



RADIOGRAPHERS AND RADIATION THERAPISTS

PRESENTATION TO

MINISTER FOR HEALTH, SIMON HARRIS, T.D.

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OVERVIEW

There are essentially two distinct roles radiography and radiation therapy. Radiation therapists provide treatment of cancer patients. Diagnostic radiographers use X-Rays and other forms of radiation to assist in rapid imaging and accurate diagnosis of patients.

This submission will demonstrate that radiation therapists and radiographers already function as advanced practitioners. The lack of career progression that exists will be highlighted and the changes that are necessary to ensure that radiation therapists and radiographers can continue to contribute effectively to the Irish oncology network described.



MICHELE MONAHAN
SIPTU Radiographer
& Radiation Therapist
National Executive
President

HISTORY OF RADIOGRAPHY/ RADIATION THERAPY

Definition

Radiography has been defined by the profession of Radiographer/Radiation Therapists in Ireland as being:

‘The science and practice of diagnostic imaging, therapeutic radiotherapy and any disciplines related to diagnostic imaging and therapeutic radiotherapy.’

The history of the medical monopoly of the x-ray tube

Professor Wilhelm Roentgen first discovered X-Rays in 1895, this phenomenon announced in the Annals of the Medical Society of Wursburg. The medical value of X-rays was realised rapidly by the scientific community and the first published photograph of a medical X-ray in the UK was in the British Medical Journal in 1896. This was taken by Campbell Swinton an electrical engineer.

The following is the evolving history of the use of X-Radiation in medicine:

- 1895 Discovery of X-rays by Roentgen at the University of Wursburg.
- 1896 First printed photograph of an X-Ray in UK (Campbell Swinton, BMJ). Medical imaging in the UK is born. Only plain film radiographs available at this time.
- 1896 First Radiological Journal published in the UK.
- 1897 Roentgen Society formed.
- 1904 Rieder-Bismuth contrast media for gastrointestinal-tract imaging.
- 1917 British Association for the Advancement of Radiology and Physiotherapy formed.
- 1920 First diploma in Radiology (BAARP) Society of Radiographer/Radiation Therapists established.
- 1924 British Institute of Radiology formed.
- 1930 Thorotrast Vascular Radiology introduced.
- 1936 Society of Radiographer/Radiation Therapists becomes a founder member of the Board of Regulation of Medical Auxiliaries.
- 1939 Faculty of Radiology formed.
- 1940s Water-soluble contrast media become available.
- 1951 Cope committee recommendations on qualifications for NHS Radiographer/Radiation Therapists.
- 1970s Computed Topography introduced.
- 1985 The Ionising Radiation Regulations introduced.
- 1988 Protection of persons undergoing Medical Examinations and Treatment Regulations introduced.
- 1990s Rapid growth of magnetic resonance imaging
- 1991 First Irish Graduates from UCD with B.Rad combined with DCR (Diagnostic).
- 1996 Nov 1996 inaugural meeting of Irish Institute of Radiography (Professional Body) .
- 1997 First BSc Hons (diagnostic) from UCD.
- 1997 First BSc in Therapeutic Radiography from TCD.
- 2000s Introduction of advanced digital technology in Radiation Therapy and Diagnostic Radiography.

PROFESSIONAL PROFILE OF RADIOGRAPHER/ RADIATION THERAPIST

The prime responsibility is to undertake the whole range of techniques in imaging and or treatment, using the minimum of radiation, whilst caring properly for the patient. The Radiographer/Radiation Therapist is responsible for assessing the quality of their own work and for the justification for the purpose of the image, or prescription for treatment. Radiographer/radiation therapist's are the 'gatekeepers' of the delivery of radiation to patients. In diagnostic radiography, X-Rays and other forms of radiation are currently used in all body systems to assist in rapid imaging and accurate diagnosis of patient illness.

In radiation therapy, radiation therapists are the front line health and social care professionals that provide the simulation and treatment of radiotherapy to cancer patients. Statistically, one death in every four is due to cancer; hence the possibility of receiving radiation therapy at some point is very high. (Cancer in Ireland 94-98).

Radiation therapists are therefore pivotal members in the multi-professional team for holistic care of patients with cancer.

It is hoped that this submission will demonstrate the key role held by Radiographers /Radiation Therapists as autonomous, independent decision makers in the diagnosis and treatment of patients within the HSE.

The radiographer/radiation therapist is the expert in integrating seven areas of key importance in the imaging or radiation therapy departments. These are:

- Patient Care
- Clinical Responsibility
- Quality Assurance
- Use of Technology
- Organisation
- Education and Training
- Optimisation of Dose

In patient care the radiographer/radiation therapist has a direct and supervisory role with regard to the welfare of the patient in their care. This includes assessment of the ability of the patient to undergo the examination and in the case of Diagnostic Radiography, whether or not the examination is justified. Should the radiographer believe the examination is not justified then the radiographer is obligated not to proceed with the examination.

The radiographer/radiation therapist is the expert in the production of diagnostic images and/or the delivery of treatment using ionising radiation. The radiographer/radiation therapist are therefore capable of and continually make decisions regarding the use of the technology for these purposes.

PERSONAL QUALITIES REQUIRED FOR THE PROFESSION

The Radiographer/Radiation Therapist should exhibit:

- Reliability
- Mental Stability
- Integrity
- Empathy
- Technical and Practical Ability
- Planning Ability
- Communication Skills
- Diplomacy
- Team Work
- A caring and Compassionate Personality
- Teaching Ability
- Continual Professional Development
- Knowledge of Doses
- Multidisciplinary Approach
- Accountability and Responsibility
- Adaptability
- An ability:
 - to analyse situations
 - to communicate
 - to take responsibility
 - to show initiative
 - to be creative and to organise

Radiographer/radiation therapists are very much involved in ensuring the patient and the quality of service delivered to the patient is of an excellent standard. In addition the radiographer/radiation therapists is wholly responsible for the operation of complex, dynamic and potentially hazardous equipment. While, in general, radiographer/radiation therapists undertake much of their work in diagnostic imaging or radiotherapy departments, they also perform duties on wards, special-care baby units, etc, and in the stressful situation of the operating theatre.

EDUCATION

Successful radiographers/radiation therapists can:

1. integrate the technological, psychological and sociological aspects of health care.
2. facilitate the practise and development of radiography in an evidence-based environment.
3. facilitate development of a range of non-radiographic skills appropriate in a current healthcare.
4. provide a broad perspective of the many facets of quality health care.

Consequently, the course attracts highly educated and motivated individuals, whom once qualified will expect challenging and rewarding careers.

Both courses were available only to the top 8% of Leaving Certificate Students in 2015, as course requirements are in excess of 500 CAO points with the median by 545.

RECENT PROFESSIONAL DEVELOPMENTS IN RADIATION THERAPY

Radiation therapists are autonomous practitioners and have responsibility for evaluating treatment delivery, planning and patient assessment on a daily basis. Clinical decision-making is routine and is continually based on expert knowledge when planning and delivering very high, potentially lethal doses of radiation to patients. There has been much development in practice in recent times and some of these are outlined briefly below.

Treatment Planning

CT & Simulation:

The implementation of virtual simulation with real time or off line planning has benefits for the patients, with both decreased time in the CT and reduced radiation exposure. This advancement speeds up patient throughput from referral to treatment.

The participation of radiation therapists in virtual simulation for breast cancer, contouring regions of interest (ROI) and delineation of organs at risk (OAR) enhance clinical independence. Radiation therapists in many centres also perform intravenous cannulations.

Immobilisation:

The immobilisation of patients often requires unique solutions to individual patients. The area of immobilisation may be physically demanding with the use of hazardous materials and equipment e.g. lead alloy and heavy machinery. Randomised clinical trials are frequently conducted prior to the standard clinical implementation of a new device.

Dosimetry:

Radiation therapists now rotate through dosimetry, developing planning skills and applying knowledge to all areas of pre-treatment. As a result of this rotation, a more efficient patient journey has been achieved.

Multidisciplinary Communication:

There has been a significantly increased participation within the multi-disciplinary team. Radiation therapists are applying and developing judgement and decision-making skills to a much more advanced level.

Charting and co-ordination roles:

Radiation therapists ensure patient flow is cohesive through the entire radiotherapy journey with in-depth knowledge of the patient pathway.

Radiation therapists have management responsibilities for both individual patients and unit workloads including:

- Planning, co-ordination and delivery of treatment.
- Information and support to patients.
- Onward referral to other allied health professionals and medical staff.
- Maintaining treatment records.

Treatment Delivery

3-Dimensional conformal radiotherapy is now the routine treatment of choice for patients in all departments nationally. This development has led to increased emphasis on quality assurance measures and the accuracy of treatment delivery as set-up tolerances become increasingly precise. Due to these advances, radiation therapists now routinely perform the following duties with significant implications for higher unit workloads:

Electronic Portal Imaging and Interpretation:

Radiation therapists review and approve treatment verification images of all patients. This initiative has led to a more effective and efficient treatment delivery. Radiation therapists are responsible for image quality, application of tolerances, correction of images and alterations to treatment positioning.

In vivo dosimetry:

Radiation therapists ensure the dose prescribed is the dose delivered, with the use of in vivo dosimetry. Readings, calculations and recordings are the responsibility of radiation therapists.

IMRT (Intensity Modulated Radiation Therapy):

IMRT is a labour intensive treatment that involves significantly more unit time for treatment. Hence, radiation therapists have adopted a change in practice in several areas in order to facilitate IMRT including: new protocols and procedures, pre-treatment checks, treatment delivery procedures and image guidance.

IGRT (Image Guided Radiation Therapy):

Ultrasound imaging is currently being appraised by radiation therapists. BAT captures real time images minutes before treatment is delivered. Radiation therapists compare images to treatment plans and make any necessary changes prior to commencing treatment. The introduction of IGRT has required the training and adaptation of a new imaging modality by radiation therapists.

Stereotactic Radiotherapy:

Stereotactic radiotherapy is a complex treatment technique involving intricate planning and treatment delivery. Its implementation requires radiation therapists to develop specialised knowledge and skill. Advances in this field have been driven by radiation therapists e.g., development of improved immobilisation equipment.

Brachytherapy:

Radiation therapists have significantly developed skills in the area of brachytherapy. Radiation therapists rotating through brachytherapy facilitate the demanding schedules of anaesthetists, surgeons and consultants.

A technique of partial breast irradiation called Mammosite has been introduced in one centre. This works by delivering radiation from inside the breast directly to the tissue where cancer is most likely to recur and represents a considerable advancement in the field of brachytherapy in Ireland. This has had significant implications on skill levels for radiation therapists.

Total Body Irradiation (TBI):

There has been a move from delivering TBI in a single treatment to offering a fractionated regime over a number of treatments. This new treatment regime requires high levels of organisation and communication on behalf of the radiation therapist in order to manage the patient caseload on each machine effectively. This is vital when dealing with extremely ill and immunocompromised patients.

Issues Specifically Relevant To Paediatric Radiography

- Practical problems of adapting the known adult techniques to small (sometimes tiny) patients.
- Familiarity with medical and surgical conditions found mainly or only in paediatrics.
- Dealing with a wide range of development from premature infants to adolescents, requiring individualised adjustment of imaging methodology, dosimetry and interpretation.
- Requirement to provide a secure, friendly environment with confident, experienced staff.
- Familiarity with children and their varied behaviour.
- Constant awareness that children are the most radiosensitive population grouping and the high risk factor relating radiation dose to cancer (for some potential tumours radiation exposure in the first 10 years of life are estimated to result in a lifetime risk which is three to four times greater than that following exposure occurring between ages thirty to forty).
- Awareness of importance of justification and optimisation of X-Ray procedures due to risk level.
- Dealing with the wide range of patient sizes and variety in anatomical features and body proportions encountered between infancy, childhood and adolescence.
- Continuous professional development to keep abreast of current developments and ongoing research, which impacts regularly on the daily provision of service.

Treatment Follow-Up

Telephone Follow-up Clinics

Telephone clinics are a new initiative that has been implemented to provide support to patients on the completion of treatment. This initiative provides practical advice and support to otherwise unmanaged patients.

Review Clinics

Radiation therapists have established weekly review clinics for the management of patients receiving radiotherapy. Advantages of this initiative include:

- Continuity of patient management.
- Implementation of international toxicity criteria.
- Increased multi-disciplinary networking.

Recent Professional Developments in Diagnostic Radiography

Diagnostic radiographers have continually shown themselves to be an autonomous profession, who are to the fore in adapting in an ever-changing technological environment. The following are just a sample of a number of areas in diagnostic radiography, which are typical of the role advances ongoing in the profession.

PET/CT

Knowledge and Skills

A huge issue in PET/CT is radiation protection for both staff and patients since this is the only modality within radiology that staff encounter positron radiation. Dose rates from the radiopharmaceutical used (FDG) to staff can be enormous and PET/CT staff have the potential to become category A workers. Typically a PET/CT scan can deliver a radiation dose to the patient in the region of 21 mSv therefore radiographers deployed in this area must have a sound clinical grounding in CT and, more importantly, nuclear medicine. A postgraduate course especially in RNI would be of enormous benefit.

Within PET/CT radiographers (basic or senior), must be multiskilled not just with the clinical imaging aspect. Such skills lie in areas that would be considered to be nursing, clerical and medical physics territory. For example, radiographers must be able to routinely check a patient's blood sugar level and cannulate the patient (previously nursing duties). Because of this an IV course would be more than useful. They should also be able to accept deliveries of highly radioactive consignments of FDG (medical physics duty) and given the interaction between FDG, diabetic and non-diabetic patients, they should also be familiar with clerical duties like patient scheduling and patient preparation. Radiographers must be able to dispense individual patient doses of FDG keeping sterility and radiation protection measures to the fore. This task, in other countries, would be considered to be the duty of a dedicated radiopharmacist or radiochemist. Also, radiographers must know when to safely adjust the amount of administered radioactivity depending on the clinical presentation of the patient and this is something in itself that comes from experience of working in nuclear medicine. Additionally radiographers should be proficient in administering IV contrast, once the patient is on the camera. Incidentally it is worth noting that in the recent past this act in itself was solely that of the radiology profession.

Judgement

Since the duties of a radiographer within PET/CT are considerable, so too are the number of problems that they encounter on a daily basis. These problems concern radiation protection, time management issues (a common problem given the short physical half-life of FDG), clinical problems such as patients with elevated blood sugar, equipment errors and problems with patient scheduling.

Leadership and Teamwork

Teamwork is an important concept in any working environment, but within PET/CT it is absolutely vital. Radiographers must share the radiation burden in this area as much as possible so that no single member of the team receives a high radiation dose. This is only possible when staff function as a team. Likewise all radiographers must be able to undertake the wide variety of duties such as cannulation, imaging, dispensing etc and be able to rotate and alternate these

duties when required. In the absence of the Clinical Specialist Radiographer (CSR), basic or senior radiographers assume responsibility for the effective and efficient running of the department which can be a difficult task given the high number of variables that can potentially go wrong within the unit at any given time.

Accountability and Responsibility

Decision-making by radiographers is an integral part of the profession. Within PET/CT, radiographers other than the CSR must make decisions carefully but quickly, often. This is very often due to the short half-life of the fluorine-based radiopharmaceuticals, which means, in essence, that there is no such thing as an acceptable delay. This is an additional pressure on the radiography staff on top of their normal day-to-day activities. Since FDG is an expensive commodity (over €500 per individual patient dose), radiographers must be efficient at utilising this resource. This again is on top of being efficient with all other expensive resources such as film and contrast media etc.

Interpersonal and Communication Skills

As previously mentioned, time management is essential within PET/CT and so radiographers must have excellent communication skills in order to ensure there are no delays particularly when it comes to FDG administration. Good interpersonal skills are essential in PET/CT as 95% of patients presenting for examination are oncology referrals, therefore it is paramount that the radiographer puts the patient at ease prior to injection. If a patient is very anxious they can get considerable FDG uptake in the neck and paraspinal muscles, which can make image interpretation difficult especially those patients with head and neck cancers.

Physical Demands and Coordination

The greatest physical demands on radiographers are those patients who are non-ambulant. By transferring patients to and from trolleys to the imaging table there is the physical risk of back injury. Just as important, the radiation dose to the staff dealing with such patients is considerable since patients at this stage of the examination are highly radioactive. With respect to coordination, radiographers must display a high degree of manual dexterity particularly whilst dispensing FDG. This is necessary in order to reduce the radiation dose to their hands. They also must display dexterity and speed when administering FDG, again for reasons of radiation protection.

Conditional and Emotional Demands

The biggest problem facing radiographers within this field is the radiation dose they receive as previously alluded to. Positrons are extremely energetic radioactive particles and are 4 times more energetic than contemporary nuclear medicine tracers. This means that staff in PET/CT receive considerably more radiation than their counterparts in nuclear medicine. Emotional demands on radiographers are considerable too as the overwhelming majority of referrals are for cancer patients who have just been diagnosed prior to presentation. A great many are trau-

matished by this diagnosis and have not yet come to terms with their illness. Many are subsequently distressed, anxious, confused or even angry and so radiographers must be adept at dealing with these patients and their demands. On the imaging side, never before have malignant tumours become so graphic or apparent within any radiology modality. In a great many cases, the radiographer will be aware that the patient they have just scanned has extensive, widespread disease, is beyond cure and therefore terminally ill. Although radiographers are trained professionals, no amount of training can satisfactorily address the difficulty that this part of the job places on staff.

OPTIMISATION OF DOSE

ICRP 36 states that "the radiographer/radiation therapist is in a key position regarding radiation protection of the patient, and by their skill and care determine within wide limits the amount of radiation administered".

Therefore the radiographer/radiation therapist must:

- be able to interpret and apply all relevant laws, rules, regulations and recommendations relating to the application of ionising radiation to patients and staff;
- understand both the somatic and genetic hazards, which are consequent upon the medical and research uses of ionising radiation, and to be able to explain these in appropriate terms to inquires;
- by their attitude, authority and maintenance of current knowledge, help in the control of use of radiation for medical purposes.

This principle of optimisation and justification is underpinned in National Legislation under SI 478 of 2002.

The radiographer/radiation therapist is professionally and legally accountable for their actions, they are required to make judgements with regard to whether an examination is diagnostic and in many instances whether or not further views are required.

There have been a number of demand management projects undertaken by radiographers in the recent past. These projects centre on the introduction of Royal College of Radiologist Guidelines on 'Making the best use of the Radiology Department'. These guidelines have been accepted as European Guidelines as RP 118. It has been unequivocally demonstrated that the introduction of these guidelines shows a reduction in the amount of x-rays undertaken by a department, in some instances by as much as 40%. These projects have been initiated and implemented by radiographers in a number of hospitals throughout the country.

The impact of these projects is:

- a reduction in radiation dose for patients
- patients receiving best practice treatment
- a reduction in cost for the hospitals on call earnings out of hours
- a reduction in waiting lists for patients

QUALITY ASSURANCE & RADIATION SAFETY

'A person shall not carry out, direct or supervise the carrying out of a medical exposure except where that exposure is medically justified.'

"Irish legislation prohibits the use of radioactive substances, irradiating apparatus and other sources of ionising radiation without an appropriate licence. From time to time the Institute issues codes of practice on various aspects of radiological protection. These codes, which offer practical advice to licensees on procedures to minimise radiation doses to staff and members of the public, are drawn up in consultation with the relevant government departments and professional bodies.

In general, Irish legislation governing the use of ionising radiation is derived from European Directives, which in turn are based on the recommendations of the International Commission on Radiological Protection (ICRP). The ICRP was established in 1928 and its recommendations, while not mandatory, are highly influential internationally.

In 1977 the ICRP published general recommendations on the conceptual framework of radiation protection, based on the following three key principles:

1. Justification - the process of showing that a particular use of ionising radiation produces sufficient benefit to the exposed individuals or society to offset the radiation detriment it causes;
2. Optimisation - the process of keeping all exposures as low as reasonably achievable, economic and social factors being taken into account; and
3. Dose limitation - the process of keeping the sum total of all relevant doses received, whether by workers or members of the public, within specified limits

These principles have been now established in Irish Law SI 478 of 2002. This SI also dictates that a radiographer must be present when ionising radiation is being used.

The publication of these general recommendations, commonly referred to as ICRP 26, led directly to the adoption by the European Community in 1980 of Directive 80/836/Euratom subsequently amended by Directive 84/467/Euratom, which was, in turn, subsumed into Directive 2013/59/Euratom of 5 December 2013. This Directive laid down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation and is commonly known as the Basic Safety Standards (BSS) Directive, this directive is to be transposed into Irish Law by February 2018.

As a result of a continual process of reappraisal, ICRP recognised during the 1980s that the risks of exposure to ionising radiation were greater than had previously been thought. ICRP published new general recommendations in 1991, known as ICRP 60, which updated the standards in ICRP 26 and further developed the conceptual framework. In particular ICRP 60 distinguishes between practices (activities that increase human exposure) and intervention (actions taken to decrease human exposure in an actual situation). Practices cover the uses of ionising radiation already referred to such as medical uses etc. An example of intervention is the actions taken to reduce exposure in the aftermath of an accident. The principles that apply to practices, where the risk of exposure can be controlled, are different to those applying to intervention. In the latter case, a balance has to be struck between risks arising from the existing exposure situation and the risks involved in intervention measures taken to reduce that exposure.

In 1996 the European Commission followed up the changed standards in ICRP60 by adopting a revised BSS Directive (Directive 96/29/Euratom), which was transposed into Irish Statute in 2000.

In Ireland, the implementation of the BSS Directive results in the following changes:

- Use of the new ICRP concept of practices and intervention
- Explicit treatment of natural radiation sources
- Explicit treatment of 'intervention', which includes emergency preparedness

Radiographers physically perform the majority of X-ray examinations in a radiology department while at the same time being responsible for the safety and comfort of patients in their charge. They are naturally concerned about the radiation protection of patients and it is recognised that they are in a good position to monitor the doses delivered to patients by the routine procedures adopted in the department. Direct involvement of radiographers in the measurement process would improve their awareness of patient doses and the effectiveness of patient protection measures. Furthermore, it helps them to improve the quality of service they offer and to reassure the increasing number of patients who question the safety of medical X-rays.

National Protocol for patient Dose Measurements in Diagnostic Radiology (IPSM) (1992): 3

Radiographers owe a duty of care not just to their patients but also to others who might reasonably foreseeably be affected by their actions. This can extend beyond the obvious of co-workers, to families or an in utero child of a patient being treated by use of radionuclides.

Advances in technology and treatment techniques make quality assurance and radiation safety paramount. Daily quality assurance and radiation safety is the responsibility of all radiographers /radiation therapists.

The introduction of radiation safety officer in each department has ensured that radiation safety issues and quality assurance protocols are dealt with on a daily basis by the dedicated radiographer/radiation therapist. The radiation safety officer (RSO) will work alongside the radiography /radiation therapy service manager and his/her deputy in leading and co-ordinating the work of the QA team in accordance with patient needs and applying maximum delegation compatible with safety. They will assist in leading changes in work practices, procedures, techniques, having regard to developments in the field of QA and in accordance with updated legislation and best practice. The RSO will identify defects in QA equipment and ensure that required recalibration equipment is organised as required, facilitate the arrangements necessary and participate, where appropriate, in education and training of radiation therapy/ radiography staff in Q.A., DAP meters outputs and recording of data, attend meetings as required relevant to your Q.A. and radiation safety and keep staff briefed on developments. The RSO is also involved in the establishment of local dose reference levels.

PROTOCOL DEVELOPMENT & IMPLEMENTATION

Radiation Therapy

There has been stringent establishment and implementation of protocols with regard to many areas of treatment. E.g. Protocols for more systematic systems of chart check, error reporting, treatment tolerances etc. These have been developed and introduced by radiation therapists.

Diagnostic Radiography

Protocols and guidelines are established for intravenous cannulation, ultrasound, CT, Nuclear Medicine, MRI, Mammography, Theatre, Mobile Radiography and other areas within the department. A recent development has been the establishment of protocols for the implementation of 'Red Dot' within x-ray. Red Dot This is a system whereby radiographers identify abnormalities demonstrated on the skeletal films undertaken in the A&E x-ray.

The Red Dot is an informal indication that the radiographer wishes to draw the attention of the casualty officer to that particular x-ray.

It is not a definitive diagnosis.

The legal responsibility for interpreting the x-ray remains with the doctor.

The absence of a red dot does not imply that the x-ray is normal, but rather that the radiographer has not identified any abnormality.

The red dot method for indicating an abnormality on the image is now standard practice in most hospitals around the country. Radiographers championed this initiative even though it was resisted in some areas of the health service and are now pleased to view this as the norm in most imaging departments.

INFORMATION & SUPPORT ROLE

Information and Support Radiation Therapist

The introduction of an information and support radiation therapist is another national role expansion. The information and support radiation therapist has many roles, which include:

- Education of patients and families on radiotherapy
- To liaise with multi professional teams
- Co-ordination of support groups and complimentary therapies

Support Groups

Radiation therapists are also actively involved in the foundation, organising and participation in patient support groups. They work in conjunction with other disciplines in facilitating these groups and are attended voluntarily by radiation therapists. This impacts hugely on workload as cover for staff cannot always be arranged.

Information Evenings

Radiation therapists are now providing information 'Welcome Evenings' for patients before they start their radiotherapy treatment. These evenings are designed to educate and familiarise patients and other medical professionals with the radiotherapy pathway and surroundings of a radiation oncology department.

Diagnostic Radiography

The radiographer working in both mammography screening and symptomatic breast imaging provide support and counselling for patients and family / friends who accompany them.

The area of DEXA scanning, which is where patients are screened for osteoporosis, also requires the radiographer to analyse the results and discuss them with the patient.

Information Leaflets and Patient Information

Each area in the diagnostic imaging department has produced information leaflets for patients who are undergoing specialised examinations.

Research has shown this to be a valuable resource for patients; recently these have been translated to a number of languages to accommodate the cultural diversity in our society.

Information Leaflets Radiation Therapy

A complete overhaul of patient information leaflets and booklets has been driven by the information and support radiation therapists with active input from radiation therapists at all stages of the radiotherapy journey.

CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

"Continuous Professional Development is the systematic maintenance, improvement and broadening of knowledge and skills and the development of personal qualities necessary for the execution of professional and technical duties throughout the practitioners working life." (College of Radiographers London).

"Continuous Professional Development may also be defined as the ongoing maintenance and growth of professional excellence through participation in learning activities which are planned and implemented to achieve this for the benefit of participants, patients and the public." (Australian Institute of Radiography Australia).

In addition Continuous Professional Development is said to work towards improving the service provided. It is one of the hallmarks of being a professional, and is an ethical responsibility that all healthcare professionals accept in order to maintain competence throughout their professional career.

Examples of Continuous Professional Development include:

- Conferences, workshops and study days attendance, organisation and presentation at conferences at both national and international levels. The national conference for radiographers in Ireland has expanded significantly in past years with over 120 radiographers attending this years conference and over 70 radiographers presenting the research and work. This also includes the establishment of an All-Ireland Radiation Therapist Conference in addition to the annual Irish Institute of Radiography Conference.

- Guest Lecturing
Radiographers give regular lectures to colleagues on areas of interest. These include regular lunchtime lecture series and evening talks for radiographers. The Irish Institute of Radiography has accredited 20 all day, evening and lunch time lecture sessions between January and June 2006 awarded 1440 continued professional development certificates to the attendees at that time.
- Formal publications in journals
- Committee work
- Counselling courses
- In-service training
- Committee work
- Counselling courses
- In-service training
- Formal academic qualifications

The essential elements of Continuous Professional Development are:

- Ongoing
- Maintenance
- Growth
- Professional excellence
- Participation in learning activities
- Planned learning activities
- Implemented learning activities
- Benefit to participant
- Benefit to patient
- Benefit to public

CPD consolidates the existing knowledge, skills and attitudes of the practitioner, and accommodates rapid technological change. It becomes an ongoing, lifelong activity for the professional radiographer/radiation therapist.

Recognition for Continuous Professional Development and in house training by way of funding for study days with a recognised annual budget included in the imaging/radiotherapy department's service plan is an absolute must, to maintain the current high standard of radiography/radiation therapy, which allows for present enhanced service quality for the patient, professional and the department.

Mandatory provision of locums for those on study leave is essential, to ensure equity of access for radiographers throughout the country, and not just in Dublin. Without this it becomes extremely difficult for radiographers to attend courses/lectures, most of which are held in Dublin, when account is taken of the travelling time as well as study time.

This facility would not only be of benefit to the radiographer, but also to the patient and the hospital.

- **Third Level Post Graduate Courses**

Five taught MSc programmes are offered in the areas of ultrasound, computerised tomography, radionuclide imaging, breast imaging and magnetic resonance imaging. Each programme has academic and clinical components and develops clinical competence as well as postgraduate academic enquiry. For ease of access and flexibility of learning, each course is completely modular, and students may choose to "step off" following successful completion of a single module, to continue to Diploma or Higher Diploma, or to progress to a research project and achieve the degree of MSc. Academic radiographers working in UCD are entirely responsible for all aspects of the courses, although we actively collaborate with experts in each of the clinical fields to provide high quality teaching.

Radiographers have made third level education a compulsory part of their ongoing education and training. All radiographers in Ireland attend university to qualify. Further to this post-graduate education to Masters level is now an essential component of the promotion route for radiographers. Master level qualifications in computed tomography, magnetic resonance imaging, ultrasound, radionuclide imaging and mammography is now provided. Masters level modules also include intravenous canulation and administration, radiation safety, interventional radiography.

Smarter working for Radiographers and Radiation Therapists

The health and social care landscape is changing in Ireland, as in other countries, and with it the priorities for the delivery of healthcare services. Health policy decisions by current and previous governments and the significant fiscal challenge faced by services mean that resources expended on the provision of healthcare must be used effectively and in a manner that is justifiable in terms of improved patient outcomes.

In the context of these changes, clinical imaging services are under increasing pressure year-on-year to enhance quality, capacity and productivity, while staffing levels remain static or decrease. It is well acknowledged that a large proportion of referrals for diagnostic imaging procedures are unjustified, which leads to the unnecessary exposure of patients to ionising radiation, but also to a wastage of scarce resources and the extension of waiting lists. Similarly, recent events in Ireland (Hayes Report, 2010) have confirmed the fact that many imaging examinations still do not receive a timely clinical report and many images are assessed for the purposes of immediate patient management by staff not always equipped to make the best judgements. This document proposes a solution to such inefficiencies within the Health Service, aimed at maximising quality patient care through smarter working processes utilising the skills of radiographers and radiation therapists.

Current Irish Context

In accordance with international guidelines and European Council directives, Irish legislation (Statutory Instruments 478 of 2002 and 303 of 2007) is in place for the protection of patients from the hazardous effects of radiation. Radiographers are ideally placed to implement the principles of 'Justification, Optimisation and ALARA' as detailed under Articles 7.1 and 7.5 (SI 478/2002), and practically do this on a daily basis, although the legislation does not include them under the definitions of either Practitioners or Prescribers, which would allow them to take responsibility for an individual medical exposure or refer patients for medical exposure.

Irish radiographers have key skills in justification and optimisation and indeed spend a large proportion of time dedicated to this during their basic undergraduate degree qualification. This is reflected in both the IIRRT Code of Professional Conduct (2013, p.9) which states that:

"Radiographers must only accept requests for examinations or treatments which are properly authorised in accordance with established criteria and where those requests are for examinations or treatment that will be of benefit to the patient"

and in the CORU Code of Professional Conduct and Ethics (2013) which states that:

"Radiographers must only accept properly authorised requests or referrals in line with current legislation and where these requests or referrals are for examination or treatment that will be of benefit to the patient....and take responsibility for justifying any medical exposure involving ionising radiation." (Articles 2c and 2d).

Radiographers at present prescribe imaging in an ad hoc fashion, such as when an examination is requested for the wrong limb (i.e. right instead of left) whereby the radiographer changes the request to the correct limb, or if an additional view is required the radiographer will add an examination, or perform additional plain films following CT or nuclear medicine imaging. Radiation therapists perform the same tasks under image verification. To provide this on an ad hoc basis cannot be considered as best practice and requires radiographers and radiation therapists to be designated as 'prescribers' under current legislation SI 478 2002.

Practitioner status is also delegated in an ad hoc fashion to radiographers as radiologists are not on site twenty four hours per day and do not routinely review all imaging referrals prior to exposures. Radiographers are therefore required to make decisions which reflect practitioner status, in particular regarding the justification and authorization of imaging requests, as well as obtaining previous diagnostic information to avoid unnecessary exposure. This should be reflected in Irish legislation to empower radiographers to maximize these roles and maximize service efficiencies.

Recommendation: Two amendments to the legislation SI 478 2002/303 2007 are therefore sought to improve the effectiveness and efficiency of radiology departments and also to bolster radiation protection of patients. Radiographers and radiation therapists have the necessary

skills needed to safely prescribe medical imaging examinations and also to take responsibility for these exposures to ensure all such examinations are justified and offer a net benefit to patients.

Radiographers and radiation therapists should therefore be included in the new Statutory Instrument as both a prescriber and practitioner as a matter of priority.

The opportunity currently exists to do this with the introduction of the Basic Safety Standard Directive (European Commission, 2013/59/Euratom), which Ireland like all member states is required to transpose into Irish legislation by February 2018. Importantly Article 55 2b) requires that 'all individual medical exposures are justified in advance'. At present radiographers already perform this role as a delegated duty on behalf of the practitioner (who may not be present when patients present) by reviewing all referrals prior to exposure to ensure each is individually warranted and of net benefit to the patient. Therefore this provides an opportunity for the new legislation to include radiographers as practitioners, thus formalising the current arrangement and maximising performance and productivity.

This is a key issue that not only will create a culture of learning and an exceptional level of professionalism within both professions but will optimise available resources to maximise performance and productivity.

We believe this to be paramount to delivering a cost effective more efficient patient centred service.

The advanced practice role for radiographers and radiation therapists would also greatly facilitate this.

Radiographers, radiation therapists and educators in both fields have developed a workforce that can provide a more economical and efficient service.

Specialist radiographers currently provide preliminary reports on their ultrasounds but final report signed off by radiologist, it is the belief of the profession and evidence based that specialist radiographers are capable of signing off their own reports as is the practice in the UK. This is a long established practice in the UK and many radiographers return to Ireland having been reporting radiographers in the UK but on their return to Ireland are no longer allowed to continue this practice.

Plain film reporting has also long been established in the UK for radiographers and the profession in Ireland would welcome such an initiative in this country. Advanced practice also in the area of fluoroscopy and inserting of PICC lines some of which have already been piloted but advancement beyond pilot stage has proven difficult.

Radiation therapist led clinics in the treatment of palliative care patients is another area again piloted but brought no further, radiation therapists to review problematic verification images including dosimetric analysis for image guided radiation therapy. Stereotactic ablative radiotherapy by radiation therapists. Information and support radiation therapist's role.

Radiographer Reporting

In line with recommendations from both HIQA (2012) and the Hayes report into Tallaght hospital (2010), radiographers should be in a position to report plain film x-rays (or radiographs). This expanded role should be "considered, safely and appropriately, in the national context of maximising available resources across the system." (Section 8.4.2 Imaging Services p.110). The Hayes Report (2010) demonstrated a large number of x-ray images which were unreported or involved "serious delays in reporting results", some with impact on clinical outcomes for patients.

Currently in Ireland, radiographers participate in informal processes of plain radiography reporting using the so called 'red dot system' and have been doing so for more than a decade. Radiographers are now ready and willing to take on formal reporting responsibilities in this area. A number of radiographers have already obtained post graduate level qualifications in reporting in the UK, but have been unable to practice in Ireland, largely due to a lack of support for the initiative from the radiology community, who are slow to allow blurring of professional boundaries, despite the obvious increased workloads and shortage of radiologists.

Already in Ireland, radiographers who perform ultrasound write a preliminary report on each examination they complete, over 80% of which are structured on a formal basis and compiled within the hospital Picture Archiving and Communication System (PACS) or the National Integrated Medical Imaging System (NIMIS). The radiologist then subsequently reviews the saved images and signs off on the report.

Recommendation: Suitably qualified radiographers should be facilitated in formalising the current systems of medical image reporting to allow greater efficiencies within the health service. This can quite easily be done in the area of ultrasound reporting where formal reporting is already being performed, although without recognition of the radiographer in the final report. Radiographer reporting of plain radiographs, in particular of the musculoskeletal system, should also be implemented and likewise would free up radiologists to do more complex duties.

Radiographer reporting is well established in the UK and makes a major contribution to clinical imaging services. Diagnostic image interpretation and clinical reporting are legally and legitimately within the scope of radiographer practice and have been for many years.

The Society of Radiographers state that radiographers do not require the 'permission' of any other professionals to undertake roles in image interpretation and clinical reporting. They are, however, responsible and accountable for their practice and should take every opportunity to maintain and develop their knowledge, skills and competence. Radiographers who undertake reporting, at any level, should engage with robust audit processes to evidence their competence on an on-going basis.

The Society and College of Radiographers expects radiographers and other healthcare professionals to undertake image interpretation and reporting in a spirit of interprofessional respect and collaboration, with a willingness to share and develop knowledge and skills, in the interests of patients and referrers.

The SCoR recognises two levels of radiographer reporting:

Clinical reporting: describes the activity of radiographers and other professionals who have received accredited postgraduate training that enables them to produce a diagnostic report. The quality of the reporting delivered should meet agreed 'gold standards', irrespective of the professional background of the reporting practitioner. Clinical reporting by radiographers constitutes advanced practice.

Initial commenting: is the term used for situations in which radiographers assess image appearances and make a judgement based on their interpretation. This process is a natural development following the use of red dot and similar schemes which have been in place for many years but adds considerable value to the referrer and enhances the practice of the radiographer. It improves our service to the patient and referrer and dispels many of the ambiguities associated with the red dot system. The resulting judgement should, for governance purposes, be in a written form, regardless of protocol and in law constitutes a report in the semantic sense, although it should be made clear to the referrer that this is not a formal report as described above.'

Irish Context

The Irish context is no different to those of UK, USA, Canada and Australia

Radiographers and radiation therapists are more than capable of advanced practice which would enhance the Irish health service and provide a more cost effective and quality service for patients. This would also benefit both professions to retain staff and improve morale.

Radiation therapist led clinics in the treatment of palliative care patients is another area again piloted but brought no further, radiation therapists have the education and training review problematic verification images including dosimetric analysis for image guided radiation therapy. Stereotactic ablative radiotherapy by radiation therapists is another area of advanced practice.

These are only a sample of the capabilities of radiographers and radiation therapists and we look forward to developing the role of radiographer and radiation therapist to provide a service for patients that will enhance their patient pathway and improve quality of care and provide better outcomes for all.

The contention of critics of advanced role development for radiography/ radiation therapy practice has been that despite gains in radiologist time, quality would be lost if radiographers took on radiologist/oncologist roles, but in fact, studies show that quality is maintained, not compromised, while significant savings accrue to the participating health service.

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