

## Volume 11 - Issue 3, 2011 - Cover Story

### A European Perspective on the Role of Radiographers in Imaging Departments

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Radiographers do not work in isolation but are part of a highly qualified team, contributing to the health and wellbeing of patients and acting as mentors for students and trainees. They are the human face of medical imaging and radiation therapy, individually responsible for combining excellent patient care with technological expertise. They carry out more than 85 percent of procedures autonomously and therefore play a key role in radiation protection through the justification and optimisation of ionising and non-ionising radiation exposures to individuals; the optimum setting of parameters; the promotion of a safety culture in their various practice environments and through keeping up to date with rapidly changing developments in the imaging field. In addition, as part of their radiation protection role they are instrumental in tandem with others, i.e. radiologists and physicists, in the selection of appropriate imaging equipment and in quality assurance testing and dosimetry and also in contributing to patient education.

The radiographer takes the lead responsibility for the management and care of patients undergoing the spectrum of imaging procedures including their physical, psychological and emotional needs prior, during and post examination. The radiographer has a duty of care to ensure that the appropriate investigation has been requested and can be justified through questioning the patient and reviewing their clinical history and to challenge any procedure they may deem unsafe or unfit for purpose (SCoR 2008).

A clearly expressed clinical history is the ultimate tool for the radiographer to decide on the most appropriate radiographic techniques and projections and the optimum exposure parameters to employ, which will provide information that ensures that patient treatment and management decisions are correctly informed. Optimum image quality is the responsibility of the radiographer as it provides the means for interpretation accuracy.

In addition, the radiographer's role is to ensure that patients are fully aware of any procedure they will undergo and that they have given their consent. In the UK this is emphasised by the Department of Health's guidance which states that:

"The health professional carrying out the procedure is ultimately responsible for ensuring that the patient is genuinely consenting to what is being done: It is they who will be held responsible in law if this is challenged later" (DH 2001).

#### **Restrictions & Barriers to Professional Development**

McCall (2010) identified a general lack of awareness of the role of the radiographer in imaging departments by patients. This lack of awareness may be due partially to the profession itself not being more forthcoming in championing radiography to a wider audience and partially due to individuals insufficiently vocalising their skills and range of competencies to others including radiologists and service managers. The scope of practice and thus the role of the radiographer will vary from one country to another dependent as it is on political, cultural and legal contexts.

All radiographers, by the very nature of their professional activities, are film/image readers as well as image producers. Radiographers are educated to identify normal appearances in the images they produce and as a corollary thus know when abnormal appearances are present.

Traditionally the interpretation of radiographs has been restricted to medical doctors and in most cases, radiologists. However the expansion in the range of imaging examinations and the advancement in imaging technologies have led to an increase in demand for imaging services and this has resulted in a delay in the interpretation and reporting of many examinations. This expansion varies across Europe dependent on staffing capacity and service delivery structures but has led, in many countries, to the extension of the radiographer role to include image interpretation and ultimately radiographer reporting.

In the UK in particular, this type of role extension, supported by radiologists, has two decades of experience and has expanded to include all

modalities, examinations and referral pathways (Price 2009). As one might expect, the spectrum of radiographer reporting practice is narrower than that of a radiologist but has resulted in benefits to both referring clinicians and patients. Other countries are embarking on, and still others have yet to extend, radiographer responsibilities to include image interpretation, but are aware of the strength of the evidence that has emerged which recognises the ability of properly trained radiographers in this field (Robinson et al 1999; Brealey et al 2005; Leslie et al 2000).

### **Study Shows National Variations in Radiographer Training**

Across Europe at present, radiography education is firmly embedded in the Higher Education (HE) system, with just a few exceptions. In a recent survey of European radiographer societies by EFRS in 2011, 23 out of 26 respondent countries indicated that the initial qualification for radiographers was at bachelor level. Variations in the nature, coverage and length of bachelor programmes across individual European countries see graduates emerging with either separate or combined imaging and radiotherapy competencies.

In all European countries, the radiographic curriculum covers a wide range of scientific, humanistic, sociological, ethical and technical subjects tied in with the development of clinical skills. It also includes the development of research and audit skills aimed at improving imaging service quality. Programmes of radiography education are cogniscent of the importance of equipping graduates with those subject specific and generic competencies that will provide an optimum service to support local and national needs with the health and well-being of the patient paramount. Curriculum responses to service needs have meant that radiographers in many European countries now graduate with skills, knowledge and competencies in some areas once thought of as being solely within the remit of the radiologist or other medical practitioner.

Whilst some elements of role extension are introduced in bachelor programmes these are further developed following a postgraduate Masters level course accredited by the national professional body (e.g. IV injection/cannulation of contrast agents; image interpretation; supplementary prescribing; pharmacological and exercise stressing in RNI). These are all courses requiring some element of mentorship by a radiologist.

However, at a recent EFRS meeting held during the European Congress of Radiology (ECR) 2011 student radiographers from across Europe expressed universal concern that they were not being given the chance to practise expanded elements of the education they received, including image interpretation, ultrasound reporting and the administration of IV contrast agents. Research in other countries indicates that radiographers are increasingly being seen as clinically underutilised (Cook et al 2004) particularly in areas that would improve the efficiency and effectiveness of the service and thus enhance the patient's experience.

### **Skill Mix on the Rise**

The development of radiographer roles beyond image abnormality detection and interpretation, are part of many skill-mix initiatives taking place across Europe, which focus on changing professional roles to facilitate service development and enhancement for the benefit of patients. The importance of skill mix in the imaging department is not just a necessity due to a shortage of radiologists in some European countries but is because it encompasses such factors as:

- Increasing demand for examinations such as MR and CT;
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- Demand for faster access to diagnostic services;
- Need for rapid turnaround for examination reports;
- Changing population demographics with a greater prevalence of chronic disease predicted;
- Better informed patients with enhanced expectations and
- Increased clinicians' expectations from imaging services (RCR and SCoR 2007; Hardy et al 2008).
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The prevalence of radiographer reporting and its impact in the UK evidences the collaborative nature of radiologists and radiographers in clinical departments. There are, however, in the UK and elsewhere in Europe, some barriers which have been identified with regard to radiographers undertaking roles not traditionally thought of as part of their activities. These include lack of support by some radiologists who may be totally unaware of the extent and quality of the educational process that radiographers must undergo to achieve the required competencies. They may also be unaware of the legal, professional and ethical issues that have had to be addressed by radiographers for the role in question (Kelly et al 2008). In addition, it appears that radiologists may neither be available nor willing to provide the necessary mentoring role for extended role training.

Another important barrier is that funding for radiographers to participate in postgraduate courses appears to be limited not just for course fees and expenses but for the back filling of posts in order to release staff for training. The role of the radiographer varies across Europe being dependent on the country and health service in question, as there will also be overlap of roles between the team members within an imaging department. A patient-focused health service in the 21st century should ensure that the available competencies of staff are used to the maximum effect to put the needs of patients and those referring patients for imaging investigations at the forefront and avoid expending energy in defending historical professional boundaries.

### **Radiography in Europe**

Radiography in Europe is a relatively young profession with origins mainly in medicine and nursing but also in engineering and physics. The first radiographer society was established in the United Kingdom in 1920 and the most recent in Lithuania in 2005; since then the European Federation of Radiographer Societies (EFRS), legally established in 2008 has brought together 32 radiographer societies from 30 countries and 33 educational institutions from 18 countries across geographical Europe to represent, promote and develop the profession of radiography in Europe. Radiographer societies are the professional bodies responsible for, in an increasingly large number of European countries, the appropriateness of practice of radiographers.

