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Australian Institute of Radiography

Professional Advancement Working Party Report

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Executive Summary.

This report outlines the pathway of role expansion (advanced practice) for radiation therapists and radiographers. As a result of advanced practice it could be expected that there would be: benefits to patient management; a reduction of issues related to patient mismanagement; value adding to the health care team; and value adding to the scope of practice of the professions.

Following literature reviews and discussions with stakeholders, this report was produced addressing the Terms of Reference that was the commission of the Professional Advancement Working Party (PAWP).

There will be three levels of practitioner. An accredited Practitioner is the current base grade radiographer/therapist. The proposed Advanced Practitioner is the formal recognition of performing role extensions. There would be an additional educational component required to achieve this level.

The proposed Consultant Practitioner allows for Advanced Practitioners to perform role expansion. There are to be significantly increased education and clinical requirements to achieve this level.

Both of these advanced roles are linked to education and Continuing Professional Development (CPD) to ensure currency with recent practice and technology.

The report further outlines educational and clinical requirements both experiential and credentialed, for radiation therapists and radiographers to achieve these advanced positions.

Much of the evidence to infer the worth of advanced practitioners is based on the development of the Australian Nurse Practitioner, or on the experience in radiography and radiation therapy in the United Kingdom where advanced practice positions are already established. The model used to develop these new advanced roles is transferable to Radiation Therapy and Radiography in Australia.

The Working Party recommends that the Board of Directors of the Australian Institute of Radiography (AIR) continue with the development of the necessary policies for such positions to become a reality in the near future. If this is not done imminently the opportunity for radiation therapists/radiographers to undertake expansion into these positions maybe lost to other health care professionals.

1. Introduction

At the Annual General Meeting in 2001 the following motion was passed:

"*It is recommended that Council form a Steering Committee related to professional practice and what we are going to be doing in ten years time with a report back to this meeting in the year 2004 on the model that they would expect, and that the direction towards that model is put into place for implementation by the year 2012. Composition of the Steering Committee should have representatives from each State and all Stakeholders both professional and academic."*

As a result a Future Directions Working Party was created and the terms of reference were published in the November 2002 Spectrum. The Future Directions Working party provided a report to the Annual General Meeting of the AIR in 2004. The outcome was discussed by membership and a clear mandate was provided to pursue this as a matter of priority. In response the AIR Board of Directors formulated a Professional Advancement Working Party (PAWP) with a range of expertise to research and progress the issue of role evolution.

The current AIR Position Statement on Role expansion states:

"*The Australian Institute of Radiography (AIR) supports the practice of its members in 'Role Expansion' for diagnostic radiographers, radiation therapists and sonographers (radiographer)*

To perform these expanded roles the radiographer must obtain knowledge and skills to effectively perform these duties. These duties must be clearly defined.

The knowledge, skill and judgement required are attainable through continuing education, life long learning practices and extended clinical experience.

The AIR promotes Continuing Professional Development as a Quality Improvement tool to enable radiographers to undertake role expansion."

The purpose of this report is to present the results of the activities of the PAWP to the Board of Directors. After wider consultation and input a subsequent report will be presented at the 3rd Annual Scientific Meeting of Medical Imaging and Radiation Therapy (ASMMIRT) in Hobart in April 2006.

2. Terms of Reference

The aim of PAWP was to define a pathway for role evolution for radiographers and radiation therapists, which would add value to the practitioner role, the patient's health care status and the health care team function.

The PAWP Terms of Reference are fully defined in **Appendix 1**. Key aspects to be addressed included evaluation of current procedures not included in the scope of practice (role extension), provision of a suitable model for "Advanced /Specialised Practice" (role expansion), identification of the feasibility of role expansion and the associated educational requirements.

It is not the intention of this project to define industrial or remuneration structures. The goal is to provide enhanced professional opportunity for those who meet defined criteria.

3. Professional Perspective

Currently entry into the profession is via the Accredited Practitioner pathway. This is a combination of an academic qualification (Degree or Graduate Entry Masters) supported by

appropriate clinical practice experience. This qualification is appropriate for entry-level practice, and with subsequent clinical experience accredited practitioners may take on specialist roles.

The practice of Radiography and Radiation Therapy is becoming increasingly complex. The development of constantly emerging complex technologies, increasing demands for services (imaging and treatment) and, the implementation of evidenced based clinical practice guidelines, have all accelerated the requirement for increased autonomy in practice. Radiographers and radiation therapists are expected to take on more responsibility to cope with the extra demands a complex workplace imposes upon them. There is a need for advanced practitioners capable of accepting or undertaking more responsibility within these complex workplaces.

In developing the advanced practice model the objective is to ensure that the attributes, skills and knowledge of practitioners are utilised effectively to increase the quality of patient care and enhance professional satisfaction. This requires evaluation of current levels of practice and investigation of the potential for advanced practice and/or clinical leadership.

The model must acknowledge current competencies required for the accredited practitioner and build on these competencies as career progression and expansion occurs. In the development of the potential models key areas of competency require definition. These will include the concepts of clinical autonomy, clinical leadership, practice development, research, expert practice, educational and research roles.

While it is recognised that specific career advancement can be achieved at management, education and research levels these should be viewed as specialised and specific advancement not clinical role expansion.

The core purpose of this discussion document is to define advanced clinical practice pathways. In defining the framework, flexibility will be a requirement to ensure that clinical advancement does not result in restricting career opportunity. The framework utilised is based on the underpinning philosophy that advancement will occur only with the accompanying academic qualifications and that continuing audit and credentialing will be required to maintain that level of recognition.

In some countries it has been realised that health care professionals are capable of significantly more than they have historically been allowed to perform, and there is evidence available that demonstrates the value in redesigning work roles and the increased flexibility gained from this to allow for greater care giving. This is particularly the case in areas of need. For many years British radiographers have been expanding their role into areas of work previously reserved for emergency doctors (residents and registrars) and radiologists with the encouragement and assistance of the government and professional bodies[1].

The Radiation Therapy Members of the Future Directions Working Party published a discussion paper on future professional directions in which a broad template for advancement was defined.**(Appendix 2).** The general theme discussed for radiation therapy included the development of a broader career structure that recognised specific skills development with commensurate education and training as the goal to progression to a further level. The aim was to stimulate discussion on roles and convert the vision of advanced practitioner into articulated and achievable career pathways and processes, which would benefit patient care and improve recruitment and retention within the profession. This interim position will form the basis for further discussion.

Examples and justification of Radiography extension and expansion are found in **Appendix 3**.

4. Role Extension

The ever-increasing need for improved patient care and increased demand for services, and the pace of technological advancement in the workplace, creates a dynamic driver for change in the

medical radiation science professions. The impact of advanced technology has already impacted on the role of practitioners resulting in need for role extension.

Role extension is a term that may be applied to the acquisition of additional skills and knowledge as a direct result of the increasing demands made upon the professions. It may also involve tasks that, as a result of technological pressures have been ceded by other health care professionals. These responsibilities may now be included to increase the scope of practice of radiation therapists and radiographers. Of greater concern is that in accommodating technological change, patient care aspects previously parts of the scope of practice are diminished to the detriment of practitioner job satisfaction.

In radiation therapy examples of role extension include:

- The operation of CT scanners for tumour volume localisation
- Digital imaging data verification and decision making at treatment.
- Management of Data Bases

- 3D Dosimetry

In radiography examples of role extension include:

- Intravenous cannulation
- Administration of intravenous contrast agents[2]
- Provision of information and an opinion to health care personnel
- Diagnostic radiography clinical 'history taking'[3, 4]

Role extension within the scope of practice of an accredited practitioner does not form part of the advanced practice tiers described within this document.

5. Role Expansion

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.

Expansion in radiation therapy

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.

Expansion in radiography

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

- Trauma radiography
- Gastro Intestinal (GI) radiography
- Computed Tomography (CT) radiography
- Digital Image management
- Renal radiography
- Sonography
- Mammography
- Magnetic Resonance Imaging (MRI)

Additionally there are expert practitioners in the areas of women's health, paediatric imaging, education, research and development. These practitioners operate at advanced levels however they remain largely unacknowledged at formal levels **(Appendix 3).**

The concepts of advanced practice within this document are captured by the notion of role expansion.

6. Proposed Role Expansion (advanced practice) Model

As discussed the radiation therapist and radiographer at the commencement of clinical practice operate as generalists and consolidate their skills with ongoing experience. Many go on to specialise in areas of interest and become experts in a particular area of knowledge in addition to their generalist skills. In many cases these practitioners are to a degree recognised in departmental structures.

In considering a professional advancement model due consideration to the existence of the general and specialist practitioners is required. In determining career advancement it is not the intention of the model to lift the level of the whole profession but to allow advancement pathways for the individuals who demonstrate advanced or expert skills and knowledge in a specialised area.

The career pathways are as follows:.

- Consultant Practitioner- infers clinical leadership and clinical autonomy
- Advanced Practitioner – infers expertise, clinical autonomy and advanced skills **(Appendix 4)**
- Accredited Practitioner- infers Generalist practice (existing level) and Specialist Practice Generalist and area of specialisation (existing level that is currently recognised within many departmental structures)

For any position in advance of the accredited practitioner there must be evidence of a higher level of knowledge, skills and clinical autonomy. In addition it is important that the patient advocacy and patient care roles are considered along with the role of research and teaching in the specialist area. The following broad considerations could apply:

<u>Radiation Therapy</u>

- Consultant (leadership in all aspects of clinical area)
    - Clinical leadership in specific area (i.e. Breast)
    - Competency in all areas of
        - Treatment and Planning
        - Imaging
        - Education
        - Research
        - Quality assurance
        - Clinical management
        - Psychosocial/Patient support
        - Oncological management
        - Clinical assessment

- Treatment reviews

- Advanced Practitioner

  - Specific areas of advanced competencies
    - Planning or Treatment
    - Quality Assurance
    - Specialised area leaders
    - Brachytherapy
    - Stereotactic
    - Simulation /Volume localisation
    - Clinical Management
    - Treatment reviews
    - Clinical triage
    - Psychosocial/Patient support

- Accredited Practitioner

  - As per current AIR Competency Based Standards (CBS)

  Specialist Practitioner (Department Specific)

  - Research
  - Education

  - Expertise in specialty areas
    - Brachytherapy
    - Stereotactic
    - IMRT
    - Dynamic Adaptive Radiotherapy (DART)

Radiography

Taking as an example Trauma Radiography

- Consultant Radiographers – (leadership in all aspects of a clinical area)
  - Clinical leadership in specific area
  - Competency in all areas of
    - Triaging & clinical assessment
    - Requesting
    - Imaging
    - Reading and reporting images
    - Education
    - Research
    - Quality assurance
    - Clinical management
    - Psychosocial/Patient support
    - Image management

- Advanced Practitioner

  - Specific areas of advanced competencies
    - Trauma Specialist
    - Quality Assurance
    - Specialised area leaders
    - Digital Imaging solutions
    - GI Tract Specialist

- Women's Health (reporting on breast images, breast ultrasound and mammography. Performing intervention procedures)
- Clinical Management

- Clinical triage
- Psychosocial/Patient support

- Accredited Practitioner

  - As per current CBS

  Specialist Practitioner (Department Specific)

  - Research
  - Education
  - Expertise in specialty areas
    - Accepted intravenous access qualification
    - Certified Proficiency in CT

    - Certification of Accreditation in Magnetic Resonance Imaging (MRI)
    - Certification of Clinical Proficiency in Mammography

Each level must demonstrate an educational requirement, additional responsibility and a corresponding authority. The higher levels need to have a prescribed number of years of clinical experience as well as the educational and research requirement.

A suggested model for radiotherapy is outlined in **Appendix 5** including an analysis of the evolution within the profession and including the educational requirements.

7. Current and Potential Activity in the Multidisciplinary Team.

Radiation therapists and radiographers have both a defined role, and overlapping roles, within the multidisciplinary teams (MDT) they work in. There is the potential for role expansion for advanced qualified radiation therapists and radiographers within these health care teams.

Examples of these overlapping roles and duties within Radiation Therapy include:

Radiation Oncologist – patient treatment reviews
palliative patient clinics and prescribing
organ contouring
electronic portal imaging (EPI) & on line adjustments
planning sessions – breast, lung

Physicist - equipment Quality Assurance (QA)
simple measurements of dose

Nurse - patient care – skin and side affects
patient counselling regarding treatment and outcomes
intravenous cannulation for contrast in planning
psychological assessment and support

IT - administration of image management and data bases

Examples of these overlapping roles and duties within Radiography include:

Radiologist -	image interpretation performance of colonoscopies and biopsies
	CT procedures GI fluoroscopy and interventional treatment
A&E doctor -	initiating Imaging procedures and examinations patient referral for further tests, treatment and therapy role of U/S in the Emergency Department
Medical Specialist -	women's health issues – PAP smears, health promotion paediatric issues renal issues
Nurse -	triage and assessment of patients patient advocacy (Including consenting) intravenous cannulation and contrast administration resuscitation & injection of emergency drugs
IT -	Picture Archive and Communication Systems (PACS) system administration

8. Evidence Based Methodology supporting Advanced Practice.

Current clinical practice in the modern era (for both radiation therapy and radiography) is supported by a large variety of evidence. This evidence, collected by a range of professional groups, has modified clinical practice whereby clinical practice is now supported by protocols and practice guidelines that clearly define the clinical process and outcomes expected. As exampled previously by the Australian Nurse Practitioner and UK Advanced Practice radiographers/radiation therapists, advanced qualified radiation therapy and radiography staff should be able to assume responsibility for the implementation into clinical practice, and ongoing assessment, of clinical procedures supported by evidence based protocols and guidelines.

The AIR should develop guidelines for a range of clinical procedures that would support advanced practice, and offer these guidelines to health care jurisdictions, legislative and workplace relations authorities.

For this discussion, extensive research was performed in the form of article, journal, internet and direct communication within the profession.

Radiation Therapy

Modern radiation oncology is based on evidence-based practice with advances and outcomes driven by evidence based methodology. Treatment protocols are based on best practice, derived from the outcomes of clinical trials or developed from internationally accepted practices.

Documents and protocols such as those provided by the International Commission of Radiation Measurement and Units (ICRU), or the Radiation Therapy Oncology Group (RTOG, USA) or the Trans Tasman Radiation Oncology Group (TTROG), offer objective clinical practice guidelines or protocols that could be implemented by an advanced practitioner.

There is little published research regarding advanced practice radiation therapists to be found in current literature. Advanced practice positions exist within both the UK and US health care system, but as yet, with very little published evidence to support the roles.

An advanced practitioner in radiation therapy needs to understand the background and evidence based methodology that supports current protocols and practice. They also require advanced knowledge, expertise and autonomy to be able to work outside the governing protocol if it is considered to be in the best interest of the particular patient.

Radiography

Evidence based clinical protocols can and should be developed locally and at a profession level, in all areas of role expansion for radiographers. These protocols (see list below) should be specifically mentioned in the code of conduct and should be followed to ensure quality results in the relevant area.

- Intravenous cannulation and injection of substances (contrast administration)
- Radiographic image interpretation
- Radiographer first line triage
- Contrast induced nephropathy guidelines
- Resuscitation & injection of emergency drugs
- Roles & responsibilities of the radiographer with procedural studies
- Performance of colonoscopies and biopsies
- Women's health issues – PAP smears, health promotion

- Digital image management
- Performance of CT procedures without radiologist's involvement
- Rejecting requests from other health professionals and the requesting of supplementary studies by the radiographer as seen appropriate.

9. Quality Outcome of Role Expansion

Areas, which could be considered for measurement of quality outcome for the patient and health care jurisdictions, would be:

- The provision of timely and adequate health care in areas of need (eg regional and rural Australia, A&E after-hours care, advanced clinical areas)
- Improved treatment outcomes due to the intervention of the advanced practitioner
- Improved triage of patient progress, issues and symptoms throughout the treatment process and tidier interventions
- The reduction of barriers to the provision of service and/or ongoing care
- Reduced waiting times for the initiation of management of care
- Possibility for reduction of medical mismanagement
- Enhanced or increased diagnostic outcomes
- Less fragmentation of care between different health providers
- Reduction of re-attendance rates after radiographer discharge
- Cost benefit comparison of advanced practice patient management to the traditional care path.

It is anticipated that measurement of the above activities pre and post the introduction of advanced practitioners will demonstrate improved quality outcomes and health care benefits for patients.

10. Qualifications For Advanced Practice

The Nurse Practitioner model of qualifications offers an example of an appropriate professional model.

The International Council of Nurses provides the following definition:

"*A Nurse Practitioner/Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level."*[5]

In Victoria a nurse practitioner is defined as *'a registered nurse educated for advanced practice who is an essential member of an independent health care team and whose role is determined by the context in which they practice. The nurse practitioner role is at the apex of the clinical nursing practice. The role extends current clinical nursing practice, is advanced, with a strong foundation in knowledge, skills and competencies, both population and individual health, and may include prescribing medications, initiating diagnostic imaging and laboratory testing, approving absence from work certificates, referring to specialists, and admitting and discharging consumers.'*[6]

The role incorporates core-nursing components including advanced clinical assessment and treatment approaches, education, counselling, research, quality improvement, administration and management. It is a multifaceted clinical role involving collaborative relationships with other disciplines, in partnership with consumers and communities, while retaining a nursing perspective.'

The Queensland Health web site states that a nurse practitioner is …*a registered nurse educated 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….. They are leaders and experts in their particular speciality field, actively participating in research, quality initiatives and policy development.*[7]

The New South Wales Department of Health's definition of a nurse practitioner is as follows: *a nurse practitioner is a registered nurse who has satisfied the requirements of the Nurses and Midwives Board of NSW to be authorised. Authorisation allows the nurse practitioner to initiate diagnostic investigations, to prescribe medications and to make limited referrals providing they are working under approved guidelines. They work at an advanced level of practice that demands expert clinical knowledge, advanced specialised education and complex decision making skills.*[8]

The combined statement from the Australian National Nursing Organisations in May 1998 published their definition that states that a nurse practitioner is:

'A nurse who has undergone preparation which enables the assessment and management of particular clinical presentations using increased knowledge and skill gained through advanced education and clinical experience in a specific area of nursing practice. The nurse practitioner may be found in many settings in a role specifically designed to advance autonomous nursing practice across a broad range of areas.'

From the above statements relating to nurse practitioners the key components of the model include;

- Expert clinical knowledge.
- Advanced specialised education.
- Complex decision making skills.
- Independence within the health care team.
- Determined by the context in which they practice.

- Advanced skills and competencies.
- Autonomous in their actions within the agreed advanced scope of practice.

Being an expert-by-experience in a specialty is not on its own sufficient for advanced practice certification. Nor is accepting more delegated medical tasks or technical procedures.

PAWP endorse the need to define the key components of a model for radiation therapists and radiographers however two pathways can be envisaged for advanced practitioner status. The first approach will include those who have obtained an accredited academic qualification coupled to verification of clinical skills that are matched to a role defined by clinical guidelines. A second more exceptional approach may be required where formal study is no longer an option. This method will require detailed evidence of knowledge and skills, coupled with verification of clinical skills that are matched to a role defined by clinical guidelines. This may require a separate credentialing process.

11. Higher Academic Qualifications

To assist the radiation therapist and radiographer to make appropriate decisions in implementing current best practice, and to be responsible and accountable for their judgments regarding the patient's treatment, they must have gained sufficient knowledge and understanding of the speciality area undertaken in role expansion.

The following definitions see the evolution of the role of the radiation therapist / radiographer and the required level of academic achievement required.

Accredited Practitioner radiation therapist/radiographer

- As currently outlined in the AIR Educational Policy and supported by the AIR Competency Based Standards.
- A base grade radiation therapist/radiographer.
- May expand their task range to a limited extent.

- Undertake further education:
  - in-house training,
  - hospital courses,
  - short courses,
  - single university subjects in areas of interest; and/or
  - courses run by organisations such as the AIR etc.
- Limited tasks of role extension without needing to formalise a new job description. eg check field position on EPI/interpret CT head examinations without radiologist supervision.

Advanced Practitioner radiation therapist/radiographer

- Masters degree (or equivalent) in the area of specialty.
- Minimum of 6 years clinical experience in area of speciality.
- Clinical credentialing in the field of expertise either through an educational institution or a source such as Royal Australian and New Zealand College of Radiologists (RANZCR) or Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM).
- Ongoing credentialing and auditing to maintain the advance practitioner level. This credentialing for advance practitioner level would be provided either through the educational institutions or professional bodies such as the AIR or RANZCR.

Consultant radiation therapist/radiographer

- Minimum educational standard of Master with research subjects in speciality area of the consultant position (or equivalent), the preferred education standard would be a professional doctorate in the field of the consultancy.
- At least 10 years of clinical experience in consultant area or minimum of 6 years at the advanced practitioner level in area of consultancy.

- Clinical credentialing in the field of expertise/consultancy either through an educational institution or a source such as RANZCR or ACPSEM.
- Ongoing credentialing and auditing to maintain the consultant practitioner level. This credentialing for consultant level would be provided either through the
- Educational institutions or professional bodies similar to that of the AIR or RANZCR.

Advanced practitioner radiation therapist/radiographer and consultant radiation therapist /radiographer will be required to have higher levels of education and autonomous skills in judgement, discretion and decision-making.

There are a variety of Higher Academic Qualifications available for Postgraduate study. While some of these higher degrees have similar modes of study, the different models of study can lead to different outcomes.

In implementing advanced and consultant level practice, the AIR needs to define the topic areas (curriculum) within a program of academic study to match or support the area of advanced clinical practice being sought.

It should be a fundamental policy that regardless of the type of higher degree studies being undertaken that the area of study supports the speciality clinical practice it seeks to advance.

The types of higher degree programs include:

Masters or PhD by Research
In this program students undertake in depth research, usually on a single topic, with the outcomes being the development of a thesis. The depth of study and contribution to new or advanced knowledge defines the award.

Masters or PhD by Course Work
In this program students undertake a series of courses. Often in the PhD by course work program there is a mini-thesis course.

Master or PhD by Publication
In this program authors who have a body of scholarly work published are rewarded for their expertise and ongoing research in the field. These programs, while typically being reserved for those who have already published and because of their scholarly standing may not require enrolment in a PhD to be recognised, are changing to be a program of study that can be concurrent rather than prospective.

Professional Doctorates
Very similar to a mixture of a course work and research PhD. These programs are designed for professional people who have an opportunity to study their work environment rather than “in the lab” (ala by Research) or who do not wish all course work but want to do limited research to a high level and publish.

The AIR should ensure that radiation therapists and radiographers seeking to qualify as advanced practitioners have a higher degree “topic or topics” matched to the area of advanced clinical practice. This requires that the AIR accredit the area of study as matching the

requirements for advanced or consultant level practice. General, non-matched or non-specific higher degrees should not necessarily be seen as meeting the requirement for academic qualifications for the award of advanced practitioner or consultant.

12. Scope of Practice Assessment Criteria

The development of the Advanced Practitioner and Consultant Practitioner scope of practice will determine the structure of the supporting academic requirements and evaluation of competencies.

To enable a comparable and consistent approach across public, private, metropolitan and regional areas the role expansion model must be universally adopted by Australian medical

imaging and radiation oncology providers. An ad hoc centre-by-centre approach will not promote the consistency of approach and high standards required for these expert roles. The development of particular roles will be centre based according to the needs and requirements of each particular centre. Some centres may choose not to have any of these advanced positions.

The advanced practice standard needs uniformity across Australia. Similar position descriptions must be transferable across all boundaries as the pre-requisites and educational standards similarly need to be the same for all positions.

The roles must be clearly defined at government level with appropriate skills assigned to each level. If the nurse practitioner model is followed governments should understand the intention of such positions.

Credentialing and audit procedures will be a significant factor in both the attainment and retention of both advanced practice and consultant status. An extension to the Continuing Professional Development (CPD) program will need to be developed to meet the credentialing and auditing requirements of these advanced positions.

For radiation therapy **Appendix 6** outlines the draft criteria for assessment of candidates as utilised in advanced practice at a particular UK university. **Appendix 7** outlines competency based standards for specific scenarios.

13. Other Issues

Radiation therapists and radiographers are well qualified, both academically and clinically to progress to advanced and consultant practitioner, however they will need to embrace change and greater responsibilities associated with these roles. Radiation therapists/radiographers need to develop the confidence and competence to undertake the new roles. There needs to be strong support from their Professional Body with changes to the code of conduct to reflect the new direction.

There will need to be a number of changes undertaken by both the professional body and external authorities to enable these positions to progress to fruition. Listed below are some of the areas that will need attention.

AIR Policy

All AIR policies will need to be considered in light of the development and implementation of Advanced Practitioners and Consultant Practitioners. All policies will need to allow for the development of such roles.

Insurance.

Professional indemnity insurance needs to be reviewed, as radiation therapists/radiographers will be making decisions that they personally may or will be responsible for, and hence they may become a potential target for litigation. [9] This change needs to be considered by the AIR and

those prepared to become advanced practitioners thus expanding the current nominal understanding of a radiation therapist/radiographer 's duties.

Education

The Professional Accreditation Education Board (PAEB) of the AIR may need to expand their scope to include postgraduate course or subject accreditation that will be used for the purpose of these advanced practitioner and consultant positions advanced academic qualification. Another sub committee or Panel may be formed to undertake these responsibilities.

Legislative changes.

The AIR may need to enter an intense lobbying period with both State and Federal governments to facilitate legislative changes that will enable these positions to develop. These changes will range from possible changes to radiation acts and drug acts to changes to the Health Insurance Commission act to enable radiation therapists/radiographers to perhaps have provider numbers or enable fee splitting.

Promotion of Advanced Practice Roles

The AIR will need to promote the benefits and increased opportunities that will arise with Advanced and Consultant Practitioners. This promotion needs to be to the existing radiation therapy and radiography workforce, as well as National, State and jurisdictional health administrators, and other health professional groups.

RANZCR

The AIR may need to negotiate with the RANZCR in the development of such positions. While the RANZCR claim to endorse job/role evolution for radiation therapists and radiographers, their acceptance of the proposed changes and the scope of the advanced positions we espouse to, maybe quite different. The RANZCR and ACPSEM will need to be party to the development of such positions or the achievements may be limited.

14. Conclusion

To accommodate the ever-increasing complexity and difficulty of clinical practice there is a need for a more advanced Radiation Therapy and Radiography practitioner. The two tiers of advanced practice described within this document enable these professions to reduce the inhibitions of previous professional boundaries, as evidenced in other health professions and extend current levels of competency to advanced clinical practice

The outcomes of more expansive and advanced practice include; better patient management and the potential for a reduction of patient mismanagement; better health care team resource utilisation: better patient outcomes; enhancement for the profession.

Failing to adopt more expansive and advanced practice roles will restrict not only a very innovative and progressive profession but will also restrict the development of more appropriate health care delivery to patients. Failure to adopt advanced practice roles will most likely see such roles taken up by other professional groups, with the eventual erosion of the accredited practitioner role. Advanced and Consultant Practitioners in both disciplines can make valuable contributions to clinical practice and show the way forward, leading other health providers to adopt new technologies, techniques and multidisciplinary team approaches to health services.

Appendix 1

Professional Advancement Working Party – (PAWP)

To be able to identify adding value to the practitioner, the patient and the health care team. The purpose of PAWP is to describe a pathway for role evolution (extension/ expansion) for diagnostic radiographers and radiation therapists.

As a starting point there needs to be documentation of what is currently performed informally, to then lead to our professional role expansion for the future.

Terms of Reference

The Working Party's Terms of Reference are:

- to identify, develop and evaluate procedures not generally considered in the job description of diagnostic radiographers and radiation therapists;
- to employ evidence-based methodology whenever possible;
- to recognise the activities of diagnostic imaging and radiation therapy providers in reference to their multidisciplinary roles;
- to coordinate and integrate relevant quality related activities to determine the outcome of role evolution
- to adopt a system-based approach with application to multiple sites and at multiple levels across the public and private health care system.

Outcomes

The Working Party will:

- develop a document which illustrates the current procedures which are not considered part of the accepted job description (role extension);
- identify a suitable model for an “Advanced/Specialised Practice” (role expansion);
- evaluate the feasibility of both role extension and role expansion;
- identify what education is necessary to achieve the outcomes mentioned (the actual content of courses will be addressed by the PAEB);
- provide a final report addressing the outcomes mentioned;
- advise the AIR Board of Directors on issues related to these terms of reference.

Timeframe

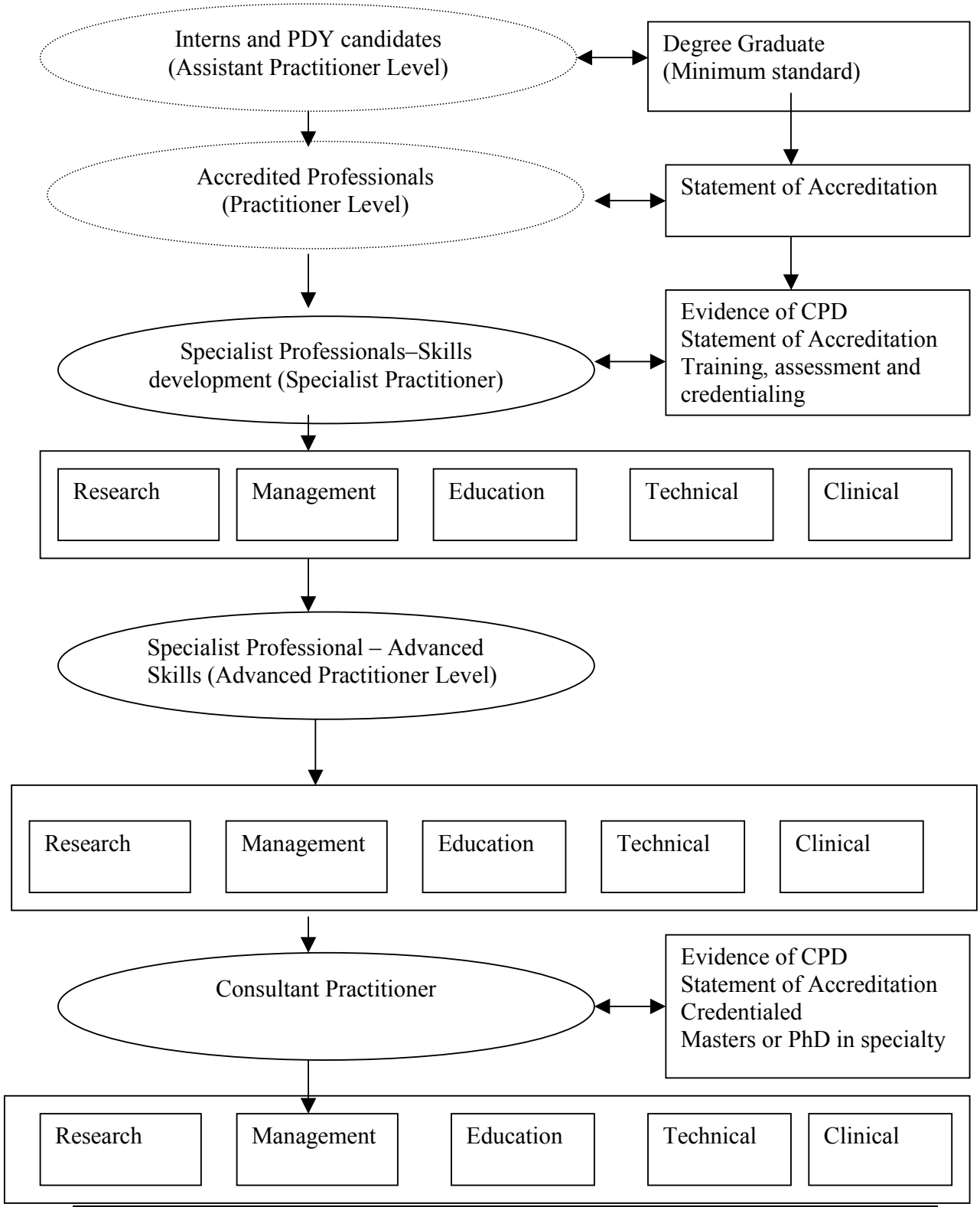
Report to the November 2005 Board meeting with a view for presenting a final report at the April 2006 AGM.

Revised 30/7/05

APPENDIX 2

Excerpt from Discussion Paper on Future Professional Directions for Radiation Therapists

Figure 1: Proposed Australian Career Pathway



Appendix 3.

Expanded description of radiographer role expansion

The name Radiographer used within this document refers to those professionals that may be called within Australia and internationally, Radiographer, Diagnostic Radiographer, Medical Imaging Technologist, Medical Radiation Science Professional and Medical Imaging Scientist.

The following is an initial proposal for the advance practitioner radiographer. These are not considered the only areas of practice where and advance practitioner may work.

Trauma radiographer.

a) Triage of the patient to
   - Organize the appropriate imaging
   - Report the images (making definitive clinical diagnosis)
   - Liaise with the appropriate doctor for next stage of care

b) Are an active member on the resuscitation team, including having the ability to inject the appropriate emergency drugs
c) Accepted intravenous access qualification

GI radiographer.

a) Manage BA enema, Ba Swallows, Gastrogrqffin meals and small bowel contrast studies.
b) Autonomous operation of above examinations – no radiologist/ specialist input
c) Report the images (making definitive clinical diagnosis)
d) Perform colonoscopies and biopsies

Women's health radiographer.

a) report mammograms (double reading mammograms [10])
b) do core biopsies and fine needle aspiration of the breast
c) do breast ultrasound, including making a definitive clinical diagnosis
d) Broader women's health issues eg Pap smears, health promotion

CT Radiographer.

a) Autonomously perform CT head with or without contrast - no radiologist input
b) An active member on the resuscitation team, including having the ability to inject the appropriate emergency drugs - anaphylaxis
c) Accepted intravenous access qualification
d) Clinical reasoning attributes to facilitate the request of additional studies or rejection of requests
e) Relevant autonomous image interpretation skills for reporting CT head examination series. ([11] research shows 97.2% radiographer accuracy in cranial CT reporting)

Paediatric radiographer.

a) Perform specialist paediatric imaging
b) Relevant autonomous image interpretation skills
c) Accepted intravenous access qualification

Image Management radiographer.

a) Strategic planning for image management solutions
b) PACs system administration
c) Applications training

Sonography radiographer.

a) Procedures in biopsies/fine needle aspiration
b) Relevant autonomous image interpretation skills

Renal radiographer.

a) Perform specialist renal radiography
b) Relevant autonomous image interpretation skills
c) Accepted intravenous access qualification

(Concepts in italics come from [12]).

Examples and justification of radiography extension and expansion:

One area of role extension that is feasible for radiographers is IV injection. A study by [1]Keenan & Muir in 2001 of CT contrast injections by radiographers showed that 10 hours of radiology time per week could be saved. Thus not only freeing up the radiologist but also allowing increased - patient throughput and reduced patient waiting times. This provided increased job satisfaction to the radiographers and improved outcomes for the patient.

The radiologists' workload has increased due to the emergence of new imaging modalities and the expansion of interventional radiology, thus removing this task has allowed more time for interventional studies.

Patient benefit is apparent as role evolution reduces the fragmentation of care delivery. Fragmentation of care occurs when the patient is handed from one health professional to another for such things as IV injections. Radiographers who perform the examination are also able to do the IV injection of the contrast agent.

An area of role expansion is interpreting medical images. Radiographers are very good at recognizing that there is an abnormality. [13] Brealey's 2001 research revealed that experienced radiographers search patterns and ability to detect abnormalities when viewing radiographs is similar to radiologists. Then after radiographers received formal report training, they had sufficient clinical knowledge and skills to interpret the abnormality too.

There is a broad benefit for rural sites to have radiographers multi-skilled, as there is a reduction of specialists in these areas. [14]
It follows that a tiered structure will allow difference in environmental needs to be filled, eg rural locations may need to attract a multi-skilled practitioner who has developed skills encompassing both extension and expansion and can work without close contact with a medical officer. Metropolitan areas may need some duties previously performed by radiologists to be taken over by radiographers but may not require practitioner multi-skilling.

Appendix 4

The attributes of an advanced practitioner could be described such as:

1. a high level of communication skills reflecting excellent documentation and policy and procedural writing skills, effective inter and intra discipline communication
2. high level understanding and abilities in the process of translating research, technology developments, health care trends and consumer demand into improved care and best practice
3. high level abilities in risk management reflecting skills and knowledge in incident analysis and risk minimization.

Appendix 5

Professional Advancement - Radiation Therapy Model

Status		Current + Extension	Expansion	Expansion
Title		**Practitioner**	**Advanced Practitioner**	**Consultant Practitioner**
Position Description		**Current Role**	**Semi-Autonomous Role**	**Autonomous Role**
Clinical Experience Specific to Area of Speciality		**Current**	**Minimum 6 years**	**Minimum 6 years of Advanced Practice**
Portfolio of Evidence (based on UK model)		**Current Competencies**	**Designated Clinical Competencies**	**Designated Clinical Competencies**
				Professional Leadership
		Reflective Practice	**Reflective Practice**	**Reflective Practice**
		Accountability	**Accountability**	**Accountability**
		Decision making skills	**Complex decision making skills**	**Highly complex decision making skills**
			Evidence based practice	**Evidence based practice**
			Identifies gaps in practice	**Identifies gaps in practice**
			Critical evaluation of own practice	**Critical evaluation of own practice**
			Critical evaluation of others practice	**Critical evaluation of others practice**
			Medico legal and professional issues	**Medico legal and professional issues**
			Research	**Research & Evaluation**
Education		**BSc, Grad Dip's etc**	**Masters via relevant Modules**	**Masters / PhD**
			Mentor - Rad Onc, Physicist etc	**Mentor - Rad Onc, Physicist etc**
			Ongoing Credentialling	**Ongoing Credentialling**
			External Assessment	**External Assessment**

Clinical Specialist	MDT Members			
Simple Palliative Techniques	RT's	Patient Positioning	Extended physical examination of patients	XRT Prescription authorization if RO unavailable.
Breast	Rad Onc's	Independent Simulation/CT	Evaluation & Mark Up of Breast Patients	Bill Medicare for professional services/procedures
Brachytherapy	Nurses	Structure Contouring	Placement of Brachy Implant Needles/Sources	
Stereotactic	AHP's	Develop Treatment Plan		
IGRT & ART	Physicists	Plan Evaluation	Protocol development	Protocol development
Specialist - Advanced Planning		Treat Patient	Staff education	Staff education

Specialist - Advanced Treatment			Research	Research & Evaluation Training of new MDT members
		Workload evaluation-booking availability for specialized techniques (? Management role)		
Patient Care/Management	**MDT Members**			
	RT's	Patient education	Patient education	Patient & Community Education
	Nurses		Obtain informed consent from patients	Obtain informed consent from patients
	Rad Onc's	Advice and management of XRT related symptoms and reactions	Advice and management of XRT related symptoms and reactions	Advice and management of XRT related symptoms and reactions
	AHP's			
			Limited physical examination of patients	Extended physical examination of patients
			Prescribe limited range of medications	Prescribe limited range of medications
				Counselling of patients
				Clinical Triage
				Oncological management
		Waiting list management	Waiting list management	Waiting list management
			Community training ie education sessions for patients, carers, other MDT members	Community training ie education sessions for patients, carers, other MDT members
			Treatment reviews	Treatment Reviews and Follow Up
				Referral to AHP's etc
			Training of staff	Training of staff
				Bill Medicare for professional services ie film reading
Quality Assurance	**MDT Members**			
	RT's	Performing Daily Machine QA	Quality Assurance Protocol development	Responsible for Departmental QA
	Rad Onc's	Weekly Chart review	Analysis of QA data	Quality Assurance Protocol development
	ROMPs	Identify + Report QA issues	Monitor QA issues	Monitor QA issues
	Engineers		Identify and manage trends	Identify and manage trends
		Staff Training	Staff Training	Staff Training
			Undertake weekly quality assurance of equipment ie linac or planning system	Undertake weekly quality assurance of equipment ie linac or planning system
			Preventative maintenance and parts replacement (ODI bulbs) via liaison with engineers	Preventative maintenance and parts replacement (ODI bulbs) via liaison with engineers
			Incident report evaluation and recommendations.	Responsible for negotiation of service agreements with companies. (? Management role)
			System & Software Maintenance	System & Software Maintenance
Imaging & Verification	**MDT**			

Systems	Members			
		EPI/PF verification		
	RT's Rad Onc's ROMPs		Responsible for all reports and follow-up actions Evaluation of positioning via portfilms – make recommendations	Responsible for all reports and follow-up actions
		Actioning port films	Actioning port films	
		On-line Correction	On-line correction	
		Staff training	Staff Training	Staff Training Bill Medicare for professional services ie film reading
		Protocol development	Protocol development	Protocol development
			Commissioning of new technology/systems	Commissioning of new technology/systems

Appendix 6

Potential competencies – UK Model

Expert Practice

Criteria	Evidence	Accepted
Use effective communication skills, associated with the advanced practitioner's expert practice, to communicate with patients and carers to support and empower them through the care pathway.		
Undertake a critical evaluation and assessment of the patient.		
Lead practice development and devise and implement schemes of work based on current evidence. Innovate and initiate evidence based practice.		
Make specific interventions based on evidence appropriate to assessed needs, context and culture, in partnership with patients and other professionals and makes appropriate referrals.		
In partnership with patients and other professionals, make sound decisions, which are ethically based in the interest of patients in the absence of precedents and protocols.		
Use their diverse experience and skills to improve the patient experience		

Professional Leadership

Criteria	Evidence	Accepted
Work collaboratively and in partnership with other practitioners: delegating appropriately		
Generate new solutions in order to identify and best meet the needs of patients.		
Inspire, motivate and collaborate with all stakeholders to facilitate improvements in service delivery		
Be recognised and accessible as an expert in their specified field: Promoting best practice, giving expert advice and disseminating knowledge to the profession and to a wider health care arena		
Process and assimilate new unbiased information for use by all stakeholders		

Education, Training and Development?

Criteria	Evidence	Accepted
Be proactive in developing and improving their own competence in recognised ways, including accessing professional clinical supervision, which may be inter-professional.		
Be able to develop appropriate strategies for continuing self-audit and self-appraisal in order to evaluate their performance in relation to service delivery and effect change accordingly		
Work collaboratively to identify, plan and deliver programmes to meet personal and professional development needs of self and others		

Practice Development, R & D and Evaluation

Criteria	Evidence	Accepted
Synthesise coherently and effectively the knowledge and expertise related to their area of practice		
Critically appraise evidence from diverse sources to make informed judgements about its quality and appropriateness		
Work with the multi professional team to continually audit and evaluate clinical practice and implement change in accordance with clinical governance		
Continually assess and monitor risk in their own and others practice and challenge others where appropriate		
Seek and identify opportunities to apply new knowledge to their own and others' practice in structured ways		
Contribute to the wider development of their area of practice through research, publicising and disseminating their findings in appropriate forums, locally or nationally.		
Offer appropriate advice to their own and other professions on care practices, delivery and service development		
Develop appropriate strategies to make the best use of resources and technology, in the interests of patients, to achieve optimum outcomes		
Alert appropriate individuals and organisations to gaps in evidence or practice knowledge that requires resolution through research, both internally and externally.		

Working across boundaries

Criteria	Evidence	Accepted
Develop protocols, documentation systems, standards, polices and clinical guidelines for use by multi professional teams		
Collaborate with and involve other service providers to challenge professional and organisational boundaries in the interests of all stakeholders both locally and nationally.		
Draw upon an appropriate range of multi agency and inter professional resources in their work		
Proactively develop new partnerships in the best interest of the services and agencies		

Angela Eddy
Advanced Practice Framework Co-ordinator
Sheffield Hallum University

Appendix 7

Example of Potential Competencies – Australian Model (idea of what could be used)

Patient Care and Management

Standard 1 – Knowledge and Understanding

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Obtain informed consent from patient by giving accurate, easy to understand information to patient and carer.				
Advanced knowledge of radiotherapy related symptoms and side effects. Able to provide advice and interventions as they occur	Timely interventions are undertaken – better patient wellbeing & tolerance to treatment. More holistic approach to care.	Provide interventions to the patients within the scope of advance practice	Provide interventions to the patients within expanded scope of advance practice	
Utilize experience to enhance patient/client experience				

Standard 2- Critical Thinking and Evaluation

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Evaluate side effects, patient needs and make appropriate referrals – including x-ray requests	Appropriately identify side effects and needs during the course of treatment	To deal with the side effects and needs within the scope of practice. Refer to the appropriate health professional or undertake the appropriate course of action.	To have a higher and broader level of management of the patient's needs than the advanced practitioner. Administer suitable agents for side.	
Work with the multi professional team to continually audit and evaluate clinical practice and implement change in accordance with clinical governance				
Seek and identify opportunities to apply new knowledge to their own and others' practice in structured ways				
Appraise evidence available and make informed judgments about appropriate interventions				
Undertake research to make recommendations for evidence based practice				
Audit procedures and outcomes within the department and make recommendation accordingly.				

Standard 3 – Professional and Ethical practice

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Draw upon an appropriate range of clinical experience from other departments, including inter professional resources in their work	Demonstrate Understanding of the MDT.	Appropriately work with use the other health care professionals and understand what services and professional resources are available	Be very active as part of the wider health care networks for the benefit of the patient and their significant others.	
Proactively develop new partnerships in the best interest of the services.				
Continuously monitor departmental practice and challenge others where appropriate.				
Acknowledge scope of practice limitations and request assistance when required				

Standard 4 – Care and clinical management

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Knowledge of patient anatomy – including nodal groups to enable limited physical examination of patients				
Advanced knowledge of patient anatomy including x-ray evaluation to enable extended physical review of patient				
Knowledge and understanding of limited range of medications and their uses within radiotherapy. Able to prescribe limited medications.				
Use skills to enable patients to make decisions about their care which is in their best interest – including deviations from protocols.	Efficiency of patient care and treatment within the individuals scope of practice	Thoroughly understand protocols and treatment regimes within their scope of practice to enable full and frank explanations to be given to the patient. Have counselling skills to be able to assist the patient with these difficult decisions. Have an understanding of current literature to demonstrate evidence based medicine and explanations	As for advanced practitioner but have the autonomy to deviate from the protocols in the best interest of the patient.	

Standard 5 – Lifelong learning

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Be pro-active in developing and enhancing skills – including actively accessing clinical supervision				
Undertake self-audit and self-appraisal to ascertain performance gaps. Change practice to improve these performances as necessary				
Develop and deliver professional development programmes for other RT's to enable their skill development in this area of specialty.				
Develop protocols, documentation systems, standards, polices and clinical guidelines for use by multi professional teams				
Collaborate with and involve other service providers to challenge professional and organisational boundaries in the interests of all stakeholders both locally and nationally.				

Quality Assurance

Standard 1 – Knowledge and Understanding

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Understanding of implications of quality assurance. Ability to negotiate and informal MDP in issues and requirements				
Knowledge of machine parameters, able to recognize variations, arrange preventative actions as required				
Ability to negotiate specifications of machinery to recognize fault location				

Standard 2- Critical Thinking and Evaluation

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Evaluate reason for breakdown of machine, arrange repair and order required parts				
Work with the multi professional team to continually audit and evaluate clinical practice and implement change in accordance with clinical governance				

Seek and identify opportunities to apply new knowledge to their own and others' practice in structured ways				
Appraise evidence available and make informed judgments about appropriate interventions				
Undertake research to make recommendations for evidence based practice				
Audit procedures and outcomes within the department and make recommendation accordingly.				

Standard 3 – Professional and Ethical practice

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Work with the multi professional team to continually audit and evaluate clinical practice and implement change in accordance with clinical governance				
Seek and identify opportunities to apply new knowledge to their own and others' practice in structured ways				
Appraise evidence available and make informed judgments about appropriate interventions				
Undertake research to make recommendations for evidence based practice				

Standard 4 – Care and clinical management

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Release equipment for clinical use on completion of maintenance work or repairs				
Understanding and evaluation of dose variations when assessing dosimetric discrepancies of planning system outputs. Final quality assurance signoff on complex dosimetry.				
Audit of treatment/planning procedures both internally and externally to ensure best practice				

Standard 5 – Lifelong learning

Outcome	Evidence	Advanced Practice	Consultant Practice	Accepted by
Be pro-active in developing and enhancing skills – including actively accessing clinical supervision.				
Undertake self audit and self appraisal to ascertain performance gaps. Change practice to improve these performances as necessary				
Develop and deliver professional development programmes for other RT's to enable their skill development in this area of specialty.				
Develop protocols, documentation systems, standards, polices and clinical guidelines for use by multi professional teams				
Collaborate with and involve other service providers to challenge professional and organisational boundaries in the interests of all stakeholders both locally and nationally.				

Appendix 8.

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Appendix 9.

Members of Professional Advancement Working Party.

Chairman:	Mr Edward Caruana	Radiographer –NSW
	Mr Aiden Cook	Radiographer – Qld
	Ms Aniko Cooper	Radiation Therapist – Qld
	Mr Shane Dempsey	Radiation Therapist – NSW
	Ms Annette McCormack	Radiation Therapist – Vic
	Ms Teresa Ong	Radiographer – WA
	Ms Liza Ricote	Radiographer – SA
	Ms Jo Smylie	Radiation Therapist – Vic

Board of Director's Liaison – Ms Pam Rowntree

AIR Secretariat Support.

Mr Emile Badawy – Executive Officer

Ms Marcia Fleet – Professional Liaison Officer