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Report by Liza Ricote – Churchill Fellow 2008

Advanced Practice within Medical Imaging – Towards an Australian Model.

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Signed: Liza Ricote  Dated: 21st January 2009
Acknowledgement

I would like to extend my appreciation to the Winston Churchill Memorial Trust for the opportunities to not only pursue a professional interest, but to benefit from the associated personal growth and development that has resulted from the process.

It was an honour to travel in the name of such a great figure in world history.
Disclaimer

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Introduction

It was an intense honour to receive this Fellowship, which allowed me to travel to the United Kingdom (UK) and Ireland to evaluate skill mix and role diversification for diagnostic radiographers and radiation therapists. The UK model of skill mix has been implemented to provide an increasingly flexible workforce in the face of pressure through workforce shortages, and increased demand on the radiology and oncology healthcare systems. I welcome the opportunity to advance the wellbeing of our communities through the promotion of a viable alternative model of practice.

I would like to acknowledge my fellowship referees and the many dedicated individuals who willingly gave their time and shared their knowledge and experience with me during my travels. I met many wonderful people on my journey, many of whom I hope will remain a part of my future.

Thankyou also to my family for their collective support, without which, opportunities such as this would not be possible. To my husband Carlos for keeping the home fires burning while I was away, our son Monty for allowing me to leave home for five weeks, and my parents for the never ending support and extended parenting duties, of course, they wouldn't have it any other way! Thankyou

"Be the change you want to see in the world" - Mahatma Gandhi
Executive Summary

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Objective - To examine and evaluate the development and implementation of an alternative service delivery model within the medical imaging and radiation therapy services in the United Kingdom and Ireland.

Highlights

Meeting with Professor Audrey Paterson, Director of Professional Policy – Society of Radiographers, London.

Meeting with Ms. Karen Middleton, Chief Health Professions Officer - Department of Health, Whitehall, London.

Attending the Gastro-intestinal Radiographers’ Special Interest Group (GIRSIG) conference - Present and future practice for radiographers in advanced GI practice.

Meeting the many advanced and consultant practitioners encountered on my journey, all passionate, highly motivated champions and expert clinical leaders in their fields.

Conclusion

- Modern UK practice in healthcare has resulted in a flexible and fluid workforce. This has contributed significantly to improved patient-centred care and timeliness through a competence based inter-professional approach, rather than limited by traditionally inflexible professional boundaries.
- Role extension and advanced practice within Medical Imaging in the UK has to date proven both safe and effective to patient centred care, cost beneficial, and has provided improved career structure and retention by facilitating opportunities for clinically orientated professionals, which have not previously been available.
- In a climate conducive to change, Australian radiographers can add value to patient care processes in the future through the recognition and enablement of skill mix processes suited to the local environment.
- Professions must work collaboratively and open mindedly in promoting necessary changes in service provision in order to meet the needs of our patients in the future.
- Based on this overseas comparison, retention and recruitment of Australian radiographers is being adversely affected by a lack of appropriate career structure and opportunity.

Implementation and Dissemination

- Results will assist the Australian Institute of Radiography in furthering its objectives regarding potential aspects of education, implementation and utilisation of advanced practice skills within Australia.
- Findings will be disseminated via the Federal Department of Health and Ageing, the South Australian Department of Health, other institutions and departments as determined relevant.
- Dissemination through presentation at professional forums.
- Membership of both state and national committees will assist dissemination.
Fellowship programme

13th – 17th October
- The Society of Radiographers, London.
- The Royal London Hospital, London.
- Saint Thomas’ Hospital, London.
- The Royal Marsden Hospital, Sutton.
- The Department of Health, Whitehall, London

20th – 22nd October
- University of Salford, Manchester.
- The Royal Liverpool Hospital, Liverpool.
- Countess of Chester Hospital, Chester.

25th – 26th October
- Gastro-Intestinal Radiographers Special Interest Group (GIRSIG) conference, Bristol.

27th – 30th October
- Bristol Haematology and Oncology Centre, Bristol.
- Addenbrookes Hospital, Cambridge.
- West Suffolk Hospital, Bury St Edmunds.

3rd – 4th November
- University of Hertfordshire, Hatfield.
- The Society of Radiographers, Research Group Meeting, London.

6th – 8th November
- Irish Institute of Radiography National Conference, Sligo, Ireland.

10th November
- The Royal Bournemouth Hospital, Bournemouth.

12th November
- Torbay Hospital Oncology Unit and Radiology Department, Torbay
Foreword

Changes within the Australian radiological healthcare sector have resulted in a need to improve the timeliness and effectiveness of service. Changes such as workforce shortages, increasing procedural scope, continuing technological advances and the ageing population are all contributing to the need to consider an alternative approach to service provision.

Radiographers’ roles have been evolving in many areas of diagnostic imaging and radiation therapy in the United Kingdom over the last twenty years according to local service demand, and with quality of patient care being the primary objective.

The United Kingdom has some additional drivers resulting from government health reforms. These reforms have emerged over recent years in the form of strict waiting list targets, the organisation of cancer services, and the implementation of screening programmes. It has been noted that these reforms have caused an increase in workload. Importantly, the methods employed in overcoming these shortfalls have been very innovative and challenging to traditional professional structure and hierarchy. Examination of the activities and methods employed in the UK may provide Australia with the opportunity to tailor a new approach to suit its requirement in the future.

The following is intended to provide some background into the changes and reform brought about within the National Health Service (NHS) over the recent years. In addition, I will cover changes in radiography skills mix and how the four tier service delivery model specific to the profession was implemented, and how it has contributed to improvement in timeliness and patient centred care.

There are a large number of government and professional publications available which provide an overview of changes as they occurred over this time, the breadth of which are greater than can be comprehensively reflected upon within this report. These documents recognise the potential to improve patient care and professional recognition, and are listed at the end of this report.

The second part of this report will detail the findings and observations relating to my time spent in a number of National Health Service radiology and radiation therapy departments. I will include insights gained from discussions with staff members within those sites, and will highlight the breadth and depth of practice at advanced level.

It is appropriate at this point to state that the terms ‘role extension’ and ‘role advancement’ have been used broadly and somewhat interchangeably over time to describe role developments within the field. I will attempt to provide a simple overview of the activities currently being undertaken by diagnostic radiographers and radiation therapists which traditionally have not been considered standard practice, and how these activities have positively affected service delivery and patient experience.
Modernisation of the NHS

In 1997 one of the new government’s initiatives was focused on modernisation of the National Health Service (NHS). The object was to increase levels of healthcare service provision through the allocation of increased staff numbers, and raising bed capacity. Combined with this was a drive which also detailed the commitment to increased funding over five years by approximately one third.

In addition to underfunding and understaffing, other areas were identified for change, as stated in *The NHS Plan*:

“The NHS is a 1940s system operating in a 21st century world. It has:

• a lack of national standards
• old-fashioned demarcations between staff and barriers between services
• a lack of clear incentives and levers to improve performance
• over-centralisation and disempowered patients”.

In 2001, the Department of Health document entitled *Shifting the Balance of Power* detailed the government’s strategy to create new regional arrangements in the form of Strategic Health Authorities and Primary Care Trusts, and decentralise authority or ‘shift the balance of power’ by pushing decision making and expenditure downwards towards the patient and away from the Department of Health.

This document modelled the promotion of new and innovative ways of working. Furthermore, this was to be achieved whilst retaining the skills and experience of existing staff. The strategy was to drive up the quality of care through dividing the tasks of the commissioning and provision of patient care services. Patients would be offered more choice about the place and provider of treatment, and institutions would be rewarded for the provision of efficiency and quality of service. Future commissioning of services will be determined by results, and with the subsequent application of pressure to underperforming areas.

Another document, *Meeting the Challenge: a Strategy for the Allied Health Professions*, highlighted how the allied health sector would be crucial in bringing about change by supporting innovative practice through establishing competence and protocol-based care. This strategy was at variance with the traditional expectation of treatment being profession specific.

It was identified that Allied Health professionals’ roles had been undervalued and under utilised, and discussed how increased flexibility based on competence established through role expansion, would provide improvement to patient care. Meeting this challenge would require commitment from the professions as well as from the government, and would require openness to change and new ways of working.
Radiography Skills Mix Project

The Radiography Skills Mix Project arose from the Prime Minister’s Summit meeting in 1998. One focus was on changes required to meet the anticipated workload increase in the breast cancer screening project where it was proposed that the age of patients included in the programme be raised to seventy years of age. A second commitment which would have direct impact on radiographers and radiation therapists was the drive for the continued improvement required in reducing the diagnosis and treatment waiting times for all cancer patients.

Skill Mix project groups were formed for breast screening, clinical imaging and radiation therapy, along with a working party comprising the Society of Radiographers, the College of Radiologists, the Chief Medical Officer and members of the education and nursing sectors.

Some of the aims outlined for the service improvement included:

- “redesign the clinical team by skills and experience rather than profession"
- introduce a tiered structure incorporating mechanisms of lifelong-learning and skills-escalation
- develop occupational standards for the clinical aspects of each service
- review and implement educational and learning processes to enable practitioners to develop new and valued roles within the multidisciplinary team”.

The following conclusions were drawn from the Skills Mix Project:

- “the four tier model can be implemented successfully in the fields of diagnostic and therapeutic radiography. The model is already being implemented in other breast screening, imaging and radiotherapy departments across the NHS"
- the model can provide an additional workforce to deliver the service and offer rewarding careers and lifelong learning for all practitioners
- occupational standards should ultimately ensure that education providers deliver programmes that, although employing differing methodologies, achieve nationally agreed outcomes
- patient satisfaction has been maintained whilst introducing new ways of working
- staff can be successfully trained in house against the occupational standard”s.
The Four Tier Model of Service Delivery

The four tier model of service delivery was an initiative which combined well with the modernisation aims of the government in respect of the NHS. The drive was to develop the role of advanced practitioners as well as assistant practitioners, implement the model within centres as a whole and not as individual tiers, extend the career pathway within the profession, and improve benefit to the patient by addressing the workforce shortage. The approach of skill mix has been endorsed across the allied health sector, incorporating variance in models.

The four tiers are focused with their bias on the development of clinical expertise. The roles do not exclude additional responsibilities traditionally taken on by radiographers such as management, administration and education, but are focused on a pathway that fosters clinical development within a team environment.

The four tiers are defined as:

- **Assistant practitioner**: An assistant practitioner performs protocol-limited clinical tasks under the direction and supervision of a State-registered practitioner.

- **Practitioner (State registered)**: A practitioner autonomously performs a wide-ranging and complex clinical role; is accountable for his or her own actions and for the actions of those they direct.

- **Advanced practitioner (State registered)**: An advanced practitioner, autonomous in clinical practice, defines the scope of practice of others and continuously develops clinical practice within a defined field.

- **Consultant practitioner (State registered)**: A consultant practitioner provides clinical leadership within a specialism, bringing strategic direction, innovation and influence through practice, research and education.

It should be noted that prior to this, radiographers had been diversifying their roles for many years. These roles had been developed on an ad-hoc basis underpinned by either in-house education, professionally specific courses, and more recently through the provision of some post-graduate university-based courses designed specifically with advanced practice as the focus. This post-graduate education had been developed as it was realised that role extension activities were being taken up more broadly across the country, to meet, and driven by local need. Current status in diagnostic imaging is that there are a wide number of post graduate courses available through many universities to underpin a core of activities which occur as a common theme in the clinical setting. Where a particular activity occurs in isolation or is uncommon as to not be supported at tertiary level, local agreement, training and protocol may be supported at Trust level. From this point of view the model is flexible and limited only by need and local support.

Subsequently in 2003, the College of Radiographers document titled *Education and Professional Development – Moving Ahead*, provided supporting information and guidance on implementation of the four tiers of practice. Service collaboration in combination with the Department of Health modernisation objectives had already...
recognised the need for a new approach and the environment was ready to respond to this need."
A Competence Based Approach

A competence based career framework has been developed by Skills for Health as an appropriate extension to the skills mix model. This documentation was published in July 2008 and further addresses the need to provide as flexible and responsive a workforce as possible.

Working through the complexities of individual patient care pathways, this framework examines the range of competencies required by a patient on their journey along that pathway, and allows a manager to determine what needs and functions are required by a patient, and who has the competencies to meet those needs. The aim is not necessarily about taking on competencies outside your profession, but to be able to become flexible by identifying and developing the competencies you already possess and others that may be developed and implemented appropriately. This framework provides managers with a guiding set of web based tools which allow the clinician to develop their role.

The concept of underpinning this model with enhanced interdisciplinary learning at undergraduate or pre-registration level may be addressed in the future.

(Skills for Health is the Sector Skills Council (SSC) for the UK health sector. Its role is to evaluate the healthcare sector, and develop methods of opportunity in the provision of improved skills and flexibility across the workforce in order to improve healthcare outcomes.)
Agenda for Change

Agenda for Change (AfC) relates to the streamlining of pay and conditions across the NHS sector, and is relevant to this report in that it will describe how remuneration is structured across the four tiers within radiography, from assistant practitioner to consultant radiographer, and in relation to colleagues who progress through managerial channels.

Many aspects of pay and conditions across the NHS have or will be changed as a result of the implementation of AfC. Relevant here is the description of the single pay spine for all staff, the exceptions being doctors, dentists, and the most senior managers, replacing the previously existing large numbers of occupationally based pay spines.

All staff covered by AfC will have their job descriptions evaluated on the basis of a job weighting score, and be assimilated onto one of nine pay bands. Most posts are matched onto AfC locally.

- Band 9 – More senior staff
- Band 8 – Consultant Practitioners – contains levels 8a, 8b and 8c
- Band 7 – Advanced Practitioners
- Band 6 – Senior Practitioners
- Band 5 – Practitioners
- Band 4 – Assistant Practitioners
- Band 3 – Senior Assistants / technicians
- Band 2 – Support workers
- Band 1 – Initial entry level jobs

Each pay band contains a number of annual incremental steps and gateways, at which point staff assessment is made on knowledge and skills before passage through a gateway may be made.

There are two gateways within each band, the first which is assessed within the first twelve months. The position of the second gateway is dependant on the band level.

Whilst AfC was designed to provide a more equitable system overall, there have been winners and losers in the transition. Examples of this are the previously rated senior one and senior two grade radiographers with different levels of responsibility who may have been transposed onto the same band on AfC, or perhaps that two radiographers doing exactly the same role in two different Trusts (area health authorities) may be placed on different bands on AfC dependant on how the job evaluation is determined at their respective Trust level. Section heads may be placed on band seven or eight. Band eight contains three grades and radiology department managers are placed within this band.
The Four Tiers

Assistant Practitioner – Framework Description

Some detail regarding the Assistant Practitioner role will be included in this report as it is considered an adjunct to the development of advanced and consultant practice. The assistant practitioners free up time for the accredited practitioner to take on more complex clinical duties, and contribute by providing additional capacity in the workforce as skilled support workers under the supervision of the radiographer.

Differentiation should be made between the titles relating to the skilled and unskilled members of the support workforce. Unskilled support staff may be termed radiographer helpers or radiographer aids. Skilled support staff are termed assistant practitioners, and are trained to undertake certain protocol-limited radiological examinations by operating the ionising radiation apparatus after having undergone an appropriate training programme.

The assistant practitioner role within the support workforce resulted from the modernisation drive of the NHS, and was considered complimentary to the development of the advanced and consultant roles. It was never expected that the assistant role would replace that of the accredited radiographer, but rather allow them to develop their potential in light of the increasing demand for imaging and the improvements in technology and available techniques.

The assistant role would facilitate a structured career development pathway for radiographers, and assist in meeting service demand. This role was introduced following the Skill Mix in Radiography project in 2003 as described above.

Candidates for assistant practitioner training are sourced from within the existing hospital staff complement. Most are employed within the Radiology Department as either radiographer helpers or clerical staff, or have had direct working contact with a radiology department.

Trainee assistants are selected by the department and their training is also funded by the institution. As existing employees, they continue to receive the income of their previous role, which would typically have been band two or three on Agenda for Change (see above).

Training for assistants performing plain film imaging of the skeleton is approximately eighteen months duration. On completion of training, the assistant is moved up to band four on AfC.

These trainees are released for block education at the university supplying the course of study, and have their clinical education supplemented and supported at their employment site. As NHS employees, these trainees work a full forty-eight week year around their university commitments ensuring clinical exposure is considerable. On graduation, assistants may achieve a Certificate in Higher Education, a National Vocational Qualification or a Foundation Degree.

Assistant practitioners in diagnostic imaging and radiation therapy are not permitted to work autonomously and in diagnostic areas are generally limited to plain film imaging under the direct supervision of a registered (accredited) practitioner. They work
predominantly in the breast screening of non-symptomatic patients and plain film imaging of the skeleton.

Assistant practitioners' roles in CT, MR and fluoroscopy relate to the provision of support to the registered practitioner and radiologist, and in support of patient care. Plain film imaging by assistants in diagnostic imaging is generally limited to the adult, ambulant patient. Excluded from practice are the more dependant patients such as those involved in major trauma or in the paediatric category. Justification of an X-ray referral is performed by the registered practitioner, and images are approved on completion by the registered practitioner.

In radiation therapy, assistants may work in support of the treatment delivery team, in some pre-treatment areas and in support of patient care. Technical duties within radiation therapy are generally performed as part of a team and so assistants are considered to be under continuous supervision in this environment.

The College of Radiographers document The Scope of Practice of Assistant Practitioners in Clinical Imaging provides guidance on practice for assistants. Practices outside the clinical department such as the wards or operating theatre are recommended as outside scope owing to the indirect level of supervision afforded in these situations. Assistant practitioners carry no clinical accountability for the patient care process and responsibility for their supervision always remains with the registered (accredited) radiographer.

Registered Practitioner – Framework Description

A newly qualified graduate is placed on band five of AfC, but with the built in provision of accelerated progression from band five to band six within two years of qualification. This results from the acknowledgement of rapid learning and evolution that occurs during this early time. Band six radiographers are recognised as needing to work more autonomously than band five in order to deliver the appropriate breadth and level of care. This acceleration is described as Annexe T in the Agenda for Change documentation.

The UK undergraduate education is comparable to the Australian undergraduate degree programme and does not need further explanation in this report. A notable exception is that the undergraduate course is undergoing some modification so that it will be expected that image interpretation will become a core competency in the future. Red Dot training and competence is an accepted part of training included in a number of undergraduate courses. In addition the teaching and observations in the clinical setting determine that a career pathway of greater scope and opportunity are being embedded from day one.

It is stated in a 2006 College of Radiographers report that:

“It is envisaged that by 2010, clinical reporting by radiographers will become a core competence”

and that:

“At pre-registration level, courses seeking CoR accreditation or re-accreditation to be expected to include suitable modules that cover aspects relevant to image interpretation, clinical reporting and decision making encompassing both academic and clinical components. Medical clinicians to be involved in the educational process.
The expectation to be that all qualifying radiographers are able to provide an opinion by way of an initial written report on skeletal radiographs. Courses seeking accreditation or re-accreditation to include these elements no later than September 2010.10

Advanced Practitioner – Framework Description

Advanced practitioner roles generally relate to areas of expert clinical practice. They are expected to foster breadth as well as depth including aspects of research, education and management, although their central function will be related to delivery of patient care in the area of their expert clinical practice.6 There will also be clinical and team leadership, the promotion of service improvement, and interaction with the wider multidisciplinary team in respect of delivery of high quality care.5

In addition they must be able to problem solve and deal with complex and sometimes contentious issues, demonstrate experience and apply advanced clinical skills to novel and uniquely challenging situations. They participate in research, audit and education,11 and constantly are looking at the bigger picture of healthcare delivery and work towards it as opposed to simply taking on an extra duty.

Advanced practitioners often take on additional aspects of the patient pathway involving widening horizontal breadth of competence in addition to the vertical components of clinical expertise. To have the ability to ‘think outside the box’, with an increased level of clinical judgement and reasoning, and to be able to work off-protocol and yet also know their limitations.

Radiographer suitability and selection for advanced practice training is determined within the department or Trust (as is the funding for training). As with assistant practitioner training there is a filter or gate-keeping quality control process built into the system to ensure that only appropriate personnel are promoted into these positions. Practitioners nominated for advanced practice roles must be supported by the radiology services manager and have a mentor who is usually a radiologist or oncologist from within the department.

Within diagnostic radiography there appears to be a core of advanced practice skills which have been adopted around the country and for which formal university-based post-graduate education is now well established. These core advanced practice skills include plain film image interpretation, the performing and reporting of fluoroscopy studies and the reporting of mammograms. Others are being implemented or developed as a continuum and include CT head reporting, selected MR reporting and the performing of a variety of studies undertaken in the fluoroscopy suite.

Within radiation therapy, categorisation of advanced practice skills may be summarised as:

- Site specific
  An example of site specific advanced practice would be breast simulation and mark up plus consent process.
  Radiographer led on-treatment review clinics, prescribing according to patient group directives or as a supplementary prescriber. Monitoring treatment toxicity and counselling regarding psycho-social issues.
Technical
An example of an advanced technical role would be an imaging specialist in adaptive radiation therapy, cone beam CT, or tomotherapy. Another example of a technical role would be contouring and planning radiotherapy, prostate target volumes, planning target volumes, implementation of dose prescription.

Community Liaison
A community liaison role could encompass the link between the care centre, social care services, and palliative care services. Perhaps a radiation therapist in the community taking referrals for complex psycho-social needs.

Research
To lead research and development (R&D) programmes for radiographers in radiotherapy, create R&D forecasts and strategies, to prioritise R&D activities, project manage R&D activities, manage research teams, and to lead dissemination and implementation of research results.

Post graduate education relating to advanced practice in radiation therapy is offered in a very small number of places. The size of the profession and hence the numbers requiring access to this type of education do not make for viable courses if offered in multiple sites. This factor may also determine that the educational programme for each student be tailored to individual learning outcomes determined by the chosen areas of expert clinical practice.

One higher educational institute offers a Masters programme with exit points at Post Graduate Certificate and Post Graduate Diploma level. The course is comprised of five core modules culminating with a dissertation. The first being the ‘expert practice module’. This module can be structured to provide aspects of learning in the recognised areas of clinical practice, site specific, technical, community liaison and palliative care.

- Site specific areas covered may be gynaecological, head and neck, lung, breast and skin.
- Technical areas may incorporate aspects of imaging and planning.
- Community liaison is a role which has yet to blossom and covers the social and palliative care needs of patients provided by a radiation therapist in the community linking the radiotherapy centre, the patient, and also acting in support of the patient’s general practitioner.

Module two is the ‘advanced practice profile’ module and covers topics such as expertise in practise, leadership, management, audit and research.

Module three is a dedicated research methods module, and the forth is an independent study module where students direct their learning according to areas of practice which may need additional learning support and supplementation. Another thirty credits can be imported from other areas and will support the individual’s personally negotiated learning plan with the course leader. Examples may be managerial and leadership modules, or more topic specific areas which support their expertise e.g informed consent or contemporary issues in palliative care.
Whilst it is suggested that Master of Science (MSc) study is the appropriate level, in reality, the qualifications gained by many advanced practitioners to formalise their position is an MSc level module, Post Graduate Certificate or Post Graduate Diploma in the area of clinical interest, combined with clinical experience.

Advanced practitioners are generally placed on band seven of Agenda for Change.

The scope of advanced practitioners work is diverse and will be discussed at greater length later in this report as a summary of experiences from visits to numerous clinical sites during my tour.

**Consultant Practitioner – Framework Description**

A consultant practitioner is considered to be an expert in their area of clinical practice. Pivotal in the initiation of audit and research, they contribute to the evidence base in healthcare, and its integration into clinical practice as deemed appropriate to bring about solutions to improved patient care. They are leaders who are influential at the strategic level, demonstrate leadership in the development of patient-centred services with highly developed clinical reasoning skills proven by education and experience of practice. Consultant care is not necessarily about making unilateral decisions, rather it is about having more autonomous practice, being involved in the multi-disciplinary team, taking on ownership, expertise, leadership and educational roles, and becoming a role model for others.

The consultant position is defined with four pillars of expectation comprising the role:

- Clinical expertise
- Research
- Education
- Management

Whilst consultants work across professional boundaries, the core function of their role will be their expert clinical practice. Consultant practitioners carry their own caseload, and competences may mirror those of a consultant radiologist or oncologist working within the discipline or area of practice by performing and reporting a range of complex examinations. A consultant post is about patient experience and the service needs of the patient as opposed to business planning and line management as would be a superintendent role.

The educational requirement for consultant level practice is a Masters degree, and this reflects current status. It has been suggested that a PhD or doctorate level of study be more appropriate, and a number of consultants are already registered on such programmes.

A point of consideration here is the question of transferability of title of these roles given their development specific to the needs of a particular department. A consultant post created in hospital A may not be considered transferrable to hospital B dependant on the specialist nature of the different institutions. Post holders may therefore be restricted with regard to role transfer should they wish to change employment site, with transferability being more readily available at lower levels. At this time there are between thirty and forty consultant radiographer posts around the country. The majority of hospitals have no
consultant posts. Interestingly, some hospitals have band eight (AfC) radiographers in clinical positions that do not possess the consultant title. It is the title of consultant which seems to be a limiting factor rather than the skills package within the role.

Consultant Radiographers are placed on band eight of Agenda for Change.\(^8\)
**Skills Mix - A Contemporary View**

The Royal College of Radiologists and The Society and College of Radiographers, combined with the governments of all four of the UK countries has recognised that skill mix is an essential part of future service provision in clinical imaging. Team working within clinical imaging: A contemporary view of skills mix is a guidance document on skill mix and role development which has been produced by both Colleges. It aims to disseminate information relating to good skills mix practices, and information regarding the regulation of such practices.

The document recognises the need to provide 'timeliness of service' moving forward, that this will provide benefit to the patient, and that patient benefit must be the primary objective for the development of skill mix.

“"The aim of this joint guidance is to provide a framework for implementation of skills mix and role development to support the major changes which healthcare services in general and diagnostic services in particular are currently facing. The guidance is fully congruent with the current developments in relation to non-medical terms and conditions and arrangements for career and skills progression. Change in the model of service provision will be necessary to meet the challenge of appropriate and timely diagnostic examinations, together with prompt availability of a report delivered to the highest standard. This will secure sustainability of service provision through effective evolution, and continue to develop the role of clinical radiology in patient management.”
The Clinical Setting

In order to facilitate documentation of findings, I will provide a summary of advanced practice activities encountered during my visits, and the approximate numbers of staff involved in these activities as a demonstration of frequency. Further information will be provided regarding expected future developments within the modalities, as well as summarised overall impressions and opinions of the many people I encountered. Visits were made to a number of radiology and radiation therapy service managers, educators, and practitioners working at advanced or consultant level. Additional time was spent in the clinical setting and in conversation with staff within these departments spanning all tiers of the service model. Consequently, I have drawn on the information as a whole as opposed to addressing the specifics of a particular institution.

Some centres were targeted through recommendation and others were entered into blind in terms of their involvement in skill mix or advanced practice activities.

Diagnostic Radiography – Scope of practice, advanced practitioner

1. Plain film reporting.
All centres visited held between one and six radiographers reporting skeletal trauma images. Within each centre the scope of practice varied depending on the level of post graduate education undertaken, and the needs of the department. Some practitioners report appendicular skeletal images only, while others have progressed to reporting axial skeletal images.
Departmental variations selectively adopted are the reporting of paediatrics, non-trauma and plain radiography images of the cervical spine, skull and facial bones. Some radiographers are being encouraged within their centres to take on non-trauma reporting, including rheumatology clinic images and GP referrals.
Also encountered were practitioners who have undergone the emergency nurse practitioners course and are involved in triaging, referring for x-ray, and in some cases counselling of the patient with injury management and treatment advice prior to discharge, and pending general practitioner follow-up where significant abnormality has not been detected.
Some centres are investigating extending this to a radiographer-led discharge service for some patient subgroups. This may involve the radiographer taking on the whole patient pathway, which already occurs in the minor injuries units of some smaller hospitals.
Radiographer performed focused abdominal sonography in trauma scans (FAST) occurred in some sites, and this is an area of emerging interest for practice.
2. Fluoroscopy

All sites visited supported between two and four radiographers either performing, or performing and reporting fluoroscopy studies. The most common fluoroscopy studies were barium enemas, meals and swallows. The scope of what these radiographers around the country are practising and developing competences in, include:

- Small bowel studies
- Micturating Cystograms
- Hysterosalpinograms
- Sialograms
- Dacrocystograms
- Sinograms
- Nephrostomy tube changes
- Sigmoidoscopy
- Colonoscopy
- Proctography
- Enteroclysis
- Video Fluoroscopy
- Performing of CT Colonography

A small number of radiographers under endoscopy lists and were trained by and seconded to the endoscopy team. These radiographers may perform flexi-sigmoidoscopies, colonoscopies and polypectomies and also perform patient sedation for these procedures.

At the Gastro-Intestinal Radiographers Special Interest Group conference (GIRSIG), the subject of future radiographer involvement in both technical and reporting aspects of CT Colonography in the future (in light of the demand within the national colorectal cancer screening programme) was discussed. Whilst some radiographers are already performing the technical aspects, one site visited suggested that there were intentions to train radiographers in the reporting of CT Colonography in-house.

Suggested possibilities for future practice for GI radiographers include furthering GI specialist roles. These roles could be modified into cross-modality roles or extended to specialise in endoscopy and also interventional work. Additionally, the potential role of the radiographer in the development from traditional fluoroscopic imaging of the small bowel through to CT and MR enteroclysis examinations was discussed.

The fluoroscopy suite in one site visited was almost entirely radiographer led, with radiologist support provided as required.

3. Ultrasound

Post graduate training is required for competency in ultrasound, and modules are available in obstetric, gynaecology, general, vascular and musculoskeletal, as well as breast ultrasound and core biopsy. Sonographers, on completion of training are equipped to provide final reports and are placed on band seven on AfC.

The scope of reporting practices by sonographers may vary between departments. In one site visited, musculoskeletal ultrasound reporting was retained by the medical staff, all other reporting was provided by the sonographers.
A new concept being explored by one site is a community based ultrasound service supplied to local GP practices by sonographers using a ‘laptop’ style ultrasound machine. Images will be reported by the sonographers and uploaded to PACS. Also discussed was the concept of a radiographer led ultrasound service in the Emergency Department in order to reduce waiting times and release occupied bed space for patients admitted and awaiting ultrasound tests to determine their management.

4. Computerised Tomography (CT)

Advanced practice activities within CT at this stage generally involve reporting of head and sinus scans, although local demand in one site visited had a radiographer performing facet joint and sinus tarsi injections under CT control. Radiographers were also involved in triaging and profiling requests to determine scanning protocols required.

The topic of radiographer involvement in the performing and reporting of CT colonography may again be mentioned here, but this may also become a cross modality performed exam utilising the existing knowledge of radiographers already trained in fluoroscopy.

5. Magnetic Resonance Imaging (MR)

At the time of writing there are about fifty radiographers in England accredited to report selected MR scans, with about eight currently reporting head scans. One such radiographer reports MR scans of the spine, knees, head and internal auditory meati.

6. Interventional

Radiographers are developing roles in interventional procedures such as the insertion of Peripheral Indwelling Central Catheters (PICC), Central Venous Catheters, Hickman’s Catheters and one is currently undergoing training to insert vascaths for dialysis patients. Others are performing guide wire insertions, and liver biopsies using ultrasound control.

7. Mammography

Advanced practice mammographers are widespread and have extended their roles into the interpretation and reporting of both screening and symptomatic examinations, breast ultrasound, stereotaxis and biopsy. It is the national standard that mammograms are double reported. This may be performed by two appropriately trained radiographers.
Radiation therapy – Scope of practice, advanced practitioner

Radiation therapists have again adopted and specialised in a diverse range of skills beyond that traditionally considered to be standard practice in the UK. Specialist roles have been developed in:

- Complex CT planning
- Psycho-social support
- Prostate treatment support and research
- Breast mark-up and simulation
- Planning palliative radiation therapy
- Expertise in the use of MRI for radiation therapy planning
- Stereotactic radiation therapy
- Intensity modulated radiation therapy (IMRT)
- Image guided radiation therapy (IGRT)
- Radiographer led on-treatment review clinics including supplementary prescribing of medicines
- Paediatric radiation therapy
- Head and neck radiation therapy
- Total body irradiation
- Cone beam CT
- Research radiation therapist
- Prescribing of medications for radiation therapy side effects
- Support and information radiation therapist who attends multidisciplinary meetings, performs consent and counselling, manages clinic reviews, and prescribes within patient group directives.

There does not appear to be a consistent template for advanced practice in radiation therapy, and roles may be variable between sites. However, roles encountered are now providing a greater range of services within the treatment pathway. This was evident particularly in the area of patient support, in addition to areas of specific clinical expertise, or technical roles which are more mainstream in treatment delivery. Examples of this include performing the patient consent process for both external beam and brachytherapy treatment, planning and sizing prior to gynaecological brachytherapy, provision of treatment, and counselling regarding vaginal stenosis and the use of dilators. Some tests may be ordered without medical authorisation. In the treatment of urology patients, patients may be referred to other practitioners such as for erectile dysfunction or to a urologist for bladder concerns. Prescribing medications within patient group directives and the provision of counselling on relationships, sexual function, and psycho-social needs is also provided. Advanced practitioners are also leading on-treatment review clinics which was a role traditionally performed by the oncologist, and some provide direct GP support regarding post treatment information on issues such as medication, catheterisation and toxicity.

Advanced Practitioners are required to be able to make autonomous decisions, for example to make treatment change decisions off-protocol. They also attend multidisciplinary meetings and participate and contribute information regarding patient management. Advanced practitioners have a much greater overview of the whole of patient pathway, and are more involved in the decision-making process, as opposed to the accredited practitioner level which needs to continue treatment delivery, simulator and CT functions. These are generalist practitioners.
Consultant Radiographers’ Roles

Key elements of expert clinical practice.

Diagnostic

Consultant radiographer in emergency care –

- Has a team of five reporting radiographers including self and one in training, all doing axial and appendicular reporting of skeletal trauma images.
- Moves towards reporting non-trauma images with the support of the radiologists.
- Is participating in a Department of Health funded collaborative research project addressing the subject of ‘hot’ reporting by radiographers.
- Attends and participates at multidisciplinary team meetings (MDT), consultant radiologists meetings and discrepancy meetings (All reporting radiographers attend MDT and discrepancy meetings).
- Leads departmental audit programme for radiographers and deputises for medical lead as required, which then impacts on clinical policies and protocols in department.
- Involved in leading and selecting those for advanced practice training, and is now a mentor for these candidates.
- Trains registrars to report and checks their reports.
- Actively involved in promoting and developing quality improvement processes.
- Looking at developing radiographer led discharge plan for patients with unconfirmed injury
- Undertakes radiographic duties ‘out of hours’ to ensure competencies for self and others are maintained.

Consultant radiographer in breast care –

- Performs patient examination and takes clinical history
- Interpretation of symptomatic as well as breast screen images, work mirrors that of a radiologist working in the unit, performs whatever intervention is appropriate and the interpretation of these procedures.
- Refers for MRI examinations.
- Participates in MDT meetings and is frequently the radiological lead at these meetings. Will present cases for review and advises on further workup for individual cases as appropriate.
- Assists in training radiology registrars in mammography image interpretation, ultrasound interpretation and performing of biopsies.
- Links with universities providing education, and education of other professions e.g. nursing,
Consultant Radiographers’ Roles

Key elements of expert clinical practice.

Radiotherapy

Consultant Radiographer in Gynaecological Oncology –

- Established an adjuvant endometrial new patient clinic.
- Patients referred post surgery after review at MDT meeting.
- Takes a clinical history and discusses treatment plans/options with the patient.
- Performs consent if treatment is agreed.
- Communicates with GP to confirm treatment plan decision
- Develops treatment plan although this is signed off by the oncologist at this time.
- Delivery of brachytherapy.
- Performs on-treatment review in clinic and follows the patient up for a three year period if having external beam treatment and five years if brachytherapy. Patient does not see an oncologist through the process.
- Provides patient support in respect of psycho-sexual, hormonal issues and counselling.
- May adjust medications in review clinic.

Consultant Radiographer in Neuro – Oncology

- Provides palliative patient services. A different approach but a similar role to that of the gynaecology consultant above.
- Attends and participates in MDT meetings.
- Whole pathway from meeting the patient, consenting, treatment plan, review and follow up.
- Manages all the stereotactic treatments.
- Provides significant patient support.
- Requests MR for planning purposes.
- Adjustment of medications
This year approximately 110 delegates attended this two day event entitled GI Tract Imaging: Present Practice – Future possibilities. The majority of those present were either currently practicing GI fluoroscopy at advanced level, some with many years experience, or studying towards this aim.

Sessions provided an overview of the emergence of CT Colonography and the rationale for its use as a mainstream imaging technique for the large bowel compared against fluoroscopy and endoscopy. A presentation by a consultant radiographer in GI practice provided information regarding the key considerations of setting up a CT Colonography service, and the part that the GI radiographer team has played in cross-modality imaging in performing the technical aspects of the examination within this service.

Other informative sessions included:
- the history of Crohn’s disease
- fluoroscopic imaging of the small bowel using enteroclysis versus capsule endoscopy; and
- CT and MR enteroclysis alternatives, dose implications, image quality and information gained, impact on the patient, time effectiveness and cost. The potential for furthering the role of radiographers in these examinations in the future was discussed.

Similarly with mammography, barium enemas are double-read as a national standard, and radiographers have been performing these studies since the early 1990’s. Fluoroscopy is commonly performed by radiographers, with others also undertaking further training to perform sialography, sinography, hyterosalpinography, enteroclysis, sigmoidoscopy, colonoscopy, and proctography.

Further sessions included reinforcement of the ongoing need for evidence-based practice and research in order to continue the quality improvements processes within the patient healthcare pathway, and the professional development of the radiographer in developing skills in line with these improvement processes.
Irish National Conference – Radisson Hotel, Sligo, Ireland, Nov 7th & 8th

Advanced practice in the Republic of Ireland is in its infancy and a significant part of the programme’s content at this year’s Irish National Conference was devoted to the topic of advancing practice. A number of sessions were chaired and provided by lecturers from the University of Salford, Sheffield Hallam University, and experienced clinicians from a number of hospitals in the north of England.

A brief history of the modernisation of the NHS along with an overview of the evolution of practice as well as current status was provided, and supplemented with recommended reading of enabling documents to provide an understanding of the development in the United Kingdom to this point.

Detail of available advanced practice education along with advanced working practices, future possibilities in practice, and anecdotal evidence was provided by individuals covering a broad range of experiences.

The visiting speakers ran an interactive workshop which allowed the delegates to identify the local areas of need to substantiate a change in practice. There was also discussion of the required professional and strategic approach in promoting change both at local and national level. The importance of both clinical and managerial leadership in driving change, and the need for working collegially and collaboratively with other professional groups and stakeholders was stressed.

Areas of existing development were identified through the workshop, namely Red Dot reporting and ultrasound informal commenting. It was recommended that these be investigated as primary avenues for address in initial development of advanced practice skills, and supplemented by the creation of financial models to demonstrate feasibility.
Status - Northern Ireland & Scotland

Northern Ireland

Advanced practice is continuing to develop in Northern Ireland. Reporting sonographers are widespread. Many radiographers are reporting plain film images with one reporting CT head scans. Breast screening teams are well advanced with several reporting and performing biopsies. As yet there are no consultant radiographers.

There are currently no courses available for assistant practitioner training in Northern Ireland although several are participating in distance learning courses based in England.

Scotland

Pilot studies demonstrating the feasibility and justification of role development have been undertaken within Scotland, and although advanced practice is not as widespread as in England, it is felt that advanced planning for the future has been undertaken with a proactive rather than a reactive stance.

Currently there are a number of radiographers operating as advanced practitioners around Scotland, with five consultant Radiographers in mammography, ultrasound, plain film, radiotherapy of the head and neck, and gynaecological radiotherapy. The concept of a travelling consultant position is also being considered to support remote highland and island areas.

Areas of advanced practice training in radiation therapy include brachytherapy and planning, there are also research advanced practitioners.

There are currently forty-one assistant practitioners being trained including two in radiation therapy which are due to qualify in February 2009.
Scope of Practice Report 2008

A recent research report undertaken by the University of Hertfordshire and led by Dr Richard Price, was commissioned by the Society and College of Radiographers to identify current and potential future developments in practice within the radiographic workforce. The information within the report was provided by 108 radiology managers from acute and general hospital departments, and confirms that scope of practice is diverse and continuing to expand with service need still being the primary driver for implementation of new roles. From the information provided it was determined that there were 185 assistant practitioners in 68 sites, 885 advanced practitioners in 79 sites and 14 consultant posts, with a number of sites developing plans for consultant posts in the future. This was confirmed through personal experience on site where all managers consulted had plans for increasing both number of advanced practice positions and scope of practice.

Points arising from the report are:

- Centres are continuing to adopt new roles across the spectrum of practice.
- New practices within gastro-intestinal care are evolving including the performing of sigmoidoscopies and colonoscopies, and CT colonography where it is thought that this trend may be influenced by the demand within the national cancer screening programme.
- Many radiographers are performing interventional procedures, with innovations such as guidewire insertions for stenting procedures and the introduction of feeding tubes.
- A considerable number are reporting independently of radiologists.
- In radiation therapy, more holistic roles are emerging involving counselling and palliative care, developments in specialist brachytherapy, on-treatment review clinics, and autonomous planning and treatment prescribing.
- Many cancer centres have radiographers actively involved in radiographer led research
- Collaboration with non-radiological clinicians outside the field, and community-based service provision may well provide opportunities for future development of advanced practice. Radiographers are moving towards services in community-based settings and in smaller hospitals with less opportunity to develop roles in larger city-based institutions.
- Whilst in some centres radiologists are the advocates of skill mix, in others they are still a barrier, although resistance appears to be subsiding.
- Very few advanced practice posts have been withdrawn or relinquished over the last five years, indicative of the need for continued expansion of these roles and activities.

This report is significant in providing information on the current state of practice, and the developments that have occurred in a wide range of institutions over the recent years. Once again, this cannot be reflected upon adequately within this report but is highly recommended for additional reading.
Additional items…

For the affirmative …

- “Would like to implement hot reporting by radiographers after hours, improved timeliness, direct and immediate communication”.
- “Our plain film reporting radiographers may have their role extended into radiographer triage and discharge, this is being supported by the ED physicians”.
- “Plain film reporting radiographers are moving towards the reporting of non-trauma images”.
- “Cost is not argued enough. Why would you pay twenty cents a can extra for brand name baked beans, if the generic variety is cheaper and the quality is just as good”?
- “Three consultant radiographers equal the cost of one radiologist”
- “Some radiologists have suggested radiographers move towards reporting musculo-skeletal MR images but there is no formal training course for this”.
- “The time constraints within the stroke programme are providing a good case for radiographer reporting”.
- “The colon cancer screening programme is causing changes in demand, this may be a driver for increased radiographer involvement with colonoscopy and CT colonography”.

The clinical director of one department commented that “with the explosion in demand for cross sectional imaging, advanced practice duties undertaken by radiographers have played a vital role in freeing up the radiologists time to undertake more complex duties”.

- “There has been a significant increase in recruitment within the profession, drop off rates within training have not changed… thought to be due to a misunderstanding of what the profession involves, and has not changed over time”.

A report by the Health Care Commission in 2007\textsuperscript{14} showed that radiographers account for about 16 per cent of all reports, and almost 10% are still not reported. This shows that approximately 25 per cent of reports are not done by radiologists\textsuperscript{14}.

- “In many situations, fewer professions are now involved in a patient pathway, the process is quicker and the patient experience more pleasant”.
- “Where rooms and equipment were redundant because radiologists were multi-tasking, these are now operational for a greater percentage of the time”.
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- “More time can be spent with patients by freeing up the radiologist or oncologist”.
- “Radiographers are pivotal in looking at the service redesign and may well be more appropriately placed to identify service improvements”.
- “A lot of radiographers blossom after undertaking this kind of study and practice, especially the mature aged”.

Discussions were held with UK advanced practice radiographers who would like to re-locate to Australia permanently, however, the lack of opportunity in Australia to utilise existing advanced level skills has caused them to re-evaluate their options. In addition, one Australian radiographer working at advanced level expressed similar concern regarding opportunities on return such that he does not at this time foresee returning to Australia to work.

Despite concerns from the radiologists, radiographers and oncologists regarding the potential for dilution of the professions as a result of implementation of the model, these views seem to have been largely eroded by the recognition of the benefits gained. “We didn’t think we would like it but now we’ve changed our minds”

For the negative …

- “There may not be much opportunity for movement once you are specialised and this is exaggerated at the consultant level, and to a lesser degree at the advanced level”. This has been helped by formalisation of training through higher educational institutions as opposed to in-house training which may not be recognised on movement between employment sites. HEI education underpins a practitioner’s ability and is more widely recognised.

- “Agenda for change has been very inequitable with some advanced practitioners being placed on band six instead of seven”. It becomes difficult to encourage staff to study if the reward is not there at the end. There is lack of consistency in the bandings awarded within the tiers of practice.

Reasons for a department not recruiting into advanced practice?

- Un-supportive radiologists - Professional barriers and added pressure for radiologists to maintain skills and registrars to develop skills. Advanced practice activities vary amongst sites according to radiologist preference, and with no apparent theme.

- Non-supportive managers – Feels threatened, or departmental philosophy does not support the four tier model.

- Support and leadership from management is central to the implementation of extended roles, if the level of leadership is not there, it may not happen.

- Local need – service demand does not justify implementation.
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➢ Inappropriate staff to promote into advanced practice positions.

➢ Funding – lack of funding to permit training, and or lack of funding to backfill while staff are training.

➢ Lack of support or strategic planning by the employing Trust.

- Apparent lack of agreed definition of what constitutes advanced or consultant practice, this causes confusion. Some feel that consultant practice should be a natural progression from advanced practice level, rather than the creation of a new role.

- Lack of access to suitable training courses.

- Negative attitudes amongst some radiographers – does not encourage development of the profession.
**Process Review, Competency Assessment and Audit**

Advanced practitioners must have a departmental mentor to be accepted for training, and where an advanced practice service has been implemented, a mentor is assigned to the practitioner for a minimum period. Radiographers work is audited on an ongoing basis for competency in maintaining examination and report quality to an appropriate standard. Radiographers also attend or lead case review meetings, attend multidisciplinary team meetings and discrepancy meetings as an additional means of continuing education, performance review and development.

**Professional Indemnity**

Over ninety percent of radiographers in the United Kingdom are members of their professional body, and in this situation members including the advanced and consultant levels benefit from professional indemnity insurance provided by the body. A practitioner's employing authority will also provide indemnity insurance, however, activities performed must be within the individual's agreed scope of practice. Indemnity will not be provided if a practitioner is considered to have acted outside their scope of practice.
Conclusion

UK radiographers have continued to engage in more diverse roles over recent years, with much of this now becoming embedded as standard. Traditionally, a radiographer’s level of involvement with patient care has been with a limited section of the journey, but a more holistic approach has now developed through inter-professional co-operation, and a feeling of professions wanting to share their knowledge rather than build walls around it. Through its skill mix model, the United Kingdom has adopted a new role, one that is not designed to replace the professions of others, but rather compliment them, and in doing so has provided:

- flexibility in service delivery
- cost saving
- freed up radiologists time for more complex duties
- improved timeliness in turnaround and communication of results
- improved utilisation of equipment
- improved patient experience
- provided improved job satisfaction and structured career pathway

Whilst the four tiers of the model have not been implemented widely within each site at this time, numbers in advance practice positions are growing and there is nothing to suggest that this will change, rather more, that some consider the model to be in its infancy.

Australian and UK experience demonstrates that some Australian radiographers are leaving or changing professions, and that some locally trained radiographers are being lost overseas. Simultaneously, Australia’s ability to attract overseas expertise is being restricted through the inability to offer comparable opportunity.

Many Australian radiographers are already informally incorporating aspects of practice within their daily activities which have previously been considered beyond the standard. For Australia in the future, and based on this UK experience, radiographers undertaking formalisation of role development will be capable of, and play a vital role in helping meet service provision requirements in a system experiencing increased demand. In developing such change, logical common-sense thinking should prevail with change based on what is best for the patient above all else, rather than resistance based on inflexible historical boundaries or financial incentive.

As professionals, the importance of implementing evidence-based practice is ingrained. If the forecast for the demand within Australian healthcare is correct, we will need to adapt.

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change” – Charles Darwin
Recommendations

Department of Health and service collaboration to determine future need within radiography and radiation therapy services to meet ongoing demand, and to consider alternative models of delivery to simultaneously accommodate the changing needs of the system over time.

That in consideration of our patients interests first and our professional interests second, relevant stakeholders must continue to promote collegiate and collaborative partnerships between professions in creating a new environment in which to meet future needs.

Role development within the Australian professions should be considered feasible as a method for improving patient care. Suggested areas of potential benefit in diagnostic imaging could include:

- Remote and rural – An area rich in learning opportunity and where radiologist access is limited. In this environment radiographers are informally acting at levels beyond their traditional standard. Patient and cost benefit seen from the promotion of team working, patient centred care and improved communication, and by reducing the need for use of ‘24/7’ overseas tele-radiology reporting services.

- GP Plus centres and smaller community based settings – to alleviate pressure where medical staff numbers are limited, and to remove workload pressures from imaging departments in major public hospitals and emergency departments.

- Public hospital system – to alleviate shortages of medical staff and where doctors are being attracted into the private sector.

In radiation therapy, potential benefit may be seen in the areas of:

- Patient information and support - Taking on a greater role within the patient pathway, particularly in respect of patient support, e.g. on-treatment review and follow-up in clinic including supplementary prescription of medications. Counselling and support in the community.

- Site specific roles such as breast mark-up and gynae brachytherapy.

- Research specialist roles

Development of a model should through its framework and accreditation incorporate aspects of flexibility, and transferability for both practitioner and institution.

Changes implemented should simultaneously address long term workforce retention and recruitment issues within the professions through retaining experience of practice, and promoting and embedding the robustness of a restructured career pathway.

That offshore reporting should be undertaken only after all local alternatives have been exhausted, and in the future this should include radiographer reporting. The transfer of medical images via computer networks is an important development within our field, but significant offshore reporting may have implications regarding accreditation, cost effectiveness, barriers in communication, breakdown in the electronic communication loop,
and insufficient clinical history and clinical context. The treating team has knowledge that cannot be shared as well with an overseas radiologist. Those individuals treating the patient are the best informed to provide the final report by way of access to a complete clinical history and visualisation of the patient in the clinical setting. The radiographer is part of the treating team. Tele-radiology does not focus the quality of care around the patient, and detracts from patient-centred care.

Some Australian higher education institutions have already developed or are in the process of developing courses designed to enhance the radiographer’s abilities within the realm of advanced practice both in radiation therapy and diagnostic radiography. Australia has an existing resource in the form of a small number of former UK academics, radiographers and radiation therapists residing in Australia who have had direct experience working at advance levels in the UK. These individuals represent a valuable pool of knowledge which should be drawn upon in developing an educational framework within Australia.

The professions in Australia, with the benefit of foresight and through the experiences of others, are taking a proactive rather than a reactive stance. The preliminary work is being done and this should be embraced, developed and enabled in the short to medium term in order to be of timely benefit in the future.

"The future depends on what we do in the present"

Mahatma Gandhi

Owing to the volume of information which could potentially be included in this report, amended versions supplemented with additional information may be supplied upon request.

This report is not intended to provide personal opinion regarding implementation within Australia, however, the author welcomes enquiry regarding opinion, and the promotion of discussion relating to individual facets of framework development and implementation.
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