer
  - Other (please specify):

### Who is your employer?

- 2
    - The National Health Service Primary Care setting
    - Independent healthcare provider
    - A charitable organisation
    - Self employed
- 

In what environment do you work within the NHS?

- a. *(select all that apply)*

- Community or cottage hospital
- Diagnostic centre
- "Drop-in" or "one stop shop" health clinic
- Freelance in various locations
- GP practice or centre
- Health centre
- Health promotion
- Health screening or cancer clinic
- Home visiting
- Mobile unit (lorry)
- Staff training
- Telephone call centre
- Walk-in centre
- Other (please specify):

In what environment do you work within the independent or private sector?

*(select all that apply)*

- b.
- Diagnostic centre
  - "Drop-in" or "one stop shop" health centre
  - Freelance in various locations
  - Health centre
  - Health promotion
  - Health screening or cancer clinic
  - Home visiting
  - Hospital
  - Mobile unit (lorry)
  - Staff training
  - Telephone call centre
  - With a healthcare equipment manufacturer
  - Other (please specify):

In what environment do you work in the charitable sector?

*(select all that apply)*

- c.
- Drop-in health clinic
  - Freelance in various locations
  - Health centre
  - Health promotion
  - Health screening or cancer clinic
  - Home visiting
  - Hospital
  - Mobile unit (lorry)
  - Staff training
  - Telephone call centre
  - Other (please specify):

In what environment do you work in self-employment?

*(select all that apply)*

- d.
- Freelance in various locations
  - From home as a consultant
  - Health centres and clinics
  - Health promotion
  - Home visiting
  - Hospitals
  - Mobile units (lorries)
  - Staff training
  - Other (please specify):

**If you work in the NHS, please state your classification within the "four tier structure".** *(Optional)*

- 3
- Assistant practitioner
  - Practitioner
  - Advanced practitioner
  - Consultant practitioner
  - Other (please specify):

**If you work in the NHS, please state your employment banding.** *(Optional)*

- 4
- Band 4 (or equivalent)
  - Band 5 (or equivalent)
  - Band 6 (or equivalent)
  - Band 7 (or equivalent)
  - Band 8 (or equivalent)
  - Other (please specify):

- 5
- If you work in the independent sector, please state your job title.**  
*(Optional)*

Your Details

---

**What is your highest professional qualification?**

- 6
- Certificate
  - Diploma
  - BSc Degree
  - Postgraduate certificate
  - Postgraduate diploma
  - MSc degree
  - PhD

**Where is your place of work?**

- 7
- Single site
  - Multiple sites
  - Mobile unit
  - Domiciliary
  - Other (please specify):

**Do you work in a rural or urban setting?**

- 8
- Rural
  - Urban

**In which health region(s) do you work? (select all that apply)**

- 9
- East of England
  - East Midlands
  - London
  - North East
  - North West
  - South West
  - South Central
  - South East Coast
  - West Midlands
  - Yorkshire and Humber
  - Northern Ireland
  - Scotland
  - Wales

**Your Role**

---

10 **Do you work under direct supervision? – YES/NO**

11 **How long have you been working in your current role?**

**Are you involved in the delivery of formal education? – YES/NO**

If Yes, please specify (select all that apply)

- 12
- Undergraduate
  - Postgraduate
  - Other (please specify):

**Have you taken on any new extended roles within the last 5 years?**

- 13
- Yes
  - No

- Not applicable

If Yes please state (e.g. radiographer reporting, patient referral, radiographer led clinics, intravenous injection, prescribing, counselling, radiographer led contrast investigations, ...)

**Have you given up any extended roles within the last 5 years?**

- 14
- Yes
  - No
  - Not applicable

If Yes please state (e.g. radiographer reporting, patient referral, radiographer led clinics, intravenous injection, prescribing, counselling, radiographer led contrast investigations, ...)

- 15
- What additional training/CPD was provided for you to perform any of your extended role tasks? (Optional)**

**Have you given up any conventional roles within the last 5 years?**

- 16
- Yes
  - No
  - Not applicable

If Yes, please state

**If you produce diagnostic imaging reports, please click on the phrase which best describes your current practice (Optional)**

- 17
- I complete a proforma/tick chart or similar, which is checked by a second person eg. radiologist
  - I complete a proforma/tick chart or similar, which is released unchecked
  - I provide an independent report which is checked by a second person
  - I provide an independent report which is released unchecked

- 18
- I can request further diagnostic tests without conferring with a medical or other health practitioner. – YES/NO**

**Your Specific Role**

---

**Do you mainly work in...**

- 19
- Diagnostic imaging (not ultrasound)
  - Ultrasound
  - Radiotherapy

- Other (please specify):
- 

Which of the following roles do you undertake in diagnostic imaging?

*(select all that apply)*

- Applications specialist
- Audit
- Bone densitometry
- Cardiac catheterisation
- Cardiac or vascular measurement (ECG etc)
- Counselling
- CT
- Endoscopy
- Fluoroscopy
- Forensic radiography
- Health promotion
- Image reporting
- Information and technology
- Lithotripsy
- a. • Mammography
- Management
- Medical physics
- MRI
- Non-trauma imaging
- Nuclear Medicine
- PET
- Quality assurance
- Radiographer drug prescribing
- Radiographer-led GI studies
- Radiographer-led urological studies
- Radiographer-led vascular studies
- Research
- RNI
- Sales
- SPECT
- Training/supervising others
- Trauma imaging
- Other (please specify):

Which of the following roles do you undertake in ultrasound?

*(select all that apply)*

- b. • Abdominal
- Applications specialist
- Audit
- Breast
- Cardiac
- Counselling
- Gynaecology

- Health promotion
- Information and technology
- Management
- Medical physics
- Musculoskeletal
- Neonatal head
- Nerves
- Nuchal
- Obstetrics
- Quality assurance
- Research
- Sales
- Small parts
- Training/supervising others
- Transrectal
- Vascular
- Other (please specify):

Which of the following roles do you undertake in radiotherapy?

*(select all that apply)*

- c.
- Applications specialist
  - Audit
  - Brachytherapy
  - Care team
  - Clinical liaison
  - Counselling
  - Dosimetry planning
  - Health promotion
  - Information and technology
  - LINAC treatments
  - Management
  - Medical physics
  - Quality assurance
  - Palliative care
  - Radiographer drug prescribing
  - Research
  - Sales
  - Simulation
  - Training/supervising others
  - Treatment simulation
  - Treatment review and assessment
  - Verification
  - Other (please specify):

**Your Second Specific Role (if any)**

---

**previous question? – YES/NO**

If Yes, please state it.

- Diagnostic imaging (not ultrasound)
  - Ultrasound
  - Radiotherapy
- 

Which of the following roles do you undertake in diagnostic imaging?

*(select all that apply)*

- Applications specialist
- Audit
- Bone densitometry
- Cardiac catheterisation
- Cardiac or vascular measurement (ECG etc)
- Counselling
- CT
- Endoscopy
- Fluoroscopy
- Forensic radiography
- Health promotion
- Image reporting
- Information and technology
- Lithotripsy
- Mammography
- Management
- Medical physics
- MRI
- Non-trauma imaging
- Nuclear Medicine
- PET
- Quality assurance
- Radiographer drug prescribing
- Radiographer-led GI studies
- Radiographer-led urological studies
- Radiographer-led vascular studies
- Research
- RNI
- Sales
- SPECT
- Training/supervising others
- Trauma imaging
- Other (please specify):

Which of the following roles do you undertake in ultrasound?

*(Optional)*

*(select all that apply)*

- Abdominal
- Applications specialist

- Audit
- Breast
- Cardiac
- Counselling
- Gynaecology
- Health promotion
- Information and technology
- Management
- Medical physics
- Musculoskeletal
- Neonatal head
- Nuchal
- Obstetrics
- Quality assurance
- Research
- Sales
- Small parts
- Training/supervising others
- Transrectal
- Vascular
- Other (please specify):

Which of the following roles do you undertake in radiotherapy?

*(select all that apply)*

- Applications specialist
- Audit
- Brachytherapy
- Care team
- Clinical liaison
- Counselling
- Dosimetry planning
- Health promotion
- Information and technology
- LINAC treatments
- Management
- Medical physics
- Quality assurance
- Palliative care
- Radiographer drug prescribing
- Research
- Sales
- Simulation
- Training/supervising others
- Treatment simulation
- Treatment review and assessment
- Verification
- Other (please specify):

**Further Comments**

# Appendix 6 – HEI Questions

## Questions for Higher Education Institution leads

### Survey Response

---

- 1 **Institution number?**
- 2 **Date for the survey**  
*(enter a date in DD-MM-YYYY format)*
- 3 **Professional title of the participant** *(Optional)*
- 4 **Are you a radiographer? – YES/NO** *(Optional)*

### Diagnostic radiography

---

- 5 **How many lecturers qualified in diagnostic radiography are employed in your institution?** *(Optional)*
- 6 **What is their full time equivalent number?** *(Optional)*
- 7 **How many are employed on a full time basis?** *(Optional)*
- 8 **How many are employed on a part time basis?** *(Optional)*

### Therapeutic radiography

---

- 9 **How many lecturers qualified in therapeutic radiography are employed in your institution?** *(Optional)*
- 10 **What is their full time equivalent number?** *(Optional)*
- 11 **How many are employed on a full time basis?** *(Optional)*
- 12 **How many are employed on a part time basis?** *(Optional)*

### Institution

---

- 13 **Do any of your academic staff undertake clinical sessions (not teaching) on a regular basis? – YES/NO** *(Optional)*  
Is so in what modalities?
- 14 **Does your institution make use of clinical radiographer to teach guest lectures – YES/NO** *(Optional)*

If so in what topics?

- 15 **In your institution is there a radiographer in the position of head of a multidisciplinary school, faculty or higher in the institutional hierarchy? – YES/NO (Optional)**

If yes what is their title?

- 16 **Does your institution employ any lecturer/practitioners? (ie staff who are work part-time by a clinical provider and part-time in education) – YES/NO (Optional)**

If so what proportion of time is spent in the clinical situation and how much in your institution?

- 17 **Does your institution employ any practice educators/clinical tutors either directly or indirectly or have individual(s) with a major commitment to clinical education of students? – YES/NO (Optional)**

If so how would you describe their role?

**What postgraduate qualifications do your staff possess? (Optional)**

*(select all that apply)*

- 18
- PhD
  - Ed D
  - MSc
  - MA
  - MBA

*Other (please specify):*

## Research

---

- 19 **Does your institution have any professors in radiography/imaging/radiotherapy or other associated field? – YES/NO (Optional)**

If so what is their main area of research or responsibility held?

- 20 **How many active researchers (including Readers) do you have in radiography/radiotherapy? (Optional)**

**21** Is your institution undertaking any funded research in radiography/radiotherapy or associated fields currently or has done in the past 5 years? – YES/NO (*Optional*)

If so in what are areas?

**22** Has your institution undertaken any funded research into radiography, radiotherapy or associated fields on a collaborative basis with health care providers or other agencies? – YES/NO (*Optional*)

a. If yes, with whom?

b. What is (was) the nature of this research?

**23** Do you undertake any non-funded research? – YES/NO (*Optional*)

If so, in which areas?

#### Roles

---

**24** Do any of your radiography-qualified staff serve on any national or regional committees? – YES/NO (*Optional*)

If so how many and what are the committees?

**25** Do any of your staff fulfil any roles for the professional or statutory body? – YES/NO (*Optional*)

If so how many and what are the roles?

**26** Do any of your staff undertake consultancy work in an expert or advisory capacity to external bodies/agencies? – YES/NO (*Optional*)

If so how many and in what areas?

**27** Are your staff involved in the training and education of other professional groups? – YES/NO (*Optional*)

If yes please state which groups and which subject areas

**28** What do you think the role of education is in advancing scope of practice in radiography? (*Optional*)

**29 Are any of your staff currently undertaking any activities that could be considered "role expansion" or development in education, research or clinical practice? (ie undertaking any additional duties or roles that are beyond the traditional "brief" of a radiography lecturer?) – YES/NO**  
*(Optional)*

If do, which activities?

**30 What do you see as the main opportunities for role expansion within the profession of radiography? *(Optional)***

**31 What do you see as the main barriers (if any) to such expansion? *(Optional)***

**32 Do you have anymore over comments about scope of radiography practice? *(Optional)***

**Source URL:** <https://www.sor.org/learning/document-library/scope-radiographic-practice-2008-report-compiled-university-hertfordshire-collaboration-institute>

**Links:**

[1] <mailto:R.C.Price@herts.ac.uk>

[2] <http://sdu-surveys.herts.ac.uk/scope>

[3] [http://www.performance.doh.gov.uk/hospitalactivity/data\\_requests/download/imagingand\\_radiodiagnostics/imag\\_ts.xls](http://www.performance.doh.gov.uk/hospitalactivity/data_requests/download/imagingand_radiodiagnostics/imag_ts.xls)

[4] <http://maps.google.co.uk/maps?f=q&hl=en&geocode=&q=SE1+2EW&sil=53.800651,-4.064941&ssp=18.409311,34.541016&ie=UTF8&z=16&g=SE1+2EW&iwloc=addr>

[5] <https://www.sor.org/javascript%3Alocation.href%3D%27mailto%3A%27%2BString.fromCharCode%28108%2C105%2C110%2C100%2C97%2C46%2C109%2C105%2C108%2C108%29%2B%27%3F>

[6] <https://www.sor.org/javascript%3Alocation.href%3D%27mailto%3A%27%2BString.fromCharCode%28114%2C46%2C99%2C46%2C112%2C114%2C105%2C99%2C101%2C64%2C%29%2B%27%3F>

[7] <mailto:linda.miller@employment-studies.co.uk>

[8] <https://www.sor.org/javascript%3Alocation.href%3D%27mailto%3A%27%2BString.fromCharCode%2897%2C46%2C106%2C46%2C109%2C46%2C104%2C101%2C114%2C98%2C%29%2B%27%3F>