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The Development of Specialisation in Diagnostic Radiography: Concepts, Contexts and Implications

Christine Margaret Ferris

A thesis submitted in partial fulfilment of the requirements of  
Sheffield Hallam University  
for the degree of Doctor of Philosophy

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## Abstract

The aim of this project is to examine how specialisation in diagnostic radiography has occurred. In particular, this research aims to examine the contemporary ethos of specialism in diagnostic radiography; how the higher status of technology has developed over patient-centredness; the impact of the working relationship between radiology and diagnostic radiography on this development; the relationship between gender and the nature of occupation in the development of diagnostic radiography.

Qualitative data was collected using 31 semi-structured interviews that took the form of oral histories where possible. The time-span covered is 1932-2001.

Findings show that a paradigm shift is required. Defining specialism and expert practice is difficult, as both are negotiated constructs that tend to have local meaning. Not all specialisms in diagnostic radiography increase professional autonomy and management has a key role to play in the development of radiography as a profession to enable full engagement with consultant status. To a great extent, diagnostic radiography and its associated specialisms is governed by an emphasis on technology rather than the patient. This emphasis has roots in power difference between radiologists and radiographers and within the hierarchy of radiography. Radiologists have controlled radiographers to provide a service to radiology rather than the patients, and, although this is still evident in some hospitals, it is changing. Task offloading from radiologists to radiographers confuses the notions of specialism and radiography is in danger of seeking professional development through emulating radiology rather than using radiographic caring skills and expanding practice with a humanistic and patient focused emphasis. Radiography emerged as a pioneering, elite profession that could originally be regarded as a specialism of nursing. Technology and medicine gradually reduced radiographic practice to have a technological and quantitative focus. There is now a demand to once again broaden radiographic practice to actively contribute to a patient-centred service in an autonomous, more qualitative and self-directed manner. A collection of oral histories has been a direct result of this research. Specialisms are a broad area of diagnostic radiography and rather than focus on technological areas of practice, a more holistic range of specialisms could be embraced to enable the profession to progress.

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# CHAPTER ONE

## Introduction

Generally, the work of an imaging department is described using technical and procedural jargon and terminology. Consequently staff are described in similar terms, e.g. there may be a Computed Tomography (CT) Superintendent Radiographer or a Magnetic Resonance Imaging (MRI) Senior 1 Radiographer. Patient groups that clearly have identifiable and significant needs are referred for imaging, but a technological paradigm predominates in the work function, organisation and identity of a medical imaging department. The NHS is being overhauled to place the patient at the heart of services (HMSO 2000a). To fully engage with this new patient-centred philosophy for health service provision, diagnostic radiographers may need to embrace an alternative paradigm of career structure and professional progression. The potential impact of exploring this issue is that radiographers, already part of many patients' pathway, could expand their role to be more fully involved in the assessment, treatment and discharge of patients in a variety of clinical contexts. This form of role development requires a focus on the patient, rather than the technology that is used to perform assessment and treatment. It also requires clinical decision-making skills that have been actively discouraged by radiologists in the past (Larkin 1983).

### 1.1 Purpose of research

The research is designed to explore how and why career structure, job opportunities and service provision in diagnostic radiography have evolved using an ideology that allows a relatively high status to be given to science rather than groups of patients. There is an emerging emphasis within the NHS of multi-disciplinary team working with each team having a patient-centred identity. The apparent technological focus of diagnostic radiography may have a domino effect on the function and role of radiographers in multi-disciplinary teamwork, i.e. inhibit communication between radiographers and other staff groups and affect the synchronisation of patient centred service provision within a hospital or Trust. The technological focus of diagnostic radiographers may provide inherent difficulties to their inclusion in such a team. If it is possible to identify any influences that have produced a technological and/or inhibited a patient emphasis, then any difficulties diagnostic radiographers experience in engaging in multi-disciplinary teamwork may start to be addressed.

The role of the diagnostic radiographer has developed to support radiologists rather than the patient and the extent to which radiologists have influenced the careers and job opportunities of radiographers is unknown. The technological influence on career progression and job opportunities is strong as these are dependent on the availability of pieces of technology such as ultrasound machines, CT and MRI scanners. Radiologists rely on the technical skills of diagnostic radiographers to produce pertinent images of the patient from which a diagnosis may be reached. Lately, service innovations have provided opportunities for diagnostic radiographers. The breast screening service is a clear example of a service-defined career pathway for diagnostic radiographers with a focus on client/patient needs. This research will explore the possibilities of involving diagnostic radiographers in teams centred on service provision or a particular group of patients.

## **1.2 Aims and objectives**

A broad aim of this research is to examine the development of specialisation in diagnostic radiography. Primarily, this research examines the changes that have occurred in diagnostic radiography and how specialisation in diagnostic radiography has developed. Radiology as a medical specialism provides the context for this as, to examine diagnostic radiography in isolation would fail to acknowledge the interdependence and close working relationship of the two professions. In particular, this research describes how the development of specialisation within the profession of radiography is moulded over time and how it relates to current notions of specialist practice.

In contrast to other health care professionals, specialisms in radiography appear to have developed grounded in technology and the needs of radiology rather than the needs of the patient. The way in which radiographic specialisms have developed over time is an important consideration, as any continuing factors will influence future practice (Mead 1944).

The following aims are met through the study of the development of specialisation in diagnostic radiography.

In particular, this research aims to examine:

1. the contemporary ethos of specialism in diagnostic radiography.
2. how the higher status of technology has developed over patient-centredness.
3. the impact of the working relationship between radiology and diagnostic radiography on this development.
4. the relationship between gender and the nature of occupation in the development of

diagnostic radiography.

In order to meet the aims, qualitative data relating to contemporary and historic practice is required. The objectives for this study are to:

- 1 conduct a literature review to frame the findings of the study.
- 2 conduct a separate systematic literature review using meta-synthesis to identify characteristics of expert practice (aim 1).
- 3 interview professional representatives of acknowledged areas of specialism in diagnostic radiography (aims 1, 2, 3 &4).
- 4 interview radiographic practitioners who can provide an account of their professional experience (aims, 2, 3 & 4).

The findings of this study could be useful to:

- managers of radiographers;
- professional bodies;
- diagnostic radiographers who wish to progress in their career with a patient focus rather than technological;
- those who are giving career guidance to diagnostic radiographers;
- those who wish to include diagnostic radiographers in a service-centred or patient-focused team.

### **1.3 Background and rationale**

Diagnostic radiographers are trained using an anatomical and technological focus that may have a similar impact on their levels of knowledge and understanding when considering groups of patients with particular needs and priorities. Such superficial knowledge of patients' needs may have inhibited radiographic research into patients' needs, e.g. the predominance of a positivistic paradigm has resulted in a lack of acknowledgement of patient orientated measurements in imaging practice (Ferris, Nasr and Dixon 2004).

Radiographers are reliant on technology to perform the image acquisition part of their work. Patient care does not usually require technology, but an understanding and empathy for the patient and clarity about priorities in the patient's experience of health and illness (Culmer 1995). The technological aspect of image acquisition is dominant yet there appears to be little rationalisation for this. How has this state of affairs evolved at a time when technology is becoming more simplistic? Many health care professions are now able to use technology to assist their practice, and do so, but with a focus on the outcome for the patient rather than the

use of technology. A good example of this is the use of diagnostic musculoskeletal ultrasound in physiotherapy and sports medicine.

Radiography is inherently linked to a medical specialism, radiology. The radiological influence on radiographic practice has not been systematically documented. It is difficult to ascertain the level of influence of medicine and, in particular, radiology, on the value systems of an Allied Health Profession (AHP) such as radiography. There is little evidence from either radiographers or radiologists that describes their working relationship in practice. The local influences of radiologists on radiographers are undocumented and undefined. As radiologists traditionally control radiographers' boundaries of practice, this may result in a variable experience for radiographers including local career and job opportunities.

#### **1.4 The boundaries of the project**

This work intends to produce a historical account of the development of diagnostic radiography, its associated value systems and explore any implications for contemporary practice. Some historical accounts exist but describe the formation of the professional body (Moodie 1970, Jordan 1995). There are no full accounts from radiographers about their career. Reeves and Murphy (1998) use the collection and analysis of oral history as an effective educational tool to motivate students. This paper emphasises the educational impact of oral history and incorporates oral evidence from radiographers about their experience and from a student about the learning experience. Most accounts from former practitioners will be of local significance but any links to broader, professional understandings will be identified. The conclusion of this work is suggestive rather than conclusive and is intended to enable understanding of the development of diagnostic radiography.

#### **1.5 Potential importance**

Specialisms engender specific career pathways. Using technology as the differentiating factor marking career progression inhibits the fullest involvement of diagnostic radiographers in the patient experience. The NHS Plan (HMSO 2000a) indicates increased opportunity to extend and expand a radiographer's role and culminate career progression as a consultant. The new consultant roles show that the division of labour within the NHS is under political scrutiny. The impetus provided by the Plan could act as a factor supporting changes to labour boundaries that, in turn, may provide new opportunities for radiographers' career progression. Blurring of labour boundaries may occur between medicine, radiography, other AHPs and nursing. Essentially a paradigm shift is required from diagnostic radiography from one that has technology at the centre of practice to one that has the patient as the focus. This thesis

explores the background and implications of traditional and contemporary paradigms of diagnostic radiography.

The most commonly acknowledged professionals responsible for the delivery and provision of health-care services are those who carry the easily recognisable titles of doctor, nurse and midwife. There are other key groups of health-care professionals who belong to professions that were previously classified as being supplementary to medicine. They have a lower public profile than medicine, nursing and midwifery and this has resulted in a lack of literature relating to their evolution and patterns of development (Larkin 1983). These professional groups were regulated by the Professions Supplementary to Medicine Act 1960 and include chiropodists, physiotherapists, occupational therapists, medical laboratory scientific officers, dieticians, orthoptists and radiographers (CPSM 1997). The Council of Professions Supplementary to Medicine (CPSM) administered the requirements of the Act controlling state registers for each profession. Inclusion on the appropriate register is necessary for individuals to practise in the UK. In response to the growing number of health-care professions that cannot be classified as medicine, nursing or midwifery, the Act has recently been reviewed. The Health Professions Council (HPC) was established in 2002 under the Health Professions Order 2001 and controls the registers of a larger number of health professions. In addition to those originally controlled by the CPSM, art therapists, clinical scientists, prosthetists and paramedics are now included (HPC 2003). The emergence of these Allied Health Professions (AHPs) is primarily in response to the growth and complexity of health service provision.

## **1.6 Clarification of roles**

In 1896 Roentgen's discovery of x-rays<sup>1</sup> gave rise to two groups of professionals, radiographers, who could be described as x-ray technicians, and radiologists who were medically qualified specialists. Confusion between the role of radiographer and radiologist arose, as radiologists were originally known as radiographers (Moodie 1970). Radiology is a medical specialism emerging at a similar point in time as pathology, both specialisms performing activities that were previously regarded as being outside that of a physician or surgeon's role. Radiology thus emerged as a medical speciality that had a relatively low status within medicine. Such medical specialisms have had to strategically engage in tactics that enable progression of professional status (Rosen 1944).

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<sup>1</sup> Throughout this study the lower case "x" is used for ease of reading although it is acknowledged that an upper case "X" is normally used to denote the unknown, hence the name "X-rays".

In contrast, radiography eventually emerged in order to differentiate clearly between those who performed x-ray examinations and treatment (radiographers) and those who could make a medical judgement about diagnosis and/or prognosis (radiologists). In the early years this division of work was not easily recognisable as the terms radiologist and radiographer were used interchangeably. The problems this caused lead to a series of identity crises in the 1920s (Moodie 1970). In addition, further confusion arose due to the diverse range of people performing x-ray examinations; theatre beadles, dentists, photographers and nurses are recorded as performing such examinations (Larkin 1983).

The introduction of the medical use of x-rays attracted other occupational groups such as physicists, engineers and electrotherapeutists. In 1897, The Roentgen Society was formed as an association permitting both medical and non-medical membership. Conflicts over role boundaries developed and, in order to solve this problem, the Society of Radiographers was founded in 1920. In the 1940s, technological advances in the use of x-rays for both diagnosis and treatment resulted in the acknowledgement of two separate segments of radiography by the radiography profession, diagnostic and therapeutic. Since that time, each segment has formed a working relationship with different medical specialisms, diagnostic radiography with that of radiology and therapeutic radiography with medical specialisms in the treatment of (mainly) malignant diseases, radiotherapy and oncology. Both segments belong to the professional body, the Society of Radiographers.

The medical use of x-rays for the diagnosis and evaluation of clinical conditions evolved mainly within the hospital organisation and is now only one of a number of ways in which internal aspects of the living human body can be visualised. X-ray Departments are no longer commonly found within the hospital organisation but there are now Medical Imaging Departments. The term “radiography” generally refers to the conventional use of x-rays for diagnostic, evaluation and monitoring purposes and the term “medical imaging” tends to be used to indicate the whole spectrum of medical imaging modalities used by diagnostic radiographers including the conventional use of x-rays. The term “radiography” is used in this study to indicate any work undertaken by a diagnostic radiographer, regardless of imaging modality used. Specialisation in diagnostic radiography tends to be linked, however superficially, to the different imaging modalities used to visualise internal body structures. Although some diagnostic radiographers choose to be more involved in management, education, industrial relations and/or research, only those specialisms directly relating to clinical practice will be considered in this work.

## **1.7 Current specialisms in diagnostic radiography (applicable in the UK only)**

The following areas of practice are mainly those in which a newly qualified, diagnostic radiographer would not be expected to have the skill or expertise to practise on a regular basis and are traditionally acknowledged as requiring post-qualification studies. However, not all specialisms follow this model; in particular, computed tomography, magnetic resonance imaging and the medical imaging of trauma and paediatric patients do not formally require further study following initial state-registration. Specialisms in diagnostic radiography can be categorised as those that can be identified in relation to the imaging modality used to acquire images, those that are the result of delegation of radiological duties and, the last group which does not fit easily into either category but could be described as being service related.

### ***Specialisms related to imaging modality***

#### Nuclear medicine

The first category of clinical practice that could be considered as specialist is the area of nuclear medicine. First introduced into medicine in the mid-1960s, imaging using this modality does not result in images depicting anatomy but ones that demonstrate physiology. A radio-nuclide with a known level of radioactivity is introduced into the body and a gamma camera “tracks” the way in which the body distributes the radio-nuclide. The results are recorded quantitatively, some being portrayed as a series of images. This work does not solely involve diagnostic radiographers; medical technical officers and clinical scientists also practise nuclear medicine. Diagnostic radiographers wishing to practise in this area must undertake post-registration studies.

The following areas of specialist practice in this category are related to the use of medical imaging modalities that produce maps of internal structures of the body by the demonstration of sectional “slices” of anatomy.

#### Medical ultrasound

In the 1970s the medical use of ultrasound was introduced into the hospitals initially for the evaluation of pregnancy, head injuries and those patients suffering from abdominal conditions (Kevles 1997). Technological advances now enable visualisation of organs using ultrasound from within small anatomical structures through the introduction of a probe into the particular organ under examination, e.g. an artery. Ultrasound imaging is used extensively to visualise any anatomic structure that contains, or is surrounded by, fluid. Fluid and soft tissue react differently to ultrasound enabling the demonstration of soft tissue contours in a sectional “slice” of the body. Generally, on completion of the ultrasound examination the person who has performed the scan writes a report of the examination findings. Diagnostic radiographers using ultrasound

as an imaging modality are deemed to be specialised practitioners and are known as sonographers. A wide range of health-care professionals practises sonography; consequently the use of ultrasound as an imaging modality is not solely under the professional jurisdiction of the Society and College of Radiographers. Diagnostic radiographers wishing to practise ultrasound must undertake post-registration studies.

### Computed Tomography

At the same time as ultrasound had an impact on diagnostic radiography, technological advances in another area enabled the visualisation of a slice through the human body using x-radiation, Computed Tomography (CT). Whilst nuclear medicine and ultrasound had been noticeably hovering in the background of imaging science, CT arrived suddenly with no warning (Boutle 1995). In order to produce a CT image, an x-ray source, programmed to pass through a few millimetres of tissue at a time, is moved at regular intervals in a circular or spiral configuration around the body part to be visualised. Once x-rays have passed through the body they are collected, measured and fed into a computer that transforms the transmitted x-rays into a digital image. The image represents a sectional “slice” through the body and, as with ultrasound, there is no superimposition of anatomical structures. In addition, the computer can recognise small changes in the transmitted x-ray beam that are not immediately apparent using conventional diagnostic radiography. Whereas conventional radiography demonstrates bony skeletal structures and a limited number of soft tissue structures, CT demonstrates both skeletal and a larger range of soft tissue structures. This method of medical imaging was applied to visualisation of the brain in 1972 by James Ambrose, and to the spine in 1975 (Eisenberg 1992, Whitehouse & Mould 1995). Diagnostic radiographers able to obtain images using CT are usually, but not always, senior in status and the practice is perceived as specialised by some. Post-registration studies are available but not necessarily required.

### Magnetic Resonance Imaging

Another imaging modality suitable for use in medicine was introduced in the mid 1980s, nuclear Magnetic Resonance Imaging (MRI). Cross-sectional images are obtained by introducing specific radio frequencies into the body of a patient who is placed in a graded magnetic field. Specific protons within the patient’s body are stimulated by this arrangement and resonate. Resonance from the protons is amplified and collected in order to produce an image representative of a sectional “slice” of the anatomy and pathology resonating. Although this imaging modality does not use x-rays, diagnostic radiographers are used in its medical application. This is considered to be specialist practice and, although post-registration studies are available, they are not a requirement for a diagnostic radiographer to practise in this area.

### ***Specialisms related to delegation of radiological practice***

The key difference between radiology and diagnostic radiography is the separation of mental tasks requiring a clinical judgement and physical tasks with a more technological focus. Throughout the 1990s, radiologists have formally and selectively delegated some duties to diagnostic radiographers. Professionally, these duties are categorised as being part of the extended role of the radiographer and require post-registration training and education in order for diagnostic radiographers to practise.

#### Administration of contrast agents

The administration of intravenous (iv) contrast agents to outline the urinary or vascular systems was once deemed a medical duty but is now practised by appropriately trained diagnostic radiographers. Contrast agents can produce severe, adverse reactions in patients due to ion formation but in the 1970s contrast agents that do not form ions were manufactured, thus making reactions far fewer and less severe. The risk of the iv injection has reduced. Similarly, there has been a reduction of risk in other procedures usually performed by medical staff.

#### Plain film reporting

Specifically trained diagnostic radiographers now issue reports on plain radiographs. The term “plain” refers to the fact that the image does not contain any contrast agents. A Special Interest Group (SIG), originally acting as an interface between interested radiographers and the professional body, supports diagnostic radiographers and other interested professionals.

#### Contrast agent examinations

Similarly, radiologists undertook barium enema examinations with the assistance of diagnostic radiographers and/or x-ray nurses. These examinations are mainly performed on the older patient, are time consuming and could be classed as unpleasant for all concerned. Specifically trained diagnostic radiographers now conduct barium enema examinations and a SIG was formed for interested radiographers in 1998. Some diagnostic radiographers are also issuing reports on barium enema examinations. Recently, some radiologists have started to delegate barium meal examinations and femoral arteriography, the demonstration of arteries, to diagnostic radiographers.

### ***Other areas of specialism***

Further specialist areas that do not fall easily into either of the categories described above are mammography, paediatrics and trauma imaging (including forensic work).

### Mammography

Specifically trained diagnostic radiographers undertake mammography, radiography of the breast. Post-registration training is a requirement for those diagnostic radiographers wishing to practise and participate in the national breast-screening programme which began in the early 1980s. Arguably, this specialism could be included in the first category, as diagnostic radiographers working in the breast-screening programme have to use specific equipment as identified by the governing body of the national programme. The equipment is an adaptation of that used in conventional diagnostic radiography.

### Paediatrics

Paediatrics has been a professionally acknowledged area of practice requiring specialist skill since the formation of the Association of Paediatric Radiographers (APR) in the mid-1970s. This acknowledgement does not extend fully into the practice areas. Although this was the first SIG affiliated to the professional body, there appears to have been little progress in the general acknowledgement of paediatric radiography as specialist practice. Outside of the specialist children's hospitals, paediatric patients are not uniformly acknowledged in diagnostic radiography as a patient group requiring specialist practice, skill and expertise, even though routine radiographic imaging procedures are potentially distressing to paediatric patients (Bradford 1990). The ideology of other health care professions incorporates the acknowledgement of particular skills in paediatric practice, rather than an adaptation of an approach to practice as used with adult patients, e.g. nursing (RCN 1990). The paediatric age group of 0 - 17 years provides different challenges to diagnostic radiographers from those presented through the radiography of adult patients. The key differences are ethics, anatomical proportions, physiological response, clinical conditions, radiation protection considerations, immobilisation methods, methods used to gain co-operation, methods used to elicit pregnancy status and informed consent, and the impact of anatomical size and structure on equipment settings (Gyll 1977). The Children Act 1989 also has implications for paediatric practice in diagnostic radiography (College of Radiographers 1995).

### Trauma imaging

Similarly, the Society of Radiographers supports a SIG in trauma imaging that was formed in 1994, and has a sub-group in forensic work. Most diagnostic radiographers undertake medical imaging of patients who are referred from an Accident and Emergency Department. Although trauma service provision has recently been recognised as requiring specialist medical practice, trauma and forensic radiography are not uniformly recognised as requiring specialist radiographic input in this country although post-registration courses are available.

## **1.8 Concepts of specialism**

A specialism may be defined as denoting an exceptional or restrictive nature (Simpson & Weiner 1995). The general concept of specialism is subsequently based on relative values; it is therefore comparative. When considering the exceptional nature of practice, all radiographic practice may be considered special when considered by those people who are unfamiliar with the subject of radiography. When considering radiographic practice from this perspective, all radiographers are seen to have specialist skills (Moodie 1970, Watson 1985 and Carr & Fell 1997). Viewed from within radiography and from a professional perspective, the amount of diversity in radiographic practice is increasing and the baseline for what is usual is neither static nor standard. It is difficult to identify what might be considered as exceptional practice when it is difficult to identify what constitutes usual or normal practice. This is an issue as a range of usual radiographic practice is in existence. Exclusive practice, by definition, is easier to define, as the boundaries of practice are clearer. The origin and maintenance of boundaries defining areas of exclusive practice is of interest to this research.

For a specialism to develop a strategic approach is required as a profession needs to establish cognitive closure around a specific area of expertise that is perceived as having professional value by external colleagues. Internal specialisation of a profession demonstrates a lack of concern for internal homogeneity, however, any internal segments need to be prevented from breaking free of the parent organisation. Their presence creates internal domains within which the content of work can be controlled. A profession needs to elicit a delicate compromise to maintain internal cohesion whilst simultaneously recognising specialised interests. If a specialist interest group is not recognised by a formal title, they may form their own identity through breakaway segmentation. A high degree of internal specialisation may threaten professional cohesion but this can be tolerated if there is recognition of interest groups with minimal role and strength. The interest group may thus be limited in its internal and external influence and, in order to progress, may need to break free of the parent organisation. In order to maintain professional influence and control in specialist areas, the parent body must maintain a balance of interests, allowing growth where it is needed but maintaining control (Rosen 1944).

### ***Specialism as exceptional***

Exceptional practice is difficult to define. What might be considered as exceptional could be the technology, patient, procedure or the environment in which practice is conducted. The range and diversity of radiographic practice has increased due to a variety of influences. Staff shortages, changes to the labour boundaries between radiography and radiology, the use of a variety of medical imaging modalities, increasing emphasis on service provision, changes to professional education provision and an increase in patient expectations have all impacted on

radiography. According to Paterson (1994), who uses the word “role” as function rather than position, the current role of the radiographer is difficult to define from a task-orientated perspective. The fact that working practices in many medical imaging departments are continually changing makes definitions of radiographic practice increasingly difficult to formulate (Chapman 1993). As the notion of what is exceptional is relative and comparative there is little to compare, as what constitutes routine is difficult to identify.

### ***Specialism as exclusive***

Exclusive practice is easier to define and identify. When considering the exclusive or restrictive nature of practice, a specialism may be perceived as such when exclusivity of practice is generally accepted. For example, the radiography of paediatric patients may not be considered as a specialism, as it does not denote a change from what is traditionally considered to be normal practice and therefore is not sufficiently exceptional. Neither is the practice of paediatric radiography exclusive, with the exception of that which occurs in a specialist children’s hospital. The extent to which a patient group is considered exceptional will depend on the professional emphasis given to the exceptional nature of that group.

## **1.9 Structure of the thesis**

The thesis is presented in twelve chapters. Each of the first eleven chapters starts with introductory material and concludes with a summary of the key findings of the chapter. A reader with little time could read each summary to get a feel for the thesis before reading each chapter.

Chapter One gives some background information to aid clarification of the roles, titles and functions associated with the main characters. Chapters Two, Three, Four and Five are a review of literature in four parts. The first part, Chapter Two, focuses on the development of the radiography profession in the key contexts of professional sociology and the practice elements of medicine, service and education:

- professionalisation, occupational segregation, gender and functionality;
- medicine - the power that has traditionally shaped the identity of radiographers;
- service - now helping to shape the role of all AHPs;
- education - providing an inextricable link to eligibility to practise.

The second part, Chapter Three, examines the evolution of specialism in medicine to provide some theoretical basis for the thesis. The derived conceptual framework examines the impetus and barriers to the formation of specialism in medicine and identifies specific influential forces that do not necessarily have a similar impact on AHPs. The autonomy of medicine to respond to

social forces is a key facilitator of the growth of specialism. The effects of such forces on AHP specialism growth may vary due to a variance in autonomy in professional practice and the extent of overlap of practice between medicine and associated AHPs. The third part of the literature review, Chapter Four, suggests models of medical specialism that may influence the notion of specialism in radiography. The word "notion" here is used as an alternative word for "perception". Medicine has numerous models of specialism. Chapter Four examines four models of specialism closely linked to radiology. Chapter Five is devoted to an exploration of expert practice and presents the findings from a meta-synthesis of 12 primary research papers on expert practice in the form of a model. Themes, components and characteristics of expert practice are identified.

Chapter Six outlines the research design giving an academic account and justification for the research approach and methods employed. The study is based on data generated from interviews with 31 practitioners, 10 of whom are classed as leading voices in specialist clinical fields of diagnostic radiography.

Findings generated by the research process are presented in Chapters Seven, Eight, Nine and Ten. Chapter Seven discusses the application of a model of expert practice to diagnostic radiography and consultancy in relation to government targets and priorities. Eight fields are suggested that may provide the context for the development of specialisms in diagnostic radiography in line with government priorities. Chapter Eight examines radiographers' notions of specialism and how the process of specialisation does not necessarily lead to a specialism in the same sense as in medicine. This chapter explores how some radiographers take refuge in and hide behind the traditional technological specialisms and associated separateness, while some embrace new ways of working and new notions of professional sub-divisions. Chapter Nine examines the working relationship diagnostic radiographers have with medicine from the days when radiologists held and exercised social control over radiographers to more recent times as radiologists maintain local control over role boundaries. The impact of this relationship with medicine, and particularly, radiology, has helped to reduce the range of the repertoire of radiographers' skills, lessened radiographers' job satisfaction and controlled radiographers' clinical career advancement in a limiting way. Gender, function, and power differentials are also discussed. Chapter Ten describes the hidden history of radiography that is not overtly portrayed in any of the books and articles previously written about the evolution of diagnostic radiography and its specialisms. This chapter examines the reality of being a radiographer, their associated working conditions, the influence of technological innovation and the role of radiographers during times of conflict and at peace. Chapter Eleven is a reflexive account of the research journey narrating my potential influence on the study. This allows the reader to make decisions

about the quality of the generated data. Chapter Twelve concludes the thesis by itemising suggestions generated from the data and its analysis.

The appendices contain the audit trail showing how the research evolved and details of the data generated and analysis strategy employed.

## **Summary**

This research explores how an ideology, which appears to value science above groups of patients, has evolved in imaging. Despite an increase in the number of AHPs, there is scant literature on their emergence and development. The profession of radiography emerged in response to the increased need for the use of x-radiation in the treatment and diagnosis of patients. Simultaneously a medical specialism emerged, radiology. Radiography has subsequently been divided into therapeutic and diagnostic areas with the former being associated more with oncology and the latter with radiology. Over the years technology has influenced the culture, practice and language of radiography and currently patients can be examined using a variety of imaging modalities.

Throughout the history of radiography the roles of the diagnostic radiographer and the radiologist have changed in response to internal and external influences that have steered the identification of what constitutes specialist practice. Practice can be considered as special when it is of an exceptional or exclusive nature as specialism, and therefore its derivatives, speciality, specialist practice and specialisation are relative concepts. Areas of specialist practice that are easily identifiable are those categorised by the imaging modality used to acquire the images and those that have formed as a result of the delegation of radiological duties. Trauma and paediatric radiography are not easily identifiable as specialisms unless the practice environment is considered specialist in some way. The professional body supports specialist practice through the formation of Specialist Interest Groups that are affiliated to the Society of Radiographers. The management of the development, maintenance and closure of specialisms needs to be strategic and mirror the values of the profession and the way in which it wishes to develop.

# CHAPTER TWO

## Development of the radiography profession

### Introduction

As the notion of specialism is relative, in order to explore how radiographic specialisation has changed over time, it is essential to examine what constitutes the concept of “norm” over time. Describing the key features of what might be considered usual is a primary objective of this research. This chapter discusses the contextual influences on radiographic practice, by examining literature relating to professionalisation and occupational sociology, the medical and service contexts of radiographic practice and the professional contexts of radiographic education and eligibility to practice. The literature on professionalisation guides the interpretation of the history of diagnostic radiography whereas that on occupational sociology illustrates and gives a background to the predominantly functional approach to technical specialisation. The medical context demonstrates the power and controlling relationship of medicine through its interaction with radiographers (Reeves 2002). The service context explores the changing nature of service needs and modes of delivery and how this has impacted on radiographers. The professional context examines the educational dimension of radiography, and aspects of eligibility to practice. Where relevant, literature that helps to shed light on the formation of radiographic culture and practice is discussed. Finally, key influences on practice are suggested.

The professional responsibilities of the radiographer emphasise the control of work undertaken in an imaging room, including the selection of the procedure employed (Paterson and Price 1996). It is generally accepted that radiographers are not usually in total control of their work, however, radiographers working in ultrasound, reporting and barium sessions are beginning to exercise autonomy in key decisions regarding their practice, particularly in developing and defining practice. The formal blurring of work boundaries between radiographers and radiologists seemed to start with the proven ability of sonographers to work autonomously.

Diagnostic radiographers use imaging to demonstrate provisional diagnoses. This includes making decisions about which projections can be used, performing the examinations and deciding if the resultant image is adequate given the clinical information. Although formal oral and written reporting is not carried out in regular practice, radiographers make clinical decisions as an essential part of their practice in order to carry out their role. Such decisions are related to assessment of patients, technical parameters of image production, clinical justification and normal/abnormal patterns demonstrated on medical images. In some circumstances further

images may be required. This latter aspect of practice demonstrates how radiographers act as the gatekeepers of x-radiation, radiofrequency and magnetic field doses to patients and staff.

## 2.1 Professionalisation

Expertise can be constructed to fit as appropriate into particular occupational societies or closely related clusters of occupations such as radiography and radiology, which collectively provide an imaging service. Professionalisation is the main driver of institutionalised expertise in modern society (Larson 1977, Abbott 1988, Macdonald 1995). For the people involved, professionalism offers a continuous career, independence and an organised body of knowledge that is both continuously in demand and utilised through disciplined judgement (Abbott 1988). A profession is traditionally associated with a number of characteristics including:

- prolonged, specialised training
- a body of abstract knowledge;
- controls and determines educational standards;
- controls and determines fitness to practise;
- broad recognition and approval of this authority;
- a code of ethics;
- a professional culture supported by formal societies and associations.

(Freidson 1988)

Radiography has developed as a profession gradually incorporating such characteristics through opportunity and strategy. The process of professionalisation is a complex transformation that involves an increase in responsibility and autonomy which is embedded in the social effects of mass education, changes to class structure and social ideology (Larson 1977). Radiologists and physicists, mainly male and often from a higher social class, originally controlled the length and type of training for radiographers, the curriculum, syllabus content, assessments and the radiographic professional body. Radiography has now evolved so that it is in a position to control all professional aspects through self-regulation employing the means which men used to rise to dominance – the professional project (requirement for qualifications and registration) and social closure (Macdonald 1995).

Professionalisation facilitates the formation of specialisms as evident in nursing. As nursing became more professionalised, a variety of specialisms begin to emerge in nursing, particularly in post-registration training. In parallel, health service developments increased, with a subsequent increase in demand for more nurse specialists, encouraged by the Royal College of Nursing (Granshaw 1985).

### ***Occupational segregation***

In the health and caring services, occupational segregation was partially achieved by patriarchal discourse that promoted the subordination of female oriented professions through exclusion and control. Macdonald (1995) uses the caring professions as classic examples of patriarchal manipulation and the effects of the predominance of patriarchal value systems. Historically women were allowed to enter the health and caring workplace through any activity that was not seen to be of value to the scientific knowledge base of the male dominated professions. These activities became socially defined for women. Radiography emerged using activities rejected by medicine and science. Successful degradation of one profession by another leaves the lesser group open to intrusion from the outside world. At the same time the higher profession tends to be released from tedious routine tasks whilst increasing the status of their responsibilities (Abbott 1988). Radiographers took on the routine tasks requiring patient contact whilst radiologists captured those aspects of imaging that gave them a higher status with medical colleagues.

### ***Gender***

The traditional belief in male superiority has affected the mainly female world of radiography. The effects of gender discrimination emanate from cultural understandings that women should not be in a superior position to men of similar age or social class (Simpson & Simpson 1969). The social class or age of subordinates governs the level of acceptance of the occupational status of women. It is usual for women to experience a ceiling to their promotion in the workplace that is dictated by the social group who would potentially form her subordinates. The disproportionate representation of women in senior positions is found throughout the NHS where women constitute the majority of the total workforce yet few attain a senior position. This is despite the fact that women tend to hold better post-basic qualifications than men (Finlayson & Nazroo 1998). Career advancement is also affected by discontinuous work histories brought about through childcare or care of elderly relatives. A workforce that is predominantly female can be viewed as unstable with low employer expectations. This philosophy can reinforce discrimination by lowering women's career aspirations and performance thus maintaining a low status.

The work of women outside the home received little academic attention until the late 1950's being systematically neglected as the scholarly gaze alighted on the wage earner rather than the household (Pahl 1984). In the late nineteenth and early twentieth centuries women were employed until they married when they gave up work outside the home to care for their husbands and children. Many occupations associated with women were therefore also associated with immature girls who were filling in time until marriage rather than mature women with career aspirations. In the mid-1940s, married women in employment in the UK rose to over 2.5

million, which was five times the number employed before WW2. Prior to the war married women in employment were referred to as 'deviants' as they were seen to be neglecting their household duties but after the war, those not in employment were made to feel guilty for not contributing in a time of need. The issue of gender is further explored in relation to the development of specialisation in radiography in para 3.3.

### ***Functionality***

The medical organisation of diagnostic tests dehumanises the patient producing a "*diagnosed case*" in order to translate signs and symptoms into a language that is taken into the medical knowledge system (Abbott 1988 p 46). In contrast, treatment is movement in the opposite direction reconstructing the patient. Diagnosis is therefore a reductionist process with the work of radiographers and radiologists often at its centre. As a radiographer's career advances, there is the expectation that administrative tasks will replace the professional tasks (Katz 1969). Simpson & Simpson (1969) contrast this form of career development to the tasks of a professor who continues to research and the doctor who continues to treat patients where career advancement does not include a greater emphasis on administrative duties.

Administrative tasks undertaken by others are essential to support medicine (Katz 1969). A nurse becomes proficient in interpreting and executing a doctor's orders and checks that the tasks involved have been carried out. Similarly radiographers adhere to protocols constructed by radiologists and, sometimes, hospital physicists. The role of the radiographer becomes task orientated to suit the needs of the radiologist. This traditional arrangement is reflected in the organisation and pattern of work of an imaging department where the radiographer becomes identified by particular technologies or procedures that are linked to career advancement. Should the role of the radiographer become more sophisticated this will require different work patterns. Radiographic specialisation governed by association with technology or procedure maintains the status quo where radiographers are task oriented and subservient to radiologists. The radiographers' knowledge base and skills are expanded technically and practically rather than clinically and theoretically thus preserving the difference in status between radiography and radiology. As the world of imaging becomes increasingly complex, the range of practice required from radiographers increases in line with the increase in the knowledge base and functions required (Larson 1977). Macdonald (1995) notes an interesting shift in society's values emphasising achievement as a basis for social status. This may impact on specialisation as successful attainment in a speciality brings with it further achievement giving a relatively higher sociological status.

## **Critical theory**

Abbott (1988) alludes to the way in which a profession will defend its professional status against a profession occupying a higher status. There has been a tendency to give professions a low status where women are the bulk of the workforce, as in radiography (Etzioni 1969). Compared to medicine and similar to nursing, radiography has less training, autonomy, authority, academic worth and societal control producing a profession of lower status. Critical theory aims to produce knowledge of emancipatory interest and identify new possibilities through the exploration unexamined assumptions (Carr 2000). Critical theory provides a suitable lens through which the development of specialisation in diagnostic radiography can be viewed. This form of examination takes into account differentials of power through professional and social structures and guides the exploration of the lived experience of radiographers.

## **2.2 The medical context**

Traditionally, the role of the radiographer is contextualised by the medical profession. Individual radiologists decide the boundaries of radiographic practice in their associated departments and, in doing so, increase the diversity of the range of skills and knowledge radiographers require. Originally the medical men performing x-ray work were called radiographers and their non-medical assistants were referred to as lay-radiographers (Denley 1967). It was soon decided that the medical men should be referred to as radiologists and the non-medical staff as radiographers. The traditional role of the radiographer was determined by the division of labour existing between medically qualified and non-medically qualified practitioners in x-ray departments, i.e. radiologists and radiographers, the radiographer providing the image for the radiologist to interpret. The profession of radiology thus developed as a medical specialism and radiography developed with a more technical focus (Larkin 1983). In his presidential address in 1943, Major Duncan White, a radiologist who was President of the Society of Radiographers, clearly states the position of the radiographer in relation to the radiologist.

*“You may have been admirably trained and be a first-class technician, producing consistently excellent radiographs, but the ultimate film is the responsibility of the radiologist. So you must conform to his wishes if there is to be that ideal departmental harmony and peace. Since the radiographic diagnosis of disease rests upon alteration in density, outline and position of the tissues examined, it is essential to adopt standard projections, constant as to centring, distance and kilovoltage applied to the tube together with the other factors which influence density and distortion.”*

*(White 1943 p73)*

This quote is a fine example of patriarchal discourse employed by a radiologist when communicating with radiographers. Historically, the division of labour between radiologists and radiographers outlined by White modelled itself on the social and professional culture, and, in

particular gender stereotype existing at the end of the First World War (Larkin 1983). Prior to this, radiographers were mainly male. Some had formed their own private practices providing referring clinicians with clinical reports on radiographic images; many were employed in hospitals and functioned without medical support (Price & Paterson 1996). Radiologists, perceiving radiographers as a threat, held financial and representational control of the Society of Radiographers. Through the British Medical Association (BMA) radiologists prohibited the reporting of radiographic findings to patients and referring clinicians by radiographers. Article 21 of the Articles of Association of the Society of Radiographers stipulated that radiographers could not issue written reports. At this time the use of x-radiation in health care was new and few doctors were able to maximise its benefits and needed guidance on x-ray procedure and subsequent findings. Medicine needed someone to be able to give them regular and timely guidance. Reacting to some discontent from referring clinicians about the issuing of reports, the decision was made that radiographers could describe the radiographic features of the image to the referring clinician to assist in making a diagnosis (Moodie 1970). The constituents of the radiographic image in this context have never been defined. Radiologists used radiographers to communicate with junior medical staff and to ensure the co-operation of medical colleagues in the control of the standard of requests for x-ray examinations. This quote neatly illustrates the use of, presumably female, radiographers.

*“...let me suggest that you solicit the co-operation of him who seeks your aid. In the majority of institutions this will be a member of the resident staff; as soon as possible after he has been appointed (radiographers may stay, but every hospital has an ever-changing resident personnel) exercise all your tact and all your charm so that you promote that degree of co-operation I have outlined.”*

*(White 1943 p75)*

Radiologists controlled the mental area of x-ray work, that which required a medical judgement, whilst radiographers performed the mechanical tasks. The mechanical tasks of positioning the patient required the radiographer to memorise standard patient postures and positions so that the radiologist could have sufficient anatomical and technical orientation to make an accurate diagnosis. Radiologists and radiographers placed emphasis on radiographers assessing the technical quality of the image rather than any diagnostic information it may contain (White 1943, Alexander 1949, Gould 1949, Forman 1957).

*“ The interpretation is the province of the radiologist and I would suggest that you keep this little adage before you, ‘never try to appear what you are not’.”*

*(White 1943 p 74)*

Radiographers took pride in the technical standards they were able to identify and maintain and the importance of this pride was emphasised by radiologists, (Irwin 1951). In her discussion of what constitutes the responsibilities of a radiographer, Diana Forman, herself a radiographer, writes:

*“In general, it is her foremost duty to carry out the instructions of the radiologist or radiotherapist to the best of her ability.”*

*(Forman 1957 p95)*

This suggests that some radiographers supported the status quo imposed by medicine. The ability of radiographers to make decisions about the clinical information presented on an image has been used strategically, and almost whimsically, by management and medicine. The first radiological acknowledgement of this was in 1971 when *The Lancet* published an article by Swinburne, a radiologist, who suggested that the radiographer's role might be expanded to include screening radiographs into "normal" and "abnormal" appearances (Swinburne 1971). Although the reporting of ultrasound examinations by radiographers began in the 1970s, this role expansion was not reflected elsewhere in radiography and demonstrates the use of radiographers at times of technological innovation. At the time of the introduction of x-ray imaging into the health services, the guidance provided by radiographers was essential to help referring clinicians make a diagnosis. Subsequently, the introduction of new imaging modalities has required radiographers, through their knowledge and understanding of normal and abnormal appearances, to support clinicians in the use of images with which the clinicians were not familiar.

Due to a shortage of radiologists, screening of radiographs into “normal” and “abnormal” appearances evolved into the “red dot system” for referrals from Accident and Emergency (A&E) departments (Jordan 1995). Radiographers place a red sticker onto radiographs exhibiting abnormal radiographic appearances. This system can alert A&E staff to the fact that particular radiographs warrant closer inspection. In response to the expansion of the role of the radiographer, primarily in ultrasound, and with the support of the DHSS who were actively encouraging role development, Article 21 was changed at the Annual General Meeting of the Society in 1978. Radiographers could now issue written reports with the support of the professional body (Jordan 1995). The Radiographers Board of the CPSM made similar changes to the statement of infamous conduct to permit reporting by suitably qualified radiographers.

The term “reporting” has been replaced by the term “film reading” in some radiological literature where radiographers are giving a professional opinion on a diagnosis. The reason for this is unclear. Perhaps it is to maintain the difference between the two professions and emphasises that diagnosis is to remain clearly under medical control. Double “film reading” of barium studies by both radiographer and radiologist is standard practice in some hospitals and the educational and practice value of this is acknowledged (Williams 1996). Double “film reading” by radiographers in breast screening has been investigated and one study identifies that

radiographers are able to read screening mammograms at least as well as radiologists and do not take longer to do so (Wivell et al 2003).

A shortage of radiologists in the United Kingdom is currently a serious issue and radiologists are now looking more favourably at skill mix and delegation of tasks (RCR 1999). A delegated task formerly undertaken by radiologists is barium work. In line with release from tedious, routine tasks of a profession enjoying a higher status (Abbott 1988) the first to be delegated were barium enema studies (Bewell & Chapman 1996). A pilot study undertaken in 1991 demonstrated that radiographers could perform barium enema studies to a standard comparable with that of radiologists, and subsequently a training programme was set up and the progression of radiographers performing barium enemas was monitored. During this monitoring process it was discovered that one radiographer had had to stop performing barium enemas after a radiologist-performed barium enema resulted in the death of a patient. Although it may be too soon to arrive at concrete conclusions, Bewell & Chapman's survey suggests that the complication rate from radiographer-performed barium enemas is the same as that of radiologists. Yet a radiographer was allegedly stopped from performing barium enema studies for reasons that were not related to his/her standard of performance. This clearly demonstrates how the local power of radiologists controls radiographic role expansion. Radiologists also control barium enema technique without the obvious use of a rigorous evidence base. The course providers advocate evidence-based practices such as screening the barium into the rectum in the lateral position to identify extravasations or intra-vaginal tube insertion. The monitoring survey showed that, on completion of the course, 20% of radiographers had adopted local technique set by the local radiologist that involved using the prone or supine position rather than the lateral. Similarly rectal balloons, not advocated by the course, were being used by 40% of radiographers but antispasmodic drugs, which were advocated, were not used by 15%. Paterson (1994) identifies two main barriers to radiographer role development, radiological opposition and sufficient resources. In addition, the lack of evidence based practice in radiological practice may be yet another obstacle to radiographic role development.

The technical challenges to radiographers have increased in number and complexity as medical imaging science has evolved. This is evident in the traditional post-registration courses for radiographers in ultrasound, nuclear medicine, Magnetic Resonance Imaging (MRI) and Computed Tomography (CT). These technological routes have also provided guidance for career progression for radiographers. With the exception of mammography and obstetric ultrasound, particular patient groups do not traditionally feature in post-registration studies. Arguably, mammography and obstetric ultrasound focus on clearly defined client groups, encouraging the development of a patient-centred service. The challenge in imaging practice is changing along with working practices and where the challenge lies may depend on the working

practices employed in individual departments. Radiographers seem to identify themselves by the technology they use or their participation in medically delegated tasks. In order to move forward as a profession, radiographers need to identify more with a broader notion of health rather than be technologically focused (Castle 1988, DoH 2002). Radiographers may be required to change rapidly to accommodate social dimensions of health and become less reliant on technology and medicine for their identity.

### **2.3 The service context**

The National Health Service (NHS) was formed in 1948 and its management structure remained unchanged until the early 1970s with the introduction of the “Grey Book” which removed the management of radiographic departments from radiographers and placed it in the hands of radiologists (Jordan 1995). Up until that time superintendent radiographers had managed x-ray departments. Although Jordan records the discontent this produced at the time, there are no studies to indicate the effect this may have had on the development of the profession. Similarly, there are no studies indicating the influence of the formation of the NHS on the development of the profession.

Although there is still medical influence, radiography is now being moulded to more suit service needs than the needs of medicine. Radiologists are formally delegating some of their traditional tasks to radiographers and, commonly, diagnostic radiographers now undertake barium sessions, intravenous injections and reporting of radiographic images, all of which were once solely within the practice of radiologists. Role expansion for radiographers enables improvements in service delivery to be achieved; for example, waiting lists for barium studies have been reduced by radiographers using equipment efficiently and effectively (Bewell & Chapman 1996). Boundaries of professional practice have an effect on the professional, the professions, the service and the patient (Williams 1996). Although presented as a linear influence, boundaries of practice are part of a complex network of interaction and reaction. For example service needs are affecting boundaries of practice where radiographers are required to play a more active role in critical care (DoH 2002). This in turn requires radiographers to examine their role and become more patient focused. Radiographic practice presents difficulties for analysis, given that the boundaries of practice vary, as the implementation of change is not uniform nationally. The role of a “consultant radiographer” is currently being developed. This role impacts on radiographers by increasing clinical skills, motivation and interest, clinically focusing professional development, the audit of practice and education of others. The need to have clinical progression for radiographers has been advocated for some considerable time (Miller 1975). If this role is successful, the lack of national homogeneity of practice boundaries will hold implications where the role of the consultant radiographer is not being developed and professional boundaries stagnate. It can be deduced that employing authorities that do not

pursue consultant status for radiographers will fail to provide the motivational influence required to keep those who are clinically focused. Radiology is now not the sole influence on radiography. Higher employer expectations may bring higher radiographer career aspirations and performance, upsetting the traditional balance of power between radiology and radiography.

## 2.4 The educational dimension

Prior to the formation of the NHS, each professional organisation had to set its own standards and, for radiographers this was, and still is, primarily achieved through the professional body for all radiographers, the Society of Radiographers. The Society was registered on August 6, 1920 (Moodie 1970). At this time there were about 40 radiographers in the UK (Kinloch 1980).

During its inaugural year, the Society planned for the conferment of certificates, diplomas and the collection of examination fees (Moodie 1970) beginning its quest for recognition as a profession. Originally trainee radiographers were treated as apprentices and training and educational was informal (Carter 1988). Totally under the control of the Society of Radiographers, formal examinations were established in 1921 as a baseline for the quality of standards of practice. 45 candidates took the first examinations in January 1922; 17 were successful, 11 partly so and 17 failed (Kirby 1970). There appears to be some confusion over the numbers who passed as Kinloch (1980) reports that 20 candidates were successful.

Candidates who successfully completed the examinations were awarded the Membership of the Society of Radiographers (MSR). During its first decade, the Society formed an education subcommittee, which in 1931 discussed the possibility of issuing two diplomas, one for therapy and one for diagnosis and also discussed the possibility of a postgraduate course. Generally, candidates tended to be poorly prepared and, in response to this, the Society of Radiographers announced in 1937 that training centres must be formally recognised by the Society (Carter 1988). The education subcommittee placed a lot of emphasis on the fact that examinations and candidates needed credibility with radiologists; radiologists featured strongly in any descriptions of teaching and assessment (Moodie 1970). There is resonance here with the control medicine had over nursing education where doctors wanted to ensure that nurses only had the training necessary to make them more efficient assistants for themselves (Parry 2001). Radiologists may have had similar concerns and through their control of radiographer education and training, maintained the status quo through their dominance of the radiographic curriculum. During WW2, refugee radiographers who had qualified and practised overseas were required to produce evidence "*that they have been trained and employed under radiologists of repute,*" before being considered eligible to sit the MSR examination (Moodie 1970 p53). The Society became the only source of radiographic qualifications in the UK and in 12 other countries throughout the English-speaking world.

A series of clashes occurred between the Society of Radiographers and the Faculty of Radiology. The first was over the need to have a separate qualification for radiotherapy. The Faculty felt that the level of complexity of the physics required to achieve this award was too high, demonstrating radiological and scientific patriarchal discourse used to control knowledge (Macdonald 1995). Nevertheless, the radiotherapy certificate was implemented in 1945, requiring candidates to achieve a high standard of knowledge of complex physical sciences and, from 1950, radiotherapy emerged as a distinct qualification from diagnostic radiography, (Radiography 1948). The Society fought for and won what was considered to be a higher level of physics for radiotherapy radiographers. This identifies the professional values deemed necessary at that time to progress the profession. The second clash was about the status of nursing qualifications. The Faculty wanted a nursing qualification as a prerequisite to radiographic education, making the latter a post-qualification facet of nursing. Career paths in radiography and nursing were interchangeable at this point. The Society maintained that, although nursing skills were advantageous, they were not necessary and radiography emerged as clearly separate to nursing from 1944 onwards (Moodie 1970). This clarity of separation was not universal as interchangeable career pathways for radiographers and nurses are reported as late as 1956 (Coombs 1981). When considered together, these clashes with the Faculty identify that the Society of Radiographers placed high professional value on scientific knowledge and by association, technology, with a lesser professional value on nursing or caring skills complying with male superiority.

Radiologists featured strongly in the formation of schools of radiography throughout the country and through this maintained a requirement for potential students to acquire nursing skills prior to starting the course. The reasons for this are given in an address by a radiologist at the North East Branch meeting of the Society of Radiographers.

*“We find this invaluable as it teaches them how to handle sick and injured people in an efficient and kindly manner. They are familiarised with theatre work and aseptic techniques: they become acquainted with the problems and difficulties of ward people thus learning to establish a sympathetic relationship between the two departments and lastly, they almost unconsciously assimilate hospital etiquette which to many is so irksome and which is so important if there is to be any dignity in the hospital.”*

*(Irwin 1951 p249)*

The latter point in Irwin’s quote seems to emphasise the necessity to maintain a social order of work in which medicine and others can function. He refers to radiographers as being “*important cogs in the great machine of medicine*”.

The MSR was replaced in 1971 by the DSR, the Diploma of the Society of Radiographers, as many radiographers were using MSR after their name and were not entitled to do so. Although

most had sat the required examinations, not all were members of the Society. The Diploma of the College of Radiographers (DCR) superseded this in 1977 on the formation of the College on 1<sup>st</sup> January 1977 (Jordan 1995). Radiographer training and education emerged firmly under the auspices of hospitals and, subsequently, the NHS. In 1970 the idea of transferring training out of the hospital environment and into the education sector was mooted and was met with much opposition from radiographers (Jordan 1995). At the same time discussions began on the formation of a degree programme for radiography. The first degree course was originally planned by Llandaff College in 1976 but because of severe opposition by the Welsh Office and the Department of Health, it had to be cancelled. Some 11 years later the first degree course ran in Dublin in 1987 and the first honours degree in Portsmouth started in 1989 with all preregistration courses in radiography becoming of degree status by 1993 (Jordan 1995). Although radiographer education was slowly moving from the NHS into Higher Education, the move to degree status did not enjoy wholehearted support from the DoH and was severely opposed by its scientific officers whose attempts at bullying representatives from Portsmouth and the Society failed.

The first post qualification course was set up with the first “ordinary examination” held in 1937; there were ten candidates and only two were successful. Successful candidates were awarded the Fellowship of the Society of Radiographers. However this award could also be gained through a thesis or by special examination (Moodie 1970). In 1943, very few radiographers seemed interested in taking the Fellowship (White 1943). An announcement appeared in the May edition of Radiography in 1944 reporting that the first postgraduate course was held over an eleven-day period. This suggests that, although the first examinations were held in 1937, the candidates received little support or systematic education, which perhaps accounts for the fact that little interest was encouraged. Attendance at the first London-based course averaged 68 per day with delegates venturing from as far away as Inverness, Dublin, Pontefract and Newquay. The course content included neuroradiography, facio-maxillary radiography, skeletal radiography, obstetric radiography, radiotherapy and clinical photography. Judging by the letters after each lecturer’s name, the course seems to have been delivered by four surgeons, five radiographers, three physicists and one physician (Radiography 1944). The Fellowship Diploma became endorsed after 1950 to indicate that the holder was eligible to teach. The Teacher’s Endorsement Examination was first held in 1956 (Denley 1967). Radiography was one of the few paramedic professions that had a higher qualification, the Higher Diploma of the Society of Radiographers (HDSR) (Miller 1975). The HDSR was first introduced in 1968 along with a more thorough examination for teachers (Denley 1967). Bentley (1973) criticises the HDSR for not being fit for purpose. He identifies that the HDSR encouraged rote learning through memorising facts rather than facilitating ability to be critical, original and informed opinion. The Teachers Diploma of the College of Radiographers (TDCR) eventually emerged from the

HDSR. The HDSR changed to the Higher Diploma of the College of Radiographers (HDCR) in 1977 and had the following objectives:

- “ *proof of the acquisition and maintenance of a level of knowledge appropriate with the rapidly changing scientific and technological advances occurring in medical imaging (e.g. magnetic resonance imaging, ultrasonography and other forms of computer assisted radiology);*
- *proof of acquisition of the ability to critically appraise all aspects of the role of the radiographer;*
- *preparation for the assumption of the more important roles of responsibility within the profession in clinical, educational and managerial contexts.”*

*(HDCR Board of Studies 1988 p1)*

The last date for registration for the HDCR was November 1991 and the last TDCR examinations were held in September 1993 (TC365 1991).

Along with the flush of imaging modalities in the 1970s came a similar pattern of post-diplomate courses (Jordan 1995). The practice of nuclear medicine was felt to be at a point to warrant a course to be established demonstrating that practice preceded the formation of an associated programme of learning. This pattern is mirrored in ultrasound education a little later. In 1978 the Society of Radiographers established the Professional and Technical Committee to work with the Education Committee to provide information on new techniques and equipment. Nuclear Medicine and Ultrasound Committees were also established to maintain standards in post-diplomate education and to protect the interests of these evolving areas of practice. Both nuclear medicine and ultrasound share a multi-professional staff base and this presented problems for the College of Radiographers. There was reluctance to award the full diploma to non-radiographers, as it was felt that they did not have sufficient skills and knowledge in science for nurses and patient care for technicians. Non-radiographers studying successfully for an award in nuclear medicine or ultrasound were awarded a certificate, whereas radiographers were awarded a diploma. Ultrasound training authorised through the College of Radiographers became threatened by a lack of support from the DHSS and obstetricians who wanted midwives to do the obstetric scans rather than radiographers. Pilot courses in ultrasound were established in 1976 leading to a Diploma in Ultrasound (Higginbottom 1976).

Watson, in his presidential address of 1985, reflects the controversy about multi-professional ultrasound practice as he states:

*“Ironically, with the general field of battle over ultrasound with the other professions, we are accused of setting our standards too high – thus intentionally excluding other professions’ members from our training, and for formulating a course which is inappropriate for them. Yet lowering our standards would not only be ethically painful for us, but would also plunge us into acquiescing to the involvement of other professions to a considerable degree.”*

*(Watson 1985 p290)*

Eventually ultrasound education and training came under the auspices of the Consortium for the Accreditation of Sonographic Education (CASE), a multi-professional body that has representation from the Society and College of Radiographers.

Postgraduate courses for radiographers are available in Higher Education institutions and cover all imaging modalities and other aspects of career development for radiographers including flexible approaches to accommodate individual and uncommon practices. Many courses are run specifically for radiographers. Other courses are available which cater for a wide range of health care professionals enabling radiographers to choose from a wide range of topics.

### ***Eligibility to practice***

During 1937 a national register came into operation that included radiographers as medical auxiliaries (Moodie 1970). During WW2, radiographers with overseas qualifications were given temporary registration while they served in the forces in the UK. A number of hospitals started to insist that radiographers should hold or intend to hold the MSR and this normally became a requirement for eligibility to practice. Kinloch (1980) identifies this trend as mirroring requirements in the armed forces where emphasis is placed on efficiency. From April 1, 1954, the Ministry of Health decreed that employing authorities were not allowed to employ anyone as a medical auxiliary who did not hold an appropriate qualification (Moodie 1970). Statutory registration was explored in the early 1950s and the Council for Professions Supplementary to Medicine (CPSM) was established in 1961 following the Professions Supplementary to Medicine Act, 1960 (Moodie 1970). Radiographers working in the NHS had to be registered with the CPSM. The Radiographers Board of the CPSM was responsible for regulating radiographers. The purpose of the Council was to control standards and protect both the professions and the public. It provided:

- statutory recognition of radiographers as full health professionals in their own right.
- a framework for self-regulation.
- a system of professional accountability in cases of misconduct.
- a statutory system for the development of professional education.

- a network of 12 professions.

However this system was limited, as it could not provide:

- protection of the title of “radiographer”.
- power to require evidence of the maintenance of professional skill.
- ability to deal with proved cases of misconduct in any other way but to remove the person from the register.
- expansion beyond the 12 professions.

The Professions Supplementary to Medicine Act was subsequently replaced with the Health Professions Order 2001 giving rise to the Health Professions Council (HPC) replacing the CPSM. The purpose of the HPC is to:

- control the registers for regulated professions.
- set and monitor associated educational standards.
- set standards for professional conduct and deal with registrants who are charged with allegations of misconduct.
- facilitate partnerships with the public, educational centres and other stakeholders.
- promote awareness of the HPC.

(Berrie 2002)

To a certain extent, state registration through the CPSM began a process of severance of the profession of radiography from that of radiology. However, there were another group of people with whom radiographers shared history and practice and who enjoyed a position of power, the hospital physicists. The introduction of the CPSM produced disquiet in this group for, as radiographers became responsible for their own affairs, they also became increasingly threatening to other similar professions. The report on Hospital Scientific and Technical Services (1968) questioned the position of radiographers and radiologists suggesting that radiographers could come under the direction of physicists (Jordan 1995). The Society of Radiographers rejected any interference with state registration but agreed that radiographers should be part of the Hospital Scientific Service. Radiographers generally, however, remained under the jurisdiction of medicine.

The use of staff other than radiographers to perform x-ray work has been contentious throughout the history of radiography. During WW2 there was a severe shortage of radiographers, despite the fact that radiography was a reserve occupation. In 1941 the Emergency Medical Services asked the Society of Radiographers to urgently draft a training scheme for appropriate people to act as assistants to qualified radiographers in order to deal with this shortage. Responding to this request, K.C.Clark formulated a scheme for x-ray medical auxiliaries, (Moodie 1970). The issue of non-radiographers performing aspects of the

radiographer's work was raised again in 1976 by the Department of Health and Social Security (DHSS) in response to the expanding role of radiographers, (Jordan 1995). The Society of Radiographers successfully argued that anyone acting in the capacity of a radiographer should be state registered and, as state registration was a prerequisite for working in the NHS, a non-qualified person could undertake no aspect of a radiographer's work. Throughout the history of radiography the use of another group of people to do x-ray work has been suggested. They have been referred to as helpers, radiography aides, radiography assistants and assistant practitioners, (Jordan 1995, DoH 2003).

## **2.5 Steering forces in the development of diagnostic radiography**

Throughout its existence the practice of diagnostic radiographers has been shaped primarily by its relationships with radiologists and technology. Additional major factors affecting the role of the radiographer are identified as radiation protection and automation (Wetherall 1971). Those affecting role development are radiological opposition, resources (Paterson 1994), and the lack of evidence-based practice. The range and diversity of diagnostic radiographic practice has increased due to an increase in the range of influential factors. Changes to the boundaries of labour between diagnostic radiographers and radiologists, the use of a variety of medical imaging modalities, increasing emphasis on service provision and changes to professional education provision have all impacted on diagnostic radiographic practice. There are therefore five main contextual forces affecting radiographic practice to be considered:

- Medical influences incorporating the radiologist/radiographer working relationship. As the role of diagnostic radiographers and, hence their practice, is governed by the working relationship with radiologists, a key feature of this research is the nature and dynamics of this relationship and the relative value systems this has engendered over time.
- Other medical influences, such as patterns of clinical referrals, are instrumental in shaping diagnostic radiographic practice (Carr & Fell 1997).
- Influence of the professional body, the Society of Radiographers, and its ability to exert control.
- Changes to health service provision that impact on the medical imaging service.
- Impact of medical imaging technology.

## Summary

Examination of the historical dimension of medical and service contexts of radiographic practice and the professional contexts of education and eligibility to practice have shown their impact on the development of the radiographic profession. Professionalisation, occupational segregation with its emphasis on routine, mechanical tasks and the influence of gender suggest power differentials that can be explored using a critical theory approach. The discussion on the medical context has shown how radiographers emerged with a technically focused role subservient to medicine, and, in particular, radiology. Medicine has controlled the service input of radiographers by dividing x-ray work into physical and mental tasks and regulating the formulation and communication of radiographic findings. When the use of x-radiation was new and little understood, medical colleagues required guidance in its use and findings. Radiologists met the requirements of medical colleagues at that time by allowing radiographers to describe the features of the image to referring clinicians. Radiologists have strategically manipulated the role of the radiographer, supporting the development of a technologically focused role that may no longer be appropriate. Current radiographic practice is still influenced by radiologists, despite the lack of an evidence base to support radiological claims on aspects of procedure. This suggests that radiographers are also still lacking influence on clinical aspects of their work in some areas. The working relationship between radiographers and radiologists maintains the status quo of previous years.

The changing nature of service needs and modes of delivery have encouraged role development for radiographers at the same time as radiologists experience staff shortages. The appropriate delegation of medical tasks to AHPs is being encouraged throughout the NHS and this has provided an impetus for role development and expansion in radiography. However, as radiologists maintain managerial and clinical control over the input radiographers may provide, the growth of role expansion is not uniform throughout the NHS. This lack of career opportunities in some departments may have severe implications for the development of consultant radiographers. Medical imaging departments may emerge with different staff profiles. Those departments actively facilitating the development of consultant radiographers will attract radiographers who feel able to make an individual contribution to service provision whereas those departments unable to participate in the career development of radiographers in this way will continue to maintain the status quo.

The professional context consists of the educational dimension of radiography, and eligibility to practice. Radiographic education emerged under the jurisdiction of the Society of Radiographers, which in turn, was heavily influenced by radiologists. Whereas radiologists seemed to have local control over radiographers, the picture of national strategy seems rather different. The two documented clashes between the professional bodies resulted in success for the Society of Radiographers, as the Faculty of Radiology had to relent over the level of physics required for radiotherapy radiographers and nursing as a prerequisite for radiographer training. Radiological influence over radiographer training and education, although initially powerful, has diminished over time. All radiographer education is now within the Higher Education sector. Post-registration courses were originally technologically focused and specifically for radiographers whereas current provision covers technology, delegated medical tasks and areas of service provision. Radiographers have access to a wider range of courses along with other AHPs.

Eligibility to practise was formalised with the formation of the CPSM in 1961 and the HPC in 2001. Simultaneously, for both the radiologist and the radiographer, there is the historic threat of job loss with replacement by an individual whose services are cheaper. The threat to radiographers stems from the possible employment of assistant radiographic practitioners to perform imaging tasks not requiring the knowledge and skills of a radiographer.

**Summary cont'd**

The discussion suggests that key influences on practice are the power of medicine, the professional body, health service provision and imaging technology. Diagnostic radiographic practice is not conducted in isolation but in an influential and interactive human and technological medical environment. In order to examine specialism in diagnostic radiography, the highly influential practice context of medicine along with the notions of specialism in medicine require exploration. The evolution of medical specialism with its associated status, practice and organisation, provides a conceptual framework to inform this research into specialisms in the profession of diagnostic radiography.

# CHAPTER THREE

## The context of medical specialism

### Introduction

Diagnostic radiography is heavily influenced by radiology, a medical specialism controlling the occupational division of labour of imaging (Larkin 1983). Specialism in medicine is a complex phenomenon providing the practice context of radiography. In order to examine specialism in diagnostic radiography, the influential practice context of medicine, along with its notions of specialism, require exploration. The evolution of medical specialism with its associated status, practice and organisation provides a conceptual framework to inform this research. Much of this framework is derived from George Rosen's (1944) work that, although published over sixty years ago, identifies pertinent characteristics of medical specialism.

In this chapter, I identify factors that influence the emergence, growth and closure of medical specialisms and discuss their application to radiography where appropriate. Social forces identified by Rosen (1944) are discussed and sub-divided into city development, hospitals, journals, scientific societies, teaching institutions and social attitudes to gender. Interestingly, Rosen does not discuss the influence of social class, perhaps assuming that all doctors share a similar social background. Rosen does identify social favour, prestige, remuneration and public influence as reasons why professionals might seek to be associated with specialisation. Freidson (1988) emphasises the social status of specialism by arguing that specialities are social role bundles. The rationale of and for specialisation is embedded in unexplained assumptions of power differentials through professional and social structures, lending itself suitable for examination using a critical theory approach.

### *Specialism in medicine*

Specialism in medicine is dynamic, relative and reactive metamorphosing over time. Specialisms have clear boundaries of exclusive or exceptional practice and are compared to notions of the "norm" suggesting that the "norm" is equally dynamic. Medical specialities are limited fields of practice emerging and closing as a result of external social and economic influences and internal scientific and technical factors. Specialisation is an accepted and dominant feature of medical practice whose characteristics imply relative professional value systems prevailing at points in time. Rosen (1944) identifies interacting factors and processes that influence medical specialisms. Specialisation in medicine is unplanned, developing from chance integration of factors to which the profession can react. The timing of emergence of a

specialism governs the professional and public reception it receives; consequently the characteristics of specialisms vary.

The history of specialisation in medicine has strong professional, organisational and political connotations. Stevens (1988) and Freidson (1985) examine the relationship between medical practice, knowledge, skills, and social and economic organisation. Stevens focuses on the history, identity and status of medicine depicting specialities as a network of universities, clinical departments and private practice. The practice environment is a key influence on recognition of specialisms. Formalising a speciality was seen to improve services, raise medical prestige and its science base. Rosen draws connections between the emergence of specialities, hospitals and special departments and stresses the interplay of social, professional and scientific forces.

### ***Application to diagnostic radiography***

The dynamic, relative and reactive nature of medical specialism is not directly transferable to radiography. When exploring ability to react to similar forces, the reaction of radiologists is a key variable, an illustration of this is the anomalous practice of issuing diagnostic reports by non-medical staff. Although accepted practice in obstetric ultrasound, it is not easily accepted in other areas by radiologists. Not all obstetric ultrasound services are under the control of radiologists. The multi-disciplinary nature of ultrasound does not provide radiologists with the same power differential between doctors and non-medical practitioners as exists in x-ray work. Ultrasound has either been allowed to grow outside this relationship or radiologists were unable to sufficiently influence its growth to maintain control. Whereas medicine has the ability to react to conducive factors to create areas of specialism, the extent to which diagnostic radiographers can respond to similar influences is questionable. The response of radiologists is a key influence to the emergence and closure of radiographic specialisms.

### ***Influential factors of emergence, growth and closure of specialisms in medicine***

In order for specialisms to emerge and grow, a favourable balance of supporting factors must co-exist at a particular time. If the balance is in favour of opposing factors a specialism may disappear. The notion of specialisms is based on relative values and, when considering radiographic practice the relative value systems in radiology are powerful. In addition, value systems held by referring clinicians may influence radiologists and, combined they may control the evolution of diagnostic radiographic specialisms.

### ***Barriers to the growth of a specialism***

A belief in “time-honoured” training and adverse public reaction oppose the emergence and growth of specialisms. Rosen (1944) identifies public rivalry as an opposing factor, and there was much public rivalry when radiology emerged. The process of specialisation involves the establishment of practice boundaries (Freidson 1988). Occupationally controlled divisions of labour are more likely to be openly competitive reflecting the original battle for particular tasks in x-ray work between professions holding an interest in electricity, physical sciences, medicine and photography.

Opposition to specialisation may generate from:

- professionals;
- external attitudes;
- high standards;
- disreputable practitioners;
- time honoured training;
- professional ideology that cannot distinguish science and practice;
- public rivalry.

“Specialist” has changed in association from charlatan to expert and from low to high status. Medical specialists were originally opposed because of their association with charlatans and specialists and generalists became competitive. Radiologists did not have to face much opposition as it could be described as “laboratory-based” similar to bacteriology. It is considered part of the scientific explosion of medicine that created numerous medical specialisms based in new scientific areas.

### ***Facilitating factors to the growth of a specialism***

Acknowledgement of practice boundaries within professional ideology facilitates the growth of a specialism. Medical specialisation flourished between world wars and particularly after WW1 when numerous returning doctors needed jobs in civilian medicine. This sudden excess encouraged specialisation in the early 1920s. The rate of change of medicine is rapid after WW2 when it becomes more interventionist and technological. Rapid growth is seen in laboratory medicine, pharmacology, anaesthesia, radiology, surgery and medicine. Sufficient numbers of professionals were available, areas were perceived as professionally valuable and medicine had autonomy.

Stevens (1988) identifies why specialisms in medicine emerge: expansion of the body of medical knowledge, use of centres of specialist practice and generation of new competencies

and knowledge by medical schools. She rejects the suggestion that specialisation in medicine is derived from some abstract quest for scientific subdivision based solely on the proliferation of knowledge or technology. The interdependence of science and technology are embedded in social processes driven by multiple personal, economic and organisational forces.

Specialisation in medicine is a by-product of a revolution in medical science that transforms the structure of the medical profession with broad implications for cost, value and organisation of health services.

Specialisation may be facilitated by:

- synchronised ideology;
- synchronised standards;
- supernumerary professionals;
- knowledge proliferation;
- increased rate of change;
- specialist centres;
- new competencies;
- professionalisation;
- service developments.

(Rosen 1944, Stevens 1988)

Although specialisms may emerge, they require maintenance or closure occurs. For a specialism to emerge and/or be maintained, there must be a greater weight of facilitating factors than opposing factors. If this balance is disturbed, specialisms may close.

### ***Segmentation and accretion***

Rosen identifies two processes that give rise to a specialism. As a field expands, further, unique fields are identified producing specialisation by segmentation. Investigation between fields encourages their merger and the evolution of a new specialism producing specialisation by accretion. The foundation of segmentation and/or accretion is influenced by convergence of a number of scientific, technological, demographic, economic, social and/or psychological factors. As these factors continually change, the specialisation process is dynamic. The conditions that exist when a speciality emerges are not necessarily present at the emergence of other specialities. The existence of one speciality may create new conditions that facilitate the conception of other specialities.

The division of radiography into diagnosis and therapy in the 1940s is an example of segmentation. Within a hierarchical matrix of work, segmentation and accretion only occur in one plane and do not account for specialisation in diagnostic radiography through the

offloading of medical tasks. This implies that vertical processes of segmentation and accretion are emerging.

### **3.1 Influential social forces**

The process of medical specialisation is relative to and dependent on:

- conducive social forces;
- social attitudes influencing the limits of work to identifiable fields;
- institutions through which the doctor practises.

(Rosen 1944)

Each influence is discussed separately and applied where relevant to radiologists and radiographers. Social forces are key considerations as radiology and radiography are derived from science and technology, social products that result from social forces within medicine and its social environment (Stevens 1988). As an integral part of society, medicine is influenced by the economic and institutional settings within which it practises and cannot be studied in isolation. Although primarily under such influences, the concepts and practices of medicine emanate from antecedent and contemporary factors emphasising the importance of history. As the expanding field of medicine grows more complex, foci of attention evolve with some becoming identified for unique, demarcated fields of practice - specialisms. The bases of medical specialisms are dissimilar. Some have origins in technology, e.g. radiology, others in specific age groups of patients, e.g. paediatrics and others in organs or organ systems, e.g. endocrinology.

### **3.2 Social forces - development of the city**

The development of the city produced growth in population density and an increase in the number of doctors in one locality. Institutions evolved housing like-minded doctors trained in an identifiable field. The development of London is a key influence on the evolution of specialisms in medicine. A multitude of London hospitals emerged in the 19th and 20th centuries and doctors competed for middle-class patients by specialising, distinguishing themselves from other doctors. The Industrial Revolution created an influx of people from rural areas who became separated from their traditional support structures. In the 1860s twenty-four specialist hospitals were established in London. Where several were devoted to the same speciality, they ultimately proved to be financially insecure. A symbiotic relationship between specialists and specialist hospitals emerges and, as some specialists retired if not replaced, momentum for the specialism was lost with closure of that particular field.

Founders of specialist hospitals tended to be entrepreneurs who were excluded from higher medical status and could capture the public interest needed to create and sustain foundation and running costs. In London, financial and social support was available to medicine from aristocracy, and industrialists who used their connection to ensure their employees would be treated quickly. Attrition of specialist hospitals occurred between 1900 and 1938, particularly towards the end of this time as general hospitals became increasingly competitive. In order to maintain a higher status, specialist hospitals were declared postgraduate institutes of the British Postgraduate Medical Federation granting high status with the National Health Service (NHS). Specialisation was increasingly built into teaching hospitals linked to universities whose departments led many specialist areas. Research was supported and emphasised with clear resources until the 1970s.

Radiology and radiography emerge in 1898 following Roentgen's discovery of x-rays in 1896. A purely medical professional organisation was formed in 1917 and non-medical in 1920, the former financially controlling the latter. Social factors conducive to the development of medical specialisms may not necessarily have simultaneous or similar effects on allied health professions. Radiology emerges as a medical specialism at a time when medical specialisms were increasing. The International Medical Congress held in 1875 had 8 sections of medical specialism, in 1900 the Congress had 17 sections and, in 1915, 33 sections were required (Reiser 1978). City development and the subsequent establishment of specialised institutions may directly influence specialisms in diagnostic radiography or indirectly through its influence on radiologists.

### **3.3 Social forces -social attitudes - gender**

Social attitudes conducive to the progression of one profession may not be conducive to another. Social attitudes that oppose or limit areas of work are mainly gender based: one facet of this being the struggle women had to enter the medical profession. On the whole, radiology tends to be a male-based occupation whilst radiography is a profession that mainly attracts women. In the 1930s radiologists promoted radiography as an ideal job for women; hence it emerges as a mainly female profession with the gender associated implications of a nurturing and subservient role. The division of x-ray work into the manual positioning of the patient and photographic tasks for the radiographer and clinical judgement for the radiologist, was clearly defined at that time.

Witz (1992) explores the influence of gender in radiography, outlining the effects of gender on the internal demarcation of professional competence. As Larkin (1983) states, many of the original radiographers were male. Witz describes how male radiographers sought to secure intra-professional control through internal demarcation by separating male and female areas

of competence. She suggests three reasons for the rapid feminisation of radiography in the 1920s and 1930s. Despite the facts that radiography, as a scientific and technical occupation does not readily lend itself to typical female gender-typing and that the formalisation of occupational entry in 1921 did not prevent females entering the profession, women constituted the majority of qualified radiographers. Women, in their capacity as nurses, had the required technical skills and experience from the introduction of x-ray facilities in hospitals. Radiologists' employment strategies showed a preference for employing female employees producing a gender specific advantage in gaining employment in x-ray work. This radiological preference did not extend much beyond the x-ray department as an advertisement for a male radiographer teacher at the British Institute of Radiology (BIR) shows (Moodie 1970).

Radiographer training was hospital based where women were established as workers and trainees. Female emancipation started in the suffragette movement and became accelerated by the role of women in WW1. Radiography emerged and remained as an avenue for the occupation of women for the next fifty years (Moodie 1970). The division of labour between radiologists and radiographers developed inter-occupational relations firmly embedded within patriarchal, male-female roles. A clear demonstration of this is given in a radiologist's address to radiographers as he emphasises the visual appearance of radiographers and students.

*"We have a definite school uniform and badge which all radiographic staff and students must wear consisting of a good fitting white overall and white shoes with grading distinction by cap styles or belt colours (red for superintendent). I have asked one lady of each rank to come among you at tea time in uniform so that you may see them. We feel that proper uniform gives tone and dignity to the department and helps to gain standing with the other hospital units."*

*(Irwin 1951 p250)*

There is clear reflection of the social structure of that time, including the way in which radiographers' uniforms reflected a military flavour combined with a "charm school" approach. Forman's description of the responsibilities of a radiographer in 1957 conveys a similar approach.

*"To crash into a ward armed with portable X-ray and generator in the middle of the "Chief's round" is poor diplomacy at the least, and at most the height of bad manners."*

*(Forman 1957 p96)*

In response to feminisation, male radiographers in the 1930s embarked on internal demarcation strategies. Witz describes the male radiographers' attempts to subdivide skills into (male) technical and (female) caring, patient-centred skills, with simultaneous

denigration of the latter. This hierarchy of skills together with technological advances may be key driving forces behind what is considered specialist practice. The combined effects of the working relationship between radiologists and radiographers within patriarchal authority boundaries and improvements in x-ray technology reduced the numbers of male radiographers. Although a minority, they dominated the professional body. This may explain the initial notions of radiographic specialism related to technological innovations.

The Society of Radiographers was conceived during the 1920s by and for men at a time when female equality was becoming recognised. In 1970, 90% of the Society's membership was female, although they only held 6 of the 20 Council places. In 1974, 4 out of 18 Council members were women (Miller 1975). In 1994 this situation was somewhat reversed with 15 women and 7 men comprising Council (Jordan 1995).

### **3.4 Social forces - institutions**

A number of institutions form the bedrock of health care professions including hospitals, professional journals, scientific societies and educational establishments. Each is discussed as a separate entity.

#### ***The hospital***

Doctors perceive specialist work as paramount, developing and maintaining their fields from a supportive practice environment (Freidson 1988). Specialist hospitals help to promote training and the concept and culture of special hospitals. Specialists are more likely to co-exist symbiotically with professional training facilities, particularly where the remuneration is high. There are similar connotations for diagnostic radiographers e.g. although paediatric radiography may arguably be more autonomous in a district general hospital than in the dedicated children's hospital, practice in the latter may have higher status. Any disparity of professional autonomy may parallel similar disparity of guidance and control of medical work in each hospital. The medical collegial network in the general hospital may differ from that in the dedicated hospital, resulting in radiologists and radiographers holding different status in each.

General practice is a prerequisite of specialisation in diagnostic radiography as in medicine and exists to maintain an acknowledged professional pattern. At the end of the 19<sup>th</sup> and beginning of the 20<sup>th</sup> century an arduous pattern of medical training became accepted. Younger medical and radiographic practitioners are eager to specialise to attain a higher status. The views of younger members of professions can be restricted where there is extended training through feeling vulnerable, unable to challenge the status quo (Craft et al 1975). During pre and post-qualification training, students are so absorbed in the scientific and social

curriculum they have little time for involvement in a broader professional context. In addition, the professional hierarchical organisation of medicine makes it difficult for younger practitioners to raise potentially dissenting ideas. This impacts on the emergence of newer specialities such as radiology, as long established specialities maintain a stronger professional base and the status quo.

Specialist hospitals competed with general hospitals for patients. The generalists complained that specialists removed charitable funds and instructive cases from general areas of medicine. The general hospitals started to undermine specialist hospitals by creating special departments. Medical specialism thus became acceptable to the profession through partial specialisation by introducing special departments in general hospitals.

For the radiographer, working conditions varied with the administration of the department, job description and patient characteristics (Wetherall 1971). The results of a survey undertaken in 1971 show that the radiographer's work patterns varied considerably depending on the type of hospital in which they were employed.

### ***Journals***

The scientific medical group is a relatively closed group due to its communication strategies. Scientific and medical publications are not directed at an anonymous public but rather at a limited "known" group. Medical knowledge and practice are transmitted between generations of professionals and practice locations and become incorporated into theory and practice. This transmission of medical knowledge is a form of social interaction stimulating observation and discovery and is now readily available. Transmission of medical knowledge has proliferated and is currently available through magazines, newspapers, radio, television, and the Internet. This helps to create a public demand for certain specialisms.

Using carefully targeted literature, specialists can make the case for specialist referrals maintaining a hierarchy of professional expertise (Granshaw 1985). Specialists publish descriptions of pathologies differentiating between disorders so that the number and diversity of disease prove challenging to a generalist. Treatments are similarly communicated with an indication of where specialist care is needed. Originally, specialists wrote textbooks for generalists and hospital surgeons and, by the 1880s the number of specialist publications was growing at a faster rate than those of the generalists (Billings 1881). A second phase was literature targeted at specialists and hospital based practitioners. The vogue in textbook writing gradually faded and journal articles were published where a specialist community emerged establishing journals and societies specific to the speciality. Isolated practitioners, unable to exchange ideas and knowledge informally, depended on formal communications

from medical meetings and journals. An important facet of a specialism is the existence of a professional body whose remit includes the dissemination of information through meetings and the publication of a journal.

Relevant professional journals for radiologists and radiographers before 1935 are the British Journal of Radiology, Archives of Radiology and Electrotherapy and the Journal of the British Roentgen Society. This range of journals reflects the competition between medicine and physicists for control of x-ray work. In 1920 members of the Society of Radiographers received a monthly journal, The British Journal of Radiology (BJR). In 1933 the Council of the Society of Radiographers received numerous complaints about the lack of material in the BJR of interest to radiographers (Moodie 1970). The first edition of a journal specifically for radiographers, "Radiography", appeared as an insert to the BJR in January 1935. By 1939, "Radiography" was an independent publication and members of the Society of Radiographers received both the BJR and Radiography monthly. During WW2, a shortage of paper resulted in a few selected radiographers receiving the BJR. In June 1937, a radiographer had to be a member of the Institute and pay 1 guinea per annum to receive a copy. The Society of Radiographers had previously funded the distribution of the BJR to its members. As the BJR was of only "tangible interest" to some radiographers, the Society used this as the reason to revise their distribution practice, providing a more equitable service by using the money spent on the limited circulation of the BJR to produce a journal for radiographers, (Radiography 1947, Frank 1968).

### ***Scientific societies***

Maintenance of a medical specialism requires societies where specialised knowledge and practice is valued and professionally recognised. A group of practitioners within a limited field of practice do not constitute a speciality. A speciality exists when there are bonds and sustainable dynamics between practitioners within a larger association. New conceptions of disease led to various scientific foci of interest, which in turn led to an expansion of knowledge, technological innovation and new foci. Such developments did not occur in isolation from the influences of customs, beliefs and prejudices.

The original society intended to include all those who were interested in the study of "the Roentgen rays" and was called the X-ray Society although renamed The Roentgen Society in 1897. Its complex nature is reflected in the first list of Vice-Presidents and Council Members comprising medicine, physics, electricity and photography (Forder 1944). The British Association for the Advancement of Radiology and Physiotherapy, a purely medical body, was founded in 1917 and became the British Institute of Radiology in 1923. This body was amalgamated with The Roentgen Society in 1927 to form the modern British Institute of

Radiology (BIR). The Society of Radiographers was formed in 1920 and affiliated to the BIR in 1928.

### ***Teaching institutions***

Between 1900 and 1950 the high value of medical specialist education and practice was assumed (Stevens 1988). Radiologists taught radiographers who qualified through written examination set by the Society of Radiographers, which, in turn, was under the financial and sociological control of the BIR. Gradually the Society of Radiographers became independent financially and later, educationally from radiologists. Radiographic professional control over the formation of specialisms was exerted through post registration qualifications. Where it was seen as essential to assume control, the Society of Radiographers formulated a qualification e.g. in ultrasound. Professional control of those imaging practices using ionising radiation is assumed through registration, e.g. trauma, forensic work and paediatrics. All radiographic education is now firmly embedded in higher education. This has led to additional influences including service provision, research findings and the experience of other professions allied to medicine in higher education. This collective influence on radiographic education adds to and may replace the influence of medicine and the need for professional control.

### **3.5 Current influences**

The current influences on radiologists are interventional work and telemedicine. The need for interventional procedures that remove the need for open surgery has escalated and the application of telemedicine is shaping the future for radiologists. The prospect of diagnostic radiographic practice and the pattern of specialisms following that of radiology gives cause for concern as what constitutes a paradigm shift in radiology may not necessarily have a similar effect on radiography (Dixon 1998). The prospect of telemedicine, impacting on what constitutes specialisation in diagnostic radiography, brings with it the phenomenon of superspecialisation (Williams & Berry 1997). There is arguably an emphasis on the exclusivity of available technology, as superspecialisation is a product of decentralisation of medical imaging services. Emerging “centres of excellence” will concentrate on an area of medical imaging expertise focused on associated technology, Magnetic Resonance Imaging (MRI) being one example. The Government argues for decentralisation of medical imaging services, and an increase in the number of patient focused centres (HMSO 2000a). This may require diagnostic radiographers to be multi-skilled in primary care, nursing and other related roles.

The practice boundaries between radiologists and radiographers are blurring but are controlled by the former. Patterns of clinical referrals determine the medical imaging service provision, implying that the medical collegial network of a hospital is a key factor in shaping both radiological and radiographic practice. Clinical requests for examinations may depend on the value referring clinicians place on examination results. The interaction of radiologists with referring colleagues is an important factor in the exploration of developments in diagnostic radiography.

The radiographic professional body has supported identified areas of specialist practice through post-registration qualifications and the formation of Specialist Interest Groups. This support tends to be reactive and follows changes in practice. It is not known if other areas of practice required similar support in the past or if there are current, professionally invisible areas of practice that enable practitioners to identify themselves as specialists. The past and current radiographic understandings of the term “specialist” require clarification.

Increased opportunity to specialise may be linked to those institutions supporting medical specialisms. Opportunities for such specialisation are not documented. Medical collegial networks may have varying expectations of radiologists and diagnostic radiographers, depending on the link to specialist rather than general hospitals. In contrast, radiographers may have increased opportunity to specialise through the offloading of medical tasks where radiologists are more firmly engaged in interventional work. Radiologists are formally offloading some of their traditional tasks to radiographers and, commonly, diagnostic radiographers now undertake contrast agent procedures and reporting of images, both of which were once solely within the practice of radiologists.

## Summary

Specialism is a dynamic, relative, reactive and complex phenomenon stemming from the changing worlds of medicine, health-care, society and science. As specialism is relative, the prevailing social and professional value systems influence notions of specialist knowledge and practice. A group's ability to respond to social change and the knowledge proliferation associated with scientific progress is crucial. Professional autonomy allows a profession to choose its response to facilitate relevant professional growth by selectively acknowledging aspects of practice as special if there is professional value in doing so. Selected radiological tasks that are no longer considered professionally valuable are being offloaded to radiographers. It is important to note that these tasks are described in literature as being *delegated to* rather than *chosen by* radiographers. This implies that it is radiologists doing the picking and choosing thus maintaining the status quo of power difference. Both professions need to consider what is valuable in the maintenance of professional identity and practice.

Removal of factors that encourage the emergence and maintenance of a specialism result in its closure. At any particular point in time the balance of facilitating factors and barriers governs the emergence, maintenance and closure of any specialisms. Radiography can be identified as a social product through its scientific and technical origins and, as such the process of its specialisation is dependent on social forces. An increase in local population density encouraged the formation of specialist hospitals, particularly in the city. Competition amongst doctors facilitated the creation of specialists and specialisms in fields of practice that attracted funding. This in turn helped to establish specialist hospitals, specialists, training and career progression culminating in a high status. Career progression places general practice before specialisation and specialist practice thus establishing a hierarchy that places less professional value on general practice. Radiographers may have similar opportunities in specialist or teaching hospitals but there is little data on the effects of a hospital on the career opportunities for radiographers.

Social attitudes to gender and health care work have changed from the emergence of the scientific and male dominated world of x-ray work. Social attitudes to gender played a significant part in the division of labour and maintenance of the status quo between medicine and radiography. Similarly social attitudes to gender and a male dominated professional body shaped professional values, and bundles of skills became gender orientated and placed in a hierarchical order with scientific and technical knowledge and skills having a greater value than caring skills.

Specialism is a self-reinforcing phenomenon. The creation and strategic circulation of specialist literature enables the creation of more specialists through expansion of knowledge and an increased demand. The medical paradigm of specialism may not be suitable for radiographers to emulate. Technological advances, changes to health care delivery and boundaries of practice continue and will all impact on the roles of those working within imaging.

# CHAPTER FOUR

## Models of Specialism

### Introduction

Examination of specialisms suggests that it is possible to form categories of specialism to compare medicine and diagnostic radiography. Some emerge simultaneously, some share origins, some metamorphose into others, some are segments of practice, some are merged fields, and some emerge through technological progress (Rosen 1944). Categorisation of medical specialism may help to identify specialisms and potential specialisms in radiography. In this chapter I discuss the origins and characteristics of four models of medical specialism and apply their identifying features to radiography where appropriate. The medical models are based on anatomy, technology, procedure and patient age. The study of specialisms is complex, partly because their origins are heterogeneous and interdependent and partly because they represent social divisions of labour. For a medical specialism to emerge convergence of relevant, supportive factors is required (Rosen 1944) and it is assumed that convergence factors are needed in radiography. Practice tends to precede recognition and must be organised into identifiable fields (Rosen 1944). The extent to which radiographers can organise practice into identifiable fields is debatable due to the power differential between allied health professions and medicine. Radiography cannot be studied in isolation from the influence of radiology as a specialist area of medicine and radiology is also examined where relevant. Rosen (1944) identifies prevailing factors associated with the origins and development of medical specialism that are applicable to radiographers. It is not claimed that all specialisms in radiography can be identified through the examination of medical models as some specialisms may exist outside the medical models, as do some medical specialisms. The medical models of specialism act as part of a conceptual framework for the study of specialism and its derivatives, specialist and specialisation.

Rosen (1944) identifies developments that influence specialisation:

- anatomical concept of disease;
- anatomical practice boundaries;
- expansion of knowledge through focused development;
- development of new instruments.

Divisions in radiology are evident. For example, the Annual Conference 2000 has changed from “Radiology” to “Imaging, Science and Oncology” with the advance programme identifying seven “specialities of clinical imaging”. Four of these are identified by anatomy, one by

procedure, one by technology and one by a specific patient group, paediatrics. Four models of specialism represent accepted specialisms and provide the context for exploration of specialism in radiography. Anatomy, technology, procedure and patient age-group are easily identifiable boundaries of practice to consider models of specialism. Although these models are presented as separate entities, overlapping features are acknowledged. Rosen (1944) suggests a chronological order to the emergence of specialisms: attention on anatomy gave rise to the need for instruments, which in turn acted as a catalyst for the development of procedures. The models of specialism are discussed in this chronological order.

#### **4.1 Anatomical model of specialism**

Medical specialism focused on anatomy reflects the anatomical concept of disease that became widely accepted in the early 1800s. This reductionist perspective divides the human body into separate organs or systems in order to locate and identify “seats” of disease. Medieval universities regarded only medicine, law and theology as scholastic and each emerged as a recognised graduate discipline. Surgery and technology did not constitute part of the medieval medical curriculum as the use of instruments reflected a low social status being linked to the craft of tradesmen rather than graduate knowledge. As the anatomical theory became accepted, it removed the original barriers between medicine and surgery (Rosen 1944, Reiser 1983). Radiologists are generally concerned with diagnosis as radiology is inextricably linked to the anatomical concept of disease (Rosen 1944). The Paris school of pathologists 1800-1850 influenced acceptance of the anatomical concept of disease in Great Britain and Ireland (Rosen 1944) through their work on the written systematisation and description of diseases. Correlation with post-mortem findings provided a scientific basis for the development of anatomical models of medical specialism.

In her account of the history of St Mark’s Hospital, London, which specialised in coloproctology, Granshaw (1985) provides an example of the emergence of a medical specialism with anatomy as its focus and identity. Although Granshaw mentions radiology and names radiologists there is little mention of a radiographer as a member of staff. Nursing is covered in some detail, further validating the fact that professions other than medicine, nursing and midwifery enjoyed a lower public profile (Larkin 1983).

The radiographic practice that might fit into an anatomical model are, barium examinations, mammography and subdivisions of ultrasound. Arguably barium examinations may have a stronger relationship with the identification of specialism through the procedure model. Bentley (1973) identifies orthopaedic radiography, angio-cardiothoracic radiography, vascular examinations and neuroradiography as specialisms in diagnostic radiography and all fit the anatomical model.

Ultrasound, a multi-professional practice, has subdivisions identified by anatomy and similarly reflects medical specialisms:

- obstetric and gynaecological ultrasound.
- cardiac ultrasound.
- vascular ultrasound.
- abdominal ultrasound.

Radiologists are involved with ultrasound to varying degrees, as are other medical specialisms. Medical physicists are involved in ultrasound scanning and are either technicians, physicists or clinical scientists. Doctors, some of whom are radiologists, also perform ultrasound examinations. Where diagnostic radiographers perform ultrasound examinations, they do so under the clinical guidance of medicine. This may be through radiologists but equally may be through obstetricians and cardiologists.

#### **4.2 Technological model of specialism**

This model emphasises the dominance of a functional and reductionist approach to diagnosis that impacts heavily on diagnostic radiographers. A number of histories of imaging chronicle technological development, (e.g. Kevles 1997). Once medicine had identified clear, anatomical foci, and started to use a more critical and enquiring attitude, a technological trend emerges. Instruments were developed to observe anatomy, diagnose disease and plan and monitor treatment. The first development of an instrument that allowed observation was photography of the larynx in 1860 by Czermak. This was not fully successful and investigation of the larynx remained an issue until 1882 when French in New York devised an effective method (Rosen 1944). This case illustrates some of the key factors that are required for technology to influence practice: viability, production and continued improvement of instruments and effective methods of knowledge transmission. All key factors were readily addressed throughout the implementation of the medical use of x-rays.

Technology that enables the visualisation of anatomy and pathology in the living patient is highly valued. Discovery of the x-ray “*intoxicated*” doctors and was perceived as “*the transcendent instrument of visualisation*” (Reiser 1978). Many papers outlining the use of x-rays to demonstrate anatomy referred to “x-ray photography”. At that time, personal and professional experience of the use of photography was an important factor in the reaction of medicine. Association between x-ray and photography was an important factor in the conception and early maintenance of radiology as a medical speciality. This association implied simple and safe operation, affordable costs, ease of interpretation and both objectivity and subjectivity. Electrotherapeutists staked a claim on the medical use of x-rays through the recognition of their expertise with electricity, which was seen as important at that time, referring to x-ray examinations as “photography of the invisible” (Gritzer & Arluke 1985). The use of x-

rays was feasible as machines were affordable, image production was regarded as simple due to association with photography and x-ray equipment was installed in hospitals. Enterprising manufacturers continually simplified the equipment, making it increasingly easier to manufacture, install and use. Indiscriminate installation was widespread and led to dangerous illusions. X-ray pictures were reproducible and suitable for objective comparison with an established standard and evidence from other cases. They were regarded as a record and were open for study by several doctors, hence objectivity. This is in contrast to the use of the fluoroscope where no record could be taken. Fluoroscopic images could only be interpreted by one doctor and were therefore regarded as subjective and of low priority (Reiser 1978).

X-ray pictures were perceived as pieces of objective evidence but some of the evidence did not match post-mortem findings. For example, the stomach is horizontal at post-mortem but on x-ray of the living patient, it is vertical. Similarly, segments of the intestines are fixed at post-mortem but on x-ray of the living patient are mobile and located at numerous abdominal sites. In contrast to the correlation of diagnoses made through a stethoscope with post-mortem findings, x-ray imaging challenged post-mortem findings but was still perceived as acceptable. The post-mortem became questionable as the “gold standard” in anatomical demonstration and diagnosis at the end of the 19<sup>th</sup> century (Reiser 1978). The use of x-rays in diagnosis also challenged the accuracy of touch and the use of the stethoscope. The x-ray produced an image for what was perceived as objective interpretation by a number of doctors, whereas the use of touch and sound helped one doctor to form a mental picture for subjective interpretation. By 1899 diagnosis using x-ray and fluoroscopic techniques was perceived as superior to diagnosis by stethoscope. Lung and heart conditions could be diagnosed earlier and the extent of disease assessed more fully using x-rays.

The medical profession believed that x-ray techniques produced infallible results. The need for specialist skill and knowledge was not appreciated and doctors promoted the use of x-rays (Gritzer & Arluke 1985). Granshaw (1985) reports that, in 1935, radiologists were not credible; surgeons made their own diagnoses from radiographs and paid little attention to the radiologist’s interpretation. Evidence shows a greater faith in radiologists because referrals increase over the years. A lack of recognition of the need for specialist skill still existed in the 1950s when orthopaedic surgeons and chest physicians maintained that there was no need for a radiologist’s opinion of films of their patients (Craft et al 1975). Following the introduction of x-ray work into medicine, competition increased and doctors called for exclusive, specialised practice, not on the basis of medical expertise but on the grounds of technical complexity and ethics (Gritzer & Arluke 1985). Doctors thought that the x-ray picture was an automatic diagnosis and often failed to see the need for providing the radiologist with an adequate patient history from which an accurate diagnosis could be made in conjunction with x-ray findings. Some doctors realised

the need for experience and knowledge in the interpretation of x-ray pictures in order to, not only identify, but evaluate abnormal findings (Reiser 1978). Equipment faults, processing chemistry and an inadequate knowledge of radiological anatomy could produce errors in interpretation. Further errors emerge through a lack of adequate recognition of subjective factors such as human visual acuity. The low level of inter and intra-observer reliability did not become apparent until 1937 when research was undertaken in America to determine the effect of film size on diagnostic accuracy. Chests of military recruits were screened during WW2 using 100mm film rather than a 17 x 14 inch film. Findings showed that doctors varied with colleagues' diagnoses in one third of the cases and with themselves in one fifth. It is not known if these doctors were radiologists. Further research using 3 radiologists had similar results (Birkelo 1947). This research was repeated in Denmark and three radiologists had 12% agreement on the pathology found in 2,500 cases. For each positive finding, two false negative results were found. One third of lesions depicted on the films were missed (Groth-Peterson, Lovgreen and Thillermann in Reiser 1978).

Inability to x-ray healthy people prevented the compilation of baselines for evaluations of pathology. This influenced the prevalence of differing opinions through a lack of agreement on what constituted "normal" findings. Radiologists responded by standardising ways of producing the image. Radiographers produced images from a standard method with tested equipment and produced standard results. Semantics proved problematic, as radiologists investigated the use of language in radiological reports. Much was open to interpretation and, although some agreement of language was reached, it had little effect on difference of opinion (Reiser 1978). The effects of indiscriminate installation and use of x-ray equipment prior to thorough evaluation were forgotten or ignored as, in the 1970s, CT and ultrasound received enthusiastic reception and many installations occurred prior to full evaluations.

Patients responded enthusiastically to the discovery of the x-ray demanding x-ray examinations and perceiving them as automatic diagnoses. To some extent, the use of x-rays became a technological placebo. Patients began to use radiographs to evaluate medical judgements and the American Surgical Association recognised that the x-ray facilitated lawsuits against doctors. Doctors began to order x-ray examinations prior to and immediately after any medical intervention and this practice became part of defensive medicine (Reiser 1978). At the same time as technological development impacts, other developments may give rise to a speciality for which a profession may be ill equipped but which can be strategically used. Emphasis of practice can be shifted from one field to another. Maintenance of this shift alters the character of the specialities with which it is connected. For example, otolaryngology gave rise to bronchoscopy and oesophagoscopy, which subsequently became used by other medical fields. The introduction of the laryngoscope gave rise to interest from gastro-enterologists and

chest surgeons who demanded its use in their fields. The field of peroral endoscopy was further subdivided according to specific anatomical localities. Similar arguments apply to radiology. Bronchography, was originally performed by bronchoscopists but radiologists took over this procedure because of access to facilities and availability. In turn, this has led to a reorganisation of specialities (Rosen 1944).

Following the development of the stethoscope, a number of probing instruments were developed, the ophthalmoscope, gastroscope and laryngoscope. The nature of body parts and any illness can be demonstrated using numbers, graphs and pictures, all possible in an imaging department. The use of technologies requires skill, time and training that doctors are not able to give or have in totality leading to the offloading of technical tasks (Reiser 1983). As imaging involves technology, trends in technological specialism follow developments. Some imaging modalities become obsolete, e.g. thermography that produced a map of body heat and xeroradiography.

Granshaw (1985) describes the x-ray department at St Mark's, London as having a voracious need for apparatus. In 1938, with little faith in radiologists, it was deemed necessary to expand the x-ray facilities. The only mention of diagnostic radiographers in Granshaw's account occurs in relation to x-ray workload. In 1952, the Ministry for Health introduced a point system of "units" whereby a x-ray examination of the finger scored 1 unit and a barium enema examination scored 6 units, allowing a more effective evaluation of the work done in different x-ray departments. The figures for the workload at St Mark's in London were used to take on a second radiographer to help Dr Henderson, the radiologist. Previous references to non-medical work in the x-ray department allude to the employment and retention of good nursing staff. In 1933 and 1935 there is documented discussion about the promotion of two unregistered assistant nurses who did much of the work in the x-ray department. However their role is unclear.

Technology easily defines areas of work to people who are inside and outside the professions associated with that technology (Gritzer & Arluke 1985). The users of technology develop unique skills in its application and characterise these skills as so central that there is early attention to their development and improvement. Technical skill is closely associated with craft and has low status whereas the development of clinical expertise and judgement is more associated with professions. Speciality groups readily form around easily recognisable technical devices but it is only later that theoretical knowledge claims become important. Medical specialism development depends on groups of doctors who can take advantage of social events such as war and expansion of labour. War is important in radiography due to the number of men skilled in radiography returning after WW1 and the latter due to the more recent offloading of,

previously medical, duties. Tasks that are unpleasant and lack esteem may be strategically offloaded by medicine to health professions to preserve a medical specialism (Reiser 1978).

Technological developments in imaging have blurred professional boundaries and divisions of labour. Ultrasound imaging differs from x-ray work as the person scanning cannot use precise, standard, patient positions but obtains images using anatomical/beam relationship positions individually tailored to each patient. It is also a form of dynamic imaging that originally proved to be difficult to recreate and record using static images for interpretation. The unsuitability of precise standardisation, thus giving anatomical and technological orientation as in traditional radiography, and its dynamic nature, implies that ultrasound imaging does not easily fit into the conventional mental/manual division of labour. Diagnostic radiographers and other non-medical health care professionals conduct ultrasound examinations and, traditionally, are referred to as sonographers. Some sonographers come from the professional backgrounds of midwifery, nursing and medical physics.

There is now a move away from the formulation and progression of a science base, targeted at research in the specialities (Stevens 1988). There is a move towards a more fundamental concentration on biomedical processes e.g. molecular genetics, imaging and structural biology, all of which impact on the notion of specialism. This fresh approach has led to a need for knowledge flowing across established clinical specialities and scientific disciplines, an example of this is genome mapping. Eisenberg (1992) describes a troubling bifurcation in medicine – reductionist science base cross cutting traditional boundaries of specialities. Specialities and technologies are now open to questions on the nature of science, disease and medical specialism (Stevens 1988).

As might be expected, areas of diagnostic radiography neatly fit this model of specialism, perhaps because practice associated with different technologies is easily delineated and can be regarded as separate entities. Nuclear medicine, ultrasound, CT and MRI each require different technologies to perform examinations. Arguably, mammography could be regarded as a technological model of specialism as the equipment used is specific to the national breast-screening programme. The imaging of paediatric and trauma patients could also fit if practice is carried out in a dedicated environment, as the technology used would be tailored to suit specific patients.

### **4.3 Procedural model of specialism**

As a specialism develops, new techniques and procedures assume a traditional association with that specialism. There is a tendency to assume that specialism and procedure are inseparable. Clinical and pathological research was re-orientated during the 19th century through acceptance

of the anatomical concept of disease (Rosen 1944, Reiser 1983). Clear boundaries between areas of interest were established, giving rise to a critical assessment of problems identified within those boundaries. The training required for particular procedures also served to reinforce the justification and rationale of some specialisms. The notion that particular skills are required to carry out specialist practice grows in importance as science, the range of technology and variety of procedures grows.

There are further possible relationships between procedures and specialism. A procedure becomes attached to a specialism as a result of growth of a particular field of activity and the strategic importance of the procedure to the continued development of that speciality. Currently there is offloading of radiological tasks to radiographers, implying that these procedures are no longer central to the maintenance of radiology as a medical specialism and that other procedures such as interventional work are of a greater strategic importance. There is also a greater professional threat to radiologists from other areas of medicine to perform interventional procedures, particularly from cardiac and general surgeons. Barium work has become associated with radiologists, as has x-ray technology although barium studies could easily be associated with gastro-enterology as the work has the demonstration of the GI system as its focus. This demonstrates a procedure that is linked with a particular medical specialism through the technology used.

Improvements in imaging equipment and accessories design have facilitated the development of interventional procedures reducing the need for surgery normally performed in the operating theatre. Radiologists tend to carry out the majority of interventional procedures increasing the range of services an imaging department is able to offer. Some procedures require radiographers and some departments specifically employ nursing staff to oversee the care of the patient and to assist with aseptic techniques. Some choose not to employ nurses and thus some radiographers are expected to be capable of conducting aseptic procedures and associated tasks. The imaging modality used may be governed by the procedure and may require the use of specific modalities or a combination. This demonstrates the diverse range of tasks and functions required of radiographers in a wide range of technological, team and clinical contexts. This model of specialism may increase in significance for diagnostic radiography.

#### **4.4 Age-related model of specialism**

The first three models of specialism focus on anatomical, technical and procedural ways of identifying practice boundaries. The primary stimulus to medical specialisation arises from within medicine itself as a consequence of scientific and technical developments and not because of direct stimulation by human need. Paediatrics and gerontology are acknowledged specialities in medicine both are practised in general and specialist hospital settings. There is no

evidence to suggest that gerontology is recognised as a division of radiology but paediatric radiology is acknowledged. Paediatric radiologists and diagnostic radiographers usually only practise in the specialist hospital, suggesting that there is a difference in the perception of need for specialist skill between specialist and general hospital settings. This contradicts the philosophy of other health care professions and the findings of the Audit Commission (HMSO 1993).

The existence of need is not enough to stimulate doctors to devote themselves to an exclusive practice. It is rather that the conjunction of such need with relevant scientific and technological advances stimulates medical interest. In its inception, medical specialism happens independently of demands of patients but in the 19th and 20th centuries many patients sought specialist treatment, encouraging medical specialisation. At that time some hospitals were associated with an undesirable image of dirty surroundings and disease, encouraging patients to seek specialist places. Perception of a need for radiology may stem from the medical collegial network, as patients do not directly refer themselves for imaging but are referred by another doctor. This perception of need has varied from the need for consultation on a patient's condition, through the examination of patients for medico-legal purposes to protect the referring clinician to the use of imaging as a technological placebo. To some extent, radiologists and diagnostic radiographers have responded to the need for specialist practice focused on age groups of patients, but only where paediatrics is considered although not uniformly accepted. This does not apply to patients who are classed as elderly who do not appear to be acknowledged within radiology or diagnostic radiography as a special group on which practice may be based.

The Audit Commission (HMSO 1993) highlights the special needs of children in hospital and identify six key principles of caring for children throughout the hospital. The six principles are child and family centred care; skilled staff; separate facilities; effective treatments; appropriate hospitalisation and strategic commissioning. The report identifies barriers to good practice in hospitals and suggests improvements. To what extent these principles are upheld in imaging practice is unknown and factors that influence the incorporation of these principles into practice have not been identified. Children have special needs, as they are physically and emotionally different from adults and require the constant support, care and vigilance of parents. The Audit Commission (HMSO 1993) challenges any practice that does not account for these needs.

The Audit Commission (HMSO 1995) fails to draw attention to the number of paediatric patients attending for imaging identifying 3% of imaging workload to come from paediatric referrals. Children can constitute up to 28% of a department's workload (Ferris 1999). The Audit Commission (HMSO 1993, HMSO 1995) has failed to follow through on their original

intention of challenging paediatric care when auditing imaging practices. The Audit Commission changed their focus from a patient and family orientated focus to one that has its roots in technology and service requirements. Patients over the age of 71 years form up to 33% of patients attending for imaging (Ferris 1999) yet they do not appear to have the characteristics required to provide a basis for a specialism in either radiology or diagnostic radiography.

Lack of continuity produces confusion for both children and their families (HMSO 1993). The parental experience varies from being encouraged to participate in the care of their child, even in the resuscitation room, to being totally excluded from the care of their child in a different part of the same hospital. This raises a dilemma for radiographers when considering parental participation in imaging procedures involving the use of ionising radiation, as only essential persons may remain in the x-ray room during the procedure. To what extent diagnostic radiographers feel that the parents' presence is essential is not known, as is the determination of whose perception of "essential" should predominate. The encouragement and facilitation of parental participation should form part of imaging practice (HMSO 1993). The theoretical essence of paediatric imaging may be perceived as the acknowledgement within practice of the specific needs of the child referred for examination and their family. These specific needs can be categorised as relating to anatomy, physiology, use of technology, radiation protection, clinical relevance and psychosocial needs (Gyll 1977). Broad concepts of minimising trauma to the child (Gyll 1977, HMSO 1984, HMSO 1989, HMSO 1993, Smith et al 1995) and producing a clinically relevant image would incorporate these special needs.

Stevens (1988) suggests that the medical profession produces specialists for acute, interventionist and targeted high technology medical care rather than supporting patients through long periods of disability and multiple pathology. With an increase in the ageing population there are a number of people surviving previously fatal illness. In order to provide for this, a framework that cuts across traditional medical specialities is required. An example of the realities of this is that children's hospitals treat adults who have cystic fibrosis or severe osteogenesis imperfecta as the skills to treat such patients are based in children's hospitals. New fields of practice are emerging such as sports medicine, critical care, care of the older patient and adolescent medicine, all of which are easily absorbed into the organisation of medical specialities. There are new fields emerging that do not easily fit into this organisation e.g. nuclear medicine, medical genetics and other areas unrelated to existing specialisms but of growing importance. Stevens argues that the structure of the medical profession is moving towards a system of specialisms defined more by the job market than a system of specialist qualifications.

## Summary

Four models have been used to discuss specialism each of variable significance to diagnostic radiographers. The anatomical model is significant in sonography and is increasingly significant in radiography. The technological model predominates as might be expected in a profession that has its origins in scientific and technological developments. The use of technology to visualise anatomy evolved following the development of anatomical foci. The use of x-rays and photography to visualise internal anatomy was seen as similar, possibly leading to indiscriminate use of x-ray work that did not permit thorough evaluation. Objectivity of the visualisation of anatomy using x-rays was assumed until it was questioned during WW2. Research at that time failed to provide any satisfactory resolutions to the issues of inter and intra observer reliability. Technology gives easily identifiable practice boundaries that subsequently enables knowledge growth within those boundaries. However, it also encourages a functional and reductionist approach to specialisation in diagnostic radiography.

The procedural model is a potential growth area for radiographers through the offloading of radiological tasks. Some medical specialisms need to selectively offload tasks to preserve inter-specialism boundaries. Tasks that no longer differentiate medical specialisms are not considered strategically valuable and may subsequently be offloaded. Diagnostic radiographers form a convenient pool into which radiologists may deposit such tasks. While diagnostic radiographers accept these, radiologists may continue this but, should diagnostic radiographers decide that such tasks serve little professional value to radiographers or are unable to accept such tasks, radiologists may need to look elsewhere. The mix of emphases on technology, procedures and anatomy demand that diagnostic radiographers cultivate a wide range of skills.

Public perception of need is not a strong factor in the formation of specialisms until it converges with other influences. The perception of need from within the radiographic profession does not appear to be sufficiently persuasive, even when aligned with Audit Commission findings where paediatric imaging is concerned. Where radiologists have defined a need that coincides with offloading tasks, specialisms can emerge in diagnostic radiography. Specialisms in radiology seem to be aligned to the requirements of referring clinicians and threats from rival medical groups.

Age – related models of specialism are not evident in radiography despite the fact that radiologists acknowledge paediatric work. The only exception is in the children's hospitals where specialist radiographic practice is acknowledged by virtue of the practice environment. National recommendations for services to children seem not to influence the practice of x-ray work and subsequently have little influence on any divisions of practice in diagnostic radiography and the formation of its specialisms.

# CHAPTER FIVE

## A model of expert practice

### **Introduction**

In this chapter I explore government policy, expert practice and its potential links to specialisation, and identify the characteristics of expert practice through review of literature. Despite a lack of clarity on what constitutes expert practice, the concept of a non-medical consultant has emerged in government policy with a remit stipulating 50% of the role being in expert practice (HMSO 2000a, HMSO 2000b). A number of papers (391) have referred to aspects of experts and/or expertise including two literature reviews (Adams et al 1997, Manley and Garbett 2000). In general, research based studies may not have sufficient scope to encompass the entirety of expert practice. They tend to be focused on the experts and their understandings of expertise, with expert practice being an assumed or pre-conceived notion. As specialisation is directly linked to career progression and the status of consultant radiographer is the culmination of that progression, it is seen as central to future professional developments to identify the characteristics of expert practice and relate these to the practice of diagnostic radiography.

### ***Rationale***

The process of specialisation in medicine is seen as a rite of passage culminating in the attainment of the post of consultant. The medical consultant is part of a collegial network, each member representing a recognised field of practice, a specialism. Government has indicated that a similar career pathway is now open to non-medical practitioners, namely nurses and Allied Health Professionals (AHPs) (HMSO 2000a, HMSO 2000b), introducing the possibility for radiographers to progress to consultant status as an integral part of their career structure. Previous and current career pathways for radiographers tend to focus on management or education with limited, traditional career progression in clinical practice. It is appropriate to discuss this new career direction within the overarching themes of specialism and specialisation, because within medicine there is a direct link between specialism, the process of specialisation and consultant status that has created a powerful precedent.

### ***The policy context***

The NHS Plan (HMSO 2000a) outlines the Government's policy for investment in and reform of the NHS.

The document criticises the NHS for having

*“...old-fashioned demarcations between staff and barriers between services, a lack of clear incentives and levers to improve performance and over-centralisation...”*

(Executive summary p10)

It states that all nurses and other staff will have increased opportunity to extend their role to culminate in the consultant nurse or therapist. The new consultant roles are supported by a new Leadership Centre (para 5.15 HMSO 2000b), and an investment of £140 million (para 9.11 HMSO 2000a). The division of labour within the NHS is under political scrutiny. The impetus provided by the Plan could act as a factor supporting changes to the division of labour that, in turn, may provide opportunities for the formation of specialisms in radiography. This mirrors the situation in nursing where nurses are assigned tasks to reduce junior doctors' hours (Dowling, Barrett & West 1995, Dowling et al 1996). Ill-defined labour boundaries already exist between radiologists, medical physicists, nurses, midwives and radiographers. If a group of professionals are able to make use of factors supportive of the formulation of specialisms, then the balance for professional superiority in that field of practice will tip accordingly.

Specialisation may be facilitated by:

- synchronised ideology;
- synchronised standards;
- supernumerary professionals;
- knowledge proliferation;
- increased rate of change;
- specialist centres;
- new competencies;
- professionalisation;
- service developments.

(Rosen 1944, Stevens 1988).

Not only are labour barriers under scrutiny, but also service barriers are included in the political gaze. There is an inclination for services to parallel medical specialisms with medical imaging services linking directly to radiology. Changes to boundaries between services would have significant impact on the medical specialism usually associated with that service, with the possible emergence of new specialisms through accretion or closure of others. The

emergence of the non-medical consultant may mean that new specialisms may not be based in medicine, but in allied health or nursing. Many imaging services are centralised and, should decentralisation occur, an increase in non-medical autonomy would be required, as there would be less immediate collegial contact mirroring practice and organisation prior to the imaging service centralisation that took place in the 1970s. The effective use of telemedicine and electronic communication may alleviate this problem. The role of consultant radiographer removes the glass ceiling of clinical practice progression. Rather than career-minded radiographers being channelled into management or education, they can progress using a clinical focus to their career pathway.

The NHS Plan (HMSO 2000a) identifies clinical targets to be achieved, emphasising the political value of certain clinical areas: accident & emergency, cancer, heart disease, mental health, older people and diagnostics. A National Service Framework (NSF) further supports any area considered to be of high value through setting acceptable standards, establishing performance criteria, raising quality and decreasing variations in service. The Government has established a rolling programme of NSFs which focus on cancer, paediatric intensive care, mental health, coronary heart disease, older people, diabetes, renal services, children's services and long term conditions (Department of Health 2002).

### ***The non-medical consultant***

The development of non-medical consultant roles is one of the main objectives of the government's reforms to nursing and AHP (Allied Health Professions) education and practice, as stated in the Department of Health documents, The NHS Plan (HMSO 2000a), Meeting the Challenge (HMSO 2000b) and the Advance Letter Department of Health (2001). The Department of Health has expressed a commitment to develop AHP consultant posts in the NHS to identify new career pathways for "experienced and expert staff". The new career pathways are intended to promote retention and recruitment of staff, help to improve services and provide better outcomes for patients. The role of a consultant radiographer is based on an expert practice function. Each consultant post has a professional leadership and consultancy function, education, training and development function and a practice and service development, research and evaluation function (Price & Paterson 2002). It is unclear how radiography can evolve using this new framework of career progression, given the traditional notions of specialism and specialisation, both key features of career progression. The four-tier career pathway of assistant practitioner, practitioner, advanced (specialist) practitioner and consultant practitioner may challenge traditional career pathways. The Department of Health has made a commitment to secure 250 consultant AHP posts by 2004. The latest available

figures from the non-medical workforce census records show that on 30 September 2003 there were 20 AHP consultants in England (Hutton 2004). Interestingly Hutton (2004) reports that numbers of consultant AHPs are not collected centrally which begs the question of how Government will measure their achievement for 250 appointments by 2004.

### ***Professional context***

Traditionally, radiographers have 5 established career pathways. These are management, education, modality defined, performing tasks offloaded from medical staff and a last, but increasingly important, group which includes trauma, paediatrics, mammography and forensic work. Advances in technology proved to be the first influential factor in the formation of clinically based specialisms and career progression in radiography. Although many radiographers acknowledge mammography as a specialism, some areas of specialist practice are masked by what is traditionally considered to be conventional practice e.g. trauma, paediatrics and forensic work. Given the government's agenda, as detailed in a series of National Service Frameworks, it is appropriate to investigate the development of such areas. The radiographic professional body supports identified areas of specialist practice through endorsement of post-registration qualifications and the formation of Specialist Interest Groups (SIGs). Clear career pathways in the fields of practice covered by such endorsements and SIGs are not evident. Specialisation in uni-professional, radiographic fields of practice does not necessarily lead to a specialism and could be incompatible with the four-tier career structure. Radiographers and those involved in radiographic career guidance require greater clarity and innovation to identify future fields of practice suitable for the four-tier career structure. The key function of the radiography consultant is expert clinical practice and little is known about what constitutes expert practice. (Pure managerial and educational career pathways are not included in this study.)

### **5.1 Expert practice**

This section of the literature review explores the meaning of expert practice as part of consultancy. This is a pivotal concept underpinning a new career structure. Also pertinent to expert practice are career structures, career ladders, remuneration and salary differentials, but these are outside the scope of this review and are not explored. Expert practice constitutes 50% of a consultant's role but there are no clear definitions of what the term "expert practice" means, how it is gained, recognised and maintained. It can be deduced that such practice is that which an expert performs. Whether the term "expert" is used as a noun or in its adjectival sense, it fails to illuminate the specific meaning of expert practice in this context.

There have been two extensive reviews of the literature on expert practice. In the first, Adams et al (1997) formulate statements on expert practice as part of the planning process for a Delphi study. The authors aim to identify knowledge, skills and attitudes required by expert nurses working in complex and technological contexts. They identify a surge of professional interest in expert practice following Benner's work in the early 1980s, reflecting an increasing need to examine expert practice and its influences. The authors conclude that there is an incomplete picture of expert practice and identify a need to clarify and articulate the elements of expert practice and its contribution to health-care. In the second literature review, Manley and Garbett (2000) provide a conceptual map of expertise for preliminary work on the Royal College of Nursing's Expert Practice Project. The authors draw attention to three key stakeholders, the government, the profession and the employing authority in attempts to define aspects of acknowledgement of expertise. Each stakeholder has a different agenda. The government has set out its agenda in the "Agenda for Change" (DoH 1999), the professional body for nursing has emphases on accreditation, bench marking, clinical career pathways and clinical supervision; and the employing authorities are mainly concerned with competence based education and training. Manley & Garbett report difficulties in that there are few studies focusing on expert practice and many have investigated expert practice from the perspective of the expert practitioner. This review comments on inconsistencies in the criteria used to select samples of expert practitioners and the rationale used for development of sample criteria, with most studies using peer nomination and/or length of clinical experience as common indicators. Manley & Garbett conclude by shaping further work on making expertise more explicit.

A significant number of research studies were found containing primary data on expert practice. A systematic literature review of current research into expert practice in the health context would help to inform consultant practice recognition and development and enable evidence-based decision making by locating, appraising and synthesising relevant and quality literature to address focused questions (Petticrew 2001, Bhandari et al 2002). Please refer to Appendix A for a tabulated overview.

## **5.2 Emerging themes on expert practice**

Five clear and related themes of expert practice emerge: knowledge, practice skills, interpersonal skills, attitudes/philosophy and the practice context. The review shows that the accumulation of knowledge and experience does not necessarily identify the practice of an expert. Equally significant are the effective use of interpersonal skills, an appropriate attitude/philosophy to individual health and the context in which the practice occurs. All papers acknowledge the seminal work of (Benner 1984) which, in turn, is grounded in the

directed skill acquisition work of Dreyfus and Dreyfus (1980) (Benner 1984). Benner identified seven domains of nursing practice and the progression from novice to expert in each domain. A number of authors are critical of Benner's work (Darbyshire 1994, English 1993). Confusion seems to arise from a lack of clarity when attempts are made to apply Benner's theory to practice (Skene 2000). Intuition is an intangible element to some, which is unfortunate as Benner identifies this as the main characteristic of expert practice. Progression from novice to expert is presented as a linear development with two end points, the novice and the expert. The review shows that an expert continuously learns from their experience and that of others by identifying instances where they did not act as an expert and, through reflection, identify how their practice could be improved. Few authors directly address any notions of expert practice held by people other than the expert practitioners themselves. Some authors give superficial attention to the notions of patients and carers.

### ***Characteristics of expert practice***

Expert practice is more than the sum of its individual characteristics and also more than the end product of skill acquisition. Whereas it may be possible to consider *the expert* on a uni-professional basis, the review findings of the characteristics of *expert practice* suggest that the latter cannot be considered in professional isolation. It requires multi-professional credibility as more and more practice entails working as a, sometimes sole, professional within a multi-disciplinary team. It also requires compatibility between the individual person's philosophy and that of the service context. It is possible to have someone who is capable of expert practice but who doesn't practise in this way due to constraints imposed by the practice environment. The ability to move fluidly between and balance all identified characteristics is as much a part of expert practice as is compliance with its individual features. A deeper synthesis of the literature identifies two overarching themes, credibility and compatibility, each being subsequently divided into two components. Credibility is sub-divided into knowledge and practice. The "knowledge" component consists of four characteristics: formal, craft, context and self; the "practice" component consists of six characteristics, authoritative, evidence-based, patient-centred, facilitation of learning, defined clinical area and effective communication. Compatibility is divided into practice context and philosophy. The "practice context" component consists of two characteristics, facilitating and supporting independent practice and compatible time/task allocation; the "philosophy" component consists of three characteristics caring and holistic nature, critical mind of enquiry and seeker of knowledge. The range of characteristics of expert practice does not contain discrete entities, for example there are overlapping dimensions of knowledge and the practice context. Such overlaps highlight the importance of the theme of compatibility. It is not the existence of the components in their entirety that essentially characterise expert practice; it is their merger into

the two key themes of expert practice, credibility and compatibility. The credibility of knowledge and practice identifies expert practice compatible with the context of practice and the attitudes and philosophy of service delivery and stakeholders, namely the government, professions, employer and practitioner. Integration and synthesis of translations of the characteristics of expert practice show that dimensions of credibility and compatibility ideally need to be in harmony.

Table 1 Summary of findings

Theme	Component	Characteristic
Credibility	Knowledge	Formal knowledge
		Craft knowledge
		Contextual knowledge
		Self knowledge
	Practice	Authoritative practice
		Evidence-based practice
		Patient-centred practice
		Practice incorporating the facilitation of learning
		Practice within a defined clinical area
		Practice incorporating effective communication
Compatibility	Practice context	Facilitating and supporting independent practice
		Time/task allocation
	Philosophy	Caring and holistic nature
		Critical mind of enquiry
		Seeker of knowledge

### 5.3 Credibility

Credibility is the worthiness of trust, confidence and belief of a person, which, in expert practice, is based on the possession and use of a trustworthy infrastructure of knowledge and practice. Bodies of knowledge tend to be compartmentalised within uni-professional boundaries but, increasingly, the use of inter-professional bodies of knowledge are seen as pertinent to present day health professionals. Inter-professional recognition of expert practice is important (Jasper 1994). With a vigorous focus on skill-mix and expanding roles, the inter-professional credibility of expert practice is clearly a serious issue. Expert practice is not defined purely on the basis of knowledge alone, whether gained through formal academic study or through experience. There is a further component of credibility to be taken into account which, although related to a firm foundation of knowledge, emphasises the application of knowledge. Expert practice encompasses credible forms of practice and

practice delivery. The contextual nature of this credibility lies with the immediate practice environment and the broader service and professional organisations.

Four components of credibility and compatibility have been identified: credible knowledge, credible practice, compatible practice context and compatible philosophy. The components consist of fifteen characteristics in total and each is presented for discussion as a discrete entity. Some can be seen to have interlocking strands. An integrated form of expert practice theory has been identified in other studies (Cutcliffe 1997, Shepard et al 1999).

### ***Credible knowledge***

The possession of knowledge alone does not identify an individual capable of expert practice: knowledge is only one of the four components and must be credible, extensive and provable. The review identifies four characteristics of credible knowledge: formal, craft, contextual and self. Expert practice uses all four characteristics in a fluid and integrated manner (Martin 1999). Although a combination of characteristics underpins expert practice, each can be considered as a discrete entity. The identification of discrete entities is important when considering transferability, a key issue. The complete knowledge base for expert practice is non-transferable outside a defined specialist area, according to Jasper (1994) but Hargreaves & Lane (2001) argue against this. For example, knowledge of self is certainly transferable, a key feature demonstrated in Hargreaves and Lane (2001) who argue for some debate about the concept of transferability. They saw self-knowledge as a pivotal factor which may compensate for deficiencies in craft and contextual knowledge. The production of new knowledge is facilitated by expert practice as it helps to expand the evidence base (Jasper 1994) producing an inextricable link with research and, arguably, with evaluation and audit.

### ***Credible formal knowledge***

Expert practice requires a wide knowledge base incorporating formal, theoretical knowledge of principles of practice drawn from textbooks and research findings. Some authors acknowledge study at Master's level as appropriate to underpin expert practice and provide proof of ability (Bamford & Gibson 2000, Steele & Fenton 1988). The review identifies critical thought and evidence-based practice as important, and relevant courses could reflect these requirements. Successful study at Master's or Doctorate level could incorporate proof of critical thinking; the use of research findings in practice; evidence of practice-based learning, incorporating both expanding practice and the practice context; and, finally, personal growth or knowledge of self (Bamford & Gibson 2000).

The relevance of study at Masters or Doctoral level to support expert practice is not generally discussed in the literature. A 10-year follow-up study of postgraduate nursing courses identifies that a Masters programme facilitates the development of portable and interchangeable skills (Whyte, Lugton & Fawcett 2000) supporting Hargreaves & Lane (2001) notions of transferability. The authors conclude by advocating Masters level education as the accepted gold standard for higher level practice, with the development of expert practice being reflected and facilitated through education at Masters and Doctoral level. The personal growth achieved by Masters graduates links directly with the philosophical development required for expert practice.

Interestingly, few research papers used in this review examine the credibility of formal knowledge of expert practice outside of a uni-professional context, even though some authors argue for credibility to be acknowledged across professional boundaries.

### ***Credible craft knowledge***

Expert practice requires not only knowledge of the craft but a clear ability to articulate that knowledge to others. Knowledge gained from experience with patients tends to be tacit and undocumented and can be classed as rules of thumb, reasoned guesses, exceptions to the rule, insight and informed opinion. All are examples developed from practice or craft knowledge that has a practical and perceptual basis gained by experience of unique patient situations. An advanced level of craft knowledge is vital in expert practice and emanates from the practitioner's rich experience with patients, combined with contextual knowledge gained from the practice situation (Jasper 1994, Cutcliffe 1997, Brkczynski 1998, Peden-McAlpine 1999, Bamford & Gibson 2000, Hardy et al 2002, King and Macleod Clark 2002). The ability of a practitioner to articulate craft knowledge and organise it so that it can be made accessible to others is characteristic of an expert (Day 2002).

In-depth craft knowledge is not, on its own, sufficient in expert practice as the expert practitioner must also be able to disseminate this knowledge to others. This ability is recognised within the legal system whereby an expert witness may be used in a court of law to articulate complex or difficult technical data to decision makers, lending further evidence to the emphasis on the credibility of knowledge required. There are similarities in the characteristics required for an expert witness as have been found in this review (Mildred 1982, Matson 1990, Reynolds & King 1992). Expertise is seen as a relative concept. "(Expertise) must be specialised to the extent that it exceeds the skills of ordinary people engaged in ordinary pursuits." (Hodgkinson 1990 p11). In a court of law an expert witness must be trustworthy and any evidence given must be convincing, believable and

credible, (Reynolds & King 1992). Mildred (1982) lists the basic qualifications required by an expert: professional qualifications and experience; general knowledge of the legal context; good communication skills, both oral and written; and the ability to use factual knowledge to draw logical and impartial conclusions. Hobbs (1992) emphasises the link to compatibility by stating that the expert must be a practitioner in the area in which his or her expertise is claimed. This last statement implies that practitioners who are pure academics and are no longer practising their craft do not comply with the legal requirements of what constitutes expert practice because their context of practice is in academia rather than in health care.

Craft knowledge allows the expert practitioner to move away from rigid, standard, model-led practice to a practice based on a personal framework tailored to each patient. This personal framework is an evolving pattern of knowledge formed from the merger of formal and experiential knowledge and is used by the expert practitioner to guide understanding of the relationship of current information to other, stored information in particular situations (Jasper 1994, Shepard et al 1999, King & Macleod Clark 2002). The recognition of what constitutes important facts in any particular situation is an important facet of expert practice (Hardy et al 2002). Such frameworks can be classed as conceptualisations of practice, which could lead to the generation of new theory.

According to Allmark (1995) the knowledge of practice is different from theory. Although theory changes expert practice, the knowledge of practice cannot be reduced to theory. There are moves towards more standardised and protocol-guided practice but expert practice does not incorporate the adoption of a fixed system of practice (White 1993). Consequently, expert practitioners may be regarded as mavericks or dissenters and may not easily fit with either the social order of health care delivery or within locally or nationally set standards. This is discussed further in the section on compatible practice context.

The depth of craft knowledge underpins intuitive and skilful judgement, determining the level of an expert's practical ability (Parry & Stone 1991). The fluid use of a personalised framework may be what some understand as intuition. Effken (2000) identifies 23 definitions of intuition, many of which refer to a rapid process of decision-making and a sequence of knowledge and understanding. Leaving the world of health to one side for the moment, it is important at this point to highlight the surge of interest in the concept of emotional intelligence. This may provide some further insight into the nature of intuition in expert practice. Goleman (1996) in describing the "master aptitude", talks of an expert performing "in flow". He talked to a broad range of individuals covering a wide range of activities, including health professionals. They were each asked to describe a time when they carried out

an expert performance. All descriptions were remarkably similar. The following quote is from a composer:

*“You yourself are in an ecstatic state to such a point that you feel as though you almost don’t exist. I’ve experienced this time and again. My hand seems devoid of myself, and I have nothing to do with what is happening. I just sit there watching in a state of awe and wonderment. And it just flows out by itself.”*

*(Goleman 1996 p90)*

Is this a description of the process of intuition? This state of “flow” is what athletes call being “in the zone”; it is a composed and effortless state with an ability to completely ignore the surroundings. A surgeon describes how, although the ceiling caved in during an operation, he was so absorbed in his task that he didn’t realise this had happened until the operation had been completed. Being in “flow” is “emotional intelligence at its best”. The emotions are harnessed, positive and completely focused on the task of the moment. There is also a feel-good factor associated with performing in “flow”; it is a very positive experience.

*“Paradoxically, people in flow exhibit a masterly control of what they are doing, their responses perfectly attuned to the changing demands of the task. And although people perform at their peak while in flow, they are unconcerned with how they are doing, with thoughts of success or failure – the sheer pleasure of the act itself is what motivates them.”*

*(Goleman 1996 p91)*

Someone in flow gives the appearance of effortlessness, even though the task may be complex. An observer may assume that the complex is simple as the task is undertaken without effort. A person can only work in flow to the limits of ability using well-rehearsed skills and efficient neural circuits. It is irrelevant whether the task is physical or mental as the same understanding of flow, skill and pleasure apply: there is very little mental activity as the brain works more efficiently when in flow. It would appear that if a person in flow starts to think of other things or is disturbed by others, this could disturb the process of flow, in turn affecting the quality of the performance. Goleman argues that the mastery of skill is facilitated by flow and that the ability to achieve flow is a pre-requisite for a professional expert. This description by Goleman could be considered to be similar to, if not the same as, intuition, further validating the work of Benner and Dreyfus and Dreyfus.

### ***Credible contextual knowledge***

Contextual knowledge is significant, as it allows the practitioner to function within a specific organisational framework (Shepard et al 1999). Bamford and Gibson (2000) talk of having “insider knowledge”. An expert is able to balance the needs of the individual patient,

colleagues and organisation through negotiation and flexibility (Cutcliffe 1997). To do this effectively, the expert needs knowledge of the organisation in which (s)he practises, how it operates, the strengths, capabilities, needs and behavioural characteristics of staff, administrative goals and resources, resources available from other professionals and the chain of command. Different elements of the organisation may vary in weighting from place to place (Bamford & Gibson 2000). Other contextual knowledge required in expert practice is the chain of command and when to be persistent (Brykczynski 1998, Steele & Fenton 1988). Where teamwork is concerned, expert practice requires knowledge of the strengths and weaknesses of each individual within the team in order to facilitate team performance in the best interests of the patient. Skilled use of available medical staff is identified by Brykczynski (1998) as “doctor shopping” where the expert practitioner knows what needs to be done and searches for a doctor who will not hinder the proposed action. The “doctor-shopping” scenario is also mentioned in Tofias (1989) who describes part of expert practice as choreography, ensuring that the timing of physician attendance fits with what the practitioner is trying to achieve for the patient.

Expert practice also involves acting as an information resource for patients and staff (Martin 1999). In order for this to be effective, those who wish to access it must perceive a practitioner’s knowledge as clinically credible.

### ***Credible self -knowledge***

Knowledge of self is required for expert practice and is discussed in terms of self-awareness and the responsibilities of the expert to be able to identify where the boundaries of knowledge lie (Cutcliffe 1997, Shepard et al 1999, Hargreaves and Lane 2001, Hardy et al 2002). Self-awareness enables objective practice, can be gained at the beginning of a career, and is ultimately used to promote professional esteem, an antecedent of expert practice (Beaton and Amella 1990). Interestingly, computerised systems cannot account for the knowledge of self. A computer programme cannot know what it does not know, making the title of expert computer system a misnomer. Similar criticism is put forward by Jasper (1994) who argues that use of the term “expert” computer systems is invalid, as a computer cannot think in wholes nor is it able to add to its own frame of reference from experience. Where formal proof of self-knowledge is required an extensive body of self-knowledge needs to be organised and accessible (Day 2002).

The four dimensions of knowledge presented here are drawn from the review. It is possible to identify further subdivisions of knowledge using a typology developed by Conway (1996).

Knowledge, its evolution and application can be subdivided into technological, traditional, specialist and humanistic by referring to the emphasis of the practitioner.

Table 2 Types of knowledge

Type of knowledge	Emphasis (Conway)	Possible parallel with meta synthesis
Technological	Wide ranging, anticipatory, diagnostic, “know-how”, monitoring of junior doctors and patients	Craft/contextual
Traditional	Task orientated, medically orientated to “get through the work.”	Formal/craft
Specialist	Expanding role, assessment, diagnosis, quality of life, in a specific field of practice – can be further subdivided into the other types.	Contextual/formal
Humanistic	Holism, self-awareness	Self

Although different words are used to describe the dimensions of knowledge, the two typologies do parallel each other. Interestingly, there are similar features of overlap.

#### 5.4 Credible practice

It is important to be known as competent (Brykczynski 1998). The credibility of an individual’s practice hinges on peer acknowledgement or that of others who are appropriately qualified to make judgements about practice quality. An individual’s ability can be assessed through formal examination, observation or reputation. This recognition can be perceived as controversial, particularly when the probability of inter-professional recognition is considered (Jasper 1994). This raises an issue, to what extent is there a need for recognition by peers and relevant professionals outside the profession under scrutiny? An expert needs to be known as competent, capable of working with others to a common aim and to hold mutual respect both within a team and professionally. Credibility of practice can be seen to be required over a range of professions and an inter-professional theme clearly emerges.

#### ***Credible authoritative practice***

The expert practitioner needs to be invested with the power to define and conduct practice as (s)he deems appropriate. The practitioner alone cannot instigate authoritative practice; it is essential that this characteristic of expert practice be allowed to develop within the philosophy and working customs of the practice organisation. Currently some practitioners are working to high levels of expertise and responsibility without the authority required for complete expert

practice (Bamford & Gibson 2000). Expert practice requires control of the work environment so that workload can be self-managed, self-directed and self-prioritised (Bamford & Gibson 2000). Authoritative, credible practice is not an independent facet of the practitioner. There may be practitioners capable of expert practice who, because they do not practise in a conducive environment, may not be able to attain this level of workload and practice control. This is of particular importance when considering the inter-professional theme as, inevitably, there are some professions who traditionally hold more power than others, for example, medicine. The tighter the organisational and practice links are with medicine, the more difficult it might be for those health practitioners to be in control and fulfil this characteristic of credible authoritative practice.

### ***Credible evidence based practice***

Evidence based practice is required in order to promote practice credibility, (Steele & Fenton 1988, Cutcliffe 1997, Peden-McAlpine 1999). Evidence-based practice may initially appear to be at odds with individual frames of reference. The evidence-based practice of an expert does not totally rely on scientific evidence but also relies on measurable and descriptive evidence from experience. This culminates in humane, democratic, and adventurous practice, rather than that which is repetitious, ritualistic and task orientated. It is research-lead, incorporating theoretical, sound, research-based evidence and evidence from experience. This integration allows the anticipation of possibilities in interventions and outcome, which is crucial to successfully control clinical situations and use support mechanisms in clinical practice effectively (Steele & Fenton 1988, Peden-McAlpine 1999). The evidence for anticipation and interventions in expert practice would emanate from the culmination of rigorous research integrated with analysed and evaluated experience. This technique is useful to inform individual practice providing evidence for system and policy change (Steele & Fenton 1988).

### ***Credible patient centred practice***

This characteristic stems from the concept of thinking in “wholes” and, when applied to clinical practice, results in a patient centred approach. Expert practice acknowledges the unique patient situation (Jasper 1994, Peden-McAlpine 1999, Martin 2002) recognising the whole situation and acknowledging practice within the wider spheres of professional practice and the patient’s life (Hargreaves & Lane 2001, Day 2002, Martin et al 2002). Shepard et al (1999) highlight the ability of an expert practitioner to physically and psychologically focus totally on an individual patient despite a busy environment, perhaps facilitating functioning in “flow”.

A patient-centred approach, along with the ability to individualise and personalise practice, is appreciated by patients (Martin 1999). The inclusion of patients in decision-making and problem solving makes expert practice an interactive process between practitioner and patient, (Shepard et al 1999). This sharing of decision-making and problem solving allows an expert practitioner to confidently take informed clinical risks, act as a catalyst for positive outcomes for patients (Martin 1999) and practise safely (Shepard et al 1999). Since expert practice is based on a patient centred approach, such practice requires a practice context which values an integrated, personalised service and is appropriately organised to deliver this. This contextual relationship between service and practice is symbiotic, as practice in a patient-centred service enables a practitioner to further develop holistic practice skills. Expert practice not only incorporates patient-centred practice, but also patient-centred teaching.

### ***Credible practice which incorporates the facilitation of learning***

This characteristic clearly identifies the integration of education and expert practice. Not all aspects of education are found to have the same emphasis. Teaching and learning are featured strongly, with little reference to assessment. An expert practitioner can support and guide the development of less experienced professionals, identify learning opportunities and facilitate an enquiring approach from other staff in a multi-professional team, whilst simultaneously maintaining positive outcomes for the patient, (Steele & Fenton 1988, Martin 1999). This inter-professional approach to teaching and learning is seen as appropriate where there is a multi-professional team delivering the service (Bamford & Gibson 2000). Another key characteristic of an expert practitioner is sensitivity to other members of a multi-professional team to allow them to admit any lack of knowledge. Teaching is linked to credible practice because an expert practitioner is seen as an information resource facilitating the accessibility of research based information. For practitioners from the same profession as the expert, there is the additional educational function of acting as a role model (Brykczynski 1998). As previously discussed, the ability of a practitioner to articulate tacit areas of knowledge is perceived as essential in expert practice (Day 2002). This skill is essential when teaching others about practice.

### ***Credible practice within a defined clinical area***

The clinical boundaries of credible, expert practice are ill defined, with controversy over the extent of expert practice and associated issues of skill transferability. The latter aspect is discussed in the section on practice context. This section focuses on credibility and the extent to which the credibility of expert practice extends. There may be some clues gleaned from the papers by examining the practice contexts each describes. Clinical areas identified as

incorporating expert practice are mental health, palliative, intensive care, intensive care unit, fertility care, children's ward, surgical ward, medical/surgical, maternal/child, paediatrics, psychiatric, orthopaedic, geriatric and neurology. These terms give some idea about the extent, and potential barriers, of expert practice. Some boundaries are physical, for example those of a unit or ward; some are recognised medical specialisms, for example paediatrics and psychiatry; and some are components of service delivery, for example palliative and fertility care.

### ***Credible practice which incorporates effective communication***

Practice delivery is distinct from practice itself, as this is the manner in which practice is conducted. This characteristic focuses on the practitioner as a team member and their contribution towards the team's aims. In order for a team to be effective, mutual respect is required from each team member for each team member. The review highlights the importance of mutual respect and effective communication as key attributes of expert practice both of which affect how people work together to a common aim. Brykczynski (1998) identifies the influence on patient outcomes because the effectiveness of team collaboration in critical care has a direct impact on patient morbidity and mortality rates. Expert practice involves acting as a supportive team member in order to deliver collaborative care effectively, (Martin 1999).

Effective communication skills are used to carry out clinical practice and also inter-professional liaison, consultancy, education and networking, (Martin 1999, Bamford & Gibson 2000). An expert is capable of consulting, being an information resource, being physically and psychologically accessible and, in turn, using others as resources. This requires confidence in decision-making and the merger of knowledge, skills and experience into a particular manner of thought, creating a self-reinforcing format (Jasper 1994). The act of carrying out consultations makes expert practice more visible, expanding horizons, and is part of the self-reinforcement of expertise. Once consultations diminish, horizons start to fade with a loss of credibility and reputation. The consulting aspect of expert practice may involve patient and family advocacy and ensuring accurate and relevant information is available to health care professionals involved with a particular case, (Steele & Fenton 1988). Effective communication is a combination of clinical credibility and specialist knowledge, providing effective, complex, flexible, subtle, supportive, verbal and non-verbal communication with patients and families (Steele & Fenton 1988, Cutcliffe 1997, Martin 1999). Expert practice should facilitate the availability of clear and simple explanations for patients (Martin 1999). Communication is acknowledged as a two way process and the importance of listening skills is emphasised by one of the expert practitioner respondents in Shepard et al (1999),

*“Let the patients tell you. If you listen to patients and observe what they do, they will tell you everything you need to know.”*

The use of a range of effective communication skills is important. Negotiation and flexibility are key skills required to perform a number of balancing acts, as the expert practitioner balances the needs of the patient with those of the organisation and any mismatch in workplace and personal philosophies (Cutcliffe 1997). Martin (1999) identifies the importance of initiating change from within by challenging and introducing reflective practice, again requiring a broad range of communication skills.

## **5.5 Compatibility**

Credible knowledge and practice are insignificant if they are incompatible with the context of practice. This section is about the organisation of work, the customs and practice of the workplace, the level of independent practice achievable, the importance of matching time to the task and the harmony of individual and workplace philosophies. There is an underlying theme that, although there is public acknowledgement of the need for expert practice for nursing and AHPs, the practice environment may not be fully conducive to the development of expert practice and its efficient integration into the existing service. Adjustment to systems of work and work culture may be required in order for the service to fully benefit from and accommodate expert practice.

### ***Compatible practice context which facilitates and supports independent practice***

All practitioners function within boundaries and structures set by their employer. There is some debate about how conducive these boundaries and structures are in the initiation and maintenance of expert practice (Peden-McAlpine 1999). Expert practice involves working to an individually constructed framework of rules and strategies (Jasper 1994). This may result in the expert working against the social order of health care in what may be viewed as unconventional or maverick - dissenter actions (Martin 1999). Workplace culture, practice boundaries and organisational structures may not be able to support practice outside the normal limits of standardised protocols or negotiated clinical risk taking. An expert works independently to his or her own strategies (Jasper 1994, Shepard et al 1999, King & Macleod Clarke 2001). Knowledge and experience are used to construct a frame of reference forming the basis for pattern recognition which, in turn, promotes rapid decision-making, often described as “intuitive” ways of problem solving (King & Macleod Clark 2002). The frame of reference will vary from individual to individual, allowing the expert practitioner to view clinical problems as complete units and forming the basis of holistic practice, holistic

decision-making and a patient-centred approach. The practitioner needs to practise in an environment conducive to the use of individualised frames of reference.

Although the limits of expert practice are seen by some authors to be contextually derived, transfer to another area enables an expert practitioner to transfer some relevant characteristics (Hargreaves & Lane 2001). Successful transfer is dependent on the ability of the new practice context to support the maintenance of transferable characteristics and the development of non-transferable characteristics. Not only must the individual be capable of practising independently; the practice environment must facilitate the development and maintenance of independent practice (Bamford & Gibson 2000).

Development of skills and knowledge required in expert practice can be facilitated through organisational developments, protocol construction, and project work, (Martin 1999). This demonstrates the influence of the practice environment as its culture and organisation impacts on the development of skills and knowledge. Clear practice boundaries support the development of expert practice by clearly defining limits within which knowledge and clinical expertise can develop (Bamford & Gibson 2000). Also stated in the same paper are the further enabling factors: accumulation of experience, having a role model to act as a guide, peer support, an orientation programme, being an independent practitioner, being known to the rest of the team, an awareness of pre-existing gaps in the service, availability of training posts and educational opportunities.

Being an independent practitioner allows an individual to be creative and to develop the role required of expert practice. Bamford & Gibson (2000) also suggest that attendance at appropriate study days and/or flexible, clinically based courses that have clinically based forms of assessment can facilitate development within the post. Proposed topics for study are research skills, time management, publishing, contracting and business planning. In order to achieve this, practical assistance in terms of time and money is required.

### ***Compatible time/task allocation***

Context is seen as important in the development of expertise because there is a need for both time and opportunity for a practitioner to encounter a range of significant experiences, (Day 2002). The utilisation of time is a significant factor and the practice context needs to support expert practice in terms of time, tasks and provision for continuity of care. Some hidden aspects of expert practice are time-consuming and tedious, such as administrative tasks, and, whilst it is important for the practitioner to balance all requirements of expert practice, a realistic schedule needs to incorporate all aspects including the hidden tasks (Bamford &

Gibson 2000). The importance of experiential knowledge has already been discussed and it is important for practitioners to spend time with patients because it influences the practitioner's ability to accumulate and sustain the knowledge base required for decision-making. Practice contexts that fragment and depersonalise care reduce the level of decision-making abilities of an expert practitioner (Peden-McAlpine 1999). Expert practice can be facilitated or hindered by the practice context. Management was specifically identified as a "stumbling block" to the development of expert practice, particularly in relation to the incorporation of time to conduct research, an integral part of expert practice (Bamford & Gibson 2000).

Maverick and dissenter actions can isolate expertise (Martin 1999). A range of opportunities are required in order to counteract isolation, such as opportunity to attend conferences to assist the exchange and discussion of significant actions or events experienced by expert practitioners. Another way of preventing feelings of isolation is the use of a peer support group, (Bamford & Gibson 2000). Peer support is a vital component in minimising isolation and can be gained within the workplace and/or through attendance at patient conferences where practitioners can share those aspects of expert practice that have most influenced patient outcomes (Peden-McAlpine 1999). Confusion from team members about what to expect from expert practice and a sense of not fitting into an existing management framework can also produce feelings of isolation.

### ***Compatible philosophy***

According to Martin (1999), a facet of an expert practitioner is "being the right person". Integral to this would be the person's philosophical stance. Shepard et al (1999) found that all expert practitioners in their study held similar personal philosophies of health, and felt that working with compassion, modesty and assertiveness, using their skills to their fullest extent and empowering patients were important aspects of their practice. What a practitioner believes and experiences ultimately shapes their behaviour, and, as experiences accumulate, a practitioner's professional philosophy may become more selfless (Cutcliffe 1997). It is difficult to establish the main driver between philosophy and practice context as, at all levels, one will interact and influence the other. It is possible to have a host of practitioners who share a particular philosophy e.g. patient centred care, who cannot practise this philosophy due to the organisation, traditions or culture of the practice context. It can be difficult to accommodate personal and practice philosophies within some organisations, which would indicate that some practice environments might yield more expert practitioners than others (Cutcliffe 1997). Although expert practice requires a practitioner to be able to balance any mismatch that may occur, there are limits to the success that can be achieved. Ideally, the

philosophy of the practice context and those involved with service delivery should be in harmony.

### ***Compatible philosophy – caring and holistic nature***

A caring and holistic nature is core to expert practice. An expert's skills and knowledge should be used as tools of empowerment for patients rather than maintaining a patient's or carer's position of disempowerment (Steele & Fenton 1988, Cutcliffe 1997). Consideration of the patient as a person within his or her own specific social network is required in order to recreate a normalisation of the health care experience for the patient (Brykczynski 1998). An expert practitioner needs to practise with compassion, care about, rather than for, the patient, have a notion of "doing good", and work with, rather than on or for, the patient (Cutcliffe 1997, Peden-McAlpine 1999, Martin 1999). Associated with the concept of caring is that of striving for the best possible results for the benefit of the patient (Martin 1999). The holistic element of this characteristic is not only referring to holistic care but also to the understanding of functioning in a number of wider spheres, and how actions impact on the immediate, external, professional and work environments (Cutcliffe 1997). There is a temporal aspect to this form of holism as expert practice requires a form of long-term vision that allows possibilities to be anticipated and planned for (Peden-McAlpine 1999, Brykczynski 1998). This ability to visualise situations as a long-term part of a whole not only applies to the patients' situation but also to administrative objectives, human and financial resources, staff development and the wider community (Brykczynski 1998). Thinking critically and in wholes are dominant strategies in expert practice (Jasper 1994).

### ***Compatible philosophy – a critical mind of enquiry***

This is a key characteristic distinguishing expert practice from the "norm". Expert practice requires critical thought, and objectivity. This critical mind of enquiry is used to evaluate own practice, the practice of others, knowledge and self. An expert questions, critiques and does not accept face value but seeks to understand and discover appropriate theory and experience (Cutcliffe 1997). Thinking critically about data prior to application to the personal framework for decision-making and subsequent action is a "hallmark of expert clinical judgement" (Brykczynski 1998). Critical thought is a central characteristic of expert practice.

### ***Compatible philosophy – a seeker of knowledge***

An expert is inquisitive, thirsty for knowledge and seeks challenging opportunities to develop (Shepard et al 1999). This stems from an underlying belief that learning is a continuous, lifelong process and that knowledge can be drawn from the multi-professional pool to develop

and sustain practice (Cutcliffe 1997). Perpetual learning creates an individual who is open to new ideas that can be used to refresh practice (Cutcliffe 1997). This aspect of philosophy becomes more critical in times of change. Hargreaves and Lane (2001) identify it as a key feature when an expert moves from one clinical area to another. Although some authors argue that knowledge is not transferable outside a specialist area, philosophy certainly is.

## Summary

This chapter has explored government policy and priorities, and a definition of expert practice. The new career direction, culminating in consultant status offered to nurses and AHPs through current NHS policies, mirrors the medical model to some extent and, as such, can be linked to specialism and the process of specialisation. The essence of consultancy is embedded in expert practice for which few, clear definitions exist. The number of articles on expert practice has increased since Benner's seminal work in 1984 and is now sufficient to support the use of a systematic literature review on expert practice. Fifteen characteristics of expert practice have been generated from a meta-synthesis of data in 12 papers. Some characteristics overlap with the areas of a consultant's role identified by the Department of Health. For example in addition to expert practice, the role of the AHP consultant also incorporates professional leadership and consultancy; education, training and development; practice and service development and research. Expert practice as defined from the meta-synthesis incorporates many of these areas. It may be that the phrase "expert clinical practice" as used by the Department of Health refers to the time a practitioner spends with the patient or patient workload. If this is the case, the role of the consultant should be redefined, as there are a range of interpretations.

The review has identified two key themes, credibility and compatibility, each of which is divided into two components, knowledge and practice, and practice context and philosophy respectively. Characteristics of expert practice emerge from each component. Although discussed as separate entities a number of overlaps and symbiotic relationships have been identified. Some aspects of the self-reinforcing nature of expert practice have been explored; for example, credibility encourages practice that, in turn, expands aspects of knowledge.

All characteristics of credible knowledge are important. Recognition of expert practice may allow selective information and networking so that the expert practitioner has access to privileged information. The ability to move fluidly between the different characteristics is as much a part of expert practice as are any of the characteristics. The credible infrastructure of knowledge and practice needs to be embedded in a practitioner who has the relevant personal characteristics and who is employed in an organisation whose structure supports the characteristics of expert practice. Hence expert practice is not purely focused on the practitioner or the expert; it must take account of the practice environment, its culture and organisation. Although important, credibility of knowledge and practice alone does not constitute expert practice.

The notion of transferability of characteristics of expert practice is contentious. Some characteristics are more transferable than others are. Self-knowledge and personal philosophy are clearly as transferable as the individual practitioner and may be pivotal to the formation of expert practice. Some knowledge and practice attributes are contextually transferable. Successful transfer relies on the new practice context to support the maintenance of any transferable characteristics and the development of those considered non-transferable.

The importance of inter-professional credibility of knowledge and practice has been identified, along with the inter-professional facilitation of learning in the practice environment. This implies that all professionals will be required to be able to articulate their knowledge and practice skills in such a way as to be useful to, and understood by, a multi-professional team.

# CHAPTER SIX

## Methodology

### Introduction

The over-riding aim of this study is to examine the development of specialisation in diagnostic radiography. The time frame used for this study is 1932 – 2001. The first aim is to examine the contemporary ethos of specialism in diagnostic radiography. The second aim is to examine how the higher status of technology has developed over patient-centredness. The third aim is to examine the impact of the working relationship between radiology and diagnostic radiography on this development. The fourth aim is to examine the relationship between gender and the nature of occupation in the development of diagnostic radiography.

The epistemological stance for this study is mainly interpretivist with the theoretical perspective of critical theory. The methodology used is ethnography with data collection through semi-structured interview and data analysis guided by literature review. It is arguable whether this research constitutes a pure historical study given the chronologically stratified nature of sample access. However, some historical accounts do emerge and are addressed in a dedicated chapter on the hidden history of radiography, Chapter Ten. This study could arguably have roots in historical reality and, for this reason be represented as historiography. The historical nature and its associated implications for the study are discussed using examples drawn from literature.

### 6.1 Theoretical perspective

The theoretical perspective used for this research is critical theory. This perspective has been developed through the thinking of a group of German scholars collectively known as the Frankfurt School. According to Fay (1987) and Morrow & Brown (1994), the essence of critical theory is the scientific study of the evolution of social establishments through the interpretation of the meanings of everyday life, historical issues of dominance, isolation and collective struggle; and a critical assessment of society and visions for the future. Bronner (1994) celebrates the fluidity of critical theory by emphasising its acceptance into a range of professional disciplines. He describes how critical theory is no longer associated with a particular group of people but it has now flowed through the whole of society to address social injustices where there is a commitment to the sociology of knowledge and a willingness to confront old assumptions from new standpoints. Critical theory challenges diagnostic radiography to consider assumptions and perspectives that are generally taken for granted. Specialisms in diagnostic radiography have evolved over time and are now

assumptions that require challenging. To some extent, what constitutes specialist practice may be taken for granted. Critical theory with its emphasis on critical assessment of assumptions provides an appropriate way of thinking about and exploring specialism in diagnostic radiography.

Creswell (1998) suggests that the use of comparable, historic respondents is appropriate for investigations using a critical theory perspective. Incorporating the ideas of Fay (1987), Morrow & Brown (1994) and Creswell (1998), this study begins with a micro-ethnography of the world of diagnostic radiography, how the practitioners concerned experienced their world of work from 1932 – 2001. The focus is on how practitioners function within the hierarchical institution of an x-ray department, which parallels the hierarchical structure of the health service. Radiographers are a group of health care practitioners who are traditionally dominated by medicine and function mainly within the physical boundaries of an x-ray department. This research is a study of the culture of radiography and challenges the values that identify particular areas of practice as being special and are thus used to focus the career aspirations of diagnostic radiographers.

This study of specialism in diagnostic radiography requires an account and interpretation of the meanings of the everyday working life of the radiographer, the impact of dominance, isolation and collective issues in x-ray work and a critical assessment of what may be possible in the near future. Hermeneutics is concerned with interpreting meaning and such derived meaning will vary with individual circumstances. Hermeneutics developed into the theory of interpretation of meaning as a result of translating literature from different languages (Bleicher 1980). Interpretation can be subdivided into interpretive anthropology, symbolic interactionism and interpretive interactionism, the former being of pertinence to this study. Interpretive anthropology is an interpretive theory of culture that opposes the reductionist, structural-functional research framework of an ethnoscientific model. The more holistic approach offered through interpretive interactionism engages with the focus of this study allowing all items of relevance to specialism emanating from the data to be included.

## **6.2 Methodology**

The focus of this study is a relative concept and, as acknowledged by Plummer (1983), a humanistic approach is appropriate for investigating relativism rather than searching for absolutes. There are a number of humanistic research traditions offered by the human and

social sciences. Cresswell (1994) refers broadly to two main traditional categories, one identifies a typology for data collection, analysis and report writing and one alludes to an all-encompassing design that can be applied to all stages of the research process. In contrast, Jacob (1987) details six different design categories, Smith (1987) four, and Tesch (1990) twenty. This possibly demonstrates a growth in knowledge of qualitative design as its subdivisions become more and more academically acceptable. Classifications and categories of research methods have been heavily criticised and comments by Dingwall (1997) show that a lighthearted counter movement exists as he suggests three main ways of doing social research, “hanging out, asking questions and reading the papers”.

Cresswell (1994) details four commonly used designs in qualitative research, ethnography, grounded theory, case-studies and phenomenological studies. Bailey (1997) also proposes four, slightly different designs as the major strategies for human and social research, ethnography, case method, historical and unstructured interviewing. In order to study the relative concept of specialism, it is important to gain some insight into the value structures operating in the world of x-ray work. Ethnography is an appropriate methodological choice as it can be used to examine the beliefs, values and practices of a cultural group or a phenomenon associated with a specific group. In their book, Holloway and Wheeler (1996) discuss the traditional use of ethnography as the study of a small group of subjects in their own environment through the production of a detailed description and an interpretative account, which determines the significance of the detail. They describe how ethnography emerged as a way of studying the rules and patterns of culture of groups of people. Holloway and Wheeler (1996) outline the progress of ethnographic methodology from the anthropological study of isolated groups of people by a cultural stranger to the study of familiar culture “with the eyes of an outsider”. Greater depth is given by Vidich and Lyman (1994) who detail the origin, perspectives and progress of ethnographic study from the Western world discovery of the human “other” through a colonially dominated world, the Cold War and the study of the culture of an identifiable social or civic “other”. According to Holloway and Wheeler the definition of culture is,

*“the total way of life of a group, the learnt behaviour which is socially constructed and transmitted.”*

*(Holloway and Wheeler 1996 p82)*

In this study, the details allow understanding of radiographic practice and its value systems and open the study of specialism and specialist practice from the view of the practitioners.

Ethnographic research processes need to retain a flexible approach in order to respond to the lived experiences of the group being examined (Creswell 1994).

As suggested by Spradley (1979) a literature review is used to identify pertinent controls and resistances. This research explores perspectives on specialism in Allied Health Professionals (AHPs) and adds to the body of literature on radiographic practice and its specialisms. Using an ethnographic approach over a time period of around 70 years requires consideration of the historical perspective of the study. Social forces and attitudes have changed over this time period, as have the nature of professional issues. Placing events and concepts within the context of their professional history will increase the knowledge base of the profession and help to clarify the ideas and value systems on which practice and divisions of practice are founded (Schwartz 1992). Comparison of contemporary and historical theories can indicate the movement of ideas (Bailey 1997). The effects of the evolution of value systems underpinning radiographic practice and its divisions over time require some comparison between contemporary and historic perceptions. By probing the background to radiographic practice and its roots, the more will be understood and radiographers will be more able to contextualise current practice and its various dimensions. This research does not intend to chronologically stratify events but produce a descriptive account of the evolution of specialisms throughout the practice of diagnostic radiography. Such description needs to be based on the most reliable and appropriate evidence available and accessible (Matejski 1986). Retrospective investigations of this nature can be used to identify possible patterns and influences on practice that have produced change or, conversely, have resulted in inappropriately stagnant, or appropriately stable, aspects of practice. A lack of knowledge of the past can encourage the creation of superficial judgements about people and groups of people (Matejski 1986). This research will be of professional and social value. An increase in the knowledge of professional history can:

- provide transparency so that latent, detrimental influences on aspects of practice are identified;
- act as guidance so that past errors are not repeated;
- promote the understanding of professional stimuli, advancement, anxieties and ambitions of leaders and followers.

### **6.3 Sources and forms of evidence**

Primary sources of evidence are those sources that cannot be edited or changed (Gawronski 1985). Secondary sources are usually the results of the study of primary sources, however they are essentially sources of evidence that have been manipulated in some way (Gawronski

1985). In order to produce reliable and valid research findings, a predominance of primary sources needs to be used. Interviews of radiographers who can articulate their career experiences fulfil this purpose. A method of collecting data through interview about a person's experiences can be referred to as the collection of oral histories or life histories (Holloway & Wheeler 1995). However it is not the intention here to collect life histories. The key difference between oral history and life history is that the latter requires a minimum of 50 hours or 3 months for the collection of data from each participant (Bogdan and Taylor 1975). The research focus in this study is on the individual's professional life and professional experiences rather than on their life as a whole. As such, this method of data collection is more akin to oral history as its focus is on the work life of individuals as described by Atkinson (2002). A collection of oral histories is useful if the aim of the research is to explore the effects of change on people's lives and for multiple cases where a group of people is being investigated. Oral history also helps to understand a culture, its values and norms (Holloway & Wheeler 1996). The collection of oral histories, which describe a practitioner's professional life, would consequently be appropriate as a method of data collection to help to fulfil the aims of this research. The data set cannot be considered historical on its own as, only when it is appropriately contextualised, can a status of historical research be reached (Matejski 1986).

It would be naïve to assume that such data would render the whole truth about an area of life; however it gives insight into aspects of truth. The use of oral history as a research method has been developed since the 1930s and an oral history movement has emerged, giving rise to two journals that focus on this method. This research method has not been universally embraced and is challenged by both historians and sociologists. Oral history collection can only be achieved by accessing "modern" day people and, as such, gives rise to the accusation of marginality towards the modern day. For the purposes of this study, oral histories are appropriate as they allow access to those practitioners' experiences that span the time equating with the emergence of the imaging professions. The oral history method is criticised on two counts. One for saying more about the present than the past and secondly, it is branded as trivial as this form of data collection results in a large amount of data that will never be used in research (Thompson 1978). Nonetheless, intellectual arguments resulting in institutional and intellectual legitimisation have given general acceptance to this method of data collection that generates data related to the experiential, the detail and the particular. How people grasp and make sense of their professional world is a key feature of this research. An analysis of the experiences and attitudes of an individual radiographer can generate data and basic facts that may not be exclusive to the individual and can be regarded as examples of a broader classification of data and facts.

The issues generated by the literature cannot be conceptualised as separate or absolute entities. They are not objective and cannot exist independently of the experience and practice environment of medical imaging. Essentially they are characterised by a cultural system of practice, concrete experience and human interaction. Professional history research enables a concentration on a dual focus of historical change that cannot be achieved using other means of data collection (Plummer 1983). The duality is represented by the interaction of the micro experience of an individual radiographer's activity, values and attitude within the macro environment of the health service and society's culture's activities, values and attitudes. A recent development within the macro environment provided by the health service pertinent to this study is the creation of the role of consultant therapist. Social forces related to gender have been explicitly highlighted in the literature review and the professional effects of gender are examined. Most importantly of all, oral history will give a voice to those who are rarely heard, the practitioners themselves forming a historiography of radiography.

#### **6.4 Sample**

Criterion-based, purposive sampling was used, as ethnography and historiography require that participants should be able to offer specific and detailed accounts of the culture rather than elicit a representative sample (Goetze & LeCompte 1984, Coyne 1997). In keeping with a qualitative approach, the sample size of 31 was not chosen prior to the study but was discerned during the data collection process through replication and confirmation of data as suggested by Meadows & Morse (2001). Achieving saturation demonstrates the possible production of a complete picture with some explanations for what is producing it. When collecting oral histories, those people who are accessible and able to participate in a productive manner in this research govern the sample size used for data collection through oral history. Due to the location of participants during their practice, this study focuses on a geographical area that spans from North Wales across the North West through the Midlands to the east coast of England and covers the years 1932 to 2001. Please see Appendix B for details of participants and p97 for a list of Leading Voices.

#### ***Sampling strategy***

Respondents needed to be able to provide as accurate a picture as possible, be reflective, articulate, able to commit time for the interview and be willing to participate in the study (Morse 1991). Reliable historiography was dependent on identifying reliable and trustworthy sources (Bailey, 1997). The sample was mainly identified using snowball sampling (Biernacki & Waldorf 1981). Although used widely in sociological research, snowball sampling tends to have been used primarily to reach potential participants when the research

topic is of a personally sensitive nature such as drug abuse or deviant behaviour, making access to participants difficult. As retired radiographers are such a small group, issues associated with snowball sampling, initiation, progress and termination of referrals, were not problematic. All participants accessed through the snowball method were eligible and all except one agreed to take part in the study. In total there were 31 respondents, 10 of whom were suggested by Specialist Interest Groups affiliated to the Society of Radiographers as leading voices for specific fields of practice.

### ***Ethical issues***

Ethical issues have to be considered in all research studies involving human subjects. In qualitative research, informed consent is identified as an issue, as consent is usually gained prior to data collection (Robinson & Thorne 1988). Participation in this study was voluntary and all participants were given the opportunity to withdraw at any time. Contact was usually made via a third party with contact details of the researcher being given to the prospective participant to contact the researcher should they wish to participate. Once the prospective participant had contacted the researcher each was told the aim of the study, that the study would form the basis for a PhD thesis, how much time would be required and that anonymity and privacy would be maintained, not only for himself or herself, but also for any person or institution that was mentioned during the course of the interview. Consent was gained for publication of anonymous data. All participants had contact details that could be used to withdraw from the study at any time and each was sent a copy of the transcript from their own interview. The purpose of this was threefold. Firstly the participant could read the transcript and make any changes they wished to make if they felt that there were any inaccuracies or misinformation or if they wished to withdraw personal information volunteered during the interview. Secondly, the transcript reflected their experience and, as such, was the property of the individual. Finally, this was also used as a validity check.

Subsequently, further interviews were recorded onto an audiotape that was sent to the participant (with one exception, as the individual did not possess a tape player). All interviews were overtly recorded with the participant's permission. Many showed interest in the minidisk system used, as it was new to them. All participants are anonymous and pseudonyms have been used throughout the study, not only for participants but also for those individuals and identifiable institutions mentioned in the interviews. Confidentiality is maintained throughout, as only the researcher has access to the raw data. Many commented that anonymity was not necessary, however it has been maintained to protect those professionals and institutions featuring in responses.

### ***The tool***

Interviewing is the data collection strategy used, sometimes in conjunction with other methods, for ethnographic research (Bailey 1997). Semi-structured interviews were used in a similar manner to Burgess's "conversations with a purpose" (Burgess 1984). The data produced by these purposeful conversations are accounts of people's thoughts and experiences, their interpretations and understandings, and, as such, should not be classified as "true" (Mason 1996). Data produced by interviews are social constructs that are the product of interaction of the participant, the researcher and the subject matter (Dingwall 1997). The interview protocols were designed to elicit the information required to meet the aims of the research. For the oral history collection, a thematic, topic-focused, biographical approach was used for the protocol to guide the thoughts of each participant. The sequence of questions was flexible, as some participants covered different topics at different points in the interview whilst describing moments during their careers. A schedule of questions was used for each interview, although wording and sequence changed, as guided by each participant's thoughts and recollections. All interviews were conducted in an informal manner in order to produce a conversational atmosphere and put the participant at ease. Open-ended questions were formulated in order to frame the oral histories (Bailey 1997). In historiography, pilot studies are not feasible; if the tool used to collect the data or the data collection is not appropriate for some other reason, recollection of past events is not jeopardised and other data collection methods may be employed (Bailey 1997). It is generally accepted that a variety of data collection methods and data analysis methods are tried until appropriate ways of data collection and analysis are found (Bailey 1997).

There is a slight difference between the purpose of a semi-structured interview and an oral history (Fontana & Frey 1994). The semi-structured interview has a number of open questions forming the interview schedule whereas oral histories tend to produce long stretches of dialogue. The first interview was carried out using few questions but it soon became apparent that respondents needed a clearer framework of open-ended questions with a more specific focus to which they could respond. Some respondents have such a rich career history that to record all that they could talk about would have taken an inordinate amount of time and not all the data would have been relevant to this study. Many respondents, when first approached, specifically asked for a safety net of questions. Some respondents were reluctant to be interviewed until assurance was given that a predetermined set of questions would be asked. Participants were keen to represent themselves as part of the radiographic community for the purposes of the research.

The questions were designed to elicit information about what, in the experience of each participant, constitutes, or constituted, normal, usual practice, specialist practice and what the relationship with medicine is/was like. For the oral history collection, the original idea was that participants would be asked to describe a typical day; however, this proved to be too difficult for them to be able to frame a response and questions identifying boundaries were needed. The questions were sequenced so that personal data was given at the beginning to put the participant at ease. These were followed by questions that chronologically charted the career progression of the participant, starting with questions about why each had chosen radiography as a career, then training, qualification and career progression. This mirrors the general to specific sequence suggested by Fontana & Frey (1994). Please see Appendix C for the interview schedules used. Overall, few questions were used and participants were encouraged to tell their own story using their own words (Holloway & Wheeler 1996). Details of the relationship between questions and project aims are given below.

Table 3 Relationship of interview questions and project aims

Interview schedule for retired and current practitioners		Interview schedule for leading voices	
Question number	Aim	Question number	Aim
9-13	1	1-5 13-18	1
5, 6, 7, 8, 9 11-13	2	10-12	2
16, 17	3	6-9	3
1-8 15-17	4	4	4

### 6.5 Trustworthiness and rigour

Trustworthiness is about the credibility, transferability, dependability and conformability of the research (Lincoln & Guba 1985). Rigour and trustworthiness is maximised through the data collection and analysis processes. Credibility relates to the truth-value of the findings and qualitative researchers tend to check findings with participants. Findings from this study were checked with some participants as they occurred and their trustworthiness was discussed where possible. The main issue is not historical truth but subjective reality giving more of an emphasis to trustworthiness rather than truth (Atkinson 2002). Trustworthiness and rigour rely on internal consistency and coherence, acknowledgement of the importance of reflexivity and being true to the data and its context. External criteria of truth and validity have less

emphasis in this study than the internal coherence of the subjective experience. The coherence of statements throughout the interview gives a primary check for internal consistency. This is usually carried out during the interview itself as, if any differences are noted, checks can be made. Alternatively, differences may be noted during transcription and/or analysis and, during this study, the researcher contacted three participants for clarification of differing statements. This internal criticism is required in order to address the issue of credibility (Matejski 1986). Words and expressions may carry a different meaning over time and such words must be identified so that their interpretation can be used to construct an accurate picture of events (Matejski 1986). Where this occurred, clarification was sought during the interview process. Evidence in the form of oral histories can be clouded by time and it is usual to corroborate any evidence given by an eyewitness by using another eyewitness (Matejski 1986). This was only possible with two practitioners.

The role of the qualitative researcher is to provide enough data for the reader to make decisions about whether the findings can be transferred to the reader's own context. The rich diversity of past and current practice and the personal and professional impact of respondents and their colleagues on individual experiences are limiting factors in this research when considering transferability as the study is context-bound. It would not be valid to ascertain detailed descriptions and claim that the detail is transferable to all diagnostic radiographic practice. However, what is achieved is a general framework into which further detailed analyses can be placed. Historical data is collected using rigorous, systematic procedures to collect, organise and analyse historical data. Past events are critically investigated and the validity of evidence, interpretation of evidence and its documentation is carefully measured (Bailey 1997). A historiographer in diagnostic radiography is required to know the context of past practice, the accepted concepts on which that practice is based and how the practice affected diagnostic radiographers, both current and past practitioners.

Narratives in the form of oral history are an interpretation or modification of reality and not a factual account of events (Holloway and Wheeler 1995). However part of the account will give meaning to what happened. Participants focused on those events and actions that influenced them or made a strong impression and their accounts create a powerful way of gaining insight into the world and experiences of practitioners. Any progress in practice can be depicted in the interdependent relationship between facts and values (Carr 1987). This reciprocal process required in-depth consideration in the collection of data, its analysis and interpretation. Facts cannot totally be derived from values as, in the process of interpretation, the interpreter's values shape the initial translation. Similarly, values cannot totally be derived from facts unless the environment within which the fact exists is taken into consideration.

This contextual perspective is an extension of Carr's definition of history that is based on the interplay of researcher and fact within,

*“an unending dialogue between the present and the past”*,

*(Carr 1987 p30).*

In order that all efforts are made to produce findings that are as valid and reliable as possible, an essence of subjectivity needs to be declared. Claims of objectivity could be spurious (Porter & Wear 1987). It is possible to control individual bias by developing and using a theoretical framework as a basis for developing the research and analysing and interpreting research findings (Matejski 1986). The literature review provides the theoretical framework used.

Quantitative research holds the concept of reliability as a measure of research quality but the qualitative researcher uses the concepts of dependability and confirmability (Holloway & Wheeler 1996). The qualitative researcher acknowledges that the data analysis is individual to that researcher and that if any other researcher should attempt an analysis, a different picture may emerge from the data. Conforming to the concepts of dependability and confirmability requires the qualitative researcher to describe the processes used in as much detail as possible and to use primary data as examples on which decisions have been made. Research using a descriptive analysis must remain true to the data by placing the human experience within the timeframe of its occurrence (Matejski 1986). It is therefore important to set a time frame and for the purposes of this study this is 1932 – 2001. Although dates provide the time frame, as history does not occur in isolation, it is important to consider aspects of the professional organisation and practice that are pertinent to the period. For example, nursing history can be studied within the context of social needs and constraints, scientific innovation of the time and the political climate (Matejski 1986).

Data rarely portray a simple unequivocal fact (Locke, Silverman & Spirduso 1998). The complexities of relative values, diversity of practice and the fact that health care workers function within a complex culture add to the intricacies involved in this research. Similarly, the analysis and interpretation of data may not generate simple facts. The results of this research must be viewed as a baseline from which further research may be launched. The findings will be placed in the context of what is already known about specialism in medicine and the past and current practice of diagnostic radiography. The constructs of medical specialism are, to some extent, a synthetic necessity but they are a necessary requirement as diagnostic radiography functions within the context of medicine and the complexities of its

individual specialisms. The relationship between identified specialisms in diagnostic radiography and those in medicine is intricate as, in practice, there is the intervening factor of radiology, itself a medical specialism. The complexity of medicine and its specialist divisions gives rise to the medical models in this research. The key function of these models of specialism in medicine provides a baseline that can be used to assess the direction of practice and its relative influences over time.

## **6.6 Data analysis**

Theoretical models of specialism in medicine are used as an initial point of reference to determine and identify which aspects of the transcripts should receive in-depth exploration and scrutiny. The amount of data collected was much more than the researcher required for the purposes of this study. This is identified as good practice, as it provides a broad expanse of data to draw from (Bailey 1997). An understanding of past practice is required to interpret sections of oral histories helping to recontextualise past practice into a new dimension. These are presented as narratives that situate past practice in a theoretical context so that current practice can be better understood (Bailey 1997). The first procedure to be employed should be to separate opinion or distortion from fact. The purpose of analysis is to search for meanings in the transcripts so that the data is transformed into academic research (Holloway and Wheeler 1995).

When exploring past events that promote a better comprehension of the present status of specialist practice, a behavioural approach could be considered as appropriate (Matejski 1986). This is a complex approach where an analysis of events needs to be reconstructed within the appropriate time context and not within the context of present day understanding. Using this approach, both the person and their environment must be studied as a single entity in the analysis. Any interpretation must take into account how participants saw themselves, used their environment, demonstrated their values attitudes and beliefs and how they interpreted their environment. This approach requires knowledge of participants' professional lives, their reason for and interpretation of practice and the practice environment. Symbolic behaviours do not give a full inference of a person's values and drive but, in addition, non-symbolic behaviours need exploration to provide a full picture. Any interpretation of data are required to be conducted with the full understanding that these are views of the world through the eyes of others in a different period of time (Matejski 1986).

In order to interpret the data, the interpreter needs to formulate inference and logic on which to base a sound understanding of the data to form arguments (Bailey 1997). Argumentation is a process that begins with a premise and ends in an argument using inferences drawn from

the data, in order to build an end picture in a systematic and logical manner (Bailey 1997). The procedure illustrates the researcher's understanding and use of the data and its context. Facts act as the mould that shapes the argument and, in order to produce a reliable report, data should be approached with an open mind. This research is concerned with the description of conditions surrounding practice and exploring associations that give rise to emerging recurrent sets of features (patterns) and topics for discussion (themes). Patterns emerging from the data can be used to infer a general principle, similar to the approach used in research based on a study design using grounded theory. Logical generalisations can be drawn from emergent patterns that are based on sufficient data and do not venture beyond the scope and nature of the data.

A wide range of approaches to narrative analysis is evident in the literature being drawn from a variety of sources, e.g. anthropology, ethnomethodology, philosophy, psychology, sociolinguistics and sociology (McLeod & Balamoutsou 2000). The aim of the analysis is constant no matter which approach is used. The aim is to honour the stories and to give meaning to people's experiences and their lives (Embden 1998a). In this study a narrative is identified as a long portion of talk in which an interviewee is telling a story (Lucas 1997) which has a beginning, middle and an end (Riessman 1993). Deductive analysis is used initially, followed by narrative analysis. It was reasonably straightforward to go through the results of the deductive analysis and select such stories. In addition, the narrative analysis approach is also applied to the transcript as a whole in an attempt to remain true to the data. Using the results of the deductive analysis, this was achieved by becoming familiar with the data through listening and reading, removing all extraneous material from the text including interviewer's questions and comments and those interviewee comments that detract from the essence of the what was being told (Embden 1998b). This approach highlighted a number of other stories that can be included in this study. Please see Appendices D and E for details.

## **6.7 Design issues**

Accessing an appropriate sample was challenging. In addition to current practitioners, the study required respondents who had started to practise radiography in the 1930s, '40s or '50s and who could articulate the micro picture of practice. Further criteria for inclusion were that a respondent had to be able to provide as accurate a picture as possible, be reflective, be able to commit time for the interview and be willing to participate in the study (Morse 1991). It is unusual to be able to access first hand informants who practised so long ago. However, in this case it was a possibility.

The first aim was to find informants whose practice began as far back as possible and then work forwards in time, covering as wide a span of time as possible. It is logical to assume that informants whose practice began in the 1930s would be more difficult to find than others whose practice began more recently. The first practitioners found for the study began their practice in the 1970s and further practitioners were identified whose practice started in the 1930s, '50s, and '60s and in each subsequent decade through to 2000. This provides a reasonable time span for the study. The point of qualification was planned as the defining characteristic so that respondents could be placed in a particular decade. This did not prove to be possible as some practised, quite autonomously, prior to gaining a qualification and some achieved more than one qualification of competence in radiography. It was also important to have a reasonable distribution of gender. The second aim of the sampling strategy was to, as near as possible, access two female and one male practitioner from each decade, as radiography is a mainly female profession. This aim was not achieved in totality, perhaps reflecting the gender distribution at that time, but practitioners were accessed whose combined practice covered a broad span of time.

The first retired practitioner was contacted as (s)he was known to me and it soon became apparent that retired radiographers form their own network. Five respondents who were retired practitioners were accessed via this informal network. None were from the same local area. Each of them knew of the existence of the others and two exchanged annual correspondence. Each respondent was asked if they knew of another practitioner who might be willing to participate in this research. This is a form of snowball sampling or chain referral sampling (Biernacki & Waldorf 1981). All participants accessed through the snowball method were eligible and all except one agreed to take part in the study.

Whilst most retired respondents have a vast number of practice years, from 29 to 47, two have short careers of radiographic practice. Bonnie and Alice have 6 and 7 years practice respectively and are useful for giving snapshots of those particular times and can be regarded as uninfluenced by changes happening at later dates. A current practitioner, Carole, was able to describe her working world during the 1960s prior to her taking a break from radiography. Similarly, the three most recently qualified radiographers, Christopher, Jane and Caroline, provide the most current snapshots of the working world of diagnostic radiographers.

Deductive data analysis of 31 interviews initially reduced the data into four categories, the norm or usual; the working relationship with radiology and other areas of medicine; notions of specialism; and social forces including the influence of war and gender. This resulted in four large data sets requiring further reduction prior to interpretation. Each data set was

## Summary

This study is designed using the principles of humanistic research through the collection of data from 31 participants whose collective experience spans the years of 1932 – 2001. Changes to career development opportunities available to all AHPs have resulted in the new role of consultant radiographer. Critical theory provides the theoretical perspective for this study as it interprets the meanings of the everyday working life of the radiographer, issues of isolation and the impact of hierarchy. An ethnographic approach is used to examine the experiences of radiographers in order to understand better the value systems on which divisions of practice are based. This methodological approach helps to identify patterns and influences that have precipitated change or have produced stagnation. Identification of such influences may help to guide future strategic developments. The micro-ethnographic picture of the working life of a radiographer gives a voice to those who are rarely heard in their own words and is collected through interviews with 31 practitioners.

Criterion, purposive sampling is used to identify a suitable sample and attention given to ensure that, as far as possible, a broad range of time was covered and that there was opportunity for a realistic majority of women to contribute to the data collection. Snowball sampling was used to identify suitable respondents for data collection. Ethical issues were identified and strategies for dealing with such issues were formulated and put into practice. Semi-structured interviews were used to collect data from the 31 practitioners, 10 of whom were identified as leading voices. Deductive analysis was used to identify what constituted everyday practice and to examine the relationship of radiography with medicine.

Qualitative research has the capacity for greater explanatory power as it focuses on the lived experiences of people using a holistic perspective. In order to collect valid data, it is important to design the study so that respondents can choose and use their own words. The purpose of qualitative research is to produce a study of enquiry conducted in a natural setting in an attempt to interpret the routine and the unquestioned or doubtful. As what constitutes “routine” and “doubtful” may hold different characteristics for each individual respondent, qualitative data will provide an insight into the nature of practice and working relationships that could not be demonstrated using a quantitative approach. Qualitative research facilitates the explanation of beliefs and value systems within the context of exceptional and exclusive practice, i.e. that which implies a specialist area of practice. In-depth interviews were conducted using a semi-structured schedule that incorporates both closed and open questions.

For the time-frame of 1932-2001, three practitioners who began their practice in each decade from 1932 were identified. Not all were from the same geographical area. A purposive sample was used, as respondents needed to provide as accurate a picture as possible. Identification of respondents was an issue as, to complete this research fully, it was necessary to locate people who practised in the 1950s and who are able to provide data. Snowball sampling was used to identify a small number of participants whose practice began in the 1930s and 1940s. Overall, 31 practitioners were interviewed. The interviews were recorded and transcribed. The 31 interviews were analysed using a deductive approach originating from the literature review allowing effective reduction of the large data set without loss of context. An inductive approach using thematic analysis was then applied.

The identity of all participants is protected by the use of pseudonyms for people, places, hospitals and groups and information collected is kept in the strictest confidence. The outcomes are plausible ways of viewing the culture and value-systems of diagnostic radiography that have influenced notions of specialisms and, as such, are suggestive rather than conclusive.

# CHAPTER SEVEN

## Findings - the contemporary ethos of specialism in diagnostic radiography

### Introduction

The nature of specialism in diagnostic radiography is not easily defined being a relative concept as is expert practice. The terms “specialist” and “expert” are often used synonymously (Sutton & Smith 1995). As radiography moves towards establishing the consultant radiographer, it is important to define the characteristics of expert practice, as this constitutes 50% of the consultant’s role. Current understandings of the consultant’s role may be based on the medical model with associated issues of power. In this chapter, the model of expert practice created from a meta-synthesis of research studies is used to examine ten fields of specialist practice in radiography to try to determine where expert practice, as defined by the model, might exist. Any extraneous fields can be examined using the model as a guide. This chapter discusses the findings from responses to questions related to the first aim.

Table 4 Questions related to the first aim

Interview schedule for retired and current practitioners		Interview schedule for leading voices	
Question number	Aim	Question number	Aim
9-13	1	1-5 13-18	1

### *Model of expert practice*

This model of expert practice is generated from the meta-synthesis of 12 primary research papers and identifies fifteen characteristics of expert practice originating from two key themes, credibility and compatibility. According to the model, expert practice in radiography requires:

- credibility with the main stakeholders who may be local, national and/or international.
- knowledge and practice that are credible within the relevant field of practice.
- compatibility with the practice context.
- compatibility of the philosophies of the practice environment and the individual expert practitioner.

An outline of the model is given overleaf. It is important to point out that this chapter does not argue that practice must comply with all characteristics to be recognised as expert. The more

practice complies with the characteristics, the more likely it is that such practice could be considered as expert.

Table 5 Model of expert practice

<b>Theme</b>	<b>Component</b>	<b>Characteristic</b>
Credibility	Knowledge	Formal knowledge
		Craft knowledge
		Contextual knowledge
		Self knowledge
	Practice	Authoritative practice
		Evidence-based practice
		Practice within a defined area of practice
		Patient centred practice
		Practice incorporating the facilitation of learning
		Practice incorporating effective communication
Compatibility	Practice context	Facilitating and supporting Independent practice
		Time/task allocation
	Philosophy	Caring and holistic nature
		Critical mind of enquiry
		Seeker of knowledge

Fields of specialist radiographic practice examined are:

- Forensic LV1\*
- Ultrasound LV2
- Angiography LV3
- Mammography LV4
- Contrast agent studies LV5
- Paediatrics LV6
- Nuclear medicine LV7
- Magnetic Resonance Imaging (MRI) LV8
- Radiographer reporting LV9
- Trauma LV10

\*The LV number denotes the Leading Voice

## 7.1 Discussion

The two themes of credibility and compatibility structure the application of findings from the meta-synthesis to fields of diagnostic radiography. Each thematic component is subdivided into components and characteristics of expert practice for discussion. A comparison of findings with the theoretical model forms the major part of this discussion. The measure of model fit is discussed within each characteristic with further reference to the theory of radiographic practice where appropriate.

## 7.2 Credibility

The expert radiographer should be able to provide evidence of formal, craft, contextual and self-knowledge at Masters or Doctoral level covering the characteristics identified in this meta-synthesis. Some Masters courses are solely focused on skill acquisition, for example, on imaging modality or radiographer reporting, and therefore may not fulfil all characteristics required for expert practice. In some fields of practice radiographer credibility is evolving in a positive way.

*“I think we are given a lot more credit for what we know. Because of how we have got involved in training other radiographers and how we have moved forward ourselves in maintaining our level of CPD in going on study days that we want to go on. In promoting a Special Interest Group in getting involved with study days and conferences and doing things like that, we’re given credit for that role.”*  
LV5 p344 Appendix E

## 7.3 Credible knowledge

A current shortage of radiologists and an increase in referrals for imaging has resulted in the offloading of tasks traditionally performed by radiology to appropriately qualified radiographers (Royal College of Radiologists 1999). Formal professional qualification assists radiology to comply with the Royal College of Radiologists’ guidelines (1996) on task allocation. According to the guidelines, the radiologist needs to be certain that a person performing offloaded tasks is competent to do so and a professional qualification could identify suitable individuals. A consultant radiographer, who, by definition, is also an expert practitioner, requires a breadth of knowledge extending across four dimensions identified in the meta-synthesis. In forensic radiography, expert practice would also clearly need to incorporate the requirements of an expert witness.

*“..you could envisage there being a forensic radiographer in that sort of grade, of a consultant. An individual who has built up a huge body of knowledge and who is able to offer advice and perhaps go to court and testify and say in my opinion....”*  
LV1 p327 Appendix E

The level of credibility required for different stakeholders varies from field to field. In mammography, the national breast-screening programme requires clear public credibility, as achieved through nationally credible certification and standards of practice. The expanding radiographer's role in mammography requires local credibility from radiology, partly achieved through certification and partly by in-house training by the radiologist concerned (LV4). Radiographers working in angiography require more concrete support from the professional body and recognition from local hospital management who fail to acknowledge the potential of radiographers (LV3). This local lack of recognition of what radiographers can offer is a recurring theme. In ultrasound, radiographer led contrast agent studies and radiographer reporting there is increasing awareness of the potential of radiographers outside the confines of the medical imaging department, due to constructive local networking (LV2, LV5, LV9). This highlights the importance of articulating credible, contextual knowledge.

### ***Credible formal knowledge***

Some fields do not have a specific body of knowledge but draw from that of other professions. Bodies of knowledge, and subsequently expertise and expert practice, can therefore be transferred across professional boundaries but in the case of forensic radiography,

*“We, I think, are in the situation where actually nobody's got the body of knowledge...”*

*LV1 p327 Appendix E*

There is a lack of formal knowledge in forensic radiography. Few textbooks exist to support practice and little research has been carried out. A similar situation exists in angiography whereby there is a lack of specific textbooks for radiographers, although many are available for medicine. Formal courses for radiographers in angiography are emerging but are currently in their infancy. The lack of courses in the past has made managers sceptical of the ability of some radiographers to significantly contribute to this field (LV3). As the role of the radiographer working in angiography expands to become more invasive, evidence of credible knowledge and practice will become increasingly important. Multi-professional credibility is required before expansion can occur due to the multi-professional nature of angiographic work.

Paediatric radiography is in a similar situation to angiography in that there are few specific textbooks and a lack of appropriate courses.

*“I think there should be much more in the way of postgrad courses and more content in the undergraduate courses”*  
*LV6 p349 Appendix E*

Trauma radiography, again, is in a similar situation primarily because it is a relatively new field of medicine. Due to its embryonic nature, it is difficult to find suitably experienced and qualified people to teach on formal courses.

*“....trauma is so embryonic, and lacking evidence,....and that is an issue I don't think educational establishments are used to having...”*  
*LV10 p370 Appendix E*

It can be difficult to find traditional, university-based courses capable of supporting emerging practice and alternative, clinically acceptable educational practices are also emerging.

*“Dr Brown (pseudonym) needed some help with the biopsies, so we attempted to get on a radiologist's course but that was cancelled the day before at (city) and again there was no course in the headlines or in the offing, so Dr Brown decided to do some in-house training.”*

*LV4 p340 Appendix E*

For some fields there is an established, credible body of knowledge that is recognised both within and outside of the profession. In ultrasound and mammography formal knowledge is required to demonstrate competence in that field (LV4). Although local initiatives may act as initial catalysts to expert practice, the supportive role formal education plays remains crucial (LV9). There is an inextricable link between formal and craft knowledge.

The field of nuclear medicine has been supported by formal courses for over 40 years and is well established. Not all fields of radiography have such lengthy history and a high rate of course development is required in emerging fields to help radiographers establish credibility. Postgraduate courses are widely acknowledged as providing a tried and tested foundation of knowledge on which a radiographer can build their practice.

*“...get radiographers through a postgraduate qualification because that's accepted. Whether it's the referring clinician or radiology colleagues, it gives them an inherent level of skill and if we can get that accepted .....*  
*LV9 p365 Appendix E*

Traditional courses such as those focused on imaging modalities can be compartmentalised to produce packages of formal learning to support imaging in patient centred areas such as mammography and A&E. This would require professional acceptance of segmentation of accepted specialisms.

*“I’ve spoken to Edna and Jackie (pseudonyms) and no problem at all, they can put together a 3 month course (in ultrasound) where radiographers are taught to do 3 or 4 things to suit the A&E environment.”*

*LV10 p370 Appendix E*

This demonstrates the possibility of a role for the radiographer of providing a patient-centred service using a number of imaging modalities within a service context.

### ***Credible craft knowledge***

The ability to gain craft knowledge is variable throughout all radiographic fields and is dependent on opportunity and service organisation. There is a lack of craft knowledge in forensic radiography, because few opportunities exist to gain the experience necessary for the relevant craft knowledge needed for expert practice.

*“...but there are lots of branches of radiography people in district general hospitals doing it not every day but maybe once a month or once a year...”*

*LV1 p326 Appendix E*

Credibility of craft knowledge emerges as a key issue. In radiography, credibility is required with a wider range of stakeholders than what emerges from the meta-synthesis. National and international stakeholders, such as emergency planners and the United Nation teams who are used to locate and establish evidence of war crimes in Bosnia, are key stakeholders in the field of forensic radiography (LV1). It is essential that those wishing to become recognised as expert forensic radiographers gain that knowledge and practice which hold national and international multi-professional credibility.

Adequately trained radiographers with an appropriate qualification in forensic radiography would enhance the credibility of this field of practice, enabling the formulation of a register for use during times of local, national and international crisis. This would give radiography an equal footing with other professions involved in such crises instead of being an afterthought.

*“A national disaster plan which involved radiography from the beginning as opposed to being bolted on at the end like it was in places like (disaster scene)....”*

*LV1 p327 Appendix E*

Here is an example of the self-reinforcing format of expert practice. A register would ensure forensic radiography is encapsulated so that a specific number of radiographers can amass enough practice to gain the craft knowledge to be perceived as credible, expert practitioners by the major stakeholders. It is important that major stakeholders for any specialist field of practice are fully aware of what radiography has to offer. “..other professions really had no

idea of what radiography could do for them.” LV1 p227 Appendix E. This suggests that radiography has a level of invisibility that impedes its ability to contribute effectively. This ignorance of radiographic skills and potential development is echoed in the fields of angiography and radiographer reporting.

*..and they've all accepted it. Wholeheartedly. Once they realised quite how intensely we did work and what our level of knowledge was. “..it was the fact they (doctors) didn't realise quite the expertise the radiographers already had that needed developing, with assistance, but if that assistance was available there was no problem with developing in those areas...”*

*LV9 p366 Appendix E*

Multi-professional credibility of practice has been taken a step further in ultrasound with the formation of the United Kingdom Association of Sonographers (UKAS). A zoologist spurred on its foundation to produce a multi-professional group supporting anyone who uses ultrasound imaging clinically. UKAS offers advice on training, practice and has written guidelines on reporting, technique and also offers insurance for indemnity.

Often referred to as extended role, movement in craft knowledge is expanding rather than extending. Extension implies movement along one plane of direction whereas expansion moves in any direction. In angiography and mammography this includes radiographer-led invasive procedures and additional tasks such as image interpretation, mark-ups and ultrasound (LV3, LV4). Non-medical image interpretation in all fields requires provable regular practice to maintain expertise.

*“There again to maintain that you must read so many films throughout the year. It is approximately 100 per week so we all have an allocated day to film read.”*

*LV4 p340 Appendix E*

Once credible craft knowledge is established, it can self-perpetuate, as some characteristics of expert practice seem to have this inherent energy. It is difficult for non-medical professionals who are taking over tasks previously undertaken by medicine to establish credibility without formal proof and self-audit.

### ***Credible contextual knowledge***

Many interviewees did not specifically mention contextual knowledge in terms of local knowledge. This could be an indication that radiography does not value this or, rather than intimate zero value, perhaps it has poor relative value compared to other forms. Yet its value

was clearly indicated in the meta-synthesis, particularly in relation to networking for the benefit of the patient, knowing who to go to for what and knowing how to use the system to enable positive patient outcomes. In forensic radiography contextual, rather than local, knowledge is vital.

*“..we need to know the whole chain of evidence from beginning to end be it a paediatric NAI case or whatever. We need to ensure that our item which may be used in evidence is actually part of that chain and logged in and out of the department. And its those bits that surround what we do normally that mark it out as being a different thing..... you know the chain of evidence, what is the investigative process and how do we fit into that.”*

*LV1 p327 Appendix E*

The importance of organisational context was mentioned in relation to many fields of practice. Only one interviewee identified contextual knowledge as important (LV1). The different contextual knowledge required in forensic radiography is regarded as the defining factor for identification as a specialism. Although context is seen as important, contextual knowledge is not.

### **Credible self-knowledge**

This characteristic did not feature heavily in the responses, possibly for the same reasons as stated in the last section, in that it has relatively little value or is perceived as not at all valuable. Forensic radiography acknowledges self-knowledge to some extent and radiographer reporting recognises the need to identify boundaries of his/her own knowledge. Self-knowledge is required for forensic radiography to identify the boundaries of one’s psychological capabilities given the nature of the work. “..its not everyone’s cup of tea.. And then someone is suddenly thrust into that and has problems as a result.....” LV1 p327 Appendix E. Clear boundaries of knowledge and skills are required for radiographers undertaking reporting. Radiographers need to be able to identify what is already known, what needs to be known and what is required to maintain knowledge and skills. “...individual continuing professional development to ensure you remain up to date and that we undertake enough reporting to remain competent.....” LV9 p365 Appendix E. Radiographers value the credibility of craft knowledge and recognise the need for formal knowledge to be credible. Contextual knowledge and self-knowledge do not feature strongly as areas of credible knowledge in diagnostic radiography.

## **7.4 Credible practice**

Credible practice alone is insufficient without the other supporting characteristics of credible knowledge and compatibility of context and philosophy. Informal role expansion in

diagnostic radiography has occurred at various points in time but this, in isolation from the other characteristics, contributes little to the professional image of radiography. A prime example of this is radiographer reporting.

*“...we used to report all our plain films before they even thought of it as plain film reporting and it actually works very well hand in hand with the trauma, minor injury anyway and that was in the 60's. We used to report in a book whatever we'd seen on the radiograph, any extremities and it was often used as back up. It wasn't actually seen as a report by the houseman but if they weren't sure of what was happening they came and looked in the book and it was a double check....”*

*LV6 p351 Appendix E*

Although this is not in line with the current understanding of radiographer reporting it is an example of the use of radiographic skill required currently to produce and author a definitive report. With the support of other characteristics of expert practice, radiographer reporting has developed to a point where the practice is given further credibility. “...the radiologist will ask the opinion of radiographers and they will be included in discussions about practice...”LV9 p365 Appendix E. A thread of multi-professional working and recognition occurs throughout credible practice. This is of particular interest to radiography due to the extensive and varied nature of practice. Establishment of credibility within a multi-professional context may present a challenge for radiography as it may be undervalued by colleagues from other professions. This is compounded by a lack of understanding of local managers and clinicians of what radiographers can do (LV1, LV3).

### **Credible authoritative practice**

Authoritative practice is synonymous with the level of autonomous practice an individual achieves. The acknowledgement of radiographer credibility and recognition within radiology is an important factor. Radiology needs to be aware of the potential scope of radiography to be based on authoritative practice. Close working ties with radiology may not be conducive to the development of autonomous practice in radiography unless the radiographer is in control of his/her own workload and working environment. Radiologists may retain control thus custom and practice may maintain the status quo. By contrast the more innovative may completely delegate authority to radiographers. The opportunity of expert practice in radiography may therefore be perceived as somewhat variable and dependent on the local perceptions of radiology by immediate management.

Authoritative expert practice allows a radiographer to use an individually tailored framework, constructed using his/her own knowledge base and experience. Ability to practise using a personal framework may not be popular, as some authors have already indicated.

Standardisation in radiographic projections was originally to aid radiology in the pattern recognition required for image interpretation and ultrasound evolved similarly. Although ultrasound incorporates standardisation of technique, this is different from the standardisation of projections. The reason for this difference may be that, in ultrasound, the person performing the procedure is often the person providing the report. As radiography progresses to similarly providing reports, it may be possible to individually tailor radiographic projections to individual patients, as the radiographer performing the examination is now more likely to be capable of providing a report. On the other hand, the progressive use of assistant practitioners to take radiographic images may result in a reversion to the physical/mental labour division of radiography and radiology but this time with different players, assistant practitioners and radiographers.

Forensic radiography could evolve into an area where authoritative practice is achievable. Forensic radiographers could have the power to control their own workloads, particularly if working within a pathology department where the context of practice might better support this characteristic.

*“Forensics, most radiographers that are involved in forensics receive a request, undertake an examination, discuss the findings with the referring clinician or the coroner or whoever refers and often those films are not reported on but potentially they should be. The radiographer is often the last person involved with the image process and they’re involved in the interpretation and discussions about the cases.” LV1 p327 Appendix E*

Autonomous practice is expanding in some fields, an example of which is radiographer performed breast biopsies and associated tasks.

*“I pick the view and the positioning myself but (s)he (radiologist) has got to be in the building. Either (s)he has to be in the building or a medical doctor for anything going wrong, which is fair enough. That has further extended to where I am now doing the wire mark-ups, ... ..”*

*LV4 p340 Appendix E*

Another example is given in the field of radiographer reporting of trauma cases. “I’ll take it round and the door’s open to go in and say can you recall this patient and they accept that from me.” LV9 p. Nuclear medicine is another field where autonomy of practice for radiographers is possible partly because few have the knowledge to contest any clinical decisions made by a radiographer. Similarly, the lack of widespread knowledge of some imaging fields emerges in MRI where medical staff clearly require support from radiographers.

*“ some of the consultants are not very experienced in the technique side of things and the clinical reporting side of things, as some of the radiographers that have done it for a long time. So we tend to work alongside them rather than them telling us what to do; we discuss cases with them ”*

*LV8 p361 Appendix E*

Radiographers practising with CT and MRI maintain autonomy of practice through work management and knowing when to alert a radiologist to abnormal appearances (LV8). Here the role of the radiographer is organisational and is used as a primary screening tool by radiology to detect abnormal appearances whilst the patient is still in the scanner.

### ***Credible evidence-based practice***

The evidence base for radiography is slowly growing and the multi-professional nature of some fields means that research findings from other health professions are pertinent for radiographers to use. This increases the amount and complexity of research available and applicable to radiographers. An extensive amount of research is still required in some fields where the evidence base is poor. In forensic radiography, a wide range of potential research exists particularly in relation to identifying the possibilities of replacing some invasive pathological procedures with imaging (LV1). In contrast, radiographic research is happening in MRI and has multi-professional support.

*“We are encouraged to do research and present, go to meetings, go to conferences, to look at different ways of developing the service and to developing sequences, techniques, so we get a lot of support from radiologist and physicists.”*

*LV8 p361 Appendix E*

LV8 was speaking from experience of being employed in higher education. Outside universities, radiographic research may have low status with resources ring-fenced by medicine and not dispersed through a number of professions. Evidence based practice depends on the availability of a research base and radiographers who are capable of using it and other data to inform and directly impact on practice.

*“I want someone who has got a much stronger idea of research method, promoting practice, best practice and verifying and when data comes along re-appraising it and should be part of the governance circuit within the hospital. So your protocols, that are always being questioned, should be reviewed regularly, so you can write the RCR guidelines, so you grade the data mix to the actual protocol.”*

*LV10 p370 Appendix E*

Radiography is a protocol-led practice and the evidence base used for protocols requires evaluation by radiographers to determine its suitability for inclusion in initial protocol formation and subsequent monitoring and updating.

### ***Credible practice within a defined clinical area***

Professional ownership of some clinical areas is a topic of political dispute. Ultrasound and nuclear medicine include a number of professions. Whereas this has been reconciled politically within ultrasound through the formation of UKAS, in nuclear medicine there are still contentious issues. The key difference between the two fields is that a number of professions are involved in ultrasound practice but in nuclear medicine, the contention for ownership is between two key stakeholders.

*“You have got the Royal College of Radiologists, who say that radio-nuclide imaging is a branch of radiology and radiography but you have your nuclear medicine physicians who are part of the Royal College of Physicians who would argue that it is more holistic and takes into account the three elements of nuclear medicine, one of which is radio-nuclide imaging..”*

*LV7 p353 Appendix E*

This power struggle presents difficulties when trying to establish credibility of knowledge and practice as what may be acceptable to one group may not be acceptable to the other when two powerful stakeholder bodies are in contention.

Radiology has within it sub-specialisms each of which contains clearly defined areas of clinical practice. To some extent, radiography is encouraged to parallel the radiological model and, where they are at odds to each other, there is little reconciliation. A radiographer may develop expertise in cross-sectional imaging but this is highly unlikely to be supported by radiologists as a field of expert practice because they prefer to identify CT and MRI as separate fields.

*“Then we have CT as a separate group to MR and we tried to get a cross-sectional and they just would not have it all along because their old alliances and little bodies who pushed in this direction, because of course it does not reflect their medical specialisations, so you start blurring boundaries and potentially they see this as disempowering.”*

*LV10 p370 Appendix E*

Defining clinical areas can present difficulties when clearly understood terminology is used only with a different meaning. Acknowledgement and understanding of semantics is required.

*“Again, now we have to be very careful, we have to discriminate between emergency care and trauma care. Trauma is a major accident, ..... They need to be separated because they are distinct things. You can have emergency radiography, A&E which obviously includes medical imaging of major trauma, so the fact is that these groups have been wrongly named. Trauma imaging group (SIG) should be emergency radiography group.”*

*LV10 p371 Appendix E*

The term “trauma radiography” may mean A&E work. Once the American model of A&E service provision is applied, the term has a different emphasis. MRI requires dedicated staff, particularly for safety reasons but the department of MRI presents itself as a field of practice with clear physical boundaries, defining an area of practice.

*“...it is a modality that, if you were not safety conscious, you could kill a patient by taking them into that room and that bears very heavily on our radiographers”*

*LV8 p360 Appendix E*

Whilst operational and physical boundaries help to clearly define MRI as a clinical area and promote MRI as a field of expert practice, they can also hinder the formation and maintenance of expert practice in other fields.

*“Currently there are a lot of professional boundaries but also operational. It is very difficult to attract senior staff in A&E now. We have had to fight at Senior 2 level to get access to MR and CT.....“*

*LV10 p371 Appendix E*

There are many professionals in medicine, nursing and AHPs with which a radiographer may professionally interact, and the extent of this coverage is dependent on the defined area of practice. Given the findings, it is not sufficient to define a radiographic clinical area as a piece of imaging technology. Although technology may provide an overarching theme, within that theme must be a defined area of clinical practice which is recognised and acknowledged, both inside and outside the profession. Ultrasound encompasses obstetrics and sonographers providing a service for pregnant mothers who build up a professional relationship with obstetricians and midwives, gaining credibility as appropriate and increasingly being perceived as experts who practise a patient-centred approach. For the general radiographer, building up such a professionally credible persona is exceptionally difficult, as the range of individuals and professionals with which they are involved is much more extensive. Ultrasound is an area which has a rapidly expanding body of knowledge. A future career in sonography may eventually follow the radiographic pattern from an undergraduate course of qualification to postgraduate qualifications in appropriate subjects.

*“I think that sonography should be identified as a separate profession and should have a clear career structure and an undergraduate entry.”*

*LV2 p331 Appendix E*

The reverse could also be considered. An overarching theme that is already recognised within medicine and/or health care may contain a clearly defined technological focus.

*“Anne (pseudonym) is setting up more as a recognised GI specialist taking it along that track rather than a radiographer with a special interest in doing some examinations..... And we would like the radiographers who are currently doing the enemas to also do CT colonoscopy and become more GI specialised.”*

*LV5 p344 Appendix E*

Similarly in A&E work there is a service need for radiographers to develop ultrasound skills in order to carry out abdominal assessments. In order to carry out patient centred care, it may be necessary to identify an area of one field and transfer it across to another field. This will require flexible approaches to the use of technology and radiographers and may result in accretion, producing a specialism.

Angiography can be sub-divided anatomically into areas of medical specialisms, cardiac, vascular and renal. As with ultrasound, radiographers working in a specific area of angiography have the opportunity to develop a meaningful professional relationship with the team concerned. Paediatric radiography is also similarly defined with clear links to a multi-professional team with whom it is possible to network to have a meaningful input into the delivery of patient-centred care.

### ***Credible patient-centred practice***

A patient centred approach cannot always be easily accommodated into the culture of diagnostic radiography and organisation of an imaging department, suggesting that the credibility of practice may need to be seen external to that environment.

*“...we were a nuisance. Why do we have to have all these toys around here or we fall over this. You know there was a lot of backbiting but nevertheless it was almost undervaluing what you were doing.”*

*LV6 p349 Appendix E*

Paediatrics and trauma have a multi-professional base, requiring finely tuned skills and knowledge. Many patients are referred on a regular basis from these areas for a range of imaging procedures. It may be possible for radiographers to align themselves with paediatrics and trauma instead of, or in addition to, radiology. “...towards the end of my time there I

found that I was more allied to the Children's Hospital than to the radiology department.”  
LV6 p349 Appendix E. These areas are also conducive to thinking in “wholes” and facilitate a patient-centred approach to practice. Acceptance of these and similar areas of expert practice may require some radical change to working practices. If departmental organisation cannot support radiographers with these interests, they may seek employment elsewhere and ally themselves to other clinical areas e. g. cardiology.

Within modality fields such as nuclear medicine and MRI, which require specific, expensive, large equipment and complex safety measures, it can be difficult to create a patient centred ethos due to physical boundaries and cost. Sometimes this can be explored and imaging equipment sited appropriately.

*“Where the oncology side lives presumably is best placed in an oncology centre, but of course there are benign diseases which can be treated in nuclear medicine as well, so where that lives I don't know.”*

*LV7 p353 Appendix E*

Clear boundaries are required in order for knowledge and expertise to develop. Rather than being a “jack-of-all-trades”, radiographers could focus on a clinical area of their own interest. The organisation of work may not allow this. There is a need for ultrasound services in A&E which could be carried out by radiographers as part of a patient centred approach. However this can be hampered by current practice boundaries.

*“Another example of that is ultrasound, where there is nothing stopping anyone who has a mind to and can learn MR which is hugely complex, CT, mention ultrasound and they think it is purely sonographers.”*

*LV7 p355 Appendix E*

Some imaging services are changing to become more patient-centred, enabling expert practice in diagnostic radiography to evolve in parallel with service provision. Angiographic services could include the pre-assessment of patients, permanent staff, a 24-hour bedded unit and a dedicated person to deal with patient-friendly appointments (LV3). There is an added bonus to having permanent staff.

*“... your quality radiographers stay put instead of diluting that speciality by moving them round into other areas. I think that is the first thing so that consultants then can see the competency 24 hours a day if you like.”*

*LV3 p337 Appendix E*

Rotation of staff through key areas within the imaging department carries on as it is seen to maintain skill levels (LV3).

### ***Credible practice incorporating the facilitation of learning***

Not all radiographers have the opportunity to participate in the education and training of undergraduate students. Some will facilitate uni-professional and multi-professional learning. The meta-synthesis shows that participation in education is integral to expert practice. In some fields of radiography this means enabling radiographers to be able to progress beyond the capabilities of the person in charge of their development.

*“You’ve got to encourage them to carry on, I mean they’re all more qualified than I am. I qualified in 1963 for God’s sake I haven’t got a degree. I encourage them to do it, to lift our profession, basically to lift vascular radiology and to lift the radiographers in that field.”*

*LV3 p336 Appendix E*

Angiography involves a multi-professional team where radiographers need to be able to participate in multi-professional education (LV3). GI work is another field where multi-professional facilitation of learning and credibility are inextricably linked (LV5).

A radiographer conducting radiographer-led barium work begins by observing a radiologist, then performs the procedures under radiological supervision that is then gradually withdrawn. Training is now emerging where appropriately qualified and experienced radiographers now perform the educational aspect of the radiological role. “...here we have radiographers training radiographers. And the radiologist is happy with the outcome.” LV5 p345 Appendix E. The participation of radiographers as learning facilitators for a variety of professionals is echoed in radiographer reporting, (LV9). Learning needs to be physically and psychologically accessible; it may be informal where one practitioner approaches another or it may be an integral part of the organisation of work so that “...often the radiographers are seen as being more available than the radiologist.” LV9 p365 Appendix E. Ideally both informal and formal approaches to learning and teaching should be available and the organisation of work and staff should accommodate both. Not only does an expert practitioner facilitate the learning of others, they also need access to learning to maintain and develop their own practice, and have the freedom to approach other professions for the necessary education and training.

### ***Credible practice incorporating effective communication***

Diagnostic radiographers need to ensure that their range of communication skills is extensive enough to cover the spectrum of activities outlined as part of this characteristic. A direct link with and feedback from referrers is seen as important. If a formal avenue for giving feedback is not immediately available, then a radiographer-initiated forum could be scheduled for regular feedback. Failing this, informal methods could be employed. Effective

communication with patients is necessary for immediate credibility and informed consent for radiographer performed invasive procedures in mammography.

*“We have not had anyone say “No” as yet. I think a lot of that comes across as to how you gain the trust, if you feel capable and enjoy it and know you can do this well then you pass that feeling onto the lady then she is quite happy to go along with it.”*

*LV4 p342 Appendix E*

Effective communication is required through multi-professional, patient-centred meetings, ideally facilitated by the culture and organisation of the work environment.

*“.....radiographers did not go to the clinical meetings because clinical meetings were so full of student trainees ..... there really wasn't room and the radiographers anyway were really busy but I think its something they should do because it builds a team and it builds up mutual respect.”*

*LV6 p349 Appendix E*

This seems to suggest that radiographer attendance at clinical meetings where individual patients are discussed may be more problematic where medical students are training, if sufficient emphasis is not placed on attendance of a multi-disciplinary team.

## **7.5 Compatibility**

The ethos and organisation of work has a direct impact on how radiographers are able to practise. Philosophical, physical, professional and work boundaries vary from department to department and each facilitates independent practice to varying degrees. Radiographers are few and in demand and, to enable them to use the four-tier career structure, need to function in an environment that facilitates and supports the development of their expert practice. Those aspiring to expert practice need to be involved in strategic decision-making affecting their support and development. The evolution of ultrasound shows the problems that can occur if staff time is manipulated insensitively and particularly where staff development is not appropriately supported.

*“...they couldn't spare the Senior 2's to do ultrasound so all the basic grade radiographers went on the course first. Such as Emily, (pseudonym). She was only a basic grade when I was a Senior 2. She went on the course and then left to get a Senior 1 and so we persuaded the superintendent that if (s)he let the Senior 2s do the course at that point then they wouldn't leave as they'd already got a Senior post....”*

*LV2 p331 Appendix E*

Further into the evolution of ultrasound, the use of staff time became a remuneration issue (LV2). Management manipulated staff time so that ultrasound competent radiographers did not spend the required 50% of their time in ultrasound required for enhanced payment. Such manipulation of clinical radiographers by radiographers in managerial positions in the past has led to staff dissatisfaction and staff shortages. Movement from a uni-professional practice to a multi-professional area may be beneficial to radiography development. In a clearly defined multi-professional team, as in breast cancer services, support can come from the multi-disciplinary team.

*“I am presenting on Friday at a cancer meeting and that again is being run by (surgeon) but (s)he does know the role I’m doing so (s)he’s helping me in that. I love doing something new and progressing and at the same point (s)he has given me exposure to know what we are going to do.”*

*LV4 p342 Appendix E*

The educational aspect of the self-reinforcing format of expert practice can be assisted by procedures within the department such as those employed in some radiographer led contrast studies such as barium work.

*“It (radiographer’s comments) goes through with the films for reporting and the radiologist. The GI specialised radiologist goes through the films and looks at the comments sheet to see if it’s right or wrong. If it’s wrong they add some comments to it and the radiographers get the films out at a later date so that we can check them and learn from them.”*

*LV5 p345 Appendix E*

In mammography and GI work radiographers benefit from a multi-disciplinary approach to individual development.

### ***Compatible practice context which facilitates and supports independent practice***

Compatibility is seen as a key issue in the development of expert, independent practice. The general power of medicine is not seen as a key issue in the development of expert independent practice in radiography but the dominance of radiology is. Some fields of radiography seem keen to become allied to other areas of medicine.

*“it’s (forensics) an area where radiographers have a considerable amount of expertise to give and the pathologists, when they realise that, are very interested to have that sort of input on board.”*

*LV1 p328 Appendix E*

According to LV2, ultrasound is a field where independent radiographic practice is nationally recognised with radiographers moving into ultrasound to gain autonomy. The evolution of ultrasound shows that formal and informal peer support facilitates independent practice. There was little radiological interest shown at the beginning of ultrasound development because it mainly focused on obstetrics. Some radiologists were equally uninterested in abdominal ultrasound, which developed as independent radiographic practice with the support of departmental managers where this was the case. Such radiographers were supported through informal groups.

*“But most radiographers were not supported by the x-ray department and so what they did was get together in groups and so that was how the Regional Ultrasound Group (pseudonym) was formulated because at its conception there was probably only one radiographer in each department in the region scanning and they were very isolated....”*

*LV2 p332 Appendix E*

The radiographers supported each other at these informal gatherings by bringing case studies to discuss and to share ideas about their practice. Due to a lack of radiological support, radiographers performing obstetric and gynaecological ultrasound sought alliance with referring clinicians to help complete the radiographers’ knowledge base.

*“..you worked closely with the clinician and they, probably in the early days, knew more about ultrasound than any radiologist because if the radiologist wasn’t interested you needed the clinician to say, well I’ve got this appearance, I’m not sure what it means, what do you think? And they put the clinical information into the equation...”*

*LV2 p332 Appendix E*

Eventually radiologists did become interested in ultrasound and were able to support the radiographers. The quality of support was, and still is, variable and in some departments it is reduced to control with the removal of autonomy from radiographers in non-obstetric areas. This view is supported by McKenzie et al (2000) who identify radiologists’ opposition to radiographer involvement with non-obstetric ultrasound examinations. Radiology also has an impact on whether radiographer reporting can happen in areas other than ultrasound.

*“I think radiologists are another big area of sticking. There’s the Trust that has radiographer reporting which is going from strength to strength and there’s more radiographers being trained, but there are still too many Trusts where it’s not even got off the ground.”*

*LV9 p368 Appendix E*

There may be differential radiographic autonomy between teaching hospitals and smaller general hospitals, with the latter supporting greater radiographic autonomy in ultrasound and a firmer rapport between the sonographer and referring clinician.

*“..there’s very much a respect between the radiologist, sonographer and clinician about each other’s roles and responsibilities. That doesn’t happen in teaching hospitals because of the system I suspect, not because of the radiologist or the radiographer.”*

*LV2 p332 Appendix E*

Two interviewees refer to the teaching hospital system and identify it as being unsupportive of radiographic autonomy in ultrasound and paediatrics (LV2), (LV6). This is not the case in other fields, in fact the reverse may happen as shown with radiographer-led contrast agent examinations (LV5).

Similarly, autonomous practice in nuclear medicine is context dependent, with the level of autonomy hinging on the medical specialism in authority (LV7). In some centres, radiographers are formally expanding their role in nuclear medicine to include reporting, administration of drugs and patient stressing. It may be possible for radiographers to assume total responsibility in the field of nuclear medicine because radiologists may withdraw their interest due to their declining numbers and a lack of understanding of the modality (LV7).

In agreement with the findings of the meta-synthesis, managers are identified as a stumbling block in the development of expert practice in forensic radiography and paediatric radiography (LV1), (LV6). In some Trusts, radiologists control radiographers’ access to courses that support the expanding role of the radiographer, particularly where this would impinge upon what is traditionally recognised as radiological practice areas.

*“I wanted to do image interpretation and so did Tracy (pseudonym) and again we had to convince the radiologist because it had been in the offing, in the press for a long time, although no real courses. Then the courses were finally advertised and we had to convince the radiologist to allow us to do that and (s)he did.”*

*LV4 p342 Appendix E*

Those fields of radiography that remain protocol driven and radiology-led will not match all characteristics of expert practice. Forensic and trauma radiography have a high level of radiographer autonomy, particularly in relation to decision-making around the demonstration of abnormalities (LV9). There is a link between evidence and independent practice and it is possible to move away from protocol driven practice to one that utilises corollaries and deduction (LV10). This supports the self-reinforcing nature of expert practice.

### **Compatible time/task allocation**

The use of a radiographer's time needs to be openly debated. Expert practice requires radiographers to have time with patients but also to have time away from patients. Time is needed to fulfil a number of activities of expert practice such as consultation, research, peer support, study, teaching, assessments and evaluations. Expert practice needs to be integrated into the strategic management of medical imaging to prevent feelings of isolation and other negative emotions. Radiographers need some consistency of tasks and duties rather than rotation through a large number of departmental sections. Those who have to rotate through high-pressure areas of practice may find aspects of rotation difficult (LV5). This suggests that the practice of rotation of staff could be seen as lagging behind service and practice requirements and that some aspects of radiography have grown in complexity to such an extent that staff rotation is no longer a viable option. Such perceptions are seen in ultrasound, CT, angiography and radiographer-led contrast agent examinations (LV2), (LV3), (LV5).

### **7.6 Compatible philosophy**

Philosophy features in the description of fields of radiographic practice. The ethos of a department impacts on the boundaries of practice for individuals. The personal, philosophical characteristics of expert practice are sometimes used to help to select radiographers who are capable of clinical progression.

*“So we don't let (just) anybody do radiographer-led contrast examinations. ....I whether we think they are appropriate both in terms of their level of experience and their motivation and enthusiasm for it.”*

*LV5 p347 Appendix E*

The person/environment fit is also recognised as part of the conceptual framework used by Guest et al (2001) to support evaluation of the role of nurse, midwife and health visitor consultant. Only one interviewee mentioned the person/environment fit that suggests that this is not perceived as particularly valuable to radiography.

### **Compatible philosophy – caring and holistic nature**

In some fields of practice, a two-tier system emerges where the distinguishing factor seems to be the compatibility of philosophies. In particular, the use of a critical mind of enquiry and being a seeker of knowledge may not fit with the context of practice. The analysis suggests that where these personal characteristics exist and are compatible with the practice context, a more pure and dedicated form of practice could be supported to become expert practice (LV1), (LV5), (LV6), (LV8). “...that depends on whether you deal with it as specialist practice.” LV1 p328 Appendix E. The ability to think in wholes is emerging as essential in

some fields of practice. Interviewees were asked about their vision for the future of the field they represented and the characteristic of wholes and a sense of completeness is certainly part of the vision for the future (LV1), (LV9), (LV10). The sense of wholes needs to be considered in terms of the whole of the patient pathway rather than a particular imaging modality. This characteristic of expert practice can only become a reality if the practice context is capable of supporting practice development pathways that refrain from technologically compartmentalising the patient experience. Knowledge and practice in expert practice requires the extension of thought processes to care pathways and patient experience beyond departmental boundaries. Not all radiographers value this concept (Prime & Le Masurier 2000).

### ***Compatible philosophy – a critical mind of enquiry***

Thinking critically may upset the status quo in medical imaging, as radiographers question standards, protocols and other accepted aspects of practice. Management of aspiring radiographers will need to be creative, supportive and tailored. Empowering patient choice needs to be a key feature in radiographic expert practice. In a protocol-driven environment, this may be difficult to achieve. Similarly the use of individual frames of reference may be at odds with such an environment. Patient-radiographer interaction may be short but there is a need to see how this fits into the bigger picture of the patient's experience. The development of advanced reasoning skills and critical thought should, arguably, be compulsory integral components of any further studies undertaken by an advancing practitioner (LV10).

The need for a critically enquiring mind and the ability to think in wholes emerges in forensic radiography where questions about guidelines and the different contextual nature became apparent. A catalyst for this form of questioning was involvement with the aftermath of terrorism (LV1) demonstrating a link to social forces that might impact on practice to such an extent as to guide the emergence of a specialism (Rosen 1944).

### ***Compatible philosophy – a seeker of knowledge***

Radiographers aspiring to expert practice will, by definition, be thirsty for knowledge and will require financial support with specific time allocated for attendance on courses, private study and peer support activities (LV4). Rather than a radiographer becoming expert in one area of imaging technology and never leaving that area, it is possible to use the transferable aspects of expert practice to broaden and enhance practice should the radiographer be interested in diversifying. This would have to be planned and managed carefully so as not to dilute any aspects of expert practice.

The evolution of ultrasound shows that an informal peer support group can be formalised through the active participation of seekers of knowledge (LV2). This demonstrates that there are sonographic role models who exhibit the philosophical characteristics of expert practice. The existence of role models will further facilitate the development of expert practice. Such role models also exist in emergency radiography, paediatrics and MRI (LV10, LV6, LV8).

## **7.7 National clinical priorities**

National clinical priorities can be identified from the National Service Frameworks (NSF), the Care Group Workforce Teams and proposed developments in service provision.

These would cover:

- children, maternity and gynaecology services;
- older people services;
- cancer;
- coronary heart disease;
- mental health;
- chronic conditions such as diabetes, asthma and renal;
- emergency care which includes Accident & Emergency, ambulance services and critical care.

It is not relevant to discuss each individual area within the context of radiography. What is important is to identify where radiography can be considered valuable and where autonomous practice in can evolve to be compatible with the requirements of expert practice, consultancy and the practice context.

## **7.8 Areas for consultant appointments**

The advisory group looking at professional roles within critical care identifies diagnostic radiographers as key members of the critical care team. The group point out that radiographers work “across the whole patient pathway providing continuous care from admission to discharge” (DoH 2002 p21).

The group identifies key issues relating to the impact of radiography in critical care as being a lack of

- (a) recognition of radiographers as key members of the team,
- (b) career structure and grading,
- (c) staff,
- (d) a patient centred approach and
- (e) awareness of radiographers' impact in critical care.

The findings of the advisory group agree with the findings of this study and could be applied to other areas identified as national priorities. Comprehensive critical care is a new speciality based on the severity of illness and clearly identifies the value of radiographic input. The traditional approach to radiographic practice and career development cannot easily accommodate critical care, unless managers and leading professionals instigate a change in emphasis. Theoretically, a radiographer could practise in the area of critical care and fulfil all the criteria required of expert practice and, therefore, consultancy. Similar issues exist in other patient focused areas such as services for children and older people. Traditional practice boundaries do not facilitate the development of expert practice in either of these areas despite national criteria (HMSO 1989).

Employing authorities may use consultant posts to help to address specific service objectives, building on previous activities and supporting new initiatives. Radiographers are more likely to be involved with the latter for which there may be funding from local development funds. In a documentary analysis, Clarke (2001) identifies that 41% of posts were to address specific service objectives, 35% focused on specific patient groups, 24% had a focus on a specific disease or anatomy and 24% focused on mental health. Using Clarke's findings, the most likely fields where consultant diagnostic radiography posts may emerge are in children's services, services for older people, A&E, as part of breast, gastro-intestinal, cardiac imaging and critical care. Each requires a radiographer who can use a number of imaging modalities as required by that field. Similarly forensics could support a consultant role but this is, to some extent, outside the remit and funding of the NHS although it could form part of a consultant's role within the field of trauma. In addition, there may be local service initiatives to support such a role.

## Summary

This chapter has defined the nature of expert practice in diagnostic radiography. Data analysis has shown that there is a lack of awareness of the contribution radiography can make to service provision at local management level. This contrasts with the national picture at professional and government level, where there is a greater awareness and some frustration about the professional focus on technology. Organisation of radiographers' work is a significant factor in the development and maintenance of expert practice. Dedicated staff and direct communication with referrers facilitate expert practice, helping to support its self-reinforcing format. Expert practice is limited by lack of opportunity to accumulate particular craft knowledge, staff rotation, lack of authority and difficulties in developing and getting involved in patient-centred approaches to practice.

Radiographers value formal and craft knowledge but give little or no value to contextual and self-knowledge. Given the issue of transferability, radiography needs to redefine its value systems of knowledge as self-knowledge is arguably the most valuable. It gives greater flexibility as it can be transferred along with the practitioner and the practitioner's philosophy. When used with the philosophy of expert practice, self-knowledge allows the practitioner to identify the formal, craft and contextual knowledge boundaries to plan self-development. Similarly contextual knowledge is essential, particularly in those fields of practice that might traditionally be seen as general areas, a number of which have been identified as national priorities. The knowledge and practice base of some traditionally general areas has grown and radiography needs to reposition its value systems accordingly. A two-way approach to defining clinical areas of practice could be used. An overarching theme of an imaging modality can be used initially and then divided into anatomical or service delivery areas. Similarly a group of patients can be identified first then steps taken to develop a radiographer with the skills to use all imaging modalities for that patient group.

Research into radiographic practice is required as this is seen as lacking in a number of fields. Not all practitioners have the skills or opportunities required to undertake or evaluate research and much of the funding for research into medical imaging may be ring-fenced by medicine. Opportunities exist for radiographers to undertake research in the university setting where it is actively encouraged and a multi-professional team is able to work together where research is radiographer led.

Diagnostic radiography is capable of credible expert practice in a number of fields but not all fields traditionally identified as part of career progression are compatible with service priorities. Radiography may have to undergo radical changes to career structure, practice context, education and training and much may need to be at a local level as opposed to blanket changes nationally. Managers and commissioners of training need to be more aware of the contribution radiography can make to the delivery of care in priority areas. Eight fields are proposed that match current radiographer skills and service priorities but much depends on local management to initiate and support the change required to allow these fields to evolve. The eight fields identified for general development are forensics, paediatrics, older people, A&E, breast, gastrointestinal, cardiac imaging and critical care. A radiographer working in any of these fields would be able to comply with all the characteristics of expert practice as identified in this study.

## CHAPTER EIGHT

### Findings - how the higher status of technology has developed over patient-centredness.

*“ If the bases for specialism as a philosophy remain hidden in the past there is a tendency for the complexities of their specialisations to increase”  
(Bahm 1977 pp8-9)*

#### Introduction

This chapter discusses the exclusive, exceptional and specialist practice of diagnostic radiography. In the past, attainment of the title of radiographer and the ability to work with x-rays was an ultimate career goal. Career progression towards specialisation and more senior positions is now an accepted part of its culture. In medicine, specialisation is a dominant process. The culture of radiography appears to emulate that of medicine as subdivisions emerge but the extent to which specialisation in radiography leads to a specialism remains controversial as medicine strives to maintain control over mental tasks while ensuring radiographic tasks are of a more mechanical nature. Specialisation is a process used by society to respond to the changing environment and results in the emphasis of difference (Bahm 1977). Using the medical model, key characteristics of a specialism are that it is dynamic, relative to what might be considered the “norm” and reactive to social forces. Specialism is associated with increases in professional status recognised both within and outside the profession, and in remuneration. New professional roles for radiographers are being developed under the catalytic influences of reforms related to policy initiatives, advances in technology and the professional agenda for radiographers (Cameron & Masterson 2002), supported by the strategic educational and professional development of radiographers (College of Radiographers 2002).

Table 6 Questions related to the second aim

Interview schedule for retired and current practitioners		Interview schedule for leading voices	
Question number	Aim	Question number	Aim
5, 6, 7, 8, 9 11-13	2	10-12	2

The findings show that task reassignment has impacted on the radiographers' perception of what constitutes specialist practice and specialism, confusing notions of specialism, advanced practice and expanding role and demonstrating the power exerted by radiologists.

*"...it could be naivety because they believe because they have gone into an area that has a subject title within itself that that makes it a speciality,..."*

*LV7 p353 Appendix E*

The complexity of perceptions of specialism is exacerbated by a rapid rate of change in the health service environment and some consideration of what underpins specialism in diagnostic radiography is required to prevent further perplexity.

### **8.1 Radiography as a specialism**

Specialism is a complex concept that requires knowledge of the relationships between generalism and specialism, interdependent opposites. Bahm (1977) uses the example of dentistry, a general class of specialists that includes subdivisions of endodontistry and prosthodontistry. Compared to other healing professions, dentistry is a specialism dealing with a focused anatomical area and forms a genus or general class that includes the species of endodontistry and prosthodontistry. Where there are a number of species, each higher level is more specific than lower levels, forming a hierarchy. Bahm considers the term "special" as meaning praiseworthy and is appropriately used as a compliment. The genus/species metaphor helps to inform discussion about the hierarchy of specialisms in radiography. Those radiography species that are capable of creating their own species, ultrasound, MRI and focused reporting, thereby transforming a species into a genus, have a high status.

Radiography is a genus not easily segmented into anatomical species. During Arthur's working life he recalls how difficult it was to separate branches of radiography, unlike laboratory work.

*"You see the path lab people, they were yards ahead. ....They separated each branch of their work but we didn't .... You couldn't be head of a finger x-ray."*

*Arthur p312 Appendix E*

The importance of anatomical division is highlighted by Arthur who comments on its unsuitability for creating subdivisions of radiography. The reverberations produced by the lack of ability to easily create subdivisions in conventional radiography are still felt in current

practice. When Stephen emphasises the skills required in high quality conventional radiography, he comments,

*“I think it is a highly specialised profession and that is sometimes not recognised”*

*Stephen p284 Appendix E*

Three leading voices, LV5, LV7 and LV10, acknowledge the importance of internal and external recognition of a specialism. Most respondents recognise the technological model of specialism in radiography and that causes confusion as they then try to rationalise other areas of practice as specialist using similar criteria. Findings show that a range of criteria could be used to identify a specialism but many respondents revert to the technological model as an easily identifiable feature to distinguish radiography.

Exclusive practice or perceptions of what is considered to be exceptional can denote specialist practice. Tom and Bonnie were exclusive practitioners. Tom was the only person in the diagnostic and moulds departments and Bonnie was the only person who performed x-ray examinations in her hospital. Judith moved into x-ray work from nursing and when asked if she considered radiography to be a specialism of nursing, she replied:

*“Oh yes definitely and when I became superintendent, I came off Matron’s staff and she wasn’t very pleased about that.”*

*Judith p258 Appendix E*

At one time it was possible to consider radiography as a subdivision of nursing.

Gillian introduces the length of time a radiographer spends working with a piece of equipment as a contributory factor denoting specialist practice. On the introduction of new equipment, senior staff were promoted to superintendent grade with a six month sojourn on each piece of equipment. More junior staff worked on a rotation of two monthly sojourns. At the same time, in the 1950s, radiotherapy became recognised in its own right and, following Rosen’s (1944) model, radiography segmented into diagnostic and therapeutic elements, creating two arms of radiography because of the growth in radiographic knowledge. The first subdivisions of radiography to emerge are diagnostic and therapeutic radiography. Gillian and Ralph understood both as specialisms. Radiotherapy is linked to specialist centres substantiating the symbiotic relationship between specialists and specialist centres as in medicine Rosen (1944). During the 1950s Alice understood theatre work to be special as:

*“You would do things .....that you did not do in the ordinary everyday medical and casualty, run of the mill...”*

*Alice p274 Appendix E*

Carole identifies dental work as specialist and introduces this notion by commenting that it is specialised “to some extent...”. Her reasoning is based initially on the difficulty involved and accuracy required in dental work but she subsequently stresses the exclusivity of imaging technology used. This is the second reference to technology as a marker of practice boundaries, the first being in radiotherapy.

Similarly, new procedures are identified as specialist:

*“I did some venous work that was quite specialised, it was just coming in really.”*

*Carole p278 Appendix E*

Interestingly this follows Rosen’s (1944) chronological order of events: anatomy, technology then procedure. Radiography was seen as the specialism in its own right with nurses perceiving radiography to be a specialism of nursing. Segmentation of radiography into diagnostic and therapeutic occurred, creating the first radiography specialisms.

Exclusive equipment and new procedures are influential in the notions of specialism in diagnostic radiography. Miriam identifies air encephalography, air ventriculography and valvograms (performed on children with hydrocephalus) as specialist. No longer performed, these complex procedures originated from paediatric neurological referrals. Their specialist status may stem from links to this branch of medicine and/or specialist centres rather than the complexity of the radiographic procedure. Despite the exceptional nature of the patients and procedures, working links with medicine may have the greater influence on the notion of specialism in diagnostic radiography.

## **8.2 Aspirations and opportunities**

Diagnostic radiographers with career aspirations help to shape notions of specialism. Career aspirations include more challenging work, greater recognition and more clinical involvement (Caroline) and greater autonomy (LV2). Opportunities to fulfil such aspirations are patchy, despite Government policy to enable and empower Allied Health Professionals (AHP) (HMSO 2000a, HMSO 2000b). The creation of the four-tier system of assistant practitioner, practitioner, advanced (specialist) and consultant practitioners has created clearer career pathways for radiographers. There are difficulties in equating new areas of practice with the technological and procedural species of specialism that easily identify differences. A service

is emerging that allows expert practice to be recognised whether this is in an area conventionally considered to be generalist or specialist (HMSO 2000a, HMSO 2000b). Opportunities for radiographers to progress in their career vary between employing authorities. Much depends on the synchronisation of management and radiographers' notions of specialism. For those who perceive the technological species as specialist, opportunities are judged by the technology available. Prior to the 1970s, there was little difference in technology but following the introduction of nuclear medicine, ultrasound, Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) easily identifiable differences emerge.

*..apart from becoming senior at the (hospital), there were not things there to go for because ultrasound was not invented and the CT scans things like that, ... .... Although, I would have quite enjoyed doing some training*

*Carole p 278 Appendix E*

Stephen sees the technological notion of specialism as currently predominant in the career aspirations of newly qualified radiographers who are not able to embrace a scope of practice that goes beyond the different imaging modalities. This creates difficulties for radiographers to engage with newer specialisms that are centred on patient focused, general work. Newly qualified respondents support this view.

*“I would like to see myself going to MR eventually”*

*Jane p308 Appendix E*

LV5 feels that newly qualified radiographers now accept radiographer-led contrast agent examinations as a normal route for career progression. Alongside this goes an expectation that, after twelve months of experience, radiographers with enthusiasm and motivation can move on to specialise.

Management behaviour that nurtures the notion of technology as special creates tensions around career pathways for their radiographic employees. Christopher recounts his experience of the introduction of MRI into his place of work. In order to identify suitable radiographers to staff the new equipment, a notice was posted on the staff notice board asking for the names of interested staff. MRI held a high status position and Christopher felt devalued by the lack of personal management attention given to this announcement as the notice gave few details. Debbie talks of high status where opportunities to practise are restricted, giving angiography as an example.

Carole demonstrates that career advancement is linked to becoming a senior radiographer, a managerial career pathway attractive to some radiographers, as clinical pathways were limited.

*"I decided I wanted to stay in the general radiography, within the general department, that then my next aim was to make it up to superintendent grade and actually eventually manage my own department."*

*Ross p254 Appendix E*

Career advancement encourages managerial development in superintendent radiographers but is not as welcome as clinical development.

*"I suspect I am far better developed managerially than a lot of people at superintendent level in other places. Having said that, I don't get the clinical specialism that they do as a pay off."*

*Stephen p283 Appendix E*

This suggests a certain reluctance to engage in managerial roles and tasks with clinical development as a preferred career route for radiographers. An emphasis on being able to work with a particular piece of imaging technology to advance a career in radiography creates a variance in radiographers' perception of specialism. This is in parallel with the technology available to a radiographer. An example of this is CT. Christopher understands that, at his place of work, CT is considered specialised because only certain radiographers are allowed to practise it.

*"Yet other places, other hospitals, it's more common practice that everybody rotates through CT and even the normal radiographers, the basic radiographers, they have some experience so that's ... I wouldn't say that's as specialised but it just depends on where you work."*

*Christopher p304 Appendix E*

There are different views of which type of hospital enhances radiographers' career progression. Some radiographers assume that there are greater career opportunities at hospitals participating in medical training where a variety of imaging modalities exists. Others see the training of registrar radiologists associated with such hospitals as inhibiting radiographers' career progression. Kathleen is employed at a large city hospital. Its participation in radiology training has restricted the practical opportunities available to her to progress.

*“IV injections. This is something that I know is a speciality nowadays which I’ve tried very very hard to be able to, to ask to be trained but because I work in a teaching hospital we’ve got registrar radiologists who like to do all these things and we haven’t been given the option.”*

*Kathleen p299 Appendix E*

Stephen sees the larger teaching hospitals as progressive because they are linked to advancements in medicine but this does not necessarily link them with potential advancements in radiography and new specialisms. The reassignment of medical tasks to radiographers occurs partly due to a lack of radiologists (Robert, Betty and Ross). Where there is competition between registrar radiology training and radiographer career advancement, the former takes priority and fewer radiological tasks are offloaded. This results in inequality of opportunity for radiographers producing,

*“..a political and geographical lottery. Some places give the people who want development and let them get there, other places it is either competitive and very restricted and resource limited.”*

*Stephen p283 Appendix E*

LV8 tells of the lack of posts in a large teaching hospital for her to use her expertise in ultrasound. She subsequently transferred her skills and knowledge in sectional anatomy to CT and MRI. Robert and LV7, recall their experiences of managerial restrictions on access to post qualification education. LV7 responded to this by changing his employer to one who valued his commitment to study and progression.

*“..they were allowing me to go on to the diploma, they were sending me on radiation protection certificate, they were allowing me to do an Open University Degree and they were going to teach me to programme and I thought that was an extremely good package, so I got almost student status on full basic radiography pay for almost two years.”*

*LV7 p354 Appendix E*

The experience recounted by respondents clearly shows inequality of opportunity to specialise.

### **8.3 Characteristics of diagnostic radiography specialisms**

The characteristics of diagnostic radiography specialisms are numerous and it would appear that the more characteristics are recognisable in a field, the more likely it is to be regarded as a specialism by both respondents and leading voices. Inductive analysis shows that the main features are:

- total time commitment to practice;

- the capacity to be considered as a whole rather than a subdivision;
- challenging practice;
- autonomous practice;
- dynamic and changing;
- training usually undertaken;
- perception of separateness;
- potential for multi-disciplinary team working;
- potential to grow synchronised to service provision.

(Please refer to Table 7 overleaf).

Table 7 Recognition of characteristics by respondents

	Forensic	Ultrasound	Angio	Mammo	Contrast agent studies	Paeds	Nuclear medicine	MRI	Rad rep	Trauma	Dental	CT
<b>Total time commitment</b>	Rare	Yes	Rare	Yes	No	Rare	Yes	Yes	Rare	Rare	Rare	Yes
<b>Genus capacity</b>	No	Yes	Yes	No	No	No	Not known	Yes	Yes	No	No	No
<b>Provides a challenge</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Autonomous practice</b>	Yes	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
<b>Dynamic</b>	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No
<b>Training usually undertaken</b>	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes
<b>Separateness</b>	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
<b>MDT</b>	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No
<b>Possible to broaden to synchronise with service provision</b>	Not known	Yes	Not known	Yes	Yes	Yes	Not known	Not known	Yes	Yes	Not known	Not known
	4 Yes	9 Yes	5 Yes	8 Yes	5 Yes	3 Yes	5 Yes	6 Yes	8 Yes	5 Yes	2 Yes	3 Yes

This suggests a hierarchy of diagnostic radiography specialism as:

1. Ultrasound (9 characteristics)
2. Mammography and radiographer reporting (8 characteristics)
4. MRI (6 characteristics)
5. Nuclear Medicine\*, angiography, contrast agent studies and trauma (5 characteristics)
9. Forensic, CT (4 characteristics)
10. Paediatrics (3 characteristics)
11. Dental (2 characteristics)

- The value for Nuclear Medicine could be misleading as few respondents felt they knew enough about this topic to give an opinion.

### **Total time commitment**

Respondents clearly identified the length of time committed to working in an area compared to the “norm” (as an indication of specialism). Where there was total commitment, respondents linked practice with notions of specialism (Kathleen, Debbie, Christopher, Ross, Robert and LV5). Respondents became confused where similar practice was carried out without total time commitment but countered this by linking specialism to the notion of separateness. This has led to two-level practice in CT, dental, trauma, paediatric, angiography, radiographer-led contrast agent studies and forensic work where it is possible, and more likely, to undertake this work as part of another function rather than a total commitment of time. Ultrasound, mammography, nuclear medicine and MRI are associated with separate departments that have permanent staff who do not practise outside of the boundaries of that department. Ross classifies ultrasound, MRI and mammography as similar specialisms, due to the time commitment of staff. He hints at the existence of a hierarchy.

*“Magnet resonance - again I think that is a specialised area. You don't find those who tend to work in MRI, tend to do anything else. I would say you could say that all of those areas have some degree of specialisation - some more than others”*

*Ross p255 Appendix E*

Confusion arises where there is a difference of experience. Christopher has experience of CT duties being part of a normal rota for radiographers and, in contrast, experiences a hospital where CT has a much higher status.

*“Where I work, ... people who work in CT, work there all the time and it's kind of their empire.. Yet at another hospital I worked at while I was training, ... there were the odd one or two people who were possibly superintendents, worked there and they were incredibly specialised. They worked there all the time, yet the rest of the staff had a ... quite a large knowledge base 'cos they rotated through it all the time.”*

*Christopher p304 Appendix E*

Christopher associates permanence with levels of knowledge. The more permanent a member of staff, the more practice they are exposed to, the more knowledge they have and the more they are recognised as experts in their field. Radiographers who practise radiographer-led contrast agent studies such as barium work do not spend 100% of their time performing this practice. When there are no barium lists, they will practise elsewhere. LV5 sees this as a stumbling block in the recognition of this area as specialist practice.

*“... to go into ultrasound or CT you go into that area one hundred per cent. You don't split yourself between one or two areas whereas we are still in the position where if you want to take on this role.... then we have to do that and something else. So it's not an area we would work in one hundred per cent. And maybe that is something that will have to come in the future in order for us to be properly recognised.”*

*LV5 p346 Appendix E*

Radiographer-led procedures become isolated from the total patient experience and there is an indication that this is changing. For a radiographer employed to do barium work as part of their practice, it is possible to expand this service to take in more elements of gastro-intestinal (GI) practice (LV5) increasing the length of time committed and making a specialism more easily recognisable to radiographers.

### **Genus capacity**

As the nursing genus gave rise to the species of radiography, a similar pattern emerges as the diagnostic radiography genus gives rise to further species, some of which have the potential to be regarded as a genus. Ultrasound can be divided into easily recognisable species mirroring acknowledged medical specialisms that tend to follow the anatomical model. LV7 suggests two levels of ultrasound practice. Where ultrasound is practised as an adjunct to support other aspects of practice such as midwifery, the identifiable specialism would be midwifery rather than ultrasound. Where ultrasound is the focus of practice it can be seen as a specialism (LV10) further supported by a change in common title to sonographer, Stephen, or as routine.

*“Sonographers quite often do routine work, some calling the medic when it gets complicated, and if you are doing routine work across a range of body bits it comes back to the technologically driven thing, that you cannot be an expert in every body bit.”*

*LV7 p357 Appendix E*

Current anatomical divisions of ultrasound that could be regarded as species of an ultrasound genus are:

- obstetric and gynaecological ultrasound.
- cardiac ultrasound.
- vascular ultrasound.
- abdominal ultrasound.

*“It would be impossible or impractical for everyone who comes out with a postgraduate diploma in medical ultrasound to be an expert or to be competent in more than 2 areas of ultrasound because there’s so much in each area now”*

*LV2 p332 Appendix E*

Anatomical divisions can be seen in angiography and emerging in MRI.

*“..angiography has split into cardiology and vascular.”*

*LV3 p335 Appendix E*

*“You may find that there are neuro MR radiographers”*

*LV8 p361 Appendix E*

Bahm (1977) refers to the interdependency of specialisms. Associated medical specialisms, such as obstetrics, cardiology and neurology, may have an interest in the maintenance of some AHP specialisms. This inter-professional acknowledgement would be powerful and add to other supportive factors for the emergence and maintenance of an AHP specialism.

Dual features are also associated with radiographer reporting. LV4 talks of reporting breast images as part of a breast screening service, LV5 links radiographer reporting to radiographer-led contrast agent procedures and LV9 to the accident and emergency services. On the other hand there are radiographers who report all plain films.

### ***The challenge and autonomy of practice***

The role of the radiographer has been reduced through advancements in technology and an increase in the involvement of medicine. Role reduction minimises the problem-solving and decision-making contributions of the radiographer and, by comparison, practice that more engages these qualities is perceived as more challenging. All specialisms in diagnostic radiography provide a challenge for radiographers. Wherever radiographers are formally giving their opinion on image appearances, the practice becomes more challenging (Debbie, LV7 and LV9). Where reporting occurs in the main imaging department the organisation of work similarly becomes challenging and requires innovative management.

*“ We originally could not see how it would work, just having two members of staff who could report certain films, but they kept at it and we found a way around and fingers crossed we have extended that now.”*

*Claire p289 Appendix E*

The challenge of practice involves:

- expanding skills and knowledge (Caroline, Christopher, Betty)
- maximising a patient centred approach (Christopher, LV6)
- working in a stimulating environment (Caroline)
- an enquiry orientated approach (LV1)
- increased responsibility and decision-making (LV9)
- complex and demanding tasks (LV7)
- role development (LV7)
- skill mix (LV7)

Radiographers associate autonomous practice with CT, MRI, ultrasound, mammography, forensic investigations and trauma work. LV2's national and international experience suggests that the autonomy of ultrasound practice is what attracts radiographers as they experience a minimal level of autonomy in conventional work. There is a suggestion that this autonomy may be more organisational than clinical. Robert talks of moving into CT or MRI where, "...you can be a bit more of your own boss..."p317 Appendix E. Some radiographers have used organisational autonomy to make advancements. LV10 used this to further trauma services provided by radiographers and LV4 similarly expanded the radiographer's role in breast screening services. As a service provision it is more difficult for radiographers to lead change, LV10, but it has happened in trauma and breast care. The extent to which an autonomous radiographer's role has evolved in trauma very much relies on the local radiologists and, because of the selective offloading of medical tasks, "...we can't possibly be independent practitioners." (LV10) p374 Appendix E. Autonomy has not extended to role choice. The extent of clinical autonomy is a measurement of specialism so that the level of specialism in the specialism hierarchy is inversely proportional to the amount of medical involvement and immediate responsibility (Christopher).

### ***Dynamic and reactive***

Evidence of change has been identified in all specialisms with the exception of paediatrics and dental radiography. Neuroradiography was identified as a past specialism of radiography that is now no longer recognised because neurological imaging is predominantly done using CT or MRI which require different skills and knowledge (LV1). Neuroradiography has closed with the emergence of CT and MRI. The emphasis on technology as a key differential of specialisms is an issue in accident and emergency radiography as there is a requirement for multi-modality skills and knowledge. Whereas medicine is able to react to general social influences (Rosen 1944), radiography can only react to those that are more local.

Organisational and medical power limits the extent of radiographer reaction. Change to radiographer participation in accident and emergency and trauma provision is required in line with changes to notions of specialism,

*“Where you try and get an A&E Senior 1, it is very difficult, because they perceive a loss of modalities to do that. The development pathway for the A&E Superintendent and Senior 1 includes all the modalities, on the grounds that trauma patients go through those areas. Trauma does not stop at the A&E, so to follow them through they can then do specs or longitudinal audits, multi-disciplinary analysis compliance.”*

*LV10 p371 Appendix E*

LV6 regarded CT as a specialism at one time but it is so commonly used that it is difficult to regard it as such now. Rather it should be combined with trauma services and considered in combination, supporting the views of LV10. Forensic radiography is evolving as radiographers acquire a greater understanding of its contextual knowledge (LV1). A broad range of reaction exists that shows the dynamic nature of specialisms, with some more dynamic than others.

### **Training**

Post qualification education and training is available in most areas and is a clear indication of specialism to radiographers (Betty, Christopher, Claire, Ross, LV5, LV6 and LV9). The extent to which radiographers take up post qualification education and training opportunities is unknown and not part of this research. Respondents comment on the requirement in forensic, ultrasound, angiography, mammography, radiographer-led contrast agent studies, nuclear medicine, MRI and CT but not paediatrics, trauma or dental. A range of opportunities is available from homegrown courses with localised credibility (LV4) to postgraduate qualifications (LV2 and LV9). LV6 and LV10 talk of the difficulties they have experienced in getting recognition for paediatrics and trauma as career pathways, primarily because of their multi-modality nature. LV10 recognises the need for an A&E radiographer to have some ultrasound skills to diagnose aneurysm and fluid collections and has negotiated with ultrasound education providers to deliver elements of skills and knowledge for an A&E-focused scope of ultrasound practice.

### **Separateness**

The notion of separateness is a key feature in responses. Retired practitioners struggled with this notion. When asked about what might be considered special, they would indicate that they commonly undertook “everything” autonomously from plain radiography to the more complex, such as barium work. There was a time when radiography was less easily divided

and a radiographer undertook whatever tasks were required to keep the service running. This era extended into the 1960s. "I came from an age when most radiographers did everything anyway and there wasn't so much specialisation.." (LV6) p Appendix E. Responses tended to include responsibilities in both diagnostic and therapeutic elements of radiographic practice. The first indication of separateness came with the professional acknowledgement of different training requirements for radiotherapy as such services were gradually centralised. The most easily distinguishable form of separateness in diagnostic radiography is that which is attributable to physical boundaries. In an imaging department requiring clear physical barriers for protection against x-radiation and for magnetic fields, such boundaries are clearly defined. In addition, tangible boundaries exist through the visual impact of modern technology, its size, value and presence. Visible physical boundaries have a great impact on the organisation of work and supersede individual, patient and service needs. MRI is perceived,

*".....it is a separate machine, used in a separate department, it is a separate safety issue.....you could kill a patient by taking them into that room....."*

*LV8 p360 Appendix E*

Staff who use the separate imaging modalities become exclusively associated with them and this can detract from patient-centred service provision. LV10 recounts her struggle to supply ultrasound services to an Accident and Emergency department because of the relationship of sonographers and ultrasound. Sonographers had difficulty relating to an accident and emergency provision and equally, radiographers had difficulty to a partial association with ultrasound, ".....because they perceive a loss of modalities to do that." (LV10) p371

Appendix E. Radiographers value the physical boundaries imposed by imaging technology because they represent a tangible and solid career structure that is visible and has traditional professional and medical acknowledgement. By virtue of physical boundaries, the notion of separateness is linked to ultrasound, angiography, mammography, radiographer-led contrast agent studies, nuclear medicine, MRI, CT and dental radiography.

Radiographer reporting incorporates a notion of separateness by virtue of the individual and their ability, motivation and capacity to undertake this task to the desired standard. LV9 feels that radiographer reporting is identifying radiographers with such qualities as a separate group. The notion of separateness is emphasised when the radiographer follows traditional radiology behaviour using reporting facilities away from the main hub of work. Where radiographers are using similar mental and decision-making skills within and not separate from the main hub of work, the task performed may have less professional value. To some

radiographers the latter would have greater professional value, as it does not separate them from patients, a key element of job satisfaction (Kathleen).

Those areas that are not easily distinguishable by physical boundaries are forensic work, paediatric, and trauma. The 24-hour, 7 day a week, 52 weeks a year service provided by many imaging departments does not allow sufficient separation of these areas to enable their identification as specialisms. There is insufficient density of forensic work to enable it to be considered separate (LV1). Paediatric radiography, although very different to that of the adult, is unworkable as a specialised area because of the way in which work is organised in a medical imaging department (LV8). It is recognised that children should be examined in separate facilities but the organisation of work can prevent this (Kathleen, Debbie). Trauma is equally difficult to separate,

*“It’s (trauma) such a big part of the workload you see. I think it’s very difficult to actually separate that out from a lot of the things we do.”*

*LV5 p347 Appendix E*

One way of separating forensic, paediatric and trauma work from what might be considered usual is to associate it with a specialist institution. The symbiotic relationship of medical specialism and specialist, identified by Rosen (1944), that exists in such an institution enables and emphasises the notion of separateness to the extent that radiographic practice is similarly considered a specialism. This results in what might be construed as, two-level practice. LV1 describes how forensic work can be undertaken on two levels depending on the contextual understanding of the radiographer and the institution in which the radiographer works. LV4 referring to personal experience describes dental radiography as a specialism in a dental hospital. LV6 maintains a rather different stance where paediatric radiography is concerned.

*“I was quite disappointed with some of the things I saw in the specialist hospitals - they were supposedly the creme de la creme and some of them I think had got a lot to be desired and I still think that’s true now...”*

*LV6 p350 Appendix E*

This is an interesting comment as LV6 visited four specialist children’s hospitals and two district general hospitals to inform his own paediatric work in a large district general hospital. It suggests that although recognised as a specialist institution, the imaging service was not of the quality expected by a senior radiographer coming from a district general hospital. LV6 expected to observe and learn and take back ideas to improve service provision for children in

his place of work and found that a visit to only one specialist hospital satisfied these requirements for ideas on how to improve the service.

### **Multidisciplinary teamwork**

According to respondents, multidisciplinary teamwork is a feature of five of the eleven specialisms. Paediatrics, mammography, radiographer reporting and trauma all encompass, or have the potential to encompass, multidisciplinary teamwork. Ultrasound is a multidisciplinary practice in itself (LV2) as is nuclear medicine (LV7) but multidisciplinary teamwork is mentioned as a feature of obstetric ultrasound only. Stephen sees any practice that attracts the involvement of other professions to emphasise specialism and uses the involvement of medical physicists with ultrasound as examples. Multidisciplinary teamwork features in responses where there is a patient-centred focus indicated by the inclusion of radiographers in multidisciplinary team meetings where individual cases are discussed (LV2, LV4, LV7, LV9, LV10) and through the planning of changes to service provision (LV6).

*“...it cannot be that their expert clinical practice is because of their ability to take a chest x-ray or produce an ultrasound image. Its got to be that they can undertake the whole examination from accepting the referral to be able to undertake the imaging process but be able to provide the final step which is to provide the interpretation and then discuss it with clinical colleagues in a multi-disciplinary team meeting.”*

*LV9 p368 Appendix E*

To participate effectively, radiographers require a broad clinical base from which to develop within a multidisciplinary team (LV7). Skill-mix in accident and emergency services is seen as important, with reporting skills giving radiographers a key role contributing effectively to discussions on individual cases (LV1). Trauma service provision is multidisciplinary and should evolve into multi-modality (LV10). Multidisciplinary teamwork requires the radiographer to move and think beyond the physical boundaries that frame their technological world of work.

### **Potential to synchronise closely with service provision**

The service contribution made by radiographers is potentially high but is criticised as being too technologically controlled, reducing the radiographers' input (Department of Health 2002). LV7 acknowledges the potential of radiographer input into the gastro-intestinal services through expansion of skills required for radiographer-led barium studies, and into breast care services through mammography skills. Where this occurs, it is rapid, suggesting that once there is a realisation of what radiographers can contribute, and training

opportunities are provided, their contribution to the service dramatically increases. Local managers need to recognise non-technologically-defined areas of practice (LV6) and redefine their notions of models of radiography (Caroline). It is important to remember that one of the characteristics of a medical specialism is the number of workers available to move into specialist areas (Rosen 1944). Radiography has undergone a recruitment and retention crisis and there are insufficient numbers of radiographers to allow their full development. For some, this has resulted in the lack of real opportunity to progress in their chosen career. To try to counteract the poor retention of Allied Health Professionals (AHP), the Department of Health has instigated the four-tier career structure which creates a level below that of radiographer, the assistant practitioner, and two clinical levels, rather than managerial, above (HMSO 2000a, HMSO 2000b, Department of Health 2003).

Work organisation determined by a technological focus prevents radiographers from contributing effectively to services. Radiographer reporting could radically change accident and emergency provision but would be “unworkable” (LV8). Current political gaze incorporates accident and emergency services (Synergy News 2004b) and the organisation of imaging work needs to change to more effectively use radiographers’ skills so that they are able to contribute to the patients’ chain of care (LV10). Radiographers are aware that their development is being, “.....driven by the needs of the service rather than the individual.” (Stephen p284 Appendix E). The broadening of scope required to allow radiography skills to synchronise with service delivery may require some radical changes to how radiographers perceive their career progression and their clinical support. Opportunities are now arising that are firmly linked to other areas of medical specialism other than radiology.

#### **8.4 Expert practice**

As respondents outlined their impressions of specialism, it became apparent that much of their notions of specialism centred on varying levels of recognition of expertise.

Acknowledgement of expertise is based on the amount of time spent practising relative to other professional commitments, on qualifications and on recognition within the imaging department. Using such characteristics, general radiography offers no differential, as this is what is regarded as the standard or “norm”. This differential is apparent from outside the department where the context of practice influences service provision as in forensic (LV1) mammography (LV4) paediatric (LV6) and trauma (LV10), yet forensic, paediatric and trauma are contentious areas occupying lower levels in the hierarchy of specialisms.

Responses show that expertise in forensic, paediatric and trauma radiography is required but is of little value for career progression. In forensic radiography there is a requirement for credible radiographic expertise to enable the criminal justice system to function.

*“...you’ve then got to .. make sure that that person is equipped and trained .. and is truly an expert in those areas of imaging .. and is able effectively to stand up to cross examination from other specialists”.*

*LV1 p328 Appendix E*

Yet LV5 is frustrated by the increasing level of interest shown by radiographers wanting to find out more about forensic work as it has little impact on service provision. This shows that the quantitative emphasis on service provision is dictating the opportunities for radiographer education and training. Paediatric patients have different illnesses and needs, and require radiographers with particular people centred skills (Kathleen). Such skills do not appear to be readily recognised and acknowledged in radiography.

*“...their needs are different and to get the best out of your examination you need to approach things in a different way and I think this is why it’s a specialism. I think there are people who within radiography realise it is and a lot of people who think that anyone can do it.”*

*LV6 p349 Appendix E*

This internal lack of recognition of paediatric skills does not fit easily with the philosophy of improvement of children’s services or the implementation of Audit Commission requirements (HMSO 2000, HMSO 1993). Ross recalls his experience of radiographers proving they had expertise in obstetric and gynaecological ultrasound and were capable of being regarded as experts.

*“...so radiographers proved they could do obstetric and gynaecological ultrasound. Proved they were just as good as anybody else. Proved their reports were more accurate than any radiologist’s.”*

*Ross p254 Appendix E*

The proof required would have to be credible to referring doctors and associated radiologists and is clearly an indication of the expertise required. Expertise also lies within areas traditionally considered to be general practice. Stephen regards general radiography as a specialism in its own right because it requires a level of clinical expertise only gained by regular and continuous work in general practice.

*“...people have got to stand back and recognise clinical radiography, getting that right, is a very specialist area. You cannot go and do 8 to 10 years in ultrasound or CT and come out and claim to be a good clinical radiographer, you have to go away and re-learn.”*

*Stephen p284 Appendix E*

Expertise and expert practice tend to be more associated with a focused practice area rather than general practice. When an area is more associated with general practice, expert practice seems more difficult to acknowledge and is mostly assumed. The four-tier career structure for AHPs culminates in the role of consultant, emulating medicine (King 1984). The role of the AHP consultant is multi-faceted incorporating 50% of time in expert practice (HMSO 2000a, HMSO 2000b). As specialisation is directly linked to professional and career aspirations, it is essential to identify the characteristics of expert practice and relate these to the practice of diagnostic radiography.

## Summary

Notions of medical specialism inform and shape notions of specialism in diagnostic radiography demonstrating the maintenance of medical power and influence. Exclusive practice relating to technology is prevalent, as is the process of specialisation. In medicine specialisation leads to a specialism but this is not always the case in radiography. As in medicine, a hierarchy of specialisms emerge which includes elements of task reassignment from medicine to radiography. Such tasks do not make a specialism but may form the basis for new specialisms to evolve.

Radiography emerges as a specialism of nursing as an elite, exclusive practice. Using the genus/species metaphor, nursing provided the genus and radiography, the species. After time radiography became a genus with two species, diagnostic and therapeutic radiography. Diagnostic radiography can now be considered as a genus, giving rise to eleven species, forensic, ultrasound, angiography, mammography, radiographer-led contrast agent studies, paediatrics, nuclear medicine, MRI, radiographer reporting, trauma, CT and dental work. A number of species are giving rise to further species creating a complex heritage that requires simplification to allow diagnostic radiography to grow and create high value specialisms.

Nine characteristics of diagnostic radiography specialisms are generated from the data and the number of characteristics recognised in each area of practice help to form a hierarchy of specialism. The amount of time a radiographer regularly spends in a particular area influences the notion of specialism. The capacity of an area to divide into further areas is acknowledged creating a complex web of interdependence. The greater the challenge and the greater autonomy an area provides, the greater the stance in the hierarchy of specialisms. The changing nature of some areas provides opportunities for specialisms to emerge but radiographers need to let go of the security of traditional technological specialisms and embrace new ways of working and new notions of separateness. Rather than focus on specialisation, there needs to be greater recognition of expert practice in all areas including those of genus status such as what might traditionally considered to be general practice.

## CHAPTER NINE

### Findings - the impact of radiology and gender on the nature of occupation in the development of diagnostic radiography.

#### Introduction

In this examination of what constitutes the “norm” in radiography, the relationships radiography experiences with medicine are key factors because medicine exerts a controlling power. These relationships are inherently unequal (Reeves 2002). The control by medicine in this context is uneven. Doctors can be divided into those who understand imaging and actively participate in this practice and those who are passive recipients of an imaging service. Amongst active participants are radiologists and referrers who are confident in reading and using images as part of their practice. The passive users are notably casualty officers and those who are still learning their medical craft by carrying out the orders of others. In this chapter I discuss the findings pertinent to the relationship of radiography and the world of medicine in two sections. The first section explores the specific relationship with radiologists, the second, the more general relationship with referring clinicians and, finally findings in relation to gender are discussed.

Table 8 Questions related to third and fourth aims

Interview schedule for retired and current practitioners		Interview schedule for leading voices	
Question number	Aim	Question number	Aim
16, 17	3	6-9	3
1-8 15-17	4	4	4

Findings suggest that radiology have:

- helped to reduce radiographic skills to emphasise the technological focus resulting in a male/female imbalance in favour of the former;
- lessened radiographers’ job satisfaction by emphasising male attributes;
- had the power to use radiography within social, managerial and clinical structures;
- controlled the clinical ceiling of radiography by maintaining occupational segregation;
- controlled radiographers’ career advancement by similar methods.

## 9.1 Radiology

Radiology developed as a medical specialism and radiography with a more technical focus (Larkin 1983). Until the 1970s superintendent radiographers managed x-ray departments (Jordan 1995) after which management was transferred to radiologists. A shortage of radiologists has acted as a catalyst for the selective offloading of tasks that were once undertaken by consultant radiologists to suitably qualified radiographers. The shortage of radiologists is significant, as sufficient numbers of specialists is one of the criteria put forward by Rosen (1944) to maintain a specialism, according to the medical model. Tasks offloaded by radiologists are barium work, angiography, administering injections and reporting. It could be argued that radiologists no longer perceive these tasks as valuable to maintain their specialist identity. Eventually, radiologists will no longer need the skills to carry out such tasks. As skills are lost, new ones are required. Radiographers are expanding their skills to include those solely linked to radiologists. Examining the findings in a broad chronological order in each section, the respondents identify the power radiologists have and exercise over their everyday working lives along with their corresponding reactions.

### ***Social control***

Larkin (1983) discusses the working relationship of radiology and radiography but does not focus on what it might mean for individual radiographers, their job, career and status. Witz (1992) focuses on gender difference, assuming that a male radiologist is working with a female radiographer. While this may have been true in some instances, a significant proportion of male radiographers and respondents tell, not of the power of radiology through gender difference but of power attributable to social class difference. Radiologists had almost total control over the radiographers they worked with. Arthur tells of a radiologist's patriarchal control during WW2 that allowed him to do his military service in his local hospital.

*"...there was such a shortage. All the radiographers were going into the services and it made a shortage and he (radiologist) more or less tied me down."*

*Arthur p 311 Appendix E*

Not only did radiologists have the power to control contribution to military service but they also exercised control over employment in x-ray work generally. Judith's account shows that she was very much reliant on a radiologist for her selection as x-ray sister during WW2. Shortly after the war, Ralph was reliant on 3 radiologists for his selection to be a student radiographer in 1950. Very few schools of radiography permitted male students at that time, but Ralph's selection shows that not all radiologists were selecting female students. Once

qualified, Ralph applied for a job that took him nearer to his family but the radiologist he was working with prevented his move.

*"And then my father became ill and a job came up in my home town and I wanted to go there because I knew he didn't have long to live. And the radiologist called me in and said, 'I will give you a reference but I don't think you'll get that job'. So I said 'Thank you' and I didn't get the job. And some years later I said 'Why did you say to me you didn't think I'd get the job'. The radiologist replied 'I didn't want you to. Now I do want you to get the post in (city) and you'll get that.'"*

*Ralph p 250 Appendix E*

In 1974 some radiographers took industrial action to protest against the Halsbury initiative on pay (HMSO 1975) which annoyed some medical staff as it disrupted their work and threatened the pay differential between radiographers and medical colleagues. One was quoted as saying,

*" .....they'll be coming to work in their own cars next. "*

*Gillian p248 Appendix E*

The power differential between radiologists and radiographers was therefore perceived to have roots in the social class hierarchy, in this case related to modes of transport, a particularly male phenomenon. There were certainly some "maidservant" or "valet" activities expected of radiographers by radiologists. Judith tells of the radiologist inspecting her shoes to check they had been cleaned to perfection. She also talks of the tasks expected of her:

*"He just sat there, I used to put his gloves on and put his apron on and he used to do like this"* (holds hands up).

*Judith p 258 Appendix E*

Robert also recalls the art of "dressing" a radiologist in lead rubber. More recently, he recollects a domiciliary visit in the 1970s that required taking the x-ray set out to someone's home and doing a chest examination with a radiologist. Robert remembers feeling like a butler or valet. The visit was completed one hour after Robert was due to start his on-call (solitary duty) and, on his return to the hospital, there was a queue of casualty patients waiting for him. The radiologist did not acknowledge Robert's other duties as being important, only the fact that Robert's assistance was necessary to load and unload the equipment out of the car and set up and dismantle the x-ray set for the examination. Robert found it distasteful as 'it was expected' p 317 Appendix E. It was expected that Robert would handle and help to transport heavy and cumbersome equipment and that it was acceptable to keep casualty

patients waiting. Some sense of balance is achieved from Robert's recollections as he talks of another radiologist who he enjoyed working with because he was treated more like a fellow human being. The radiologist was kind and acknowledged the work Robert did, respecting his radiographic knowledge and skills. Ross and Debbie suggest that some radiologists think that the role of the radiographer is to assist them rather than the patient. Ross agrees, however, that radiologists are now acknowledging that radiographers could turn to more challenging work.

Tom remembers a change in how radiographers treated radiologists following WW2 although he recalls that he still referred to them as "Sir". In the mid-60s Carole reports a change in this relationship to one that was more inclusive and relaxed but frowned upon by a radiographer manager. During the lunch break Carole and her radiographer colleagues would play bridge in the staff room. A radiologist liked to play bridge and joined the radiographers until the superintendent radiographer discovered what was happening. Carole felt that the superintendent did not approve of radiology and radiography mixing socially and would constantly interrupt their bridge sessions. Those who supervise the inferior group sometimes maintain differences of status. Carole recalls that most of the radiologists she worked with at that time were very friendly and easy to work with, yet others would bully radiographers reducing them to tears, making their working lives difficult (Carole, LV3). It was difficult to counter such issues as radiologists tended to be predominantly male and from a higher social class bringing such social power into the workplace.

Maintaining a power differential between radiologists and radiographers seems to be assisted by the attitude and behaviour of, not only some radiologists but also some radiographers LV9. Robert, who is now a sonographer, remembers radiologists being perceived as the head of the department. He suggests that this perception has changed in recent years as all health and medical staff are now perceived equally as employees. Some radiographers appear to wish to maintain the former relationship,

*"...they were just an employee like everybody else. But I don't think radiographers see them that way they treat them like gods still, whereas I don't."*

*Robert p 316 Appendix E*

Claire refers to radiologists as godlike and few in number. In some hospitals, radiologists were a significant but small group, a self-conscious elite exerting power and influence on work associates including radiographers (Lowell Field & Higley 1980). Many older respondents identified themselves with the radiologists they worked with (Arthur, Tom,

Ralph, Gillian, Judith and Elizabeth) and it may be that where the radiologist was considered elite, the radiographer would be similarly regarded.

Radiographers get a sense of satisfaction out of delivering a patient focused service with high levels of patient care (Tom, Gillian, Elizabeth, Miriam, Carole, Claire, Kathleen, Caroline, Jane and Jim). Radiographers seem reluctant to work with a radiologist who does not have this same emphasis in practice.

*“The radiologist here ...is quiet but concerned for the patient. If you get a radiologist who takes the patient’s interest to heart then that is a lot of what you can hope for in a radiologist, you don’t want someone who is very brusque with the patient. You need to be able to admire what they are doing and if you don’t admire the way they treat patients you tend not to want to work with them.”*

*Carole p280 Appendix E*

Robert recalls his pleasure at working with a radiologist who “*was great with patients*” p but his general experience of working with radiologists as a group has left him with no wish to work with them. This influenced his career choice and Robert now works autonomously in sonography. There is now a situation of social acceptance rather than control. As LV4 explains, how the social life of the imaging department includes all workers so radiologists and radiographers have the opportunity to socialise on equal terms. This sense of collegiality and friendship is carried over into the workplace.

### ***Control of practice boundaries***

Many retired practitioners expressed alarm at the fact that diagnostic radiographers are making diagnoses not only from conventional radiographs but also from ultrasound and CT images. The alarm stems from two sources. The first was in relation to Article 21, which prevented radiographers from telling a patient a diagnosis, and the second was the fact that radiographers are not medically qualified unlike radiologists. Interestingly, when pressed a number mention the importance of radiographers helping referring clinicians, particularly casualty officers, guiding them to ensure that an abnormality was not missed. The fact that radiographers were still dealing with medical practitioners seems to be irrelevant and these radiographers were happy to help in such circumstances. In the late 1930s and early ‘40s, Bonnie was taught to do radiography by a surgeon who also reported the films. In the 1960s through to the early ‘90s, Elizabeth would identify abnormalities at the point of radiography to referring clinicians who would report on all the films with which they felt confident. A radiologist would be used for fluoroscopy and for consultation on any confusing appearances.

Carole, who would point out abnormalities to casualty officers in the 1960s, reflects on her experience.

*“I think in a lot of cases the radiographer can diagnose radiographs much better than the doctors, not necessarily better than the radiologists, but they can go to a radiologist if they have doubts....”*

*Carole p 280 Appendix E*

At around the same time LV6 recalls recording radiographic findings in a book kept in the x-ray department for referring doctors to use. Miriam worked with a surgeon when performing cystomanometry and gave her opinion on the position of the instrument prior to pressure readings being taken.

Radiological control over radiography is evident in the emphasis on standardisation of elements of radiographic technique, the position of the patient relative to the x-ray tube, exposure settings and anatomical coverage. Instead of tailoring the examination to suit the individual patient and clinical circumstances, standardisation was important. Without it, radiologists could not perfect the pattern recognition skills they required. K C Clark was instrumental in providing the original comprehensive text showing the standard elements for each anatomical area and procedure. This approach to radiographic technical efficiency, combined with its connotations of importance and power has helped to reduce radiographic practice to technical and anatomical factors which support the reporting tasks of radiologists. This is in line with Howell's (1996) discussion of the impact of technology at the beginning of the twentieth century. He identifies how medicine's perception of the patient changed to conform to the scientific ideology of the time, emphasising the importance of controlled, reproducible experiments. Howell suggests that only viewing test results, in the absence of the patient, e.g. the radiographic image, dehumanises the patient into “*organs, symptoms or diseases*” (p131). In radiography this approach also dehumanises the radiographer into a component of a production line, as mentioned by Jane and Christopher. For radiography to completely emulate radiology in having briefer patient contact may not make best use of radiographers' skills in patient care and leading to job dissatisfaction as respondents put a high value on patient contact

Initially, radiologists did not control what happened in the x-ray room. This was very much the province of, firstly nurses then radiographers but in the late 1970s and early 80s respondents notice a change. Radiologists started to selectively take away radiographic responsibilities within the x-ray room. Debbie reports the reduction of radiographic duties in angiography. As equipment became easier to use, radiologists became more interested in

using it. Similar experience is voiced by LV3 who tells of cardiologists who now use angiographic equipment as it is more user-friendly. Kathleen, Robert and LV3 report similar reductions in decision-making in intra venous urographic procedures. For Robert and LV3, this encouraged them to leave conventional radiography to work more autonomously in obstetric ultrasound and angiography respectively.

*“...I felt all responsibility had been taken away from radiographers that we'd been really done down and that's why we're trying to claw back basically. I think when I trained in the 60s and possibly even before in the 50's some of the radiographers that I knew when I was training, we were in charge of it all. We did what we had been trained to do. We did the views we thought were best for the patient. We were left with examinations to complete without having to have our films checked all the way, it was our responsibility, we had much more responsibility than when I came back, I was appalled to have to go and run after a house officer...”*

*LV3 p 338 Appendix E*

The reduction of decision-making led to frustration for radiographers who felt that their competence was not being used wisely and that their skills as practitioners were being abused. Robert recalls how radiologists would encourage radiographic role development to enable radiographers to undertake tasks previously done by radiology, but only at times of radiological shortage. Once a full complement of radiologists was reached in the department; “..they (radiologists) just took it off us,” (Robert p 316 Appendix E).

Such deskilling is in direct contradiction to current DoH policies and initiatives that advocate the development of all Allied Health Professionals (AHPs) (DoH 2001, DoH 2002, DoH 2003). Miriam comments that the selection of radiological tasks suitable for offloading to radiographers does not appear logical but perhaps professional strategy is the main driving force. Rosen (1944) talks of the medical profession selecting tasks that are of value in maintaining a difference between medical specialisms. Tasks associated with medical specialisms are of strategic value. Radiology may be responding strategically to local and global driving forces by selectively offloading tasks. Local driving forces might be the value placed on radiological skill within a particular Trust by their medical colleagues, an increase in interventional procedures and/or the desire to be involved in practice related to the procurement of new technology. More global strategic driving forces may include the development of Computer Aided Diagnosis (CAD) which may take over many aspects of visual inspection and human pattern recognition of images (Synergy 2002, Flowers 2001, Cowen 1998). The advent of CAD means that radiology can no longer afford to depend on

reporting skills to differentiate it from other medical specialities as, eventually, these skills may no longer be required or be exclusive to radiology.

Radiographers have come full circle. Radiologists prevented reporting by radiographers because, at that time, radiographers presented a professional threat and radiology needed to establish itself as a medical specialism. Radiographic reporting skills as used in the past, are now required to cope with an increase in the workloads of radiologists (Price 1998). Radiographers are taking on the unwanted tasks of a more powerful profession and need to select such tasks carefully, prioritising those that contribute towards the advancement of their profession and discarding those that are not of professional value (Masterson & Cameron 2002). Meek acceptance of tasks previously carried out by medicine will not further the profession, as active and strategic selection of tasks is required. Dixon (1998) warns of radiographers emulating radiologists. If radiologists are discarding tasks that are shortly going to be no longer professionally valuable, radiographers need to look elsewhere to expand their skill repertoire. Examples of role expansion into areas other than radiology include endoscopy (Pearson 2003), assessing patients and performing biopsies (Synergy News 2004a) and radiographer led one-stop minor injury departments (Synergy News 2004b). Radiographers can cross boundaries into other areas of medicine, AHPs and nursing.

The shortage of radiologists is a significant influence on Betty's practice since, in her place of work there are only two radiologists with seven vacancies across the Trust. Of the two radiologists, one is in favour of role expansion for radiographers but the other is not. This creates tensions within the department. Ross thinks that a shortage of radiologists means that a radiologist can no longer cover the range of tasks that form their work. This has led to radiologists reconsidering radiographers' contribution to a number of areas of service delivery and this, in turn, has started to enable more autonomous practice for radiographers. Parallels can be drawn between the offloading of tasks once performed by radiology to radiography with medical tasks now delegated to nursing in an attempt to reduce the number of hours worked by junior doctors (Dowling et al 1995). Further work by Dowling et al (1996) discusses the strategies required to support this paradigm shift.

Findings applied to radiography suggest that:

- roles could be allowed to evolve. A supportive infrastructure is required for appropriate planning, and educational and management strategies that reduce the risk of innovation to patients, workers and employers;
- medicine and radiography should be equal partners in managing the new roles;
- patients should be informed;

- roles are approved by insurers and employers;
- radiographers should have access to legal services;
- although local initiatives are welcomed, central support is required to direct regulatory frameworks, legal issues and patient information.

It would be interesting to identify the extent to which the above have been implemented wherever medical tasks have been offloaded to radiographers. This is outside the scope of this research.

The return of practice autonomy gives radiographers a firmer professional footing enabling a more forceful professional stance about what they believe should be theirs. This could be a turning point as radiographers are no longer there for the radiologists (Debbie, Ross) but are there for the patients (LV9). The preference of radiographers to work more closely with patients could improve job satisfaction, a key element in the retention of radiographic staff (Gillian, Carole). The level of practice autonomy varies from place to place and new radiographers who have spent three years studying for an honours degree have high expectations of their employment, (Debbie).

*“yes, you are an independent health care practitioner, but the radiologists are not going to let you practice like that.”*

*Debbie p244 Appendix E*

Radiologists control the division of labour with radiographers (Christopher). What a radiographer is allowed or expected to do may depend largely on the whim of the radiologist. A key factor affecting radiological decision-making seems to be the introduction of new equipment. On the introduction of new technology, radiology sets the scene for its inclusion into practice. Robert’s experience in the late 1970s was of the introduction of ultrasonic “A” scope cranial study to detect head injury. This experience launched Robert into a career in obstetric ultrasound, where radiologists do not hold sway.

*“you used to stand at the side watching, ... eventually he said do you want a go and I said I haven’t got a clue what I’m doing and he said well I’ll show you but he hadn’t got any patience you know? And I had a go at one or two and they seemed to be alright but I must admit I didn’t know how to interpret the scope.... Eventually he got fed up of doing them or he hadn’t got as much time to do them as he wanted and he used to get requests from ITU ... so I never looked back from there. It went from “A” scope scanning right up to when the obstetric department started up.....”*

*Robert p317 Appendix E*

LV2 recalls the advent of user-friendly, real-time ultrasound machines, which replaced the B scanner, a difficult machine to negotiate and time consuming to use. Real time ultrasound enabled subjective assessment of an image to occur because it produced grey scale 2-D images rather than the B mode static images that were useful for biometrics. Radiologists generally became more interested in ultrasound once the equipment became user friendly to the point that now there are radiologists who specialise in ultrasound. Prior to this, there was little clinical support for radiographers practising ultrasound and this made a number feel quite isolated. Those practising ultrasound formed their own support network, as did the radiographers in the early days of x-ray work.

Stephen has enjoyed working with radiology and acknowledges that the boundaries between the two are fluid and a necessary requirement. His experience of the reaction of radiology to the introduction of MRI into his place of work is one of total commitment and clear expertise.

Claire recalls how radiographers in the department first undertook barium studies where she works.

*“They (radiologists) were very negative at first but we were fortunate in that the clinical director was for it and he laid the ground rules for it, he was a radiologist, the others would have nothing to do with it at first. I think we started with barium meals, and he was the only one who would report the barium meals, and he trained the radiographers practically and it just gradually opened up.”*

*Claire p291 Appendix E*

Radiographers currently performing tasks previously considered to be part of radiology may experience difficulties in maintaining such tasks if a new radiologist is appointed who objects to where the line of labour division has been drawn. LV4 feels that in such circumstances it would be easier to surrender the role than continue, as a radiologist has the capacity to make the working life of a radiographer very difficult and uncomfortable.

Some radiographers do not see the offloading of radiological tasks in a positive light and feel that radiologists are cherry-picking the nicer tasks and push the more tedious tasks towards radiographers, (Caroline, Christopher). For Caroline, the higher level of practice required for previously radiological practice remains unacknowledged in her Trust. Jane practises in a teaching hospital. Because work is required to enable registrars to practise, she thinks it is difficult for tasks to be offloaded although Price, Miller & Mellor (2002) report no statistically significant difference in the offloading of tasks between teaching and non-

teaching hospitals. The exceptions were red-dot systems (identification of an abnormal radiographic appearance) and radiographer performed barium enemas, as these are more likely to be performed by radiographers in a non-teaching hospital. Jane finds her fluoroscopic work tedious even though she is asked to keep a watchful eye on any registrars who are doing fluoroscopy. This unacknowledged use of radiographers to train and/or supervise radiological registrars, may make staff retention difficult as opportunities for advanced radiographic practice in an expanding role in such departments are much reduced.

There is another consideration worthy of note. In order for radiology to offload some of their tasks to radiographers, initially there needs to be the trust and belief that the task will still be performed to acceptable standards. To some extent this trust can be built on the radiological acknowledgement of radiographic skill, knowledge and expertise of individuals (LV3). Many departments employ a rotation system, so that radiographers are moved regularly through all the rooms of the department, becoming familiar with all features of the service. It is difficult for radiology to gain a measure of an individual's qualities when a radiologist and radiographer work together for only a short period of time. In larger departments a rotation through all the rooms will take longer than a rotation through a smaller department. A radiologist and a radiographer may work together briefly then not come across each other again for a significant amount of time. Perhaps it is easier to build up trust in a smaller department rather than a large teaching department.

### ***Teamwork***

Radiology can be perceived as having a clinical team leadership role that affects the working life of radiography. Radiography, a visual profession, needs to stay visible. The more visible the practice, the greater the degree of radiographer satisfaction with teamwork. The experience of some respondents of radiological participation as team members on a day-to-day basis is positive (Ross, Stephen). In particular the leading voices were very positive about working with radiology as part of a team (LV2, LV3, LV4, LV5, LV8, LV9). There appear to be radiologists who use their power to improve patient services (Claire, Stephen, LV2, LV3, LV4, LV5, LV8, LV9) and those who use it to maintain the status quo (Arthur, Tom, Judith, Gillian, Ralph, Robert, Debbie, Claire, Betty, Jane, Christopher, LV1, LV6, LV7, LV10). The importance of effective teamwork is emphasised where organisational changes to improve the experience and outcome of patient care are designed and implemented, (HMSO 2003). As radiographers become more involved with organisational change, it is important to maintain effective team working, with radiologists being key members. As the leading voices are heavily involved with advancing and innovative

practice, their knowledge tends to be of radiologists who use their skills and influence to link into and assist changes to service provision, respecting radiographers as key team members.

Effective teamwork is impeded by barriers between professional groups, medical and non-medical staff, gender difference, multiple line managers, perceptions of inter-professional status and a lack of infra structure to support and sustain team development, (Borrill et al 1999). Organisational change in the imaging service is underpinned by the effectiveness of the imaging team. Increased team effectiveness could be enhanced by further breaking down the divisions between professions, primarily radiology and radiography, and even medical physics and nursing. Teamwork barriers caused by gender difference may decline as gender associated professions become less apparent in imaging. Radiographers work in a department with a number of radiologists who each hold different expectations of radiographers (Judith, Robert, Debbie, Claire, Betty, Jane, Christopher, LV4, LV7, LV9, LV10). When considering the barriers identified by Borrill et al (1999), multiple line managers would lessen the effectiveness of the imaging service in breast imaging, nuclear medicine, radiographer reporting and trauma. Process mapping exercises emphasise the important relationship between teamwork and service delivery in emergency services, (Synergy 2004b) supporting this finding. Areas of imaging under the current, political gaze will bring the teamwork of an imaging department under scrutiny but it is important to acknowledge all areas equally, as all are components of the imaging service. Coherence in any team is vital and in the imaging team coherence of radiologists is a powerful influence on the effectiveness of an imaging service.

Tom first mentions the team in x-ray work. His experience just following WW2 involved working with a German radiologist who had previously worked with Hindenberg, and a Polish radiotherapist. The radiologists disliked each other and the inter-radiologist relationship made Tom's work difficult. Robert's experience is that radiologists within the same department tend not to work together as a team. This is similar to Debbie's experience, because at a critical time for her career advancement, she was the victim of radiological "in-house" bickering. New radiologists were arguing with the older one and were "trying to pull the rug from under his feet," (Debbie). Ross has very positive and recent experiences of radiologists as team members and feels that radiographers are now treated as partners with equally as much to offer to the team as radiologists.

*"...things are certainly getting better. In the old days it was do as you're told, not do as you think. You're not paid to think. Things have changed a lot."*

*Ross p254 Appendix E*

Borrill et al (1999) identify inter-professional perceptions as influential on the effectiveness of a team. Inter-professional respect between radiography and radiology is heightened where there is greater flexibility of professional boundaries along with organisational change (LV2, LV3, LV4, LV5, LV8, LV9). Less inter-professional respect is more apparent where radiographers do not have the opportunity to work closely with radiologists (Christopher) or radiographers have an indispensable but unacknowledged role (LV7). Despite flexibility of professional boundaries, teamwork requires clear roles for team members and LV2 recounts how this might be evident in obstetric ultrasound.

*“...radiographers identify an abnormal fetus but then the radiologists take over the role of informing the patient and counselling the patients, discussing the options with the obstetrician and the patient and perhaps performing any invasive procedures that are required.”*

*LV2 p331  
Appendix E*

The radiological perception of radiography has changed to incorporate a greater degree of respect for what radiographers can offer an imaging service. The role of radiographers has developed from the handmaiden/valet of the early and mid 20<sup>th</sup> century to that of a clinical decision-maker undertaking tasks once valued by radiologists. The extent to which this change has been allowed to evolve is variable depending on the local influence and coherence of radiologists.

## **9.2 Referring clinicians**

In the 1950s Alice found that working with senior surgeons in the operating theatre was rewarding as she was treated with respect, felt involved and valued. Theatre cases take a radiographer away from the main department for a significant amount of time and with the current shortage of radiographers this requires careful management with prior notification needed from the theatre. Sometimes this prior notification is missing as the radiographers are not informed of the theatre cases, but as often happens, if the patient is under anaesthetic, a radiographer will be taken from another case to go to theatre. Miriam has started to be assertive about this.

*“...if they don't work in the department, consultants everywhere else they've got their own problems and they just think oh they're just saying it they don't mean it and if we send for this patient in theatre and we say we're ready they'll come. But we've started saying no.”*

*Miriam p268 Appendix E*

Kathleen finds she is on first name terms with the referring clinicians she comes across who will ask her opinion in sometimes critical circumstances.

Working with casualty officers is an integral part of any diagnostic radiographer's role where there is a Casualty or Accident & Emergency service. Carole recollects this as being fun and friendly in the 1960s, she felt very much part of the team, as she was able to work with the casualty officers to try to ensure that no abnormalities were missed. She found a tactful way of doing this by using careful phraseology.

*"..there is a way of telling people 'don't you think there is something here?' not 'this is something you have missed'.."*

*Carole p280 Appendix E*

Carole talks of some junior doctors who are impossible to help and Ross feels that this type of clinician is returning. Claire and Christopher contradict Ross as they experience positive relationships with referring clinicians.

*"We are more respected now than we used to be, you used to be the person that took the pictures but now they do respect us more as professionals and it proves it when they come around and ask for advice sometimes."*

*Claire p291 Appendix E*

Stephen and Christopher's experience indicates that doctors currently have fewer clinical skills at the point of qualification, requiring radiographers to have greater expertise. Stephen, Betty, Miriam and Jane feel that the wiser doctors will allow non-medical staff to guide them but there are always the ones who won't.

*"The wisest casualty officer is the one on the first day who comes round and asks for a radiographer's opinion on a film whether they actually want it or not, because they are the ones who get respect and help and people will go the extra few hundred yards for them and help them out and make sure they do not drop themselves in it."*

*Stephen p287 Appendix E*

Radiographers need to give guidance to over exuberant junior doctors who made inappropriate referrals, for example barium meal in the middle of the night (Carole). Inappropriate referrals are commonplace but Stephen identifies a lack of teamwork as a key issue for doctors.

*"Traditionally they have not been team players, this is probably changing and again I have quoted the breast screening service as an environment where team play is essential and I think that is as good a model for a lot of future clinical development."*

*Stephen p287 Appendix E*

Robert had a different experience from the 1970s and did not feel like a valued member of the team. The cavalier attitude by some referrers to what was required on the examination request form exasperated him. He felt that he was working for people who had insufficient knowledge about what he could offer as a radiographer, did not fully understand what answers radiography could provide to help and guide patient management and, consequently, initiated x-ray work of little significance. Robert reports similar current issues with ultrasound requests and decides that what is happening is:

*“...you’re supposed to be reassuring the patient but at the end of the day you’re reassuring the doctors.”*

*Robert p315 Appendix E*

There are clearer role boundaries when radiographers are working in a team with clinicians other than radiology, as there is less overlap of knowledge and expertise. Radiographers come into contact with referring clinicians at the point of referral or at the point of image evaluation, if at all (LV4). Medical colleagues meet, often at lunchtimes, to discuss individual cases and it would seem sensible to assume that those radiographers who are reporting might attend such meetings given their role in patient management.

*“The radiographers doing the reporting, we have more to do with the orthopaedics and A&E. And the radiologists, they all have lunchtime meetings - surgical, medical, orthopaedic, and they discuss cases... but it's a shame we don't get invited to those...”*

*Debbie p245 Appendix E*

A rather different approach is taken in mammography where there are weekly multi-disciplinary meetings to discuss individual patients and radiographers take an active role, perhaps chairing the meetings (LV4). Such meetings both initiate and maintain communication links throughout the team.

The easier relationship you have with referring staff, the more both parties gain (LV4). Betty found that the installation of a computerised Patient Archive and Communication System (PACS) improved communication between referrers and the imaging department. This installation is a Trust-wide initiative involving all departments and wards. Preparation for its installation required the imaging department staff to communicate with the rest of the people in the Trust, telling them what was required from an imaging perspective and informing them of the benefits of the system and how it would improve patient management.

*“Since then a lot of the barriers have gone down and they do communicate more. Instead of sending a card for something, they will ring and say ‘What should I ask for’ - ‘What is the best thing to do’ - so it is better”*

*Betty p294 Appendix E*

There are national guidelines for referring clinicians, radiologists and radiographers about which imaging procedure(s) should be requested in the presence of certain clinical details to best demonstrate a particular diagnosis (Royal College of Radiologists 2003). It is Jane’s experience that this guidance is not always followed and that the guidelines are not applied consistently causing confusion over what is best practice.

*“The orthopaedic ones request pre-op chests for no reason. Our guidelines on pre-op chests differ from week to week. One week the radiologists will say ‘we no longer do them for hypertension’ and as soon as someone questions it - alright we do them again and you just cannot win because you follow their rules and then they change them.”*

*Jane p309 Appendix E*

Referrers do not always abide by the guidelines and radiologists seem to have little influence over their medical colleagues. The guidelines for Jane’s department do not allow abdominal radiographic examination for a patient who has constipation. Referrers are now changing how they write the patient’s history. An x-ray request for a patient with constipation will read “generalised abdominal pain” which will be accepted. Similarly a GP referral for chest radiography for an infection of the lower respiratory tract is allowed, but not of an upper respiratory tract infection. GP’s are now omitting to state the site of infection and are working their way round the system.

Not all referrers for x-ray work are doctors or clinicians. Many nurses and physiotherapists are now requesting x-ray examinations. At one hospital a nurse referral service was initiated to deal with minor trauma cases.

*“The nurse practitioners’ protocols indicate that they should x-ray straight away, so of course it affected our working patterns and we were not consulted, we have had to make changes to the way we work at weekends. They did not foresee that, they did not think it would be a problem to us at all.”*

*Claire p289 Appendix E*

Jane’s experience is similar to Claire’s in that non-medical referral systems were initiated without prior arrangement with the staff in the imaging department. This resulted in inconvenience to staff and patients before the problem was solved and significantly affected service delivery. This is a further example of radiography appearing invisible and insignificant.

### 9.3 The influence of gender/city

The literature identifies that, at the outset of radiography, practitioners were predominantly male although radiography soon became recognised as a profession suitable for women, (Witz 1992). Substantiating the high proportion of men, a photograph in Synergy shows eleven male radiographers at the London Hospital taken in the late 1920s, (Thomas 2003a). This predominance is reflected in the oldest sample available for this study, as it was easier to locate men who first began their practice in the 1930s than women. Within radiography Witz identifies gendered bundles of skills that relate the caring skills to female radiographers and technological skills to the men. The stories support this but only up to the mid-50s where the female respondents convey an ease and familiarity with, quite complex, technology. Tom talks of there being a lack of women in radiography until the development of schools of radiography. Tom's observation agrees with the fact that such schools were set up in hospitals where the abundance of female nurses provided a steady stream of practitioners. Radiography seems to have been perceived as a specialism of nursing and part of the nursing career structure until direct entry into radiography as a student became popular after WW2 (Judith, Ralph and Tom). However, women proved to be an unstable workforce, as family responsibilities usually prevented them from progressing. Alice left radiography in 1959 because she needed part-time work to enable her to care for her children. The way in which work was organised made continuing in radiography unfeasible for her. The significance of being female continued into the 1970s as Kathleen recounts her experience of applying for a more senior position.

*I went to one interview where there were two of us. I was told that the other radiographer had had her family and as I hadn't started having my family, they actually asked me did I intend to have a family so I said yes eventually and this was the reason that was verbally given to me why I didn't get the job*

*Kathleen p298 Appendix E*

In the 1930s and 40s the technical dimension of radiography was firmly linked to the man's world and the care and comfort of patients was firmly linked to the world of the nurse, nursing at that time being a distinctly female profession.

*"They were all men. Two men at two hospitals. There was a sister. At the (hospital), a man, myself, another man, and a sister looking after patient care and comfort, a sister doing the casualty, (town) was a man, (town) was a man, round here they were all men. How they started I never knew. One was in the RAMC during the war and I think that got through to him. One was at the mental hospital. He'd been a ship radio-operator. That's how he started. Because they'd got an electrical background. And I believe in the early days, photographers took up to it but as regards women apart from being sisters in departments for looking after the patients. I think that was it. Sister (name), she was as good a radiographer as any of them, same with Sister (name) and all the others, Sisters. Did the radiography, some of them qualified but a lot of them didn't."*

*Tom p260 Appendix E*

In 1947 radiography was advertised in women's magazines as a suitable career for women along with physiotherapy (Gillian). During the late 40s and early 50s Gillian recalls a larger proportion of female radiographers although the majority of the superintendents were men.

Mavis Reynolds began her training in London in 1946 and on her first day as a student recalls that all radiographers were male although her fellow students were female (Reynolds 2002). The salary earned by radiographers did not attract men. Thomas Tipler recalls his dismay at receiving his first pay packet following demobilisation in 1954. Its contents, payment for one month's work, were half what he received in the army. Thomas left radiography for employment in the police force as it held more comparable opportunities with those he had experienced in the army (Tipler 2002). Elizabeth struggled to recall any male radiographers during the mid-1950s.

Ralph chose diagnostic radiography over therapeutic as there were more opportunities, "*for men anyway*" p250 Appendix E. This may imply that there were more opportunities for women in therapeutic radiography. Gillian chose this route in preference to diagnostic, as she was more able to follow patients through and discover how they had fared. The more holistic approach to patient care provided the attraction for Gillian and career opportunities were important to Ralph. Career opportunities seemed better for men and Ross recalls his own quick career advancement which was made easier for him because,

*"women used to leave to have children and wait until their children had got back to school, then come back into their career. Maternity leave wasn't used as much as it is now, so I think you've got a career block now that you didn't used to have."*

*Ross p254 Appendix E*

Whilst there may have been more managerial opportunities for Ralph he did not have the same clinical opportunities. It was accepted that male doctors could perform sensitive procedures, usually involving the reproductive system, on female patients but this acceptance did not ripple across to male radiographers from everyone.

*Someone, I never knew who complained that a male chap was doing these salpingograms. So they asked about this and unfortunately they'd taken it to the administrators. If they'd taken it to (radiologist), the result would have been different and less complicated. They discussed this with me and I said well I'm a qualified person and it's my ambition to treat anybody that I am able to treat for whatever is necessary. And so far as salpingograms are concerned, if my memory serves me right, the radiologist was male. So should he be excluded? And it was on that basis that I won through. And I continued to do them. Now many males were excluded from mammography. Many males were excluded from salpingography. I profoundly disagreed with that. Profoundly because I am a professional. And I will concede it's useful to have a female alongside me as an assistant if only to protect myself but I'd profoundly disagree with that as a professional.*

*Ralph p251 Appendix E*

In 1968, Robert becomes the first male student at his hospital for twenty years.

*“(Female manager) was in two minds whether to have a male student at that time and she was only persuaded by (male) deputy superintendent through (male senior radiographer) to keep me on”*

*Robert p315 Appendix E*

The influence of gender in diagnostic radiography seems to fade away in the 1970s and there is the suggestion that, as places of excellence in focused areas of health delivery evolve, location linked to service provision may have more impact (LV10). This agrees with the influence of the practice environment on the development and maintenance of expertise (Friedson 1988) and that radiographers' work patterns vary considerably depending on the type of hospital (Wetherall 1971). The “norm” of radiography is no longer related to gender but may be varied depending on the type of hospital and practice environment.

## Summary

Radiologists have collectively influenced the status, practice and autonomy of radiographers through social power. The attitude of individual radiologists to the values and beliefs held by other radiologists with whom they work affects the imaging team and shapes the radiographers' contribution to service delivery. A radiologist's perception of the contribution of a radiographer in the imaging team may vary. Within the imaging team, this results in a picture of confusion for radiographers. Some radiologists prefer to maintain the status quo and some have pioneered changes in service provision, expanding the radiographers' role.

In the past, radiology exerted social control over radiography using the social power of the time. Social class and gender were primarily important. Where male radiologists worked with female radiographers/nurses this resulted in a maidservant role, where radiology worked with male radiographers this resulted in a valet or more manual role. Radiology inspected and controlled radiography to enable radiology to grow in status rather than to provide services for patients. Superintendent radiographers and x-ray sisters supported the use of such social control. As society has become more relaxed, social control through class and gender is waning and is now less marked.

Practice boundaries between radiology and radiography are formally becoming more flexible. Radiographers have always acted as a screening mechanism for ensuring that patients are treated appropriately and abnormal image appearances are noticed and acted upon in a timely manner. This part of a radiographer's role has been informal and unacknowledged in the past despite that fact that it spans the entire history of radiography covered in this study (1932-2001). Radiologists, using innovations in technology, have gradually reduced the role of the radiographer to an anatomical and technical focus, removing patient-centred decision-making, key to a radiographer's job satisfaction. Radiologists respond strategically to technical innovation, staff shortage and organisational change by selectively offloading tasks to radiographers. Where this results in increased patient-centred practice, status and collegiality this is welcomed by radiographers. As skills held by radiographers differ from those held by radiologists, the former needs to forge their own path in organisational change rather than replace radiology.

There are varying degrees of team effectiveness, much of which is controlled by radiology through their control of inter-professional boundaries, potential multiple line management and their key influence on inter-professional respect. Teamwork with referrers is clearer and patient-centred.

The influence of gender was more marked in the early days, which is what one would expect, but the analysis suggests that in the:

- 1950s the pay for radiographers negatively affected the retention of male staff;
- 1950s it was difficult for men to become accepted as student radiographers;
- 1960s there was still a reluctance to accept male student radiographers;
- 1970s being married, female and childless prevented career progression;
- 1980s male radiographers had greater opportunities for career progression.

# CHAPTER TEN

## Incidental findings – some hidden history of radiography

### Introduction

Some incidental findings of professional and social interest have been discovered and are documented here for completeness. The concept of specialism is a relative phenomenon denoting an exceptional or exclusive position in relation to what might be considered the normal, usual or everyday. Investigation into the evolution of specialism in diagnostic radiography requires some understanding of what constitutes the norm or everyday practice at different points in time. An understanding of the value systems predominating at various developmental stages of practice gives some indication of what was considered exceptional and why some areas of practice were made exclusive or not, as the case may be. As this is an ethnographic study, the conventional chapter headings of a positivistic research project are not necessarily appropriate. In line with Johnson's (1995) concept of what constitutes "good" ethnography, this study is presented as a number of stories supported by relevant data with comparison to other literature as appropriate as each story unfolds. Not all participants described themselves as radiographers; one was clearly a nurse who did radiographic tasks as part of her duties, one a radiography sister who qualified first as a nurse then as a radiographer and one who prefers the title of sonographer.

### 10.1 Some general incidental findings

The nature of the responses contain a number of interesting points:

- Some respondents were more able than others to describe their training, education and their radiographic experiences. There was no real pattern to this ability, although there was a sense that where the focus for the answer was perceived as having a chronological structure, this provided a framework for the respondent to use and give a detailed description. For example, education and training responses tended to start with acceptance on to the training course, attendance required, topics studied through to qualification. The day to day world of practice lacked this structure for some and two respondents expressed dismay over how they had spent their working lives. These respondents were reminded of positive, valuable and rewarding experiences that they had articulated throughout the interview, so they might leave the interview in a positive frame of mind.
- At one time, radiographers clearly identified themselves through radiology and other areas of medicine, as respondents would talk of their links to well-known medical characters (Bonnie, Arthur, Tom, Ralph, Judith, Elizabeth, Alice and Gillian). A radiographic identity becomes more evident and valued by respondents from the 1960s onwards (Carole, Jim, Robert, Jane and Caroline).

- A number of current practitioners found it difficult to talk about dealing with patients and were much clearer about dealing with technology or systems of work. This does not sit easily with the fact that most expressed job satisfaction as being linked to patient contact.
- No one differentiated between specialist practice, speciality and specialism and terms were used interchangeably.
- There was confusion about differentiating between tasks constituting specialist practice and those linked to the extended role of the radiographer.
- Most struggled with the task of relating specialisms of diagnostic radiography to the medical models of specialism.

The stories depicting what diagnostic radiographers perceive as being usual or the norm show a number of aspects of radiographic practice that have not previously emerged fully in other texts. The stories are grouped together and discussed in this chapter and are those pertaining to the usual world of the practitioner with some discussion on the influence of war and gender. Together they form the basis of an account of the hidden aspects of the working world of practitioners, some of whom are now retired. Their pioneering spirit, relationship with technology, responsibilities in the radiation protection of the public and themselves, the effects of WW2, and some dangers of being a practitioner are the hidden aspects of practice demonstrated in this section. Traditional histories showing the movement of the profession as a whole are available from the professional body and give their perspective of radiography (Moodie 1970 and Jordan 1995). The micro perspective of radiography has not been subject to any serious academic publications. This study suggests that the everyday world of the radiographer is interesting on a number of points that until now have gone unrecorded. In keeping with the philosophy of oral history, this study has given a voice to those who are rarely heard.

## **10.2 Some specific incidental findings**

This description of what constitutes the norm omits those narratives that focus on the radiographers' relationship with medicine and, in particular, radiology. As this is a significant relationship featuring in all responses, it has been addressed separately. The norm for diagnostic radiographers includes coping with past legacies and contemporary challenges generated by the progress of technology, social forces, and the essence of a radiographer's role and its boundaries. Each is discussed below using the stories generated from the analysis. As some leading voices drew from their own experience during their interviews, these are included where appropriate.

### 10.3 Challenges of practice

The challenges for practitioners involved with x-ray work and other forms of medical imaging are varied. In the early days of x-ray work, problem solving was an integral part of the practice with many pioneering initiatives originating from radiographers; the dangerous environment and associated equipment required practitioners to have in-depth technical knowledge and an ability to apply that knowledge, sometimes in difficult circumstances. Patients have provided, and continue to provide, challenges for radiographers. More recent challenges for diagnostic radiographers are linked to the effective and efficient use of new imaging modalities, organisational issues, the growing body of knowledge of medical imaging and overcoming the insular and reductionist nature of x-ray work to expand the role of the radiographer.

#### *Invisible pioneers*

Radiographic practitioners were an integral part of the pioneering team who created and modelled x-ray work, its technology and associated practices. Similarly, as each new imaging modality has been introduced into health care, diagnostic radiographers have maintained this pioneering role, working with the unknown and sometimes working in professionally unclaimed territory. Changes to health care provision have provided further opportunities for radiographers to act as pioneers by being innovative and actively participating in health service developments. Whereas pioneering was perceived as part of the routine and normal practice of radiography, the possibility that it has now moved into a different sphere is explored.

According to Tom, initial confusion over job title occurred because those carrying out both the physical and mental tasks of x-ray work called themselves radiologists. Tom claims that Captain Barnard, who went on to form the Barnard Institute of Radiology in India, along with Harnack one of the x-ray martyrs, coined the term “radiologist”.

*“They said there’s a lot of ologists about, these days and we’re using rays, we’ll call ourselves radiologists. The medical profession didn’t like this. And they stopped it... Yes radiographers started it and then medicine took an interest.”*

*Tom p264 Appendix E*

This agrees with Moodie (1970) who describes the foundation of the Society of Radiographers at a time when doctors undertaking x-ray work referred to themselves as radiographers. To illustrate this, there is evidence that a Dr Shenton was appointed as a senior surgical radiographer to Guy’s Hospital in London (Thomas 2003a). Much confusion existed over the precise meaning of the terms “radiologist” and “radiographer” as the terms were used interchangeably McKay (1995). In addition, the terms “medical radiographers” and “non-medical radiographers” were used further contributing to the confusion (Price 2001). Thomas (2001b) mentions Harnack in one of his reviews of historic radiography posters. He describes

Ernest Harnack as a pioneering radiographer who in 1909 at the Royal London Hospital designed a trolley to transport x-ray equipment when required for work on the wards. It had a marble top and was so heavy it required two men to move it.

Moodie (1970) refers to Forder, Westlake and Blackall, who set up the Society of Radiographers, as pioneers but the interviews suggest that a pioneering spirit extended beyond the professional body and its London home, and beyond 1920. The results show that some radiographic practitioners ventured into the relatively unknown, dangerous and quite unique territory of x-ray work sometimes with no or little support, inventing procedures, techniques and equipment. Technological innovations have always been part of the radiographers' working world. The journal "Radiography" acted as a medium for transmitting information to and between practitioners so that each could adapt or build certain pieces of apparatus.

*"We'd got linear tomography, we built our own. Again you see we did a lot. As soon as Willie Watson got the idea of the linear, again published in Radiography."*

*Tom p261 Appendix E*

Willie Watson worked for the firm Ilford amongst a key body of people responsible for much of the research and publication of radiographic techniques. Although not a member of the profession himself, Willie Watson published his ideas in the professional journal of Radiography to communicate this advance in technology to radiographers. The concept of linear tomography seemed to occur in a number of places simultaneously (Webb 1990), but its development and integration into practice was hampered by WW2 (Newing 1999). Linear tomographic equipment was revolutionary when compared to conventional x-ray work as it allowed a section of anatomy to be visualised by blurring superimposed anatomical structures above and below a pre-selected level. Only anatomy at this level is demonstrated without the confusion of the shadows of over or under lying structures (Carter 1984). Tom explains how he built a linear tomographic unit using an old shutter motor from an old radiotherapy unit. Not all radiography that involved movement used the movement of equipment.

*"..and transverse axial which was the forerunner of the CAT scanner, that was where the patient sat on a chair and he went round and there was a cassette in front of him. I built one of those from spare parts."*

*Tom p262 Appendix E*

Alice recalls that circular tomography had just been introduced into a major teaching hospital in the period 1952-59. Not all pioneering work focused on technological innovation. Arthur describes how he was presented with a problem by a radiologist and how he arrived at a solution. Arthur was thorough in his approach, as he used primary data throughout to the point of venturing down a coal mine to identify a particular mechanism of injury. Hampered by a

lack of acknowledgement of his skills and knowledge, he receives little recognition for his work.

*"I put the sternum picture in the anatomy books. ....first of all these were colliers, mostly colliers who had been struck by a chain on a machine down the pit. In fact I went down the pit to see this. Afterwards I got permission to go down to see what I was talking about. They used to pass it round the old pit props in these old workings and put some strength on it in some way or other and the props would just fly out and if they were not out of the way they'd either be struck with the chain or a prop and it was always in the chest. And these miners were wonderful people they'd have stood on their head they would really. I just explained what I wanted and I did the first one and that turned out to be a real beauty that did and (radiologist) got the information from me and the pictures and took them to London but I never heard anymore except I wanted it to be published you see and I thought they would do it so whether or not it has been over the years I don't know. ....I mean nobody bothered me after that so I never bothered I thought "Oh everybody's forgotten about it." And I ought to have gone into it....."*

*Arthur p312 Appendix E*

Arthur neither seeks nor receives any official recognition for his work and radiography remains recognised as the "gold standard" for identifying a sternal fracture (Hendrich, Finkewitz & Berner 1995).

The pioneering approach to practice is evident in the 1950s. Alice worked in a city hospital as a radiographer at a time when orthopaedics was redefining itself as a medical specialism. In the period when Alice was practising, 1952-1959, orthopaedics became a surgical specialism that, although founded on the war treatment of extremity injuries, progressed to surgical fixation, prosthetics and joint replacement (Gordon 2002). Radiographers involved with orthopaedics at that time helped to pioneer changes that would assist orthopaedics in its metamorphosis. Alice practised in a large teaching hospital and enjoyed the challenging nature of her work. A particularly challenging area for her was orthopaedic theatre work because new surgical techniques were being developed. Radiography was an essential part of these new ventures since the surgeon needed to be able to see how bones and instruments related to one another while the operation was progressing. Since the surgical techniques were new, there was no specific literature to which Alice could refer for guidance. Alice worked with the surgeon to perfect the techniques and images required for the new operations.

*"... ..he would say 'I've thought of something else', and he would sit on the table and say 'take a picture at this angle or do something at that angle, I want to see how it works on this' and you would get a lovely picture of the keys in his pocket and then he would put something metal at a different angle to see how that showed and try to get depth....."*

*Alice p274 Appendix E*

The surgeon did get results that were helpful, despite his cavalier attitude to exposure to x-radiation. Alice tells us that the use of radiographic skills and knowledge was not purely confined to orthopaedics but also to vascular surgery, where radiography was the only method of visualising blood vessels without incision. Radiographers, their skills and aptitudes were vital components in the progress of orthopaedic and vascular surgery in the 1950s in this leading teaching hospital. Similar to Arthur's experience, there was little acknowledgement of the role radiographers played in pioneering new techniques.

Pioneering work in radiography tends to be associated with the time of the origins of x-ray work, possibly due to its association with the "x-ray martyrs". Interview evidence shows pioneering work has continued in the use of imaging modalities as they became accepted in the NHS. Radiographers have ventured into the unknown with ultrasound in the 1970s (LV2), MRI in the 1980s and through the use of radiography during the aftermath of terrorism (LV1) over the last twenty years. Forensic work continues to be the focus of pioneering work as the body of knowledge to support imaging in forensic investigations is still in its infancy (LV1). Much of this work requires the commitment of radiographers (Walsh, Reeves & Scott 2004).

Professional commitment to pioneering initiatives can be found in the radiographic fields of angiography, mammography, radiographer-led contrast agent studies, radiographer reporting and trauma services. When ultrasound was first introduced into the NHS, radiographers received little medical support from radiology and formed their own support network across the country, helping each other by presenting cases for discussion and selectively enlisting the help of referring doctors at times of clinical difficulties (LV2). In contrast, the advent of MRI has produced a team approach to imaging similar to that experienced at the beginning of x-ray work where a radiographer is perceived as a vital team member (LV8).

In times when pioneering was essential, the diagnostic radiographer is a valued and essential member of a team whose collective aim is linked to discovering best practice and the best use of novel technology. As part of such teams, radiographers use problem solving, communication, and technological, clinical and caring skills to further the aim of the team. Once best practice has been determined to the satisfaction of medicine, diagnostic radiographers are no longer required in a pioneering role and, should history repeat itself, become almost displaced individuals whose problem solving skills are no longer required on a daily basis. Pioneering work constituted the "norm" at the beginning of x-ray work but it is now no longer part of the usual or everyday practice of the radiographer, it is part of a radiographer's role during career progression into areas of different imaging modalities or participation in change to service provision. Pioneering work continues to be an integral component of diagnostic radiography.

## ***Dangerous environs***

Dangers from the working environment commonly include radiation hazards (Mould 1980), but dangers also included hazards from electricity, chemistry and other staff. The responsibilities of practitioners in the radiation protection of the public did not rest with protection from exposure to ionising radiation just within the hospital. Regularly radon seeds were sent from the National Physics Laboratory in a sealed, lead-lined box to be collected by Tom at a local railway station. On arrival he found the box empty but with the clucking hen (the forerunner of the Geiger counter) he located them on a cart. The driver of the cart had stolen them, thinking they were lighter flints. Radium was also used by being formed into needles, then used for treatment purposes. Tom tells of some radium which went astray and the lengths that were taken to find it.

*"We lost some radium, we don't lose radium, you only mislay it. Some was mislaid. It was eventually traced down to the city destructor one Saturday. There was a great pile of stuff had come in from the fruit and vegetable market and we went through all this lot with a couple of men, name (physicist) and a crate of beer and we found them. They were blind drunk but we still found the radium needles with the clucking hen."*

*Tom p261 Appendix E*

In the 1950s the emphasis of radiation protection was not applied to students. Jim was drafted into the army in 1954 to do his national service. His request to be trained as a radiographer was granted and, following a thirteen-week course, he was sent to a military hospital.

*"When we came to the practical side we paired off with a partner, with another student, and we each x-rayed each other...."*

*Jim p319 Appendix E*

Thomas Tipler recalls that during his training days at the Army X-ray School at Woolwich in 1950 he practised on "volunteer" patients from the wards (Tipler 2002). The practice of x-raying people for no reason other than to provide practice for a student, perhaps time after time, clearly illustrates the lack of attention to radiation protection during the 1950s. The "volunteer" patients from the wards would be military personnel who would have no choice but to do as they were told. Similarly, the student radiographers from Jim's cohort would also have had to follow orders. Dealing with electrical hazards was also part of a radiographer's work. Arthur, Tom and Bonnie had first hand experience of electrical hazards. Arthur remembers his first visit to work in an x-ray department when he was 16 years old in 1932.

*"The place frightened me to death, the flashes and sparks and bangs and fuses going, oh dear it was an experience."*

*Arthur p311 Appendix E*

Tom remembered dealing with an open tube which required a plate spark gap to ensure the circuit was unconnected. One day the cleaner closed it and,

*“I didn't notice the switch on and this great sheet of flame across the place.  
And 50 kV wizzed round my head”*

*Tom p261 Appendix E*

Fortunately Tom escaped unscathed, however, Bonnie's story has a different ending. Bonnie was a nurse who had been trained to do radiography by a surgeon. She practised alone and was solely responsible for all the manual x-ray work in that hospital. Bonnie was clinically directed in her radiographic practice by a surgeon. She had no electrical knowledge or related background skills and this proved to be almost fatal.

*“I was doing a dental - a man from (local town) ...and my hair must have touched the tube and, well I went straight down of course. This man must have got off and gone to fetch someone, and they got the doctor there, and the next thing I knew I was on the next floor in a private ward in bed quite unconscious. I was lucky to have been alive. And they were giving me a cold water enema of all things, to cool me down I suppose (laughing) anyway I was given the day off, which was very unusual. I was out for nearly an hour you know. And they got a shock proof one afterwards.”*

*Bonnie v321 Appendix E*

Bonnie's experience illustrates how dangerous the practice environment for radiography was at the time of WW2. There is a tendency to document the radiation hazards in historical accounts. However, the electrical hazards of equipment or hazards from infection are not well documented. Thomas (2002) states that shockproof equipment was introduced in the late '30s and gives an account of a fatal incident at the Wimbledon Hospital where a nurse touched the x-ray machine during an examination carried out on the ward.

Working conditions for radiographers were poor by today's standards. Noreen and Muriel Chesney (2001) in one of their published recollections, remember that, as students in the early 1940s, they feared having to negotiate a spiral staircase whilst laden with “arms-full of heavy cassettes”. They also refer to the heating of processing chemistry with a poker that must have had no guard as, if it was carelessly placed back in its wall bracket it could, and frequently did, burn the radiographer's arm. Mavis Reynolds, a radiographer, recalls her father dying at the early age of 45 from tuberculosis, which at that time was common among health care staff (Thomas 2003b). Although Thomas does not give the year of death, Mr Reynolds qualified in 1928, the year his daughter was born, Mr Reynolds is likely to have died in the late '40s. Alice had a potentially dangerous experience in the operating theatre in the 1950s,

*“...the table went on fire and there were flames leaping out and they said ‘get it finished’ and we continued with the ... before we put the fire out”*

*Alice p273 Appendix E*

Fire in an operating theatre was a serious threat. In the 1940s the risk of an explosion occurring because of the use of high-tension x-ray equipment and inflammable and volatile anaesthetics was a realistic concern (Thomas 2001a). The risk of explosion may have been reduced somewhat in the 1950s. Alice talks of dragging heavy equipment around the wards. This shows a slight improvement from Harnack’s day when two men were required to move the machine. Alice had to take a transformer with her as well as the mobile x-ray machine or the whole ward would be fused with a loss of electrical power. In the 1960s Carole talks of the work being very heavy and physically demanding. The static x-ray equipment of that time was heavy, clumsy and difficult to manoeuvre. The mobile equipment used for x-ray work on the wards and in the operating theatres was even worse, creating difficult working conditions for the mainly female radiographers of that time. Carole recounts that other aspects of poor working conditions, unfair remuneration, long working days, on-call requirements and poor facilities for staff compounded this.

*“I used to go home and fall asleep”*

*Carole p279 Appendix E*

The hazards of processing chemistry, used to process x-ray films, featured in the responses of radiographers who were able to recall the effects of Crown immunity. For some radiographers the removal of Crown immunity started the improvement of working conditions as some suffered from the effects of inhalation of chemical fumes and/or skin reactions but felt unable to take any action. Miriam recounts the effects of the removal of Crown immunity and the subsequent lifting of prohibition orders preventing the use of equipment that did not strictly comply with safety standards.

*“when the regulations came in you could actually say this is unsafe what are you going to do about it you’ve got to do such and such or we can’t use it. Our processing didn’t have an outside exhaust. The exhaust from the machine just went straight up into the roof space so all it did was circulate it around the department. And we didn’t have a non-return valve on the tube that went from the processor to the container that collected the fixer so of course when that got too full it used to backflow. That was ‘85ish I think.”*

*Miriam p271 Appendix E*

Stephen began practising in 1983 and talks of how working conditions have improved during his career, which further suggests that working conditions for diagnostic radiographers, remained poor up until the mid-1980s. A number of radiographers suffered health problems from the inhalation of chemistry fumes and Stephen specifically mentions sinus and other respiratory problems. The removal of Crown immunity was the first step in making the working

life of radiographers less hazardous. Miriam remembers the implementation of health and safety regulations that changed the packaging of processing chemistry and automated their mixing preventing radiographers from having to suffer skin reactions. Currently the emphasis is on risk management, which requires the provision of a secure and safe environment for practice for all.

*“ Employers are having to recognise the risk employees take and be accountable for that it is risk management .... they don't want to be sued by the employees for putting them at risk. There is also the documented fact there is an increase in violence within society, increasing higher expectations within society which are not being met, which leads to frustration and conflict and I do think people are at greater risk. Having said that in seventeen years I have suffered nothing more than verbal abuse.”*

*Stephen p286 Appendix E*

Ross contradicts this from a managerial perspective as, in his experience, there are insufficient financial resources to meet the current health and safety requirements. Nevertheless, radiographers have noticed an improvement in working conditions. In today's NHS, abuse from patients has to be part of risk management and Stephen is the only respondent who mentions this. Radiographers regularly work alone and efforts are made to minimise or completely eliminate the risks of lone working through risk assessment, suitable policies, procedures and monitoring (Ransom 2002). The only other mention of abuse was from Ralph who laughingly tells of physical abuse he experienced from his manager in the 1950s.

*“I did something foolish one day and he broke a chair on my back. There was an old chair and he picked it up and crashed it on my back. And there was another case from angiocardiology, with these aluminium cassettes. Now in those days you couldn't give these young babies another dose of contrast media, it was too dangerous, because the agent separated from its binder in those early days and if that happened death wasn't far away. And I messed one of the cases up on this baby, and it couldn't be repeated for a long time. And he came across and he had a bundle of these cassettes in his hand like that and he dropped them and he fractured my toe.”*

*Ralph p250 Appendix E*

Ralph emphasises throughout his interview his ability to turn the negative into the positive and to blame himself rather than others. The dangerous environment created by the naïve use of x-radiation, poorly guarded electricity supplies and conductors, darkroom conditions with associated chemical and heat hazards, and working with highly infectious diseases without protection now no longer exists and cannot be considered as part of the “norm” of radiography.

## Technology

Radiographic practice is inextricably linked to technology. The equipment used in x-ray work requires a consistent and tailored electrical supply in order to create the power required for x-ray production. As experienced in the very early years of radiography, much interest is shown in x-ray technology from a variety of people who each seemed to think they had something to offer in order to be involved with it. Tom gives an illustration of this interest and highlights the lack of knowledge and understanding of x-ray technology from an electrical engineer.

*"And they had a consultant electrical engineer who as soon as he saw all this x-ray apparatus going in and the thought of a Linac and whatnot he was going to have a hand in this he wanted to connect me up to the grid. He said, "You'll save transformers and what not," I said, "No". And anyway he was eventually allowed to touch the KX10, that was the superficial therapy unit and he made a right old mess of that."*

*Tom p264 Appendix E*

In the 1940s and '50s practitioners took the responsibility of overseeing all aspects of radiographic technology installation, maintenance and repair where this was possible since, as demonstrated above, there was difficulty in finding the required expertise outside of x-ray workers. During his experience in the army in the 1950s in Japan, Thomas Tipler recalls that the bellows in the x-ray tube expanded so much through continuous use that he used a waterproof pillow filled with ice to cool it down (Tipler 2002). It was commonplace for radiographers to improvise with this complex technology in order to maintain an x-ray service. A number of respondents mention the building, maintenance and repair of equipment as part of a practitioner's duties (Tom, Ralph, Judith). The responsibilities of the practitioner extended to quality control. It was the practitioner's responsibility to ensure that any radiographic equipment performed to pre-determined specifications. Some pieces of equipment, although producing accurate results, were quite elaborate and some were certainly not designed with patient comfort as a priority.

*"It was called the Sweets eye localiser. And this was an open tube in a glass, lead glass bowl with just bare wires coming down and you earthed the thing. And the poor patient with a chunk of metal in his eye had to go in this frame and the whole lot came over his head and there was a half plate, that's going back a bit, a whole plate and a half plate, sized film. The film is non-screen. Well it's a non-screen cassette, as ordinary film. And you had to get a little localising pip over the centre of his eye and then of course the confounded mechanical rectifier whirring away. Poor chap you know, more trouble than. But it was a very accurate method of localising. If ever I could avoid using Sweets eye localiser, I did. Cos we had no protection you see. You see in the 1950s there was no protection. All you had to do was don't hold the patient, and stand behind the tube. That was the protection we had. It worked."*

*Tom p261 Appendix E*

Technology such as this was difficult to use and required much technical expertise and knowledge. Tom also recounts how radiographers were responsible for their own repairs and for rearranging electronic circuitry to maintain the functioning capacity of the equipment. As imaging technology developed, it became more user friendly and radiographic technical expertise became less and less crucial for its operation firstly, in x-ray work and then in the different imaging modalities. Noreen & Muriel Chesney (2001) recall the introduction of technology that prevented tube overload and the automatic pre-selection of mAs, finding it condescending and insulting. In some areas of x-ray work radiologists became increasingly able to use the less complex equipment, manipulating variables traditionally under the control of the radiographer and subsequently reducing the role of the radiographer. This form of role reduction occurred in angiography when timing of a series of radiographs became less complex (Debbie) in fluoroscopic work once digital systems had been introduced (Miriam) and in ultrasound once the angle of ascinclatism was no longer an issue (LV2). Similarly in cardiac angiography, where a procedure involves cardiologists, they are controlling the equipment much more and taking tasks away from radiographers (LV3).

The imaging technology of the time is a significant influence on the organisation of work. Tom recalls how a portable x-ray machine was used in the casualty department. The limited power of mobile machines means that only smaller parts of anatomy can be examined away from the x-ray department which houses the more powerful and static equipment.

*“Anything beyond a shoulder came down to main department.”*

*Tom p260 Appendix E*

This agrees with Friedson (1988) who identifies that the environment is highly influential on the organisation of work. In radiography, from the very early days to today, the technology available influences the organisation of the work of a radiographer. In Tom’s account, it was the power of the technology at that time that was the differential characteristic and dictated the organisation of a radiographer’s work. The technology used to acquire medical images has increased, diversified and changed to become more user-friendly. Over time the “norm” has changed from the need for a radiographer who had a broad range of technical skills to one who does not, further reducing the role of the radiographer. Not only has the role reduced but it has also become compartmentalised in line with the organisation of work dictated by the diversification of technology.

#### **10.4 Social forces - times of conflict - its impact on practitioners**

Interestingly, not one respondent who was practising in the mid-1940’s mentioned the formation of the NHS as having any impact on their work. WW2 impacted on the life routines

of everyone in the UK. However, little is documented about the impact of the war on radiographic practitioners and their work. Work seemed to carry on as normally as possible. Tom tells how the top wards in hospitals were left empty in case of aerial bombardment and how hospital lay staff, which included (male) radiographers, but excluded those of (female) nursing origin and all doctors, took turns at fire-watching. Tom also recounts how his knowledge and skills in the safe use of electrical equipment came in useful at a hospital some distance from his usual place of work.

*"And just before D-Day, I got a letter from the War Office. Some senior radiographers would be called upon to follow the troops into France as the invasion of NW Europe was imminent, expecting heavy casualties and to open up the French hospitals. Got half an hours notice to go to (city in UK). And slept in the nurses home and nothing came in. I just sort of twiddled my thumbs and anyway thought well for something to do I'll go and do the portables. They'd got a fairly modern mobile unit but they'd no alternating current on one ward, it was still DC. So what they had to do was connect up the DC to an electric motor, a DC electric motor which in turn activated an alternator to produce alternating current. So you spent half the morning connecting up before you could take anything."*

*Tom p263 Appendix E*

Despite the war, the expansion of radiographic facilities and the duties and tasks expected of its practitioners was ongoing. While setting up a diagnostic department, it was necessary to provide darkroom facilities but the person working on the conversion seemed to be at odds with what was actually required.

*"We were converting a large room into a darkroom and I went up one Sunday afternoon, this was to receive casualties, battle casualties and there was a man painting the inside jet black. I said, "It can be white, there's only going to be red light in here." "Oh no, no you'll fog your plates." I said, "Well you can stop, I'm fetching the foreman." I fetched the foreman, "What's all this?" I said, "There's no need to do this." "Why you'll fog your plates?" I said, "Look there's only going to be red or green light in here and white walls would be to our advantage." I said, "Well I don't want it doing." There we were, a room painted half black and half white."*

*Tom p263 Appendix E*

The war brought with it a rather different set of patients for radiographers. Prisoners of war required diagnosis and treatment and were not segregated from other patients or other people within the hospital. Although they attended the hospital under armed guard, they were brought and taken away on public transport.

*“And then we had the RAF, the German prisoners - German flyers, they were at (town). They were in a place at (town). Oh yes, oh yes often the British sergeant would walk in with 2 or 3 German pilots walk them through the streets from the bus stop. As far as I know he brought them on the bus then. He was armed and all the rest of it. Oh it was fun. Walking these people past the crowd on the corridor.”*

*Arthur p311 Appendix E*

Tom and Arthur have given their experience as male practitioners and it is interesting to examine the experience of a female practitioner who describes herself as a radiography sister and is from a nursing background.

*“So I was at home a year, just an ordinary housewife that’s what housewives did at that time. And the war started so then I had a letter calling me up, I was married, calling me up to go to (region), well no way was I going to (region), leaving my house and my husband. So I wrote to Matron in (hospital) and she said I could do sister’s duties but she could only pay me as a staff nurse because I wouldn’t be resident. Of course everybody was resident in those days and then the Sister’s job in X-ray became vacant. That was in 1943. And I did that for a while and then my husband died in 1944 so then (radiologist) who was the radiologist at that time have you heard of him? Oh if you’d done radiology, radiography, with (radiologist) you can do it. And he said when my husband died he said why don’t you go into (city) and do your radiography so then I did that.”*

*Judith p257 Appendix E*

Judith’s story shows how she felt the responsibility for caring for her husband and her home, and how this resulted in her reluctance to travel. She deals with this by requesting assistance from the Matron and this resulted in Judith’s employment in an x-ray department. She was encouraged by the radiologist to build on her nursing skills and become a radiographer. At that time in 1944, all sisters had to be resident within the hospital and the position of x-ray Sister was the only non-resident sister’s post available.

The impact of WW2 relaxed some of the symbols of power differentials between medical and non-medical staff that appear to have become significant since WW1.

*You see in the old days they were, they were, oo there (points thumb downwards). I often called them (radiologists) Sir. But then came the war and things eased off an awful lot. After that there were respected, gave them all the respect but the sir and kowtowing oo (shaking his head). There was one senior surgeon at the hospital who commanded the base hospital in (city) in the First World War as a colonel and he came back to do massage and things like that, physiotherapy to look after that. But he always used to inspect the porters' hands. And he was Sir. Oh my word you sprang to attention when he came round and when the porters came in he always looked at their hands and if they were a bit grubby, get them washed!*

*Tom n263 Appendix E*

This contrasts with the current role of the radiographer who has to deal with the aftermath of terrorism. LV1 found that, as part of the routine workload, there was a requirement to undertake forensic work for which there had been little preparation agreeing with the findings of Walsh, Reeves & Scott (2004). The realisation of the importance and difference of the forensic context has led to an increased awareness of the need for radiographic expertise in the investigation of suspicious death and injury possibly on a large scale.

### **10.5 Role of the radiographer**

Although the role of the radiographer has varied over time, hands-on patient contact is a significantly strong, continuous thread throughout this analysis. Patient contact and a patient focused approach is highly valued by radiographers. Gillian gives her definition of what a radiographer should do.

*"I mean to me being a radiographer meant to be with the patients, hands on the patients, looking after them, caring for them, following them up and finding out what happened to them."*

*Gillian p247 Appendix E*

This statement demonstrates that the focus of her practice was the patient and Tom, Elizabeth, Miriam, Carole, Claire, Kathleen, Caroline, Jane and Jim express similar patient focused philosophies extending throughout the time span of this project. Tom talks of ensuring that outpatient appointments for x-ray examination are made to coincide with the availability of transport for each patient and the requirement for any other appointments to be made on the same day. He clearly had the ability and authority within an environment conducive to patient focused care to manage appointment making for the benefit of the patient. Elizabeth acknowledges that patients lose their identity when admitted to a hospital and insisted that she and her staff made time for patients, particularly those who had difficulty in moving themselves, so that radiographers were able to form a working relationship with each patient. Miriam values

patient contact and has expectations of aspects of patient care that are not met by some current nursing and radiographic staff she comes into contact with.

*"I don't think a lot of nurses and staff are as nice to patients as they used to be.... they talk about them in front of them, they'll read their notes in front of them, and its got nothing to do with them.....they shouldn't be reading patient's notes, not unless they're actually doing something to that patient that they need to look in. They're just being nosy.... they don't give them a blanket when they need one, or if their dressing's falling off... they don't clean them up or help them in and out of their clothes... if they haven't got the time they don't find somebody else to do it. And I don't know whether it's just because they don't think it's important or whether... it's not been drawn to their attention...when you see some of the patients being wheeled round the hospital you think... I'm glad that's not my parent."*

*Miriam p269 Appendix E*

Carole has a patient focused attitude and enjoys the fact that she is helping to make patients pain-free. Claire expresses similar concerns to those mentioned by Miriam through her disappointment in the efficient but cold manner currently used by some radiographers, which is partially aggravated through a lack of time with each patient. Claire also suggests that there is a lack of radiographer awareness of how the patient is feeling. Two out of the three most recently qualified radiographers mention dissatisfaction with this lack of patient contact time. Jane values patient contact and explains that some radiographers appear to work as though part of a production line and their practice is more guided by maintaining patient throughput rather than individual patient's needs. The production line approach to radiography is mentioned by Christopher who links this to the indiscriminate use of imaging by doctors who refer many patients for medico-legal reasons to prevent litigation.

*"... you're just not really part of anything that's really helping, you're just part of a check list .... do an x-ray because it's part of the protocol... .., not because it's really been thought through. .... It's just a bit annoying sometimes."*

*Christopher p303 Appendix E*

This could be regarded as significant, as both Jane and Christopher are the most recently qualified and both refer to the x-ray "production line". Christopher's response denotes a sense of dissatisfaction relating to the lack of patient focused care and there is similar resonance with Kathleen who values the stimulation and satisfaction gained from conveying results to patients.

*"... we do a lot of salps in our gynae section and the patients always ask... what did this show. We go through the images with them on the screen and tell them everything and point out if one tubes blocked and the other's OK and they've still got a good chance of conceiving. We feel able to give them all this information, confidently ...."*

*Kathleen p299 Appendix E*

There is an impression that some radiographers do not feel to be an integral part of the care team or that what they do is valuable (LV3). This is exacerbated by a lack of realisation by those who allocate tasks, of what radiographers can offer (LV1). There appears to be a sense of frustration and dissatisfaction running through the more recent experiences that relate to a lack of attention to details of patient care, a lack of appreciation of what radiographers can do by those responsible for directing the boundaries of practice and an emphasis on patient throughput at the expense of patient focused practice. Collectively, these form an interesting contrast with the sense of satisfaction expressed by Jim who describes his sense of self-value as a team member advising referring clinicians in the prison service, and organising the attendance of retired coal miners for pneumoconiosis screening when employed by the National Coal Board. Currently employed by the NHS, Jim identifies the key differences between working for the NHS and the Prison Service as, when employed by the latter, his appointment included the role of giving advice on patient management based on x-ray findings.

*“...at the Prison Service I’ve always looked at the films and interpreted them and advised the medical officers if I thought there was a problem or if something wanted doing with the patient. It was my job to advise them and put the patient on to the doctor and say ‘look I think he needs to go to the Infirmary or he needs this and that’. So my appointment was a little bit more in the prison service. But we’ve caught up in the health service now we’re doing that here... We’re advising people what to do, that was basically the difference.”*

*Jim p319 Appendix E*

Jim referred patients to the prison nurse or the prison medical officer, a general physician, as appropriate for nursing or medical treatment. Jim refers to the prisoners as “my patients”. He is the only respondent to refer to patients in this personalised way.

*“So I made sure the prisoners were looked after....”*

*Jim p319 Appendix E*

Similarly whilst working for the National Coal Board, Jim was able to organise patient focused sessions for retired coal miners. Again, it is interesting to note that he uses the phrase “my patients”.

*“Especially pensioners. I use to have a special session for old age pensioners, retired miners and that was their morning out coming in to see me for an x-ray. And they really enjoyed it you know; it would take them half an hour to get undressed. And I use to give them a lot of time because I had a special time just for the pensioners to give them time and talk to them and they told me some really fascinating tales about things. But I try to give all my patients a little bit of time, if I can.”*

*Jim p320 Appendix E*

One key difference between Jim's experiences of radiography outside of the NHS was the level of autonomy of practice, its organisation and boundaries when compared to that in the NHS during the 1970s and 80s. Jim was able to organise his work around the needs of the patient, not only their health needs but also their social requirements. He was also able to use the full extent of his skills and knowledge and contribute effectively to patient management. This evidence demonstrates a holistic, patient centred approach to practice that is supported by the strategic organisation of work. The factors supporting this form of practice appear to be radiographic input to the strategic organisation of work putting the patient's needs at its centre: clear clinical autonomy with significant contribution to patient management and a practice profile that uses the full extent of the knowledge and skills of a diagnostic radiographer. The key to why this may be lacking in the NHS may have been expressed by LV1

*"... the other professions really had no idea of what radiography could do for them."*

*LV1 p326 Appendix E*

This general lack of recognition of the knowledge and understanding of what radiographers are able to do may be exacerbated by the "production line" culture encouraged by the achievement of quantitative targets as it acts as a deterrent to inter departmental communication.

*"the services are becoming more insular now than ever and I think it's because of pressure, because of targets to be met."*

*Ross p256 Appendix E*

In their study to determine the perceptions of the NHS by potential staff, Coombs et al (2002) discovered that the job satisfaction of interacting with patients was the most attractive part of a radiographer's role. This parallels the Williams and Berry (1997) model of practice that places an emphasis on patient care rather than the production of images.

It is interesting to note that where medicine is not a day-to-day influential factor, as in the experiences of Tom and Jim, the role of the radiographer is varied because it covers an expanse of organisational and service requirements. The radiographer had an exclusive role with knowledge and skills held by no other person in the team. As a valued member of the team the radiographer had the authority to practise under his or her own technical and clinical guidance. Gradually the role has been constricted minimising exclusive practice and detracting the radiographer's input into organisational and service delivery. If specialist practice is related to the concept of exclusive practice, radiography has been reduced from the special to the routine.

## Summary

As the concept of specialism is relative, it is important to establish perceptions of what constitutes normal or usual practice. Through initial deductive analysis and subsequent narrative analysis the usual working world of the diagnostic radiographer encompasses a practice ethos where challenges became an accepted part of work. Greatly influenced by gender issues in the past, the role of the radiographer has been progressively reduced by the simplification of technology, the power of medicine and, in particular, the power of radiology. The value radiographers place on patient contact is high and a significant contributing factor to job satisfaction. Movement of factors constituting the “norm” is summarised below.

Table 9 The “norm” past and present

Aspect	Past	More recent
<b>Pioneers</b>	Invisible and unacknowledged role	Becoming visible and an acknowledged part of career progression
<b>Working conditions</b>	Very poor by current standards, dangerous from infection, electricity, x-radiation and darkroom tasks. Long hours with little remuneration.	Danger is no longer an issue but unable to comment on other aspects.
<b>Technology</b>	Single but complex and required a radiographer who could get the best from available equipment and electricity supply.	Multiple modalities that are user-friendly.
<b>Times of conflict</b>	Significant at the time of WW2	Perhaps still significant in places due to investigation of suspicious death and terrorism
<b>Role</b>	Patient centred producing a high level of job satisfaction All encompassing	Not patient centred producing less job satisfaction. Reduced by medicine, radiology, user-friendly technology and target setting.

The majority of x-ray pioneers are accepted as being men as before WW2 they were associated with the use of technology and several male x-ray workers contributed to technological advances. Following the war, Alice’s experience demonstrates that pioneering work continued with the development of appropriate techniques linked to medical advances in orthopaedic and vascular surgery. Pioneering work has continued with the introduction of additional imaging modalities, changes to service delivery and a greater understanding of forensic work. To some extent the pioneering aspect of diagnostic radiography has come to be accepted, as no longer part of the “norm” but as part of career progression either as autonomous practice involving imaging modalities other than x-ray or as part of a change to service provision.

Working conditions for radiographers have improved dramatically with the minimisation of electrical and pollution hazards. Technology has been made less complex, helping to reduce the role of the radiographer as less manipulation of x-ray beam variables is possible. The user friendliness of the equipment allows medicine to take control of it when it chooses, further reducing the radiographer’s role.

**Summary cont'd**

The role of the radiographer began as part of a patient focused system of work and the analysis suggests that removal of this focus through the organisation of work, reduction of role and/or lack of feeling of professional value in patient management lead to a decrease in job satisfaction. Jim's experience shows that it is possible for diagnostic radiographers to practice outside the NHS and achieve a high level of job satisfaction through practice and organisational autonomy that is focused on the patients' needs. The role of the radiographer has been reduced from a specialist role to one of routine.

# CHAPTER ELEVEN

## Reflexive account

*“Often it is the study of the lesser known characters that provides the most profound insights into the life and thoughts of people of an era”*

*(Matejski 1986) p181*

### Introduction

In this chapter I discuss the decisions I have made throughout this research and why I chose to take the route I did. This reflexive chapter helps the reader to understand why decisions were reached in the way they were, to give transparency to the research process and identify bias potential. Ethnographic studies need reflective reflexivity to clearly state the criteria used to collect, examine and interpret data, Denzin & Lincoln (1998). This differs somewhat from quantitative studies where the researcher is seen as being external to the research process, data collection is objective and the presence of the researcher in the data is minimised. This positivistic approach to research validity requires the notion that data is pure and external to the researcher and is demonstrated in studies that use structured interview schedules which remain the same for each participant or questionnaires that assume the same meaning for each participant. The qualitative researcher realises that data is not external to the researcher and by being present and collecting data, the researcher has an impact on what is collected. The researcher is seen to generate data by their interactions with the participants and their immediate environment. Unlike quantitative studies, this is not viewed as problematic in qualitative research. There is a need for the researcher to be reflexive, acknowledge being in the study and inform the reader, who can make judgements about the influence of the researcher on the study. This reflexive account acknowledges my potential impact on the study and that the participants' stories have been collected and analysed using the identities I brought to the research process.

Researchers are required to identify the interactions that have occurred in their own thoughts (self-reflexivity) and between the researcher, the research design and the settings and group under study (Denzin & Lincoln 1998). Researchers use reflexivity as part of a transparent research process that is commonly associated with how the researcher might impact on the data and examples of this are given in Pellatt (2003) Hand (2003) and Carolan (2003). There is a need for the researcher to be reflexive, acknowledge being in the study and inform the reader, who can then make judgements about the influence that the researcher has on the study. The researcher impacts on the study prior to data collection; the researcher shapes the focus, context and identifies salient features that might impact on the topic. The reflexive

narrative explains why this study was undertaken and how my personal journey through the research process unwinds as the realities of research present themselves. The researcher and the reader should know how the participants interpret the researcher's qualities in order to understand the phenomenon being researched, Reinhartz (1997). In order to examine this, it is necessary to be reflexively aware of the different identities the researcher brings to the study.

### **11.1 Radiographer educationist**

My University identity gave me credibility as a researcher; my identity as a teacher gave me authority and as such I needed to be aware of the power relationship this brought to the study. I do tend to question assumptions and I know that this is often not a popular characteristic to display. My identity as a radiographer who could remember practice from long ago enabled the conversation with retired practitioners to happen as I felt I had some insight into their working world. However, my own experience of clinical radiography, including ultrasound, has given me a holistic way of looking at the patient experience and I do feel quite strongly that radiographers could be less reductionist in their practice. This particular way of thinking has allowed me to draw the conclusions I have from the findings.

I began this study by questioning the lack of acknowledgement of paediatric radiography as a coherent area of practice. I feel there is much lip service paid to the imaging service provision for paediatric patients and their families. Having worked as a paediatric radiographer in a district general hospital, a relatively unique post, I am aware of the many facets of paediatric work and the challenges associated with service provision for paediatric patients and their families in an adult environment. Despite the existence of the Association of Paediatric Radiographers, the oldest Specialist Interest Group (SIG) in radiography, there did not seem to be clear support for the majority of radiographers who provide a service for paediatric patients alongside a service for adults. Once employed in Higher Education, to support practice, I initiated a Postgraduate Certificate in Paediatric Medical Imaging Practice.

The illusion of knowledge inhibits discovery (Boorstin 1988). When I undertook the lead in paediatric radiography I thought I knew about paediatric practice but when I started to learn about the whole range of differences that exist between adult and paediatric work, I realised how little I knew. This knowledge of my own ignorance led me to consider my work with patients in a different light and I realised how little I knew about the different groups of patients who were under my care. My initial thoughts have moved away from paediatric service provision to encompass the broad sphere of professional culture and associated value systems. It seems that, at the time of starting this project, there was a greater professional kudos associated with technology than with patients. Coming from an era that was taught to

use technology that is now better housed in a museum and would certainly not pass current safety standards, I wondered why technology was held in such high esteem when some of the newer imaging technologies seemed relatively easier to use. It appeared to be appropriate to investigate how radiographic specialisms have come to be recognised as such and this became the focus of my study.

It was apparent from an early stage that a qualitative approach was required and that I would need to find out what was considered to be the “norm” for radiographic practice over time. I initially went to the professional body to examine the historic documentation held there but I found that this could not help to identify aspects of practice. The minutes of meetings I could access had a broader agenda and were not helpful. I accessed a medical historian who strongly suggested that I look at specialism in medicine as a conceptual base for the project. Interestingly, he assumed that there was a substantial amount of literature on the subject, and was surprised when he failed to find any. The complexities involved in the academic study of specialisms seem to have inhibited research on this topic.

Although very little literature exists on this subject the key works of Rosen, Reiser and Stevens helped to identify key issues to focus on in the study. I knew at this point that I would need to interview past and current practitioners. I was still undecided whether what I was doing would constitute an oral history collection or life story interview although I eventually concluded that my study fitted more with the concept of oral history. I formulated an interview schedule to cover every aspect identified in the literature review. As the interviews progressed it became more and more apparent that many of the issues identified from the medical models of specialism were not pertinent to diagnostic radiography and some participants struggled with some of the questions. This was exacerbated by the fact that it is difficult to pilot this form of interview. An area of bias may exist in the fact that the earlier interviews were not carried out with the same level of confidence as the latter ones.

I gradually shifted to a more open and conversation-like interview and grew in confidence and, I think, competence at this way of generating data with participants and confirming meaning with them. I told each participant that I was a radiographer, postgraduate student and radiography educator. Some participants I had known as students, and others were known to me through my years in radiography. I was very conscious of the fact that some participants may feel that I occupied a relatively powerful position and I did my best to assure them that there were no right or wrong answers. An area of bias may exist for those whose trust I may not have completely gained and who told me what (s)he thought I wanted to hear. I had not met the majority of participants prior to conducting the interviews. Initially I was concerned

about this variation but all seemed keen to participate and talk about themselves and many saw the study as helping to further the profession. The interviews were conducted in an informal manner to produce a purposeful conversation. There was a form of professional comradeship to the interviews with anecdotes and humour being swapped between the participant and me where appropriate. This supports the research process as it helps to verify meanings and interpretations, Miles & Huberman (1994). This reciprocal practice extended into areas of imaging technology and retired practitioners were keen to know about what was happening currently in radiography.

I was most relaxed conducting the interviews with those participants who were already known to me as I felt that a positive relationship was already established and the interview felt like an extension of previous conversations. All participants made me feel comfortable whether this was in their own home or at a different venue. When interviews were conducted in the participant's own home some had prepared things to eat and drink beforehand. I felt very humbled, particularly when I realised the trouble some had gone to. None of the interviews presented me with any management difficulties as the conversational style allowed for everyday disruptions that can occur in the home. Some of the experiences participants shared with me made me quite angry that they had either had such an awful time or that their knowledge and good nature had been abused by those in power. On the other hand some participants had some endearing and humorous accounts and this helped to balance the negatives. Some narratives were more powerful than others were and I have tried not to allow these to take priority in the data analysis. For the preservation of some professional and social history, many of these stories appear in Chapter 10.

## **11.2 Impact of being female**

My female identity allowed me to empathise with working women and their numerous duties outside of work. It also made me aware of gender differences in experience and alerted me to the fact that male radiographers have issues related to their professional experience. When looking for wealthy experiences, I was drawn to look at seniority and therefore another starting point for identifying respondents was the managers of the Imaging Departments. They were able to identify and contact retired radiographers to see if they would like to participate in this research. It soon became apparent that there were many more male radiographers available who could act as respondents as traditionally, they had the longer career. My awareness as a woman meant that I made the decision to ensure that the ratio of male to female respondents was managed appropriately to collect adequate coverage of the experiences of both male and female practitioners. This demonstrates my awareness of how invisible women can become and lead me to get quite angry about the almost dual invisibility

endured by female radiographers. The first invisibility because of being female and the second from being a radiographer. It made me recall times of my own invisibility, some of which could certainly not have happened to any male colleagues.

Throughout my PhD I have emotionally invested into the subjective position of feminist-researcher. I understand this as being a researcher who empowers her participants by clarifying responses at the point of interview and analyses data not losing sight of women's autonomy (Wilkinson 1996). I achieved this by allowing my female and researcher identities to be symbiotic, mutually supportive and aimed at producing a conscious, ethical, and sensitive standpoint.

### **11.3 My concept of specialism**

My intention was to determine what each participant thought was a specialism in diagnostic radiography. Each used the terms specialism, specialist and specialisation interchangeably and I was not expecting this as I had, by this stage, got a firm concept of each term. I could not begin to explain the complexities of the differences to each participant as this would have been too complex and may have influenced their understanding of the notion of specialism. It was difficult for some to identify the “norm”. In the early interviews, I tried to ask participants to describe a typical working day but such a thing does not appear to exist in memory and participants struggled with this.

### **11.4 The sample**

Eyewitness accounts from lived experience are predominantly used as sources of data for this research and, as such, are classed as primary sources. The sample was carefully chosen; in order to gain insight into the nature of everyday practice, it was important to access practitioners with the necessary experience. The size of the sample needs to be appropriate to balance the depth of data with breadth of data and, at the same time, reflect the purpose of the study and the professional discipline, Thorne (2001). Although it could be argued that the sample size of 31 is small, it is in keeping with in-depth research studies and the total number of radiographers is not large. The current (2002) edition of the professional news was distributed to just over 17,000 radiographers. By this fact alone, radiographers appear to be an elite group of health care professionals and a small sample size does not limit the research in this context.

Participants were interviewed and the data was analysed to identify categories and once saturation was complete, data collection ceased. However, due to the historical nature of the

study, it was important to aim for as equal saturation for each decade as was possible and the original intention was to interview three practitioners whose professional practice began in a particular decade. To some extent the decision to sample three from each decade was equally driven by logic as it was important to have a sample that could describe practice over specific periods of time, conforming to requirements stated in Mason (1996). Eligibility for inclusion in the sample changed as the study progressed as sufficient participants, one male and two female, were identified for a particular decade. By necessity this excludes the years 1932-1940 as it was more difficult to access people who began their practice at this time. Participants could, to some extent, be linked with specific years of practice. Some practitioners' practice covered long periods of time and some covered shorter periods. Practitioners covering shorter periods of time are used to illustrate practice from that period. One practitioner only practised during WW2, one only practised in the 1950's and one recalled her practice of the 1960's prior to leaving the profession for a period of time. Allocation to decade was dictated by the year radiographic practice started for each practitioner. Saturation was difficult to determine decade-by-decade; retired practitioners and current radiographers formed two key sample groups and saturation was achieved in each group.

### **11.5 The sampling strategy**

It is unusual to be able to access first hand informants, but in this instance it was a possibility. The first task was to identify radiographers who could articulate their experience and who first practised in a particular decade. The first retired practitioner was contacted as (s)he was known to me and it soon became apparent that retired radiographers form part of an unrecognised network that exists outside the professional sphere. Five respondents representing retired practitioners were accessed via this informal network. None were from the same local area. Each of them knew of the existence of the others and two exchanged annual correspondence. Each respondent was asked if they knew of another radiographer who might be willing to participate in this research. This form of snowball sampling or chain referral sampling can be problematic, Biernacki & Waldorf (1981). It has been identified that the formation of specialisms started with the acknowledgement of radiotherapy as a distinct group from diagnostic radiography. The main thrusts of emerging specialisms started in the 1960's with nuclear medicine and gathered pace through the 70's with CT and ultrasound, through the 80's with MRI and in the 90's with changes to health care delivery. It was therefore important to identify radiographers who were practising at these key times.

## 11.6 Ethical issues

Whilst most ethical issues related to this study were predictable and could be acknowledged within the research design, two were unpredictable and arose from the practice of sending transcripts to participants. Whilst every effort was made to prepare the participant for the appearance and format of a transcript, that it would not be in sentences as it reflected the spoken rather than the written word, one participant was distressed by how his/her words appeared. Further time was spent with this participant altering the wording until satisfaction was achieved. A further issue arose with two participants who read their individual transcripts and expressed dismay with the content of their professional life. In these circumstances it was my duty to help the participant find key achievements to quell any concerns each had. The fact that individuals may look back at some points in their life with regret is identified in the collection of life stories, Atkinson (2002). No advice is given about how to deal with this issue. Oral history collection may involve circumstances which are/were distressing to the participant. For example one participant recalled when, on a number of occasions, (s)he was subjected to physical abuse by a manager, and, on one occasion, the abuse resulted in severe physical damage. I felt that it was my responsibility to listen quietly to what was said and allow the participant time to vocalise their feelings and reflections. I tried to leave all respondents with a positive frame of mind once the interview was complete even if this meant staying with the participant for some time. In these sorts of circumstances, Lofland & Lofland (1984) talk of a state of reciprocity existing where the researcher gains the knowledge and information being sought and the participant finds a good listener to whom (s)he can recount and reminisce. I did attempt to develop and maintain such a state of reciprocity.

All attempts were made to conduct the interviews in a sensitive and thoughtful manner. Retired radiographers were interviewed in their own home. The researcher was very conscious of the fact that by entering someone's home, everyday disturbances would have to be managed. Security for lone, elderly participants was an issue and the researcher was careful to ensure that each had identifying information about me prior to admission to the home. Practising radiographers generously gave their own time and were interviewed either in the comfort of their own home, in a quiet place once work was finished or before the start of the working day. This minimised any disturbances and maintained privacy.

I do acknowledge that, the requirements for research governance are currently somewhat different to when the data was collected for this study. Further studies of a similar nature would now require consent forms to be signed and archived and risk assessment.

## **11.7 Data analysis**

The 31 interviews generated large data sets and deductive reduction of data was employed using a list of codes determined from the literature review. A preliminary start list of codes used for analysis can be found in Appendix D and summaries of each interview analysis can be found in Appendix E. It became apparent that, in line with the issues that arose during interview, similar effects were emerging from the preliminary list of codes. Many categories were irrelevant and were discarded and a new list of codes was formed from the combination of issues identified in the literature review and their occurrence in responses from participants. This reduced the data to five data sets: the “norm”, the special, social forces, radiology and referrers. A significant amount of this data was in the form of stories with an identifiable beginning, middle and end. Narrative analysis was used to further reduce the data.

## **11.8 Meta-synthesis**

I used a meta-synthesis of research literature to explore the meaning of expert practice as I was unable to find an evidence-based definition of the term. The meaning of expert practice is key as it features in the job characteristics of a non-medical consultant. Using the medical model, the consultant and specialism are inextricably linked and, as this role development seemed to parallel the medical model it was appropriate to explore the nature of expert practice using the findings from published research.

## **11.9 Learning**

In this section I will identify my learning and what I have personally gained from undertaking this thesis. I embarked on this process some time ago but clearly recall the trepidation and uncertainty I felt at the time. This seemed to worsen as I had chosen a complex topic that had little focused literature. As time passed and the more I learned about specialism, the more I realised I didn't know and the longer my list of questions grew. It took quite some time to be able to prove that I could examine such a complex topic, both to others and myself. I underestimated the difficulties of problematising specialism. But I did and this was a great boost for me. It's been a bit of an uphill struggle at times trying to balance work and family commitments with my desire to write and study, particularly when serious family issues cropped up that only I could deal with. A large part of my learning has been to juggle time, become an expert in fast meal preparation and even faster housework. I have learned how to think while gardening, driving and running. It was difficult to get others to understand that I was “doing my PhD” on my knees with a trowel in one hand.

I have learned much about the research process and recall with horror my previous attempts to do research studies. Qualitative research methods are deep and vast and I still feel that although I have completed this study, I have only scraped the surface of qualitative methodologies and have much more to learn. The key tenets of the research process that I feel I have improved on are that I understand how to:

Identify and focus a research question;

Justify a research study;

Problematise complex topics;

Justify a research design;

Prepare, conduct and analyse interviews;

Conduct a systematic literature review that culminates in a meta-synthesis;

Identify ethical issues and formulate strategies for dealing with them;

Handle huge amounts of data to generate, construct and organise writing;

Organise and present data;

Form conclusions;

Catalogue and file references;

Read and write critically;

and

Produce a scholarly piece of work.

Setting realistic goals and targets for myself was an issue at first as some were quite unrealistic and, at one point, I felt I was continually behind in my studies. I was reminded of the joke, "How do you eat an elephant?" The answer is one mouthful at a time. I learned to set realistic targets and goals that spanned longer periods of time. I found that my thoughts were clarified while writing and this activity took up much larger chunks of time than I had anticipated but this was the bit I really enjoyed. I loved having an "end", a piece of work that feels as though it is complete. I really enjoyed getting to the end of a chapter and doing the summary. I have learned I am a "completer" and gain satisfaction from completing projects. I discovered the joy of writing despite the fact that many textbooks on gaining a PhD state that this is the most difficult. Perhaps because I found problematising specialism so difficult, this provided me with a relatively easier time while writing, when I had a clearer idea of what I was trying to achieve. I have a few favourite pieces of music that I listened to that I found encouraged me along. Thank goodness for Runrig.

## Summary

In accordance with the current emphasis on the transparency of the research process, I have identified the decisions I made about the research process along the journey of this study. I have discussed the difficulties of using the medical model of specialism as the foundation for the interview schedule and data analysis and what I did to address the issues that arose. The various identities I brought to the research have been acknowledged. Identification of a sample and the nature of interviewing has been described and discussed. This chapter on reflexivity has allowed me to narrate my potential impact on the study and allows the reader to make decisions about robustness, vigour and trustworthiness of the data it has generated.

A challenge for me was to maintain an open system of thought as I have spent my life in radiography. I have endeavoured to keep an open mind and use my experience as insight rather than a mould. I have learned that, like radiography, research is a craft requiring IT, people and literary skills. I have learned from my peers through their experiences and my mentors through their feedback. I feel privileged that I have been able to help others who are part way through their studies. Producing this thesis has certainly a trying, frustrating, enjoyable experience I would never have missed.

Reflection on the findings, my previous experience and my identities have shaped my way of thinking. This has allowed me to draw the conclusions I have from the findings.

# CHAPTER TWELVE

## Conclusions, implications and recommendations

### Introduction

In this chapter I present the conclusions of the study, examine implications for policy and practice and areas for further research. I identify the difference this work has made to the state of knowledge on the development of specialisation in diagnostic radiography and the significance of its contribution. I have set down a major piece of new information in writing for the first time, it is original work on a complex topic and uses new syntheses, adding to knowledge on expert practice in a way that hasn't previously been done. To some extent it is cross-disciplinary looking at medicine and Allied Health Professions (AHPs) and crossing academic boundaries of occupational sociology and history. The aims of this study were to examine:

1. the contemporary ethos of specialism in diagnostic radiography.
2. how the higher status of technology has developed over patient-centredness.
3. the impact of the working relationship between radiology and diagnostic radiography on this development.
4. the relationship between gender and the nature of occupation in the development of diagnostic radiography.

In line with a critical theory approach, this thesis challenges the unexplained assumptions of what constitutes specialism and specialist practice in diagnostic radiography, giving some possible explanations about how and why particular notions of specialism prevail. The power of medicine is explored. In addition, this thesis contains original work on:

- the meanings of “expert practice” and how this might be applied to diagnostic radiography.
- the concept of specialism. Although literature on the nature of medical specialism is available, this work takes the concept of specialism into a new area, that of AHPs. The relationship between specialism and expert practice is considered in depth and is an original contribution.
- the history of radiography. Literature on the history of x-ray work and other forms of imaging is limited to description and analyses of its technical, political and organisational aspects. This thesis advances the history of radiography to incorporate the professional experiences of individual practitioners, their professional priorities and the key influences on their practice and career opportunities. The illustrations of the working relationship

between radiologists and radiographers and its impact on diagnostic radiographers add to existing literature that mainly covers the national professional stance.

The strengths and limitations of this work are that it is based on the lived experiences of 31 practitioners, the majority from central and northern Britain. As such, the findings are suggestive rather than conclusive.

### **12.1 The contemporary ethos of specialism in diagnostic radiography - conclusions**

- The academic problematisation of specialism is complex as the concept is a negotiated construct. In medicine this is nationally understood but in diagnostic radiography the awareness can be quite local. There is an emphasis on local, probably medical, values underpinning notions of specialism and expert practice in diagnostic radiography.
- The key characteristic of specialism is the visibility of separateness showing a distinct difference between “usual” and “special” practice. In diagnostic radiography there is confusion where the notion of separateness is not overtly visible and obvious. The process of specialisation is dominant as in medicine but does not necessarily lead to additional autonomy. Radiography has a complex interdependent network of specialisms, some of which are not recognised by other radiographers or by other professions.
- Nine characteristics of specialism have been identified and applied to eleven fields of diagnostic radiography to produce a hierarchy of specialisms as seen by radiographers.
- Notions of specialism are confused with concepts of expertise and expert practice.
- The medical and AHP models of specialism are clearly different since medicine has the power to produce an autonomous response to national social forces.
- This study has identified a new model of expert practice and links this to radiographic notions of specialism and the consultant radiographer. This new work shows how expert practice, 50% of the consultant’s role, can be identified. It suggests that specialisms and expert practice are self-reinforcing.

- The organisation of work in an imaging department can inhibit the growth of expert practice particularly where managers do not:
  - provide a work environment that supports radiographers' expert practice and the autonomy it requires.
  - recognise the potential of radiographers.
  - encourage radiographer participation in research to underpin evidence-based practice.
  - encourage radiographer participation in decision-making.
  
- Radiographers place a high value on traditional areas of expert knowledge but there is little recognition of the importance of knowledge of context and of self.

## **12.2 Technology vs patient-centredness - conclusions**

- Emphasis on technology stems from the radiological requirement for an assistant who can manipulate imaging technology to the point that the radiologist is only concerned with mental tasks.
  
- Radiologists need radiographers at times when imaging technology is difficult to use, either because it is a new invention or there are inherent complexities of use. Once familiar with technology, radiologists take over from radiographers until a time when other tasks become more valuable. In this respect, radiology cannot function without radiography.
  
- The reductionist approach to medical diagnosis exacerbates the difference between mental and physical tasks as a technological emphasis for radiographers fits neatly into a reductionist paradigm. An anomaly exists in that radiographers express an increase in job satisfaction where there is more emphasis on patient contact.
  
- It is difficult to see how the four-tier career structure fits with a technological emphasis on professional division in its entirety as the first three are more likely to be used by management. Without the patient focus, the final tier may be mainly redundant in diagnostic radiography.
  
- A hierarchy of specialisms in diagnostic radiography exists clearly placing technology associated specialisms higher than others.

- Some patient groups, most notably the older patient or patients with mental health problems, are missed out completely and are absent from the hierarchy of specialism of diagnostic radiography.

### **12.3 The impact of the working relationship between radiology and diagnostic radiography on the development of specialisation in diagnostic radiography - conclusions.**

- As radiologists became more involved with the managerial aspects of running an imaging department, their value systems predominate and govern the opportunities for career progression for radiographers sometimes in a whimsical and illogical fashion. Such opportunities tend to prioritise technology and/or procedures repeating the historic “handmaiden” or “butler” relationship between radiographers and radiologists.
- The power exerted by individual radiologists within a radiological team can be used in contradictory ways, making radiological leadership ineffective where there is a lack of concord between radiological colleagues and a lack of radiographer participation in decision-making. Where radiologists are in harmony and radiographers are included on an equal footing in planning and patient-centred discussions, such multidisciplinary teams are more effective.
- In the past, radiologists have controlled the work, career pathways and scope of practice of radiographers to maintain the difference between medical and non-medical contributions to imaging work rather than enhance service provision.
- In the absence of radiologists, radiographers act as the radiological representatives when considered appropriate by radiologists. Consequently some radiographers have increased autonomy but with little official recognition.
- Areas of medicine other than radiology place a high value on radiographer skills because images provide reassurance, confirm diagnoses and monitor treatment. Where their skills have been recognised, radiographers can practise more autonomously in a patient-centred way that gives higher levels of job satisfaction when employed in medical areas other than radiology.

## **12.4 The relationship between gender and the nature of occupation in the development of diagnostic radiography - conclusions.**

- Radiologists used the power of social class and gender difference to create the difference between radiologists and radiographers.
- As male (radiological and radiographic) values predominate, technology becomes more of a focus than a group of patients, which would require female values to rise to the fore.
- In the past, radiographers accepted poor working conditions that were extraordinarily hazardous but this is no longer a key issue.
- Gender differences between radiologists and radiographers and between radiographers had a significant impact on the radiographer's role because masculine skills were, and appear to be still, prioritised. The impact of gender difference is overtly apparent up until the 1980s.
- Through technological advances and the power of radiology, the role of the radiographer has been reduced to one that places high importance on patient throughput rather than holistic care, helping to remove the emphasis of patient centred challenges from practice.
- Male radiographers have found it quicker to climb the career ladder than females.
- Diagnostic radiography is not a particularly family friendly service and working mothers have had to give up their career due to a lack of ability to fit family and career requirements. Gender discrimination has been shown to occur against women in career progression.
- Radiography emerged at a time when work for women was based on work for girls prior to marriage rather than work for mature career minded women.

## **12.5 Implications and Recommendations**

The implications and recommendations of the conclusions of this research concern career prospects for diagnostic radiographers, management and development of imaging services in parallel with provision of patient focused care and further research.

- ❖ Although radiographers can be invisible to local managers, radiography is very visible and identified as an untapped source of skill at a national level. Currently this gives radiographers more power to expand their role and change their practice, as there is a national, political and powerful impetus to use AHPs to improve patient services where appropriate. The career prospects for diagnostic radiographers could proliferate if radiography could be developed in parallel with patient centred service developments. A patient centred approach requires reconstruction of the patient and the division between reductionism and holism may be a difficult hurdle for many diagnostic radiographers to take without the wholehearted support of NHS managers. It is *recommended* that management ensure that diagnostic radiographers are not marginalised by developments and are included in planning on an equal footing and in addition to radiology.
  
- ❖ Professional coherence is an issue. It is *recommended* that radiographers embrace all areas radiographers consider special and explore possibilities to advance the profession using the radiographers' notions of specialism in line with government priority areas.
  
- ❖ A change to traditional ways of dividing imaging practice based on technology is required to enable radiographers to grow more easily into consultant roles. It is *recommended* that technology-defined specialisms could be professionally and operationally divided into anatomical or service delivery areas or a patient group could be identified and a radiographer trained to deliver all imaging services to that group.
  
- ❖ Matching radiography to national areas of high priority shows that development could occur in forensics, paediatrics, older people, A&E, breast, gastro-intestinal, cardiac imaging and critical care. Management will need to employ innovative ways of working to make this a reality. A paradigm shift is required from traditional boundaries of specialism to more clearly defined clinical and patient-orientated areas. It is *recommended* that diagnostic radiographers do not assume that procedure based specialisms, due to their previous association with radiology, will hold the same status as other specialisms as similar issues arise due to a lack of "fit" with consultant requirements.
  
- ❖ Emulating radiologists is not always appropriate for radiographers. It is *recommended* that diagnostic radiographers take the opportunity to learn new skills that will broaden their role, whether these are associated with medicine or other health professions. Such new skills would further enable the provision of an effective patient centred service.

- ❖ The model of expert practice is untested. The model could be used to identify areas of expert practice in radiography that would include general practice and many specialisms identified by radiographers to inform career decisions and identify opportunities for specialisation. The model also identifies the main area of practice for consultant AHPs. There is inconsistency between the political definition of a consultant's role and expert practice. Further work is required to explore synchronisation of the political and practitioners' models of AHP expert practice and consultancy. It is *recommended* that further research be carried out to enable model fit to be measured more clearly across a number of health professions.
- ❖ This study identifies the working relationship with medicine from the radiographers' perspective so is one-sided but it gives radiographers a voice about a sensitive topic in a secure environment. It is *recommended* that a more in-depth study is carried out to explore radiologists' perceptions of the relationship. Further research could focus on the medical experience of x-ray work throughout time

Given the vast range of tasks performed by radiographers over the years, radiography is hard to define from a functional perspective which has far reaching implications for their scope of practice. It is suggested that it is becoming increasingly more appropriate to conceptualise that:

***Radiography is whatever a radiographer chooses to do***

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Table 10 Methodological characteristics of the qualitative studies included in the meta-synthesis

Author	Profession	Year	Country	Data analysis	Qualitative research design
Bamford and Gibson	Nursing	2000	United Kingdom	Thematic analysis (Strauss and Corbin 1998)	Grounded theory
Brykczynski	Nursing	1998	United States of America	Hermeneutic (Packer et al 1989)	Phenomenology
Cutcliffe	Nursing	1997	United Kingdom	Comparative analysis (Glaser & Strauss 1967 and refined using Stern 1980, 1984 and Turner 1981)	Grounded theory
Day	Radiography - therapeutic	2002	United Kingdom	Thematic analysis	Descriptive
Hardy, Garbett, Titchen and Manley	Nursing	2002	United Kingdom	Discourse analysis (Foucault 1980, Parker and Shotter 1990, Howarth 2000)	Descriptive
Hargreaves and Lane	Nursing	2001	United Kingdom	Thematic analysis	Oral history
Jasper	Nursing	1994	United Kingdom	Concept analysis (Walker and Avant, 1988), Rodgers 1989)	Descriptive
King and Macleod Clark	Nursing	2002	United Kingdom	Content analysis (Lincoln and Guba 1985)	Descriptive, constructivist
Martin	Nursing	1999	United Kingdom	Constant comparative method (Strauss and Corbin 1990)	Grounded theory
Peden-McAlpine	Nursing	1999	United States of America	Hermeneutic approach (Eberhart and Pieper 1994)	Phenomenology
Shepard, Hack, Gwyer & Jensen	Physical Therapy	1999	United States of America	Constant comparative method (Strauss & Corbin 1994)	Grounded theory
Steele and Fenton	Nursing	1988	United States of America	Content analysis	Ethnography

Table 11: Characteristics of participants and individual studies used in the meta-synthesis

Author	Practice title	Practice context	Institution	Research aim	Sample size	Data collection
Bamford and Gibson Brykczynski	Clinical Nurse Specialists Staff nurses	Various Various	Acute Large teaching hospital	Determine the role and development needs of CNS Identify and describe expert staff nursing practices.	25 10	Focus groups Interview and participant observation
Cutcliffe	Psychiatric nurses	Mental Health Unit	Mental Health Unit	Describe the nature of expert practice.	None stated	Focus groups
Day	Therapeutic radiographers Not stated	Not stated	Not stated	What is an expert therapeutic radiographer?	2	Interview
Hardy, Garbett, Titchen and Manley	Not stated	Palliative, intensive, and fertility care and mental health	Not stated	How nurses talk about and construct expertise.	4	Written narrative
Hargreaves and Lane	Paediatric nurses	Children's Ward	District General Hospital	Combine narrative with analysis of literature.	1	Narrative
Jasper	None defined	None defined	None defined	Discusses the implications of the concept of nursing expert.	13	No details are given regarding its collection
King and Macleod Clark Martin	Registered general nurses Clinical Nurse Specialists Critical care nurses and nurses	Surgical wards and intensive care units Various	3 hospitals	Explore and identify nurses' clinical expertise.	61	Observation and semi-structured interview
Peden-McAlpine	Physical therapists	Medical/surgical; maternal/child; paediatrics and psychiatric	Various	Examine the services provided by CNS.	74	16 focus groups,
Shepard, Hack, Gwyer & Jensen	Physical therapists	(a) Orthopaedic (b) Not stated (c) Geriatrics, neurology, orthopaedics and paediatrics	Acute care agencies Acute and home care agencies (a-c) Not stated	Report common findings on actual practices of expert nurses and draw implications for facilitating and supporting expertise. Describe and explain the development of expert physical therapy clinicians.	34 (a) [6] (b) [3] (c) [12]	3-4 interviews with each nurse Multi-stage (a) non-participant observation, interviews and documentation (b) video of practice and interview (c) video of practice, interview and documentation
Steele and Fenton	Clinical Nurse Specialists	Variety of clinical specialities	University hospital	Describe expert practice	30	105 interviews 50 participant observations
Total					Total=21 At least 275	

Table 12 Summary of metaphors, themes or concepts included in the meta-synthesis of the studies.

Author/Theme	Knowledge	Practice skills- what	Practice skills – how	Philosophy	Contextual
Bamford and Gibson	Knowledge is contextual, intuitive and at M level	Ability to: control environment, facilitate enquiring approach, prioritise	Ability to: hold mutual respect, be a comfortable role model, empower staff, advance practice, supervise clinically		Independent, accountable, responsible, decision maker, context is a clearly defined clinical area.
Brykezynski	Knowledge develops through changing practice, requires knowledge of physicians strengths and idiosyncrasies, when to be persistent, and how to use the chain of command	Ability to: assess situations, plan and manage, use patient's own support network and normalise the health care experience	Ability to: communicate effectively	Use courage, commitment, advocacy, critical thinking, holism, innovation	Be known as competent, accountable and responsible
Cutcliffe	Knowledge is intuitive, broad, research based and continual. Knowledge of self.	Ability to: form therapeutic relationships	Ability to: communicate effectively, be flexible, negotiate, encourage	Use commitment, advocacy, critical thinking, holism, empowerment	Partner, accountable, MDT member
Day	Knowledge is extensive, organised, accessible and usable.	Ability to: handle a wider range of tasks intuitively, perform at a variety of cognitive modes, solve problems, resource-independent and problem solve			Experience in context
Hardy, Garbett, Titchen and Manley	Knowledge of craft and self	Ability to: recognise significant information, communicate this detail, work with the patient, take informed risks, act as a catalyst for positive patient outcomes, tailor practice to the patient	Ability to: observe, use verbal and non-verbal communications from patients.	Use holism, critical thinking, empowerment and patient choice	Work against the social order of health care, workplace culture and outside of the organisational structure

Author/Theme	Knowledge	Practice skills- what	Practice skills – how	Philosophy	Contextual
Hargreaves and Lane	Knowledge of self	Ability to: take in the whole situation		Strives to absorb and become engaged with the big picture, be inquisitive and willing to learn, seek development	Expert practice is contextual and transfer to another area enables an expert practitioner to transfer some relevant skills.
Jasper	Knowledge is specialised, at an advanced level, gained through experience applicable to and derived from practice, generated, provable and may be tacit. Knowledge base not transferable outside specialist area	Ability to: work to own strategies, be a role model, practice a specialized body of skill, using highly developed levels of pattern recognition, at an advanced level of skill gained through experience and using a simple network rather than complex. Formal proof required.	Ability to: consult and work with others and be confident in oneself and one's decision-making skills	Use holism and merge knowledge, skills and experience into a specific mode of thinking	Extensive experience in context, acknowledgement by others within and from outside of the profession. Requires exposure to a single environment within which skills and knowledge can develop.
King & Macleod Clark	Theoretical and experiential knowledge, depth makes skilful use of intuition, developed through more experienced staff.	Ability to: make rapid and confident clinical decisions, recognise subtle changes, contemplate scenarios in relation to theoretical and experiential knowledge of similar situations and seek concrete measurable evidence of their suspicions			
Martin	Clinically credible knowledge used as an information resource	Ability to: practise collaborative care and facilitate problem solving	Ability to: network, allow others to express deficits in their knowledge, introduce new practices and create a reflective culture	Be an innovator, motivator, accessible, questioning, accepting, persuasive, inspiring confidence, supportive	Complex, facilitates organisational development
Peden-McAlpine	Theoretical knowledge from text books and research findings, and practical knowledge	Ability to: bring meaning to situations and orientate to the future by attention to the present and recollection of the past.		Notion of "doing good" underpins all practice	Health care delivery systems to support holistic expert practice, control, time and continuity, facilitation of expertise development

Author/Theme	Knowledge	Practice skills- what	Practice skills – how	Philosophy	Contextual
Shepard, Hack, Gwyer & Jensen	Formal and craft knowledge, knowledge of the health care system, natural, behavioural and technical sciences and safe practice, self and patients	Ability to: perform patient centred teaching, patient centred practice, use patient interaction rather than technical data, practice using a personal framework for clinical reasoning, practice safety	Ability to: focus communication, verbal and non-verbal and practice with confidence	Patients take responsibility for own health, use knowledge and skills for patient benefit, be compassionate, continually learning and seeking knowledge of patients	Ability to control environment
Steele and Fenton	Knowledge of formal research findings to initiate change, M level	Ability to: provide emotional and informational support, resolve differences, exercise clinical judgment, step out of the role of taking instructions and step into a role of giving directions, facilitate learning while ensuring a good outcome for the patient, make culturally avoided aspects of an illness approachable and understandable	Ability to: interpret role to less prepared and/or less experienced staff	Persistent, anticipating the future is as important as current events	Coping with staff and organisational resistance to change

Table 13 Examples of demonstration of fit

Author/Them e	Credibility		Compatibility	
	Knowledge	Practice	Practice context	Philosophy
Bamford & Gibson	"Knowing the hospital, the structure and organisation, as well as the staff, facilitated the transition of the CNS into a new post."	"Being able to focus on a clearly defined area of clinical practice encouraged the development of a comprehensive knowledge base and clinical expertise."	"Being an independent practitioner facilitated role development, in that the CNS had an ability to be creative and to take responsibility for the progression of the post."	
Cutcliffe	".. possessing a wide base of scientific knowledge which is augmented by their instinctive, intuitive knowing, whilst simultaneously believing that learning never stops and that knowledge should not be taken at face value but examined and critiqued."	"You have to get the relationship right. If you don't have trust, care and mutual respect present, then the effectiveness of any of your interventions is greatly reduced."	"What makes the expert dissimilar from other nurses is their ability to balance their commitment to the patient's best interests with their commitment to their colleagues and to the organisation as a whole..."	"Expert psychiatric nurses can be viewed as having a particular philosophy or set of attitudes, a philosophy which sees them as caring, committed, self-aware individuals who view their clients in a holistic manner and seek to empower them."
Hardy, Garbett, Titchen and Manley	"The nurse knew who to target for a clinical decision to support her own evaluation of the clinical situation."	"This initial assessment is then tested out in how the nurse approaches the patient and at any time will be reassessed and alternative action considered."	"The nurse participants appear to act outside standardised care practices and take clinical risks that often go against standard procedures."	"Workplace culture often defers nurses from working within their preferred ontological perspective to promote the delivery of high standards of patient-centred practice."
Hargreaves and Lane	"the most significant difference between Delya and a newly qualified staff nurse put into the same situation may be that Delya knows what she does not know."	"I was desperate for any factual information that I felt would help me in my role and carried a book around with me to hastily jot down any information I gleaned."		"It would appear that Delya retains a level of expertise which allows her to analyse the whole problem..."
Jasper	"..this recognition needs to be by people who are qualified to make that judgement, i.e. by peers, or by other experts in similar or related fields."	"If the expertise is not reinforced then the label will become extinct, with loss of credibility and loss of reputation in the field."		
Peden-McAlpine	"The first type of information is well known as theoretical information or principles drawn from text books and research findings."	"...comprehending how and why information relates to other information within specific patient situations."	"Change over time indicates that the expert clinician must have the time to spend with the client in order to perform as an expert."	"The nurses also translated their understanding into a moral commitment for action to realise the possibilities for the 'good' of the patient."
Shepard, Hack, Gwyer and Jensen	".. types of knowledge .. included fundamentals of the natural and behavioural sciences and knowledge of movement dysfunction, especially as related to their clinical specialty areas."	"..a close relationship between skill in teaching and skill in evaluation and use of patient illness and disease data; that is teaching was specific to each patient problem and patient-family needs based on illness and disease data obtained."	"Each clinician had devised a personal framework for collecting data that helped him or her to discover useful patterns of clinical problems on which to focus."	"The personal philosophies these experts brought to their work were remarkably similar."

Table 14 Table of respondents,- retired practitioners are in **bold type**, current practitioners are in *italics*. All names used are pseudonyms and reflect the gender of the respondent.Practice years of respondents and ratio of retired and practising respondents.

Respondent/ Time span	31-40		41-50		51-60		61-70		71-80		81 - 90		91-01	
		P	P	P	P	P	P	P	P	P	P	P	P	P
<b>Tom</b>		P		P	P	P	P	P	P	P				
<b>Arthur</b>	P	P	P	P	P	P	P	P	P	P				
<b>Bonnie</b>		P												
<b>Ralph</b>					P	P	P	P	P	P	P	P		
<b>Gillian</b>				P	P	P	P	P	P	P	P	P		
<b>Judith</b>				P	P	P	P	P	P					
<b>Elizabeth</b>					P	P	P	P	P	P	P	P	P	
<b>Alice</b>					P									
<b>Jim</b>						P	P	P	P	P	P	P	P	P
<i>Robert</i>							P	P	P	P	P	P	P	P
<i>Kathleen</i>							P	P	P	P	P	P	P	P
<i>Carole</i>							P	P	P	P	P	P	P	P
<i>Ross</i>									P	P	P	P	P	P
<i>Debbie</i>									P	P	P	P	P	P
<i>Miriam</i>									P	P	P	P	P	P
<i>Stephen</i>										P	P	P	P	P
<i>Claire</i>										P	P	P	P	P
<i>Betty</i>											P	P	P	P
<i>Christopher</i>														P
<i>Jane</i>														P
<i>Caroline</i>														P
Ratio	<b>1</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>8</b>	<b>7:1</b>	<b>7:3</b>	<b>7:4</b>	<b>7:4</b>	<b>4:8</b>	<b>4:9</b>	<b>2:9</b>	<b>1:12</b>

Table 15: Gender, practice years and practitioner/manager role

Respondent	Gender	Year began	Year retired	Practice years	Practitioner	Manager
<b>Tom</b>	<b>M</b>	<b>1936</b>	<b>1979</b>	<b>43</b>	✓	✓
<b>Arthur</b>	<b>M</b>	<b>1932</b>	<b>1979</b>	<b>47</b>	✓	
<b>Bonnie</b>	<b>F</b>	<b>1938</b>	<b>1944</b>	<b>6</b>	✓	
<b>Ralph</b>	<b>M</b>	<b>1950</b>	<b>1990</b>	<b>40</b>	✓	✓
<b>Gillian</b>	<b>F</b>	<b>1947</b>	<b>1987</b>	<b>40</b>	✓	✓
<b>Judith</b>	<b>F</b>	<b>1946</b>	<b>1975</b>	<b>29</b>	✓	✓
<b>Elizabeth</b>	<b>F</b>	<b>1952</b>	<b>1994</b>	<b>42</b>	✓	✓
<b>Alice</b>	<b>F</b>	<b>1952</b>	<b>1959</b>	<b>7</b>	✓	
<b>Jim</b>	<b>M</b>	<b>1960</b>	<b>-</b>	<b>40</b>	✓	
<b>Robert</b>	<b>M</b>	<b>1970</b>	<b>-</b>	<b>30</b>	✓	
<b>Kathleen</b>	<b>F</b>	<b>1967</b>	<b>-</b>	<b>33</b>	✓	
<b>Carole</b>	<b>F</b>	<b>1962</b>	<b>-</b>	<b>38</b>	✓	
<b>Ross</b>	<b>M</b>	<b>1977</b>	<b>-</b>	<b>23</b>	✓	✓
<b>Debbie</b>	<b>F</b>	<b>1978</b>	<b>-</b>	<b>22</b>	✓	✓
<b>Miriam</b>	<b>F</b>	<b>1973</b>	<b>-</b>	<b>27</b>	✓	✓
<b>Stephen</b>	<b>M</b>	<b>1983</b>	<b>-</b>	<b>17</b>	✓	
<b>Claire</b>	<b>F</b>	<b>1981</b>	<b>-</b>	<b>19</b>	✓	✓
<b>Betty</b>	<b>F</b>	<b>1988</b>	<b>-</b>	<b>12</b>	✓	✓
<b>Christopher</b>	<b>M</b>	<b>2000</b>	<b>-</b>	<b>1</b>	✓	
<b>Jane</b>	<b>F</b>	<b>1998</b>	<b>-</b>	<b>2</b>	✓	
<b>Caroline</b>	<b>F</b>	<b>1996</b>	<b>-</b>	<b>4</b>	✓	
<b>Total Total</b>	<b>4M:5F 4M:8F</b>	<b>1932-1960 1962-2000</b>	<b>1944-1990</b>	<b>294 228</b>	<b>9 12</b>	<b>5 5</b>
<b>Sum totals</b>	<b>8M:13F</b>	<b>1932-2000</b>	<b>1944- current</b>	<b>522</b>	<b>21</b>	<b>10</b>

## Interview schedule for retired practitioners

- 1 When did you qualify?
- 2 What attracted you to radiography in the first place?
- 3 What was your training like?
- 4 What was your last role?
- 5 Over the whole of your time, which aspects of being a radiographer were the most satisfying for you?
- 6 Over the whole of your time, which aspects of being a radiographer were the least satisfying for you?
- 7 What opportunities were there for you to progress?
- 8 What helped or hindered your progression?
- 9 Has there been anything that radiographers did then that you would consider being specialist in any way?
- 10 What was dealing with patients like then?
- 11 Which of these would you consider to be areas of specialist practice?  
Participants shown cards:  
Computed Tomography  
Ultrasound  
Nuclear Medicine  
Mammography  
Magnetic Resonance Imaging  
Administration of i.v.contrast agents  
Plain film reporting  
Trauma  
Forensic  
Paediatrics  
Contrast agent examinations
- 12 Why have you chosen those?
- 13 Can you tell me about the introduction of any of these into practice?

- 14 These are areas of specialist practice in medicine. How close are these to the ones you've identified?  
Participants shown cards:  
Based on technology  
Based on age of patient  
Based on anatomy  
Based on procedure
- 15 Over the whole of your experience, what were the working conditions like for you?
- 16 What was it like working with radiologists?
- 17 What was it like working with the other doctors, the referring clinicians?
- 18 Is there anything else you would like to add?

## Interview schedule for practising radiographers

- 1 When did you qualify?
- 2 What attracted you to radiography in the first place?
- 3 What was your training like?
- 4 What is your role?
- 5 Over the whole of your time, which aspects of being a radiographer have been the most satisfying for you?
- 6 Over the whole of your time, which aspects of being a radiographer have been the least satisfying for you?
- 7 What opportunities have there been for you to progress?
- 8 What has helped or hindered you?
- 9 Has there been anything that radiographers did or do that you would consider being specialist in any way?
- 10 What is dealing with patients like?
- 11 Which of these would you consider to be areas of specialist practice?  
Participants shown cards:  
Computed Tomography  
Ultrasound  
Nuclear Medicine  
Mammography  
Magnetic Resonance Imaging  
Administration of i.v.contrast agents  
Plain film reporting  
Trauma  
Forensic  
Paediatrics  
Contrast agent examinations
- 12 Why have you chosen those?
- 13 Can you tell me about the introduction of any of these into practice? What stage are they at now?

- 14 These are areas of specialist practice in medicine. How close are these to the ones you've identified?  
Participants shown cards:  
Based on technology  
Based on age of patient  
Based on anatomy  
Based on procedure
- 15 Over the whole of your experience, what have the working conditions been like for you?
- 16 What is working with radiologists like?
- 17 What is working with the other doctors, the referring clinicians like?
- 18 Is there anything else you would like to add?

## Interview schedule for leading voices in identified specialist areas

- 1 Why do you think some radiographers might identify this as a specialism?
- 2 When and how did this first become recognised as a specialist area?
- 3 Are there any records to which I can refer, if so where and can I have access to these?
- 4 How did you come to be involved in this?
- 5 How are radiographers supported in this area of practice?
- 6 What is the relationship like between radiologists and radiographers working in this area?
- 7 How does this vary from the usual relationship?
- 8 What is the relationship like between referring clinicians and radiographers working in this area?
- 9 How does this vary from the usual relationship?
- 10 What is your vision for this area of practice, what would you like to see happen?
- 11 What might help that happen?
- 12 What might prevent it?
- 13 The NHS Plan contains a reference to a new clinical grade of consultant therapist. How do you see this area of practice developing in relation to this new grade?
- 14 Which of these would you consider to be areas of specialist practice?  
Participants shown cards:  
Computed Tomography  
Ultrasound  
Nuclear Medicine  
Mammography  
Magnetic Resonance Imaging  
Administration of i.v.contrast agents  
Plain film reporting  
Trauma  
Forensic  
Paediatrics  
Contrast agent examinations
- 15 Why have you chosen those?
- 16 Are there any areas of what you would consider to be specialist practice that are not on those cards?
- 17 Are there any specialisms that have emerged and disappeared that you can remember?
- 18 These are areas of specialist practice in medicine. How close are these to the ones you've identified?  
Participants shown cards:  
Based on technology  
Based on age of patient  
Based on anatomy  
Based on procedure

Table 16 A Start List of Codes (a priori or deductive – from literature review)

Category code	Concept	Concept code	Link to research objectives
<b>Category 1</b> <b>Radiographer and practice “norms”</b> <b>What constitutes the “routine”?</b>		RR	<b>1</b>
RR	Norm or usual	RPI-P	1.1
<b>Category 2</b> <b>Non-practitioner influence on radiographic practice</b>		<b>RFRP</b>	<b>2</b>
RF	Radiology	RFRP-Rad	1.2, 2.1, 7
RF	Referrers	RFRP-Ref	1.2, 2.2, 7
RF	Immediate management	RFRP-IM	1.2, 7
<b>Category 3</b> <b>The radiography specialist</b>		<b>RS</b>	<b>1</b>
RS	Identity – process	RS-IDP	1.1, 1.2
RS	Professional status – external	RS-Psext	1.2, 8
RS	Working practice	RS-WP	1.1, 1.2, 7
<b>Category 4</b> <b>Radiography boundaries</b>		<b>RB</b>	<b>3</b>
RB	Limited field of practice – anatomical boundaries	RB-A	1.2, 3.4
RB	Limited field of practice – technological boundaries	RB-T	1.2, 3.4
RB	Limited field of practice – procedural boundaries	RB-P	1.2, 3.4
RB	Limited field of practice – age-related boundaries	RB-Age	1.2, 3.4
RB	Power boundaries	RB-Pwr	1.2, 3.2, 6, 7, 8
RB	Eligibility boundaries	RB-E	1.2, 3.3, 6, 7, 8
RB	Physical boundaries	RB-Phys	1.2, 3.1, 6, 7, 8
RB	Exclusive practice	RB-Excl	1.2, 3.5, 6, 7, 8
<b>Category 5</b> <b>Facilitators to the growth of a specialism</b>		<b>FGS</b>	<b>4</b>
FGS	Sufficient numbers	FGS-S	1.2 4
FGS	Professionally valuable	FGS-Pv	1.2, 4, 8
FGS	Ability to react	FGS-A	1.2, 4, 8
FGS	Professionalisation	FGS-P	1.2, 4, 8
FGS	Health service developments	FGS-H	1.2, 4, 7, 8
FGS	Use of specialist centres	FGS-U	1.2, 4, 7
FGS	Generation of new knowledge and competencies by schools	FGS-GK	1.2, 4
<b>Category 6</b> <b>Barriers to the growth of a specialism</b>		<b>BGS</b>	<b>5</b>
BGS:	Time honoured training	BGS-T	1.2, 5
BGS:	Attitudes external to the profession	BGS-A	1.2, 5, 7,
BGS:	Public rivalry	BGS-Pub	1.2, 5, 8
BGS:	High professional standards mismatch with practice	BGS-H	1.2, 5, 8
BGS:	Professional ideology – indivisible science and practice	BGS-Prof	1.2, 5, 8

<b>Category 7 Social forces</b>		<b>SF</b>	<b>6, 7</b>
SF	City	SF-C	1.2, 6, 7
SF	Gender	SF-GT	1.2, 6, 7
SF	Gender	Gpo	1.2, 6, 7
SF	Institutions – hospitals	SF-I-H	1.2, 6, 7
SF	Institutions – educational establishments	SF-I-EE	1.2, 6
SF	Institutions – journals	SF-I-J	1.2, 6
<b>Category 8 Professional Specialisation Process (Society of Radiographers):</b>		<b>PSP</b>	<b>8</b>
PSP:	Service provision	PSP-Sp	1.2, 8
PSP:	Value systems and ideology	PSP-V	1.2, 8
PSP:	Control	PSP-C	1.2, 8
PSP:	Guidance	PSP-G	1.2, 8
PSP:	Society benefits	PSP-Sb	1.2, 8
PSP:	Reaction	PSP-R	1.2, 8
PSP:	Acknowledgement of standards	PSP-A	1.2, 8
PSP	Use of younger voices	PSP-Y	1.2, 8

This long list was generated from the literature review with research objectives to mesh with the analysis. This proved to be a difficult area in the research as I strove to produce a data analysis strategy that remained true to the data generated. Many of the categories stated above proved redundant given the responses of interviewees emphasising the difference between medical and AHP specialism. Similarly, initial inductive analysis was attempted but proved unmanageable given the volume of data. As the purpose of analysis is to reduce the data, a strategy was designed to include both deductive and inductive approaches. This allowed the analysis to remain true to the data and link to the conceptual framework. The table overleaf shows the final list of codes used for deductive analysis. This enabled the reduction of data into manageable packages. Inductive analysis was then used.

**Table 17 Final list of codes used to analyse the 31 interviews**

<b>Category 1</b> <b>Radiographer and practice “norms”</b> What constitutes the “routine”?	
Norm or usual RR	What constitutes the “routine”? Anything which the respondent refers to as common practice happenings or responsibilities. This descriptor essentially includes some of the other categories if the concept is referred to within the category of what is usual.
<b>Category 2</b> <b>Medical influence on radiographic practice</b>	
Radiology RFRP-Rad	Any reference to a radiologist.
Referrers RFRP-Ref	Any reference to a referring clinician.
<b>Category 3</b> <b>The radiography specialism</b>	
Identity – process RS	Radiographic or external recognition of a practice specialist or specialism.
<b>Category 4</b> <b>Social forces</b>	
Any social influence - SF	Any reference to times of conflict, gender related issues.

**Table 18 List of codes used to analyse the 10 leading voice interviews to identify characteristics of expert practice.**

<b>Category 1</b>	
Formal knowledge - FK	Any reference to certificated education
<b>Category 2</b>	
Craft knowledge – CrK	Any reference to specific practice knowledge
<b>Category 3</b>	
Contextual knowledge - CoK	Any reference to knowledge of work place
<b>Category 4</b>	
Self – knowledge - SK	Any reference to knowledge of self, own limitations
<b>Category 5</b>	
Authoritative practice - AP	Any reference to being sought as an information giver
<b>Category 6</b>	
Evidence-based practice - EBP	Any reference to research, audit informing practice
<b>Category 7</b>	
Practice within a defined area of practice - DAP	Any reference to a recognised area of practice
<b>Category 8</b>	
Patient centred practice - PC	Any reference to patient’s needs informing practice
<b>Category 9</b>	
Practice incorporating the facilitation of learning - IFL	Any reference to participation in education of others
<b>Category 10</b>	
Practice incorporating effective communication - IEC	Any reference to results from communications
<b>Category 11</b>	
Facilitating and supporting independent practice - FSIP	Any reference to encouraging autonomy
<b>Category 12</b>	
Time/task allocation - TTA	Any reference to how time is spent
<b>Category 13</b>	
Caring and holistic nature - CHN	Any reference to thinking in wholes
<b>Category 14</b>	
Critical mind of enquiry - CME	Any reference to challenging the usual
<b>Category 15</b>	
Seeker of knowledge - SoK	Any reference to autonomous enquiry

**INTERVIEWS WITH PRACTITIONERS IN CHRONOLOGICAL ORDER OF COLLECTION OF DATA**

### Interview summary

**Respondent: Debbie**

### Key points

1. Radiology selectively took responsibility in the x-ray room away from radiographers
2. Moved by radiology into a managerial post for which she had no training
3. Priorities upon qualification were the range of technology and procedures available -- a sign of a progressive department
4. Radiographers were doing iv injections in 1978
5. Specialisms are forensic (linked to NAI), trauma and paediatrics if at a teaching hospital, contrast agent examinations, iv contrast injections, mammography, MRI, CT, nuclear medicine, ultrasound, angiography
6. Radiographers are communicating clinically with orthopaedic and A&E doctors but not at case conferences

### Themes

Theme	Code
Career advancement was managerial rather than clinical	RR
Career advancement was governed by the political situation between the radiologists	RFRP-Rad
Radiology impacts on degree holders and lessens job satisfaction	RFRP-Rad
Career advancement in radiographer reporting was difficult due to shortage of radiographers	SF
Specialism is exclusive with a hint of a hierarchy depending on a) which hospital it is linked to and b) whether any reporting is attached to it	RS
Specialism has kudos attached to it	RS
Specialism requires extra training	RS
Specialism is linked to practitioners who do not rotate through other clinical areas	RS
Specialism is linked to the organisation of work	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom and where	Code
Contradicts herself on what is specialist and what isn't. Says trauma is but then it can't be because everyone does it. Finds defining specialism difficult		RS

**Key Quotes**

Quote	Associated theme/code
I was doing more things, I was starting to do arteriograms and taking responsibility for them. And it was quite responsible really because I mean it was a bit archaic the way we did it with portable X-ray sets and pulling the films and that but it was ... in some cases more so than now ... you were responsible for the timing and everything.	RR
And when we were doing arteriograms, the radiologists, they never had ... they never said 'Oh, you know, time it at this'. You actually did it. It was nothing to do with them.	RFRP-Rad
in probably 1989/1990 the Super III left and for 18 months, I had to run the department and that was a terrible time because we'd never been allowed to go on any courses - no supervisory courses. I didn't know how to order the film. A lot of it I had to just learn ad hoc. made a lot of mistakes and ... but I mean I got there eventually.	RR
It was political then. The radiologist didn't want me. There were new radiologists in from (city) and also we'd still got (radiologist) in and they were pulling the rug from under his/her feet. (S)he wanted me to have the post and they didn't, so I was in the middle of it.	RFRP-Rad
I mean in this department, when I first came, the superintendent and the deputy were injecting IVUs and ...	RR
CF: And when would that be? - That would be '78.	
unfortunately, because of the staffing, the radiographers don't get into it (angiography) and so it is a status.	RS
Particularly, one of the radiologists as well, (s)he likes people ... I would say the lead vascular radiologist ... (s)he likes people who know what they're doing. And so it's even evolved even more that, yes all the senior radiographers do it, but there's a set of three of us that actually rotate in there. Even though the other two are Senior IIs, they take more of a Senior I lead in it because (s)he knows that they can do the job and they're better than some of the other seniors.	RFRP-Rad

Quote	Associated theme/code
<p>Trauma. I think that's specialised but I fell in a lot of departments it's the bread and butter and ... I feel that because of the on-call situation, particularly in our department, when you're working on your own, you need to be competent in it in any case. I think it's different if there's always somebody there in like a bigger department in a teaching hospital. And I don't know if you can ... it's difficult ... it's whether, you know, radiographers who work on their own in our department as opposed to (city) if there would be any difference, whether they are more specialised here or not, I don't know</p>	RR
<p>Ultrasound. I think that's different. It's different here because they don't do anything else, they just do ultrasound. And I think that is quite specialist as well. And they're making reports on that. In CT and nuclear medicine, their role in there's not really developed. They don't do ... you know, like in CT plain brain reporting or anything like that, so it's not really evolved. Whereas in ultrasound, I mean they are making reports,</p>	RS
<p>That on-call, you're on your own, you've got to be able to X-ray a child. Whereas at a teaching hospital, you know, they just go into that area, which is very nice and people living in that area have got such an advantage.</p>	RS
<p>And also I think there's a big change in the ... the student radiographers. The degree ones are a different calibre. And I'm probably going to stick my neck out, but it's what a lot of people feel is that they're not always the type of radiographer that ... the same as the DCR one. And they're wanting ... I think ... and I've spoken to one or two students about this, that they go to University and the aspirations that they give at University is not the one's that departments can provide because there's that radiologist stuck there and he's putting his foot down and you know. And yes, you are an independent health care practitioner, but the radiologists are not going to let you practise like that.</p>	RFRP-Rad
<p>Yes, I think they are letting the boundaries down a little bit. Yes, they do realise that ... as in the same boat that we are, that they're not getting radiologists in ... you know, there's a lack of radiologists, so, yes, radiographers are going to have to do some of their roles. And also they're taking on more interventional work a lot more, and more specialities like MRI and mammography. And in the same way, then we've got to take technicians in I think to do very basic radiography. And we've both got to let these barriers down.</p>	RFRP-Rad
<p>Yes, and I've been told ... no, it's there for them. I have been told ... one radiologist said, the radiographer is there for them.</p>	
<p>CF: Not for the patient?</p>	
<p>- No, the radiographer is there for me, not for the patient.</p>	RFRP-Rad

Quote	Associated theme/code
<p>The radiographers, particularly because of ... to the radiographers doing the reporting, we have more to do with the orthopaedics and A&amp;E. And the radiologists, they all have like a lot of lunchtime meetings - surgical, medical, orthopaedic, and they discuss cases so they have quite ... but it's a shame we don't ...</p> <p>CF: You don't get invited to those?</p> <p>- No.</p>	<p>RFRP-Ref</p>

### Reflections on interview

I was very conscious that this was my first interview and was probably a bit over keen to make sure it went according to plan. Although I had had a practice with the minidisc recorder I felt I had to keep checking it to make sure it was working. This meant losing eye contact and I am not happy with that. I had a predetermined set of questions and after listening to the recording feel that I was a bit rigid and also spoke too much. I feel that there are too many questions and am concerned as the notion of specialism is complex and need to strike a balance between guiding respondents and still eliciting their own opinions in their own words. I need to practise some more prompts and have a looser schedule. The respondent initially struggled to relate the medical models of specialism with radiography specialisms.

### Implications

- Try to produce a less rigid schedule with more open questions
- Do not interrupt the respondent

**Interview summary**

**Respondent: Gillian**

**Key points**

1. Although qualified in both therapeutic and diagnostic radiography, Gillian chose to follow the therapeutic “arm” of radiography as her career.
2. Priorities for her included being able to follow up a patient’s progress
3. Example of PFC in casualty
4. PFC more easily found in R/T at that time

**Themes**

Theme	Code
Patient focused care in casualty and radiotherapy	RR
Specialism was linked to the technology used	RS
Responded to an advert in a woman’s magazine in 1945	SF

**Any contradictions/agreements**

Contradiction or agreement	With whom and where	Code
Agreement about no training in management	Debbie	RR
Agreement about specialism linked to technology used	Debbie	RS

Key Quotes	Quote	Associated theme/code
	I mean to me to be a radiographer meant to be with the patients, hands on the patients, looking after them, caring for them, following them up, finding out what happened to them. We could always go to the records office and pull out the notes and read how the patient had reacted to treatment and even follow them up over a period of years if you so wished. And that was what gave me a lot of satisfaction.	RR
	So would you say that was a specialism for you?	RS
-	Yes I suppose it was really.	
CF:	At that time?	
	At that time, yes. Later we had linear accelerators and so on, we still had the rotation of staff. Initially there were senior radiographers who were in charge of the linear accelerators but after the Halsbury Award, we managed to upgrade them to superintendents. But they still initially rotated round ... well the two accelerators ... they went from one to the other. I think they moved six monthly. The other staff moved two monthly. And now, I believe, they stay with the one machine they are appointed to that machine as superintendents.	
	I happened to pick up a woman's magazine and there was an article in there about careers for girls and there was one on ... a small amount on physiotherapy and another on radiography	SF
	And I don't think very many people in ... the general public had heard about radiography. I don't think they knew what it was at all. They thought we were playing with radios.	SF
	I think there were a high proportion of females to males. Probably within my knowledge, the superintendents were always male. I can't remember ... yes, one superintendent at a women's hospital was female. But all the others ... the sort of older generation as it were, they were all men.	SF
	I don't remember any female radiologists in training or trained.	SF
	I mean, I wasn't qualified and they were newly qualified. I think we used to help one another as much as we could. And there was always a staff nurse around and you know, if a patient was very badly distressed she would come along with the patient and stay with me until I'd finished, and then I'd go back with the films, back to casualty to show to the casualty officer.	RR

Quote	Associated theme/code
I went into radiotherapy mainly because I wanted to know what happened to the patients after we had looked after them. Whereas in diagnostic I didn't seem to be able to find out what had happened. It was ... even if somebody had come in badly injured, it was difficult even to find out which ward they had been sent to.	RR
we helped to train the radiotherapists in the practical application of what the machines could and could not do.	RFRP-Rad
No, you learnt by your own mistakes, I think. It (management) was difficult. Yes, it was.	RR
Halisbury was difficult, one radiotherapist was really annoyed at radiographers standing their ground and said "Hmph, they'll (radiographers) be coming to work in their own cars next"	RFRP-Rad

### Reflections on interview

This was my first interview with a retired practitioner and I was very fortunate that the respondent was so kind to accommodate all the questions I had. I knew I wanted a less rigid interview schedule but was concerned that, as this respondent had such a wealth of experience from which I could draw, if the schedule was too loose I may not grasp the essence of what constituted normal and usual practice and value systems. The respondent was very interested in what was currently happening in departments. I decided not to show her the cards about specialism as this would not directly draw on her experience.

### Implications

- Retired practitioners need a slightly differently worked schedule

### Interview summary

**Respondent: Ralph**

### Key points

1. Most schools of radiography were run by (male) radiologists and did not accept men
2. Talks of a forceful female radiologist
3. Ralph was physically damaged by his superior and thought this was character building
4. Specialisms are linked to technology – are nuclear medicine then changes his mind and says nothing should be specialist but mammography is because of its sensitivity
5. Some specialisms are because people other than radiographers practise them, e.g. physicists
6. Multi-skilled – R/T and diagnostic
7. Pioneering, problem-solving approach

### Themes

Theme	Code
Confusion about specialism	RS
The power of radiology extended to social life	RFRP –Rad
Career moves governed by radiology	RFRP –Rad
Career advancement was managerial not clinical	RFRP –Rad
Gender issues	SF-G
Believes in time-honoured basic training	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Career advancement was managerial not clinical - agreement	Debbie	RFRP -Rad
Contradiction or agreement	With whom	Code
Confusion about specialism- agreement	Debbie	RS
Gender bias in favour of women - agreement	Gillian	SF-G

**Key Quotes**

Quote	Associated theme/code
Well he (radiologist) was the Principal of the School when both Marilyn and I turned up in 1948	RFRP -Rad
I'd made a personal promise to myself that I would go to whoever first accepted me and it was (city) and I was interviewed by (3 radiologists)	RFRP -Rad
Now I then did radiotherapy at (hospital) and did that for about a year. I quite enjoyed the science of radiotherapy but I was totally unsuitable for it because I couldn't forget about patients.	RR
so I then went to work at the (hospital) after a year in therapy and I'm very glad I did that really because there were more opportunities in diagnostic radiography for men anyway.	SF
And then my father became ill with polycystic kidneys and a job came up in my home town and I wanted to go there because I knew he didn't have long to live. And (radiologist) called me in and said, 'I will give you a reference but I don't think you'll get that job'. So I said 'thank you' and I didn't get the job. And some years later I said 'Why did you say to me you didn't think I'd get the job'. The reply was 'I didn't want you to. Now I do want you to get the (hospital) one in (city) and you'll get that.' So you see ... working with purposeful people like that, it was a privilege. The radiologist was looking after my interests. For a number of years I hated this radiologist, because I had been stopped from going home to my father.	RFRP -Rad
Staff loved him even though he was an awkward old so and so. I mean I did something foolish one day and he broke a chair on my back. There was an old chair and he picked it up and crashed it on my back. Okay that's fine, that was good upbringing. And there was another case of this angiocardiology machine, you know, with these aluminium cassettes. Now in those days you couldn't give these young babies another dose of contrast media, it was too dangerous, because the agent separated from its binder in those early days and if that happened death wasn't far away. And I messed one of the cases up on this young child, baby, and it couldn't be repeated for a long time. That was terrible. And he came across and he had a bundle of these cassettes in his hand like that and he dropped them and he fractured my toe. But, you see, I loved him though. He was a good man. He said to himself, if there's one way I'm gonna make this man realise what he's done, I'll hurt his foot.	RR

Quote	Associated theme/code
<p>Someone else. I never knew who. Complained that a male chap was doing these salpingograms. So they asked about this and unfortunately they'd taken it to the administrators. If they'd taken it to (radiologist), the result would have been different and less complicated. And so they discussed this with me and I said well I'm a qualified person and it's my ambition to treat anybody that I am able to treat for whatever is necessary. And so far as salpingograms are concerned, if my memory serves me right, the radiologist was male. So should he be excluded? And it was on that basis that I won through. And I continued to do them. Now many males were excluded mammography. Many males were excluded from salpingography. I profoundly disagreed with that. Profoundly because I am a professional. And I will concede it's useful to have a female alongside me as an assistant if only to protect myself but I'd profoundly disagree with that as a professional. So that used to happen.</p>	SF
<p>I mean (radiographer) was a principal part of (city), training and so on but he used to lecture far too often about dental radiography because he hadn't prepared anything. And on the way up in the car to the hospital, he used to say 'Now what shall I talk to them today about?' And it was dental radiography. And when we used to say ... I'm talking about me as a student now ... we used to say 'You did dental radiography last week'. 'Lets do it better this week. Lets see if you really understand it.' So I had more lectures on dental radiography than almost anything else.</p>	RR
<p>what would you say was specialist practice for radiographers? From your experience.</p> <p>- Well I've always been interested in radiographic and imaging equipment in several different ways. First of all, how do they do it? How do they work? And if you're told they work in a particular way, do they actually do it? Or are you being sold a pup? So radiographers must know how equipment works. What it should be doing. And is it doing it?</p>	RS
<p>Ultrasound - ah, well. Some of these specialities come into being because the people doing them regard themselves, not necessarily regarded by others, but regard themselves as uppercrust, special,</p>	RS
<p>If everybody doing these specialities insists on these bits of paper, we'll revert radiography back into fractures of bones. We'll turn the wheel back to the beginning. Well that's no good to anybody</p>	RS
<p>And he was very good at repairing equipment.</p>	RR

**Reflections on interview**

I had tried a slightly different schedule to try to elicit experiences and value systems of the time. This seems to run better and more fluidly which indicates that the respondent is less influenced by me and is using his own words. I am shocked at his account of being physically abused twice by another male radiographer but this may identify how people with physical disabilities were treated or how intolerant health workers were of disability or may purely be saying something about male relationships at that time. The respondent was a very determined person who believed in basic training rather than growth in specialisms and sees the two as opposites. Physicists took over ultrasound practice and the respondent feels that this should have remained under the umbrella of radiography.

**Implications**

- Look for opportunities to ask about physicists
- Watch for examples of bullying

### Interview summary

**Respondent: Ross**

### Key points

1. Being male was advantageous for career progression
2. Suggests a radiological realisation of clinically expanding radiography
3. Suggests that radiographers are more assertive and more critical clinically
4. Radiology/radiography working relationship is changing
5. Questions the nature of specialisation but hones in on exclusivity of practice as the decider
6. Suggests that relationships outside the x-ray department have changed for the worse – poor team work now

### Themes

Theme	Code
Gender	SF
Change in working relationship with radiology	RFRP –Rad
Change in teamwork with referrers	RFRP –Ref
Emphasis on technology and not as much on patients – suggests adaptation rather than focus	RR

### Any contradictions/agreements

Contradiction or agreement	With whom and where	Code
Agreement that some radiologists thought radiographers were there to help them rather than patients	Debbie	RFRP-Rad

Key Quotes	Quote	Associated theme/code
	I decided I wanted to stay in the general radiography, within the general department, that then my next aim was to make it up to superintendent grade and actually eventually manage my own department. You know, when I'd sort of decided, I didn't want to become specialised in any particular area.	RS
	At certain times I seem to have very quick career progression. I think probably better in those days than it is now 'cos then women used to leave to have children and wait until their children had got back to school, then come back into their career. You know, maternity leave weren't used as much as it is now, so I think you've got a career block now that you didn't used to have.	SF
	I've had radiologists that are prepared to work in partnership with radiographers and feel that we've all got, y'know, equally as much to offer in our own way.	RFRP -Rad
	I think things are certainly getting better. In the old days it was sort of, y'know, do as you're told, not do as you think. You're not paid to think sort of thing. Things have changed a lot.	RFRP -Rad
	a lot of that's been forced upon the profession ... and we're talking radiology now ... because of the shortages and the fact that ... you know, they can't cling on to everything, and they're realising that. And they're also realising I think that radiographers are a hell of a lot more capable than they are. And radiographers for once are really standing up for themselves which they never used to. I mean that's changed in profession. Radiographers realise that they've got a lot more to offer and are actually pushing it and are actually doing them things. I think whereas before ... you know, it was just thought you're there to help radiologists, you know.	RFRP -Rad
	I think to begin with ultrasound sort of it was considered that well radiologists wanted to do it then they thought, well no I'm not bothered it's a bit boring really. Medical physics technicians started to do it sort of thing and then I think ... well definitely from experience what I've seen, their sort of capabilities weren't up to what radiographers could do. Then radiographers started to get involved and radiologists let radiographers do more and more because they ... especially they thought dating scans, obstetrics, oh it's just boring I'm not bothered doing that. So radiographers found a niche that they could sort of push into and move forward. And I think the radiologists just stepped back and let them sort of thing. And then when that happened it sort of opened the door because ... so radiographers proved they could do obstetric and gynaecological ultrasound. Proved they were just as good as anybody else. Proved their reports were more accurate than any radiologists.	RS
	They're (general management) seeing huge waiting lists, targets to meet, government pressure. There's more radiographers than there are radiologists and the radiographers are willing to undertake these tasks.	RFRP -Rad
	when you first qualified a lot of people didn't probably know what you did if you said radiography	SF

Quote	Associated theme/code
So I see specialisation as either, you could say there's total specialisation and as the people doing ultrasound tend to be totally specialised they don't tend to do other things 'cos there's such a demand on ultrasound that they are pure ultrasonographers.	RS
CT you could say, is specialised to a core group who know it completely inside out but I don't see any reason why your other staff should be excluded from it. It's not exclusive to that group.	RS
there's two things that's specialisation and special interest as well. It's like dental here. You could say dental under that definition is specialist 'cos we have a core group of four members of staff who trained and who run dental. And some of the other members of staff never go. They've got no interest in dental so why waste, why waste time sending them over there when they could be doing something else. But other people want to go and see it and so they'll still have a wander over there and they'll still do some dental work. But as far as that core group's concerned, and as far as any specialised training if you like in that machine's concerned, it'd be those four people and nobody else.	RS
Paediatrics, yeah to a certain extent. Forensic, yeah. Trauma, I think yes.	RS
Contrast agent examinations is a yes and a no depending on what it is. I think if you're talking an angio department,	RS
it depends on what the examination is. I would say that, again, from a point of angiography, angioplastys, because they're becoming so complicated, you'd probably have to have a core group who are fully trained.	RS
- yes I think mammo is becoming specialised. I think radiographers ... there's very few radiographers who seem to get involved in mammo who seem to do other things.	RS
I would say plain film reporting almost becomes a part specialisation of trauma 'cos plain film reporting ... at present tends to be all ??? and it tends to be all trauma and I think trauma radiography and film reporting go together, although why plain film reporting shouldn't expand to other areas in body in future I don't see any problem at all. And one of the problems you might get eventually is that your radiographers become too highly specialised in one particular area and don't know anything about anything else.	RS
Magnetic resonance - again I think that is a specialised area. You don't find those who tend to work in MRI, tend to do anything else. I would say you could say that all of them areas have some degree of specialisation - some more than others.	RS
So the working environment's got worse, you know, and I think one of the problems, especially from a manager's point of view at moment now, is you have an awful lot of health and safety implications which you're expected to try and manage. You're expected to try and manage it without any money.	RR
doctors willing to talk and discuss things and would listen to what you were saying and decide what were happening. Then I ... there seems to be a change coming through again, and junior doctors seem to be full of themselves once more - and I'm the doctor, you're the toe rag, get on with it. And I think things are starting to change for the worse again.	RFRP-Ref

Quote	Associated theme/code
<p>the services are becoming more insular now than ever and I think it's because of pressure, because of targets to be met. You don't have time to communicate, go and talk to other people and do it. And it's a shame, it's a crying shame. 'Cos as I say, a few years back it were there. It were all working together. I think the health service at that time, as far as team work was concerned, worked better than it ever worked from my career perspective really. And it's gonna take 'em time to bring that back I think.</p>	RR
<p>something specialised if you think you need to sort of train more ... train either dedicated to that particular area,</p>	RS

### Reflections on interview

This is the first person who has questioned what I meant by specialist practice or a specialism and immediately asked me if it was linked to rotation or sole use. This is interesting as it shows that although he is questioning he is also thinking about exclusivity of practice.

### Implications

- Suggests some changes that may have a pattern – changes to working relationships both within and outside of the x-ray department that could impact on patient focus.
- May require exploration in future interviews

## Interview summary

### Respondent: Judith

#### Key points

1. Multi-skilled worker – nurse, midwife and radiographer
2. Clear links to nursing
3. Clear working relationship with medicine – being taught by medicine but not allowed to put knowledge into practice – perceived value of achievement and education

#### Themes

Theme	Code
Career moves governed by radiology	RFRP-Rad
Value of education	SF

#### Any contradictions/agreements

Contradiction or agreement	With whom	Code
Career moves governed by radiology agreement	Ralph	RFRP-Rad
Gender bias in favour of women - agree	Ralph and Gillian	SF

#### Key Quotes

Quote	Associated theme/code
So I was at home a year, just an ordinary housewife that's what housewives did at that time. And the war started so then I had a letter calling me up, I was married, calling me up to go to the (region), well no way was I going to the (region), leaving my house and my husband. So I wrote to Matron in (town) and she said I could do sister's duties but she could only pay me as a staff nurse because I wouldn't be resident of course everybody was resident in those days and then the sisters job in X-ray became vacant. That was in 1943. And I did that for a while and then my husband died in 1944 so then (doctor) who was the radiologist at that time have you heard of him Oh if you'd done radiology radiography with (radiologist) you can do it. And he said when my husband died he said why don't you go into (city) and do your radiography so then I did that.	RR

Quote	Associated theme/code
I applied for the post as Superintendent which (radiologist) gave me and there I stayed until I retired in 1975	RFRP-Rad
Well (radiographer) got his Fellowship and so I thought well I'll have a go at that and I got my Fellowship. Then he wrote a thesis for the Radiography for the Archibald Reid Memorial prize. He got that, so I had a go the next year and I got it too. So I've got a bit of lead upstairs with Archibald's face on I think it's lead anyway. It's heavy.	RR
Did you see radiography as being a bit specialist compared to nursing Oh yes definitely and when I became Superintendent I came off Matron's staff and she wasn't very pleased about that. Because I suppose it was numbers really wasn't it?	RS
Well the casualty officer always came down to the darkroom to view his films and if he missed anything I used to sort of point it out to him.	RFRP-Ref
He just sat there, I used to put his gloves on and put his apron on and he used to do like this (holds hands up).	RFRP-Rad
we used to wear black stockings and black shoes and (radiologist) used to see if the shoes were polished	RFRP-Rad
And of course when we had an old Philips machine and it was 4 valves and every time (radiologist) came it'd go bang. And we should have to, (radiographer) then was the Superintendent he used to have to get out the tools and get it going again.	RR
Well (radiologist) always had one of the staff to put his films up and he always sort of taught them but they weren't allowed to tell anybody what was wrong	RR

### Reflections on interview

Gained interview on second attempt. Almost stereotypical nurse doctor relationship.

### Implications

Always check respondent remembers, that although an interview is arranged, check beforehand in case respondent has forgotten. Education seems to be of great value in its own right.

**Interview summary**

**Respondent: Tom**

**Key points**

1. Multi-skilled – electrical engineering, working with radioactive substances, radiotherapy, diagnostic radiography, moulds, medical photography
2. Pioneering
3. Patient focused
4. Functioned very busily in his own world linking in with others where sensible – did whatever was possible
5. Dangerous work
6. Effects of the war (WW2)

**Themes**

Theme	Code
Value of education	SF
Power of radiology	RFRP-Rad

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Agrees about value of education	Judith	SF
Career advancement seemed technical rather than managerial – contradicts	Ralph	

## Key Quotes

Quote	Associated theme/code
<p>And we trundled the old Victor portable round the wards, armful of cassettes and did the ward work and that's how I started. Casualties, minor casualties wrists, elbows, toes and things like that were done on a similar Victor portable in casualty. They'd got their own darkroom and it was Sister who did that. Anything beyond a shoulder came down to main department.</p>	RR
<p>They were all men. Two men at two hospitals. There was a sister, I've forgotten her name. At the Infirmary, a man, myself, another man, and a sister looking after patient care and comfort, a sister doing the casualty, (town) was a man, (town) you name it round here they were all men. How they started I never knew. One was in the RAMC during the war and I think that got through to him.. I've forgotten his name who was at the mental hospital then. He'd been a ship radio-operator. That's how he started. Because they'd got an electrical background you see. And I believe in the early days, photographers took up to it but as regards women apart from being sisters in departments for looking after the patients. I think that was it. Sister (name), she was as good a radiographer as any of them, same with Sister (name) and all the others, Sisters. Did the radiography, some of them qualified but a lot of them didn't.</p>	SF
<p>I believe there were early schools in London but nothing here. Course we didn't know what was going on in London apart from radiography. There was a band, we used to claim of high class radiography stretched from Liverpool across to Hull across the north. You see further north there was very little population. You get beyond Leeds there was nothing until you hit Middlesborough or Newcastle. Or into the east, Carlisle probably, Lancaster and then you were into Scotland and again there was a band from Glasgow to Edinburgh and again male radiographers.</p>	SF
<p>We just didn't vegetate because as I said when I retired, these were the halcyon days of radiography. I went in at the right time. We did a lot of our own repairs. They were open valves, a four-valve set we had a Sharl. I used to clean it down every week it was all in a cage, you had to earth it first. But if a valve went down, oh this was where your apparatus construction came in. We weren't dithering about, you simply connect it up as a single valve unit. And carried on. If single valve unit went down. Right keep the thing down, use the self-rectified. We had one piece of apparatus, I think it was made for the Ark. It was a mechanical rectifier.</p>	RR

Quote	Associated theme/code
<p>Well this worked with an open tube Protex X-ray tube, a Potter-Bucky of a sort and it was a synchronous motor, which had a disc on it with contacts and switched it on, you had to get the polarity right, and it used to spin round and it was a rotating switch and rectified the current. Originally it had been meant to measure the kV by a point to plate spark gap. And it was always kept wide, wide open so that there was no fear of it going across. 'Cos one day when a cleaner had been down she'd shut it up. I didn't notice the switch on and this great sheet of flame across the place. And 50 kV wizzed round my head.</p> <p>There was the most lethal piece of apparatus ever designed for radiography. It was called the Sweets eye localiser. And this was an open tube in a glass, lead glass bowl with just bare wires coming down and you earthed the thing. And the poor patient with a chunk of metal in his eye had to go in this frame and the whole lot came over his head and there was a half plate, that's going back a bit, a whole plate and a half plate, sized film. The film in non-screen. Well it's a non-screen cassette, as ordinary film. And you had to get a little localising pip over the centre of his eye and then of course the confounded mechanical rectifier whirring away. Poor chap you know, more trouble than. But it was a very accurate method of localising. If ever I could avoid using Sweets eye localiser, I did. Cos we had no protection you see. You see in the 1950's there was no protection. All you had to do was don't hold the patient, and stand behind the tube. That was the protection we had. It worked</p>	RR
<p>I'll tell you a story about Radon seeds. They used to come from the National Physics Laboratory in a sealed box, lead-lined box and due at a certain time at the railway station and we used to go and pick it up. Cos it had a half-life of three and a half days so we couldn't. We went down one day and the box was opened, so we looked round, went and got a Geiger counter, well it was a clucking hen, again you'll see it in there, the circuit. And we went round and we'd given it up and a mechanical horse, that was a three wheeler truck with a dray on the back, went passed us. Well the clucking hen went mad. So we stopped him and went, oh nearly went ballistic. And I opened it up and there was the packet of Radon seeds. Talked to him. Oh he says they're so-and-so lighter flints aren't they? Well having put the fear of instant death into him he was sacked there and then. For theft. We lost some radium, we don't lose radium, you only mislay it. Some was mislaid. And it was eventually traced down to the city destructor one Saturday. And there was a great pile of stuff had come in from the fruit and vegetable market and we went through all this lot with a couple of men. (Physicist) and a crate of beer and we found them. They were blind drunk but we still found the radium needles with the clucking hen.</p> <p>When asked why he did his certificate in therapy "Because it was something else to take."</p>	RR
<p>We'd got linear tomography, we built our own. Again you see we did a lot. As soon as (radiographer) got the idea of the linear, again published in Radiography.</p>	RR

Quote	Associated theme/code
<p>And transverse axial which was the forerunner of the CAT scanner, that was where the patient sat on a chair and he went round and there was a cassette in front of him. I built one of those from spare parts.</p>	RR
<p>You see I was the only one in the diagnostic for a long time, I was only one in the moulds.</p>	RS
<p>We had a, oh it ran for years, we took a chest X-ray of all the breast cases, before treatment, after treatment and at intervals after that up to 3 years, seeing if they got any radiation reaction, pneumonitis and it began to be known as Mr Tom's clinic. I used to book them to come in and as they came they were examined by one of the medical officers to see if they was alright. It coincided with a routine check up so we organised all that.</p>	RR
<p>Kiddies I used to look after In fact they called it Hodgkins disease when they'd got leukaemia And they were all scared stiff a lot of these kids. And what I did, quite early on if I got a young lad in who looked a bit frightened I'd say Come on, come and work it, I'll show you how to set it up and we'll go and take your picture. And I used to let them switch it on put the.....no bother, no bother at all.</p>	RR
<p>We could do an FSR, I had a go at that one. Never got an answer, they never told me whether I'd passed or failed. No, wrote to them, no, so. There were very few of us took it. You had to go to London for that</p>	RR
<p>it wasn't until the schools came and we got more and more females because then there was a drift from, well they got married and raised families and that was the end of it, they didn't come back.</p>	SF
<p>Oh well after the Blitz's and that every works, hospital and major building, had to have appointed people to go on the roof and look for fire bombs and put them out if they landed and the hospitals particularly had what they called yellow, purple and red alerts, air raid precautions rang up and said there's a yellow alert on and its time we used to go up on the roof and if the bombers were coming closer they used to say there's a purple on and of course you started to take a bit more notice of what was going on as I said a red alert on you got your head down. But we were on the roof of the (hospital) in a little brick building and it was nationwide that. Wherever there were large buildings fire watchers were going on. All staff there were porters, electricians and allsorts on my team. Nurse weren't to do fire watching cos their duties were to casualties if expected. Same with doctors but the lay staff were fire watchers</p>	SF
<p>it was impressed on us right from the start. You can see, say what you can see, you can say I can see a fracture but that's not a diagnosis its not I can see a comminuted fracture or I can see a compound fracture I can see a fracture That's it That was impressed on us all, right away.</p>	RFRP-Rad

Quote	Associated theme/code
<p>You see in the old days they were, they were, oo there (points thumb downwards). I often called them (radiologists) Sir. But then came the war and things eased off an awful lot. After that there were respected them, gave them all the respect but the sir and kowtowing oo (shaking his head). There was one senior surgeon at the hospital who commanded the base hospital in (city) in the First World War as a colonel and he came back to do massage and things like that, physiotherapy to look after that. But he always used to inspect the porters' hands. And he was sir Oh my word you sprang to attention when he came round and when the porters came in he always looked at their hands and if they were a bit grubby, get them washed!</p>	SF
<p>Another one you were careful of was matron. Sisters you got on well with if you regarded, remembered that they were sister in charge of that ward. With the mobile, always go and see sister first Don't just trundle your mobile on and no matter how many times you'd been to that patient, see sister first. And if matron did happen to be making her rounds you withdrew and went outside and waited til she'd gone 200 yards away I'd left the mobile connected up while I went down to develop the films and I came back and matron was at the ward door and she said my respects to (radiologist) will you ask him to get some grease on that wheel? The reel with the cable on was a bit squeaky</p>	RR
<p>We were converting a large room into a darkroom and I went up on one Sunday afternoon, this was to receive casualties, battle casualties and there was a man there painting the inside jet black. I said what are you doing? He says oh I'm making you a darkroom. Oh I said there's no need to do that. Oh yes he said, you'll fog your plates. I said No we don't want I said it can be white, there's only going to be red light in here. Oh no, no you'll fog your plates. I said well you can stop, I'm fetching the foreman. I fetched the foreman, What's all this? I said there's no need to do this. Why you'll fog your plates? I said look there's only going to be red or green light in here and white walls would be to our advantage. Oh no, I said well I don't want it doing. All right, your fault. There we were, a room painted half black and half white.</p>	SF
<p>Then in 1944 I went down to (city) as a Senior Radiographer Oddly enough we had a German radiologist there, he had been radiologist to Hindenberg I don't think he was a Jew. And the radiotherapist there was a Pole. You can imagine what that was like, a German and a Pole together. And just before D-Day, I got a letter from the War Office. Some senior radiographers would be called upon to follow the troops into France as the invasion of NW Europe was imminent expecting heavy casualties and to open up the French hospitals Got half an hours notice to go to (city). And slept in the nurses home and nothing came in. I just sort of twiddled my thumbs and anyway thought well for something to do I'll go and do the portables. Now there was a thing. I don't know about old apparatus they'd got a fairly modern mobile unit but they'd no alternating current on one ward, it was still DC. So what they had to do was connect up the DC to an electric motor, a DC electric motor which in turn activated an alternator to produce alternating current. So you spent half the morning connecting up before you could take anything.</p>	RR

Quote	Associated theme/code
<p>And they had a consultant electrical engineer who as soon as he saw all this X-ray apparatus going in and the thought of a lineac and whatnot he was going to have a hand in this he wanted to connect me up to the grid. He said you'll save transformers and what not, I said No. And anyway he was eventually allowed to touch the KX10, that was the superficial therapy unit and he made a right old mess of that.</p>	RR
<p>I think so before the war because not all of us could afford to go to university to train</p>	SF
<p>London was very remote and incidentally Captain Barnard who was the secretary of finance officer for the old radiotherapy centre was a founder member. He was a pioneer. He worked with the old martyrs, Honack and what was the other one, Cruikshanks anyway I had photographs of him. Or I had with the martyrs at the London hospital and he went out to India and formed the Barnard Institute of Radiology. And incidentally he and Harnack, I think it was Harnack, coined radiotherapist, or they called themselves radiologists, they called themselves radiologists. They said there's a lot of ologists about, these days and we're using rays, we'll call ourselves radiologists. The medical profession didn't like this. And they stopped it. But I can claim that he and this other, oh I've forgotten his name, formed this, created the word radiologist. And they were medical people radiologists were, originally they were radiographers or skiagraphers as they were known as that was the old name, skiagraphers. Yes radiographers started it and then medicine took an interest</p>	RR

### Reflections on interview

Wow, so much information about the working life of a radiographer at that time. The retired practitioners make wonderfully articulate respondents. A lot of this is not reflected in any of the histories I have read and wonder of there is any mileage in a complete chapter on the hidden history of radiography. When I had completed the interview Tom showed me a range of artefacts including a book (shown on the cover to have been solely authored by a physicist) to which he had contributed but had received no recognition.

**Interview summary**

**Respondent: Elizabeth**

**Key points**

1. Worked for most of her career in an orthopaedic hospital
2. Seems quite patient focused and sees certain procedures as being special.
3. Doesn't put emphasis on technology but looks for the "exceptional" in other areas
4. Thinks that trauma is a specialism as she places value on the approach to the patient

**Themes**

Theme	Code
Didn't view radiography as a career as work had to fit in with family responsibilities	SF
Very patient focused	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom and where	Code
None really		

**Key Quotes**

Quote	Associated theme/code
I suppose I could have progressed you know by applying for another job but my before I was married, my mother was on her own and you know circumstances keep you at home. And of course when I was married, I didn't want to go anywhere else really	SF
I always said I was the top of nothing and it suited me actually.	RR

Quote	Associated theme/code
<p>this is the thing that I think that when you go into hospital you do lose your identity a bit don't you. And I just think it was nice to have a relationship with patients, and the staff I had I always thought were good you know. It was a small department. But it was that sort of a hospital. I mean its not like a general hospital. You see where you've got folks coming in all the time. And so you did have more time and you know you did have a lot of disabled folks well you can't shoot them in and shoot them out</p>	RR
<p>Yes it was you see and things like rheumatoid patients, we'd have a lot of those and we had, we used to have a rheumatoid clinic a couple of times a week. And they can be very time consuming. You know you do the old skeletal surveys and you see and we'd only got 2 rooms really that's all. And yes I think that's the thing, having time for the patients.</p>	RR
<p>Well because I think again its approaching the patients really. And when you hear some of the things that happened to patients, I mean I've never worked heavily into trauma.</p>	RS
<p>You see we didn't have our films reported on the things like fractures. Unless they wanted a report. And that was quite a nice side of it because you know you get folks coming up and discussing it with a radiologist and you did feel part of it somehow. The radiologist used to come and report on the films you see. Or do a screening session. Oh all the time we never had a full time radiologist. You would get in touch. Well you'd ring somebody. You see and I mean we always had a good, and if you saw something that you might be worried about, you'd point it out to somebody. We used to have the chests reported or anything you know. Well things like renal tracts and IVP's and things</p>	RFRB-Rad
<p>Yes it (MRI) was a bit like the seventh wonder of the world wasn't it you know.</p>	RS
<p>Yes time off in lieu because in the end mum lived, well always when I was married she lived with me, which I would never recommend anybody to do the same thing. And she was an old so-and-so really, crafty you know. And it was a worry she was a bit crafty you know and my sister lived the other side of (city) and it'd always be as I was going out to work and she'd either go dizzy or you know. And then I'd have to go legging over to fetch her. To bring her back to you know anyway that was that but, no it used to work out quite well really. And then you know I mean I could always quite there was often a lot of staying late, clinics'd go on or they'd do something just as it was going home time. So you could always move the goal posts a bit. And certainly after my husband died because then it didn't matter really when I was at the hospital, there weren't any men there, at all,</p>	SF

**Reflections on interview**

This was a difficult interview as the respondent had a narrow field of practise yet I felt her perspective was important as many radiographers share this experience.

**Implications**

Need to work on some more prompts to allow radiographers with similar experience to contribute.

**Interview summary**

**Respondent: Miriam**

**Key points**

1. Suggests a lack of assertiveness perhaps because of emphasis on doing – collegial loyalty
2. Suggests a growing assertiveness in refusing service to referrers
3. Skill mix and confusion over tasks
4. Very patient centred approach
5. Chooses as specialisms iv injections, MRI, mammography, radiographer reporting, contrast agent examinations, paediatrics, CT and ultrasound

**Themes**

Theme	Code
Patient focused	RR
Multi-skilled as skilled in nuclear medicine, paed and management	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Lack of assertiveness contradicts	Ross	RR
Contradicts herself about saying no		RR
Patient centred almost “philosophy”	Agrees with Gillian, Elizabeth and Tom	RR

**Key Quotes**

Quote	Associated theme/code
I organise all, everything, I do everything basically that the radiologists don't do. All the day to day running, make sure that everything's ordered, do all the strategic planning, do all the statistics do all the budget. Anything to keep it running and when we run out of radiographers I go out on the department as well	RR

Quote	Associated theme/code
<p>And you don't have to worry about anything. But when you get to my position you are always, it's always your problem. If people are off sick, they can't do their on call it's you that's got to find somebody. If you can't find anybody then it ends up you doing it. So it is always your problem. So and I'm one of these people who find it I suppose I've got what you might call a high loyalty factor. I find it very difficult to say no, even though I should do perhaps. It's like if somebody wants something doing and nobody can do it then I find myself doing it because I don't want to a) let the patient down because ultimately its them that don't get done</p>	RR
<p>we've actually started saying no just lately and putting our foot down and saying if we do this we've got to shut such and such and that's what we've been doing because we're just not getting, not so much we're not getting the back up but we're not getting the, if they don't work in the department consultants everywhere else they've got their own problems and they just think oh they're just saying it they don't mean it you know and if we send for this patient in theatre and we say we're ready they'll come. But we've started saying no</p>	RFRP-Ref
<p>Because you're still doing AP laterals etc, if you're doing bariums etc then that has changed because you've got digital radiography and I find you don't need to do as much as a radiographer. In the room, you're more sort of adjusting more if something goes wrong especially with it being remote control the radiologist's moving everything, doing the filming, doing all the archiving so unless something goes wrong you don't really do a lot. Apart from making sure the patient's OK. Because if you've got an aid in with you then you're sort of fighting over which you're doing who's getting the barium, who's mixing what you know and who's getting the pillow, but I find, yes you used to do a lot more in bariums and enemas than you do now</p>	RR
<p>Because there's a relatively small pool of radiographers in the country it's very difficult, it's a lot easier for nurses because they can move more easily. The hospitals use bank radiographers more. Departments tend to be, have small populations of radiographers if you like and they tend to stay, once people are married, got a house they tend to stay in that job for a long time unless something drastic happens. So it used to be that unless somebody left through maternity which they don't any more or they died. Nobody could move up. Because unless there was an actual new development you didn't get any extra, you didn't get an extra radiographer. So the only way you could move up was by somebody leaving or by going elsewhere</p>	SF
<p>It'd help if there were more, what I think that's missing personally is there aren't enough senior posts in general radiography. The only senior I's usually are in ultrasound, CT, cardiac-type things or MRI. There aren't, there are very few in general radiography unless they've got completely separate A&amp;E departments. And I think that's a major thing that needs to be altered because the majority of radiographers are general radiographers doing A&amp;E, outpatients, GP's etc and wards. And they don't want to go into CT or ultrasound but that's the only way to get a higher grade, or by leaving to, go for a bigger hospital. And I think what a lot of, a lot of, most radiographers don't want to leave patients, they want to still work with patients but the way most, not just radiography but the way most careers are structured is they assume that if they promote you out of the patient area they're rewarding you.</p>	RR
<p>It's like you can make or break a junior doctor for a start by what you point out to them or what you don't. And it's the same when you're in theatre, you can help or hinder the orthopaedic surgeons because you know what you're doing, he probably doesn't</p>	RFRP-Ref

Quote	Associated theme/code
<p>So you think all those areas were specialist? – air encephals air ventrics, valvograms all on children</p> <p>Well yes because they're not something that's written up in Kitty Clarke</p> <p>Because I worked with children for about 20 years and it's the way its changed just in that short time, its completely different because we always had to get a film of some sort and I think there was only a couple of times when I actually abandoned something or told a patient that I wasn't doing them unless they calmed down. Because it was a child of an age that he should have been able to and I didn't see why I should wrestle with a 16 year old. But its more, because we always used to explain to the parents anyway before we took them in the room depending what we were doing say for example you were doing a skull on a baby. I always used to say to them well you know they're not going to like this very much because we've got to fasten them down so they don't fall off the table and you've got to hold them quite firmly I said and they're not going to like it and because you expected the baby to cry and they knew you expected that they didn't get as upset because they knew you were expecting it so they weren't thinking they were doing something wrong. Whereas now because there's all these rights brought into it, everybody's worried about, they're going to get accused of abusing the child because they're fastening it down or holding it firmly. So I think sometimes you don't get the examination when they could have done. Because they're too worried about being accused of abuse or something. Because we all, if it was a ? case of abuse anyway we always used to have the parents were allowed to come in but we always used to have a member of another member of staff with us, because they often, they were always X-rayed at (hospital) before they went up to the wards because then the parents couldn't say that the ward had done it, if they found it out later. But we were always told that if they asked us what we were doing we was to tell them that you know that they were having everything X-rayed to just make sure there was nothing else wrong with them. But not that they were perhaps under suspicion. But sometimes it was very hard to keep your temper when you knew that they had injured the child and they were telling you to be careful</p>	RS
<p>I don't think a lot of nurses and staff are as nice to patients as they used to be, but that's just my opinion. Well its just sometimes its as if they, its like they talk about them in front of them, they'll read their notes in front of them, and its got nothing to do with them their notes Its you know they shouldn't be reading patients notes, not unless they're actually doing something to that patient that they need to look in. They're just being nosy and they just. Its like they don't give them a blanket when they need one, or if their dressing's falling off, they don't you know or they don't clean them up or help them in and out of their clothes or something and if they haven't got the time they don't find somebody else to do it. And I don't know whether it's just because they don't think it's important or whether it's just that they've not been, it's not been drawn to their attention but sometimes when you see some of the patients being wheeled round the hospital you think to yourself well I'm glad that's not my parent. So you know, everybody gets old don't they? But yes I think a bit of TLC and a sense of humour because patients like to have a laugh they don't want to be morbid and they don't want you to say oh you do look poorly there's always this controversy with the ultrasonographers that they've just got to describe what they see not what they think and it's hard sometimes to stop one from the other especially as they get more experienced</p>	RR
	RFRP-Rad

Quote	Associated theme/code
<p>So and when you were doing things like cystomanometry you didn't have a radiologist. But you used to tell the surgeon if you didn't think it was in the right place so I think its it would have been more much simpler system and I think some of the ways they've delegated some examinations doesn't seem to have had a lot of thought behind it</p>	RFRP-Rad
<p>it depends what you're doing if you and what sort of trauma, hospital you are. If you're one of the big centres where they have all the fancy stuff with the helicopters and those going out like that yes it can be a lot more specialised but in your average general hospital I think its more experience than specialised you need</p>	RS
<p>Because to do their job because it's like for example to do cardiac ultrasound not only have you got to learn how to do it properly but you've got to know what you're looking at. Because its operator dependent if you don't know what you're looking at nobody else's you don't know if you've got what you are looking for. Whereas I say for example doing an arm X-ray it doesn't matter if you don't know which bones which as long as you know if it looks lateral or not or whatever it's not as operator dependent. Because it's easier for other clinicians to understand it whereas ultrasound isn't as easy for other clinicians to interpret. And that's the same with CT as well that's not as easy for other clinicians to interpret depending on their background</p>	RFRP-Ref
<p>Neuro and cardiac, cardiac catheters because it seen as being glamorous and they get on the telly, no they do. And they get to go round the world and they get you know like the first heart transplant. Because its sensational people want to know about it. Whereas if you're going on to rheumatology, that never gets on telly does it. You know they don't very often write reports on that on panorama whereas in actual fact it usually affects more people. Its usually the ones that are in fashion they're usually the ones that affect the least amount of patients No because when you think about it the majority of the population have a hip replacement eventually or something arthriticky, you know they don't have they're not in for heart transplants and major heart surgery and that. Granted that's increasing but yes I think it's this saving lives, you know rushing round with their gloves on</p>	RS

Quote	Associated theme/code
<p>Most of the time I think to begin with your expectations aren't very high because you've not been in that situation you don't know what to expect so what you get you take to be the norm and its only when you start questioning things that you realise some places or when you go round visiting other places that you realise some are better than others and you realise that some people have got much older equipment for example or that when they first brought in because we used to have Crown exemption when they first changed that that made a hell of a difference because you could start saying this isn't safe and they had to do something about it before you couldn't say it wasn't unsafe but they didn't do anything about it. Unless somebody was actually injured but when the regulations came in you could actually say this is unsafe what are you going to do about it you've got to do such and such or we can't use it. Well our processing for example it didn't have an outside exhaust, the exhaust from the machine just went straight up into the roof space so all it did was circulate it around the department. And we didn't have a non-return valve on the tube that went from the processor to the plastic thing that collected the fixer so of course when that got too full it used to backflow. That was '85ish I think. And its like for example gluteraldehyde in fixers its like DuPont's fixer used to be terrible it used to, a lot of people used to get really bad skin reactions. And its like I don't get any reactions at all but I was always covered in little blisters if I went anywhere near fixer. Even with gloves on. And its like for example you use to mix up the chemicals by hand in a big tub pouring the water in and bashing it up and down and then of course when all the health and safety regulations came in they had to package it differently you had to have proper automatic mixers that did it for you know</p>	RR

**Reflections on interview**

Felt very full responses. She talked herself through some answers so I have tried to choose the answers she arrived at rather than her thought processes.

**Implications**

There is more information coming from these interviews than I originally expected. However if I focus the questions I may not get at the information I want.

### Interview summary

**Respondent: Alice**

### Key points

1. Clear links to orthopaedic surgeon – rarely integrated with the rest of the hospital, very distinct and discrete unit
2. Dangerous incident and dangerous practices
3. Multi-skilled, problem solving approach, trained in medical photography
4. Students used to fill night duty and working practices not conducive to family life
5. Thinks hysterosalpingograms are specialist, IVP's, orthopaedic and neuro, and angiograms. Clearly patients are not thought of as exceptional – severe trauma cases, and complex paediatric were the norm.
6. Helped casualty doctor read films

### Themes

Theme	Code
Specialism is linked to procedures and medical specialisms	RS/RB
Gender issues related to compatibility of work with family	SF
Good relationship with medical lead teams outside X-ray	RFRP-Ref
Multi-skilled worker	RR
Value of education	SF
Pioneering – problem solving approach	RR
Dangerous work	RR

### Any contradictions/agreements

Contradiction or agreement	With whom and where	Code
Contradicts notion of specialism	Debbie, Ross, Elizabeth	RS/RB

Agrees with notion of specialism - procedures	Elizabeth	RS
Notion of specialism is quite clear and contradicts confusion	Ralph	RS
Being female hindered career progression agrees	Ross, Elizabeth	SF
Multi-skilled worker agrees	Ralph, Gillian, Judith, Tom, Miriam	RR
Value of education	Judith, Tom	SF
Pioneering agrees	Tom, Ralph	RR
Dangerous work agrees	Tom,	

### Key Quotes

Quote	Associated theme/code
My father was very keen that I should have a proper qualification, he did not want me to be just a secretary, I had children and I wanted to work part-time. Part-time did not fit in with little ones at school because you could not leave a patient on the table and you could not leave children standing outside school and so it just was not feasible for that time.	SF
Personally, I enjoyed it when it was challenging, like working in theatre when they were doing, because in (hospital) I was there when they were developing what was then called the (surgical procedure), because we were working with (surgeon) in the orthopaedic department and we had to be very on the ball and I enjoyed that sort of thing and also in the neurological when they were doing angiograms, because that was very much the latest thing and we really had to get our act together on that.	RR
A bit of excitement we had when it was very first started, because the table went on fire and there were flames leaping out and they said 'get it finished' and we continued with the photograph before we put the fire out	RR
we also had to go on the wards as well and the portables were great heavy machines which had to be dragged around and the other thing was we usually had to take a transformer with us as well and we were fully expected to work out the transformers because otherwise they blew all the fuses in the wards which did not make us popular. We also had to know, because we were not given a nurse, we had to do this and we usually went in twos because these machines were so heavy and when we had finished, we had to make the bed again and make sure the patient was properly cared for and of course in those days you had folks on traction, wheels and pulleys so we had to know basically what we could and could not move and very often it was a case of one taking the film and somebody holding it, wearing an apron and thick gloves, because of the safety aspects because there were no factors of you could not do this because it was not safe, you just got on and did it. You wore a lead apron.	RR

Quote	Associated theme/code
<p>in some ways we were integrated into the hospital but in others we were out on a limb, very much a separate unit and it was only when we were in the specialist unit, like the orthopaedic unit or neuro unit that we were in any way considered part of the team for the patient. If it was purely on the medical side, it was just 'ow send them down to x-ray and get the results back' they did not come down to see us and did not refer to us in any way.</p>	RFRP-Ref
<p>Yes, cardiovascular except he was more interested in varicose veins and things and we would take the portables down there to his unit and he would say 'can you do this and will you do that', then he would involve us and it was interesting. (Surgeon) was another one because he would say 'I've thought of something else', and he would sit on the table and say 'take a picture at this angle or do something at that angle, I want to see how it works on this' and you would get a lovely picture of the keys in his pocket and then he would put something metal at a different angle to see how that showed and try to get depth because the hips in those days were metal not plastic and very heavy and they did not do the pelvis either like they do now.</p>	RR
<p>Tomography had only just come in when I was doing it and we did have to go and learn how to do it properly. It was the whole body or specialist area, it depended on what they were looking for and it was generally things like cancers or brain tumours. It was a half circle and it had only just come, I believe it was one of the first ones and they had to find space for it. The radiologists thought it was their toy, so when they got over that, then the qualified radiographers were allowed to have a go.</p>	RR
<p>The medical photography was quite interesting, I don't know whether they do that now? We were sent up there for a month and the fellow who did it, wrote a big book on photography and medical photography which was part of our text books and they had an awful job reversing images, they had an awful job of trying to get an example of one of these things and he got fed up with it and chucked it in the washing bowl and poured some soapy water on it and only then did it happen. We had to do enlarging and making slides, things like that it was really quite fun. I never had the need to do a lot with photography. I took pictures and things but I never had the money to go through with photography but it was interesting, good fun, I enjoyed it.</p>	RR
<p>You would do things particularly in theatre, that you did not do in the ordinary every day medical and casualty, run of the mill. We all went round, we would do a month or six weeks.</p>	RS
<p>It depended on the individuals, whether they had any respect for what you were saying. I found the more senior surgeons and medics would involve you and would respect your opinion and ask for your help generally, they did treat you with a reasonable amount of respect, we were never treated as just a go for. If you did a good job - I had one surgeon, when we were doing a hip, it was an old lady, she was 83 and he was going to do this and said 'I'm not at all sure about this, I want to know who the radiographer is' and when they said it was me, he said 'alright I will do it' because he did not want her under anaesthetic, doing a hip in those days they put guide wires in, so the wires went in before they did it and you took the pictures from two angles and you had to run down to the department and put them up and go back again.</p>	RFRP-Ref

**Reflections on interview**

Clear links are developing between respondents. Multi-skilling, gender issues, the power of medicine, value of education and the notion of radiography being exciting, adventurous and linking to pioneering are certainly evident in retired practitioners. Dangerous practice may be linked to this notion. Cavalier attitude?

**Implications**

Watch for these issues emerging in further interviews and probe

**Interview summary**  
**Respondent: Carole**

**Key points**

1. Has a definite focus on wanting to help people
2. Regarded work in the 60's as heavy, physical work with poor working conditions
3. Found radiography exciting and mysterious
4. Had no help or training with managerial responsibilities
5. Felt that there were few opportunities for career advancement due to lack of ultrasound and CT facilities
6. Thinks that angiography, ultrasound, breast screening and dental radiography are specialised – expresses a definite link to technology
7. Confirms above and includes contrast agent examinations and plain film reporting
8. Manager disapproved of light radiographer/radiologist working relationship
9. Radiographer/radiology clinical ceiling

**Themes**

Theme	Code
Career advancement opportunities depended on technology available	RR
An element of pioneering – venturing into the unknown	RR
Social relationship between radiography and radiology changing	RFRP-Rad
Patient focused attitude	RR
Poor working conditions (new)	RR
Specialism is linked to technology	RS
Heavy handed management trying to maintain status quo	RR

Specialism is also related to delegated medical tasks	RS
Specialism requires extra training	RS

#### Any contradictions/agreements

Contradiction or agreement	With whom	Code
Agree that specialism requires extra training	Debbie	RS
Agree no training in management	Debbie, Gillian	RR
Agree that specialism is linked to technology	Gillian	RS
Agree that the relationship between radiology and radiography is changing	Ross	RFRP-Rad
Contradicts notion	Elizabeth	RS
Agree that career advancement is linked to technology	Tom	RR
Agree on patient-focused attitude	Gillian, Elizabeth, Miriam, Tom	RR
Agree gender issues related to compatibility of work with family	Ross, Alice, Elizabeth	SF
Agree that specialism is linked to procedures	Alice, Miriam	RS
Contradicts notion	Elizabeth	RS
Agree that specialism is linked to delegated medical tasks	Miriam,	RS
Contradicts notion	Elizabeth	RS
Similar pioneering approach	Alice, Tom, Ralph, Elizabeth	RR

#### Key Quotes

Quote	Associated theme/code
we had done night duties and very heavy work at the old hospital, here was much lighter work which I preferred because you find you get very tired of course in iron lead aprons so this was much easier work physically.	RR
I always thought it had an element of mystery about it, being able to see inside someone else's body	RR
I thought this is going to be quite an exciting job and I still really think there is a mystery about it, wondering what you are going to find that I find interesting	RR

Quote	Associated theme/code
<p>I used to enjoy casualty work, accidents, to be able to help diagnose what was wrong with them when they were in a terrible state, it was good to feel that I had helped sort out their injuries and helped them on their way to recovery. This hospital is not so acute but you are still helping to sort peoples pain out</p>	RR
<p>difficult situations with other members of staff, perhaps when you have had members of staff who did not pull their weight and when you are a senior it is your job to tell them that they ought to do more, and I found that rather difficult</p>	RR
<p>when you are a senior in a general department you have got to take aspects of running the department on board and that was quite difficult for me.</p>	RR
<p>I would say there have not been any, I cannot think apart from becoming senior at the (hospital), there were not things there to go for because ultrasound was not invented and the CT scans things like that, so it was really general radiography down there and I came here and you are so out of the general work there is not opportunity, well I've never fund any opportunities to see if I could do ultrasound or CT scans. Although, I would have quite enjoyed doing some training</p>	RS
<p>Having someone who says your work is good and you are doing well then you might think 'yes I am good at my job and I would like to do something a bit more adventurous and more difficult' but if you don't get told you are good, you would think I am just average and would not do well at something else - so I think that does add to your confidence.</p>	RR
<p>I think dental work is specialised to a certain extent. Well general radiographers find it difficult to do because everything is on a small scale and if you are not accurate it is not like doing a chest x-ray on a large film, if you are not accurate you miss things off that are vital so you have to be very careful with dental work you cannot just point and hope for the best. Like OPT machines and we have a scan aura which is a tomogram machine, that is one of about five in the whole of England so that is specialised tomogram work.</p>	RS
<p>I did some venous work that was quite specialised, it was just coming in really</p>	RS
<p>They have to get a qualification to be able to diagnose the films, they are responsible for a certain level of diagnosis and I believe if they diagnose something is wrong then it goes to a radiologist to be checked, I'm not absolutely sure how much checking is done on the ones they think are normal.</p>	RS
<p>Administration of IV contrast agents, is that meant to infer that the radiographer gives the patient an injection - not a specialist, I would think with adequate training but I would not like to think I required training for that, I would not like the responsibility, perhaps it is because I'm older, I would not like the responsibility of administering contrast. Plain film reporting, I think that is specialist, you need a lot of training for that. Contrast agent examinations, I think that is very specialised, I think a doctor needs to be attendance in case if anything goes wrong, I would not like to think I was taking that risk, and I don't think we get paid enough to take a risk like that.</p>	RS

Quote	Associated theme/code
<p>Very heavy work at the (hospital), I used to go home and fall asleep. Sometimes you would go into a little rest room at the (hospital), there would be about 6 or 7 radiographers on but one might be off because they were on the night before, so at lunchtime there would be 3. The superintendent used to come and fetch us out from where we having lunch to go and do the patients in a department and we would not get a full lunch hour so that just contributed to being so tired when you got home. In fact we would go out of the hospital to escape or go and sit in out-patients which I thought was really bad which meant we had not got enough staff but the staff that were there were getting over-worked, it was difficult and we used to work Saturday mornings as a matter of course and had half a day in the week, but the hours we worked Saturday morning were always more than you had in the week. We had perhaps three hours off during the week and you worked four hours on Saturday morning. We did find at the Royal we were working until 5.30pm and other hospitals worked until 5pm and were getting paid the same as we were and if you raised it there was no chance of anything being altered we were told 'that is how we do it here and does not matter what the other hospitals do' so that was unfair and it leads to unrest and dissatisfaction. Night duties, we worked all day and worked all night and had the next day and sometimes we got paid from midnight, if you got called out after midnight you got paid so much. One time it was per patient and that worked out too expensive so they said there has to be a 10 minute break between patients so of course whoever came after midnight you spread them out, it was inevitable that people were going to cheat a bit. The radiography was quite difficult, because light beam diaphragms had only just come in and we had got cones, you could change the cone but it was difficult to get good films without light beam diaphragms especially on portables where the film was at one angle and your tube at another and it was pretty dire really and also we were not allowed to have venetian blinds up so when we did get light beam diaphragms in the summer you could not see, and if one of the radiographers pinned a blanket to the window, the superintendent would come and take it down because it looked bad but at the same time did not do anything about obtaining blinds for us, so things that would have made life easier just were not done. A lot of things were unsatisfactory but somehow you just took it because there was no-one to appeal to apart from the superintendent, and if he did not do anything about it that was the end of the story - I think things might be a bit more reasonable now.</p>	RR

Quote	Associated theme/code
<p>At one time in the (hospital) we started to play bridge in the staff room and one of the radiologists like to play bridge so he played with us and the superintendent did not like that, he would come and fetch us out because we were enjoying ourselves playing bridge. We only played in our lunch hour but the superintendent did not seem to like the radiologist mixing with the radiographers but they were all very friendly. There was just one who was not very friendly, I think he was foreign and we could not always tell what he said, he had some of the radiographers in tears. The radiologist here has done a radiology course and he is quiet but concerned for the patient. If you get a radiologist who takes the patients interest to heart then that is a lot of what you can hope for in a radiologist, you don't want someone who is very brusque with the patient, you need to be able to admire what they are doing and if you don't admire the way they treat patients you tend not to want to work with them.</p>	RFRP-Rad
<p>through the years we have pointed out fractures to casualty officers and there has been things they have not spotted over the years, I think in a lot of cases the radiographer can diagnose radiographs much better than the doctors, not necessarily better than the radiologists, but they can go to a radiologist if they have doubts, but we don't get paid enough for that responsibility, I do think there is a big discrepancy there. They should be on a different pay scale if they are diagnosing.</p>	RFRP-Rad
<p>Quite fun at times casualty officers were quite friendly some of them. If you were on in the evening you could chat with them or point things out to them and they would not take umbrage to it but some of them perhaps newly qualified doctors, full of their own importance, buzzed down wanting to do a barium meal in the middle of the night you had to say 'this is not on we cannot do it' and some doctors if you pointed something out they would not particularly take kindly to it if they thought they knew better, but there is a way of telling people 'don't you think there is something here' not 'this is something you have missed' you don't point it out in that way.</p>	RFRP-Ref

**Reflections on interview**

This is a key interview. The respondent was particularly articulate and reflective and gave clear accounts of both positive and challenging aspects of her experience. There was clear reflection from this respondent about the poor working conditions she had to contend with soon after qualification in the 1960's. Not only was the work physically demanding she had to work without pay and experienced heavy-handed management. The manager seemed to try to prevent the radiographers from forming relationships with radiologists perhaps to allow him to maintain an exclusive relationship with, what he perceived as, the power at that time. The patient focused attitude continues along with the pioneering approach. However patient focus does not extend to specialism. Much of her account is staged in the years 1962-1967 and could be used as a vignette to elaborate on the working life of radiographers at that time.

**Implications**

Ask about working conditions as this focus yielded rich information about the everyday working practices of radiographers.

## **Interview summary**

**Respondent: Stephen**

### **Key points**

1. Identifies barium enemas as his specialism
2. Sees having a specialism as a trade off for management
3. Clearly identifies inequality of opportunities for radiographers and sees this as institutionally driven – a political and geographical lottery
4. Identifies general radiography, he means trauma, paediatrics, forensic and reporting as general work, as specialist work
5. Perceives radiography as a political football
6. Experiences a switch from focus on management as career advancement to clinical focus
7. Identifies convergence of factors that radiography could exploit to advance clinically and also identifies limiting factors
8. Sees specialism as something which is not generalist
9. Identifies that radiographers can be too technically focused without having the broader picture of health care
10. Talks of multi-disciplinary teamwork as *starting* to happen
11. Talks of improvement on working conditions once crown immunity was removed
12. Identifies no change in the poor understanding of referring clinicians

**Themes**

Theme	Code
Inequality of opportunity for career advancement	RR
Radiographer's preference for career advancement is clinical	RR
Specialism is within general radiography as well as in splinter groups	RS
No change in working relationship with radiology	RFRP-Rad
No change in poor working relationship with referrers	RFRP-Ref
Radiographers are more critical clinically & assertive	RR
Training in management – more emphasis than previous respondents	RR
Working conditions improved when crown immunity removed	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Contradicts himself about specialisms, says he has one then says he hasn't.	Himself	RS
As the interview progresses he clarifies this.		
Agrees about inequality of career advancement	Carole, Debbie	RR
Agrees about preference of clinical career advancement	Debbie	
Contradicts other people's notion of specialism	Debbie, Ross,	RS
But agrees on this	Ralph, Elizabeth	RS
Contradicts about working relationship with radiology	Ross	RFRP-Rad
Contradicts about working relationship with referrers	Ross	RFRP-Ref
Agrees about radiographers being more critical clinically	Ross, Miriam	RR
Training in management contradicts	Carole, Debbie	RR
Working conditions agrees	Miriam, Carole	RR

**Key Quotes**

Quote	Associated theme/code
I have got my own specialism in barium enemas.	RS

Quote	Associated theme/code
<p>The degree of management support expected of someone at my grade. Now this may be relatively unique to this hospital and the way it has developed and the way the departmental structure has developed but I think for myself and the other Senior 1, we do an awful lot of relatively pure management work, certainly operational management which would not be expected of a Senior 1 in many places, which is basically still a clinical supervisory grade, so I suspect I am far better developed managerially than a lot of people at superintendent level in other places. Having said that, I don't get the clinical specialism that they do as a pay off. So as far as my particular role and the way the department has developed, I am sure it is not comparable with other places to that extent.</p>	RS
<p>I took the Institute of Health Service Management Certificate in Health Service Management so I have had formal more credited training, but a lot of it has just been developmental and then the old on the job type training but it has to be backed up with proper credited training and qualifications. Politically I'm not sure we get the remuneration for doing it, but that is just a political comment. We really should be working at Super 3 grade for what we do, on the management side.</p>	RR
<p>Doing your job well, under pressure and doing it right - I still get the biggest kick from that. I also enjoy managing people as well, knowing I've done that well or even learning from not doing it well. I enjoy that sort of responsibility.</p>	RR
<p>Lack of direction, both personal and within the profession, moving goal-posts, it is being kicked around politically, which I am sure anyone working within the health service will come up with at some point. It's not getting proper recognition for skills there is still inequality of opportunity, depending on where you work, depending on the policies and protocols and how funding is distributed and allocated</p>	RR
<p>I think it is a political and geographical lottery. Some places give the people who want development and let them get there, other places it is either competitive and very restricted and resource limited.</p>	RS
<p>it always seems to be the big teaching centres that come out the best probably because that is the nature of their existence, to teach and to seem to be doing it, to seem to be developing people, moving things forward. Probably the answer is go and work in a teaching centre, if that is how you feel, but you have to balance that up against other things.</p>	RS

Quote	Associated theme/code
<p>Back in the 1970's there was a government white paper and a big push towards clinical staff becoming involved in management, so I did quite a lot, when I came to (hospital), in the late 1980's I did a lot of in-house training towards management and then that culminated on a CHSM course which was the formally accredited base line for health service management. Then of course there has been all the role extension which at quite an early stage I did barium enemas, I got the second Leeds course, I got in there quite early and of course there has been IV, red dotting, all that sort of thing. Development seems to be driven by the needs of the service rather than the individual. Several times now I have broached the subject of going on reporting courses or doing upper GI work and the answer you get it is not part of the departmental philosophy to take it that way. Now I am sure once it becomes departmental the service will not work unless we do it then it will become a priority.</p>	RS
<p>clinical governance that is going to push that sort of thing in fast, the need to work to higher standard and still get through the work that is required, it is going to put more pressure on clinical staff, senior clinical staff to develop but do so in a controlled way.</p>	RR
<p>If the political agenda drives the need for progression, which it is doing at the moment, because clinical governance needs a role extension, a shortage of doctors etc. shortage of radiologists, that is going to push it on in a quantum leap. Also what is going to push progression, is the students that are coming through now are much more developmental orientated because they have been through a purer academic background, the university culture, they will make demands on personal progression, which hopefully will develop the service as well. I think this will be a major factor for pushing it on. What hinders is still lack of resources, it is still not being financed, not being funded, still trying to do it on the cheap.</p>	RS
<p>I think it is a highly specialised profession and that is sometimes not recognised</p>	RS
<p>we are going towards splinter groups now. You are either CT or your nothing, or it is ultrasound or you are nothing or you are MR and it is becoming paranoid. I do feel that people who stay in general radiography are the ones who at times are looked at as being bottom of the pack and again developmental opportunities in CT and MR are not necessarily fairly distributed.</p>	RS
<p>people now carry the term of sonographer not radiographer who specialise in ultrasound, so there is a lot of division within the profession. That is not to say I don't agree with people taking on specialisms, of course they should, it needs that level of expertise to do things like MR and ultrasound but I do think it is detrimental to the cohesion of the profession generally and people have got to stand back and recognise clinical radiography, getting that right, is a very specialist area. You cannot go and do 8 to 10 years in ultrasound or CT and come out and claim to be a good clinical radiographer, you have to go away and re-learn.</p>	RS

Quote	Associated theme/code
<p>the people not doing that are still specialists, in that they are doing a lot of plain radiography and they are the ones who are efficient and good at what they do and that is producing films. People also specialise in different ways. We have people now who are becoming good within the department and they are not people who are from academic training, leading things like CPD within the department, leading quality assurance and again clinical management. What I call specialist skills are targeted towards that particular interest, that particular sphere of their work and you can see they want to develop in that way and start to stand out.</p>	RS
<p>I think we are much more litigation conscious, much more avoidance of complaint conscious, which again is not a bad thing in that you explain yourself, you think twice about what you are doing and the necessity of what you are doing. Also I think peoples' expectations has increased beyond the reality of what we can do with them, so that is a conflict. I think people are much less tolerant of failure, we have the blame culture now which the health service seems to be taking the biggest blows on at the moment.</p>	RR
<p>The other thing which we have developed is that most radiographers are much better at communicating, we have had to be for a number of reasons. With the patient now in terms of offering full explanations of what is happening, answering questions. I think the days of standing there and saying 'I will be with you in 5 minutes' is long gone.</p>	RR
<p>Doing a child's chest x-ray has not changed, obviously the technology you are using has changed and the imaging but the actual act of it has not changed at all, it is what surrounds it that has changed.</p>	RR
<p>Straight off top of my head, touching on things like ultrasound, nuclear medicine and mammo and CT, MR - I think they are what most people would consider specialist and I suppose I do in that it tends to be what the radiographer does, that is the job of work that they do and they are not generalists so that is specialism. Things like forensic and paediatrics, iv administration, clinical reporting, I think they are specialist skills within the scope of the work a radiographer does. They are specialist skills but they can be common to people whatever their main specialism is if you like. I would say a good general radiographer should have some forensic skills, paediatric skills, obviously iv administration is part of their job now. They should have developed good skills within trauma work - this is what I mean by saying general radiographers are specialists as well, in that all these things probably make up the core work for the general radiographer and they should have developed specialist skills.</p>	RS
<p>So I think the answer is everything is specialist work, it just depends who is doing it.</p>	RS
<p>There still seems to be the thinking of, particularly with the latterly qualified ones that somehow the CT scanner and an MR scanner is the pinnacle of what they should be trying to achieve, and I think that's where radiographers have got a problem. You cannot argue with this is somebody 'well I want to use the CT scanner' they have got a clear goal then good for them going after it but I sometimes think they do not stand back and look at the more general picture.</p>	RS

Quote	Associated theme/code
<p>It places a lot of work on the radiologists, particularly the interpretation of MR scans, the amount of information and complexity of imaging, so I'm sure again a lot of radiographers don't want to know because of the work load it may bring, those who want to get in there and develop their expertise in it. In the main, they are very positive towards it. (Radiologist), who is leading it, is extremely committed and positive and has a huge amount of expertise in MR and I think that will rub off on everybody else.</p>	RFRP-Rad
<p>You have the physicists from outside the hospital who are keen to develop within the service, so I suppose anything that pulls in other professions, other disciplines, other agencies, again that increases the specialism. Then they take it outside the department into a multi-disciplinary cross boundary field.</p>	RS
<p>Mammography that is very much a multi-disciplinary team environment in that they work very closely with surgeons and pathologists, again development in that service impacts on other people who have a vested interest in the development of it. This has started to happen in barium enemas with the colorectal service, it has increased in a multi-disciplinary team environment in that we are working with endoscopies, endoscopy nurses, nurse practitioners and colorectal surgeons as well as well as the radiologists and pathologists, so I think that is starting to mirror the mammo service to an extent, as the breast screening service is a model for the multi-disciplinary team and a multi-disciplinary team service, again I think that is how other professions will recognise the School of Radiographers.</p>	RS
<p>It is a much more inclusive style of management now.</p>	RR
<p>The environmental working conditions are better, I think they are mainly health and safety and legislation driven, employers have had to take on more accountability for conditions and I think the removal of crown immunity from the health service, things improved quickly after that. Things like ventilation around processing areas that sort of thing. When we first moved to this building, the ventilation was appalling and a lot of people were subject to fumes, there was health problems, sinus problems, breathing problems. There has been quite a bit of investment in security measures within this department and I'm pretty sure it is same in a lot of places. Employers are having to recognise the risk the employees take and being accountable for that so again it is risk management, and it has all being driven by risk management, they don't want suing by the employees for putting them at risk. There is also the documented fact there is an increase in violence within society, increasing higher expectations within society which are not being met, which leads to frustration and conflict and I do think people are at greater risk. Having said that in seventeen years I have suffered nothing more than verbal abuse.</p>	RR
<p>I've enjoyed working with radiologists in the main, I've learnt a lot from them and met a quite interesting mix of characters</p>	RFRP-Rad
<p>It's blurred and moving, I would not say it is going, it could never go, because at the end of the day they are still medical practitioners, and the radiographer is not a medical practitioner and if they want to be one they should go and train to be one.</p>	RFRP-Rad

Quote	Associated theme/code
<p>In fact it is even more so the case, I think a lot of doctors now are a lot less clinically skilled, certainly at first. They should be relying more on radiographers, experienced nurses and people in path labs and physiotherapists, they should be relying on their clinical expertise and experience to guide them and I think the wiser ones do but a lot don't. The wisest casualty officer is the one on the first day there who comes round and asks radiographers opinion on a film whether they actually want it or not, because they are the ones who get respect and help and people will go the extra few hundred yards for them and help them out and make sure they do not drop themselves in it.</p>	RFRP-Ref
<p>I do feel sorry for a lot of these doctors, although they do stuff that sometimes takes your breath away and it is totally inappropriate, what they are requesting and the justification for it, they do suffer from an awful lack of leadership and support and guidance. Some attempts have been made to improve that but there is still a long way to go. To me it is even more justification why they should be listening to the nurses and the radiographers and anybody else they might come into contact with, because they are the ones who can give them some support. A lot of their concerns we can help them with and the wiser ones listen and a lot don't. I think they are abandoned, isolated and they don't learn team work. Doctors generally now, not just junior ones, do not learn team work. Traditionally they have not been team players, this is probably changing and again I have quoted the breast screening service is an environment where team play is essential and I think that is good as a model for a lot of future clinical development.</p>	RFRP-Ref

#### **Reflections on interview**

This respondent is the first to identify the necessity for radiographers to have a big picture. This is an interesting interview as there is an implication that somewhere in between the 1960's and 1983, radiographers "lost" the patient focus they had originally. There is a lot of information here about change.

#### **Implications**

Try to identify how and when the patient focus changed.

**Interview summary**

**Respondent: Claire**

**Key points**

1. Although a manager, emphasis on enjoyment of clinical work
2. Thinks that patients' general treatment is worse now than when she started in 1981
3. Procurement of CT gave opportunities for career advancement
4. Sees budget issues as driving opportunities for advancement
5. Thinks that barium meals and enemas are specialist, A&E, paediatrics, MRI, nuclear medicine and ultrasound
6. Thinks of specialism in terms of procedures

**Themes**

Theme	Code
Career advancement was managerial rather than clinical	RR
Change in patient care – very patient focused	RR
Radiology/radiography working relationship changing	RFRP-Rad
Change in teamwork with referrers	RFRP-Ref
No training in management	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Agree about career advancement being managerial	Debbie, Ralph	RR
Agree about no training in management	Debbie, Gillian	RR
Agree about radiology/radiography working relationship changing	Ross	RFRP-Rad
Contradicts about change in teamwork with referrers	Ross	RFRP-Ref
Agree patient focus	Elizabeth, Miriam, Gillian, Tom, Carole	RR

Agree radiology/radiography working relationship changing	Carole, Ross	RFRP-Rad
Contradicts notion	Elizabeth	RFRP-Rad
Agree no training in management	Carole, Debbie	RR
Contradicts	Stephen	RR
Agrees preference of clinical career advancement	Debbie, Stephen	RR
Contradicts other people's notion of specialism	Debbie, Ross	RS
Agrees notion of specialism	Ralph, Elizabeth, Stephen	RS

### Key Quotes

Quote	Associated theme/code
When I was a Senior 1 I had the best of both worlds, I had a small managerial input plus a good clinical input so that was the best time for me. I was able to give other the benefit of my clinical experience and still have that managerial role, I really enjoyed being a Senior 1.	RR
We still have the same system here where the staff are rotated on a weekly basis so you are always doing something different. Everybody moans if they are on theatre and mobiles and so on but really it is not a difficult part of the job it is just more physically wearing.	RR
I perhaps don't enjoy my job as much as I used to	RR
We have got a lot of junior staff who really should be higher than they are	RR
That came from two individuals to start with, they came and badgered and pushed and as you can imagine, it was very difficult to implement with the radiologists, but they kept at it. We originally could not see how it would work, just having 2 members of staff who could report certain films, but they kept at it and we found a way around and fingers crossed we have extended that now.	RS
it has promoted a better relationship between us and the A&E department	RR
but I think they have also tried to extend roles within their department so we have done it side by side. Staff who trained in reporting also went on their nurse practitioner course, so they got some insight to what was happening at the other end.	RFRP-Ref
The next thing was they set up a service at Montagu Hospital which is run by nurse practitioners now and avoids the needs for a consultant to be there, this is the minor injuries unit and of course when a consultant was there a lot of patients were sent home and told to come back on the Monday or Tuesday. The nurse practitioners protocols indicate that they should x-ray straight away, so of course it affected our working patterns and we were not consulted, so of course we have had to make changes to the way we work at weekends. They did not foresee that, they did not think it would be a problem to us at all.	RFRP-Ref

Quote	Associated theme/code
<p>I spent time at the dental hospital, and it became easy there because it was the norm whereas dental radiography here, people worry about it and yet we do quite a lot of dental examinations and obviously we x-ray a lot of children but where you are doing it all the time it just becomes the norm and it seems really easy, whereas you come back here and people kick up a fuss about doing things which are fairly straightforward</p>	RR
<p>I am sometimes a bit disappointed in the way I see staff dealing with patients, not because they are nastier or anything but because we do not have the time just for the social niceties. If patients are worried or upset about something you have not got time to reassure them and I have noticed a lot of our staff are very efficient, polite and they get with things but perhaps not as caring as I remember.</p>	RR
<p>Certainly, when you go up to Market Hospital and because that is a smaller hospital and they still have a core of staff who have worked there for many years, it is different there, there is a different culture.</p>	SF
<p>For example, when I last worked an evening, it took four of us to get a patient onto the x-ray table and manoeuvre him and so on, he was elderly and quite poorly and I did the examination with some assistance. When we were waiting for the films to be processed they all vanished and I knew if I had not stayed with him none of them would and that gets to me. It is just thinking about how that patient is feeling.</p>	RR
<p>I responded to a complaint recently about a child who was 12 or 13, who had been quite upset by the way she was treated and I was certain I knew the radiographer who dealt with her, and I was certain she had not been nasty or anything with her, she had just been efficient as I said earlier, got on with it and ushered her out and this child had wept in the waiting room and thought she had been dealt with very brusquely and when I spoke to the radiographer she said 'Well she was 12 for goodness sake', but you forget that they are children and it can be very frightening, and even though they may come all made-up and in brief garments, they are children at the end of the day. Her mum took great umbrage about it all.</p>	RR
<p>I think you need specialist skills in these areas. Obviously things like CT, Ultrasound, you do need specialist training, MRI needs specialist training, Nuclear Medicine needs specialist training. Things like forensic, trauma and paediatrics, you need a more in-depth knowledge I think of why you are doing things.</p>	RR
<p>It has definitely changed over the year. When I first started here we had relatively few radiologists, and they were like gods really and what they said went and I think some of them even engendered fear in the hearts of the junior staff. Nowadays we have younger consultants and it is almost first name terms,</p>	RFRP-Rad
<p>I can remember one radiologist filling me with terror, the thought of doing a screening with him and yet as things did change he changed, or maybe I changed as well and I ended up having a very good relationship with him later on.</p>	RFRP-Rad

Quote	Associated theme/code
They were very negative at first but we were fortunate in that the clinical director was for it and he laid the ground rules for it, he was a radiologist, the others would have nothing to do with it at first. I think we started with barium meals, and he was the only one who would report the barium meals, and he trained the radiographers practically and it just gradually opened up.	RFRP-Rad
We are more respected now than we used to be, you used to be the person that took the pictures but now I think they do respect us more as professionals and it proves it when they come around and ask for advice sometimes. Obviously we have a red spot system in place, they come round and ask about that and have much better dialogue certainly.	RFRP-Ref

**Reflections on interview**

There are some interesting contradictions and agreements with the interview that I did yesterday. Both radiographers are from the same era but have different experiences. Key differences are place of work and gender.

**Interview summary**

**Respondent: Betty**

**Key points**

1. CT manager with training in CT but not management
2. Feels that she has lost her general skills
3. Expresses disquiet about merger and how this will affect differences between the two centres
4. Radiology and radiography staff shortages impinging on role boundaries
5. Defines specialism as barium enemas, reporting, breast screening, anything that used to be a radiologist's job, paediatrics if you are going to become an expert, nuclear medicine, forensics, admin of iv contrast agent and ultrasound
6. The installations of PACS stimulated communications, as this was a hospital wide exercise. This has helped with teamwork.

**Themes**

Theme	Code
Notion of specialism is related to exclusivity of practice	RS
In a managerial post with no management training	RR
Radiographers communicating clinically with referrers	RFRP-Ref
Value of education	SF
Relationship between radiology/radiography is changing	RFRP-Rad
Budget issues affects opportunities for advancement	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Agrees notion of specialism is related to exclusivity of practice	Debbie, Ross,	RS
	With whom	Code

Contradiction or agreement		
Agrees in a managerial post with no management training	Debbie, Ralph, Carole, Gillian, Claire	RR
Contradicts above	Stephen	RR
Agrees radiographers communicating clinically with referrers	Debbie, Claire	RFRP-Ref
Contradicts above	Stephen, Ross	RFRP-Ref
Agrees value of education	Judith, Tom, Alice	SF
Agrees relationship between radiology/radiography is changing	Ross, Carole, Claire	RFRP-Rad
Contradicts above	Stephen, Elizabeth	RFRP-Rad
Budget issues affects opportunities for advancement – agrees	Claire	RR

### Key Quotes

Quote	Associated theme/code
I have not had any training in that (management) at all, that is something I feel I'm lacking in, because now when I am in charge of CT I have people that are two grades higher than me working underneath me as CT staff, so I find it a bit difficult to cope with managing them and telling them to do things, so I could probably do with some training but it is not forthcoming at the moment.	RR
I've lost my (on-call) skills, I feel, I have to think about everything now, so when I walk in and I can still do things and get them right then that satisfies me but sometimes it can be a horrible night and everything is not easy and everything does not go smoothly.	RR
I'm capable of doing everything I need to do but sometimes you feel that it has been hard work, through no fault of anyone else but things do not go smoothly, there is too many people in the way or your exposure is not right first time or they want further views and they are not suppose to have them rhesus, you are supposed to let the patient come to you but they won't let you. It is a bit of a battle.	RR
I have been quite fortunate in the courses we wanted to go on, study days etc. we have been able to go, we have had funding and time when needed to do the work. There is certain things that we would like to do but they are too expensive, we just cannot afford to go and that is a bit upsetting when you think you ought to be keeping up with what is going on and you just cannot get.	SF
It is very difficult to know what specialist practice is.	RS
Managing a department is not what a radiographer should do.	RR
The CT is a bit difficult because when I trained it was a specialism but now most radiographers that qualify should be able to do CT, so it is a bit of a grey area.	RS
Quote	Associated theme/code
it (reporting) is a speciality because it is not something you are trained to do as part of your training to be a radiographer, you need further training for it and it is a job that traditionally has been done by somebody else and you are taking their role	RS

a radiographer doing a radiologist's job, or traditionally a radiologist's job, then it does become a speciality	RS
Yes that is a speciality, that is all I know about because I cannot do it,	RS
Yes it is further training, you are taking a role on that has traditionally been done by somebody else so yes that is. I suppose now it is becoming more normal for people to do it. Probably 80% of ours do them, so it is less than it was five years ago when only two of us did it.	Rs
we have a hospital trauma team, but it does not involve radiographers	RS
say that (forensics) is a speciality, we have one person here	RS
There is a lot more to it (forensics) than I ever thought there was, legally etc. - so yes	RS
Yes that (u/s) is a speciality, it is not part of the normal training for a radiographer	RS
We have only got two (radiologists) so we don't see them very much I'm afraid	RFRP-Rad
We have got seven vacancies (radiologists) between two sites, five in-post and seven vacant	RFRP-Rad
Because they cannot do the work they would like to do themselves, we are taking on more of their roles and they have no choice but to let us do it at the moment.	RFRP-Rad
Some of them (radiologists) are more co-operative with letting you take on their roles than others but here we have got one of them will let you do things, the other one will not	RFRP-Rad
we have to do a lot of educating of particularly casualty doctors, as that tends to be their first job, they have never seen an x-ray	RFRP-Ref
I think one of the big things was installing PACS, when we went PACS we had to involve everybody in the hospital, we had to communicate with them and tell them what we wanted and what they could get out of it. Since then a lot of the barriers have gone down and they do communicate more. Instead of sending a card for something, they will ring and say 'What should I ask for' - 'What is the best thing to do' - so it is better.	RFRP-Ref

### Reflections on interview

Short staffing is a serious problem. Radiology can only maintain power if they have the numbers to do so. Perhaps there are more opportunities for radiographers where there are few radiologists. Opportunities for radiographers is an issue.

### Implications

Look for chances to probe about these issues

### Interview summary

**Respondent: Caroline**

### Key points

1. Seems to give an account of an ad hoc mode of opportunity marketing and subsequent career progression
2. Notion of specialism linked to extra training, elitism, and exclusivity
3. Identifies as specialisms – ultrasound, mammography, MRI, trauma if at a specialist hospital, radiographer-led contrast agent examinations, nuclear medicine, plain film reporting, some CT
4. Clear reductionist approach

**Themes**

Theme	Code
Values patient contact	RR
Reductionist – organisation of work	RR
Radiology power	RFRP-Rad

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Values patient contact - agrees	Gillian, Tom, Elizabeth, Miriam, Carole, Claire	RR
Radiology power agrees	Betty, Claire, Tom, Judith, Ralph, Debbie	RFRP-Rad

**Key Quotes**

Quote	Associated theme/code
And after a bit when you get into it you start thinking about well I could sort of do QA stuff and do like QA tests each month now and I do sort of like mentorship and things like that and you get to sort of as your confidence grows I think you sort of start to look away from you start to less concentrate on an x-ray and start to look at the department as whole and think and sort of find your little path through it and think oh 'I could do a bit of that and I could do a bit of that'. I like being a bit of a 'jack of all trades' me and doing a bit of everything.	RR
Every time you open the door you see a different person every five minutes and in that time you have got to try and make them relax and make them know how to feel confident about what they are going to have done. And there is an art to it a definite art to saying it.	RR
And then when I got promoted I thought I will do more CT and I am learning more now again, which is quite nice it keeps you more	RS

stimulated.	
I wanted to have quite a broad spectrum first.	RS
they don't fit into management's mould of the radiographer	RS
certain members of management have certain dinner companions. Dinner companions seem to be promoted to superintendents	RS
It is just such a waste of everybody's time. We do still vet the cards but when the patient is there not when we just have the card - it would save a lot of time if we could. It was a great idea to take this away from the radiographers because they have more time for the x-ray but you don't, you spend more time sorting it out when you are actually x-raying people. I think that was the idea but it has not worked out. It has all been set up now with a bookings office and I just don't think they want to go backwards.	RR
I think radiologists are in a recruitment crisis in that they can't get them to join, so they like to shovel the things that they find boring towards us which is the enemas, IVU but we don't get the pay they get. They get recognition for everything they do. If they become a specialist in a certain area they will get added incentives and bonuses, whereas for us it seems part of our job, that is what you should be doing, well in a way yes, you should be expanding your profession but helps if somebody says 'if you do it and you are good at it' you will get this as a reward at the end of it, not that you should just be doing it for your own sake, which you do in a way because it makes your job more interesting, but at the end of the day we have all got a family to keep and people to go home to. Extra so much a year would make life easier. I think it is annoying that we get their crap but we don't get recognised for doing it.	RFRP-Rad
Years ago I think they felt undervalued but now if you specialise you get asked more. People want more of an involved role. I enjoy more specialisation work, it makes you think and the day goes quicker.	RS

**Reflections on interview**

Reductionism

## Interview summary

**Respondent: Kathleen**

### Key points

1. Radiology took responsibility away from radiographers in IVU's
2. Was refused promotion as she was married and hadn't any children
3. Identifies admin of iv contrast agents, paediatrics, ultrasound, nuclear medicine, mammography, barium enemas, CT, MRI, angios and air encephals and bone density scanning as specialisms
4. Specialisms require training and full-time commitment
5. Values patient contact
6. Gives a diagnosis on salps
7. Works in a teaching hospital – trains registrars and cannot take on any extended roles
8. Yet radiographers teach radiologists how to do ultrasound scanning
9. Inequality of opportunity

### Themes

Theme	Code
Radiology lessens job satisfaction	RFRP-Rad
Specialisms require extra training	RS
Values patient contact	RR
Bullying	RR

Career moves governed by radiology	FRP-Rad
Gender issues	SF
Inequality of opportunity	RR
Radiographer's preference for career advancement is clinical	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Agrees Radiology lessens job satisfaction	Debbie	RFRP-Rad
Agrees Specialisms require extra training	Debbie, Carole	RS
Agrees Values patient contact	Gillian, Tom, Elizabeth, Miriam, Carole, Claire, Caroline	RR
Agrees Bullying	Ralph	RR
Contradicts Career moves governed by radiology	Ralph, Judith	RFRP-Rad
Agrees Gender issues	Ralph, Gillian, Ross, Judith, Alice, Elizabeth	SF
Agrees Inequality of opportunity	Stephen, Carole, Debbie	RR
Agrees Radiographer's preference for career advancement is clinical	Stephen, Debbie	RR

**Key Quotes**

Quote	Associated theme/code
one thing that I remember we had to put more thought ourselves into what we did with IVU's we had to look at the films we had to decide what came next and what had to be done whereas what I've found more recently is that the radiologists take over and tell us what to do next. So I think in some respects we've lost a little bit of our own you know our power of making those decisions	RR
I went to one interview there were 2 of us and I was told that the other radiographer had had her family and as I hadn't started having my family it was er, they actually asked me I mean nowadays, well nowadays, you sort of get hauled over the coals for that I was actually asked did I intend to have a family so I said well yes eventually you know that sort of and this was the reason that was verbally given to me why I didn't get the job	SF

Quote	Associated theme/code
<p>If you're sort of free and single and able to travel, I mean I know there are more jobs nowadays at the moment there's a shortage em, there's always been jobs in London if you're prepared to go and live in London, but if you've got a family and you're settled in an area you can't really do that. So I think that's a problem against progression.</p>	RR
<p>It was very unstimulating and unsatisfying the fact that I found I couldn't tell people the results. Which I feel I like I mean I know you can't always tell the patients everything but I like to feel that I can tell them something and we weren't allowed to tell them anything. They had to wait for their report to go through and I found that really unsatisfying.</p>	RR
<p>At that particular point the senior radiographers spent their time in the viewing room checking films which I thought I don't want to be a senior radiographer I want to actually do them.</p>	RR
<p>A particular example nowadays we do a lot of salps in our gynae section and the patients always ask well what did this show. Well we go through the images with them on the screen and tell them everything and point out if one tubes blocked and the other's OK and they've still got a good chance of conceiving. We feel able to give them all this information, confidently, I mean at this stage I know a lot more than I did as a newly qualified radiographer.</p>	RR
<p>IV injections This is something that I know is a speciality nowadays which I've tried very hard to be able to, to ask to be trained but because I work in a teaching hospital we've got registrar radiologists who like to do all these things and we haven't been given the option. I mean my main reason would be for Buscopan for hysterosalpingograms which we give quite frequently and I think that would be quite useful because quite often the registrar radiologists scrubbed up to do the, has to become unscrubbed to do the injection so as far as I'm concerned that would have been an easy, useful thing but um.</p>	RS
<p>I think is a speciality because its, it is usually a completely separate department</p>	RS
<p>Trauma well no, I think I think all radiographers started out doing trauma or minor trauma and I think this is just part of what radiography is.</p>	RS
<p>I think children should really be in separate hospitals and separate departments.</p>	RS
<p>Ultrasound yes, Definitely a speciality. Because you need to definitely be working exclusively with ultrasound to keep your hand in to be up to date.</p>	RS
<p>I feel that all radiographers should be given the same opportunities in different hospitals and this is something that we do and we should I think the opportunities should be universal.</p>	RS
<p>They have different types of illnesses, different needs and even possibly needs not everybody has like paediatrics not all radiographers are, not all radiographers are good with children, not all radiographers are good with old people so I think sort of elderly patients could, probably merits somebody you know who sort of is good with them.</p>	RS

Quote	Associated theme/code
<p>I have by one, yes but it was somebody (radiographer) who bullied staff generally it wasn't sort of all that personal but, yes, I'd prefer not to say who it was, I mean it's not anybody we've discussed up to now, no, no. But um yes this particular person was sort of a lover of power and um you know things that we all thought were important were not that important to her and of importance, she sort of obviously, it's very hard to say any more than that really. It made life not very pleasant I'd say.</p>	RR
<p>Yes um, perhaps a slight one, you used to have to be very meticulous about cleaning the rooms and tidying the rooms and all these little things that nobody cares at all about now.</p>	RR
<p>I mean when I say its not part of what we do I do I'm not trained to do reporting perhaps you misunderstood me there but I feel, I don't feel to be just do reporting I think that this is not what radiography's all about so I think you know hands on is radiography and um you know I sort of think to sort of do a couple of reporting sessions, fine if you would want to if you enjoy that sort of, to do that fine but I wouldn't want to do it wouldn't want to train to do that full time. So that's why I say I don't think it's a speciality as such but maybe I'm with this speciality business maybe I'm not really understanding quite what you mean.</p>	RS
<p>It's a small hospital and we have a very very close relationship with doctors and consultants you know we now them all well we know them all by their first name</p>	RFRP-Ref
<p>Consultants sometimes on special care say what do you think about this film or you know.</p>	RFRP-ref
<p>I still feel that all this emphasis on quality standards and reject analysis I feel, I personally feel is that I feel it's a waste of time because I think most people well, a) do the best they can and b) try and do their best for the patients and an awful lot of time is spent in your working day doing these things which perhaps could be employed in better</p>	RR

**Reflections on interview**

Interesting that bullying cropped up and I was able to explore this as far as the respondent allowed. There is an issue about role development in radiography where radiological registrars are being trained.

## **Interview summary**

**Respondent: Christopher**

### **Key points**

1. Lack of patient focused care
2. Lack of job satisfaction - production line/checklist emphasis on work
3. Partially commits to multi-modality focusing on vascular work
4. Sees access to technology as pivotal for progression – few pieces of technology – few progressing radiographers?
5. Relates specialism with exclusivity and length of experience, get paid more, have more responsibility, have more training
6. Identified specialist areas are: Plain film reporting, mammography, radiographer-led contrast agent studies, CT depending on where you work, MRI (very specialised), ultrasound – strange due to multi-professional staff base, administration of iv contrast agents (low specialism), paediatrics depending on where you work,
7. Hierarchy of specialisms
8. Poor communication about opportunities to progress
9. Staff shortage – radiologists
10. Boundary between radiography and radiology is controlled by the latter
11. Is recognised as a professional once outside the boundaries of the X-ray Department

Themes	Code
Theme	RFRP-Rad
Radiology impacts on degree holders and lessens job satisfaction	RS
Specialism is exclusive with a hint of hierarchy to it depending on which hospital it is performed in	RS
Specialism requires extra training	RS
Specialism is exclusive	RFRP-Ref
Treated as a professional and feels valued outside the department	RR
Patient centred philosophy	RR
Problem solving approach	RS
Career advancement linked to access to technology	RS
Inequality of opportunity	RS
Sees career advancement as clinical	RS

Any contradictions/agreements	With whom	Code
Contradiction or agreement	Debbie, Kathleen	RFRP-Rad
Radiology impacts on degree holders and lessens job satisfaction – agrees	Debbie, Betty	RS
Specialism is exclusive with a hint of hierarchy to it depending on which hospital it is performed in – agrees	Debbie	RS
Specialism requires extra training - agrees	Debbie, Ross	RS
Specialism is exclusive – agrees	Ross	RFRP-Ref
Treated as a professional and feels valued outside the department – contradicts	Gillian, Elizabeth, Tom, Miriam, Carol, Claire	RR
Patient centred philosophy - agrees	Debbie, Tom, Alice, Ralph, Miriam,	RR
Problem solving approach – agrees (new to audit trail but have back-tracked)		?RFRP-Rad
Career advancement linked to specialism and access to technology - agrees	Carole, Stephen	RS
Contradicts	Debbie, Ralph	RS
Sees career advancement as clinical – agrees	Debbie, Stephen, Kathleen	RS
Inequality of opportunity - agrees	Stephan, Carole, Debbie, Kathleen	RS
<b>Key Quotes</b>		
Quote		Associated

	theme/code
... basically be everywhere and do a little bit of everything when I'm told to.	RR
I still get a bit of a buzz out of doing things ... not just right, but finding myself in a situation and working a way out of it or working ... how to ... what I think is the best way of getting through the situation and then the end result ... be it a good film, a happy patient or y'know helping, being part of a team. So that's what I get out of it.	RR
Sometimes just feeling as though we're part of ... just a production line and just kind of thinking that a patient will go from here to there to us to somewhere else, and you're doing a lot of X-rays which are basically exclude a grams and you're doing a lot of things ... and it will seem that a lot of doctors don't really know what they're looking for when they request an X-ray anyway and it's just something to do to cover themselves for either litigation purposes, which seem to be coming even more and more nowadays, so just that feeling that you're just ... you're just not really part of anything that's really helping, you're just part of a check list and oh yes, send the patient to X-ray or do an X-ray because it's part of the protocol or whatever, not because it's really been thought through. Just 'cos you're doing the job that we're doing is just, just to do it rather than it's needed to be done. It's just a bit annoying sometimes.	RR
... there are specialised dental hospitals	RS
So basically just extra training and extra experience.	RS
it depends what kind of an employer you work for. At some hospitals, some trusts are better than others, it would seem that the opportunities are greater.	RS
you can't get your own experience in a CT scanner, you need to be trained. Or an MRI scanner, obviously you've got to be trained and somebody's got to pay for that training. Somebody's got to take time out for that training so I think it's down to your employer really	RS
That's one of the most enjoyable things of the job, dealing with patients.	RR
... I suppose every radiographer reports mentally in their head	RR
... it's very specialised if you're taking full control of it but I'd say that ... slightly specialised because obviously you've got a doctor there taking full responsibility so that depends on whether you're doing it or whether someone else is actually performing the examination.	RS

Quote	Associated theme/code
It's specialised at the place where I work	RS
Yet other places, other hospitals, and it's more common practice that everybody rotates through CT and even the normal radiographers, the basic radiographers, they have some experience so that's ... I wouldn't say that's as specialised but it just depends on where you work or which department you would use.	RS
just to work and specialise and hone your skills in that one area, so again I think that's more specialised than CT.	RS
that's specialised because you've got to take another qualification although I've worked with someone who came through the medical physics way and that's a bit confusing, that they can do no radiography,	RS
talking as a radiography, I would say that ultrasound was very specialised because it would take me quite a lot of effort, time and obviously it'd take a lot of other people a lot of time and effort of resources to train me to do ultrasound but it does seem that there are other ways of getting into ultrasound so that would possibly suggest that it wasn't specialised	RS
because I certainly deal with a lot of trauma yet I've never been taught	RR
they're gonna have a specialised superintendent radiographer -	RS
'Anyone interested in MRI put your names below'	RS
Where I work, it's ... people who work in CT, work there all the time and it's kind of their empire if you know what I mean. Yet at another hospital I worked at while I was training, it was something that yes there were the odd one or two people who were possibly superintendents, worked there and they were incredibly specialised. They worked there all the time, yet the rest of the staff had a ... quite a large knowledge base 'cos they rotated through it all the time.	RS
the ones that I've experienced don't seem to give you time of day and you could be as nice as anything to them and I mean whether they're stressed I don't ... y'know obviously they are but isn't everyone. Y'know they get paid a lot of money for what they do so they can't really complain that much. They have a lot of advantages, a lot of benefits and just tend to treat other radiographic staff as not important, not there which really it does ... it does annoy me at times	RFRP-Rad
The locums are the nicest people ever.	RFRP-Rad

Quote	Associated theme/code
<p>It's whatever they don't want to do or whatever they can't do for whatever reason, can't do won't do, doesn't have enough time to do, we'll see if the radiographers can do it. So the boundary's kind of set firmly by them and it's run by them and it's not an even boundary, it's like looking up a brick wall. The brick wall is moved by the radiologists and radiographers sit patiently at the bottom kind of waiting for the scraps to be thrown over the wall or thrown down from the top of the wall by the radiologists. So there is a boundary but it's a boundary firmly controlled by the radiologists and they only give up what they don't want or can't possibly do.</p>	RFRP-Rad
<p>I don't think we're very strong when it comes to deciding upon boundaries and really deciding whether we keep or ... we don't really have much decision making. I think it's something we will do but only when the radiologists tell us to.</p>	RFRP-Rad
<p>I always remember one night when obviously the A&amp;E doctors and a lot of other doctors rotate every six months and one had been there quite a while, three o'clock in the morning and he came round to check a chest X-ray of this patient that I'd just X-rayed and he was trying to fill in his report quickly before they went to the admissions ward and he asked my opinion and I said well you've got an enlarged heart there. Oh, what was that. Yeah. And he's trying to right it all down, y'know.</p>	RFRP-ref
<p>and what you don't understand, you tend to respect more. And obviously the radiologists have got such a knowledge base of what we do and obviously just ... obviously don't think it's much.</p>	RFRP-Rad

**Reflections on interview**

Use of the word specialised to mean dedicated. There are some similarities – patient focus, inequality, poor teamwork with radiology, with previous respondents.

## Interview summary

**Respondent: Jane**

### Key points

1. Trains students as part of her work
2. Patient focus
3. Feels superfluous at times ? linked to if staff are too well trained they leave
4. Lack of staff and funding impacts on possibility to undertake extra training
5. Specialisms are angiography, not sure about CT, MRI, mammography, ultrasound
6. Notion of specialism is separation from main department and full time commitment
7. Definitely links specialist practice with a specialism.
8. Differentiates between a specialism and role extension
9. Referrers now nurses and physiotherapists

### Themes

Theme	Code
Values patient contact	RR
Working with radiology and nursing can be tedious	RFRP-Rad
Radiology dictates the boundaries of practice	RFRP-Rad
Competing employers	RR
Technical focus for progression	RS
Assumes that if something requires greater radiological skill it also requires greater radiographic skills	RFRP-Rad
Medical tasks being taken over by other professions	RFRP-ref

### Any contradictions/agreements

Contradiction or agreement	With whom	Code
Working with radiology and nursing can be tedious - agrees	Kathleen, Debbie, Christopher	RFRP-Rad
Power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie	RFRP-Rad
Values patient contact- agrees	Gillian, Tom, Elizabeth, Miriam, Carole, Claire, Kathleen, Caroline	RR
Technical focus for progression	Christopher	RS

### Key Quotes

Quote	Associated theme/code
I help in the training of students although it is not recognised where I work, we don't get the student training allowance, just the basic grade, except with the ones that do most of the student training but not that really matters.	RR
Looking after patients as well, which is often forgotten by some people. If you watch some people work it can turn into a production line, especially if you are busy but it shouldn't happen at the expense of forgetting about your patient care. Some people do but some people are more job orientated than patient orientated. They enjoy the job but they want to just do the job irrespective of what the patient needs.	RR
In general screening you just put the patient on the table that kind of thing, nothing. Doing the imaging afterwards but as regards to anything else nothing. We have a nurse in there as well so they are looking after the patient we are there because we have to be because of the regulations. Now and then if there are new registrars or whatever we get told 'keep an eye on them' and tell them if they are screening too long etc. Generally speaking if they are capable of what they are doing we just sit there. Some of them do their own enemas but not many. It just drags, I like to be doing things myself rather than watching somebody else.	RFRP-rad
Yes, we go into CT and generally speaking it is quite soon and spinal injuries but it depends whether you class that as a speciality of any sort because it is general radiography but with different kinds of patients really but they are not that forthcoming a lot of the time.	RS
They are just worried that if they get people trained up doing this, that and the other they will leave.	RR

Quote	Associated theme/code
<p>The difficulty is they have got so many registrars that need the sessions as well, it is fitting everybody in. I actually think the radiologists would have something to say about it if we tried to take over, I mean the consultants themselves, they do need to train but it is at the expense of us doing things. A few year ago they tried to bring in radiographers reporting on CAS films and that was ruled out by the orthopaedic radiologists, one of whom used to be a radiographer and you would think she would want to see the progression of us but no, so they ruled that out. We are trying for it again, we've just started talking about it because we have now got a new orthopaedic consultant radiologist as well and they are hoping that he might think differently and maybe we will be able to sway the others. When they did a survey on how many we had got right, it was high. We did well enough to warrant being allowed to do it.</p>	RFRP-Rad
<p>people were going elsewhere because they could get Senior 2 elsewhere before 3 years and they were leaving</p>	RR
<p>Just by little things, like we do monthly audits and they like us all to find something to audit and every month somebody will present something, something they have audited and present the results - just to show that you are actually willing to do things not always for the sake of the audit. Quite often things don't get done on the result of the audit, they get pushed aside but it is more to show willing yourself and put yourself forward. You need to sort of say 'I'm here'.</p>	RR
<p>I would like to see myself going to MR eventually</p>	RS
<p>If I do decide I still want to do my MR route, CT is my way into it</p>	RR
<p>Screening in the barium sessions I would class as a role extension</p>	RS
<p>It probably goes on the basis that registrars can do bariums before they are allowed to do angios, maybe that is what I'm basing it on, being harder to do and requires more skill.</p>	RFRP-Rad
<p>We have a couple of nurse practitioners and they can request up to shoulder and up to the knee. They can request neck and femurs. They cannot request abdominal, spine etc. We also have in orthopaedics, physiotherapy requests and they can request spines and pelvis' and I think there is 5 of them and we have a list of their names and what they can and cannot request. At first nobody knew who they were and whether they were allowed to request them or not. They started requesting things before it was really agreed and they requested them and we ended up going back to patients' consultants and it was all just a bit of a fuff so our radiologists agreed to it so we have them requesting. We have the nurses in pre-assessments as well, orthopaedics pre-assessment clinics. They request for hip replacements, knee replacements, but they have set guidelines depending on which consultant the patient belongs to. They all have different things which are typical and they can request pre-op chests if they need them.</p>	RFRP-Ref
<p>with casualty ones they do actually come and look to us and say 'what do I want, this patient has got this, this and this', some don't listen at all, in which case you need to go a bit further up the ladder but generally they are quite good</p>	RFRP-Ref

Quote	Associated theme/code
<p>The orthopaedic ones request pre-op chests for no reason. Our guidelines on pre-op chests differ from week to week. One week the radiologists will say 'we no longer do them for hypertension' and as soon as someone questions it - alright we do them again and you just cannot win because you follow their rules and then they change them.</p>	RFRP-Ref
<p>They started off being quite good but now they are learning what they can and cannot have. We used to do abdomens for constipation and we don't anymore, so now if they want one they just say they have generalised abdominal pain and you have to do it, so even though they are sort of learning how to get around it now so you are doing things that probably don't need doing. So they just re-word things and you cannot win but that will be to everybody else as well as us. It is like GP requests they are sending a copy of the regulations of what people can and cannot have, and the chest we do not x-ray for upper respiratory tract infection we only x-ray for the lower one. If they just put query respiratory tract infection and don't specify they know they are going to get their x-ray. They just work their way around it.</p>	RFRP-Ref

**Reflections on interview**

Quite a lot about the working relationship between radiographers and radiologists in this interview. A slightly different emphasis on systems of work – impact of IR(ME)R

**Interview summary**

**Respondent: Arthur**

**Key points**

1. Hazardous work
2. Multi-skilled
3. Radiology power extended into social life
4. Main focus of work seems to be trauma, RTA's, colliery accidents and murder
5. Pioneer

**Themes**

Theme	Code
Hazardous work	RR
Multi-skilled	RR
Power of radiology	RFRP-Rad
Pioneer	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Hazardous work - agree	Tom	RR
Multi-skilled – agree	Judith, Gillian, Ralph, Tom, Elizabeth	RR
Power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie	RFRP-Rad
Pioneer	Tom, Alice, Claire	RR

### Key Quotes

Quote	Associated theme/code
<p>the place frightened me to death, the flashes and sparks and bangs and fuses going, (1932)</p> <p>I know remember us having a four valve full rectification set, brand new and it was a washout. They said we could do a lateral spine in a second well that was, well that was then and of course (radiologist) had accepted it and said we'll give it a try and it was an absolute washout that set was, we were glad to see it out. They were one or two of the setbacks then. And of course we we, radiographer used to do the photography side. If there was a corpse wanted x-raying, photograph taking we'd have it down into the department and do it. I remember a murder being photographed down there because there wasn't a photographic unit at that time, no one had heard of it. there was such a shortage. All the radiographers were going into the services and it made such a shortage and he (radiologist) more or less tied me down</p>	<p>RR</p> <p>RR</p> <p>RFRP-Rad</p>
<p>Oh I was just the radiographer that's all, I did not specialise in anything at all - I was just on the rota with the rest of them.</p> <p>We'll there was that well there was that and that was in the wartime. Used in the war for war injured. And then we had the RAF, the German prisoners - German flyers, they were at (town). They were in a place at (town). Often the British sergeant would walk in on with 2 or 3 German pilots walk them through the streets from the bus stop. As far as I know he brought them on the bus then. He was armed and all the rest of it. Oh it was fun. Walking these people past the crowd on the corridor. Oh dear oh dear. I think they brought them on the bus, I didn't see any cars about.</p>	<p>RR</p> <p>SF</p>

Quote	Associated theme/code
<p>I put the sternum picture in the anatomy books. We had a flat table top, first of all these were colliers, mostly colliers who had been struck by a chain on a machine down the pit. In fact I went down the pit to see this. Afterwards I got permission to go down to see what I was talking about. They used to pass it round the old pit props in these old workings and put some strength on it in some way or other and the props would just fly out and if they were not out of the way they'd either be struck with the chain or a prop and it was always in the chest. And erm that how I'd got to work it from that anyway. We had a table top in the department, it was just a nice height. And these miners were wonderful people they'd have stood on their head they would really. I just explained what I wanted and I did the first one and that turned out to be a real beauty that did and (radiologist) got the information from me and the pictures and took them to London but I never heard anymore except I wanted it to be published you see and I thought they would do it so whether or not it has been over the years I don't know. Anyway (disturbance) Do you want to describe it what we did? This table top, although they'd had this blow in the chest, if you told them what you wanted I got them to lie over like that onto the table top. (disturbance) You would put the twelve ten film and it was done with a grid, a Lysholm grid and you'd set the tube up. I had it about forty inches away to cover a twelve ten film and you had to be sure that the Lysholm grid was that way onnot the opposite way or it would have hit the slats lead slatsanyway that's how I did it. The men would be in that position and I used to, I told them to breathe, by all means breathe, don't hold your breath I wanted it blurred The rib-cage blurred and I did it from right to left to try and superimpose it on the heart shadow and it worked wonders. It looked so awful. But those miners would do it for you. But the important thing was blurring the rib cage just gentle breathing and the exposure was 10 seconds I mean nobody bothered me after that so I never bothered I thought oh 'everybody's forgotten about it</p>	RR
<p>Yes - it was always a grouse the pay right. Every meeting you went to, wherever you went that was always brought in, everybody was dissatisfied. You see the Path Lab people they were yards ahead. They did it this way I remember the lab at (town). There'd be about 4 at that time, they'd all do it together, the work. Well they made er now then what's the sections. There's the blood section, and they made them all a top job. There was the head of the bacteria department and then there's the head of the oh I forget their names anyway. That's how they did it anyway. They separated each branch of their work but we didn't of course. You couldn't be head of a finger x-ray</p>	RS

Quote	Associated theme/code
<p>Q OK some radiographers are now reporting on the films particularly the casualty films</p> <p>A. There could be a query there what sort of films would they be allowed to?</p> <p>Q Any casualty films</p> <p>A Any casualty films no</p> <p>Q No you..</p> <p>A No it's too risky</p> <p>Q I mean they are trained they are they have special training to do it</p> <p>A Oh my word yes</p> <p>Q But the idea is that the radiographers are more experienced than the casualty doctors</p> <p>A Well I suppose they are</p> <p>Q. So the radiographers really are the better people to</p> <p>A. But in a rush could you pick out a pneumothorax which is just a faint line down the lungs There's a time I've seen medical men miss those.</p> <p>Q Yes oh yes</p> <p>A Yes so there's a good query there.</p> <p>Q What would you do if you saw a doctor who missed a pneumothorax?</p> <p>A I should tell him</p> <p>Q. You'd tell him?</p> <p>A Oh yes (radiologist) used to tell us don't let anything be missed he always told us that If you see something don't let it be missed.</p>	RFRP-Rad

**Reflections on interview**

I am very lucky to have had the opportunity to talk to this radiographer

**Interview summary**

**Respondent: Robert**

**Key points**

1. Refers to himself as a sonographer
2. One of few male radiographers
3. Diminishing feeling part of the hospital
4. Identifies specialisms as MRI, trauma and forensics depending on the hospital, mammography,
5. Notion of specialism is related to technology and full time commitment.
6. Iv injections and contrast agent studies are extended role

**Themes**

Theme	Code
Power of radiology	RFRP-Rad
Lack of knowledge of referrers	RFRP-Ref
Gender bias	SF
Segmentation - ultrasound	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Power of radiology - agree	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Arthur	RFRP-Rad
Gender bias	Ralph	SF

## Key Quotes

Quote	Associated theme/code
So I think it's wrong to be called a radiographer when there's these discrete sections of the department, you know, specialising in their own subject these days.	RS
in the department there wasn't any male students about and I was the first male student at (hospital). For instance, in 1967 the previous one was 1947 twenty years earlier and (female manager) was in two minds whether to have a male student at that time and she was only persuaded by (male) deputy superintendent through (male senior radiographer) you know to keep me on.	SF
eventually he got fed up of doing them or he hadn't got as much time to do them as he wanted	RFRP-Rad
you're a practitioner in your own right you don't necessarily have to refer to any other person in the department you can do the whole examination from beginning to end report it, send the report out and nobody's ever any the wiser so to speak. In radiography providing some material at the end of the day that somebody else has to look at, report on advise on the examination you might do. I use to get really fed up when you used to get you know radiologists coming along trying to tell you what views you wanted for IVP's as they were then when you were quite used to doing everything you know and I think that's what really was perhaps one of the reasons that made me want to change because I'd be left to my own devices. I didn't need to be told how to do things you know and I'd like this view doing because of so and so you know treated as if you'd not learnt anything in last ten years you know?	RFRP-Rad
The other aspect that made me want to change was I got so fed up of working for, if you like, people that didn't know anything you know, these people in casualty, doctors in casualty who hadn't got any experience well they had but they'd only just started. It was the same in orthopaedics a lot of it was all just negative stuff all the time I thought I'm just fed up of this doing things because they were all just a waste of time and you knew they were a waste of time before you started.	RFRP-Ref
Yes I got fed up of that but I must admit I'm same now in ultrasound I get fed up of the referring physicians they're asking for stuff and I know full well it's going to be a negative examination, you're just doing things for reassurance.	RFRP-Ref
you're supposed to be reassuring the patient but at the end of the day you're reassuring the doctors	RFRP-Ref
into a specialised area like CT or MRI something like that and you can then be a bit more of your own boss if you like	RS
they don't treat you as if you know anything at all. In the past they just sent you up a request for an abdomen put the clinical details down and leave you to it and then when they started writing you know erect and. When it got to that stage I got fed up.	RFRP-Ref
People had to come through your department and there was a lot of interaction between different hospital groups in those days. Whereas now you're slotted in you department right in the centre, well towards the centre anyway, of a big complex and nobody comes in and sees you or comes to talk to you, you know they're just always passing on the outside.	RR
Again in the early days of sonography doing the obstetrics the patients were extremely nice to you they appreciated you could do what you could for them and they enjoyed the examination and got a lot out of it and again there was patient and myself interaction all the time, where as now patients as a group are so aggressive	RR

Quote	Associated theme/code
They (the patients) treat you like an employee	RR
The least satisfying? I think in radiography it got to be the hours spent on call.	RR
I'd much prefer a clinical approach to the job if I could, but I can't	RR
See there was one unusual aspect of our obstetrical ultrasound department was that it was always sonography led. There's never been a radiologist involved with it at all apart from it's inception to get it going for that year/eighteen months but, they didn't actually do any ultrasound I don't think in it's first couple of years. They were just there you know looking after the service they got sonographers that did the scans and allowed them to. And then when (radiologist) disappeared off the scene from that point of view (another radiologist) tried it for a three months I think decided it wasn't for him, downed tools and left us to it from that you know the eighties we were just left to carry on with it and we've done our own scans and reporting from that day.	RFRP-Rad
I think like in our department radiology's took the main work over and kept it and we had a couple of sessions that we did and as they took more radiologists on board to enlarge their complement of radiology staff they needed to do this work and they just took it off us.	RFRP-Rad
A view years back I thought it might be nice to be able to get a position somewhere in the specialists sense to just do specialist things like specialists obstetrics like they do in the medical department, something like that. But personally I wouldn't be able to go for that even if I wanted to at this stage. Not now. I mean you're really stuck especially with your family situation I suppose. Got to bear that in mind.	RS
I suppose if you've got to have, if you're married or got a partner, you've got to have somebody who's willing to move round the country with you.	SF
But I wouldn't even consider going to (manager) and saying could I go down to London for the day?' You know there was just no training allowed. Nothing.	RS
I suppose if that's what you do an awful lot of then you've every right to call it a specialist area.	RS
I've always grumbled about it since I became a superintendent, I haven't got an office	RR
In the early days of radiography one of the radiologists unfortunately died quite young he was absolutely brilliant ever so good technically, great with patients, a pleasure to work with.	RFRP-Rad
As a group I haven't got a lot of time for them I can do without them, most of them.	RFRP-Rad
I suppose I worked in a department where radiologists where head of the department in a way, what they said goes and then we got to a different era where they were just an employer, an employee sorry, just like everybody else. But I don't think radiographers see them that way they treat them like gods still, whereas I don't.	RFRP-Rad
they (radiologists) won't work as a team.	RFRP-Rad

Quote	Associated theme/code
<p>I remember being at the chairman of the hospital board as it was then I had to go out to his house at (town) with (radiologist) one day and he decided to go at four o'clock and I had to go with him you know take all the equipment load it all in the back of the car for him you know you were like a valet really. Butler. And that was another job you had and you went to (town) with him and he did all the spiel you did all the assembling and then you did all the setting up and you put the film behind his back for a chest x-ray and then all he just said was hold you're breath whatever your name was and that was it. Then you had to dismantle it and take all the stuff downstairs etc etc etc. And it was about six o'clock at night by this time. The problem was at five o'clock I was on call. So you can imagine what I went back to. But I had to develop the films before I could start the casualties that were waiting in the corridor. And again (radiologist), he never battered a eyelid. Never said thank you, nothing, it was expected. You know these were the people you had to work wit whereas (another radiologist) he was a down to earth type of guy, treated you like a fellow human being. Said thank you when it was necessary and you know was kindly towards people and to the staff. Few and far between. But (radiologist) was like up on a pedestal. Snap your fingers time. And to work for him even in a screen session for instance you always had to be two stages ahead of him and because you worked with him a lot you could but if you didn't keep up with how he was thinking you know you were in trouble. But I mean people wouldn't work like that these days I mean he put his hand out like that and you dropped a lead glove on it. You know you were like a valet really seeing to his every need. But you know that's how (manager) was with him, that's how she treated him so everybody else had to.</p>	RFRP-Rad
<p>You used to stand at the side watching..eventually he said do you ant a go and I said I haven't got a clue what I'm doing and he said well I'll show you but he hadn't got any patience you know? And I had a go at one or two and they seemed to be alright but I must admit I didn't know how to interpret the scope..Eventually he got fed up of doing them or he hadn't got as much time to do them as he wanted and he used to get requests from ITU..so I never looked back from there. It went from "A" scope scanning right up to when the obstetric department started up..</p>	RFRP-Rad
<p>..you can be a bit more of your own boss..</p>	RR

### Reflections on interview

A lot of history in this – very interesting perspective from a sonographer

### Interview summary

Respondent Jim

### Key points

5. Radiation protection as students – practised on each other
6. Practised as a member of a Multi Disciplinary Team
7. One-stop practice – HMPrison
8. Patient focused care – pensioners from Coal Board

### Themes

Theme	Code
Hidden dangers	RR
Links gender to salary potential	SF
Links to referring clinicians rather than radiology	RFRP-Ref
Patient focused care – prison service, Coal Board	RR
Recognises and “bounces against” clinical ceiling	RS
Identifies radiographers as sort of under doctor radiologists	RS
Specialises in tomography	RB-T
Perceives the challenge in radiography as being in the patient	RR
It’s a specialism because I can’t do it	RS
It’s a specialism because they don’t do general radiography	RS
Sees career progression as taking over radiological tasks	RS
Paeds, trauma and forensics are not specialisms as there is no extra training required and no special equipment	RB

CT is a specialism	RS
Lack of equipment evaluation prior to equipment procurement?	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Radiation protection agreement	Tom	RR
Gender influence	Ralph, Robert	SF
Patient focus	Gillian, Tom, Elizabeth, Miriam, Carole, Claire, Kathleen, Caroline, Jane	RR
Medical tasks taken over by others	Jane	RS

**Key Quotes**

Quote	Associated theme/code
When we came to the practical side we paired off with a partner with another student and we each x-rayed each other so I must have a fair bit of radiation in my body but I seem okay, I seem pretty fit so it doesn't concern me at all and they stopped that procedure now many years ago of course.	RR
And I, as long as I've been at the Prison Service I've always looked at the films and interpreted them and advised the medical officers if I thought there was a problem or if something wanted doing with the patient. It was my job to advise them and put the patient on to the doctor and say 'look I think he needs to go to the Infirmary or he needs this and that'. So my appointment was a little bit more in the prison service if you like. But we've caught up in the health service now we're doing that here, aren't we? We're advising people what to do, that was basically the difference.	RR
He was a prison medical officer. He was full time he was a medical officer. A general physician really. And he sat in his office I didn't see much of him. But I would refer my patients to him if I'd got a problem with them if I thought they wanted treating further. Or I might just say to the nurse 'he's got a sprained wrist just put him just sort of put him a back slab on whatever' that type of thing. So I made sure the prisoners were looked after on the medical side and I would refer them to the nurse who were RGN's or to the prison medical officer who was a qualified doctor.	RFRP-Ref

Quote	Associated theme/code
<p>We were sort of under doctor radiologists weren't we? Especially pensioners. I use to have a special session for old age pensioners, retired miners and that was their morning out coming into see me for an x-ray. And they really enjoyed it you know, it would take them half an hour to get undressed. And I use to give them a lot of time because I had a special time just for the pensioners to give them time and talk to them and they told me some really fascinating tales about things. But I try to give all my patients a little bit of time, if I can.</p>	<p>RFRP-Rad RR</p>
<p>Once I got to the pit I knew what the shift pattern was and I decided what I did basically. And I arranged everything because I was responsible to the medical officer, the chest physician for the running of the x-ray van and I had to achieve a 90% because of the epidemiological studies we were doing for the new mechniosis you see? So I had to arrange to make sure we got all the men in so I arranged the shift patterns and I'd but a special morning on one side just for the retired men. And I would liase with the union men to make sure the retired men knew. They'd go along to the working men's clubs that they all go to and put a notice 'The x-ray van is there retired miners please attend at such and such a time' and they'd come along in their droves to see us. So they had a special time.</p>	<p>RR</p>
<p>The odd guy would be a little stropopy but I managed to quieten him down really but it was interesting, you know? Bit of a challenge really but the patients were brought to me by the nurse. Quite uneventful really, they'd had their x-ray and I would probably tell them what I thought was wrong with them really and if they had a fracture I would say I think you have a fracture on your hand for example I'm going to get the nurse to treat you or I'm going to talk to the doctor about it. And I sent them off in a happy frame of mind in a way. Some GP's or doctors you go to just muffle away 'here's you form, off you go'. My wife works with the GP's actually and I've seen them do this. Whereas I don't like that view. I think you've got to try to explain to your patient what's happening and why it's happening and tell them the outcome as best you can. We have to be careful as radiographers obviously but we've got more latitude nowadays to talk to them and tell them a little bit about themselves can't we? And that's something I try to do.</p>	<p>RR</p>
<p>I'd do the bariums with them they wouldn't say much to me. They wouldn't discuss a patient with me. They wouldn't discuss a film with me.</p>	<p>RFRP-Rad</p>

**Reflections on interview**

This is a key interview – mainly because of his breadth of experience and his ability to reflect and articulate that experience. Jim has had a very interesting career that has not linked with radiology for the most part. He has endeavoured to provide a patient focused approach to his practice, has used his clinical skills in image interpretation to the patients' advantage, to some extent has ignored, and been permitted to ignore clinical boundaries. All seem to be linked to job satisfaction. Jim recognised the clinical ceiling in terms of his career progression.

**Interview summary**

**Respondent: Bonnie**

**Key points**

- 1. Nurse who carried out x-ray work 1938-1944

**Themes**

Theme	Code
Delegated medical tasks	RFRP
Radiography is a specialism - ?segmentation of nursing	RR
Hazardous work	RR

**Any contradictions/agreements**

Contradiction or agreement	With whom and where	Code
Delegated medical tasks – agree	Jane, Jim	RS/RFRP
Hazardous work	Tom, Arthur	RR

**Key Quotes**

Quote	Associated theme/code
The doctors used to take their own x-rays. This was 1938.	RFRP
Oh there was only me that did the X-rays there, there was no-one else at all	RS
I did everything, bismuth meals and x-rays of everywhere, pregnancies, I did it all.	RS
Oh I was doing a dental – a man from (town) and he was lying on the table here, his head was there and I oh I forget now oh its such a long time where the....was this that I brought round here, I think it must have been, and I was doing this dental and my hair must have touched the tube and the, well I went straight down of course. This man must have got off and gone to fetch someone, and they got the doctor and the next thing I knew I was on the next floor in a private ward in bed quite unconscious. I was lucky to have been alive. And they were giving me a cold water enema of all things oh the nurses, to cool me down I suppose (laughing) I don't know but anyway I was given the day off, which was very unusual. So I think I must have gone over to the nurses home after, some time after, I don't know how long I was out I think I was out for nearly an hour you know. And they got a shock proof one afterwards.	RR

<p>And they were never sent away to be diagnosed by the radiologist. But the doctors used to diagnose their own. The sparks used to fly around the wires round the walls, oh it was most dangerous</p>	<p>RFRP</p>
<p>I was on night duty one I wasn't trained, I was a junior, and there was only two of us, one sister who did the x-rays and we had about 8 patients erm – babies in – and there was this senior nurse and she was doing the downstairs and I was upstairs and we were preparing a meal about 12 o'clock and the bell went from the maternity ward. We went down and there was one woman in this ward and she said "the other patient has gone out through the window" she said – she lived in a caravan in (area). Oh so we had to go tell the matron who lived in of course. She sent for the police and the policeman came on a motorbike. And she said "You nurse Hughes" she said "you go on the back of that motorbike, take a blanket to put around this woman and go and find her" and she'd gone through a gap in the hedge. Well we went to look, we started we went up the town, I was on the back of this motorbike clinging to this poor policeman and I was only in my uniform. There was no time to go and get a coat or anything. No sign of her. We went down the road, no sign of her. We went down the railroad and we met a man then and we asked him if he had seen a woman in her night-dress. "Oh " he said "I've come to look for someone, she's in my house" he said a house down the railroad and when I went there, it was Christmas just before Christmas because the woman there she was icing a Christmas cake that's how I remember. Anyway this policeman went up to the mental hospital and someone came down to fetch her. She'd been looking for her baby she had and we used to put the babies in the x-ray for the night you see to give the mothers a good sleep isn't it.</p>	<p>RR</p>

**Reflections on interview**

Very interesting. I'm very lucky to have had the opportunity to interview this person.

## **Interview summary**

**Respondent** Leading Voice 1 - forensic

### **Key points**

1. Identified as a specialism by Debbie, Elizabeth, Stephen, Betty, Robert, LV1, LV8
2. With some practice it is possible to undertake it on two levels, both of which are acceptable according to custom and practice of that institution
3. Notion of specialism is based on knowledge and practice, context of practice, exclusivity – on the understanding that it is a rare practice.
4. Questions a lack of lead from the professional body requiring training for forensic work
5. Pioneering
6. Wants to see formalised knowledge, guidelines in every department, radiography in a national disaster plan, research into the use of other imaging modalities, and radiographer reporting
7. Requires recognition from radiographers, emergency planners and pathologists
8. Could be hindered by radiological control but not participation.
9. Sees context as what makes practice special –requires further training – paediatrics, trauma, ultrasound, mammography and forensic
10. Queries whether plain film reporting is a speciality of radiography as other professions do it.
11. Possible consultant role

**Themes**

Theme	Code
Power of radiology	RFRP-Rad
Two level practice	RR
Firmer relationship allows problem solving approach	RFRP-Ref
Lack of acknowledgement	RS
Pioneering role	RR
Lack of formal knowledge	FK
Limited opportunities to gain craft knowledge	CrK
Key	CoK
Key	SK
Possible	AP
Multi-professional (seems to confuse Christopher)	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom and where	Code
Power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert	RFRP-Rad
Pioneering role	Arthur, Tom, Alice	RR

**Key Quotes**

Quote	Associated theme/code
that depends on whether you deal with it as specialist practice I suppose. I suppose my concern is that its one of those areas of radiography which a lot of people get involved with generally unwittingly er in the first instance er and for which there doesn't seem to be any, well there didn't seem to be any good guidelines as to exactly what one should do and the principles behind it and erm secondly erm that that is regularly updated and they've received regular training on that.	RS

Quote	Associated theme/code
<p>it is a specialty in its I suppose in its most dedicated form where you have maybe one or two or even three University departments of forensic medicine that call on specific people to do that particular thing on a regular basis but there are as in lots of branches of radiography people in district general hospitals doing it not every day but maybe once a month or once a year em who need those skills. And at the moment they're not that widely available really.</p>	RS
<p>continuity of evidence issues and its not just the X-ray examination and that's the end of it</p>	RS
<p>I think the amount of material that's available to you know to Jo Soap radiographer has been really until the last ten years pretty minimal to be honest.</p>	RS
<p>got involved doing some forensic work following a terrorist incident and thought hang on a minute um you know this is something different that I'd never thought being an A&amp;E superintendent would ever have to do as part of a major incident. We didn't have any procedures and protocols and the people didn't understand you know the consequences of what they were doing and they were actually looking for evidence you know find the bits of a terrorist bomb Um and we didn't really quite understand the process behind the coroner turning up and these policemen arriving and the coroner's officer I mean who were they and what was happening.</p>	RR
<p>that the other professions really had no idea of what radiography could do for them.</p>	RR
<p>I think the answer is very little (what support do radiographers get)</p>	RS
<p>they want to have a finger in absolutely every pie and control everything that interests them. Um and are only grudgingly giving up things like plain film reporting er and barium enemas etc either because they have lost interest or simply because there aren't enough of them to do it um so I suspect they were either never interested in forensic work, never got a look in because the pathologists thought that they you know the questions they were asking were fairly simple and X-rays couldn't do much except you know show them where the knife was sticking and they didn't need a radiologist and they couldn't find one anyway so what's the point. Um so I think that er it is completely different um and its an area where radiographers have a considerable amount of expertise to give and the pathologists when they realise that are very interested and to have that sort of input onboard to be honest.</p>	RFRP-Rad
<p>the relationship tends to be very good</p>	RFRP-Ref

Quote	Associated theme/code
<p>there used to be a requirement a need to have people with very specialist technical skills to produce highly detailed images of the brain and spinal cord or whatever, um and because of the changes in technology those technical skills really are no longer required in that way because we have CT and MR so I think in the main the way you used to have departments of neuroradiography with I don't know 5, 6 radiographers very highly technically trained, that's gone and you end up with cross-sectional imaging departments um and you can't really justify the use of, the use of MR and CT just to do neuro patients. So you end up doing patients for a variety, well wide variety of examinations. So the specialisation in that way er which was based, well in name based on anatomy wasn't it but the actual skills was based on technical skills to be honest and that's gone and therefore a lot of knowledge that went with it has gone at the same time in terms of the anatomy and the pathological processes etc.</p>	RS
<p>you could envisage there being a forensic radiographer in that sort of grade, of a consultant. An individual who has built up a huge body of knowledge and who is able to offer advice and perhaps go to court and testify and say in my opinion....</p>	FK
<p>We, I think, are in the situation where actually nobody's got the body of knowledge...</p>	FK
<p>it is a speciality in its most dedicated form where you have maybe one or two or even three University departments of forensic medicine that can call on specific people....but there are lots of branches of radiography people in district general hospitals doing it not every day but maybe once a month or once a year...</p>	CrK
<p>They (national emergency planners) are only too willing to listen to some of the answers we put forward....</p>	CrK
<p>A national disaster plan which involved radiography from the beginning as opposed to being bolted on at the end like it was in places like (disaster scene)....</p>	CrK
<p>..other professions really had no idea of what radiography could do for them.</p>	CrK
<p>we need to know the whole chain of evidence from beginning to end be it a paediatric NAI case or whatever. We need to ensure that our item which may be used in evidence is actually part of that chain and logged in and out of the department. And its those bits that surround what we do normally that mark it out as being a different thing.....it actually applies in allsorts of fields, becoming involved with particularly NAI cases. And one is that you know the chain of evidence, what is the investigative process and how do we fit into that.</p>	CoK
<p>..its not everyone's cup of tea.. And then someone is suddenly thrust into that and has problems as a result....</p>	SK
<p>Forensics, most radiographers that are involved in forensics receive a request, undertake an examination, discuss the findings with the referring clinician or the coroner or whoever refers and often those films are not reported on but potentially they should be. The radiographer is often the last person involved with the image process and they're involved in the interpretation and discussions about the cases.</p>	AP

Quote	Associated theme/code
.....its and area where radiographers have a considerable amount of expertise to give and the pathologists, when they realise that, are very interested to have that sort of input on board.	FSIP
I think that at the moment it tends to be not very well supported and not given high enough priority by managers. They see it as only two or three cases a year.	FSIP
.....that depends on whether you deal with it as specialist practice.	CHN
You've then got to...make sure that that person is equipped and trained..and is truly an expert in those areas of imaging..and is able effectively to stand up to cross examination from other specialists	RS

**Reflections on interview**

The first LV interview – very interesting comments some of which support some respondents' views. Clear issue with medicine.

### Interview summary

**Respondent** Leading Voice 2 - ultrasound

### Key points

1. Identified as a specialism by Debbie, Carole, Claire, Betty, Caroline, Miriam, Kathleen, Christopher, Jane, LV1. LV2, LV3, LV5, LV6, LV8
2. Clear link to career advancement
3. Ultrasound is special because its different, practitioners offered a report and the practice is more autonomous
4. Pioneering with similar role of radiographers at the beginning when no-one knows much about the modality.
5. Identifies as specialisms, nuclear medicine, forensic, ultrasound, paediatrics if practised in a childrens hospital, mammography,
6. Identifies as extended role plain film reporting, injection of iv contrast agents, MRI, CT, trauma, contrast agent examinations
7. Identifies ultrasound as having specialist areas ? start of segmentation-- invasive obstetric procedures, trans-oesophageal.
8. Identified as two level practice by LV7

### Themes

Theme	Code
Clear link with clinicians	RFRP-Ref
Power of radiology	RFRP-Rad
Pioneering role	RR
Segmentation of defined area of practice	RS
Clearly linked to autonomous practice	FSIP
Multi-professional	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1	RFRP-Rad
Pioneering role	Arthur, Tom, Alice, LV1	RR

**Key Quotes**

Quote	Associated theme/code
an opportunity to be autonomous but there's the added bonus of speedier career advancement.	RS
My first experience was in Glasgow and I wondered what this going on behind the screens with the radiologists in very private circumstances as if there was some mystery to what was going on behind the curtain.	RS
we've all kept in touch because it is still quite a small community	RS
they see different skills, different working practices and erm more opportunities for career advancement and responsibility er they're not they're slightly more autonomous than the general radiographer I think and I think that's where they regard the specialism in they've got some autonomy of practice	RS
it is still quite a small community	RS
from the very beginning there was little clinical support from radiologists	RFRP-Rad
we did quite a bit of abdominal that was because our radiologist wasn't interested but the superintendent radiographer was.	RFRP-Rad
if you didn't have a radiologist who was interested you were really quite isolated	RFRP-Rad
you worked closely with the clinician and they probably in the early days knew more about ultrasound than any radiologist because if the radiologist wasn't interested you needed the clinician to say well I've got this appearance, I'm not sure what it means, you know, what do you think?	RFRP-Ref
the radiologists cottoned on that this was quite a good imaging technique and more and more radiologists became interested.	RFRP-Rad
It was only when real time really came along and the equipment looked much easier to use that radiologists felt they could get involved,	RFRP-Rad
'cos most of the radiologists didn't scan with B scanners. It was a very difficult piece of equipment to negotiate and very time consuming together with the fact that they were diagnosing in pregnancy rather than measuring babies added you know another dimension to the technique for which radiologists and radiographers were more interested in, the diagnostic side of the technique rather than just monitoring the size of babies which was how it started.	RFRP-Rad
In most departments I would say now that radiologists view radiographers as part of their team and work closely together with them	RFRP-Rad

Quote	Associated theme/code
as radiology has diversified you've got radiologists who are specialising in ultrasound who probably feel that they're the most appropriate person to perform the more complicated examinations	RFRP-Rad
radiographers identify an abnormal foetus but then the radiologists take over the role of informing the patient and counselling the patients discussing the options with the obstetrician and the patient and perhaps performing any invasive procedures that are required	RFRP-Rad
there's a tension between the obstetrician who scans and the radiologist who scans and you know I think that's where the radiographer gets left in the side lines	RFRP-Rad
The radiologist is there generally for one of support and advice if the sonographer feels they need it, and which often they do and that advice is willingly sought and often willingly given.	RFRP-Rad
its very much driven by the radiologist, they set the rules and the boundaries of what you can and can't do and to an extent that doesn't happen in ultrasound because I think the technique is moving much quicker than the guidelines and boundaries can be imposed.	RFRP-Rad
in most instances in general radiography you never speak to the consultant orthopaedic surgeon or the consultant surgeon. They're direct line of contact with the X-ray department would be the radiologist.	RFRP-Ref
so there's much more a link between the clinician and the sonographer in that they will discuss and ring up the sonographer or the sonographer will ring the referring clinician if there's a problem	RFRP-Ref
I think there's much more direct link and I think in most places that's because of the early days there were some interpretations that were unclear, didn't know the significance of and as we were able to see more, recognised some things that were normal variants for example things like Rydal's lobe used to confuse people in the early days and there was much more of a link relationship again I think again I think that's not as significant in a large teaching hospital as a general hospital.	RFRP-Ref
Even at (city) the clinicians there link very closely with the sonographers and they'll do joint papers and things for conferences and what have you which you don't get in general radiography.	RFRP-Ref
I think that sonography should be identified as a separate profession and should have a clear career structure and an undergraduate entry.	DAP
they couldn't spare the senior 2's to do ultrasound so all the basic grade radiographers went on the course first erm likes of Dawn she was only a basic grade when I was a senior 2. She went on the course and then left to get a senior 1 and so we persuaded the superintendent that if he let the senior 2's do the course at that point then they wouldn't leave because they'd already got a senior post	FSIP

Quote	Associated theme/code
<p>the recognition that sonography was a specialist area and that people should be graded senior 1 if they spent more than 50% of their time in ultrasound and if they issued independent reports and so for a long time departments got away with giving them 2 days in ultrasound and kept them as senior 2's because they weren't doing 50% of their time in ultrasound until of course ultrasound grew and grew that much that you know they were forced then to pay them senior 1</p>	IEC
<p>Most people who go into ultrasound see it as more of an opportunity to be autonomous</p>	FSIP
<p>they supported themselves I think right from the very beginning</p>	FSIP
<p>But most radiographers were not supported by the X-ray department and so what they did was get together in groups and so that was how the Regional Ultrasound Group was formulated because at its conception there was probably only one radiographer in each department in Regional scanning and they were very isolated</p>	FSIP
<p>you worked closely with the clinician and they probably in the early days knew more about ultrasound than any radiologist because if the radiologist wasn't interested you needed the clinician to say well I've got this appearance, I'm not sure what it means, you know, what do you think? And they put the clinical information into the equation</p>	FSIP
<p>And some radiologists were better at that than others and it still today, in some departments the autonomy doesn't follow through to the abdominal side.</p>	FSIP
<p>The relationship there is one between the radiographer and clinician or the sonographer and the clinician. The radiologist is there generally for one of support and advice if the sonographer feels they need it, and which often they do and that advice is willingly sought and often willingly given. But its recognised that the sonographer's probably the expert and may need some clinical advice rather than advice on interpretation of the image so there's very much a respect between the radiologist and the sonographer and the clinician about each other's roles and responsibilities. That doesn't happen in the teaching hospitals because of the system I suspect, not because of the radiologist or the radiographer</p>	FSIP
<p>and then we looked at putting on training as a group so we had study days and seminars so probably Regional Ultrasound Group was one of the first to offer training, up-date training of CPD if you like really, to people who'd done the DMU in its very basic form in the early days and wanted to learn more</p>	SK
<p>It would be impossible or impractical for everyone who comes out with a postgraduate diploma in medical ultrasound to be an expert or to be competent in more than 2 areas of ultrasound because there's so much in each area now.</p>	RS

**Reflections on interview**

Very clear and articulate with definite opinion. Interesting as pioneers are evident as in the beginning of conventional radiography.

## **Interview summary**

**Respondent** Leading Voice 3- angiography

### **Key points**

1. Identified as a specialism by Debbie, Alice, Carole, Kathleen, Jane, LV3, LV5,
2. Gives a detailed local picture
3. Clear links to radiological leadership
4. Angiography is special because its diversified away from the skeleton
5. Specific tasks previously done by radiology now done by radiography
6. Segmentation into cardiac and vascular
7. Lack of recognition by professional body and local managers
8. Identifies a specialism – mammography, trauma, orthopaedics, MRI, paediatrics, CT and ultrasound
9. Sees plain film reporting and radiographer lead contrast agent examinations as advanced practice and extended role rather than a specialism
10. Recalls reductionism through reduced responsibility
11. Professionally pioneering

### Themes

Theme	Code
Reductionism through technological advancement and medical take over	RS
Clear link with clinicians	RFRP-Ref
Power of radiology	RFRP-Rad
Pioneering role	RR
Lack of formal knowledge	FK
Segmentation of defined area of practice	RS
Multi-professional	RS

### Any contradictions/agreements

Contradiction or agreement	With whom	Code
Power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2	RFRP-Rad
Pioneering role	Tom, Arthur, Alice, LV1, LV2	RR
Lack of formal knowledge	LV1	FK
Segmentation of defined area of practice	LV2	RS
Multi-professional	LV2	RS

### Key Quotes

Quote	Associated theme/code
its away from the norm. As we've evolved I think radiography was bones originally so anything that I think that's diversified from the skeleton I think has become a speciality basically.	RS
once these areas became as we call special area then its evolved	RS
specialists in those areas had to evolve with it,	RS
that's the doctors as well as the radiographers cos the radiologists are no longer across the band are they, they specialise and radiographers have had to do the same otherwise you've not got your expertise in any field.	RFRP-Rad

Quote	Associated theme/code
<p>I mean originally I just went into the labs to help when I was just qualified which was in the 60's you know, and those radiographers did a bit of everything. Then when I came back in the 70's it had evolved that you'd got your cath labs and your interventional abdominal work and everything just seemed to separate, cos you've got your ultrasound now haven't we, we've got MR, we've got CT, we've got angiography and even your biliary work and your gastroenterology work and your orthopaedic work, I think they've all split off and become specialities and even now angiography has split into cardiology and vascular.</p>	RS
<p>Prof Grainger wrote a book years ago</p>	FK
<p>we can see more with digital imaging than we ever could before and so that's where vascular's taken off</p>	RS
<p>cardiacs whereas before it was just a speciality in a teaching hospital, it's not any more but vascular has still a long way to go</p>	DAP
<p>I don't know how their staff are getting trained, that's my worry. that's really why we wanted to start the training programme, which I think is going to start next year isn't it.</p>	FK
<p>Well I've always had a training package ever since I came in and my superintendent trained me quite deeply in those days because we had to do a lot of neo-natal and paediatric stuff, so I evolved my own training portfolio if you'd like to call it in those days which I kept at home so when I became in charge I started to pass this on to my staff and the students because obviously I lectured at the school didn't I for a while before John took over from me so I just used to photocopy all my notes and give them to my trainees and it evolved like that and I passed it on to most of the people in our area will have been trained by me you know. A lot of them are now superintendents in their own posts in their own hospitals had training here.</p>	CK
<p>No because there's never been any recognised training for us I mean I've encouraged them to go on and do their degrees</p>	FK
<p>they should get recognition by getting re-graded for their expertise that they've learnt, which is not accepted at the moment is it.</p>	FSIP
<p>Therefore I feel that if we get this training under our belt next year and all the others then its a step for them to go for other jobs like CT and MR, they've got their recognised training certificate now and I've tried for a long long time but they're going to get it now so that's my one goal before I retire but its started or it will be in progress when I retire</p>	FK
<p>I think the profession needs to recognise us but they don't recognise us at the moment, not cardio-vascular radiographers they're not recognised.</p>	DAP
<p>I think we need to be recognised 1. by our profession, 2. by our hospital units that we are professional people and the fact that we are now expanding our roles because there are radiographers now in (city) doing femoral arteriograms,</p>	FK

Quote	Associated theme/code
<p>my girls here are on different training courses, they're doing their IV cannulation I mean to try and get them do the drug course. They're doing cannulation pulling course, you know the sheath pulling courses now, they're going to be doing that, so I'm trying to expand their involvement. I mean (radiographer) has just been scrubbed setting up in room ten so we are now so we're doing that, she assists in corroted stenting now (radiographer)so unless we can get recognised here we are, let's evolve.</p>	AP
<p>You've got to encourage them to carry on. I mean they're all more qualified than I am. I qualified in 1963 for God's sake, I haven't got a degree. I encourage them to do it, to lift our profession basically to life vascular radiology and to lift the radiographers in that field</p>	IFL
<p>I try to draw them and pull them beyond what they think they're capable of doing.</p>	IFL
<p>I mean (radiographer) does have quite a bit of a free range</p>	AP
<p>Lives are on the line, limbs are on the line you know and so the consultants rely on us they do. I mean they often come and say, if the registrars are working you know, they come and ask us what we think of their technique and how they're getting on.</p>	IFL
<p>So we do pre-assessments here, patients come straight up from clinic, the nurses pre-assess and within 24 hours they are given their appointment for angiography.</p>	PC
<p>It's much better for the patient. They love it, we've got Christine who's just been employed as clerk and she rings all the patients with the appointment the next day. We have to wait until next day because we've got to wait for blood results to see whether they can be day cases or in-patients or whether they need the warfarin stopping and everything, and she's super, she rings all the patients and they all love her now, because she's got a very nice attitude on the phone and so really basically, we are saying to a patient do you want to come this day, and if they've got family problems rather than them cancelling at a later date we can re-arrange it that day and get it all sorted, so they're very appreciative.</p>	PC
<p>I think we've got a good bunch of radiologists in the department though. Cos I think they're some good working relationships with radiologists in department as well. I think because we've got some old radiographers particularly at senior postings they do respect their expertise. I know (radiographer) in CT has gained great respect as he took over as superintendent over there and likewise (radiographer) I think is gaining respect in cardiac but he's now taken over up there so and I think this is because we've got these level of management in each area, you see (radiographer) is now in orthopaedics and she's superintendent in orthopaedics now, so you've got like a team leader in each unit if you like but I think this needs extending into other specialities.</p>	RFRP-Rad
<p>Um I think if we have problems I usually go to the radiologists and they sort it out, if they start bearing down in staff then they just report it to those two and they sort it out at meetings, they have regular meetings twice a week and so we don't have a lot of problems it's usually when the new ones start</p>	IEC

Quote	Associated theme/code
<p>80% of our work is from the vascular unit, we do have a lot in the renal unit as well, the renal institute send us a lot of work now but they're devolved of us, they're not as easy to get on with as the vascular people, they don't comedown, they're very demanding but they're not facial demanding, whereas the vascular surgeons will come down in person the consultants you know and talk to me</p>	IEC
<p>you feel as if you have got a use Christine, I mean some of the radiographers in department just don't feel that I don't think some of them are very nervous to come round here because of the work that we do, I know some of them when they've come on the training they've been very frightened of the radiologists and that because of the demanding, they shout a bit and what have you but once they start the work they know their barks worse than their bite. They soon settle in but it is a long tainting for them it's not as easy as it used to be. It's quite complex, I think vascular is very complicated now.</p>	RR RFRP-Rad
<p>I would like to see radiographers involved assisting with the consultants doing interventional work, I really would because I think that that is the next field that we can step into, but we need to get qualifications under our belt basically first don't we before we can start and push them across and say 'hey you know dig in he ribs we can do that' there's not reason why we can't.</p>	FK
<p>I think in this unit it would mean that we would have to have static staff so that your quality radiographers stay put instead of diluting that speciality by moving them round into other areas. I think that is the first thing so that the consultants then can see the competency 24 hours a day if you like, five days a week but they know that the staff are competent to evolve that way. While ever we've got rotating staff, you can't do that because you've not got a one to one every day. If you've got static staff here, like static nurses, I mean if I'd got staff like there are here from nursing staff I'd be wanting to push them into assisting because you've got that continuity, but while ever we've got rotating staff that's not going to happen, I don't think so, because the consultants have got to have that confidence in the radiographers haven't they, they've got to set up a training programme because it can only be them that can train us.</p>	RFRP-Rad

Quote	Associated theme/code
<p>I would have done then in that day yes, but then again when your superintendent's injecting the IVPs and you're doing all the films under your own umbrella yes you were experts in that field, now I mean when I came back I was appalled that you had to show every single film I thought my God we just did the case and got hauled over the coals if we didn't do it right but we went on to do tomograms and things if we felt that it was necessary, we were given that speciality to do and get on with it.</p> <p>Q: It sounds like responsibilities have changed.</p> <p>A: Definitely, when I came back I felt all responsibility had been taken away from radiographers that we'd been really done down and that's why we're trying to claw back basically. I think when I trained in the 60's and possibly even before in the 50's some of the radiographers that I knew when I was training, we were in charge of it all you know we did what we had been trained to do. We did the views we thought were best for the patient. We were left with examinations to complete without having to have our films checked all the way, it was our responsibility, we had much more responsibility than when I came back, I was appalled to have to go and run after a house officer to show them my five minute film. I thought my God I can't do this you know.</p>	RFRP-Rad
<p>You don't have to think in cardiology any more, it's all pre-programmed set for you in fact the cardiologists do more than they used to when I had it. We had more control over it but they've got control now. But down here we've still got control, we've got automatic exposure devices for the consultants to press the button with their foot but we don't let them do it, we do it, we've kept control, I think that's what it's about.</p>	RFRP-Rad/Ref

**Reflections on interview**

This respondent gave a very clear but local picture and although I asked for a national picture, I don't think there is a sense of anyone who can give this. Draws on own experience which is valuable and informs the evolutionary tapestry.

**Interview summary**

**Respondent** Leading Voice 4 – mammography

**Key points**

1. Identified as a specialism by Debbie, Ralph, Miriam, Carole, Betty, Caroline, Kathleen, Christopher, Jane, Robert, LV1, LV2, LV3, LV5, LV6, LV8
2. Seems to be totally replacing radiology and performing tasks usually undertaken by radiology
3. Credibility lies with radiology
4. Again, a detailed local picture
5. Sees no difference between advanced practice and specialism.
6. Mammography is a clear area of role development
7. Links specialism with any area of career advancement
8. Professionally pioneering

**Themes**

Theme	Code
Clear link with clinicians	RFRP-Ref
Power of radiology	RFRP-Rad
Pioneering role	RR
Multi-professional formal knowledge base	FK
Key	SK

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2, LV3	RFRP-Rad
Clear link with clinicians	LV3	RFRP-Ref
Pioneering role	Tom, Arthur, Alice, LV1, LV2, LV3	RR
Key	LV1	SK

**Key Quotes**

Quote	Associated theme/code
Dr Brown (pseudonym) needed some help with the biopsies, so we attempted to get on a radiologist's course but that was cancelled the day before at (city) and again there was no course in the headlines or in the offing, so Dr Brown decided to do some in-house training. you have to have your certificate to maintain morale.	FK
I pick the view and the positioning myself but (s)he (radiologist) has got to be in the building. Either (s)he has to be in the building or a medical doctor for anything going wrong, which is fair enough. That has further extended to where I am now doing the wire mark-ups, again using the x-ray guidance.	FK
Two of us first went on to do a post-graduate certificate in mammography, which we had to do a research module and imaging interpretation module, which means we can now film read, so you have to pass to the level of the radiologist that you are film reading.	AP
There again to maintain that you must read so many films throughout the year, it is approx. 100 per week, so we all have an allocated day to film read.	FK
although I did enjoy the job which to me was all that I was out to do. I've always said I want to enjoy my work and I do and I think that everybody would say that I do, it is quite obvious that I enjoy it.	CrK
Again that encourages you to do more, it becomes then like a weapon because once you stop that and think I have had enough, something else comes along like the opportunity to do the ultrasound and you cannot say not because there is a part of you that wants to learn and do that bit more.	SK
the film reading side is very new and I think I was on the second course in (city) to do this and you had to have your permission of your radiologist to go and that is still the hardest part. Everybody is scared that by allowing someone who is not fully trained in that role into part of role that somehow you are reducing the quality of the role, making it a cheaper system to have radiographers rather than the radiologist but we are an asset and an aid to the radiologist and we could never replace them.	SK

Quote	Associated theme/code
<p>So at present I would say lots of radiographers have accepted that there is this advanced practitioner type role to go on and do stereo-codes, ultrasound procedures and mark-ups and there are some radiologists that do but there are still radiographers and radiologists that are resisting it.</p>	RS
<p>No I would have said I have specialised in image interpretation so the actual practice I then would carry out is more advanced than the radiographer who has not gone on to do that procedure.</p>	RS
<p>I would not have said there was a differentiation between specialised and advanced I would have said they came together depending upon the context you are using the word and the sentence but I would have said they were very much the same.</p>	RS
<p>At present we are leading it, which is where I wanted to be, I did not want behind it. If you want to make something work and you want an input you have got to be there. If you are led by it then you will do it everybody else's way.</p>	RS
<p>(Radiologist A)'s daughter was the same age as my middle daughter, so we often used to say my daughter has got green nail varnish it is shocking, what colour does your daughter wear, again recipes, (radiologist A) was very much one of the girls – not in the beginning but by the time she had left she said she would miss us. If we went to the cinema she would come. Radiologist B generally will come on a night out, meal, cinema because again she is not local, she does not have a lot of contacts. We have a very good social side here but that may be age.</p>	RFRP-Rad
<p>We have multi-disciplinary meetings once a week for breast screening and that's for the XXXX to go through all the films, the pathology and discuss the further treatment of that lady. Does she need surgery, is she XXX, do we see her in 3 years. If this is still a little bit strange shall we review her in a year. So at these meetings, again, the people that have done the film reading. I have chaired the meeting three times for the radiologist and it has been lovely because the surgeons have given me more information than they do for the radiologist, because obviously the radiologist knows it but what they forget is that often the audience doesn't. So when I have done the meeting and said this area looks a bit strange, we've done a core biopsy, it XXX and then often they will say it is consistent with it being a radial scar, I think the best way to go about that is doing such and such. They would not normally have said that because the radiologist knew that so it was just like they were talking to the radiologist and not the whole audience so sometimes it is the helpers as well. Sometimes they may not be interested but one or two of them are, so that has been very good. Gradually they have got to know me and that has involved more talk within the department, not the same relationship I have with the radiologist who I see every day, but still generally on a warmer term.</p>	RFRP-Ref

Quote	Associated theme/code
<p>The symptomatic unit now is within this building, they moved here in September. Before that you had to physically walk outside. So the ladies used to come in, get undressed in the symptomatic clinic, go and see the specialist be examined, have to get dressed again. Go outside, walk across the road, get undressed again with us have a mammogram and then go back and may need to get undressed again if there is something on the mammogram, so now we are all under one roof. Before it did not help either getting to know the nursing staff or the doctors.</p>	IEC
<p>I love doing something new and progressing</p>	RR
<p>we would never have seen the referring clinician</p>	RFRP-Ref
<p>That was much more a friendly relationship. You knew that when there was a bad accident, you accepted that you are the doctor, I am the radiographer and teamwork came in, but there was also the side that when you went for coffee, he was Joe Bloggs and you were you. It does help if you have got something difficult with a patient, if you have a good relationship with that doctor and you could not get the ankle in the position that you need, you could always say can you come through and help me and hold that foot as I need it to be or is that acceptable is there enough information there to say it is fractured or not. Definitely the easier and better relationship you have with your referring staff both of you actually gain from it.</p>	RFRP-Ref
<p>If we had another radiologist come in that was not forward thinking in the role of radiographers taking on this role, they could make it very difficult and uncomfortable, it would be easier to give up the role than to continue.</p>	RFRP-Rad
<p>Dental work, one of our girls trained in dental and if you went to a dental hospital that was specialised.</p>	RS
<p>We have not had anyone say "No" as yet. I think a lot of that comes across as to how you gain the trust, if you feel capable and enjoy it and know you can do this well then you will pass that feeling onto the lady then she is quite happy to go along with it</p>	IEC
<p>I am presenting on Friday at a cancer meeting and that again is being run by (surgeon) but (s)he does know the role I'm doing so (s)he's helping me in that. I love doing something new and progressing and at the same point (s)he has given me exposure to know what we are going to do</p>	FSIP
<p>I wanted to do image interpretation and so did Tracy and again we had to convince the radiologist because it had been in the offing for a long time, although no real courses. Then the courses were finally advertised and we had to convince the radiologist to allow us to do that and (s)he did.</p>	FSIP

**Reflections on interview**

Some national elements mixed in with a clear local picture. Radiology dominated – although lots of tasks passed to radiography these could just as easily be removed.

### Interview summary

**Respondent** Leading Voice 5 - Radiographer lead contrast agent studies

### Key points

1. Identified as a specialism by Debbie, Miriam, Stephen, Claire, Betty, Caroline, Kathleen, Christopher, LV5, LV8
2. Identified as extended role by LV2, LV3
3. Lack of broad acknowledgement as a specialism
4. Specialism to some extent related to exclusivity but thinks barriers between specialisms should be rearranged
5. Credibility with radiology rather than referrers
6. Perceives a need for change in notions of specialism to add service delivery and patient needs as key fields
7. Possible consultant role
8. Radiology initiated but needs to metamorphose into GI
9. Professionally pioneering

### Themes

Theme	Code
Power of radiology	RFRP-Rad
No clear link with clinicians	RFRP-Ref
Lack of acknowledgement	RS
Pioneering role	RR
Confusion	DAP
Multi-professional	RS

<b>Any contradictions/agreements</b>		Code
Contradiction or agreement	With whom	RFRP-Rad
Agrees with power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2, LV3, LV4	RFRP-Ref
Contradicts clear link with clinicians	LV1, LV2, LV3, LV4	RS
Lack of acknowledgement	LV1	RR
Pioneering	Arthur, Tom, Alice, LV1, LV2, LV3, LV4	RS
Multi-professional	LV2, LV3, LV4	CrK
Multi-professional	LV4	

### Key Quotes

Quote	Associated theme/code
I think we are given a lot more credit for what we know. Because of how we have got involved in training other radiographers and how we have moved forward ourselves in maintaining our level of CPD in going on study days that we want to go on. In promoting a special interest group in getting involved with study days and conferences and doing things like that, we're given credit for that role.	CrK and generally credible knowledge
Anne (pseudonym) is setting up more as a recognised GI specialist taking it along that track rather than a radiographer with a special interest in doing some examinations. And that is the way that, I see it happening a little bit more. ...they would like some CT services as part of this department and you would be looking at GI, CT services. And we would like the radiographers who are currently doing the enemas to also do CT colonoscopy and become more GI specialised.	DAP
it is something above and beyond the norm for a qualified radiographer. Its something they've had to undergo a specialised training for	RS
the needs of the individual whether we think they are appropriate both in terms of their level of experience and their motivation and enthusiasm for it. I don't think its right for everyone to do it	RS
I think there is still a battle to get radiography lead GI studies certainly as a specialism.	RS
here in a large teaching hospital because of the number of examinations coming through we can dedicate people to working in that particular area. We're not trying to turn out people who are like jack-of-all-trades we try to turn them into individuals who can specialise in an area and I don't think that's necessarily the case in a lot of other hospitals.	DAP
I think we're working at getting recognised as a speciality but not necessarily totally recognised. Not in the way that CT or ultrasound is	RS

Quote	Associated theme/code
<p>And the consultant radiologist at the time, Dr Cope (pseudonym), she actually suggested that we might like to get involved in doing radiographer lead barium enema sessions. Now this is what 10 years ago. And she has actually suggested it before and not been taken up on it by the radiographer who was in that particular role at the time which was probably about 15 years ago.</p>	RFRP-Rad
<p>Why did we want to take over something that was unpopular with radiologists but my argument would have been you've got to start somewhere. And it was... really. But there were some radiographers undertaking certain contrast studies elsewhere in the country that we were aware of and they hadn't gone that one stage further and recorded what they'd done or extended it and done a training programme.</p>	RS
<p>But whilst the practical training's ongoing they do three sessions just observation, the radiologist is in the room watching what we are doing and they do three sessions whereby they have supervision directly, stood on their shoulder then that supervision is gradually withdrawn to outside the room and they're on their own. And usually now we've got them up and running here we have radiographers training radiographers. And the radiologist is happy with the outcome. So she put the initial work in she's now passed it over to radiographers to do the training.</p>	CrK
<p>We do offer a comments when we've done an examination the radiographer's comment form. It allows them to make some comments on whether the examination was complete or not whether there was actually any technical difficulties doing it which cannula was used what sort of bowel preparation they've had and if they've seen anything but that comment sheet doesn't go outside of the department. Its for internal audit purposes only. It goes through with the films for reporting and the radiologist, the GI specialised radiologist goes through the films and look at the comments sheet and see if its right or wrong. If its wrong they add some comments to it and the radiographers get the films out at a later date so that we can check them and learn from them. So its taking the training one stage further and so its an ongoing process. We have radiologists here who have a special interest in GI procedures We have two of them. We take the view or they take the view that by them always reporting on the films that we perform there's some standardisation going on. So the films are actually performed by people who are specially trained to do them and have an interest in them and they are also being reported by someone who has got a special interest in doing this area. I'm not saying they have specific additional training but but because of their experience level they have that specialisation.</p>	RFRP – Rad/FSIP
<p>And even some of the registrars when they come in and they're just starting out in radiology . They will come to use for advice. And say well we know you've been doing this a long time would you mind, can we watch you do one? I had a case a couple of weeks ago when a more junior registrar had just started doing GI sessions and he said I'd like to come and watch you do an enema you've been doing them for a while</p>	IFL

Quote	Associated theme/code
<p>We deliver the service we want to deliver. The relationship we have to offer some support now the level of the support we get is usually on a medical level rather than procedure. Its us going to say this patient has a medical condition that we can't deal with rather than it's a technique its not necessarily a technique problem so they're not from that point of view so we do have a very good relationship.</p>	RFRP – Rad
<p>So it's a case of no news is good news really</p>	RFRP – Ref
<p>its all part of the recognition process because we're becoming more forward thinking and more able to put ourselves forward in a training situation. We're not frightened of saying this is what we think</p>	CME
<p>...but they enjoy working in that area and therefore because of that they are slightly more knowledgeable about it and their knowledge is often recognised by some of the non-radiologists who have taken over this role there as well.</p>	CrK
<p>...radiographers going round who do ERCP's they are there to support non-radiologists doing ERCP sessions and we have a couple of radiographers who they haven't necessarily undergone specialised training in that particular area...</p>	RR
<p>and if we could get ourselves into some areas, like doing, being involved in a GI lead service that we might have consultant radiographers heading up that service.</p>	DAP
<p>We still need to work at what, what is recognised as being a speciality.</p>	RS
<p>... to go into ultrasound or CT you go into that area one hundred per cent you don't split yourself between one or two areas whereas we are still in the position where if you want to take on this role .... Then we have to do that and something else. So its not an area we would work in one hundred per cent. And maybe that is something that will have to come in the future in order for us to be properly recognised</p>	RS
<p>more people are taking on the role of doing contrast study examinations I think students coming through from qualification now see it as something becoming more normal. And therefore there is an expectation that they should do this but its almost an expectation that I've got twelve months qualification in I want to do something else. This is what I will do next. And then I will specialise so it's a barrier its almost abridging gap between qualification as a radiographer and moving one hundred per cent into a speciality at the moment and I think we need to kind of move it from that.</p>	RS
<p>... angiography radiographers are already training to do vascular ultrasound. So if they're doing vascular ultrasound and then going to do their own angios there's a more comprehensive service and there's also the suggestion that maybe involved in doing MR angiography. So its, its keeping specialisms together. And breaking down the barriers between the more recognised specialisms that take you out of general radiography.</p>	DAP
<p>I have to say I have a bit of a problem with forensic radiography. Everybody gets really interested in it and quite honestly it has no bearing on the working day here at this hospital. They all want to go on study days and it does irritate me. So yes I think its probably a specialist area without being a specialism.</p>	RS

Quote	Associated theme/code
I would see breast imaging being more of a specialised area rather than mammography.	RS
Its (trauma) such a big part of the workload you see. I think its very difficult to actually separate that out from a lot of the things we do. ... angiography radiographers are already training to do vascular ultrasound. So if they're doing vascular ultrasound and then going to do their own angios there's a more comprehensive service and there's also the suggestion that maybe involved in doing MR angiography. So its, its keeping specialisms together. And breaking down the barriers between the more recognised specialisms that take you out of general radiography.	RS
So we don't let (just) anybody do radiographer-led contrast examinations,...I whether we think they are appropriate both in terms of their level of experience and their motivation and enthusiasm for it	CP

**Reflections on interview**

Some national elements mixed in with a clear local picture. Radiology initiated and could expand into a defined service related area of GI.

## **Interview summary**

**Respondent** Leading Voice 6 - paediatric

### **Key points**

1. Identified as a specialism by Miriam, Stephen, Claire, Betty, Kathleen: Debbie LV1, LV3, LV5, LV6, LV7 and LV2, Christopher , LV8 if in a dedicated hospital,
2. Possible to undertake this practice on two levels, both of which are acceptable according to the custom and practice of that institution.
3. Notion of specialism is based on time commitment to a particular area of practice and patient needs
4. Education and training requires more co-ordination and support
9. Requires recognition from local managers – lack of broad acknowledgement as a specialism
10. Identifies as specialism mammography, due to its independent nature, Nuclear Medicine, MRI and ultrasound due to different training issues and maintenance of competence.
11. Feels that dentals are now a specialism due to their exclusivity of practice.
12. Gives a detailed picture of national, teaching hospital and DGH perspectives.
13. Recalls reductionism through reduced responsibility
14. Clear links to referrers

Themes		Code
Theme		RR
Two level practice		RR
Reductionism		RS
Lack of acknowledgement		
Any contradictions/agreements		
Contradiction or agreement	With whom and where	Code
Agrees about two level practice as in forensic work	LV1	RR
Agrees about reductionism	Caroline, LV 3	RR
Lack of acknowledgement	LV1, LV3, LV5	RS

### Key Quotes

Quote	Associated theme/code
I think there should be much more in the way of postgrad courses and more content in the undergraduate courses. I think its (paediatric studies) just tacked on as an afterthought in some universities and its just paid lip service and its not real.	FK
... we were a nuisance. Why do we have to have all these toys around here or we fall over this. You know there was a lot of backbiting but nevertheless it was almost undervaluing what you were doing.	PC
...towards the end of my time there I found that I was more allied to the children's hospital than to the radiology department.	PC
.....radiographers did not go to the clinical meetings because clinical meetings were so full of student trainees and this kind of thing there really wasn't room and the radiographers anyway were really busy but I think its something they should do because it builds a team and it builds up mutual respect."	IEC
I think it is particularly difficult at somewhere like (teaching hospital) because they are training registrars and I think the training of registrars actually impedes what the radiographers can do. A specific example would be MCU's (Micturating Cystourethrograms). For instance in (hospital) they are catheterising. The whole of the MCU's are done by radiographers at (hospital) a	FSIP
I think it is far better for the patient for that to happen but if we did that at say (teaching hospital) then the trainee wouldn't get any training, they wouldn't get any practice. So I think sometimes the teaching hospitals have to work out what they're there for. Are they there to give really good service to their patients or are they there to train trainees	SF
....from my own point of view children are different from adults, their needs are different and to get the best out of your examination you need to approach things in a different way and I think this is why its a specialism. I think there are people who within radiography realise it is and a lot of people who think that anyone can do it. So I think it depends on the radiographer if they think its a speciality or not.	RR

Quote	Associated theme/code
I came from an age when most radiographers did everything anyway and there wasn't so much specialisation, also the radiologists there I must admit, he was very supportive	RR
we had a very good paediatric radiographic team which in the end amounted to a radiologist, two radiologists at one point, two radiographers, who were full time paediatric radiographers, an ultra stenographer, who was full time paediatric, two helpers and a volunteer, so we had quite a big team really, well not in proportion to the rest of the department but compared to a lot of hospitals I think we had a fairly large team and the relationship within the team was extremely good very supportive of each other.	RS
I was asked to take an interest in paediatric radiography and I said what did that mean and the manager who asked me said I don't know. I was just that the radiologists wanted someone to be a paediatric radiographer,	RFRP-Rad
I was quite disappointed with some of the things I saw in the specialist hospitals - they were supposedly the creme de la creme and some of them I think had got a lot to be desired and I still think that's true now	RS
I do think there's a bit of them and us situation and radiographers are bit handmaidens to the radiologists and they do the work that the radiologists don't want or not interested in and can't be doing with.	RFRP-Rad
after doing paedics I had a better relationship with referring clinicians that I did prior to doing paedics and I think it worked better for them knowing that they had someone that they knew they could go to and who did after a period of time, know more what they were after and was much more adept at dealing with problems that cropped up with children so they recognised that fact so it was a mutual respect I think.	RFRP-Ref
Paediatric radiographers, under the radiographers rotating into Paedics were expected, not invited but expected to go to the clinical meetings and this made them a part of the team so it wasn't just the radiologists and the radiographers but it was everyone and that was brilliant - it worked very well.	RFRP-Ref
there has to be a recognition it is a speciality. by managers	RS
trauma and general radiography I don't see that as a speciality but perhaps the trauma specialist would. CT, I would have said at one point CT was but I think CT is getting so common now that its being used so much more especially for the trauma so you could almost put those two together.	RS

Quote	Associated theme/code
<p>Plain film reporting, there was a time when we used to report all our plain films before they even thought of it as plain film reporting and it actually works very well hand in hand with the trauma, minor trauma anyway and ..That was in the 60's, we used to do a report in a book of whatever we'd seen on the radiograph, any extremities and it was often used as a backup. It wasn't actually seen as a report by the houseman but if they weren't very sure of what was happening they came and looked in the book and it was a double check</p>	<p>Credible practice generally</p>
<p>I think that if you think paediatrics a specialist area it virtually goes hand in hand and you have to think that geriatrics, cos they have specialist needs as well that aren't recognised always. There are a lot of geriatrics in most hospital.</p>	<p>RS</p>

**Reflections on interview**

Very clear and articulate with definite opinions gained from a varied experience and national exposure. Specialism is a paradoxical phenomenon – on the one hand specialist practice is identified as exclusive but only within a defined paediatric environment. In an adult environment, the exceptional nature of the patient should sustain notions of specialist practice in relation to paediatrics but this is not acknowledged by managers..

**Interview summary**

**Respondent** Leading Voice 7- Nuclear Medicine

**Key points**

1. Debbie, Claire, Betty, Caroline, Kathleen, LV2, LV5, LV6, LV8
2. Notion of specialism is related to consultancy and multi-professional practice
3. Conflict over power and control
4. Gives a detailed national picture
5. Clear difference between advanced practice and specialism

**Themes**

Theme	Code
Power of medicine generally	RFRP-Rad RFRP-Ref
Lack of power of radiology	RFRP-Rad
Advanced practice/ specialism relationship	RS
Change to defined area of practice	RS
Multi-professional	RS
Confusion	DAP

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Disagrees about power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2, LV3, LV4, LV5	RFRP-Rad
Disagrees about advanced practice/specialism relationship	LV4	RS
Agrees about change to defined area of practice	LV5	RS
Multi-professional	LV2, LV3, LV4, LV5	RS
Confusion	Ralph, Miriam, LV5	RS
Confusion	LV5	DAP

**Key Quotes**

Quote	Associated theme/code
In fact, there is a conflict of interests within the medical professions or should I say the Royal Colleges within Britain. You have got the Royal College of Radiologists, who say that radio-nuclide imaging is a branch of radiology and radiography but you have your nuclear medicine physicians who are part of the Royal College of Physicians who would argue that it is more holistic and takes into account the three elements of nuclear medicine, one of which is radio-nuclide imaging. The other two would be therapy and then of course in-vitro radio-pharmacy work.	DAP
Where the oncology side lives presumably is best placed in an oncology centre, but of course there are benign diseases which can be treated in nuclear medicine as well, so where that lives I don't know.	DAP
I suppose that comes back to what a definition of a specialism is. I've got two views on it. That's a technology specialism like ultrasound and the medical model does not go technology it goes body bit. A specialist neurologist, GI specialist, or cancer specialist - so in fact if we adopt the medical model, nuclear medicine might not be viewed as a specialist by some as a specialism, but if we look at the technology driven side it could be.	RS
....it could be naivety because they believe because they have gone into an area that has a subject title within itself that that makes it a speciality,....	RS
Advanced practice is that beyond required for first post competence	RR

Quote	Associated theme/code
<p>It's one of level of practice - if you are working at the same level of competence but transferred across into a different technologically area like nuclear medicine, but not advancing your depth and scope of practice anymore for that sphere then I think you are working at basic competence level. Just because you have made it into nuclear medicine does not necessarily imply you are an advanced practitioner. However, if you take on responsibilities that were previously in the domain of another professional group then one could argue you are participating in advanced practice.</p>	RR
<p>You have got the Royal College of Radiologists who say that radio nuclide imaging is a branch of radiology and radiography but you have your nuclear medicine physicians, who are part of the Royal College of Physicians who would argue that it is more holistic and takes into account the three elements of nuclear medicine, one of which is radio nuclide imaging, the other two would therapy and then of course in-vitro radio pharmacy work.</p>	RFRP-Rad
<p>the College of Radiographers have been offering a radio nuclide, a nuclear medicine diploma since the 1960's and then the title got changed in the late seventies to radio nuclide imaging, because the RCR recognised the three branches of nuclear medicine and decided that radiographers, predominantly on the diagnostic side, were into imaging not therapy and not pharmacy, so they cut out certain practice elements of the award.</p>	RFRP-Rad
<p>Some people have never recognised as a speciality in fact, one must remember that, that the radiological fraternity in the United Kingdom, see it as part of their responsibility, albeit with extra training but coming under an imaging umbrella.</p>	RFRP-Rad
<p>I was thinking more about radiographers seeing this as a specialism.</p>	RFRP-Rad
<p>A: Probably when the RCR started to introduce its diploma.  There was a lack of opportunity in the north west but the department that was going to train me offered me quite a good deal, they were allowing me to go on to the diploma, they were sending me on radiation protection certificate, they were allowing me to do an Open University Degree and they were going to teach me to programme and I thought that was an extremely good package, so I got almost student status on full basic radiography pay for almost two years</p>	RS
<p>At a practical level, they get massive support from a range of different professionals because nuclear med has to be multi-professional by its very nature, so that is good I think.</p>	RS

Quote	Associated theme/code
<p>Are radiographers supported politically in nuclear med - no - not by the British Nuclear Med Soc. There is some people in there that would want them to see their responsibilities developed, I'm talking about the hierarchy now in the British Nuclear Med Soc Cancer. However, there is a noisy majority in that council that do not want them to develop those roles. I believe that failing does not come down to patient care, it comes down to power, money, arguments and it is certain members of the medical profession that are trying their best to stop new regulations and new requirements being trolled out to radiographers and technicians and physicists too in nuclear med.</p> <p>"Is nuclear med an advanced practice for radiographers?" - yes it is in some areas, they participate in reporting, personally stressing patients for ECG procedures which result in nuclear med imaging, yes that is advanced practice, but the majority of the departments, their staff do not get that opportunity because they are inhibited to do so.</p>	RS
<p>Unfortunately, there is major hiccup which I've been shouting about for nearly 2 years, that is the way that health ministers are advised in this country. There is a committee called The Administration of Radioactive Substances Advisory Committee, which is set up under the Med Act which has regulatory feet in the ionising radiation regulations as well. Predominantly that committee is made up of medics. That committee effectively regulate how nuclear med is done. I have sat on that committee for 5 years, I've watched how they've operated and they just stitch jobs up for their mates, I'm not supposed to say that because I wrote something down to say that I would never say how and what goes on behind closed doors on that committee.</p>	RS
<p>The main message that comes out, as well as from the radiologists and radiographers is that radiologists have a failure to understand the discipline and rely heavily on the local radiographer to give them some clue as to what they are looking at and which images might be appropriate on how to reach a diagnosis. Consequently, in some centres there is a very good working relationship between radiologists and radiographers,</p>	RFRP-Rad
<p>Another example of that is ultrasound, where there is nothing stopping anyone who has a mind to and can learn MR which is hugely complex, CT, mention ultrasound and they think it is purely sonographers.</p>	PC

Quote	Associated theme/code
<p>that relationship is most certainly not preserved in most centres that employ nuclear medicine physicians. Radiographers are treated in a very different way. It might be that the nuclear med physicians have completed a 5 year training in nuclear med and quite rightly say I know a lot more than you, so they cannot learn a great deal from radiographers, but the radiologists by contrast can and do, and look to them for a lot of help. In some centres that has meant that some radiographers have developed extra responsibilities, like reporting, quite a few centres do that now and administering drugs, deciding when to administer drugs, stressing the patient without a medic present but on discussion with some of the radiologists, some of them express a concern that their colleagues, through things like the BMA, are leaning on them heavily, not to allow certain things to happen, which puts them in a very difficult position as a radiologist, because they want to deliver some quality patient care, the right staff skill mix yet some members of their local BMA branch will be saying, presumably this is not coming from the national on high, let us keep that power and autonomy chaps and be careful who you give your power away to because it could mean that you earn less money and have less responsibility ten years from now, but they would never say that publicly, it is only because quite a few of my friends are medics they've told me that.</p>	<p>RFRP-Rad</p>
<p>I firmly believe that radiologists are going to withdraw their interest in nuclear med and their responsibilities are likely to be taken over cart blanche by radiographers, only because they cannot deliver the service on several counts. Firstly there are not enough of them, secondly many of them who try to involve themselves in the service do not have enough understanding of the area to do it. The current government have put in place lots of guidelines and changes of legislation to allow that to happen and the only thing that is stopping it is back to that committee that I mentioned before.</p>	<p>RFRP-Rad</p>
<p>One of my colleagues who I have known for many years, she is a nuclear med physician and she would say "a doctor wants to speak to a doctor and that is the end of it." Now if the referring clinicians want a quality report that will affect in a positive sense the management and care of their patient, they want a report that is right, helpful and from someone who knows what they are doing in nuclear med. It might be that in her case she will get that kind of report but in other centres they are not getting very good reports which is why radiographers have to become involved to help the radiologists draw something up which is suitable. I think the relationship at the moment is in its infancy but will change when radiographers really do start to do advanced practice in nuclear medicine and that it is more uniformly spread around the UK. That is only a matter of time. Changing attitudes and the belief of the medical referrer, will take time like everything else, it is one of them having respect for others and of course the medical profession within themselves do not have respect for one another, because they all place themselves as the hierarchy against one another</p>	<p>RFRP-Ref</p>

Quote	Associated theme/code
<p>they do have very strong views on one another as sub-groups and between Trusts. So if you work at A or B you will be looked down significantly by somebody who works at a Teaching Hospital and I do believe that the beliefs that they place on one another within their own profession, are not that prevalent in radiography, for instance where we might think, well I don't think that radiographers in the (teaching hospital) look down heavily on those working at a District General, not in the same way as the medical profession do, so I think there are a lot of attitudes displayed by medics.</p>	RS
<p>Nobody, I believe, is anywhere near that yet, because of the problems I have mentioned earlier about inhibition, or inhibiting factors to allow the people to develop. By contrast, GI radiographers are just taking off at an unbelievable speed. If they carry on at their current trajectory, I would say some of their people could be in a position to be consultants in five years or less. Specialists in mammography to do the same. Ultrasound is too technologically driven, they need to be sub speciality within that and the only way I can view that is a midwife, who is a specialist midwife doing ultrasound as part of her practice, because she then has a particular area of responsibility that is well defined, normality is what she does which includes ultrasound, to a high level of practice of course. Sonographers quite often do routine work, some calling the medic when it gets complicated, and if you are doing routine work across a range of body bits it comes back to the technologically driven thing, that you cannot be an expert in every body bit</p>	RS
<p>Plain film reporting - I guess it is, but that is a pretty low level task</p>	RS
<p>Trauma - definitely specialist because that might also include film reporting. Trauma can be complex, demanding and the potential for role development, skill mix per radiographer in this field is high, unlike plain film reporting.</p>	RS
<p>Ultrasound - a tricky one because it depends how it is practised. If its is practised as part of a main responsibility like mammography for instance that are now starting to do the breast, as well as take the picture, direct operators as practitioners, report the images, do the biopsy things, if ultrasound is taken in that context, then most certainly. If ultrasound is taken as something where the ultra-stenographer person image lots of body bits, take measurements and makes the odd inference about what these things might be then probably not.</p>	RS
<p>Paediatrics - yes that has got the potential to be a speciality, because it allows the person to have a broad clinical as well as technical area that they can develop, it allows for skill-mix again</p>	RS
<p>Contrast Agent Examination - in itself no but if you looked at the broader picture of the GI specialist, yes</p>	RS

Quote	Associated theme/code
<p>Computed Tomography - is a bit like nuclear med I presume. It depends what they are actually doing, but again it is technologically driven, it is a tricky one. If they are CT every body bit possible then they are likely to be operating at a lower level than if they were just doing the head, where they could develop to a high level of competence. Same applies to Magnetic Resonance Imaging.</p>	RS
<p>Specialisms certainly would be viewed as definition which might lead to consultancy</p>	RS

**Reflections on interview**

There is a clear national picture within this transcript with only slight reference to a micropicture.

**Interview summary**

**Respondent Leading Voice 8 - MRI**

**Key points**

1. Identified as a specialism by Debbie, Miriam, Claire, Caroline, Kathleen, Christopher, Jane, Robert, LV3, LV5, LV6, LV8
2. Identified as extended role by LV2
3. Notion of specialism tends to be based on separation (from the norm) and 100% time commitment
4. Pioneering with similar role of radiographers at the beginning while modality is being developed
5. Treated as a colleague by medicine, radiology and physicists
6. Possible consultant role
7. Clear link to career development
8. Identifies CT and MRI as developing specialist areas ? start of segmentation

**Themes**

Theme	Code
Lack of demonstration of power of radiology	RFRP-Rad
Pioneering	RR
Start of segmentation	RS
Time commitment required	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Disagrees about power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2, LV3, LV4, LV5	RFRP-Rad
And agrees with	LV7	RFRP-Rad
Pioneering agrees with	Arthur, Tom, Alice, LV1, LV2, LV3, LV4, LV5	RR
Start of segmentation	LV2, LV3	RS
Time commitment required	LV6	RS

**Key Quotes**

Quote	Associated theme/code
some of the consultants are not very experienced in the technique side of things and the clinical reporting side of things, as some of the radiographers that have done it for a long time. So we tend to work alongside them rather than them telling us what to do; we discuss cases with them	AP
.it (CT) is very different from doing plain films, you are actually managing a list. To manage a list of patients and to manage your work during the day requires training, common sense and is very similar to MR in that respect. Also checking out appearances, and to know whether or not to alert the radiologist to an abnormality, make a decision to do that based on if there is any contrast or not.	AP
If we want to do research we are very much encouraged to do radiography lead research and the physicists are there to help us figure out the sequences to help us present the papers. Also from the radiologists, but bear in mind that we are a University department and so that is what we do. We are encouraged to do research and present, go to meetings, go to conferences, to look at different ways of developing the service and to developing sequences, techniques, so we get a lot of support from radiologist and physicists.	EBP
I think it is because it is a separate machine, used in a separate department, it is a separate safety issue. They do not have any ionising safety regulations but you have the MR safety which is a huge part of MR, because it is a modality that, if you were not safety conscious, you could kill a patient by taking them into that room and that bears very heavily on our radiographers, so we are very keen on that. I think to do that you have to work in it all the time and do just that and become very specialised in that area.	DAP
it does not use ionising radiation ..... a new technique and a lot of research is going into it, ..... they are dedicated staff so they see it as a very separate imaging modality.	RS

Quote	Associated theme/code
it is a separate machine, used in a separate department, it is a separate safety issue..... you could kill a patient by taking them into that room .....	RS
there were a lot of safety issues around the installation at the time and it was probably perceived then that it was a very sort of environment that you had to keep very separate.	RS
it was seen as a natural progression from CT	RS
CT by then had become a specialist area	RS
I was actually doing the locum and CT at the same time, which was quite good, because the ultrasound backed up the CT and vice versa. There were no posts available.	RS
a lot of MR physicists and they are very supportive towards us	RFRP-Rad
Magnetic Resonance Radiologists Association and they are very keen to support and to have joint meetings with us and also the BIR have made approaches to us to say they would like us to be recognised by them and they have offered us premises in London, secretarial support etc	RFRP-Rad
we have a lot of support from the MR physicists in our department, they are very helpful and it is just fabulous having them in the department. If we get stuck with anything, or we want to develop something.	RFRP-Rad
We are encouraged to do research and present, go to meetings, go to conferences, to look at different ways of developing the service and to developing sequences, techniques, so we get a lot of support from radiologist and physicists.	RFRP-Rad
we do not have that them and us situation	RFRP-Rad
some of the consultants are not very experienced in the technique side of things and the clinical reporting side of things, as some of the radiographers that have done it for a long time, so we tend to work alongside them rather than them telling us what to do; we discuss cases with them, they are very aware of the pressures that we have got and we know they are very busy in other areas as well, so we tend to make allowances for that, so I think it is a good working relationship, so they tend to treat us as colleagues rather than subordinates	RFRP-Rad
You may find that there are neuro MR radiographers	RS
is more an equal footing, they are not really familiar with the department as such and they are coming into this specialised environment so they are a bit on their 'back foot' as well and they know really they need to be a bit more courteous and understanding of how we work if they want to get the cases scanned.	RFRP-Ref
It is a very protocol lead speciality but I would like to think that the radiographers doing MR in our department for a long time would be able to spot an abnormality and the radiologists too	RS

Quote	Associated theme/code
<p>if the NHS plan is to make this consultant grade with the proper financial remuneration then that would be very suitable</p>	RS
<p>Trauma - no            Ultrasound - yes            MI -            Mammography - yes            CT - yes            ? Reporting - not sure            IV contrast - no            Forensic - yes possibly            Nuclear Med - yes            Contrast Agent Exam - yes</p>	RS
<p>Paediatrics I think is very different from examining adults.</p>	RS
<p>but because of the on-call it is unworkable as a specialised area</p>	RS
<p>Radiographers can be trained to do it (reporting) but at the moment it would be unworkable</p>	RS

**Reflections on interview**

There are interesting similarities emerging with ultrasound about radiographers' involvement at the start of assessment of an imaging modality. There are also interesting similarities with nuclear medicine with the involvement of physicists. I have included physicists under the theme of RFRP-Rad. Focus on difference, separateness and full-time commitment primarily linked to safety issues.

## **Interview summary**

### **Respondent Leading Voice 9 - Radiographer reporting**

#### **Key points**

1. Identified as a specialism by Miriam, Stephen, Betty, Caroline, Christopher, LV5, LV7
2. Identified as extended role by LV2, LV3
3. Notion of specialism is based on radiographer's contribution to multi-disciplinary teamworking and includes aspects of image interpretation although radiographer reporting itself is not a specialism
4. Comments on professional body stance and reality being out of phase
5. Pioneering for radiographic profession
6. Hindered by radiology
7. Welcomed by referrers
8. Possible consultant role if expanded and linked to service provision e.g. A&E
9. Specific tasks previously done by radiology now done by radiography
10. Credibility lies with radiology and referrers

**Themes**

Theme	Code
Power of radiology	RFRP-Rad
Two level practice	RR
Pioneering role	RR
Clear link with clinicians	RFRP-Ref
Change to defined area of practice	RS
Treated as a colleague	RFRP-Rad
Time commitment required	RS

**Any contradictions/agreements**

Contradiction or agreement	With whom	Code
Agrees about power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2, LV3, LV4, LV5	RFRP-Rad
Disagrees about power of radiology	LV7, LV8	RFRP-Rad
Agrees two level practice	LV1, LV6	RR
Pioneering role	Arthur, Tom, Alice, LV1, LV2, LV3, LV4, LV5, LV8	RR
Agrees clear link with clinicians	LV1, LV2, LV3, LV4	RFRP-Ref
And contradicts above	LV3	
Agrees change to defined area of practice	LV5, LV7	RS
Agrees treated as a colleague	LV8	RFRP-Rad
Agrees time commitment required	LV6, LV8	RS

### Key Quotes

Quote	Associated theme/code
<p>I think that in some ways it is ignorance amongst the profession. I think one of the things would be to increase numbers of radiographers who are currently going through postgraduate programmes to develop their own area of practice and to be able to develop peer support within their own trusts. I think you've got to start somewhere and the best way currently is to get radiographers through a postgraduate qualification because that's accepted. Whether it's the referring clinician or radiology colleagues, it gives them an inherent level of skill and if we can get that accepted and build on that. We've got to move from a stable base.</p>	FK
<p>I suspect education plays a very critical role, and whether or not the profession develops its practice area. Whilst you may get local initiatives, at the end of the day, it is going to be competence as seen through a qualification that allows them, or does not allow them, to practise</p>	CrK
<p>...individual continuing professional development to ensure you remain up to date and that we undertake enough reporting to remain competent (and) that we must undertake a minimum of a session a week to maintain that level of skill.</p>	SK
<p>...the radiologist will ask the opinion of radiographers and they will be included in discussions about practice...</p>	CP
<p>I'll take it round and the door's open to go in and say can you recall this patient and they accept that from me.</p>	AP
<p>a role that's been denied to radiographers for a number of years and that's only over the last few years they've been able to develop a role in and its something perceived as being that something that not all radiographers can do that they've perceived as too hard or too complicated or possibly the perception of the medico-legal side of it that its something that they don't want to take the risk of doing therefore they think that only a few people could do it.</p>	RS
<p>often radiographers are seen as being more available than the radiologist</p>	IFL

Quote	Associated theme/code
<p>a real change to accept radiographers having a role within interpreting plain films, initially with a red dot but that wasn't considered to be far enough or specialist but probably in the early nineties when radiographers first tested the waters and were acknowledged as being able to test the water by radiologist colleagues and they could, under their direction, start erm providing some input into the imaging interpretation workload and the reporting workload</p>	RFRP-Rad
<p>Their pressure of work meant that they couldn't undertake everything and it was accepted that radiographers did have the skills to be able to take it on, it started in isolated pockets with radiologists being involved in training radiographers within their own specific trusts it started with individual practitioners undertaking specific items of radiology reporting and then that was acknowledged and spread with the start of postgraduate programmes.</p>	RFRP-Rad
<p>I put a programme together with a colleague to undertake one of the first image interpretation postgraduate courses in the country and after a very long fight was accepted and that was 96 so when you undertook your postgraduate certificate and then in 97 started plain film reporting.</p>	RS
<p>Q So who were you fighting?  A Radiologists internally. They didn't, the radiologists didn't believe that it was an area that radiographers should be stepping into I think they were concerned that we weren't good enough and eventually they accepted that there was a role but one of the most vehement opposers um agreed that we could take the training if he was our mentor to make sure that it was undertaken to the strictest levels. It was a fight.</p>	RFRP-Rad
<p>Yes well since we've started they've all accepted it. Whole heartedly. Once they realise quite how intensely we did work and what our level of knowledge was. I think they just perceived that the radiographer's role was to take the images and I think that was partly the fault of the radiographers and their ignorance but I think it was the fact they didn't realise quite the expertise the radiographers already had that needed developing with assistance but if that assistance was available there was no problem with developing in those areas</p>	RFRP-Rad
<p>the radiologists are there in the same way that they are for their own colleagues. We get a film where you know we're not sure and we want a second pair of eyes we will take it to a radiologist or another radiographer, reporting radiographer to discuss the case in the same way that many of the radiologists have case conferences and they discuss cases with each other prior to, you know, prior to the final report.</p>	RFRP-Rad
<p>the roles currently are so separate we don't get the opportunity to provide that report on a day to day basis so its, its undertaken as a separate workload</p>	RR

Quote	Associated theme/code
<p>study day where we discuss a number of issues which are key to radiographers but not necessarily related to pathology where its more medico-legal discussions or discussions about roles and sort of academic support rather than being a forum for continuing professional development in the pathology</p>	RS
<p>been undertaken quite a lot of research to look at how far the role's extended and also to ensure that things like the academic side there is sort of a national framework to look at courses and to see whether we can try and develop a national standard so the skills are recognised as being transferable</p>	RS
<p>the stance taken by the professional body in some ways could be considered as being different from the profession outside of there because they see it as being very individualistic rather than it be a role that could be accepted by the whole profession and taken on by the whole profession. Instead individuals see it as something out there but its not within their grasp or whether there's a number of people who would never want that level of responsibility. Erm some of the earliest work done by a medic erm and colleagues showing that radiographers did have or could play a part in radiographer reporting in general and image interpretation I think was the first step and they're probably one of the first ones that would show radiographers it could be undertaken but they do acknowledge that it couldn't be undertaken by all and sundry.</p>	RS
<p>if its an accepted practice within a trust the relationship between the radiographers, the reporting radiographers and the radiologists is often very good and the radiologist will ask the opinion of radiographers and they will be included in discussions about practice but I think in centres where its not been able to well, whether its not been pushed or whether its not been accepted as practice I think the relationship is very different.</p>	RFRP-Rad
<p>I think I'm accepted probably on a different level to some of my colleagues.</p>	RFRP-Rad
<p>they're more willing and open to discussion whether its prompted by the radiographer or the radiologists. They will quite happily discuss er clinical cases with you in further depth and they will actually bring interesting cases to you where they wouldn't necessarily to another radiographer even if that radiographer ever had an interest its taken it a step further and you are acknowledged within their eyes as having a different role.</p>	RFRP-Rad
<p>They actually were very very keen on the concept of radiographer reporting particularly because it meant they actually got someone who more hands on, involved and the fact that they they were someone accessible that they could sort of refer to or you know send the referring clinicians round to discuss cases.</p>	RFRP-Ref
<p>What they want is an accurate er diagnosis, they want an accurate interpretation of the image. And who that's authored by is of very little significance to them apparently.</p>	RFRP-Ref

Quote	Associated theme/code
it makes a difference I mean the you know particularly A&E cos that's the biggest referral for the work we do. Erm they're always very open and quite close to the radiographers but I think that's its taking it further and we'll take cases round, I'll take cases round reporting a case being discharged without treatment because it was missed. I'll take it round and the door's open to go in and say can you recall this patient and they accept that from me.	RFRP-Ref
They'll ask all radiographers and possibly won't necessarily differentiate which is a little troublesome to some of the newly qualified radiographers.	RR
extend it so that every radiographer has the skills to provide immediate interpretation of any image.	RR
a greater awareness amongst the profession a greater awareness amongst radiographers of their responsibility under the code of conduct which I think a number are lacking in. They don't realise that they can and should be providing first line opinions to the clinicians and the fact that they can tell a patient.	RR
The fact that they don't see it as being their role they a number of radiographers see it as being a radiologists role and they don't want the responsibility.	RFRP-Rad
I think radiologists are another bog area of sticking there's the trust that has radiographer reporting is going from strength to strength and there's more radiographers being trained but there are still too many trusts where its not even got off the ground.	RFRP-Rad
current programmes require mentors to actually work with to be able to provide further training and while they're short of radiologists they cant give that level of help to postgraduate students on reporting courses	RFRP-Rad
..it cannot be that their expert clinical practice is because of their ability to take a chest x-ray or produce an ultrasound image. Its got to be that they can undertake the whole examination from accepting the referral to be able to undertake the imaging process but be able to provide the final step which is to provide the interpretation and then discuss it with clinical colleagues in a multi-disciplinary team meeting.	RS
trauma, forensics and paediatrics. And if you add, if you add that (plain film reporting) to any of those. If you add plain film reporting onto a modality based	RS

### Reflections on interview

Gives a detailed picture encompassing national and local practice and policy.

### Interview summary

Respondent Leading Voice 10 - trauma

### Key points

1. Identified as a specialism by Elizabeth, Stephen, Claire, LV1, and LV3, LV7: Debbie, Caroline, LV10 and LV5 if in a teaching hospital,
2. Identified as extended role by LV2
3. Notion of specialism relates to what is taught at undergraduate level
4. Clearly perceives a team approach as required for service delivery and radiographers very much part of that team.
5. Medically driven and obstructive in places when service provision runs across medically recognised fields of practice – medically shaped provision?.

### Themes

Theme	Code
Power of radiology	RFRP-Rad
Power of referrers	RFRP-Ref
Two level practice	RS
Pioneering	RR
Clear link with clinicians	RR
Change to defined area of practice	RS

### Any contradictions/agreements

Contradiction or agreement	With whom	Code
Agrees about power of radiology	Betty, Kathleen, Christopher, Claire, Tom, Judith, Ralph, Debbie, Jane, Robert, LV1, LV2, LV3, LV4, LV5, LV9	RFRP-Rad
Disagrees about power of radiology	LV7, LV8	RFRP-Rad
Agrees two level practice	LV1, LV6, LV9	RR
Pioneering role	Arthur, Tom, Alice, LV1, LV2, LV3, LV4, LV5, LV8, LV9	RR
Agrees clear link with clinicians	LV1, LV2, LV3, LV4, LV9	RFRP-Ref
And contradicts above	LV3	RFRP-Ref
Agrees change to defined area of practice	LV5, LV7, LV9	RS

### Key Quotes

Quote	Associated theme/code
....trauma is so embryonic, and lacking evidence, it is not a science yet. Therefore it is not like radiation protection lectures, where you can refer to a text, and then concentrate on the educational element of the course, the student back-up, information they give and the quality of training etc. whereas trauma can do all of that but if they don't know anything about trauma, and that is an issue I don't think the education establishments are used to having.....	FK
I've spoken to Edna and Jackie (pseudonyms) and no problem at all, they can put together a 3 month course (in ultrasound) where radiographers are taught to do 3 or 4 things to suit the A&E environment. So aneurysms, foreign bodies, trauma abdomen assessments, called fast assessments of the abdomen...	FK
I want someone who has got a much stronger idea of research method, promoting practice, best practice and verifying and when data comes along re-appraising it and should be part of the governance circuit within the hospital. So your protocols, that are always being questioned, should be reviewed regularly, so you can write the RCR guidelines, so you grade the data mix to the actual protocol.	CEP
Then we have CT as a separate group to MR and we tried to get a cross-sectional and they just would not have it all along because their old alliances and little bodies who pushed in this direction, because of course it does not reflect their medical specialisations, so you start blurring boundaries and potentially they see this as disempowering.	DAP

Quote	Associated theme/code
<p>Again, now we have to be very careful, we have to discriminate between emergency care and trauma care. Trauma is a major accident, obviously people earlier on wanted an emergency care thing but because at the same time trauma has been recognised it all got folded in and they overlapped. They need to be separated because they are distinct things. You can have emergency radiography, A&amp;E which obviously includes medical imaging of major trauma, so the fact is that these groups have been wrongly named. Trauma imaging group should be emergency radiography group.</p>	DAP
<p>Currently there are a lot of professional boundaries but also operational. It is very difficult to attract senior staff in A&amp;E now. We have had to fight at Senior 2 level to get access to MR and CT.....</p>	DAP
<p>that outside of Britain, there is a clear recognition of it as a speciality</p>	RS
<p>trauma is all about multi-disciplinary practice</p>	RS
<p>Once you elaborate on what some of the issues are, as to why it is a speciality, people become interested.</p>	RS
<p>We have attracted 4 people from (city) here, one saw how different it was</p>	SF
<p>trauma became a case of radiographers spotting this and saying "Is there any need to recognise trauma i.e. is trauma a speciality and if so what are the issues we need to address" and that in fact is the very first lecture I gave. I came here which had a lovely trauma set-up but no-one could tell me why. Clinical issues, why is it set up like this, single track units, very strange, long arm, why is it like this and it is just because they copied an American place, without knowing why.</p>	RS
<p>You can have emergency radiography, A&amp;E which obviously includes medical and imaging major trauma, so the fact that these groups have been wrongly named. Trauma imaging group should be emergency radiography group.</p>	RS
<p>where you try and get an A&amp;E Senior 1, it is very difficult, because they perceive a loss of modalities to do that. The development pathway for the A&amp;E Superintendent and Senior 1 includes all the modalities, on the grounds that trauma patients go through those areas. Trauma does not stop at the A&amp;E, so to follow them through they can then do specs or longitudinal audits, multi-disciplinary analysis</p>	RS
<p>compliance,</p>	RS
<p>it is primarily due to three key people, very interested parties being pro-active and pursuing it. There has never been a catalyst, other than their own professional interest to do something.</p>	RS
<p>then first trauma call came along and thought it was very different, so I carried on learning what to do and kept quiet in order to learn and then started asking questions. Absolutely no-one could answer 50% of the questions that I asked; when I asked "why have you got this 10ft long arm with an X tube at the end of it, why is the team like this, what happens at this bit?" and basically it was because they copied America. People were just mimicking American models without knowing why.</p>	RS

Quote	Associated theme/code
<p>clinicians do not look at the wider scope, they look at the clinical assessment and the need for this, they don't go wider and explain why they have teams and why they need special centres.</p>	RFRP-Ref
<p>It is the issue of confidence and the fact that we are an intimidating team potentially, things have to be done very fast, it's nothing new but it could be slightly different, it is more being able to see they can problem solve quick, understand their role.</p>	RS
<p>I think there is a poor link between, when they see the modality of the patient, the patient has then gone to theatre as it were but then not enough longitudinal audit when they go through the system an that is what we are hoping to address in the future.</p>	RS
<p>In particular as part of pathways for the juniors that they do red dot courses,</p>	RR
<p>It is quite good in that the trauma radiologist carries a bleep, we have distinct trauma bleeps for the trauma team. 9am-5pm there is always radiologist there, out of hours they have to be called in at the discretion of the team leader. In terms of working patterns I think it is difficult because a) being a training environment it is very hard to offer continuity, so you find one doctor say "fine I'll pass this neck with two obliques and that is all I can possibly do there",</p>	RFRP-Rad
<p>You only have to look at C spines there is no consensus in Britain whatsoever</p>	RFRP-Rad
<p>now the British Trauma Soc. are starting to do that, there are other bodies starting to put together the available data</p>	RFRP-Ref
<p>In fact the Radio's are not paid for so they say they are needed in trauma for example looking at head scans, yet they are not available because they are not paid for so we must spend a fortune on an extra consultant, at no point have they thought about the radiographers doing the scanning.</p>	RFRP-Rad
<p>they don't create a team, they just do it off their own batt because it is also a very topical and again its radiology as other issues have had that whole review of practice, research and so on is ring-fenced by radiology and pushed, they are not going to think health related issues</p>	RFRP-Rad
<p>There is a Thursday double slot for a senior, junior and they can go off and do why we do so many negative head scans, and say right let's start doing what we should be doing, just building the evidence base to answer that question and present it up. They have ownership a bit.</p>	RR
<p>CT scan where I've got the same proforma that XXX used and I want every single one of those 140 films pulled again and get radiographers blind report them and share that, so it is no different to red dot. How many of those would they have picked up. we are getting guidelines on IV pertaining to radiologists, head scan requests from neurosurgeons, well please I need to speak to a radiologist, this kind of stuff.</p>	RFRP-Rad
<p>We get very acutely poly-traumatised patients coming here, because they take someone to the most appropriate hospital as part of its remit, so they are not going to come here unless they cannot offer the services we can, one being the fact that we have got every speciality on one site, 27 hospitals in Britain do. So that is one of the reimits of American specifications for trauma centres.</p>	SF

Quote	Associated theme/code
<p>the radiologists come along and say "can we have a peg" for example, which is not ATLS driven not BTS driven. The radiographers said "why do I get asked to do this" so Otto Chan who is head of A&amp;E, though it is not formalised, we are just interested in trauma, then I write to him and say radiographers have raised this concern, so obviously the radiologists come in but they are not so driven by protocol, which is what ATLS is all about. American surgeons write many articles saying you can x-ray people to death, so it is so long investigating and not prioritising.</p>	RFRP-Rad
<p>There is no such thing as a referring clinician. We follow NHS guidelines, the guidelines say this is XXX pelvis, we agreed ages ago that we additional 2 views of the spine, trauma obliques and that is out protocol. It is only after that a referring clinician, it is supposed to be the team leader that decides, the patient is stable, we are now doing a secondary survey</p>	RFRP-Ref
<p>If you find a spinal fracture, say in the C spine, you've got 28% spinal fracture elsewhere, those are the kind of corollaries you need to know in trauma.</p>	RFRP-Ref
<p>In theory we all just look at the images and night time, they usually have to call in the radiologist</p>	RFRP-Rad
<p>but obviously the team leaders interpret it in the short term. everyone looks at films, anaesthetists, team leaders who are A&amp;E consultants or surgeons ATLS trained, obviously they are looking for any life threatening injuries, they are not there to look at bits of pulmonary oedema. Obviously that is the key issue, if they miss a rib fracture fine but they are not supposed to miss them in the first four ribs, they are taught to check the first four ribs very carefully, because if you damage those you will most certainly have great vessel damage as well.</p>	RFRP-Ref
<p>There is a distinct team in that case and does it correlate well to A&amp;E - no it is complicated, there is culture differences, there is a huge rotational staff in A&amp;E, so you never teach anyone, the moment they get any good they are gone.</p>	RS
<p>, anyone who has a mind to and can learn MR which is hugely complex, CT, mention ultrasounds and they think it is purely sonographers.</p>	RS
<p>short sharp black and white nominal data stuff - yes he has fluid, no he has not, aneurysms measures this, they could do it.</p>	SF
<p>So is the patient going to the local hospital, 5 minutes away, or trauma centre 15 minutes away and how they justify their selection. Obviously then the hospital 15 minutes away will have everything but not the head injuries because the neurosurgery is on the bigger place.</p>	RS
<p>Currently there is a lot of professional boundaries but also operational. It is very difficult to attract senior staff in A&amp;E now. We have had to fight at Senior 2 level to get access to MR CT which you should not have to and then they take it away from them - why. The key thing with trauma patients is called 'chain of care' from the moment they are injured to their complete rehabilitation at the end because as a service department - it is very difficult to lead the changes</p>	RR
<p>Mammography - definitely</p>	RS
<p>That is a nice reconfiguring of the boundaries</p>	

Quote	Associated theme/code
Yes, it (radiographer-led contrast agent studies) is a speciality but by comparison to what, we do have special interest groups, but is it a contrast agent or should it come under the boundaries of reporting radiographer.	RS
Paediatrics - definitely When I used to do it they did stuff that no-one else did. I think it is to do with first principles.	RS
So if you can see general as a speciality then there is no such thing as a non-speciality.	RS
CT - Yes	RS
Then we have CT as a separate group to MR and we tried to get a cross-sectional and they just would not have it all along because their old alliances and little bodies who pushed in this direction, because of course it does not reflect their medical specialisations, so you start blurring boundaries and potentially they see this as disempowering.	RFRP-Rad
MRI - after what I saw last week definitely.	RS
Plain Film Reporting- I'm external examiner for Hertfordshire, and I think they only reason they picked me is because they set the course up, first time ever, and no-one is really qualified in it at the time. I was principle and subject. They knew I had done stacks of work as an A&E attendant, I wasn't so good at neoplasm and infections, well infections I could get, but certainly trauma and because I was very interested. I was very wary though and said I really want a lot of data on the role etc. Is the question saying 'is this currently recognised as a speciality' in which case the answer is yes - do you recognise it as a speciality, but hold on your 'code of conduct' says you are allowed to comment on an image anyway.	RS
Nuclear Med - Yes	RS
Trauma - Yes	RS
Administration of IV Contrasts - No	RS
Forensic - Yes	RS
Ultrasound - No - Yes if you can do all the full remit.	RS
The answer is what is the most appropriate model for the patient. ...Swipe the board and start again, let's have a radiographer practitioner in A&E, so no matter what your criticism is they should be absorbed by the competency.	RS
The thing is when you want to do reporting it starts obviously dragging on anatomy and pulls it into the medical speciality, so I suppose you have heard how is it in A&E the barium's are separated and not tomography and medical reporting is the key issues there. Because of that link and the fact that the Royal College wants roles and responsibilities of whatever is delegated to us then we can't possibly be independent practitioners. They don't get anywhere near obstetrics.	RS

**Reflections on interview**

This was most interesting but difficult from a research perspective. The respondent spoke very quickly and consequently the recording was very difficult to transcribe. The respondent was extremely well informed from an international scope of knowledge and experience. The categories became difficult as the use of trauma centres impacts on “social forces” and “radiography specialism”. I resolved this by using SF for *clear* institutional opportunities and RS for *clearly* defined fields of practice.