ADVANCED PRACTICE IN RADIOGRAPHY AND RADIATION THERAPY: REPORT FROM THE INTER-PROFESSIONAL ADVISORY TEAM

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Chair, Inter-professional Advisory Team

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**ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>A &amp; E</td>
<td>Accident and Emergency</td>
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<tr>
<td>ACPSEM</td>
<td>Australian College of Physical Scientists and Engineers in Medicine</td>
</tr>
<tr>
<td>ACR</td>
<td>American College of Radiology</td>
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<tr>
<td>AIR</td>
<td>Australian Institute of Radiography</td>
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<tr>
<td>APAP</td>
<td>Advanced Practice Advisory Panel</td>
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<td>APWG</td>
<td>Advanced Practice Working Group</td>
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<tr>
<td>ASA</td>
<td>Australian Sonographers Association</td>
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<td>ASUM</td>
<td>Australian Society of Ultrasound Medicine</td>
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<tr>
<td>COAG</td>
<td>Council of Australian Governments</td>
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<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
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<td>CT</td>
<td>Computed Tomography</td>
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<td>DSA</td>
<td>Digital Subtraction Angiography</td>
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<tr>
<td>FDWP</td>
<td>Future Directions Working Party</td>
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<tr>
<td>FNA</td>
<td>Fine Needle Aspiration</td>
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<tr>
<td>FRO</td>
<td>Faculty of Radiation Oncologists</td>
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<tr>
<td>GP</td>
<td>General Practitioner</td>
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<tr>
<td>IV</td>
<td>Intravenous</td>
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<tr>
<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
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<tr>
<td>MRT</td>
<td>Medical Radiation Technologist/Technology</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health Service</td>
</tr>
<tr>
<td>NZIMRT</td>
<td>New Zealand Institute of Medical Radiation Technology</td>
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<tr>
<td>PACS</td>
<td>Picture Archiving and Communication System</td>
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<tr>
<td>PAWP</td>
<td>Professional Advancement Working Party</td>
</tr>
<tr>
<td>RA</td>
<td>Radiological Assistant</td>
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<tr>
<td>RRA</td>
<td>Registered Radiologist Assistant</td>
</tr>
<tr>
<td>RPA</td>
<td>Radiology Practitioner Assistant</td>
</tr>
<tr>
<td>RANZCR</td>
<td>Royal Australian and New Zealand College of Radiologists</td>
</tr>
<tr>
<td>RT</td>
<td>Radiation Therapist</td>
</tr>
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The Report

This report is the product of four full day meetings with a wide range of professionals in the radiation health workforce sector, under the umbrella of the “Inter-Professional Advisory Team” (IPAT). The meetings included several categories of clinicians, as well as representatives of relevant associations, societies, as well as of government and tertiary institutions. They took place on 19 May, 23 and 24 June 2011, and 29 March 2012. The report is also the product of a variety of other forms of consultation, including a site visit to the Alfred Hospital’s Diagnostic Imaging Department and the William Buckland Radiation Therapy Department also located there.

The report documents the background to and role of the IPAT, identifies drivers to health workforce change that are relevant to radiographer and radiation therapist practice, and summarises the evolution of advanced practice categories of practice in the United Kingdom on the basis that these constitute a model to which Australia should have regard. It notes major issues of legal liability, regulatory relevance and insurance exposure and scrutinises terminology options for additional roles for radiographers and radiation therapists. It analyses the arguments for and against such a development, distinguishing it from the notion of extended scope of practice, and it advances a series of recommendations.

A draft report was prepared, distributed and discussed at the final IPAT meeting as a means of focussing discussion and with a view, so far as possible, to achieving a consensus of views within relevant sectors of the health radiation services community. This final report is significantly revised on the basis of debate at the final IPAT meeting and, insofar as it proffers a recommendation for the creation of advanced practitioner status, represents a majority position of those who participated in the IPAT. Insofar as it recommends the means to achieve such advanced status, the report constitutes the views of the Chair – participants expressed a variety of different perspectives in relation to this issue.
The Role of the Inter-Professional Advisory Team

In 2007 the Board of the Australian Institute of Radiography (AIR) established the Advanced Practice Working Group (APWG) with an overall aim of defining an ‘Advanced Practitioner model’ in medical imaging and radiation sciences. The APWG was asked to build on the foundation work done by the Professional Advancement Working Party (PAWP), which reported in April 2006. From its consultation process the APWG was asked to provide recommendations as to how practitioners in diagnostic imaging and radiation therapy could achieve ‘advanced’ status. The specific terms of reference of the APWG were:

- To update/refine definitions of advanced practice, incorporating new developments since 2005;
- To develop an implementation model based on previous reports; and
- To define the typical characteristics of current practitioners in order to define what the ‘Advanced Practitioner model’ would involve.

The AIR stated that the expected outcomes were that the APWG would:

- Describe existing models and their effectiveness;
- Identify blockers to the implementation of the model;
- Provide strategies for implementation;
- Make recommendations on how Advanced Practitioner status can be achieved; and
- Develop a framework for the AIR to set standards for Advanced Practitioners.

In 2009 the APWG issued a discussion paper¹, recommending, amongst other things, high level-collaboration. To this end the Inter-Professional Advisory Team (IPAT) was established as a cross-sector professional group to respond to the need for workforce change and to bring together and engage other key professional organisations in discussions about advanced practice.

The AIR prescribed that these discussions should focus on, and include:

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• Identifying opportunities to apply new models of advanced practice that:
  • build inter-professional collaboration and teamwork;
  • are in the interest of patient care; and
  • improve the quality of and access to medical radiation services.
• Strategic planning around, and the development of, the concept of advanced clinical practice in Diagnostic Radiography, Sonography, Mammography and Radiation Therapy;
• Creation of a framework for the local development of clinical practice standards, guidelines and protocols for advanced practice roles;
• Consideration of the professional indemnity issues related to advanced practice;
• Consultation with delegated representatives of the Australian Universities that offer undergraduate medical radiation science programs about the development of clinical relevant advanced practice education programs.

Context of the Role for IPAT

Other events have supervened since 2009. Technologies within both radiography and radiation therapy continue to evolve and become more sophisticated. Examples include digital subtraction angiography (DSA) in which, arguably, there is the potential for greater involvement by radiographers² and by radiation therapists in image guided radiation therapy. Looking even to the relatively recent past emphasizes the extent to which change is occurring in the radiography and radiation therapy workplace³. For instance, ten years ago it was radiologists who inserted cannulas for CT patients. Now radiographers and nurses undertake the task⁴. In private radiology practices, Australian radiographers now regularly insert central lines and do facet joint, shoulder, arm, and tendon injections under supervision⁵.

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² IPAT, Consultation Transcript, 19 May 2011, at p389: Luke Wilkinson, medical physicist, and Victorian and Tasmanian Chair, and Chair of the Special Interest Group of the Australasian College of Physical Scientists and Engineers in Medicine: p89.
³ IPAT, Consultation Transcript, 29 March 2012: Dr Smith.
⁴ IPAT, Consultation Transcript, 24 June 2011, p427: Dr Fabiny.
⁵ IPAT, Consultation Transcript, 24 June 2011, p429: Dr Fabiny.
Radiation oncologists used to review portal images on x-ray film, adjusting field positions prior to treatment. Today radiation therapists assess digital portal images in real time, adjusting the patient’s position to allow for inter- and intra-fractional organ movement prior to treatment, and improving the accuracy of field placement relative to the target volume. At the same time the number of new cases of cancer increases by approximately 3% per year (40% this decade) and it has been suggested that a redistribution of the existing workforce and optimization of work practices is necessary to manage the additional demands placed on the system. At the consultation session on 29 March 2012, Ms Phillip observed that there is definitely an increase in demand for radiation services across the spectrum: “We know that there’s particular shortages and projected shortages are even greater. We know that there are a number of skills in the workforce and that people are highly trained and they’re not using those skills and from an economic and efficiency point of view that a type of waste of resources.” She argued that this means that there will be an increasing need for radiation therapy delivery, possibly only requiring a few people at the advanced end of practitioners.

To a similar effect it has been observed that within the last 30 years the incidence of cancer in the United Kingdom has increased by 16% in men and 34% in women, with 60% of the cancer being experienced by those over 65 years of age. The incidence of cancer in the United Kingdom is predicted to increase from 1.8 million people currently living with cancer to 3 million in 2030. This has major repercussions for the medical workforce generally.

The following statistics published by the United Kingdom Department of Health in 2011, show a consistent rise in demand for radiographic services across the board:

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### TABLE 1

**Title:** Total number of imaging and radio-diagnostic examinations or tests, by imaging modality, England, 1995-96 to 2010-11

**Source:** Department of Health form KH12

<table>
<thead>
<tr>
<th>Year</th>
<th>X-Rays</th>
<th>CT</th>
<th>MRI</th>
<th>Ultrasound</th>
<th>Radio-isotopes</th>
<th>Fluoroscopy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-96</td>
<td>18,503,844</td>
<td>1,709,244</td>
<td>347,817</td>
<td>4,031,292</td>
<td>467,916</td>
<td>1,077,914</td>
<td>26,138,027</td>
</tr>
<tr>
<td>1996-97</td>
<td>19,101,029</td>
<td>1,053,407</td>
<td>391,290</td>
<td>4,443,490</td>
<td>505,476</td>
<td>1,231,284</td>
<td>26,725,976</td>
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<tr>
<td>1997-98</td>
<td>19,474,590</td>
<td>1,172,656</td>
<td>473,074</td>
<td>4,790,532</td>
<td>722,096</td>
<td>1,179,979</td>
<td>27,812,927</td>
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<tr>
<td>1998-99</td>
<td>19,876,933</td>
<td>1,254,474</td>
<td>522,138</td>
<td>5,018,434</td>
<td>699,654</td>
<td>1,244,632</td>
<td>28,616,265</td>
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<tr>
<td>1999-00</td>
<td>19,967,296</td>
<td>1,359,852</td>
<td>585,797</td>
<td>5,255,330</td>
<td>727,255</td>
<td>1,256,965</td>
<td>29,152,499</td>
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<tr>
<td>2000-01</td>
<td>19,913,022</td>
<td>1,488,752</td>
<td>632,594</td>
<td>5,382,582</td>
<td>539,141</td>
<td>1,253,847</td>
<td>29,209,938</td>
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<tr>
<td>2001-02</td>
<td>19,806,876</td>
<td>1,625,304</td>
<td>705,706</td>
<td>5,571,979</td>
<td>537,653</td>
<td>1,222,296</td>
<td>29,469,814</td>
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<tr>
<td>2002-03</td>
<td>19,512,924</td>
<td>1,767,791</td>
<td>786,646</td>
<td>5,635,358</td>
<td>551,423</td>
<td>1,295,639</td>
<td>29,549,781</td>
</tr>
<tr>
<td>2003-04</td>
<td>20,056,669</td>
<td>1,992,826</td>
<td>857,550</td>
<td>5,937,383</td>
<td>582,742</td>
<td>1,221,102</td>
<td>30,648,272</td>
</tr>
<tr>
<td>2004-05</td>
<td>19,818,330</td>
<td>2,141,652</td>
<td>944,935</td>
<td>6,029,104</td>
<td>560,337</td>
<td>1,190,487</td>
<td>30,684,845</td>
</tr>
<tr>
<td>2005-06</td>
<td>20,585,678</td>
<td>2,481,571</td>
<td>1,118,487</td>
<td>6,469,396</td>
<td>623,532</td>
<td>1,209,029</td>
<td>32,487,693</td>
</tr>
<tr>
<td>2006-07</td>
<td>21,011,234</td>
<td>2,728,119</td>
<td>1,257,972</td>
<td>6,715,486</td>
<td>588,638</td>
<td>1,249,161</td>
<td>33,550,610</td>
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<tr>
<td>2007-08</td>
<td>21,028,109</td>
<td>3,044,516</td>
<td>1,488,059</td>
<td>7,135,551</td>
<td>673,413</td>
<td>1,337,049</td>
<td>34,706,697</td>
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<tr>
<td>2008-09</td>
<td>21,437,735</td>
<td>3,355,161</td>
<td>1,725,793</td>
<td>7,552,156</td>
<td>616,886</td>
<td>1,256,030</td>
<td>35,943,761</td>
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<td>2009-10</td>
<td>21,919,881</td>
<td>3,719,089</td>
<td>1,970,323</td>
<td>8,217,414</td>
<td>615,403</td>
<td>1,301,531</td>
<td>37,743,641</td>
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<tr>
<td>2010-11</td>
<td>22,167,960</td>
<td>3,986,831</td>
<td>2,129,973</td>
<td>8,599,380</td>
<td>603,560</td>
<td>1,317,833</td>
<td>38,805,537</td>
</tr>
</tbody>
</table>
At this stage, there are eight Australian universities that deliver accredited medical radiation science programmes, and one in the second year of undergraduate teaching. They do so in accordance with the Australian Institute of Radiography’s 2005 “Competency Based Standards for the Accredited Practitioner”.

Health Workforce Australia, an entity set up by the Council of Australian Governments, published an important document, Strategic Framework for Action, Innovation and Reform of the Health Workforce\(^9\) in which it contended that:

- Australia’s population is growing, ageing and living longer and health expenditure as a percentage of gross domestic product (GDP) is rising rapidly.
- Generational changes mean that many providers are not working the same long hours or practising in the same way as their predecessors. The informal carer workforce currently providing much of the services to the aged is likely to diminish as people stay longer in the workforce and are less available to assist the aged and chronically ill to stay at home.
- The health sector needs to refocus on wellness, prevention and primary health care if it is to be sustainable in the future.
- Failure to consider how new technologies, therapeutics and other discoveries might change the way health professionals work will mean perpetuating ways of working that are already unable to meet demand.
- While there are indications from baseline projections that the overall medical workforce will be sustainable to 2025 and beyond, there are signs that demand for certain specialities within the profession will outstrip supply in the future.
- More innovative solutions will be required to support and reform the professions and encourage greater participation in areas of relative need.
- What is required is a paradigm shift in ways of thinking about workforce design and planning, one that works backwards from outcomes for communities, consumers and population need, versus the current thinking

that is generally focused on working forward from the existing base of professions, and their interests and skills, demarcations and responsibilities.

- The potential barriers to workforce reform are considerable and cannot be overcome by governments, sectors or service providers working in isolation. Sustainable innovation and reform will only be achieved through urgent and integrated national action.

- If we are to meet future need and better address longstanding gaps in services for all Australians, we need broader reform of the Australian workforce and we need to start the process now.

- Successful planning and implementation of non-traditional roles and workforce models involves micro-level organisational initiatives. ... Micro-level initiatives can include redefinition of roles.\(^{10}\)

It classified its framework as a national call for workplace reform across the medical and education sectors: “The Framework will help to reshape Australia’s future health workforce while supporting and enabling the productivity of the existing workforce. It aims to attract and retain a highly valued workforce and to expand the size and nature of the future workforce to meet current and emerging demands.”\(^{11}\) The Framework will work across five domains:

1. Health workforce reform for more effective, efficient and accessible service delivery [Objective: Reform health workforce roles to improve productivity and support more effective, efficient and accessible service delivery models that better address population health needs.]

2. Health workforce capacity and skills development [Objective: Develop an adaptable health workforce equipped with the requisite competencies and support that provides team-based and collaborative models of care.]

3. Leadership for the sustainability of the health system [Objective: Develop leadership capacity to support and lead health workforce innovation and reform.]

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\(^{11}\) Ibid, at p5.
4. Health workforce planning [Objective: Enhance workforce planning capacity, both nationally and jurisdictionally, taking account of emerging health workforce configuration, technology and competencies.]

5. Health workforce policy, funding and regulation [Objective: Develop policy, regulation, funding and employment arrangements that are supportive of health workforce reform]12.

The Federal Minister for Health and Ageing, the Hon Nicola Roxon, addressed the issue of health professionals moving into areas other than their tradition purview – task substitution - in the 2008 Annual Ben Chifley Memorial “Light on the Hill” lecture13:

- The development of a health sector in which services are delivered not only by doctors, but by other health professionals who are safe, potentially cheaper, and, most importantly, available.
- Doctors will need to be prepared to let go of some work that others can safely do ... if doctors don’t want to let go of it, to accept being paid less ...
- With doctors weighed down by the urgent needs of acute care, as well as unnecessary administration, we need to consider how we can unburden them of some of this work where it is safe to do so, and whether it is possible for nurses or others to take on some of those burdens – and, if so, how we can make this an attractive proposition.

She repeated the stance in a speech to the Australian Healthcare and Hospitals Association Congress in 2008:

- Health workforce shortages are now the norm across the world, and we have no choice but to respond creatively.
- I firmly believe that we need the right professionals in the right place to provide the right care, and this will involve a better role delineation.
- For instance, I see no reason why appropriately trained nurses, physiotherapists, psychologists or dieticians, for example, could not relieve doctors of some of their workload and allow them to better utilise their skills14.

12 Notably too Devaney and Gordon have observed that “It is widely acknowledged that the demands on medical imaging services in Queensland are rapidly increasing due to the ageing population, population increase, increased consumer expectations and technological advances, particularly in interventional radiology”: C Devaney and M Gordon, Radiographer Abnormality Description Project: Project Completion Report (Queensland Health, Brisbane, December 2010), at 4.2.2.


It is quite apparent that this is now part of Australian health policy. It has particular application for radiographers and radiation therapists.

Many of these same considerations and objectives have already generated workforce change in the United Kingdom in diagnostic imaging and radiation therapy\textsuperscript{15}, as well as in the United States\textsuperscript{16}. By 2006 a report of the College of Radiographers\textsuperscript{17} articulated an expectation that all radiographers be trained to “provide an explanation by way of an initial written report on skeletal radiographs.” The College observed that:

Diagnostic imaging and interventional services have increased by 2.5-5 per cent per annum over the period of the last 10 to 12 years with some of the biggest increases being in complex and time consuming techniques such as Computed Tomography (CT) [40% between 1996-2002] and Magnetic Resonance Imaging (MRI) [60% between 1997-2002]. This increase in demand for radiological services has put a further strain on departments during a period when there has been an acute shortage in the number of radiologists.

\textsuperscript{15} There is evidence that radiographic practice continues to diversify within the primary and secondary sectors. Although numbers of staff in these environments are relatively low, the majority work autonomously. Therapy radiographers are involved in palliative care, and health promotion. A radiographer with counselling skills is providing a high quality, research-based support for patients receiving radiotherapy where patients can self-refer or can be sent from other radiographers, specialist nurses or doctors. Diagnostic radiographers have also taken on a range of new roles in the last five years and much of this practice is now becoming embedded as standard. There are practice innovations for radiographers such as guidewire insertions for stents and feeding tubes and radiographers are practising interventional procedures in a range of settings. Few roles have been relinquished and there are opportunities for exciting new prospects within multidisciplinary teams beyond the radiology department. There is evidence of radiographers moving away from large specialist centres to support developing services in community-based settings but there appears to be less opportunity for radiographers to adopt unusual roles in London, Scotland, and Northern Ireland. Radiographers are adaptable and flexible opportunists with an appetite for new roles. Today, they occupy niches in almost all fields of patient services and are performing many roles previously the domain of nurses or doctors.”: Scope of Radiographic Practice 2008: A report compiled by the University of Hertfordshire in collaboration with the Institute for Employment Studies for the Society and College of Radiographers (2008): http://doc-lib.sor.org/scope-radiographic-practice-2008/executive-summary#6, viewed 9 April 2012


In the same year the Society and College of Radiographers and Royal College of Radiologists in a joint publication observed\(^{18}\) that:

A number of factors have contributed to increasing demand and skills mix initiatives have helped meet the demand on clinical radiology services. These include:

- An ever increasing volume of examinations, together with a more extensive range of procedures. Requests for magnetic resonance imaging (MRI) examinations and computed tomography (CT) have risen at a rate of 15 per cent per annum or more in recent years, putting pressure on service provision.
- Demand for more rapid access to diagnostic services to reduce waiting times. In 2002 the Audit Commission reported that, at any one time, 500,000 individuals were waiting for imaging services, and waits for some investigative services were in excess of six months. Although recent initiatives have improved waiting lists, pressure on clinical imaging services continues.
- The need for more rapid turn-around times of examination reports to expedite the contribution of the imaging examination to subsequent patient management remains.

Additional contributing factors include:

- The current United Kingdom shortage of consultant clinical radiologists;
- Technological developments; for example, digital imaging and image transmission;
- Multidisciplinary team working placing demands on consultant clinical radiologist and radiographer time;
- The advent of progressively better informed patients, with enhanced expectations;
- The need to expand and retain the radiography and allied health practitioner workforce through structured and enhanced career progression opportunities.

The extent to which some of these considerations are applicable to Australia in 2012 is not entirely clear. Amongst other things, there are significant differences in

the population density, geography and the current structure of the health care system between the United Kingdom and Australia. However, it can be said that a number of the factors are pertinent\textsuperscript{19}.

The Radiography Skills Mix Project was convened late last century in the United Kingdom to grapple with issues arising from the anticipated workload increase in the breast cancer screening project in which it was proposed that the age of patients eligible for the programme be raised to 70\textsuperscript{20}. It proposed a multi-level model of service delivery, which has since been implemented:

- **Assistant practitioner**, performing protocol-limited clinical tasks under the direction and supervision of a State-registered practitioner.

- **Practitioner** (State registered), autonomously performing a wide-ranging and complex clinical role, accountable for his or her actions and those he or she directs.

- **Advanced practitioner** (State registered), autonomous in clinical practice, defining the scope of practice of others and continuously developing clinical practice within a defined field.

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

The Project\textsuperscript{21} drew the following conclusions:

- 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 consistent outcomes.
- Patient satisfaction has been maintained whilst introducing new ways of working.
- Staff can be successfully trained in house against occupational standards.

This four tier system now exists in the United Kingdom. The body of the workforce remains the registered practitioners, the number of advanced practitioners having increased\textsuperscript{22}. The number of consultant practitioner positions is small\textsuperscript{23}. Meanwhile, assistant practitioners also make a significant contribution to the radiation therapy and diagnostic radiography workforce. However, they are not permitted to work without supervision and in the radiography context are generally limited to plain film imaging under a registered practitioner. They work predominantly in the breast screening of non-symptomatic patients and plain film imaging of the skeleton, while in the CT, MR and fluoroscopy areas, they provide support to the registered practitioner and in support of patient care. In the radiation therapy context, they work in support of the treatment delivery team, in some pre-treatment areas and in support of patient care.

Registered radiographers are distinguished from their equivalents in Australia and New Zealand to some extent by training for “red dotting”, meaning flagging abnormalities on images\textsuperscript{24}. By 2004 Hardy and Barrett\textsuperscript{25} found a red dot radiographer abnormality system to be functioning in 89% of United Kingdom hospitals. Originally done using a “red dot” on hard-copy radiographs, it can now be performed


\textsuperscript{24} See R Hall, S Kleemann and I Egan, “The Red Dot System: The Outback Experience” (1999) 46(2) The Radiographer 83 for an Australian review finding about the accuracy of such identification of abnormalities. Compare the trial of a “Radiographer Opinion Form” which was also suggested as an effective means of reducing missed abnormalities: T Smith and C Younger, “Accident and Emergency Radiological Interpretation Using the Radiographer Opinion Form (ROF)” (2001) 48 The Radiographer 27.

\textsuperscript{25} M Hardy and C Barrett, “Interpretation of Trauma Radiographs by Radiographers and Nurses in the UK: A Comparative Study” (2004) 77 British Journal of Radiology 657.
electronically on digital images. The background to this dated back to a 1997 vision paper from the College of Radiographers\textsuperscript{26} which stated as its policy that the reporting of images by radiographers was; “not an option for the future but is a requirement”.

This was a measured response to the 1995 statement by the Board of the Faculty of Clinical Radiology, Royal College of Radiologists (RCR)\textsuperscript{27} that “there may be no statutory impediment to a non-medically trained person reporting a radiological examination and making technical observations, but the person without medical training cannot reasonably be expected to provide a medical interpretation”.\textsuperscript{28}

It also built on the College of Radiologists’ Code of Conduct statement of 1994 which promoted the view that radiographers should provide verbal and written reports on image appearances - thus formalising the previous informal practice of providing verbal comments on images, especially to Accident & Emergency (A&E) staff. This, in turn, built on the red dot system of calling attention of A&E staff to abnormalities, a task which had previously been recommended as standard practice some 20 years before by medical staff\textsuperscript{29}.

Notably, though, in Australia, the responsibility for radiographers to draw to radiologists and other medical practitioners' attention findings of clinical significance and, where requested, their opinions about such matters, is formally entrenched as an ethical obligation. In the Institute of Radiographers Guidelines for Professional Conduct, \textit{Guidelines for Professional Conduct},


\textsuperscript{27} Board of Faculty of Clinical Radiology, Royal College of Radiology Statement on Reporting in Departments of Clinical Radiology (RCR, London, 1995).


for Radiographers, Radiation Therapists and Sonographers, it is provided that:

Radiographers, recognising their responsibility to the patient, should alert medically significant findings to the medical personnel responsible for the patient’s treatment and at the request of such personnel may provide an opinion that lies within their knowledge and expertise.\(^{30}\)

“Advanced practitioner” roles for radiographers and radiation therapists in the United Kingdom generally relate to areas of expert clinical practice. Ricote\(^{31}\) has usefully summarised such roles:

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. 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. 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, 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 judgment and reasoning, and to be able to work off-protocol and yet also know their limitations.

This is an analysis which should be regarded as pertinent to the Australian workplace.

Within diagnostic radiography, 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 [including] CT head reporting, selected MR reporting and the performing of a variety of studies

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undertaken in the fluoroscopy suite.”

Within radiation therapy, categorisation of advanced practice skills have been summarised as:

- **Site specific**: for instance, breast simulation and mark-up plus the consent process;
- **Technical**: for instance, adaptive radiation therapy, cone beam CT or tomotherapy, contouring and planning radiotherapy, prostate target volumes, planning target volumes, implementation of dose prescription;
- **Community liaison**: encompassing the link between the care centre, social care services, and palliative care services, and potentially taking referrals for complex psycho-social needs;
- **Research**: leading research and development programmes for radiographers creating forecasts and strategies, prioritising research and development activities, managing research teams, and leading dissemination and implementation of research results.

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 and demonstrate leadership in the development of patient-centred services with highly developed clinical reasoning skills, proven by education and experience of practice.”

As of July 2012 there will be an important Australian development. There will be national registration of radiation practitioners, the basis having already been set for such licensure in Queensland, the Northern Territory, Victoria, Western Australia, Tasmania and the ACT.

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32 Ricote, op cit, at p17.
37 Medical Radiation Science Professional Registration Board of Tasmania established under section 3 of the Radiographers Registration Act 1971.
Under s113 of the *Health Practitioner Regulation National Law*, originally passed in Queensland, a core component of regulation of health practitioners is the protection of titles via the use of designated “protected terms”. Amongst them are: “medical radiation practitioner”, “diagnostic radiographer”, “medical imaging technologist”, “radiographer”39, “nuclear medicine scientist”, “nuclear medicine technologist”, and “radiation therapist”40. “Sonographer” is not a protected term.

It is apparent that particular, albeit related, workforce issues arise for the profession of sonography, especially in light of the fact that most (not all) sonographers are formally registered as radiographers or radiation therapists. However, in light of the current status of s113 of *Health Practitioner Regulation National Law* and the particular attributes of sonography as a profession41, this report does not address the issues that arise specifically for sonographers. It may be though that, given the common issues that arise within the wider medical radiation workforce, and the constructive contributions by members of the Australian Sonographers Association during the IPAT discussions, some aspects of this report are applicable and useful for contemporary Australian sonography42; there is no reason to postulate that the drivers for health workplace reform are not similarly applicable to sonographers.

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38 Medical Radiation Scientists Board of the Australian Capital Territory (the Board) is established by the ACT *Health Professionals Act 2004*

39 The Australian Institute of Radiography has defined “radiographers” as “health care professionals who provide and interpret a range of medical imaging examinations for diagnosis and management of medical conditions. Radiographers are responsible for optimising diagnostic quality whilst maintaining radiation safety”: Australian Institute of Radiography, Professional Accreditation and Education Board, “Competency Based Assessment for the Accredited Practitioner” (November 2005), at p5.

40 The Australian Institute of Radiography has defined “radiation therapists” as “health care professionals primarily concerned with the design and implementation of radiation treatment and issues of care and wellbeing of people diagnosed with cancer and other conditions”: Australian Institute of Radiography, Professional Accreditation and Education Board, “Competency Based Assessment for the Accredited Practitioner” (November 2005), at p5.

41 IPAT, Consultation Transcript, 24 June 2011, at p369-370: Ms Harris.

42 See IPAT, Consultation Transcript, 24 June 2011, at p371: Associate Professor Sim.
Approach of the Report

Consideration needs to be given by the radiation professions from an evidence-based perspective\(^{43}\) as to how radiography and radiation therapy services can most effectively and cost-efficiently be provided\(^{44}\) in a timely way\(^{45}\) and as to what mix of practitioners can best provide them, taking into account available and potential skill sets. It is important to redesign any inefficient, unproductive and potentially unsafe processes and practices and also to draw on the strengths, skills and knowledge of all components of the radiation practice workforce\(^{46}\). An element of this will be identification of services which are substitutable\(^{47}\): in other words assumption by radiographers and radiation therapists of work previously done by others and relinquishment to others of work until now done by them. Radiographers and radiation therapists are but part of the workforce challenges that lie ahead in a difficult fiscal environment with a rising incidence of cancer. It is important to maintain a focus upon the objective which is shared amongst all relevant professionals – provision of the best and most efficient service possible to as many patients as possible\(^{48}\).

Part and parcel of the challenge for radiography and radiation therapy is training and retention of sufficient numbers of practitioners who are still committed and interested in their role within the workforce, Australia-wide (including in rural and remote areas), an issue that may well be problematic in the decade ahead\(^{49}\). It is necessary because of

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\(^{43}\) IPAT, Consultation Transcript, 23 June 2011, at p337: Dr Smith.

\(^{44}\) IPAT, Consultation Transcript, 23 June 2011, at p169: Professor Rosemary Knight.

\(^{45}\) Devaney and Gordon in 2010 recommended the implementation. Including credentialing, of a Radiographer Abnormality Description Worksheet in Queensland Health Emergency settings to reduce risks they identified to patients associated with delayed access to a full diagnostic report. They contended from a pilot study that the radiographers the subject of their study “have demonstrated high levels of sensitivity, specificity and accuracy … with close correlation to the ‘gold standard’ radiologist diagnostic report”: too C Devaney and M Gordon, Radiographer Abnormality Description Project: Project Completion Report (Queensland Health, Brisbane, December 2010), at 7.3.

\(^{46}\) IPAT, Consultation Transcript, 23 June 2011, at p336, Dr Smith.

\(^{47}\) IPAT Consultation Transcript, 29 March 2012, p64: Ms McHugh.

\(^{48}\) IPAT, Consultation Transcript, 23 June 2011, at p338: Dr Andrews.

\(^{49}\) IPAT, Consultation Transcript, 23 June 2011, at p187: Mr Abel MacDonald.
shifting models of health service provision, including the need for flexibility in service provision and the implementation of teamwork approaches, as well as the need for efficiencies and productivity outcomes that reduce what risk being burgeoning costs arising from a combination of technological advances and an ageing population. Part of this may be role redesign within the radiography and medical radiation service professions. It is in this context that reconceptualization is needed of what radiographers and radiation therapists, and different categories amongst them, are permitted and trained to do. Bold and creative efforts need to be made in this regard, given the pressures that are building within the healthcare workforce.

**The AIR Workforce Survey Report**

In 2010 and 2011 workforce surveys have been undertaken in relation to members of the AIR. Twenty three percent of the 4,711 AIR members responded for the 2010 survey to an email (n = 1,137), of whom 70% were radiographers and 24% radiation therapists. The average age of respondents was 41.8 years of age. Forty percent (n = 458) held post-graduate qualifications. Fulltime males averaged remuneration of $90,497; fulltime females averaged remuneration of $78,016.

Seventy eight percent of respondents were either satisfied or very satisfied with their role while 10% were either dissatisfied or very dissatisfied with their role. Of those who indicated that they experienced stress, about half (46%) said that management was the main source, and a similar number (48%) said that workload was the principal source.

The picture of the radiography and radiation therapy workforce that emerged, therefore, was one that was quite experienced, where the males were better paid than the females, but both sectors were reasonably satisfied with their lot, although a significant cohort was pursuing further studies without a clear prospect of achieving

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direct career or pecuniary advancement by so doing. Just over 35% of the profession hold post graduate qualifications and the majority hold two or more.

The most telling feature of the 2011 report\(^5_1\), where 12.8% had embarked on postgraduate tertiary courses, was that more than 54.7% of that number was undertaking Masters or Doctoral study. There is clearly an appetite amongst a significant section of the profession for further academic study.

**Legal Issues**

A contributor to the satisfaction levels of the radiography and radiation therapy workforce in Australia has undoubtedly been that practitioners have not been afflicted with the level of fears of litigation and complaint that have affected the medical practitioner component of the workforce\(^5_2\).

Very little malpractice litigation, in the sense of negligence actions brought in the civil context, exists in respect of radiographers and radiation therapists in Australia. In addition, there is comparatively little such litigation brought against Australian radiologists. This means that care must be taken in viewing, interpreting and extrapolating from United States trends.

However, notably of 18,860 lawsuits filed against physicians in the greater Chicago area between the beginning of 1975 and the end of 1994\(^5_3\), about 12% (n=2219) involved radiological procedures or radiologists\(^5_4\). Three tables produced by the authors give a snapshot of the sources of litigated error. The first relates to complications of radiology:

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\(^{51}\) IPAT Consultation Transcript, 29 March 2012, p22: Mr Collier.


\(^{53}\) Notably, though, the relevance of these figures is starting to reduce because of the advent of digital technology.

TABLE 2: Radiology-related Malpractice Lawsuits, Cook County, IL, 1975-1994:

Complications of Radiology\textsuperscript{55}

<table>
<thead>
<tr>
<th>5 Year Period</th>
<th>Myelography</th>
<th>Fetal Abortion / Abnormality Due to Radiation</th>
<th>Angiography</th>
<th>Barium Studies</th>
<th>Contrast Injections (Intravenous Urography, CT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-1979</td>
<td>12</td>
<td>2</td>
<td>27</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>1980-1984</td>
<td>17</td>
<td>24</td>
<td>66</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>1985-1989</td>
<td>16</td>
<td>5</td>
<td>24</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>1990-1994</td>
<td>6</td>
<td>4</td>
<td>22</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

It is apparent in this regard that angiography has stood out as an area which has generated litigation.

TABLE 3: Radiology-related Malpractice Lawsuits, Cook County, IL, 1975-1994:

Failure to Order Radiologic Exams\textsuperscript{56}

<table>
<thead>
<tr>
<th>5 Year Period</th>
<th>Angiography</th>
<th>Myelography</th>
<th>Sonography</th>
<th>MR Imaging</th>
<th>Mammogram</th>
<th>CT</th>
<th>Skeletal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-1979</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td>1980-1984</td>
<td>9</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>4</td>
<td>10</td>
<td>73</td>
</tr>
<tr>
<td>1985-1989</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>12</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>1990-1994</td>
<td>19</td>
<td>0</td>
<td>10</td>
<td>13</td>
<td>24</td>
<td>32</td>
<td>33</td>
</tr>
</tbody>
</table>

\textsuperscript{55} Berlin and Berlin, 1995, op cit, at 783.

\textsuperscript{56} Berlin and Berlin, 1995, op cit, at 785.
In respect of omissions in the radiologic area, failures to order skeletal x-rays have been most productive of patient aggrievements leading to litigation. While it is correct to observe that not every error, including omissions, constitutes negligence as a matter of law\textsuperscript{57}, this is an incorrect assumption that can be made easily by non-radiologists and non-radiographers.

\textit{TABLE 4:} Radiology-related Malpractice Lawsuits, Cook County, IL, 1975-1994:

<table>
<thead>
<tr>
<th>Period</th>
<th>Missed Lung Cancer</th>
<th>Missed Breast Cancer</th>
<th>Missed GI Lesions</th>
<th>Missed Bone Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-1979</td>
<td>13</td>
<td>4</td>
<td>3</td>
<td>102</td>
</tr>
<tr>
<td>1980-1984</td>
<td>39</td>
<td>9</td>
<td>9</td>
<td>142</td>
</tr>
<tr>
<td>1985-1989</td>
<td>24</td>
<td>24</td>
<td>7</td>
<td>76</td>
</tr>
<tr>
<td>1990-1994</td>
<td>32</td>
<td>53</td>
<td>9</td>
<td>59</td>
</tr>
</tbody>
</table>

Missed bone disease, followed by missed lung cancers have been the diagnostic errors which have led to the preponderance of litigation in the greater Chicago area. This is consistent with other studies which have identified misses of fractures as a strongly represented source of error\textsuperscript{59}.

Diagnostic error, whether or not sufficient to ground civil litigation, can have many aetiologies, including cognitive biases, over-confidence, or be influenced or generated by difficult conditions, such as those which typically exist in accident and emergency


\textsuperscript{58} Berlin and Berlin, 1995, op cit, at 785.

departments. They can be contributed to by perception errors, interpretation errors, knowledge errors and communication errors. Cross-checking and a range of quality assurance processes can significantly reduce the incidence of error. Important work is being done in relation to further development and enhancement of such processes. However, although technological advances have resulted, for instance, in higher quality images, there remain a number of causes of variability of identification and interpretation, including differences and subjectivities in visual observation, the same abnormality perceived differently and different thresholds of concern about perceived abnormalities. For the purposes of current considerations, the challenge is as to how any adjustments to the medical radiation workforce might reduce/guard against such sources of error.

Guly scrutinised data from a major United Kingdom trauma department and found that the main reason for diagnostic error was that abnormalities were missed on radiograph or CT. 624 fractures in 618 patients were missed, 13.6% (n = 85) were


64 See eg HR Alpert and BJ Hillman, “Quality and Variability in Diagnostic Radiology” (2004)1(2) Journal of the American Society of Radiology 127. There can be “anchoring bias” brought about by early locking onto a diagnosis and undervaluing data that are inconsistent. There can be “availability bias” because of a tendency to make a diagnosis from a memorable case previously seen. There can be “regret bias” because of concern perhaps arising from a previous error of missing or undervaluing an abnormality. Reliance on heuristics can also play a role.


greenstick and 4.3% (n = 27) were epiphyseal. Abnormalities were missed with 117 fractures in 110 patients because of a failure to radiograph. The primary reason was that the wrong radiographs had been requested in the case of 16 missed fractures and 6 missed dislocations. Twenty two complaints of legal cases resulted (2.4% of patients who were the subject of error). Guly recommended an immediate reporting system for radiology and observed that “Marking of abnormal radiographs by radiographers can assist in reducing diagnostic errors but the value of this may be limited by a high rate of false positives”. Notably, however, measures could be taken to reduce the rate of false positives, both by way of initial training and ongoing professional education.

Berlin and Hendrix have argued that “Radiologic errors continue to be made at a rate that has changed little over the past 50 years, despite a variety of methods that have been proposed to reduce such errors.” Nonetheless, anxiety about lawsuits afflicts radiology, like most areas of medical care. A 2009 Australian study of diagnostic error suggested that 90% of such errors were human errors, 55% involved no relevant imaging being performed and 11% were initiated at imaging. There has been little study of dosimetric impact of global errors in radiation oncology.

A 2009 Scottish non-litigation analysis of 256 errors in 222 patients found that 88% (n = 225) were due to poor image interpretation, 9% (n = 24) were due to poor communication and 3% (n = 7) were technical.

67 Guly, 2000, op cit, at 269.
72 G McCreadie and TB Oliver, “Eight CT Lessons that We Learned the Hard Way” (2009) 64 Clinical Radiology 491.
However, this is not to suggest that the incidence of error, either in radiographic diagnosis or in radiation therapy, is high in Australia. There is no evidence that it is. In a 2005 Canadian study, of 28,136 treatments delivered to 43,302 treatment regions, 555 treatments with error were detected. 44.3% were related to treatment field/volume, 37.6% were due to omission or incorrect placement of accessories and 18.1% were deviations from deviations from prescribed daily or total dose. Most errors were classified as of no or minor clinical importance. It is likely that the same is the case in Australia.

It has been argued that even after digitalisation rejects/retakes still impose challenges for radiographic imaging and that there needs to be further investigation of this as a source of error. In addition, it has been contended that the vocabulary for geographic misses in radiation oncology needs to become more sophisticated, given the developments in technology that enable greater insight into the phenomenon.

The use of tele-radiology raises complex legal questions about the responsibility of those who delegate out radiological interpretation. Such delegation may, for instance, be to radiographers or radiologists overseas. The general principle under Australian law is that those responsible for diagnosis and provision of treatment (namely radiologists and oncologists) continue to be responsible for errors committed overseas. Their duty of care to patients is non-delegable.

An aim of evolving radiographic and radiation therapy practice must be the minimisation of sources of error, ensuring that practitioners work only within their parameters of competence, and the optimisation of evidence-based practice that has


76 See Mejia v Community Hospital for San Bernardino, 99 Cal App 4th 1449 (2002).
checks, balances and quality controls such as to provide effectively for high quality practice and patient safety. Similarly, such considerations need to lie at the heart of workforce reform.

**Insurance Repercussions of Role Change**

Frank Belzunce and Dina Rekas of Guild Insurance identified the importance from an insurance point of view of an identified individual (generally a radiologist or oncologist) assuming responsibility for the quality of any form of health service provision: “In looking at the creation of advanced radiographer practice as an insurer we would look to see what the exact scope of that practice is, what those duties are and to work out what the exposures from those duties and practices are.” They contended that the provision of team care in which no one individual takes responsibility for the quality of a health outcome would be problematic from an insurance and liability perspective.

Ms Rekas expressed the view that, almost inevitably, formalisation of advanced practitioner status would bring with it some level of increased exposure to legal claims. Mr Belzunce emphasised the need for clear role definition if advanced practice is introduced so that responsibility for decisions and assessments is clearly delineated amongst the various practitioners in the clinical team. This may mean the assumption of some additional level of responsibility by radiographers but it will continue to mean that radiologists and oncologists, as the case may be, and in other instances institutions, will bear ultimate responsibility for interpretation of images, for diagnosis and for provision of treatment.

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78 IPAT, Consultation Transcript, 23 June 2011, at p231.

79 IPAT, Consultation Transcript, 23 June 2011, at p232: Ms Rekas.

80 IPAT, Consultation Transcript, 23 June 2011, at p237. See too IPAT, Consultation Transcript, 23 June 2011, at p240, Mr Belzunce.

81 IPAT, Consultation Transcript, 23 June 2011, at p239.

82 In the course of the Devaney and Gordon study, the authors note that, “The Queensland Health legal unit have advised that:

- QH is vicariously liable should a radiographer act negligently in the course of the employee’s employment
Shifts in Service Provision

Dr Smith of the Australian Institute of Radiography has argued that the work of Health Workforce Australia shows that a paradigm shift in respect of the delivery of medical radiation services is required with teamwork requiring redefinition of the roles played by various members of the workforce. He has contended that between 2000 and 2010 there was a 54% increase in the use of imaging technology in Australia\textsuperscript{83}, a 200% increase in the use of MRI and 100% increase in the use of CT and ultrasound technology\textsuperscript{84}. These are figures that bear some similarity to those in the United Kingdom to which reference has already been made. It is incontestable that the nature and amount of services provided by way of radiography and radiation therapy is continuing to evolve and will do so further with the likely significant escalation in the incidence of cancer (and therefore of the demand for radiation therapy services) in an ageing population\textsuperscript{85}.

In principle, there seems a significant level of agreement in this regard. For instance, Dr Andrews, the President of the Royal Australian and New Zealand College of Radiologists 2010–2011 acknowledged the team-based approach of diagnostic radiation and radiation oncology services with aims that those who provide such services do so efficiently, safely and to the ultimate advantage of patients. He has pointed out that

\begin{itemize}
  \item The Australian Institute of Radiography’s Guidelines for professional conduct for radiographers, Radiation Therapists and Songraphers states: “Radiographers may provide written descriptions of images as part of an accepted written protocol that is authorised by the employing authority:

  The provision of written descriptions by a radiographer is a clinical roles delineation and scope of practice issue and not a legal issue and needs to be resolved through detailed clinical role delineation, policy and practice standards.” (C Devaney and M Gordon, \textit{Radiographer Abnormality Description Project: Project Completion Report} (Queensland Health, Brisbane, December 2010), at 7.6.

  Ms Vukolova in this regard observed that the increase coincided and perhaps also corresponded to the increased number of facilities during the same period: IPAT, Consultation Transcript, 23 June 2011, at p317.

  IPAT, Consultation Transcript, 23 June 2011, at p317.

\end{itemize}
while role evolution is inevitable, up-skilling of the roles of one particular group does not necessarily result in a deficiency within another part of the radiation sector, although it may. He accepted that redesign of roles entails personal and professional threats that need to be transcended, so far as possible, with a clear focus on altruism and what will be in the best interests of patients.\(^{86}\)

Dr Andrews pointed out the need to define carefully medical imaging tasks and to ensure that those undertaking them have the competencies to perform them adequately: an issue that rose too in discussions about insurance and legal issues. He raised too the important issue of there needing to be clear assumption of medical responsibility for the quality of service provision, observing that imaging diagnosis is reached by more than pattern recognition.\(^{87}\) He stressed that medical imaging reports incorporate more than description and observation.\(^{88}\) They include interpretation, a skill that he argued is the preserve of radiologists. He also argued that it is the radiologist’s role to take responsibility for the contents of an imaging report. The same may be said of radiation therapy services. Sometimes this is the product of significant delegation to other team members in a collaborative arrangement and the radiologist’s or oncologist’s role is principally as a co-ordinator. On other occasions it is not.\(^{89}\)

Notably, too, scope of practice guidelines that have been developed in the United States for ‘radiologist assistants’. These include:

- Reviewing imaging procedures, making initial observations, and communicate observations only to the radiologist;

- Recording previously communicated initial observations of imaging procedures according to approved protocols;

\(^{86}\) IPAT, Consultation Transcript, 19 May 2011, at p27.

\(^{87}\) IPAT, Consultation Transcript, 19 May 2011, at p27.

\(^{88}\) IPAT, Consultation Transcript, 19 May 2011, at p27.

\(^{89}\) IPAT, Consultation Transcript, 19 May 2011, at p30.
• Communicating radiologists’ reports to appropriate health care providers in accordance with the American College of Radiography Practice Guideline for Communicating Diagnostic Imaging Findings.¹⁰

Dr Andrews identified inconsistency in training outcomes across radiographers’ courses resulting in variation in graduates’ skills and competencies, particularly manifesting in radiation dose control. However, he identified as an issue worthy of further discussion, modal radiography as an area of subspecialty in radiography which could be pursued further in light of the growing complexity in examinations, including CT cholangiography, CR colonography, mammography, and MRIs. He noted that a similar position applies to obstetric ultrasounds and vascular ultrasounds undertaken by sonographers. He also identified health informatics as an area that could brook subspecialisation on the part of radiographers, a phenomenon that is already evident in many large, public hospital imaging departments in Australia.

The Terminology Issue

An issue that vexes and confuses the debate about the utility of providing for advanced status for radiographers and radiation therapists is the terminology that should be employed. In terms of both rigour and conceptual clarity, it is important to be clear about what is meant by the notion of advanced practice. This was a point stressed by Ms Hurwood from Queensland Health. In addition, the term may have regulatory, insurance and legal liability ramifications in terms of the standard of practice legally required of practitioners.

A distinction exists about advanced practice, as it tends to be considered informally within professions that have not yet implemented official criteria for assumption of such a status, and as it exists within professions that have constructed a regime for

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¹¹ IPAT, Consultation Transcript, 19 May 2011, at p32.

¹² IPAT, Consultation Transcript, 19 May 2011, at p34

¹³ IPAT, Consultation Transcript, 19 May 2011, at p35.
assumption to such status. The tendency within the former category of professions is that “scope creep” impacts upon those who at any given time are regarded by their peers, their superiors and their colleagues from other professions as functioning at an advanced level. It may be that such persons have assumed greater responsibility than their colleagues. It may be that they provide significant levels of supervision for their peers. It may be that they are functioning at a particularly high level clinically. It may be that they are fulfilling functions that are in the vanguard of their profession’s practice. Or it may even be that they are undertaking roles which until reasonably recently were undertaken by other professionals. In short, the informal yardsticks for advanced practice adopted by professions such as radiography and radiation therapy which have not as yet constructed formal criteria for such a designation tend to be variable and functional – they vary from workplace to workplace and they depend upon the roles available and actually being performed by the persons concerned.

Even within professions that do not have a formal pathway to advanced practice, there is a fundamental distinction between advanced practice and “role expansion” or “role extension”. This fact was identified by the Institute’s Professional Advancement Working Party94 in 2006:

Role expansion infers formally and explicitly recognising enlargement of the existing scope of practice into new tiers of practice accompanied by additional education, theory and practice i.e. it refers to the creation of another “job description” or title.

In addition to general planning and treatment practice there has been an increasing involvement in specialised areas of practice. This is usually based on specialised training programs and involves role expansion in radiation therapy. These areas are inclusive of but not exclusive of:

- Brachytherapy
- Stereotactic Radiosurgery and Radiotherapy
- Image Fusion
- Quality Assurance
- Intensity Modulated Radiation Therapy (IMRT)

Additionally there are expert practitioners in the areas of digital imaging protocols, immobilisation, treatment, education, research and development. These practitioners operate at advanced levels however they remain largely unacknowledged at formal levels other than at a personal level.

It needs to be acknowledged, though, that many practitioners who engage in extended scope of practice will be informally regarded as engaging in advanced practice, although not necessarily.

At present, many senior radiographers and radiation therapists who have assumed management responsibilities would probably not be regarded by themselves or their colleagues as either advanced practitioners or engaging in advanced practice.

Difficulties lie in relation to adoption to alternative terminology such as “lead practitioner”\textsuperscript{95}, “consultant” or “specialist” because of the risk of such descriptors engendering confusion amongst members of the public who are not au fait with the subtleties of what they might be intended within the professions to designate.

However, notably the term “specialist” is employed within physiotherapy in Australia:

To achieve the Specialist level, the prospective candidate undertakes a two-year training program which includes clinical experience and facilitated clinical development to attain an advanced level of clinical practice as well as evidence of a commitment to education and active participation in a research activity. At the completion of the two-year training program, candidates present for final clinical and oral examinations. Specialists are admitted to the Australian College of Physiotherapists, which is the body within the APA that is ultimately responsible for setting the standards and criteria and administering the clinical examinations that Level Three candidates must undertake. Only members of the College have the right to use the words ‘Specialist Physiotherapist’.\textsuperscript{96}

Similarly the terms “clinical radiographer ” (modelled on the “nurse practitioner” designation)\textsuperscript{97} and “clinical fellow” are feasible options. However, they risk engendering confusion\textsuperscript{98}, although if the latter were used simply in relation to status within the Institute this would not prove a significant problem.

\textsuperscript{95} A designation propounded by Mr Harvey: IPAT, Consultation Transcript, 24 June 2011, at p374.


\textsuperscript{97} Advocated for by Dr Fabiny: IPAT, Consultation Transcript, 24 June 2011, at p367.

\textsuperscript{98} IPAT, Consultation Transcript, 24 June 2011, at p359: Dr Penlington.
A model that could be drawn upon is that of the “nurse practitioner”99, which was defined by the ANMC National Competency Standards for the Nurse Practitioner as follows:

A nurse practitioner is a registered nurse educated and authorised to function autonomously and collaboratively in an advanced and extended clinical role. The nurse practitioner role includes assessment and management of clients using nursing knowledge and skills and may include but is not limited to the direct referral of patients to other health care professionals, prescribing medications and ordering diagnostic investigations. The nurse practitioner role is grounded in the nursing profession's values, knowledge, theories and practice and provides innovative and flexible health care delivery that complements other health care providers. The scope of practice of the nurse practitioner is determined by the context in which the nurse practitioner is authorised to practice. Nurse practitioners work at an advanced level in many clinical practice settings, which include diabetes care, emergency care, intensive care, women's health, aged care, palliative care, paediatrics, urology, wound management, mental health, rural and remote health, men's health, community health, young people's health, sexual health, pain management, ophthalmology, renal, respiratory, neonatal, orthopaedics, neurosurgery, chronic heart failure, cardiology, continence and oncology.

However, little support was expressed by IPAT members for a role similarly expressed for radiographers and radiation therapists. A difficulty with such a designation is that it does little on its face to clarify the nature of the additional capacities and roles of such advanced practitioners. In addition, it would add a level of confusion by its introduction of the otiose notion of “practitioner” to professionals who already are and function as health practitioners.

Concern was raised in discussions at the IPAT about loose usage of terminology which equates advanced status with extended scope – a status and a function which ought to be fundamentally different100, although it can overlap with it as a number of practitioners who obtain advanced status may well have been working outside the


100 The latter term was discussed by Mr Lyall in the nuclear medicine context as possible after a period of experience after acquisition of advanced practitioner qualifications: IPAT, Consultation Transcript, 23 June 2011, at p313.
traditional role and thereby have been extending their role. Importantly, outside Australia, for instance in the United Kingdom, there is a level of disuniformity in the usage of terminology and variation from one location to another.\(^{101}\)

Another option is the avoidance of descriptive adjectives.\(^ {102}\)

A number of examples exist within health professions, especially nursing, in relation to extended scope of practice, and also advanced status. For instance, in the Australian Capital Territory, the Office of the Allied Health Adviser in a 2009 report “Radiation Therapy Extended Scope of Practice: Phase 1”\(^ {103}\) used the following definitions:

An **Advanced Practice** Radiation Therapist is a ‘clinical specialist’ or ‘expert clinician’ who has significant experience and the opportunity to develop and demonstrate expertise within an area of specialisation. The role requires a high level of knowledge and clinical experience.\(^ {104}\)

**Extended Scope of Practice** involves tasks which Advanced Practice Radiation Therapists perform that are outside current legislation. These tasks require a high level of knowledge and clinical experience, accredited further education and ongoing credentialing.\(^ {105}\)

Yet another approach to the advanced practice role was put forward by Ms Phillip. It occurs from her perspective where a set of practitioners are undertaking work that was formerly the responsibility of others: “it’s usually when someone’s practising and their tasks are involving an area of practice that traditionally has been perhaps the role of a medical practitioner …, so they are actually doing something which is within their skill set and their competencies but previously that role has been performed by an orthopaedic surgeon for instance.”\(^ {106}\) She instanced physiotherapists functioning as a

\(^{101}\) IPAT, Consultation Transcript, 24 June 2011, at p353-354: Mr Collier.

\(^{102}\) IPAT, Consultation Transcript, 24 June 2011, at p362: Dr Allison


\(^{104}\) Mr Lyall stated that from the perspective of the Australian and New Zealand Society of Nuclear Medicine a person is engaging in advanced practice if they “are taking on new knowledge and skills beyond their standard scope of practice”. This may or may not take the knowledge and skills into areas that others traditionally have performed or it might be a development of protocols or techniques: IPAT Consultation Transcript, 29 March 2012, p58.

\(^{105}\) This definition of “advanced practice” has been adopted by the National Allied Health Advisory Committee: IPAT Consultation Transcript, 29 March 2012, p70: Ms Philip.

\(^{106}\) IPAT Consultation Transcript, 29 March 2012, p54. Ms McHugh too (IPAT Consultation Transcript, 29 March 2012, p77) argued that intrinsic to the advanced role is transfer of functions from professionals in other disciplines and the ability to undertake them safely and competently.
first contact practitioner. Ms Harris indicated that in her department at Westmead Hospital this is currently the informal criterion for persons regarded as engaging in advanced practice: they are the radiation therapy practitioners who are currently doing work which was formerly the purview of radiation oncologists. Associate Professor Allison observed in this regard that such a phenomenon “may happen as an epiphenomenon … but it shouldn’t be a driving criterion”.

Another, and probably preferable approach, is the generic. This was exemplified by the position advanced by Ms Hulcombe who contended that for advanced practice there is a need for clinically advanced skills, experience, education, training and peer review. To a similar effect, Ms Wright contended that advanced practice should be characterised by:

- research-based practice;
- the capacity to integrate theory and practice and disseminate it;
- the ability to draw upon and collaborate with other disciplines;
- the ability to promote their department;
- the ability to participate in research and audit; and
- the ability to make recommendations that can be distributed to others.

Mr Lyall highlighted the capacities for decision-making, accountability and autonomy with knowledge and clinical leadership feeding into management and planning of service delivery, as well as sharing of research-based knowledge with colleagues.

Associate Professor Sim emphasised the significance of research in respect of the advanced practitioner model. By this she meant “rigorous research”: a higher level than that at undergraduate level at university. She indicated that there is a commitment from Australia’s universities to work collaboratively to enable tertiary involvement in advanced practice. Mr Watson urged the adoption of “framework” terminology to emphasise that more than completion of a tertiary course is required to the attainment

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107 IPAT Consultation Transcript, 29 March 2012, p54.
108 IPAT, Consultation Transcript, 23 June 2011, at p279.
110 IPAT, Consultation Transcript, 23 June 2011, at p309.
111 IPAT, Consultation Transcript, 23 June 2011, at p285.
of advanced status\textsuperscript{112}. Ms Harris\textsuperscript{113} expressed the view that there need to be agreed national standards for advanced practitioner status.

Significantly, the United Kingdom’s Society and College’s career progression framework\textsuperscript{114} of 2002 placed great emphasis on research as an indicium for practice, advocating that:

- All practitioners should be research aware;
- Advanced practitioners should contribute to research and must use evidence in their practice;
- Consultant practitioners should be advancing in practice and be leaders in their field, who are advising and supporting others. They will have a crucial function in ensuring research and practice are effectively merged\textsuperscript{115}

However, by 2005 the Society and the College\textsuperscript{115} identified a range of barriers to effectively making practice evidence-based:

- A scarcity of defined research career pathways;
- Shortages of staff, with poor recruitment and retention;
- A lack of available training to enable radiographers to undertake research and to critically appraise evidence;
- A deficiency of funding to implement a supportive research infrastructure, with capacity and capability across and between centres;
- Inequity in the distribution of available funding;
- A proportion of radiographers with a lack of confidence to engage in research;
- Insufficient flexibility between postdoctoral research and clinical training;
- Prolonged insecurity of short-term appointments; and
- Limited research training opportunities.

The movement in the United Kingdom toward both research-based radiographic practice and discrete categories of radiation practice has been accompanied by the

\textsuperscript{112} IPAT, Consultation Transcript, 23 June 2011, at p293.

\textsuperscript{113} IPAT, Consultation Transcript, 23 June 2011, at p298.


By way of principles for adoption of terminology, there is much to be said for the adoption of terminology which conveys clearly what it is intending to communicate and thereby avoids potential for confusion in the minds of members of the public and fellow professionals. It should also be such as to avoid creating misunderstanding, divisiveness or resentment within the relevant and associated professions\footnote{IPAT, Consultation Transcript, 24 June 2011, at p357: Ms Harris; Ms Wright.}.

In respect of the term, “advanced practitioner”\footnote{See L Ricote, “Advanced Practice within Medical Imaging – Towards an Australian Model” (2009): \url{http://www.churchilltrust.com.au/site_media/fellows/RICOTE_Liza_2008.pdf}, viewed 20 April 2012.}, the downside is that many experienced practitioners with particular expertise would regard themselves as advanced practitioners, whether or not they have completed a relevant prerequisite qualification. The positive attribute of the term is that it would serve to provide designation of leaders within the profession, who have acquired postgraduate credentials, and with them a high level of clinical experience.

**Potential Areas of Advanced Practice**

In 2009 the ACT Office of the Allied Health Adviser\footnote{“Radiation Therapy Extended Scope of Practice: Phase 1”: \url{http://www.health.act.gov.au/c/health?_a=sendfile&ft=p&fid=1408760975&sid=}, viewed 28 November 2011.} identified a series of areas of potentially enhanced practice for radiation therapy. Other jurisdictions may have different needs but the recommendations from the ACT are useful for the purpose of facilitating reflection on the issue:

i. **Breast Specialist**: patients frequently spend long periods of time awaiting breast-mark-up by a Radiation Oncologist. A training program for Radiation Therapists is offered by Monash University and trials of this role are already underway in Victoria.

ii. **Imaging Specialist**: to assist with standardising treatments and protocols and performing complex planning. Clinical training programs are offered by Monash University and Sydney University currently offers theoretical...
imaging subjects. Trials of this role are already underway in Victoria.

**iii. Palliative Care Specialist:** to increase the continuity of care and expedite assessment, referral, treatment and review of palliative patients. This role would require the establishment of a training course to meet these needs.

**iv. Physics Specialist:** to take over some activities currently performed by Medical Physicists (there is a worldwide shortage of Medical Physicists) and to make use of a radiation therapist’s practical knowledge when commissioning equipment and collecting data. There is also potential for the development of a pathway from Radiation Therapy into Medical Physics.

**v. Brachytherapy Specialist:** to coordinate patient care, assist with insertions and approve plans of patients receiving standard techniques. This role is not currently required in ACT health however the planned increase in brachytherapy service makes this role an option for the future.

**vi. Patient Review Specialist:** to deliver patient education, review, counselling and follow-up for the 'more well' patients. This role has traditionally fallen within the domain of the radiation therapists however is currently conducted by oncology nurses.

**vii. Information Technology Specialist:** to increase availability of data for research, audit and evaluation purposes.

The potential benefits from introducing these roles were identified as varying slightly from role to role but include:

- reducing work burden on medical practitioners and medical physicists;
- reducing consultant clinic time;
- reducing patient waiting time; and
- no change in, or potentially increased patient satisfaction.

If there is to be a category of practice designated as “advanced”, opinions differed within the IPAT about the areas to which this should relate, and it was agreed that there was merit in further identifying such areas on the basis of more discussion and on the basis of stakeholder consultation. There was a general view that categorising areas of practice in ways which are site-specific provides little assistance. Rather, advanced practice should be “needs driven”\(^\text{120}\). This notion should include the needs of patients but also workforce needs, which include retention of practitioners and flexibility of practice\(^\text{121}\).

\(^{120}\) IPAT, Consultation Transcript, 24 June 2011, p409: Ms Harris; p411: Mr Colgan.

\(^{121}\) IPAT, Consultation Transcript, 24 June 2011, p421: Ms McHugh.
Ms Harris\textsuperscript{122} contended that a fundamental aspect of advanced practitioner status should be “clinical leadership” by which she meant keeping up-to-date with the latest research, implementing changes in protocols, treatment and interacting at a high level with professionals, as well as educating others, and contributing to developments in practice. Notably this approach is consistent with that adopted in the United Kingdom, to which reference has been made previously\textsuperscript{123}.

It was suggested\textsuperscript{124} that identification of particular technical skill-base areas for advanced practice is likely to be a flawed aspiration as what is regarded as advanced today may well be baseline and required for entry into the profession within a short time. For example, 3D radiation therapy treatment planning was seen as advanced practice in 2000 but is now considered to be an entry level requirement for new graduates.

Associate Professor Chin and Dr Allison spoke on behalf of the Faculty of Radiation Oncology, a faculty of the Royal Australian and New Zealand College of Radiologists since 1989. They stated that current research suggests that the ideal uptake of radiation treatment in newly diagnosed cancer patients is about 52% but that the current uptake runs at about 14% below this figure. They emphasised the collaborative nature of radiation therapy in which radiation therapists work closely with radiation oncology medical physicists, as well as many others\textsuperscript{125}. They noted that radiation therapists sometimes acquire particular expertise in specific areas as an extension of their core role. Examples are brachytherapy – where radiation sources are used particularly with prostate and gynaecological cancers – and stereotactic radiosurgery and intensity modulated radiation therapy. They said that they could envisage advanced practice for radiation therapists. They thought that such practice should be closely integrated with research.

Dr Fabiny\textsuperscript{126} suggested “procedural”, “diagnostic” and “health informatics” as categories for advanced practice. Dr Penlington\textsuperscript{127} raised, too, issues relating to quality assurance, dose optimisation and supported the notion of e-health/health informatics.

\textsuperscript{122} IPAT, Consultation Transcript, 24 June 2011, at p376.
\textsuperscript{124} IPAT, Consultation Transcript, 24 June 2011, p406: Ms Harris.
\textsuperscript{125} IPAT, Consultation Transcript, 19 May 2011, at p54.
\textsuperscript{126} IPAT, Consultation Transcript, 24 June 2011, at p387.
\textsuperscript{127} IPAT, Consultation Transcript, 24 June 2011, p394.
Ms Harris advocated the inclusion of paediatric radiography and noted that already radiation therapists delineate target volumes, planning the volumes and identifying the organs at risk. She could contemplate advanced practitioners developing a plan for authorisation by the oncologist and undertaking treatment verification. She observed that this is something already undertaken by base grade radiation therapists and commented that the difference with advanced practitioners may be that they might be able to initiate treatment for a limited number of fractions under clearly defined guidelines agreed with the oncologist and subject to authorisation prior to the 2nd or 3rd fraction for ongoing treatments. Currently, this is currently not permitted in Australia but is permitted for consultant practitioners in the United Kingdom.

Associate Professor Chin identified paediatrics, highly specialised stereotactic therapy and brachytherapy as appropriate areas for advanced practice. Dr Allison included paediatric, brachytherapy, stereotactic and informatics within the areas of radiation therapy that could “carry” advanced practice.

Dr Andrews expressed support for the “red dot system” in the United Kingdom whereby the radiographer draws the attention of the radiologist to issues they identify. He said that this is properly to be classified as a form of extended scope of practice, although it can be the purview of advanced practitioners. He said that he thought that communication of such information should be a mandatory part of every system, although in Australia it currently is not. He felt that accident and emergency physicians would have a similar view. This attracted the support of Dr Smith. Dr Fabiny commented that a radiologist would appreciate a communication from a

128 IPAT, Consultation Transcript, 24 June 2011, p400.
129 IPAT, Consultation Transcript, 24 June 2011, at p446-447.
130 IPAT, Consultation Transcript, 24 June 2011, at p451.
131 IPAT, Consultation Transcript, 24 June 2011, p405.
132 IPAT, Consultation Transcript, 24 June 2011, p401.
133 Notably, a controversial issue with the red dot procedure is a level of ambiguity that has been identified as attaching to it: see eg T Smith and C Younger, “Accident and Emergency Radiological Interpretation using the Radiographer Opinion Form (ROF)” (2002) 49(1) The Radiographer 27.
134 Notably, though, as noted above, an element of this already exists in Australia by virtue of ethical obligations articulated by the Institute of Radiographers.
135 IPAT, Consultation Transcript, 19 May 2011, at p37-38.
136 IPAT, Consultation Transcript, 19 May 2011, at p38.
137 IPAT, Consultation Transcript, 24 June 2011, at p434.
radiographer if they noted an abnormality or placed a comment such as identifying a fractured radius\textsuperscript{138}, for example. However, a distinction exists between an identification of an issue of this kind or an observation and the conduct of a clinical examination which is the role of the radiologist\textsuperscript{139} and the task of formal reporting, the traditional purview of radiologists.

**Advantages of Advanced Practice Designation**

Associate Professor Chin and Dr Allison observed that an advantage of a formalised recognition of advanced practice would be the transportability of such recognition from one centre to another\textsuperscript{140}. This was a generally accepted position during IPAT discussions. They identified also the importance of the designation building on general experience and training.

They observed that the creation of an “advanced status” is likely to consolidate a career path within radiography and radiation therapy. It may also act to retain valuable practitioners in clinical practice\textsuperscript{141}. It is likely to do so by providing extra challenge, as well as acknowledgment of high levels of knowledge and skill. Both such challenge and acknowledgment can reasonably be anticipated as likely to be experienced as satisfying by members of the profession\textsuperscript{142}.

Another advantage identified is the potential for other professionals to be able more readily to recognise and utilise the skills of those with such a status\textsuperscript{143}

\textsuperscript{138} Mr Harvey commented that it has been the practice in his department that if radiographers see a clinical indication not included on the request, it is added to the notes for the radiologist’s edification: IPAT, Consultation Transcript, 24 June 2011, at p436.

\textsuperscript{139} IPAT, Consultation Transcript, 24 June 2011, at p439: Dr Penlington. Arguably, this role is not so often performed in Australian Accident and Emergency Departments in a direct, in person role by radiologists.

\textsuperscript{140} IPAT, Consultation Transcript, 19 May 2011, at p59: Associate Professor Chin and Dr Allison; IPAT, Consultation Transcript, 29 March 2012, p37: Mr Lyall; p44: Associate Professor Chin; p45: Ms Harris

\textsuperscript{141} IPAT, Consultation Transcript, 19 May 2011, at p131: Ms Phillip. See too IPAT, Consultation Transcript, 29 March 2012, p369: Ms McHugh.

\textsuperscript{142} Speaking of sonographers, Ms Temple commented that undertaking postgraduate qualifications “doesn’t gain them an advantage. It does encourage those people who are more enthusiastic, more professional, more engaged, more interested in their profession, allows them a way to further their skills and their knowledge”: IPAT Consultation Transcript, 29 March 2012, p30. Ms Trevaskis observed that feedback in relation to sonographers suggested that recognition and assumption of responsibility are drivers that sonographers are looking for in their work: sonographers are looking for in their work: IPAT Consultation Transcript, 29 March 2012, p63.

\textsuperscript{143} IPAT Consultation Transcript, 29 March 2012, p31: Ms Temple.
No doubt it will also have financial repercussions, as those with advanced status could legitimately expect to be paid at a higher rate than those who are “base grade”. However, it seems clear that the financial incentive is unlikely to be viewed within the profession as a principal motivation to pursue the status. A similar phenomenon has been identified in physiotherapy and among nuclear medicine scientists and sonographers. It will be important, though, that practitioners are able to practise in the area of their advanced practice status. This is not so much an issue of entitlement as an issue for provision of guidance to aspirants to advanced status so that the market is not flooded with persons of advanced level from areas of practice in which they cannot reasonably aspire to employment.

Perhaps, most importantly, advanced practice must be patient-centric in the sense of enhancing the safety and quality of services provided to patients and in satisfying needs within individual departments – again for the benefit of patients.

The suggestion was made that the tripartite co-operative arrangement between the AIR, the Faculty of Radiation Oncology and the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM) could form an exemplar for recognition of such specialisation. This may be able to take place not only by way of ongoing communication and negotiation as to boundaries but as the development of clinical protocols and practice guidelines about responsibilities and role allocation.

This raises the issue of the contribution that could be made by universities to accreditation or training for advanced practice. A difficulty is that a number of areas may be very small and therefore below the necessary critical mass to interest tertiary institutions. Ms Hurwood of Queensland Health nonetheless identified advantages in involving the tertiary sector because of the credibility that this entails and its advantages in terms of facilitation of research. She instanced the nurse practitioner model as a means of integrating the clinical with the scholarly.

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144 IPAT Consultation Transcript, 29 March 2012, p23: Ms Philip.
145 IPAT Consultation Transcript, 29 March 2012, p23: Mr Lyall.
146 IPAT Consultation Transcript, 29 March 2012, p30: Ms Temple.
147 IPAT, Consultation Transcript, 19 May 2011, at p122-123: Mr Watson.
148 IPAT, Consultation Transcript, 19 May 2011, at p127. Ms Trevaskis.
149 A concern raised by Dr Smith: IPAT, Consultation Transcript, 19 May 2011, at p66.
150 IPAT, Consultation Transcript, 19 May 2011, at p70.
A somewhat different approach was argued for by Dr Smith, who contended that the clinical and educational components need not necessarily be delivered out of a university, the relevant expertise a proportion of the time existing within clinical units rather than in tertiary institutions, and in fact that the formality and costs of postgraduate tertiary courses could constitute a disincentive to radiographers and radiation therapists availing themselves of them.\(^\text{151}\)

It is apparent that forms of advanced clinical training are being made available at various centres in Australia and New Zealand – including through Dunedin Hospital and the University of Otago\(^\text{152}\), the Peter MacCallum Centre in Victoria and Westmead Hospital. Craig Watson, a Board Member of the New Zealand Institute of Medical Radiation Technology, stated that the Institute would prefer a formalised basis for such training and at one stage had explored the possibility of Monash University providing it\(^\text{153}\).

Professor Kron, the Immediate Past President of the Australasian College of Physical Scientists and Engineers in Medicine, noted that training for medical physicists is Masters level at universities plus three years clinical training, with some degree of disconnection between the two\(^\text{154}\). He argued that flexibility should be a hallmark of an advanced practice model for radiographers and radiation therapists\(^\text{155}\).

Craig Watson\(^\text{156}\) described the postgraduate certificate in advanced radiation therapy practice, commencing in 2012, at the University of Otago\(^\text{157}\). He described this as putting a practitioner in “a clinical specialist’s role”\(^\text{158}\). It will take a minimum of two years to complete and be 70% theory and 30% clinical. It is open to the 1,780 registered diagnostic and therapy medication radiation therapists in New Zealand and the

\(^{151}\) IPAT, Consultation Transcript, 19 May 2011, at p72.


\(^{153}\) IPAT, Consultation Transcript, 19 May 2011, at p76.

\(^{154}\) IPAT, Consultation Transcript, 19 May 2011, at p80.

\(^{155}\) IPAT, Consultation Transcript, 19 May 2011, at p86.

\(^{156}\) Board Member of the New Zealand Institute of Medical Radiation Therapists: IPAT, Consultation Transcript, 19 May 2011, at p103.


\(^{158}\) IPAT, Consultation Transcript, 19 May 2011, at p103.
anticipation is that about 5% of practitioners may become advanced practitioners through this route. He noted the need for there to be synchronisation of standards and approach between the Australian jurisdictions and New Zealand159.

An important workforce issue is the retention of involved, committed staff and avoidance of burn-out engendered by repetitive work without any clear career progression160. Ms Temple161 of the Australian Sonographers Association emphasised the need to cater to the approximately 10% of the profession who want to be more challenged in their work; otherwise they may be lost to the profession. Mr Swinbourne, too, argued that catering to the needs of high achieving members of the profession for career progression itself is a legitimate and sufficient reason to introduce a structure within radiography and radiation therapy which enables recognition and development for a high-achieving component of the workforce162.

**The Peter MacCallum Model**

A number of advanced practice programmes have been developed at particular sites. An example is at the Peter MacCallum Institute where there is a role extension area of practice and an advance practice role163. In 2005 a breast localisation simulation role was started and in 2009 advance imaging for radiation therapy and radiation therapists. Both programmes were structured with clinical mentorship with an appropriate radiation oncologist and underpinned by distance education at postgraduate level certificate level, using Monash University. The training programme was designed to enable staff to take over new, delegated roles and thereby to streamline patients’ progress. It was also a product of an internal survey of what radiation therapists wanted by way of advanced practice. As Ms Matthews put it:

> We very clearly defined a scope of practice for what we were trying to achieve, so what sort of roles were these practitioners found to be undertaking so that that delegated responsibility was very clearly defined and within that defined as to what is the responsibility of the radiation oncologist also. So the radiation

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159 IPAT, Consultation Transcript, 19 May 2011, at p106.
160 IPAT, Consultation Transcript, 23 June 2011, at p196: Ms J Harris.
162 IPAT Consultation Transcript, 29 March 2012. See too Associate Professor Allinson: IPAT Consultation Transcript, 29 March 2012: p18
163 IPAT, Consultation Transcript, 23 June 2011, at p211ff: Kristie Matthews.
oncologist will always sign off at some point along the chain that the delegated task has been approved.\textsuperscript{164}

The process evolved somewhat and by 2011 14 radiation therapists, 13 imaging therapists and two radiation engineers had graduated, with six current trainees in 2011 across the three areas. This constitutes a figure in the order of 10\% of practitioners. The experience has been that the graduates have been able to assume greater responsibility (for instance, at Bendigo) and to have been a significant resource within the organisation. In addition, there have been measurable efficiencies in terms of throughput. For two years the programme was a graduate certificate programme (costing approximately $8000) and then Monash University reconstituted it as a short course (costing approximately $2000).

Ms Harris identified a similarly positive outcome at Westmead and a reduction in the incidence of re-simulations\textsuperscript{165}, as well as a range of efficiencies and, for instance, a reduction in the need for radiation oncologists having to attend for routine problem-solving\textsuperscript{166}.

A number of lessons have been learned from the Peter MacCallum exercise:

\begin{itemize}
  \item Stakeholder involvement is very important;
  \item Staged implementation worked well as it enabled flexibility
  \item Clear communication is essential, including as to the aims of advanced training;
  \item Postgraduate training is a vital component;
  \item It was important to have achievable maintenance and competency guidelines to balance succession planning and advanced practice;
  \item It was important to have experienced clinicians undertaking the advanced training.
\end{itemize}

However, an issue created by graduation from the advanced practice program has been a level of frustration amongst some graduates who “want to be able to do more. They can see areas that they can go into. However, there are barriers within their usual work role in order to perform those.”\textsuperscript{167} This can pose logistical challenges in terms of

\textsuperscript{164} IPAT, Consultation Transcript, 23 June 2011, at p215.
\textsuperscript{165} IPAT, Consultation Transcript, 23 June 2011, at p229
\textsuperscript{166} IPAT, Consultation Transcript, 23 June 2011, at p222.
\textsuperscript{167} IPAT, Consultation Transcript, 23 June 2011, at p220.
allocation of practitioners, both while undertaking advanced training so that they have adequate clinical experience to enable it, and afterwards.\textsuperscript{168}

Ms Matthews expressed the view that there is “definitely a role for formal accreditation from an external body” for advanced practice. Caroline Wright from Monash University observed that this kind of partnership is acceptable for universities, although it is initially driven by the services. However, numbers are a difficulty with a requirement at Monash University, for instance, for 15 full-time equivalent students to make a programme viable.\textsuperscript{169} Ms Matthews argued that the Institute could assist in accrediting courses so as to enable portability.

Ms Matthews observed that in her experience the major motivation for practitioners pursuing the status of advanced practitioner at the Peter MacCallum Institute was professional challenge, rather than financial advantage.\textsuperscript{170} Dr Smith argued on the basis of consultation with AIR members that much of practitioners’ motivation was genuinely altruistic – to improve the outcome for patients.\textsuperscript{171} Difficulties exist in terms of the current structure for remuneration of advanced practices employees. In New South Wales there is a level of flexibility, which has been helpful.\textsuperscript{172} However, the absence of a formal structure which can be recognised nationally is already proving problematic.\textsuperscript{173}

Ms Matthews explained that a competency maintenance process has been set in place with practitioners annually submitting a portfolio which is peer reviewed.\textsuperscript{174} There are requirements that practitioners complete a certain number of clinical episodes over the course of the year as well as undertaking a designated number of position-related Continuing professional development activities. The Institute has also established an annual meeting with a mini-workshop each year.

\textsuperscript{168} IPAT, Consultation Transcript, 23 June 2011, at p251, Mr Hornby. This can have its advantages for reassessing work processes and enabling streamlining: IPAT, Consultation Transcript, 23 June 2011, at p251, Ms Harris.
\textsuperscript{169} IPAT, Consultation Transcript, 23 June 2011, at p223.
\textsuperscript{170} IPAT, Consultation Transcript, 23 June 2011, at p253.
\textsuperscript{171} See also IPAT, Consultation Transcript, 23 June 2011, at p254: see also See also IPAT, Consultation Transcript, 23 June 2011, at p253-4: Ms Temple.
\textsuperscript{172} IPAT, Consultation Transcript, 23 June 2011, at p224: Ms Harris
\textsuperscript{173} IPAT, Consultation Transcript, 23 June 2011, at p225: Ms Harris
\textsuperscript{174} IPAT, Consultation Transcript, 23 June 2011, at p259.
Potential Disadvantages of the Advanced Status Designation

Concern was expressed by some about the risk that with the creation of advanced status, “plain radiography” may be relegated to second class status and deteriorate in quality. Ms Harris though contended that this is a management issue, while Associate Professor Sim emphasised the need to take positive steps to ensure that suitable support is given to general radiographers and to their role. This needs to be done in a way which is not condescending and which does not in any way render general radiography into a subsidiary status. Mr Hornby postulated that lifting “the top end” would be likely to “drag up the bottom end”. Ms Hulcombe of Queensland Health emphasised the need to be careful in designating what is advanced level work, lest some roles which should be at entry level are miscategorised as advanced practice. She argued that health workforce innovation is required rather than specialisation so that there are practitioners who can do the whole range of work competently — this is especially important in regional areas. She also emphasised that this may mean that radiographers and radiation therapists may themselves need to delegate traditional aspects of their work to others.

A controversial issue discussed at the IPAT was the role of persons who might take some of the load from radiographers and radiation therapists. The issue is contentious and has been the subject of debate within the scholarly literature. Mr Harvey noted that in Britain there are radiographic assistants who do lower level radiography tasks under radiographer supervision, having undertaken a two year tertiary course. He

175 IPAT, Consultation Transcript, 23 June 2011, at p260-261: Dr Fabiny, Dr Andrews.
176 IPAT, Consultation Transcript, 23 June 2011, at p265-266.
177 IPAT, Consultation Transcript, 23 June 2011, at p267: Dr Andrews.
178 IPAT, Consultation Transcript, 23 June 2011, at p264-265.
179 See to similar effect IPAT, Consultation Transcript, 23 June 2011, Ms Matthews, Dr Fabiny, Dr Smith: at p265; Associate Professor at p271.
180 IPAT, Consultation Transcript, 23 June 2011, at p262-263.
181 IPAT, Consultation Transcript, 23 June 2011, at p262.
182 IPAT, Consultation Transcript, 23 June 2011, at p268.
184 IPAT, Consultation Transcript, 24 June 2011, at p461.
could foresee a role for such a practitioner in due course in Australia IPAT\(^{185}\). Ms Hulcombe identified merit in this from a workforce perspective\(^{186}\) and observed that, in Queensland, under the licensed operator program in rural and remote locations, some non-health professionals provide some of this assistance already. The licensing of non-health professionals does not currently happen in other States, however.

A formal trial of an assistant role along the United Kingdom lines has been undertaken in Queensland. Ms Hulcombe identified that it has proved useful in terms of relieving radiographers of a number of time-consuming roles\(^{187}\). Associate Professor Sim\(^{188}\) noted that an intermediate qualification had been trialled in Singapore with graduates receiving a diploma. However, it was not successful as those interested in the area preferred to obtain a degree than a diploma.

Mr Collier\(^{189}\) noted that the Australian Institute of Radiography is in the process of developing the recognition of supervisors to ensure that supervision is provided at a suitable level.

Another concern expressed by some was that the creation of advanced status within radiography and radiation therapy may not be in accordance with vocational tasks and outcomes\(^ {190}\). A consequence raised by representatives of the Royal Australian and new Zealand College of Radiologists may be that a person designated as of advanced status may not work as an advanced practitioner in a particular workplace\(^ {191}\), resulting in a disconnect between designation and actual role\(^ {192}\). An option is simply to leave the recognition of advanced status to the informal processes of individual workplaces and to have advanced status recognised as a local phenomenon.

A query was expressed too about whether the creation of such a status would be as useful in the private sector as in the private\(^ {193}\). However, no clear instances of where such a designation would not be meaningful or indeed useful were identified.

\(^{185}\) IPAT, Consultation Transcript, 24 June 2011, at p462.
\(^{186}\) As did Mr Fabiny: IPAT, Consultation Transcript, 24 June 2011, at p473. Ms temple suggested that such a role may not be suitable for sonography: IPAT, Consultation Transcript, 24 June 2011, at p475-476.
\(^{187}\) IPAT, Consultation Transcript, 24 June 2011, at p463.
\(^{188}\) IPAT, Consultation Transcript, 24 June 2011, at p468.
\(^{189}\) IPAT, Consultation Transcript, 24 June 2011, at p464.
\(^{190}\) IPAT, Consultation Transcript, 29 March 2012, at p34: Dr Andrews.
\(^{191}\) IPAT, Consultation Transcript, 29 March 2012, at p38: Dr Andrews.
\(^{192}\) IPAT, Consultation Transcript, 29 March 2012, at p37: Dr Andrews.
\(^{193}\) IPAT, Consultation Transcript, 29 March 2012, at p35: Ms Penlington.
Recommendations

The Success of the IPAT. The meetings of the IPAT have been highly successful in bringing together representatives of relevant stakeholders in a collegiate and constructive spirit for the purpose of considering whether formalising advanced practice in radiography and radiation therapy would be a worthwhile development for the contemporary health workforce in Australia.

The Change Process. It was recognised by all IPAT participants that both radiography and radiation therapy have changed dramatically within the last decade and that they are likely to continue to do so in the years ahead. Drivers in this regard will include major advances in technology, changing profiles of workers within the health practitioner workforce, an ageing population with a growing and evolving incidence of cancers, and financial pressures within the health sector requiring a level of reallocation of traditional responsibilities, role flexibility and role substitution within the radiation workforce. Efficiencies and workforce recalibration are pressures to which radiography and radiation therapy are not and will not be immune – in Australia and internationally. This will require innovation and will challenge previous roles and expectations, while preserving safety and accountability. There is much to be said for change being generated internally within the health radiation disciplines rather than being imposed from the outside by government and intrusive regulation that may be influenced by financial exigencies more than by awareness of and concern for the subtleties of clinical practice within a teamwork environment.

Purpose of Formalising Advanced Role. There was a consensus amongst the IPAT members that if there is to be advanced practitioner status within radiography and radiation therapy, it must be constructed so as materially to enhance the interests of patients. In addition, it must not be such as to promote the impression or create the reality of devaluing the current workforce or to create a secondary tier that is not valued for its contribution within the team environment of medical radiation practice. However, it was also acknowledged that factors such as facilitating workforce flexibility, enhancing practitioner satisfaction, providing further for career advancement, recognition and satisfaction within the disciplines, and promoting practitioner retention within the workforce constitute legitimate considerations in evaluating the utility of advanced practitioner status. A more stimulated and valued workforce is likely to be a higher functioning and harder working workforce. Thus the general view was that there were genuine benefits for the disciplines of radiography and radiation therapy, as well as those professions working with them, to be gained from the creation of advanced
status as a formal tier.

**Informal Existence of Advanced Practice.** It is important and unsurprising that de facto advanced status exists already within some radiography and radiation therapy work sites. Australian examples of this phenomenon are at Westmead Hospital and the Peter MacCallum Cancer Centre. However, the status is not formal and it is diverse in the criteria that result in given individuals being regarded as having reached such a point in their careers. For some the status is reached because of the esteem in which they are held by reason of their level of clinical practice. For some it is because they are undertaking significant supervisory responsibilities in relation to others’ clinical work. For some it arises because they are doing cutting edge and technologically demanding work that may previously have been the preserve of other professionals such as radiologists and oncologists – in other words, the scope of their work is extended and there is an element of role substitution which is characterising it.

As a result, advanced practice status currently tends to be site-specific, disuniform in its criteria, and not transportable from one workplace to another; if a practitioner moves location in employment, it has to be earned from another set of peers and colleagues. This is undesirable.

**Distinction between Advanced Practice and Extended Scope of Practice.** If the issue is viewed conceptually rigorously, advanced practitioner status should be defined in a way that is separate and distinct from whether the scope of the work undertaken by radiographers and radiation therapists should be extended or whether role extension is necessary or desirable in the abstract or in a particular workplace. There are many examples of extension in the scope of practice which have been encouraged and enabled in particular workplaces under suitable supervision. This has occurred for some years. While such extended work might constitute part of the focus of study and research directed toward advanced practitioner status, and many practitioners at present, and upon assuming accredited advanced status may, engage in work that extends the scope of radiography and radiation therapy practice, it is not coterminous with it or a replacement for advanced status.

Further, there is a practical and conceptual difference between whether a practitioner is accorded the status of advanced practitioner by reason of their having

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satisfied the requirements for such a status and the kind of work or the position they
fulfil from time to time in a particular workplace. This is far from unusual. Persons with
especial qualifications and credentials regularly do not employ or apply them from time
to time in their careers.

**Legal, regulatory and Insurance Issues.** Legal, regulatory and insurance
considerations must be taken into account in respect of both advanced practice and
extended scope of practice. While there will be greater expectations of, and therefore a
higher duty of care, for advanced practitioners\textsuperscript{195}, this should not be seen as a serious
impediment to creating the status of advanced practitioner. In general their work will be
supervised by the head of the team – generally a radiologist or an oncologist. The
consequence of this is that while they may identify issues in, for instance, scans, or
notice clinical issues during the provision of radiation therapy, and helpfully
communicate such information to the radiologist (as occurs at present and is the ethical
responsibility already of radiographers), the ultimate responsibility for interpretation of
data, clinical assessment and provision of treatment will remain that of the head of the
clinical team. This highlights the fact that the creation of an advanced practitioner role
will not fundamentally change the roles within the radiation workforce in terms of
discharge of ultimate responsibilities. Nor will it impact upon the significance of
vicarious liability for many institutions which employ radiographers and radiation
therapists.

It would be theoretically possible for specialist registration to be given to
advanced radiographer and radiation therapists under s57 of the *Health Practitioner
Regulation National Law* in force throughout Australia, but this is unlikely in the current
regulatory environment to be identified as a priority.

**Need for Collaboration in Developing Criteria for Advanced Practice.** For
formally recognised advanced status in radiography and radiation therapy to be viable,
it will require the respect of all relevant sectors of the workforce. This in turn will need
coopération and collaboration between a range of stakeholders, including the Institute,

\textsuperscript{195} As held by the High Court in *Rogers v Whitaker* [1992] HCA 58; (1992) 175 CLR 479 at [5]-[6] the law
imposes on a health practitioner a duty to exercise reasonable care and skill in the provision of professional
advice and treatment. That duty is a single comprehensive duty covering all the ways in which a
practitioner is called upon to exercise his or her skill and judgment"; it extends to the examination,
diagnosis and treatment of the patient and the provision of information in an appropriate case. Content has
to be given to the duty in any given instance. However, the standard of reasonable care and skill required is
that of the ordinary skilled person exercising and professing to have that special skill. If it is an advanced
practitioner, it would be unreasonable to expect only of him or her the standard of care which is that of
anon-advanced practitioner.
the Royal Australian and New Zealand College of Radiologists, professionals in allied disciplines, major workplaces, and the tertiary sector. Extensive further discussions will need to take place with and within these bodies and sectors.

**Areas for Advanced Practice Study.** A role for such bodies will be the development of agreement among stakeholders so that the parameters of advanced practice study are clearly identified and the subject of consensus. More work needs to be done to reach this point. It will also require suitably accredited supervisors able and willing to provide mentoring and guidance. Thus it will require consolidation and development of programmes by the Institute for such accreditation.

There is no uniformity of view as yet within radiography, radiology, oncology and radiation therapy as to the areas that should constitute advanced practice for radiographers and radiation therapists. In light of this, developing accredited tertiary courses that are generic but which include both specific aspects of clinical practice within the workplace, current theoretical and professional issues, and a minor thesis has much to commend it in terms of producing the desired product – a graduate able and recognised to assume advanced practice across workplaces; with the skills and knowledge to function at a high level within the profession; and in a position to provide guidance to other, less experienced members of the profession from an evidence-based and research-oriented perspective. It also has the advantage of not circumscribing advanced practice by reference to areas of practice which may significantly evolve over the years ahead in ways which cannot now be predicted with accuracy. What can be said is that today’s area of advanced practice may well be tomorrow’s entry level and orthodox area of practice.

**Acquisition of Advanced Practitioner Status.** The proposal of this report is that instead of the diverse and inconsistent informal criteria that currently exist for persons to be regarded as advanced practitioners or to be permitted to engage in advanced practice, there be substituted one formal route to the status of advanced practitioner: recognition as such by the Institute of Radiography as a result of the person having satisfactorily completed the requirements for award of an accredited postgraduate Masters degree in a designated area of radiography or radiation therapy. This may or may not translate into advanced practice at a particular site within the workforce. Whether it will do so will depend upon the availability of such work at a given site and whether the person is appointed to undertake it: employment issues.

196 See IPAT Consultation Transcript, 29 March 2012, at p90: Ms Harris
It is proposed that the person who satisfies the Institute of Radiography that they have satisfactorily completed the prerequisites will be granted the status of advanced practitioner in the particular field in radiography or radiation practice in which they have gained their accreditation. The advantage to such a mechanism is that it places the task of assessing whether criteria for elevation to the advanced level for any given individual essentially outside the professional body and vests it within the tertiary sector which is well experienced and equipped to assess rigorously and objectively whether appropriate skills have been acquired and levels of proficiency satisfied.

**A Hybrid Postgraduate Qualification.** It is recommended that advanced status postgraduate qualifications be obtained by a hybrid means, incorporating three components:

- Successful completion of generic postgraduate courses to be identified, standardised and accredited by the Institute. They would be delivered by universities.
- Successful completion of a major postgraduate piece of research in an area relevant to radiographic or radiation therapy practice – a minor thesis. The length of such a thesis should be around the 25,000 word mark.
- Successful completion of a designated number of hours of supervised and evaluated advanced practice within the workplace – generally the institution by which the candidate is customarily employed. The parameters of what should constitute such advanced practice and the mechanisms for evaluation should be formulated by the Institute on the basis of appropriate stakeholder consultation.

It is apparent that some workplaces would not be able to sustain such supervised advanced practice. Those candidates wishing to procure such supervised practice would therefore need to identify suitable institutions which would be able to provide them with what they need for completion of their postgraduate requirements. From the workplace’s perspective, both the undertaking by candidates of advanced practice and their completion of the research work for their degree, would be likely to enure to their advantage in terms of the generation of additional research insights and motivated undertaking of high level work by candidates.

**Terminology of the Advanced Practice Qualification.** It should be a matter for universities, in consultation with the Institute, whether they record the obtaining of such qualifications as specifically related to an area of clinical practice – eg M Adv Rad (Brach). An advantage that such a designation would carry would be to identify clearly
the area in respect of which particular focus has been given by the graduate, and thereby alert employers to that fact. However, undoubtedly, employers would elicit such information at interview and by reference to the graduate’s “subjects completed”.

**The Role of the Tertiary Sector.** At the heart of this proposal is co-ordination and synchronicity between the tertiary sector and places of employment for radiographers and radiation therapists. Discussions to this end should commence in the near future, with a view to creation of advanced practice postgraduate programmes by, say, 2016. A reasonable expectation in due course would be that in the order of 10% of the radiography and radiation therapy workforce may pursue Advanced Practitioner status.

**Entry Requirements.** For advanced practice courses to be developed at postgraduate level, there will need to be identification of entry requirements. There is much to be said for imposing a modest barrier to entry so that those who are permitted to undertake courses which will lead to their being designated advanced practitioners can only do so after they have undertaken a reasonable amount of clinical practice subsequent to attaining their entry level qualifications for the profession. An arbitrarily selected entry point to eligibility for such courses would be no less than five years of clinical practice or its equivalent. This would preclude persons entering candidacy for advanced status immediately upon completing their base level qualifications but would enable commencement of relevant postgraduate study before too great an expiration of time after obtaining such qualifications. This should draw upon ambition and enthusiasm on the part of practitioners who are on the elevating curve of their career in the disciplines. However, the period of such preclusion is a matter for further discussion within the profession.

**Grandfathering Arrangements.** There are already senior practitioners within the disciplines of radiography and radiation therapy who have completed substantially the proposed requirements for Advanced Practice status. The Institute will need to consider the appropriateness of grandfathering them into such status and, in so doing, formulate policy criteria for such a step upon due consultation within the profession.

**Role of the AIR in Advanced Practitioner Course Accreditation.** There will need for accreditation of postgraduate courses in advanced radiography and radiation therapy practice by the Institute. This will require identification by the disciplines through the assistance of the Institute of core competencies to be expected of advanced practice graduates. These will need to be the product of a combination of clinical areas, research-based courses, possibly including an ethical component, and the minor thesis. The essence of the proposals in this report is that advanced training be a hybrid combination of satisfaction of tertiary requirements, and therefore acquisition of
research and cognate skills, and also high level supervised practice in the workplace. Inevitably, the content of the accredited courses will change over time – for example, as the competencies, needs, technologies and expectations within the workforce continue to evolve.

**Maintenance of Advanced Practice Status.** There is increasing awareness throughout the professions that mere acquisition of a threshold qualification, whether that be at undergraduate or postgraduate level, is not enough to justify a practitioner being able to hold themselves out permanently as a professional in the area\(^\text{197}\). For them to be able to do so can constitute misrepresentation in which the accrediting body at a level connives. This has been termed by some the movement toward revalidation. Regardless of the terminology employed, if a radiographer or radiation therapist is to be the beneficiary of the status of Advanced Practitioner, it is important that they be encouraged and, as necessary, required to participate actively and effectively in ongoing professional education sufficient to justify their retention of advanced practitioner status.

Further consultation amongst stakeholders will need to take place to formulate appropriate to maintain their education in their area of chosen advanced practice – the area in which they have focussed in their postgraduate qualification.

**Categories of Institute Membership.** At the heart of these proposals about advanced status is that the Institute will grant advanced status membership of the Institute to practitioners who have successfully completed the accredited tertiary course. Thereafter, practitioners will be entitled to retain such a status within the Institute for so long as they comply with the Institute’s ongoing professional education requirements.

An option raised during the IPAT consultations was whether a special category of membership of the Institute, described as “consultant” or “specialist” is advantageous for the purpose of identifying the best or most highly regarded within the profession. It is recommended that such a category of membership of the Institute, while offering prestige and recognition of outstanding achievement within the profession, would not

be a substitute for (or probably a useful adjunct to) advanced practitioner status, a status to which approximately 10 per cent of the profession could reasonably aspire.

**Radiography Assistant and Radiation Therapy Roles.** An inevitable concomitant of the evolution in clinical roles that is taking place within radiography and radiation therapy is that practitioners (both baseline and those informally regarded as advanced) are acquiring additional skills and are being encouraged to do different and often more complex forms of work. Practitioners at the higher end of the profession already are engaging in a level of role substitution and undertaking work that, for instance, was formerly the preserve of others, such as radiologists and oncologists. This will continue into the future.

It will require the creation of a category of practitioners within the workforce that provides cost-effective and efficient assistance to radiographers and radiation therapists, thereby freeing them up for more demanding aspects of their work. Such a development should be welcomed, rather than being seen as a threat.

The process of role delegation by radiographers and radiation therapists has already begun in some workplaces but it needs to be formalised after proper consideration is given to the professional issues that are involved, most particularly those that relate to patient safety and professional accountability. It is recommended that a working party be established by the Institute to delineate those roles that can suitably be delegated under suitably controlled circumstances to others who have been satisfactorily trained by way of the recognition of radiography assistant and radiation therapy assistant positions. Such roles would not include the taking of any form of image or x-ray, thus any kind of exposure to radiation, or any form of provision of intrusive treatment. Reference in this regard could usefully be made to developments in the United Kingdom198.

Part of the consideration in this regard needs to incorporate the qualifications required for persons who fulfil such roles.

Consideration should also be given to award of associate membership of the Institute for such practitioners who provide assistance to radiographers and radiation therapists.

198 See eg Society and College of Radiographers (UK), *The Scope of Practice of Assistant Practitioners in Clinical Imaging* (2007); *The Scope of Practice of Assistant Practitioners in Clinical Imaging; Additional Information* (2010); *The Scope of Practice of Assistant Practitioners in Radiotherapy* (2011): .
Recommendations

Recommendation 1:

In order to enhance high quality service provision to patients, assist workforce flexibility, recognise growing technological complexity within radiation imaging and therapy, improve practitioner satisfaction, provide further for career advancement within the disciplines, and promote practitioner retention within the workforce, a status of Advanced Practitioner on an Australia-wide basis should be formally created for radiographers and radiation therapists.

Recommendation 2:

The development of a means of achieving Advanced Practitioner status should take place under the aegis of the Australian Institute of Radiography, with input from, amongst others, the Royal Australian and New Zealand College of Radiologists, the Medical Oncology Group of Australia, the Australian and New Zealand Society of Nuclear Medicine, the Australian Sonographers Association, and after due communication, collaboration and negotiation involving all relevant stakeholders, including the tertiary sector.

Recommendation 3:

The requirements for award of Advanced Practitioner status for radiographers and radiation therapists should be rigorous in their quality and focus and be directed toward enabling practitioners to function at a high level of clinical service delivery that is research-based and such as enable them to participate clinically as recognised leaders of their profession and at a sophisticated level with other practitioners within the health radiation workforce.
**Recommendation 4:**

The consultation referred to in Recommendation 2, amongst other things, should be directed toward identification of agreed upon areas of Advanced Practitioner status within radiography and radiation therapy.

**Recommendation 5:**

Advanced Practitioner status should be formally awarded by the Australian Institute of Radiography upon a practitioner’s satisfactory completion of a Masters degree in Advanced Radiography/Radiation Therapy, accredited by the Australian Institute of Radiography.

**Recommendation 6:**

The Master’s degree referred to in Recommendation 5 should be a hybrid programme incorporating coursework in core competencies in advanced practice, a research thesis of no less than 25,000 words, and supervised and examined advanced clinical work, facilitated by the practitioner’s workplace and oversighted by a supervisor accredited by the Australian Institute of Radiography.

**Recommendation 7:**

Entrance to the Master’s degree proposed in Recommendation 5 should only be available to practitioners who have already completed 5 years of full time clinical practice or its equivalent.

**Recommendation 8:**

The Australian Institute of Radiography should further develop its processes to accredit supervisors for the purpose of supervised clinical work for Advanced Practice candidates.

**Recommendation 9:**

The Australian Institute of Radiography should give consideration and formulate policies after appropriate consultation in relation to grandfathering of certain of its
members who already have sufficiently comparable qualifications and experience into Advanced Practice status.

**Recommendation 10:**

The Australian Institute of Radiography should give consideration to the content and mode of provision of ongoing professional education programmes to facilitate and regulate the maintenance of Advanced Practice status amongst those who have initially acquired such a status by being awarded the requisite Masters degree.

**Recommendation 11:**

The Australian Institute of Radiography should facilitate stakeholder consultation with a view to identifying appropriate roles for “Radiography Assistants” and “Radiation Therapy Assistants” to whom radiographers and radiation therapists can safely and accountably delegate certain of their functions.

**Recommendation 12:**

The Australian Institute of Radiography should engage in appropriate stakeholder consultation with a view to evaluating the advantages and disadvantages to creating a category of associate membership of the Institute for persons who have completed sufficient accredited training to enable them to fulfil the roles of “Radiography Assistant” and “Radiation Therapy Assistant”.

**Recommendation 13:**

The IPAT or another similarly constituted stakeholder group should investigate further the nature of, scope for and accountability of extended scope within the practice of radiography and radiation therapy.
**APPENDIX:** MEMBERS OF THE IPAT

**Chair:** Professor I Freckelton SC

**Special Assistant:** Ms M Ku (AIR)

**Members:**

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