

Professional role extension for radiographers

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Abstract

Role extension for radiographers has become a much talked about topic within our profession. The aim of this article is to draw attention to the key aspects regarding professional role extension by referring to the experiences offered by other countries [1-16]. It can also serve as a possible guide to initiatives related to role extension for the South African radiographer.

Keywords: skill-mixing, Red Dot System, scope of practice, accredited training, medico-legal aspects.

Introduction

Radiography as a profession is developing and changing dramatically. These changes are initiated by technological advances and also through the demand for change driven by personnel shortages within the health care system. Internationally radiographers are taking on responsibilities which were previously within the domain of radiologists. These additional responsibilities have been termed skill-mixing or role extension [1]. Skill-mixing implies the utilization of radiographer's skill and expertise to complement or increase the expertise available to patients in order to improve the provision of health care to patients [2].

There have been many definitions of role extension but one that is most appropriate for this article is that offered by Hardy [3] namely, "post-qualification acquisition of skills, responsibilities and resultant associated additional professional accountability". This implies a fundamental change to the current professional practice of radiographers. The College of Radiographers in London (CoR) defines role extension as representing quantitative and qualitative change in the way radiographers contribute to patient management and health care services [4].

Historical perspective: the United Kingdom experience in radiographers' role extension

In 1971 a radiologist from the United Kingdom (UK), Dr Swinburne challenged the traditional view held of radiographers as he was of the opinion that radiographers had the potential to comment on images [5]. However, radiologists remained skeptical of this view. This debate continued until another UK radiologist, Dr Saxton, suggested in 1992 that the significance of radiographer reporting could only come about through careful design, control of education programs, and close collaboration between radiologists and radiographers [6]. This implied that non-medical personnel could not be expected to provide a medical interpretation without appropriate training.

A critical shortage of radiologists led to various initiatives to determine image interpretation skills of radiographers. This process was further driven through published evidence that determined that trauma and emergency (T&E) clinicians had questionable abilities to accurately interpret plain-film trauma radiographs thereby increasing the risk of misinterpretation, incorrect treatment and the effect of medical errors [7].

The first initiative was the adoption of a radiographic abnormality flagging system, called the Red Dot system whereby a radiographer would physically place a red dot on a radiograph to indicate a possible abnormality may be present.

However this system has its limitations, namely

- (i) it is operated on a voluntary basis,
- (ii) the absence of a red dot on a radiograph does not exclude the possibility of an abnormality,
- (iii) placing the red dot also does not indicate the site or significance of abnormality, and
- (iv) it is an additional service and has

no influence on the reporting workload [8].

Since the introduction and implementation of the Red Dot initiative radiographer reporting developed with much enthusiasm resulting in the interpretation accuracy of radiographers becoming the subject of intense scrutiny. The process of role extension became research driven with most publications concentrating on radiographers' reporting abilities in musculoskeletal trauma [9-13]. A meta-analysis study done in 2005 found that radiographers compared well with the reference standard, reporting plain films with

92.6% and 97,7% sensitivity and specificity respectively [14]. Reporting duties extended to other areas including ultrasound, mammography as a second reader, nuclear medicine, chest radiography, and limited computed tomography (CT) and magnetic resonance imaging (MRI) studies.

Role extension in the UK has developed with significant strides and has seen further expansion incorporating procedures traditionally performed by radiologists. These include needle placement and intravenous injections, barium enemas and barium meals, amniocentesis, angiography, breast biopsy,

bronchograms, cystograms, line and tube insertion, hysterosalpingograms, micturating cystograms, prostatic biopsies, sialograms and venograms. Evidence of role extension is now also found in nuclear medicine, radiotherapy, and ultrasound [15].

Role extension in United States of America (US)

In 2002 in the US a consensus paper outlined the creation of the radiologist assistant as a career pathway. This new type of radiologic assistant was introduced to extend the role of the radiologist. The need to develop this role was supported by various factors which included the increased radiologist shortage, growing demand for medical imaging procedures as well as a desire to enhance the overall quality of patient care. It was recommended that the radiologist assistant should complete a recognized radiologist assistant curriculum and a radiologist-directed clinical preceptorship. The extended roles would include patient assessment, patient management, fluoroscopy and other radiology procedures. The radiologist assistants would be competent to make initial observations on diagnostic images but the final written report has to be provided by a radiologist [16].

Role extension in South Africa (SA)

In some South African health care institutions the Red Dot system was adopted during the 1980s. Pattern recognition was introduced which resulted in the offering of various non-sustainable *ad hoc* seminars and courses to enhance pattern recognition skills of the South African radiographer. SA is also experiencing critical personnel shortages within the health care sector. In particular the radiologist shortage was addressed during the recent ISR 2006 conference held in Cape Town in September 2006. Dr Richard Tuft, President of the Radiological Society of South Africa, (RSSA) in his unpublished opening address highlighted the negative effect that the shortage of radiologists had on the health care system. In his address Tuft stated that there are approximately 450 radiologists in SA and that the majority are employed within the private sector and this leaves the public sector with an acute shortage.

Professor Andronikou, a consultant radiologist at Tygerberg Hospital in the Western Cape substantiated this during the congress proceedings by stating that the number of consultant radiologists in his department had halved since 2003. Henry Wanga, head of the Kenyan Radiology Society, also highlighted similar problems experienced in Kenya where there are only 80 radiologists for a population of 32 million [17].

It is therefore evident that SA is also experiencing similar if not worse problems than the UK and US where role extension was found to be needs driven. It is essential within the SA context to reflect on our own needs, to be responsive to the challenges facing our health care system, and, to strive towards improving service delivery to all patients.

Collaborative process

Any initiative undertaken to formalise role extension in SA should involve collaboration amongst all key-role players. In SA these would include the Society of Radiographers of South Africa (SORSA), the RSSA, the Health Professions Council of SA (HPCSA), higher education institutions, and the National Department of Health (NDoH). The professional societies should identify and initiate opportunities for role extension by capitalizing on current skills of radiographers. Both professional societies should strive to maintain a high quality of service delivery and seek to establish necessary guidelines outlining safe practice for radiographers. It is also essential that information should be disseminated to all members.

The consultative role of radiologists is crucial to maintain quality assurance in role extension programs. They should be actively involved in the course design, academic support, clinical mentoring and the assessment of advanced programs. Higher

education institutions should ensure that advanced skills programs are underpinned by relevant theory. There must be an explicit link between academic learning and clinical assessment of competence. A formalized framework should be established for education and training with agreed clinical protocols defining professional latitude. Regular audits after completion of such an advanced skills program should ensure that quality assurance of clinical competence would be maintained.

Accredited training

Postgraduate development programs should be accredited. A formal application to offer the course must be made to the education committee of the relevant higher education institution. The said education committee has to forward recommendations to the HPCSA for consideration and approval by the professional board for radiography and clinical technology (PBRCT). The HPCSA, on receipt of the application, determines whether any other profession under its domain will be affected by the proposed program. If this is the case, the HPCSA may request input from the professional board of the affected profession. On approval by both boards, the

HPCSA then submits a request to the minister of health for registration or amendment of the existing regulations [18].

It remains the duty of all employers to ensure that all employees are suitably qualified, have the appropriate training, resources and support. The role of the NDoH will evolve mainly around human resource issue, such as the release of prospective candidates for specialized training, the creation of a system of relief posts, funding for postgraduate training, professional recognition which can serve as promotion to next level as well as remuneration of additional acquired skills. The 2010 National Health Plan, DoH, includes a recruitment and retention strategy which also focuses on the retraining of health care personnel [19].

Scope of practice for radiographers

The statutory role of the HPCSA is to protect the public and guide professions. With regard to role extension it is essential to have a full understanding of the following definitions:

- An additional qualification falls within the scope of practice for which the practitioner is registered

with the HPCSA. Applications are handled by the PBRCT.

- Role extension falls outside the scope of practice for which one is registered. Consultation with the affected boards is essential. Council also offers the procedure for dispute resolution, should they arise.

Annexure 10, 1 (c) (HPA, 1974) states that:

“A radiographer shall not interpret radiographical investigations, report thereon or furnish information in regard to any work performed by him or her in his or her profession to any person other than a practitioner approved by the board at whose request such work was undertaken” [18].

Radiographers can become registered image interpretation practitioners as long as they practice within their scope of practice after completion of accredited training and education. However there should be a clear distinction between the level of service provided by radiologists and the extended role provided by radiographers. The breadth of ability and the level of expertise of radiologists should not be ignored. It is also essential that radiographers practicing in an advanced role should be aware of their own limitations and consult with radiologists where necessary. Accepting an advanced role also implies accepting the responsibility that goes with this role.

Medico-legal aspects

As the role of the radiographer expands so too does the potential for medico-legal risks/implications. Radiographers must exercise an appropriate duty of care to all patients and therefore must comply with the code of professional conduct of the statutory body as well as the current health legislation. Professional indemnity insurance for SA radiographers must be addressed.

In the UK the Trust of the National Health System accepts vicarious liability with the proviso that all conditions have been met and agreed upon. Professional indemnity insurance is provided as a benefit of membership of the society of radiographers in the UK and covers them against claims made in respect of their professional duties [4].

Malpractice insurance is available to public sector employed SA radiographers who are personally responsible for payment of annual fees. Malpractice insurance for private sector radiographers in SA is addressed in the National Health Act No 61 of 2003 paragraph 46 which states: “Every private health establishment must maintain insurance cover sufficient to indemnify a user for damages that he or she might suffer as a consequence of a wrongful act by any member of its staff or by any of its employees” [20].

Perhaps SORSA should explore the model in the UK but this would need active encouragement of all registered radiographers to belong to SORSA. Each health professional remains legally responsible and accountable for his/her actions.

Potential threats

Potential threats that could arise through expansion of the radiographers' role include the medico-legal implications, competition with other trainees such as radiology registrars as well as existing services, the release of personnel for training, financial constraints such as funding for training and appropriate remuneration. There is also a fear that role extension of radiographers would pose a threat to the radiologist as it appears as if no limitations can be placed on radiographers in advancing their role.

Potential benefits

This could include reinforcement of the existing service in particular expansion of the Red Dot system to include commenting. It would lead to better human resource time

management and a broader service cover which could lead to significant advantages to patients and radiographers. Coupled to this would be advanced career opportunities linked to job satisfaction and professional recognition.

Feasibility workshop held in 2006

A workshop to address the issues around role extension was initiated by Cape Peninsula University of Technology (CPUT) in April 2006. Outcomes of this workshop included opinions that role extension should address aspects such as (i) responsibility and accountability, (ii) comprehensive training that would progress preferably to Master's degree level, and (iii) malpractice insurance.

During deliberations at the workshop the president of the RSSA stated that ideally a radiologist should do reporting. He acknowledged the severe shortage of radiologists that existed in the public sector therefore the professional association would support a well organized, regulated role extension program for radiographers, provided that agreed conditions between professional bodies are met.

In the public sector radiographers often

operate without the support of an on-site radiologist. The interpretation skills of the referring clinicians vary greatly and radiographers are often called upon for their opinion. The Red Dot system does assist in highlighting abnormalities. However, it was felt by the workshop delegates that communities would benefit if radiographers receive formal training in image interpretation.

Possible extension of the radiographer's role could be:

- the expansion of the Red Dot system to include a comment,
- a structured course in pattern recognition focusing on reporting of plain-film trauma radiographs,
- chest reporting, especially the identification of tuberculosis patterns, and
- abdomen reporting.

Further role extension could include procedures such as intravenous-injection placement (this is already HPCSA approved provided there is proof of training), drug prescription which will require a pharmacology component, and barium studies.

Combined radiography task team

As a means of ensuring a process of collaboration a task team was elected comprising the following members: Imelda Williams (convener), Rika Boshoff (radiotherapy), Fozy Peer (nuclear medicine), Ferial Isaacs (ultrasound), Jenny Motto (SORSA), Mabel Kekana (PBRCT: HPCSA), Zeldia Fortuin and Suzette Loff (clinical: regional), Gillian Bowie and Vivian Meyer (clinical: academic), Gillian Swarts (NDoH, Directorate Radiation Control) and Professor Benningfield (radiologist: advisory role).

It was further suggested by the delegates at the workshop that (i) a pilot study in image interpretation focusing on trauma and emergency plain film radiographs should be undertaken, and (ii) research amongst the radiography profession should be encouraged.

Taboos of role extension

No individual should undertake any form of role extension without proper accredited training and clinical-based competency assessment. Radiographers operating in an extended role are not radiologists thus should exercise all duties within the confines of guidelines relating to the legal framework and scope of practice for the profession of radiography as determined by the HPCSA.

Participation in role extension activities should not be enforced but should remain a voluntary activity.

Conclusion

There is sufficient research evidence that role extension developments have benefited service delivery to patients as well as enhancing the radiography profession in those countries where such programs have now become established practice. Crucial to the success of these advanced skill programs has been the collaboration that has remained between the radiography and radiology professions as well as the emphasis placed on clinical competency in the work-place. It is essential for the SA radiographer to seize opportunities for professional development presented by our dynamic health care system.

As a profession we need to assess the needs of our country and respond in an appropriate and responsible manner by striving to improve service delivery in particular in the public sector. It is my firm belief that SA radiographers are competent to respond to this professional challenge after completion of the necessary accredited education and training resulting in an innovative and cost-effective manner to improve on quality, efficiency and productivity within the radiology department.

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