Section One: Organisational Aspects of the Clinical Studies' Program

1.1 Introduction

1.2 General and specific objectives for Clinical Studies
   1.2.1 Specific objectives Year 1 units
   1.2.2 Specific objectives Year 2 units
   1.2.3 Specific objectives Year 3 units
   1.2.4 Specific objectives Year 4 units

1.3 Clinical Studies Convenor

1.4 Clinical Studies model

1.5 Management and Support Strategies for Clinical Studies
   1.5.1 University and Faculty Policies

1.6 Attendance obligations for students
   1.6.1 Absence and sick leave

1.7 Patient consent and safety including radiation protection
   and hand washing

1.8 Professional ethics

1.9 Incident reporting, recording and investigation policy

1.10 Clinical tutor/supervisor

1.11 Supervisory requirements and repeat exposures

1.12 Faculty immunisation policy

1.13 Needlestick policy

1.14 Quality assurance processes and Clinical Studies
   1.14.1 Clinical liaison and the Clinical Studies’ progress report
   1.14.2 Dealing with unexpected situations/difficulties

1.15 Insurance cover for students

1.16 Police checks and other legal requirements
Section Two: Methods for the Facilitation of Student Learning in the Clinical Context and Monitoring the Development of Clinical Competency

2.1 A model of learning for Clinical Studies
    2.1.1 Reflective observation combined with abstraction

2.2 The Monash approach to structuring clinical learning and the 2013 Clinical Studies Requirements for Years 1 to 4
    2.2.1 Learning contracts
    2.2.2 Reflective clinical examination reports
    2.2.3 The procedural log entries
    2.2.4 The Year 3 General Radiography Register
    2.2.5 The Year 4 Professional Clinical Placement Workbook

2.3 A model of professional development for Clinical Studies – the novice to expert model of clinical skill development
    2.3.1 Characteristics of the continuum from beginner to competent student radiographer with suggested supervisory styles

2.4 Modified descriptors to be used during formal assessments and in the provision of feedback in the workbook entries

Section Three: Clinical Teaching and Clinical Instruction Guidelines

3.1 The idea of the adult learner
3.2 Teaching as facilitation and coaching
3.3 Characteristics of effective clinical teaching
    3.3.1 Examples of positive interaction
    3.3.2 Examples of negative interaction
3.4 Designing an ideal adult learning clinical experience
3.5 Criteria for effective instruction
3.6 Ways of improving instructional skills
3.7 How to be an effective clinical teacher
3.8 The voices of our students: DVD clips featuring advice from students regarding teaching, learning and feedback
3.9 More than teaching
    3.9.1 The getting of wisdom – ways of imparting knowledge
    3.9.2 Becoming a member of the profession: Promoting professionalism
3.10 The idea of a reflective practitioner

Section Four: Assessment and Clinical Performance

4.1 Assessment as part of the learning process
   4.1.1 Why formally assess student performance & “attitudes”?  
   4.1.2 Challenges and responsibilities associated with the role  
   4.1.3 Handling the role

4.2 How to give meaningful feedback
   4.2.1 Phases of feedback  
   4.2.2 Guidelines for the provision of feedback

4.3 Formalised assessment

4.4 Dimensions of professional practice

4.5 Using the novice to expert model of clinical skill development to assess student performance

4.6 Performance grading for assessment
   4.6.1 Beginner (B)  
   4.6.2 Intermediate Beginner (IB)  
   4.6.3 Advanced Beginner (AB)  
   4.6.4 Competent (C)

4.7 Action in case of a fail grade

4.8 Examples of Assessment Proformas
SECTION ONE

ORGANISATIONAL ASPECTS OF THE CLINICAL STUDIES’ PROGRAM
Section One

1.1 Introduction

The Department of Medical Imaging and Radiation Sciences has been providing radiographers and sonographers who are engaged in supervising students with guidelines related to clinical education since 1998. This year we have decided to provide an on-line version of the guidelines which we trust will facilitate a wider distribution of them within those departments and practices who host our students.

As we remarked back in 1998, we know that having a student at your side can be challenging and frustrating. There is always an element of risk when teaching occurs in front of a patient. For instance, something you might say to the student can easily be misinterpreted by the patient. Also, in the context of a dynamic workplace setting that values speed and efficiency, meeting the competing needs of your patients and student/s is a difficult goal to achieve. The challenge is compounded by the need for practitioners to assess the clinical skills’ development of students and provide meaningful feedback to them. We believe the best way of meeting these challenges is through increasing everyone’s knowledge of teaching and learning principles.

Research has demonstrated that when practitioners are not prepared for their roles as supervisors and assessors they rely upon the methods they experienced as students. We all have ideas about how learning occurs and the kind of teaching that is required to bring about learning (Ramsden, 1992). There is no single recipe we can follow to ensure success. Assisting students to fulfil the objectives of degree level education is challenging. Professional education is concerned with the development of thinking practitioners who are able to draw upon various forms of knowledge to inform their decision-making. In the context of their clinical rotations, students need to go beyond a focus on the technical aspect of radiography. They need to develop “clinical reasoning” skills, communication skills and problem solving strategies (Higgs & Jones, 1995). They need to know why as well as what they are doing. In the light of modern educational theories of learning, the emphasis within clinical education is now upon the facilitation of learning and the creation by practitioners of supportive and collaborative clinical learning environments.

Clinical practitioners also present powerful images of their practice to students. Whether or not you realise it, you will play a key role in shaping the approach that students ultimately adopt to their practice. We hope these guidelines will:

- facilitate the provision of quality clinical learning experiences for students;
- assist practitioners to plan for and learn from the experience of clinical teaching;
- promote a process of reflective clinical practice; and
- encourage a more unified approach to clinical supervision, teaching and assessment.

A/Professor Marilyn Baird PhD
Head of the Department of Medical Imaging and Radiation Sciences

References
1.2 General and specific objectives for Clinical Studies

We have not altered our view that immersion in the world of the clinical practitioner is essential if students are to be capable of assuming the role of a radiographer upon graduation. From the commencement of the Bachelor of Radiography and Medical Imaging in 1998, it is expected that during their clinical rotations, students will develop under the guidance of radiographers:

- appropriate expertise in the professional and practical implementation and evaluation of a wide range of radiographic examinations using various imaging modalities;
- appropriate communication skills with patients and staff;
- pattern recognition skills in radiographic anatomy and radiographic pathology;
- problem-solving skills in relation to radiographic technique and patient management;
- self-monitoring skills in relation to the performance of radiographic examinations; and
- an understanding of the broader role of radiography in medical practice.

During their clinical rotations the Department of Medical Imaging and Radiation Sciences also expects students to gain experience in:

- departmental routines and the management of information;
- caring for patients of varying ages, clinical conditions and physical capabilities;
- implementing radiation safety and protection for patients and staff; and
- implementing departmental quality control measures with respect to all forms of imaging.
1.2.1 Specific objectives: Year 1 Units

In Semester one of Year One, RAD1061 Radiographic Science and Practice 1 delivers its content via three themes being:

1. Professional and psychosocial components of radiography and health care practice;
2. Radiographic positioning and image analysis for examinations of the upper and lower limbs and chest;
3. Radiographic skills application in clinical practice.

These themes are supported by the learning that takes place in RAD1021 Radiologic Physics and RAD1031 Radiologic Biology 1.

On successful completion of RAD1061 Radiographic Science and Practice 1, within the defined themes, the student will be able to:

**Theme 1: Professional and psychosocial components of radiography and health care practice**

1. Describe and apply within a professional standards and ethics context, theories of the psychosocial impact on human behaviour, communication and occupational health and safety of the working environment
2. Record and obtain information from individuals employing appropriate observation and interviewing skills, such that the information generated may be integrated with basic scientific theory and knowledge to provide quality levels of patient care;
3. Recognise and adapt, in a professional manner, to the variety of social, cultural and ethical perspectives that may legitimately be encountered within clinical practice;

**Theme 2: Radiographic positioning and image analysis for examinations of the upper and lower limbs and chest**

4. Describe and justify the radiographic projections and body positions underpinning general radiographic examinations of the elbow, forearm, wrist, hand, fingers and thumb, knee, tibia and fibula, ankle, calcaneum, foot, toes and chest of an adult ambulant patient;
5. Describe the radiographic exposure factors and apply them to general radiographic examinations of the elbow, forearm, wrist, hand, fingers and thumb, knee, tibia and fibula, ankle, calcaneum, foot, toes and chest of an adult ambulant patient;
6. Evaluate the radiographic request form, obtain a clinical history from a patient, select appropriate radiographic protocols consisting of radiographic projections positioning techniques and exposure factors to produce high quality projection(s) that will aid the diagnostic process;
7. Evaluate the resultant radiograph/s in terms of technical quality and positioning criteria and where necessary devise appropriate problem-solving strategies for less than optimal radiographic projections;
8. Distinguish anatomical features on radiographic images and recognise common radiologic pathologies or traumatic appearances in terms of the clinical question being asked;
9. In the light of the clinical problem, assess the appropriateness of supplementary projections, and where required, position the patient for the required further images.
Theme 3: Radiographic skills application in clinical practice

10. Under supervision safely conduct radiographic examinations of the elbow, forearm, wrist, hand, fingers and thumb, knee, tibia and fibula, ankle, calcaneum, foot, toes and chest of an adult ambulant patient;
11. Position an adult patient, accounting for his/her clinical presentation, for the radiographic projections identified in the protocol, direct and align the central ray to an appropriate bony landmark and image receptor.

Through exposure to more complex radiographic examinations of the musculo-skeletal system, respiratory and abdominal systems, in semester two, RAD1012 Radiographic Science and Practice 2 delivers its content via four themes, these being;

1. The physical science principles contributing to the radiographic image, the measurement and control of radiation exposure;
2. Professional, legal, ethical and psychosocial components of radiography and health care practice;
3. Radiographic positioning and image analysis for examinations of the respiratory system, shoulder and pelvic girdles, the vertebral column, the bony thorax and plain abdomen;
4. Radiographic skills application in clinical practice.

These themes are supported by the learning that takes place in RAD1082 Radiologic Biology 2

On successful completion of RAD1012 Radiographic Science and Practice 2, within the defined themes, the student will be able to:

Theme 1: The physical science principles contributing to the radiographic image, the measurement and control of radiation exposure

1. Evaluate, using a detailed knowledge of the statutory regulations governing the use of ionising radiation, and describe how regulatory agencies demand the safe use of medical imaging ionising radiation equipment;
2. Discuss the response of organ systems to ionising radiation exposure, how x-radiation is monitored and measured and how personal monitoring is used, recorded and reported to enable safe practices in radiation areas for patient, staff and the general public;
3. Calculate the energy content of an x-ray beam, integral dose, dose-area product and define dose and equivalent dose when x-rays are absorbed by living tissue, using correct units;
4. Employ the principles learnt about kV, mAs and geometry of the x-ray beam that impact upon the four image quality factors of optical density, contrast, image detail and distortion to describe the characteristics of a radiograph;
5. Review the theoretical principles underpinning the operation of automatic exposure systems and computed radiography systems, and where appropriate apply this in the clinical setting;

Theme 2: Professional, legal, ethical and psychosocial components of radiography and health care practice

6. Describe and apply within a professional standards and ethics context theories of the psychosocial impact on human behaviour, communication and occupational health and safety of your working environment;
Section One

7. Record and obtain information from individuals employing appropriate observation and interviewing skills, such that the information generated may be integrated with basic scientific theory and knowledge to provide quality levels of patient care;

8. Recognise and adapt, in a professional manner, to the variety of social, cultural and ethical perspectives that may legitimately be encountered within clinical practice, to interpret a radiographic request form for the imaging examination and obtain a clinical history from a patient;

Theme 3: Radiographic positioning and image analysis for examinations of the respiratory system, shoulder and pelvic girdles, the vertebral column, the bony thorax and plain abdomen

10. Describe and justify the radiographic projections and body positions underpinning general radiographic examinations of the respiratory system, shoulder and pelvic girdles, the vertebral column, the bony thorax and plain abdomen

11. Select appropriate radiographic protocols consisting of radiographic projections positioning techniques and exposure factors to produce high quality projection(s) that will aid the diagnostic process;

12. Position an adult patient, accounting for his/her clinical presentation, for the radiographic projections identified in the protocol, direct and align the central ray to an appropriate bony landmark, image receptor and ancillary equipment such as the bucky, grids and automatic exposure devices;

13. Evaluate the resultant radiograph/s in terms of technical quality and positioning criteria and where necessary devise appropriate problem-solving strategies for less than optimal radiographic projections;

14. Distinguish anatomical features on resultant images and recognise common radiologic pathologies or traumatic appearances in terms of the clinical question being asked;

15. In the light of the clinical problem, assess the appropriateness of supplementary projections, and where required position the patient for the required further images.

Theme 4: Radiographic skills application in clinical practice

16. Under supervision, safely conduct radiographic examinations of the respiratory system, pelvis, shoulder girdle, vertebral column, the bony thorax and plain abdomen of an adult patient.
1.2.2 Specific objectives: Year 2 Units

In semester one, students study two units: RAD2051 Radiographic Science and Practice 3 within which clinical studies is embedded and RAD2061 Radiologic Biology 3 which provides students with the lectures and practicals in the hepato-biliary system, gastrointestinal and genito-urinary systems and vascular system including the heart together with pharmacological principles relevant to radiographic practice.

Objectives for RAD2051 Radiographic Science and Practice 3

On completion of this unit, the student will be able to:

1. Explain the physical principles underpinning mobile x-ray systems and apply them in clinical situations to produce and evaluate images taken in the hospital wards and operating theatres;
2. Explain the physical principles underpinning digital fluoroscopic imaging systems, image intensifiers and planar conventional tomography and apply them in clinical situations to produce and evaluate images of the gastrointestinal, urinary and hepatobiliary systems;
3. Implement and evaluate appropriate quality control measures in relation to mobile x-ray systems and digital fluoroscopic imaging systems both fixed and mobile;
4. Implement and evaluate appropriate radiation safety strategies and radiation protection measures in the context of mobile and fixed digital fluoroscopic examinations;
5. Evaluate the effectiveness of exposure protocols for all general and contrast radiographic imaging in terms of image quality and radiation protection for patients;
6. Describe and evaluate the efficacy of traditional radiographic methods to image the gastrointestinal, genito-urinary and hepato-biliary systems and skull and teeth;
7. Distinguish between normal radiographic images of the musculo-skeletal system and abnormal radiographic images following injury to these body regions involving adults and paediatrics;
8. Implement and evaluate appropriate general radiographic examinations for the musculoskeletal and respiratory systems and the abdomen on adult patients with supervision appropriate to an advanced beginner radiographer;
9. Modify and adapt basic radiographic methods, techniques and protection strategies for patients in emergency situations, paediatric patients, geriatric patients and patients requiring mobile imaging examinations of the musculoskeletal system, chest and abdomen under direct supervision;
10. Apply radiographic criteria and a problem – solving perspective to paediatric, mobile, skull and accident and emergency radiographic images.

In semester two, students study two units: RAD2012 Radiographic Science and Practice 4 within which clinical studies is embedded and RAD2092 Radiologic Biology 4 and sectional anatomy. RAD2092 completes the stand alone series of Radiologic Biology units and introduces students to the central nervous system, the brain and skull. Sectional anatomy including imaging sectional anatomy is designed to prepare students for CT, medical ultrasound and MRI studied in third year and fourth year.
Objectives for RAD2012 Radiographic Science and Practice 4

On successful completion of RAD2012 Radiographic Science and Practice 4, within the defined themes, the student will be able to:

Theme 1: **Physical science principles that contribute to the digital image (in particular fluoroscopic procedures) to enable manipulation and measurement of the image and its content.**

1. Review and apply the scientific principles, technological characteristics and relevant applications of digital imaging systems used in vascular and non vascular studies;
2. Describe the general applications of information technology in medical imaging and its relationship to digital based imaging systems;
3. Use a range of basic digital image processing routines in general or digital vascular imaging and discuss how the application of these tools enables quantitative and qualitative image analysis;
4. apply quality assurance principles to digital imaging systems.

Theme 2: **Professional contexts for the management and delivery of services using contrast, interventional techniques and addressing the needs of patient groups requiring further care.**

5. Appraise the professional challenges posed by patients with special needs to provide effective and safe care to them and those patients undergoing contrast imaging examinations of the gastrointestinal, urinary, hepato-biliary and cardiovascular systems;
6. Discuss the use of radiological and other medications and their administration, the control of infection, the administration of oxygen and barium, the maintenance of surgical asepsis & recognition of vital signs;
7. Discuss the relevant protocols, positioning and methods employed in digital vascular procedures of the human body and those used in interventional therapeutic procedures and apply radiographic criteria to critique angiographic image appearances;
8. Evaluate radiographs/images of the gastrointestinal, urinary and hepatobiliary systems in terms of the condition of the patient, the clinical question, anatomy and image quality factors.

Theme 3: **Knowledge management, evidence based practice and research principles.**

9. Discuss how evidence based practice and its application contributes to radiographic practice and identify how a range of research methods and the critique of reported research may be applied to medical radiation sciences research;

Theme 4: **Radiographic skills application in clinical practice.**

10 Identify personal learning goals in respect to the development of professional expertise and demonstrate an understanding of the multidisciplinary approach to the clinical management of paediatrics, the elderly and patients in accident and emergency situations;
11 Participate in digital subtraction angiographic examinations;
12 Implement and evaluate appropriate general radiographic examinations for the musculoskeletal and respiratory systems and the abdomen on adult patients with minimal supervision and modify and adapt basic radiographic methods, techniques and radiation protection strategies for paediatric, elderly and mobile imaging examinations;

13 Manage a fluoroscopy session (in or outside of the radiology department) in terms of the radiographer's role, so that an appreciation of the nature of the professional inter-relationship between all members of the multi-disciplinary team is revealed and the team’s duty of care obligation to the patient during diagnostic imaging procedures is evident.

1.2.3 Specific objectives: Year 3 units

This year the approach adopted in first and second year was applied to the third year units. From 2011 in each semester of Year 3 there are two academic units with clinical studies subsumed within the Medical Imaging Science and Practice units. The objectives for these two units are as follows:

Semester One: RAD3051 Medical Imaging Science and Practice 1

Upon successful completion of this unit, students will be to:

1. Explain the scientific principles underpinning computed tomography
2. Describe and represent the physical configuration of axial, helical and multislice CT systems;
3. Explain and distinguish between the various data acquisition and image reconstruction processes used in CT and their characteristics;
4. Identify common CT artefacts, explain their cause and suggest methods to correct for them;
5. Apply radiation protection and dosimetry principles to the practice of CT;
6. Describe the principles underpinning advanced digital image processing, image distribution, data transfer and storage options used in specialised applications in medical digital imaging (such as scan reconstruction, 3-dimensional reconstruction, network architectures and DICOM standard for image exchange);
7. Explain the clinical rationale for the selection of CT scanning protocols, image display and reconstruction methods for CT examinations of the head, chest, abdomen and spine;
8. Implement and evaluate positioning methods, scanning protocols, image display and reconstruction routines for CT examinations of the head, chest, abdomen and spine;
9. Identify the CT appearances of the anatomical structures comprising the head, chest, abdomen and spine and distinguish between normal and abnormal structures as shown on CT;
10. Reach the level of competent student radiographer in general radiography including contrast, trauma, paediatric and mobile imaging.
11. Apply evidence based inquiry principles developed in second year to an advanced radiographic practice clinical issue

As well as RAD3051, students also study RAD3061 Medical Imaging Science (Ultrasound) in semester one.
Semester Two: RAD3042 Medical Imaging Science and Practice 2

This unit has three broad themes.

1. **Abdominal sonography.**

2. **Clinical practice in abdominal ultrasound and general radiography.**
   This theme covers clinical experience in abdominal ultrasound examinations and facilitates ongoing development in general radiography examinations. The clinical experience covers protocols, positioning techniques and protection strategies, patient and professional communication, image evaluation, organisational and legal requirements.

3. **Breast imaging, radiation dosimetry and medico-legal principles.**
   This theme covers the scientific principles underpinning breast imaging (mammography and breast sonography), their associated instrumentation and protocols, positioning methods and radiation protection principles. Radiation dosimetry is extended to an advanced level. Ethics, regulation of health care and legal issues in the professional context is also addressed.

By the end of the unit, students will be able to:

1. Describe the patient preparation and sonographic imaging methods employed in examinations of the upper abdomen.
2. Recognise and describe normal structures, function and common pathological appearances of abdominal structures in ultrasound images.
3. Explain the function, application and potential pitfalls of ultrasound instrumentation used in abdominal ultrasound scanning, including B-mode, spectral Doppler and imaging artefacts.
4. Discuss the likely bio-effects and bio-hazards of diagnostic ultrasound.
5. Perform a basic ultrasound examination of the upper abdomen to the level of a beginner student sonographer.
6. Modify and adapt general and advanced radiographic techniques, radiation protection strategies and demonstrate professional communication skills to the level of a competent student radiographer.
7. Identify ongoing personal learning goals in respect to the continued development of professional expertise in general radiography and ultrasound.
8. Describe the instrumentation, quality assurance techniques, relevant protocols, positioning and methods employed in mammography imaging.
9. Analyse advanced techniques used in radiation dosimetry calculations, and interpret estimates and measurements used in medical imaging applications.
10. Discuss the biological effects of ionising radiation, radiosensitivity of specific organ systems and relevant advanced theories of radiation damage and repair mechanisms.
11. Evaluate the role of professional ethics in the delivery of health care.
12. Define and explain the legal issues affecting the practice of medical imaging.
At the same time, students study RAD2092 Magnetic Resonance Imaging physics and technology.

### 1.2.4 Specific objectives: Year 4 units

In final year of the course all students are enrolled in RAD4160 Advanced medical imaging and Clinical Skills which includes MRI methods and clinical rotations to CT and MRI. For their final unit, students choose between either RAD4070 Research in Medical Imaging or RAD4080 Selected Topics in Medical Imaging. As well, all students complete a 24 week period professional clinical placement (PCP) which is called RAD4000 Radiography and Medical Imaging Work Experience. The objectives for the CT and MRI component of RAD4160 and those created for RAD4000 are reproduced below:

#### The Objectives for RAD4160 in relation to CT

At the completion of this element of the unit students should be able to:

1. Prepare cooperative patients for MSCT examinations of the head and neck, chest, abdomen and spine;
2. Implement and adapt, where appropriate to the level of competent student radiographer MSCT protocols for the head and neck, chest, abdomen and spine, in relation to either: patient status, procedural variations, patient or professional communication, image evaluation, organisational or legal obligations under supervision;
3. Apply basic quality assurance principles to MSCT imaging systems;
4. Demonstrate practical understanding of how to conduct MSCT Angiography (CTA) and biopsy examinations;
5. Demonstrate a capacity to assist in the implementation of CTA and biopsy examinations;
6. Demonstrate familiarity with and, where appropriate, use, workstation software applications such as Volume Rendering (VR), Multiplanar Reconstructions (MPR), Maximum Intensity Projections (MIP).

#### The Objectives for RAD4160 in relation to MRI

At the completion of this element of the unit students should be able to:

1. Conduct pre-scanning screening of patients presenting for MRI examinations;
2. Provide clear pre-examination instructions to patients presenting for MRI examinations;
3. Implement to the level of beginner stage of professional development, various protocols, positions and methods used in clinical magnetic resonance imaging under close supervision;
4. Demonstrate the ability to recognize a range of anatomical structures on MRI images;
5. Describe apply basic quality assurance principles to magnetic resonance imaging systems;
6. Identify personal learning goals in respect to the development of scanning skills in magnetic resonance imaging.
Section One

Specific Objectives for the Professional Clinical Placement

During the PCP students complete the radiographic element of RAD4160 which obliges students to complete a series of Radiographer Opinion Forms designed to provide students with the opportunity for them to demonstrate their ability to effectively communicate with patients and supplement, were necessary, the information provided on radiographic request forms through the process called radiographer health assessments (RHA).

At the completion of the professional clinical placement students will be able to

1. Assume professional responsibility for the delivery of general radiographic examinations (including fluoroscopy) of the musculo-skeletal system, respiratory system, the gastro-intestinal tract, the genito-urinary system, and hepato-biliary system under appropriate levels of supervision;
2. Modify and adapt the standard general and advanced radiographic methods, techniques (including fluoroscopy) and radiation protection approaches used to image the body systems described in objective one in relation to either: patient status, procedural variations (e.g. theatre and hospital wards), patient or professional communication, image evaluation, supplementary examination, organisational or legal obligations under supervision;
3. Provide all patients irrespective of their socio-economic, cultural, ethnic or religious background with a duty of care commensurate with the expectations of the relevant professional registration board and professional body;
4. Confidently identify the anatomical structures displayed in the images created during general radiographic examinations the body systems described in objective one;
5. Recognise the presence of pathology displayed in the images created during general radiographic examinations the body systems described in objective one;
6. Apply quality assurance principles to general medical imaging systems under supervision;
7. Identify ongoing personal learning goals in respect to the continued development of professional expertise in general radiography.
1.3 Clinical Studies Convenor

The convenor for the clinical studies program is

Ms Ruth Druva Ruth.Druva@monash.edu

Ms Druva is assisted by the Department Administrative Officer,

Mrs Eugenia Sequeira-Leo

Eugenia.Sequeira-Leo@monash.edu

1.4 Clinical Studies model

1.4.1 Clinical rotations and preparation for Clinical Studies

To provide students with a comprehensive preparation for their professional careers, students will be rotated through a range of clinical settings during the four years of Clinical Studies. These settings include large public teaching hospitals and their affiliated hospitals, private hospitals and private radiology clinics and regional hospitals including Tasmania and where possible other interstate hospital settings. It is expected all students will undertake at least one rotation to a Victorian regional radiology centre. Every effort will be made by the Department of Medical Imaging and Radiation Sciences to pay for the accommodation expenses incurred during such rotations.

Each year Chief Radiographers of the accredited clinical centres are contacted by Ms Ruth Druva to determine placements for the following year. Centres are then organised into year levels for student to make their selection. The final clinical roster for all years is developed by Ms Druva with the assistance of the Department Administrative Officer, Mrs Eugenia Sequeira-Leo.

Each clinical rotation is preceded by an on campus clinical briefing session conducted by the Year Level Convenor/s. Upon their return to the university, students engage in a formal debriefing session. Prior to the commencement of the rotation, students are provided with full contact details regarding the clinical centre and are instructed to contact the designated tutor/supervisor or Chief Radiography by email or phone at least one week prior to the commencement of the placement.
1.5 Management and support strategies for Clinical Studies

This publication represents one of the strategies used by the Department of Medical Imaging and Radiation Sciences to ensure that the clinical program is appropriately managed by all stakeholders. Additional strategies include the Clinical Studies’ Management Committee whose role it is to ensure that the objectives established for the unit, can be achieved. The tutors/designated clinical supervisors of all of the accredited clinical departments associated with the clinical program are considered to be members of the committee. The Chairperson of the Clinical Studies Committee is Ms Ruth Druva.

1.5.1 University and Faculty Policies

The university has an official policy regarding student placements: “Guidelines for Health and Safety During Student and Staff Placements”.


In addition to these Guidelines, the Faculty publishes its own “Clinical/Fieldwork Placement Guidelines and Procedures”.

This is a very important document and needs to be read in conjunction with the Professional Behaviour Procedure Policy

The link for these Guidelines is:


We strongly advise all practitioners to read pages 3 – 7 of the Guidelines referred to above before students comment their placement. Please note in particular the statements provided on pages 7 – 9 related to student, School, Departmental and supervisor obligations.

To assist practitioners in to meet the University expectations in respect to OHS compliance, all year level clinical workbooks contain an Induction Proforma that needs to be completed on the first day student/s are in your department/practice.

A second policy that is applicable to clinical studies relates to bullying and occupational violence. Students will be provided with a copy of this policy so they are clear as to the processes they should follow if they are bullied or harassed during their placement. Please refer to the following Monash publication

“Procedures for managing incidents of bullying and occupational violence in the workplace”
1.6 Attendance obligations for students

Please refer to POLICY 3 “Clinical/Fieldwork Placement Guidelines and Procedures”.

In addition to what is stated in the Policy please read the following:

It has always been expected that students will attend their designated clinical centre from Monday to Friday of the period devoted to Clinical Studies. It was also assumed that students would start each day at 9:00am and finish at 5:00pm, have a morning and afternoon tea break and a reasonable period for lunch. Feedback over the years from students indicates that many are treated as if they were staff members. Hence in 2009 the following policy decision was made about this matter.

One the first day of the placement, the student will negotiate one of the following options:

1. A working day from 9am to 5pm with an hour for lunch and a short break (no more than 20 minutes) in the morning and afternoon

2. A working day from 8.30am to 4.30pm with lunch and tea breaks as above

3. A working day as either 1 or 2 above but with 10 minute tea breaks and a 30 minute lunch break and a half day off once a fortnight

4. A working day from 9am to 5.30pm or 8.30am to 5pm with 10 minute tea breaks and a 30 minute lunch break and a day off once a fortnight

In view of the requirements of the Learning Contracts in the second and third years of the course, students are encouraged to participate in afternoon rosters e.g. 3:00 pm to 10:00 pm or split shifts e.g. Friday afternoon 12:00 pm to 4:00 pm and Saturday morning 9:00 am to 1:00 pm or some other variation such as Monday to Thursday and all day Saturday. These variations are only permitted providing appropriate supervision is available AND must be confirmed with Ms Ruth Druva.

First year students are not permitted to vary their attendance from the normal working day. Students MUST record in their Workbook full details of their attendance in the section provided and have it signed by the designated Clinical Teacher/Clinical Supervisor.
1.6.1 Absence and sick leave

Students are instructed they **MUST** inform the Clinical Centre when they are unable to attend the centre for whatever reason. Depending upon the amount of time the student has been away from the clinical department an additional period of time will need to be spent in the clinical centre during the non-teaching period between whichever semester the clinical time was not completed. The Clinical Centre **MUST** inform Ms Druva of prolonged absences, inconsistent attendance or other related concerns.

Please refer to POLICY 4 “Clinical/Fieldwork Placement Guidelines and Procedures”.


1.6.2 Dress code for students

The following Dress code rules for Radiography students have been circulated to all students:

**Male students**

Navy blue or black trousers and the Monash Shirt. Whilst the wearing of a tie is preferred the final decision is left to the individual clinical centre.

**Female students**

Navy blue or black trousers or skirt and the Monash Shirt.

Students must **ALWAYS** wear their MONASH NAME BADGE and TLD BADGE.

Please refer to POLICY 6 “Clinical/Fieldwork Placement Guidelines and Procedures”.


1.7 Patient consent and safety including radiation protection & hand washing

It is professionally unacceptable for students not to be clearly identified. Patients should be given a chance to say whether or not they wish to be examined by a student, particularly when the student is not directly supervised. Students have been instructed to ensure the patient knows who is examining them. The following phrases have been suggested for use when the patient is met: “Good morning (or afternoon), I am Mary Hughes. I am a radiography student at Monash University and I will be examining you with the help of my supervisor”.

It is imperative that students provide patients with a safe environment. This also means ensuring patients are provided with adequate **radiation protection**

Please refer to Confidentiality in health education and practice pages 4 – 6 in
The issue of the protection of pregnant women in diagnostic radiology has long been of concern. Students have been directed to the following paper published by the Health Protection Agency:

http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1238230848746

Students are taught the crucial importance of correctly identifying patients and checking the request form matches the patient. We have provided students with the method for positive patient identification used by The Alfred Hospital.

Students are also taught to ensure the correct side marker is placed on the imaging plate prior to exposure.

**We do not condone placing a side marker on an image during post processing.**

Finally, students are taught the importance of hand hygiene in protecting patients from infection. We concur with the observation made by Edwards et al (2009) in the context of a small scale study into hand hygiene undertaken by students and staff in a dental teaching hospital that “in a teaching institute the habits of trainees are formed for future clinical careers and bad habits can be difficult to rectify at later stages”. The letter from which this statement has been reproduced can be read in the *Journal of Hospital Infection* 71 pp188-189

We also draw your attention to the following article:


In the context of this report the researchers confirm earlier research that “MRSA bacteraemia rates are not linked to measures of environmental cleanliness, which concurs with recent research showing that hand cleanliness is far more important, with ward cleanliness accounting for as little as 10% of MRSA infections”.(p312)

We ask that your department reinforces these elements of safe radiographic practice to our students.
1.8 Professional ethics

Students are provided with regular instruction regarding professional ethics. In particular, students are made aware of the need to be familiar with the Code of Conduct promulgated by the Medical Radiation Practice Board


They are also told that radiographers who choose to be members of the professional body must also ensure their practice reflects the Professional Ethics and Guidelines for Professional Conduct promulgated by the Australian Institute of Radiography (AIR).


1.9 Incident reporting, recording and investigation policy

Please refer to POLICY 7 “Clinical/Fieldwork Placement Guidelines and Procedures”.


If you form the view that a student is not performing well and some form of intervention is required please refer to Policy 2 and Policy 5 “Clinical/Fieldwork Placement Guidelines and Procedures”.


1.10 Clinical tutor/supervisor

Each clinical centre associated with the course is expected to nominate a radiographer with two years or more post qualification experience and who has knowledge about clinical teaching and learning to act as a clinical tutor/supervisor during the time students are rostered to the centre for Clinical Studies.

There are several duties this person is expected to perform:

• orientate students to the department and clinical setting;
Clinical Studies’ Guidelines for Radiographers

- facilitate the means for students to fulfil the requirements of the Learning Contracts for the development of radiographic/sonographic skills and the tasks associated with the Professional Skills’ Units;
- ensure students are appropriately supervised when they perform radiographic examinations;
- conduct the Clinical Skills’ Assessments;
- provide students with feedback on their “Self Assessment of the Dimensions of Radiographic Practice”; and
- ensure that students are not involved in holding patients during radiation exposure.

It is not expected that the designated clinical tutor/supervisor will be able to spend their entire time with students. It is important however, that students are appropriately supervised when they examine patients. The radiographers who supervise students on a day-to-day basis will themselves assume a number of roles including that of teacher.

However, for the purposes of consistency and reliability, it is CRUCIAL that the official designated clinical tutor/supervisor carries out the assessment of the students’ clinical skills and assists students to complete their self-assessment exercises.

1.11 Supervisory requirements

Students must be appropriately supervised by a registered radiographer. It is imperative that students are closely supervised if repeat exposures are required. In the current digital environment it is too easy for students to make their own decisions regarding repeat exposures without any reference to their supervising radiographers. We do NOT condone this practice.

1.12 Faculty immunisation policy

Please refer to http://www.med.monash.edu.au/current/immunisation/

For the protection of other students, patients and themselves, radiography students are expected to comply with certain precautionary procedures. This policy is in accordance with the National Health and Medical Research Council advice that educational institutions training students in health sciences should ensure that such students are protected as far as possible by vaccination against risks of infection.

The Faculty’s own policy requires that all students accept responsibility for having a satisfactory immunisation status at the commencement of the BRadMedImg course. Immunisations include diphtheria, tetanus, polio, measles, mumps, rubella and hepatitis B.

Students are provided with detailed written information about the effect that HIV, Hepatitis B or other infections may have on the ability of healthcare workers to practice their profession.
Section One

During the early weeks of year one, students are asked to make arrangements with medical practitioners, to check their immunisation status and to receive personal advice regarding infectious diseases and their personal health.

1.13 Needlestick policy

Please refer to POLICY 7 “Clinical/Fieldwork Placement Guidelines and Procedures”.


1. Under NO circumstances is a student, irrespective of any on-campus training, to directly inject radiographic contrast media into the veins of a patient.

2. Given the removal of a needle after venepuncture is within the current role of a Radiographer, students can engage in this activity provided they:

   (i) have had instruction in universal precautions, particularly in the disposal of sharps and the handling of blood waste; and

   (ii) are under the direct supervision of a registered radiographer.

3. Should a needle stick injury occur students must:

   1. report the incident to the workplace Occupational Health and Safety Officer;
   2. complete an appropriate report form;
   3. provide a photocopy of the Occupational Health & Safety Report form to the Head of the Department of Medical Imaging and Radiation Sciences; and
   4. Complete a Monash University Incident form.

Their attention has been directed to the publication by WorkSafe Victoria: “Needlestick injuries can be prevented” (publication date June 2006) refer www.worksafe.vic.gov.au

Students have also been informed about the existence of a national needlestick hotline. The value of this hotline is discussed by O’Connor (2009) in a Letter to the Editor of the Journal of Hospital Infection Vol 71 (2) pp185-186

1.14 Quality assurance processes and Clinical Studies

The Department of Medical Imaging and Radiation Sciences has instituted a number of processes whereby students can provide the year level convenor’s with feedback about Clinical Studies and the course in general.

At the conclusion of their clinical placement each semester, students are asked to complete a questionnaire in relation to their experience of Clinical Studies.
All Clinical Centres are also asked to provide the Department of Medical Imaging and Radiation Sciences with feedback about their experiences of teaching and supervising students. The results of all of the feedback will be taken to the Clinical Studies’ Unit Management Committee for consideration.

1.14.1 Clinical liaison and completion of a Clinical Studies’ Progress Report

During each clinical block in first year and in the first semester clinical block for years 2 and three, either the clinical studies convenor or another staff member from our Department visits each student. This visit is designed to provide an opportunity for supervising radiographers to provide feedback to Monash about the progress of individual students and for Monash staff to provide informed feedback to students. During the visit a Clinical Studies’ Progress Report for each student is completed. In second semester of years 2 and 3 the progress visit is normally conducted via telephone.

1.14.2 Dealing with unexpected situations/difficulties

Please refer to Policy 2 and Policy 5 “Clinical/Fieldwork Placement Guidelines and Procedures”.


1.15 Insurance cover for students

Briefing note

This note is to confirm the University’s position on the status of Faculty of Medicine, Nursing & Health Sciences students on placements. Students are placed at agencies under direct supervision for the purpose of learning. They are not paid employees of the agency and are not considered as workers. Their status will remain that of students. We are able to confirm that students on clinical placements are covered by either the Victorian Government or the University’s insurance policies. More specific information is detailed below. The State of Victoria through Victorian Managed Insurance Authority (VMIA) provides cover for Faculty students on placements involving public patients at any Victorian Public Hospital under the Hospital’s Public Liability/Medical Malpractice Insurance Policy.

With regard to other placements, we have recently sought clarification from the University’s insurers and can now confirm that Faculty students, whilst engaged in practical placement, community placement, enterprise experience or other work experiences programmes or training activities, subject to working under professional supervision, are included in the definition of ‘the insured’ in the University Medical Malpractice Policy. In addition Faculty students are also included in the definition of ‘the insured’ in the University’s General (Public) and Products Liability policy as follows: -
Section One

“Any student engaged in practical training both on and off campus including but not limited to practical placement, medical and legal clinical placement, community placement, enterprise experience, work experience or off campus field assignments”.

Monash University has a Personal Accident Insurance Policy which provides capital, medical and loss of income benefits for all currently enrolled Monash University students. The policy covers students actually engaged in practical or community placement activities.

This statement has been prepared in consultation with the University Solicitor and the University Manager, Risk and Insurance

John Gibson
Manager Resources, Faculty of Medicine, Nursing and Health Sciences
1 March 2005

1.16 Police checks and other legal requirements

Please refer to POLICY 2 “Clinical/Fieldwork Placement Guidelines and Procedures”.


Bachelor of Radiography and Medical Imaging students are required to have current Working with Children and Police Checks Regarding their suitability to undertake clinical and community placements. All enrolled and prospective students are advised that they will be required to obtain both checks prior to undertaking their course. As the Working with Children checks cover a five year period, most students will only need to obtain a free check at the commencement of year 1, whilst students must apply and pay for a Police check annually. Note that some community partnered programs require a police check be renewed every six months.

Police Checks

Purpose
To outline the procedure for the checking and recording of National Police Certificates (NPC). The Course Administrator (CA) for each degree that administers clinical placements is responsible for recording and monitoring police checks within the policy and guidelines provided by the Department of Health (DoH) and the Victorian Police.

Responsibility
Whilst the Faculty will notify each student of the requirement to have a current NPC, it is the students’ responsibility to ensure a current NPC is applied for before going on clinical placement. Refer to DHS guidelines for definition of ‘student’ and ‘current’. It is the faculty’s duty of care to ensure that students are aware of their responsibility and that they have a current police check as required for clinical placements. The faculty is responsible for informing hospitals and clinics accordingly.

Working with Children Checks
Responsibility
Whilst the Faculty will notify each student of the requirement to have a current WWC Check, it is the students’ responsibility to ensure a current WWC Check is obtained before going on clinical placements. (Refer to the Department of Justice guidelines regarding classification of ‘student as a volunteer’ and the duration of the check.) It is the faculty’s duty of care to ensure that students are informed of the need to have a current WWC Check as required by the Department of Justice before clinical placements can be undertaken. Students are expected to carry the ID card with them at all times whilst on clinical placements and show the WWC Check ID card to staff of the Institution on demand.
SECTION TWO

METHODS FOR THE FACILITATION OF STUDENT LEARNING IN THE CLINICAL CONTEXT & MONITORING THE DEVELOPMENT OF CLINICAL COMPETENCY
2.1 A model of learning for Clinical Studies

The clinical tradition trains practitioners to rely upon their own judgment and feelings about a case and “trust in the evidence of his or her senses and the warrant of his or her personal knowledge and experience” (Atkinson, 1981). This observation about the importance of experience to the development of clinical competency and expertise will resonate well with radiographers and sonographers. However, this means that we all develop our own personal approach to positioning methods, exposure factors and scanning techniques. This personal approach to clinical practice by experienced practitioners can confuse and confound junior students. The following observations told to me in the course of my research into clinical learning in radiology departments support this observation: “The hardest thing about clinical is that every radiographer does everything differently and you have to agree with everyone” (William, radiography student 1991 in Baird, 1998). “Each radiographer I work with has a different sequence which confuses me greatly” (Stella radiography student, 1997 in Baird, 1998).

This section aims to provide answers to the key question that students ask prior to beginning their clinical rotation: How do I go about learning from the many experiences I will have during my time in the workplace? Should students simply stand back and watch radiographers and when they feel ready, ask if they can perform the next examination? Can students be sure that they will be able to perform the examination to the required standard?

Throughout their clinical placement students will be engaged in what we call experiential learning. It is different from academic learning because students are learning how to become a practitioner in a busy clinical department whose main priority is caring for patients. This means that the learning episodes are far less structured than those they have experienced in the on-campus setting. From a theoretical perspective, this form of learning has been explained in terms of a learning cycle of which there are four elements (Kolb, 1984). As illustrated in Figure 1 below, the learning cycle involves an immediate concrete experience in other words the cycle begins with a student doing something instead of thinking about doing something. Next, the student has to step back and think about what has been done through a process of communication with supervisors. Once questions have been answered, the student engages in the process of developing connections between the new learning and what was previously known about the task. Students should now be at the stage of actively engaging in the final element of the process, namely putting the new learning into practice through an active process called experimentation.

Hence for many students their experiences in the clinical setting may not result in quality learning outcomes. Something else has to happen. Students need to be provided with overt instruction using the “thinking out loud” technique, time out to think over what they have experienced and witnessed and effective and considerate feedback from thoughtful radiographers.
How can we use this model to help us structure a student’s experience during clinical studies so that they learn how to perform clinical radiography? According to Kolb (1984) we do two things when we want to learn a specific skill and the choices we make become our preferred learning style.

Firstly, we choose how we will approach learning the task or skill. These approaches involve choices between reflective observation and active experimentation. Ask yourself the following questions:

- Do you like to stand back and watch others involved in the experience and reflect on what happens (reflective observation) OR
- Do you like to jump straight in and just do the thing (active experimentation)

Secondly, we choose how we will “emotionally transform the experience” into something that has meaning for us. We do this by either

- Thinking, analyzing or planning (a process referred to as abstraction) or
- Though experiencing the “concrete, tangible, felt qualities” of what we are doing. In other words our learning is affected by how we feel about the experience

We need to ask ourselves whether the active experimentation approach is appropriate within the clinical setting when patients can be put at risk if students do not put sufficient thought into their actions. Therefore, we believe the best position to adopt when students are beginning to learn how to perform radiography in the clinical setting, is **reflective observation combined with abstraction.** This is not to say that students should ignore their feelings but they need to be kept in check if patients are to experience a professional service. The art of active experimentation comes later when with increasing experience and confidence, students are able to modify and adapt a range of techniques to suit the needs of those patients who are unable to cooperate.
2.1.1 Reflective Observation combined with Abstraction

Before students are permitted to actually perform any of the specified radiographic examinations that need to be recorded in the Workbook, they must engage in a process of direct observation. This means objectively observing the supervising radiographer performing a specific radiographic examination from the initial period of matching the patient to the radiographic request form, determining the radiographic projections, to preparing the patient for the examination, preparing the radiographic equipment, reviewing previous images, positioning the patient, generating a series of images and evaluating them, discharging the patient and sending the images for reporting.

However, as you will see below, it is a requirement that more than one examination is formally observed. It is also important that students select an examination that can be repeatedly observed. Students must observe at least 3 sequential examinations of each body area before they perform the examination under direct supervision.

Method for learning from Direct Observation:

Examination 1: Observation without asking questions

The first time a student directly observes a radiographer performing one of the examinations they are expected to master during the rotation, they must make notes without interrupting the radiographer. They must not ask any questions. They must use the 5 Dimensions of Practice to help structure their observation:

1. Pre-treatment Preparation and Patient Assessment
2. Procedural Technique and Clinical Problem-Solving;
3. Professional Communication;
4. Image Interpretation and Evaluation; and
5. Organisational and Legal Obligations.

Students must keep their notes handy for the next observation

Examination 2: Observation with Commentary from the Radiographer

This time students need to ask the radiographer to “talk out loud” and describe exactly what they are doing. The radiographer will need to explain to the patient why this is happening. The radiographer needs to break the skill into manageable steps as well as outlining the potential ‘pitfalls’ or ‘stumbling points’ to assist students to remember the steps in the examination. Remember the students must only observe. It is at the end of the examination that they should write up what the radiographer said to them during the examination. At the completion of the examination the students must compare and contrast both sets of notes. Were their interpretations correct of why they thought the radiographer acted in the way they had observed? Students are now ready to engage in the third element of the process which is described next.
Examination 3: Observation with Questions from the Student

This time the student observes the radiographer and, at key points of the examination, asks questions. This is the stage where students are beginning to understand how each step of the radiographic process needs to be completed according to a clearly defined method. If there are questions that students don’t feel comfortable in asking because of the patient being present then they must make a note of them and ask later at a more appropriate time. Students must always review your class notes if they are still unclear or unsure of any of the elements of the basic examination routine.

Examination 4: Student practice with feedback

It is at this point that the student performs the same examination describing out loud what they are doing. Students are allowed to ask questions but the radiographer cannot give any cues that might prompt the student to act in a certain way. The idea is to see how well the student has observed the previous three examinations and consciously thought through each of the elements that comprise a successful radiographic examination.

However, if the radiographer becomes concerned that a student may have forgotten a very important element of the examination (for example setting the correct exposure factors) they will need to prompt the student in order to protect the patient. This is bound to happen from time to time and will be part of a student’s ongoing learning. Also students must not be concerned if the radiographer engages in minor modification to their positioning techniques. This is an expected element of the instructional process. Positioning is a very skilful element of radiographic practice and it takes time to master all of its elements. For example, it would be an exceptional student who can master the art of positioning the three projections for the ankle joint after only observing 3 examinations.

The advantage of the experiential model of learning is that learning itself is seen as an active process that also has outcomes such as those specified in the learning objectives for the Clinical Studies’ rotations. With the supportive assistance of radiographers students will be learning how to plan, implement and evaluate a range of general radiographic examinations. At the same time as the objectives indicate, students need to begin to develop a range of other skills. These include interpersonal, organisational and problem solving skills. Most importantly, students need to develop sound “clinical reasoning” skills. This means time needs to be given to students to reflect what they have seen and done against the theories and instruction provided to them at Monash University.

Another advantage of this so-called experiential model of learning helps all of us to understand that knowledge, skills and attitudes are in a continuous process of development. The model can assist us to appreciate why our expectations regarding a student’s ability to plan, implement and evaluate radiographic examinations need to be modified. Another reason for the adoption of this model of learning is that it demonstrates how important feedback is to the quality of the learning outcome. If we want students to develop professionally and personally as a consequence of undertaking Clinical Studies, we need to be committed to providing them with purposeful and fair feedback about their clinical participation and performance.
2.2 The Monash approach to structuring clinical learning

The Department of Medical Imaging and Radiation Sciences accepts its responsibility to devise learning tools and assessment strategies that facilitate the achievement of professional accountability and clinical competency. The Monash approach to the structuring of Clinical Studies is characterised by the use of Learning Contracts, Learning Portfolios and the Novice to Expert Model of Clinical Skill Development.

A full description of the 2013 Bachelor of Radiography and Medical Imaging Clinical Studies Requirements is provided as a separate PDF located in the same location that you found the Guidelines on our Home Page

2.2.1 Learning contracts

Throughout the Clinical Studies’ attachments students will be using learning contracts as a means of ensuring that everyone is clear about the objectives of each clinical rotation and the nature of assessment. A learning contract can be thought of as a learning plan. Contract learning is designed to allow for the development of a more personal agreement between you and your student regarding the day-to-day management of the clinical experience, the area of knowledge and skills to be covered and the timing of assessment and feedback.

The supervising radiographer or designated clinical tutor and the student will need to discuss the contracts and sign them. As you will note from the contracts placed within the various Clinical Studies’ Workbooks, the signature of the student indicates their intention to do their best to complete the contract. The signature of the clinical supervisor/tutor or even depending upon the clinical site, the Chief Radiographer signifies a commitment to provide the student with the opportunity to meet the expectations of the contract.

Specific Learning Contracts have been developed for each phase of the student’s clinical development. Essentially there are two forms of Learning Contracts:

1. Learning Contracts for the Development of Clinical Competence in Radiographic Examinations; and
2. Learning Contracts for Professional Development

To record progress in meeting the first kind of Learning Contract, space is provided within the Workbook and amongst other requirements students are required to write up Radiographic/Sonographic examination and procedural reports and log entries.

2.2.2 Reflective clinical examination reports

Throughout their clinical attachments students are required to write about their involvement in and learning outcomes in various radiographic examinations on patients who present with various clinical indications.
The expected range of examinations recorded will vary from semester to semester in accordance with the students increasing clinical experience. The reports are expected to encourage students to demonstrate a critical analysis of and reflection upon their work and the varying methods used by radiographers or sonographers. It is expected that these notes will demonstrate that a “transfer of learning” between similar cases has occurred.

We respectfully ask for your cooperation in assisting students to complete their written work by ensuring they receive verbal feedback about their work and that you sign off their work as being a true and accurate record of what took place.

In accordance with each student’s progression through the course and commensurate with the academic requirements for each year level, the format of these notes will be different.

2.2.3 The procedural reports and log entries

In first and second year students must also write up a number of procedural reports and log entries. There must be evidence that students have engaged in a range of radiographic examinations commensurate with the requirements of the learning contracts. The examinations selected for recording as these Entries must be examinations in which students have acted as the “radiographer” under supervision. Students cannot record examinations that they have either observed or played a minor role e.g. set the exposure factors from a chart.

2.2.4 The Year 3 General Radiography Register

In 2011, a new method into year 3 for the recording of daily radiographic examinations was introduced. The Register comprises worksheets and a self assessment exercise related to the worksheets for each semester. Each worksheet has 4 columns. Students must record the total number of radiographic examinations [defined in column 1] they have performed [column 2] for the body areas at the end of each week. Students must also record the number of repeats per week for the relevant designated body areas they have examined during each week [column 3]. Column 4 is completed when undertaking the self assessment exercise and not before!. No attempt has been made to include the radiographic projections that could be undertaken for each body area listed except for the chest. Neither have all body regions amenable to general radiographic examination been included e.g. coccyx, scapula, sterno-clavicular joints. No attempt has been made to distinguish between the kinds of patients that may be encountered by the student. All patients irrespective of their background, clinical condition and age can be aggregated into the total number recorded. Reflections upon patients and their challenges are recorded in the General Radiography Examination Reports (in the Year 3 Clinical Workbook) and where appropriate, the Self Assessment and Progress Report that forms part of the Register.

2.2.5 The Year 4 Professional Clinical Placement Workbook

Throughout the PCP students must demonstrate their capacity for competent practice across the domains of practice by completing a number of achievement records and a series of formal performance assessments. Supervisors are required to provide informed and objective feedback
upon student progression. Students are required to complete a **Record of general radiography achievements** which is designed to allow students to formally record their radiographic skills’ progression and reflect upon their progress towards the goal of competent practitioner. All students must complete a series of proformas at designated intervals. There is no mandated style. Students are also required to undertake mid placement and end of placement clinical assessments over a range of radiographic examinations.

2.3 A model of professional development for Clinical Studies – the novice to expert model of clinical skill development

The Clinical Studies program is grounded in the view that professional expertise is the consequence of a lengthy process of professional apprenticeship. Success in the classroom does not necessarily translate into success in the practice setting. Students can only learn how to practice their chosen profession in the actual clinical context.

However the clinical context is challenging both for students and the university structuring the experience of Clinical Studies. As experienced practitioners know only too well in the context of busy hospital departments, practitioners do not consciously and deliberately apply pure and applied research to medically and socially defined situations. In reality clinical practice is characterised by a tacit and largely spontaneous “knowing-in-action”. Practitioners simply know what works and what to do in the situation that presents itself to you. Dreyfus and Dreyfus (1985) consider human decision-making to represent “a mysterious blending of careful analysis, intuition and the wisdom and judgement distilled from experience” (p.8). They also believe that expert decision-making is a consequence of a five stage progression which begins with the student assuming the role of “novice practitioner”.

From a position of relying upon “context-free” rules to make sense of the experience of being in the world of the practitioner, the novice begins to use experience to learn how to modify the rules in keeping with the demands of the practice situation. Experience in the field enables the novice to become an advanced beginner whose knowledge and skills gradually become situational and context-dependent. With increasing experience, Dreyfus and Dreyfus (1985) argue that the advanced beginner stage gives way to competence that is characterized by a hierarchical approach to the decision-making process. A stage has been reached whereby a practitioner has attained the ability to “both simplify and improve his or her performance” (p.24). Experience has taught the practitioner how to recognize the salient features of a situation and choose an appropriate course of action. A competent practitioner has acquired the ability to “sense” what is important to their practice and plan and modify a course of action accordingly. Competent practitioners also have a different relationship with their context than do novice practitioners and advanced beginners. Although competence is still characterised by an ability to be somewhat detached from the decision-making process, at the same time, the competent practitioner is becoming deeply involved and affected by the outcome.

The Bachelor of Radiography and Medical Imaging takes seriously the implications of this model of professional development. Thus all the clinical assessments are structured around the idea that students will move through the various stages from beginner to intermediate beginner and
advanced beginner practitioner and finally attain the level of competent practitioner by the end of the course. It is important to note however that competency does not equate with expertise. According to Dreyfus and Dreyfus (1985) a practitioner needs to become proficient before they exhibit the characteristics of the expert practitioner who is one with their practice. The expert is someone who simultaneously “sees” challenges, problems and solutions posited by the practice situation. In fact Dreyfus and Dreyfus (1985) suggest that “when things are proceeding normally, experts don’t solve problems and don’t make decisions; they do what normally works” (p.31).

By the end of each clinical attachment in Year 1, the expectation is that students will be moving towards the status of an advanced beginner student radiographer in relation to general radiography. By the end of Year 2 Clinical Studies it is expected they will be demonstrating the characteristics associated with an advanced beginner student radiographer. In respect to general radiography and CT, students will be expected to exhibit the characteristics of a competent student radiographer by the end of Year 4.

The characteristics of a Beginner, Intermediate Beginner, Advanced Beginner and Competent student radiographer in relation to radiography are provided in the following pages.

References


2.3.1 Characteristics of the continuum from beginner to competent student radiographer with suggested supervisory styles

**CHARACTERISTICS OF A BEGINNER:** The beginning student radiographer requires close supervision to prevent mistakes – patient care is not uppermost in their thoughts.

- Needs clear direction about how to apply academic knowledge to clinical situations especially in relation to exposure factors.
- Keeps to the rules with a naive trust in department protocols.
- Task oriented and needs guidance in prioritising the tasks.
- Has difficulty in coping with more than one demand at a time.
- Lacks flexibility and clinical know how.
- Misses subtle clinical clues.
- Rudimentary clinical communication skills.
- Lack of ease in positioning and directing patients.
- Finds it difficult to focus upon the needs of patients at the same time as attending to the technical aspects of the examination.

**CHARACTERISTICS OF AN INTERMEDIATE BEGINNER**

A more methodical approach to the radiographic examination is apparent. Patient interaction is improving. Exposures and positioning still need to be checked.

- Begins to integrate knowledge from previous clinical cases with academic knowledge.
- Begins to see where the rules and protocols need to be modified in light of the clinical question and clinical condition of the patient.
- Still task oriented but beginning to prioritise these tasks in keeping with the clinical question.
- Begins to cope with more than one demand at a time.
- Still lacks the ease and work style of a competent radiographer.
- Begins to recognise subtle clinical clues and their implication for the examination at hand.
- Patient interaction is improving with more eye contact and personalisation of instructions.
- Begins to anticipate potential problems thereby minimise mistakes.
- Attention to the technical aspects of the examination still dominates clinical actions.
### CHARACTERISTICS OF AN ADVANCED BEGINNER

A more responsible and critical approach to radiographic examination is apparent. Exposures and positioning still need to be checked.

- Begins to use knowledge from previous cases.
- Begins to modify protocols in light of the clinical question and clinical condition of the patient.
- Begins to take responsibility for planning the entire examination.
- Implements the examination in a methodical and efficient manner.
- Demonstrates an ability to prioritise radiographic tasks in keeping with the clinical question.
- Copes with more than one demand at a time.
- Begins to demonstrate the ease and work style of a competent radiographer.
- Begins to recognise subtle clinical clues and their implication for the examination at hand.
- Able to empathise with a patient and elicit details from the patient in a professional manner.
- Anticipates potential problems thereby minimise mistakes.
- Can focus upon the needs of patients at the same time as attending to the technical aspects of the examination.
- Has a greater self awareness of their strengths and weaknesses and knows when to refer to supervisors for guidance.
- Begins to act as a member of the team.

### CHARACTERISTICS OF A COMPETENT STUDENT RADIOGRAPHER

A patient-focussed approach to radiographic examination is apparent. Initiative, speed and clinical know-how characterise the competent radiographer.

- A reliance upon knowledge from previous clinical cases.
- Demonstrates initiative and modifies protocols in light of the clinical question and clinical condition of the patient.
- Acts in a responsible and ethical manner.
- Grasps the radiographic examination as a whole rather than as a series of tasks.
- Able to single out relevant information from the irrelevant.
- Prepares for the examination and anticipates any complications prior to examining the patient.
- Accomplishes the examination in a timely and efficient manner.
- Copes with more than one demand at a time.
- Recognises subtle clinical clues and their implication for the examination at hand.
- Patient focused.
- Communicates effectively with all members of the health care team.
- Critically evaluates their performance.
- Recognises when the limits of their knowledge and experience have been reached and when peer advice and assistance is required.
PLEASE DETACH THE FOLLOWING PAGES INCLUDING THE PERFORMANCE GRADING SCHEME IN SECTION 5 FOR PHOTOCOPYING AND WIDE DISTRIBUTION WITHIN THE DEPARTMENT
2.4 Modified descriptors to be used during formal assessments and in the provision of feedback in the workbook entries

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF A BEGINNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOST APPROPRIATE STYLE OF SUPERVISION – SUPPORTIVE</td>
</tr>
<tr>
<td>Demonstration of procedure, close support with immediate feedback to promote confidence building.</td>
</tr>
<tr>
<td>1. Needs clear direction especially about exposure factors to avoid repeats.</td>
</tr>
<tr>
<td>2. Lack of ease in positioning &amp; directing patients.</td>
</tr>
<tr>
<td>3. Finds it difficult to focus upon patient &amp; technical needs at the same time therefore approach to radiographic examination may lack a methodical approach.</td>
</tr>
<tr>
<td>4. Rudimentary clinical communication skills.</td>
</tr>
<tr>
<td>5. Has difficulty in coping with more than one demand at a time.</td>
</tr>
<tr>
<td>6. Lacks self confidence &amp; takes time to complete various tasks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF AN INTERMEDIATE BEGINNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most appropriate style of supervision – COLLABORATIVE</td>
</tr>
<tr>
<td>Determining what the student already knows about the examination then tailoring the style of supervision to suit. Provision of immediate feedback continues to be required.</td>
</tr>
<tr>
<td>1. Improving patient interaction with more eye contact &amp; personalized instruction.</td>
</tr>
<tr>
<td>2. Beginning to integrate knowledge from previous cases with academic knowledge but still needs assistance with exposure factors to avoid repeats.</td>
</tr>
<tr>
<td>3. Beginning to cope with more than one demand at a time.</td>
</tr>
<tr>
<td>4. Beginning to anticipate potential problems thereby minimising mistakes.</td>
</tr>
<tr>
<td>5. Length of time taken to complete the radiographic examination still considerable.</td>
</tr>
</tbody>
</table>
Section Two

**CHARACTERISTICS OF AN ADVANCED BEGINNER**

**MOST APPROPRIATE STYLE OF SUPERVISION — CONSULTATIVE**  
Student should begin demonstrating the work style of a competent radiographer.  
May still require support.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Begins to take responsibility for planning entire examination and complete it in a timely fashion.</td>
</tr>
<tr>
<td>3.</td>
<td>May still require assistance with exposure factors to avoid repeats.</td>
</tr>
<tr>
<td>4.</td>
<td>Better able to empathise with a patient &amp; elicit details in a professional manner.</td>
</tr>
<tr>
<td>5.</td>
<td>Beginning to see where the rules &amp; protocols need to be modified in light of the clinical question and clinical condition of the patient.</td>
</tr>
</tbody>
</table>

**CHARACTERISTICS OF A COMPETENT STUDENT RADIOGRAPHER**

**MOST APPROPRIATE STYLE OF SUPERVISION — CONSULTATIVE**  
Student demonstrates the ease and work style of a competent radiographer.  
Seeks support when appropriate.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Uses previous cases to guide clinical actions.</td>
</tr>
<tr>
<td>2.</td>
<td>Recognises clinical cues and anticipate complications.</td>
</tr>
<tr>
<td>4.</td>
<td>Completes each examination within normal time constraints.</td>
</tr>
<tr>
<td>5.</td>
<td>Possesses self awareness of personal strengths &amp; weaknesses &amp; knows when to refer to others for guidance.</td>
</tr>
</tbody>
</table>
SECTION THREE

CLINICAL TEACHING AND
CLINICAL INSTRUCTION
GUIDELINES
Section Three

3.1 The idea of the adult learner

The learning and assessment tools contained within the Clinical Workbooks that students will use throughout the clinical program are grounded in the assumption that the students coming to your centres are capable of self-direction and self-assessment.

We have created learning tools and assessment approaches that assume students are adult learners and beginning practitioners. Before we examine the characteristics of effective clinical instruction, teaching and supervision we need to think about the characteristics of the adult learner.

In contrast to children adults as learners need to

- feel that what they learn is relevant;
- be given the opportunity to agree with the goals of the learning experience;
- be provided with a learning environment that fosters self-esteem, allows for freedom of expression and acceptance of difference;
- be actively involved in the learning process;
- be given responsibility for determining the pace of the experience; and
- see progress towards the established goals.

Adults also tend to rely less on memory and more on creating relationships between different forms of knowledge and want to master immediate problems (Ladyshewsky, 1995)

What does this mean for our approach to teaching and supervising the adult learner who is assuming the role of a beginning practitioner? It means that teaching in its broadest sense must give way to facilitating student learning in a supportive environment. Today clinical teaching is more properly seen as the art of facilitation and coaching. Remember how you learned a practical skill? Think how hard it was to get the hang of what you were being shown. Learning a practice is tough work and requires the patient supervision of an interested and caring practitioner. The next section will examine the idea of teaching as facilitation and coaching.

3.2 Teaching as facilitation and coaching

The clinical practice setting, as a forum for teaching, can be quite complex. In their interactions with students it would be true to say that practitioners assume many roles along a continuum from instructor to assessor. Since the seminal work of Donald Schön we understand more clearly the difficulties involved in “teaching” a practice. The more expert the practitioner the more challenging this becomes. Why? Quite simply when a particular level of expertise is reached the relationship the practitioner has with their practice cannot be separated out into chunks of know-how for assimilation by the beginner. So how should we teach a practice?
A beginner needs to be coached to see the practice world through your eyes. The teacher must become the facilitator of student learning. This term suggests an individual who prepares the way, “opens doors” and unobtrusively assists-when-asked or required; providing gentle motivation through competent ‘presence’. This approach requires considerable skill, experience and self-control, but is ideal for allowing and assisting young adult learners to achieve a ‘wholeness’ in their grasp of their professional knowledge and activities.

A purely ‘facilitator’ teaching style may not be appropriate for all students. For example, where a quiet or shy student is unlikely to step forward to ask for assistance and would thus be inadequately motivated by this ‘background presence’. Similarly, some writers have subsumed many of the attributes from the continuum into one all encompassing individual under the title of a ‘coach’. This term conjures us the idea that the aim of the clinical teacher is to develop the individual students’ potential abilities or latent qualities that relate to performance.

Alternatively, some ‘coaches’ may interpret their role in terms of acting as an older, knowledgeable mentor. Such a person would have the ability and tough-minded dedication to motivate all of his or her students, by a controlled application of his or her skills, ranging from practical example to sheer force of will, to achieve the level of ‘fitness’, knowledge, deductive reasoning and skill-in-application that they require to succeed in their chosen new profession.

Depending on the student or the moment, there may not be an easily chosen ‘right-way’. However we are of the view that the style of teaching called quantitative teaching, in which the teacher simply gives out information or tells students what to do fosters surface learning. This may lead to competent recall of facts, but with little real practical understanding of the way the new information ‘fits’ within the student’s global conceptual map for their profession.

Instead, students should regularly be given the opportunity to struggle with the new material as they internalise it, and relate and reconcile what they are learning, with what they know. Before they will accord value to specific informative material and concepts, adult learners need to know why they are incorporating it, where it will contribute to their professional understanding and how they will be able to use it.

In order to foster deeper conceptual learning of the many interlinked issues in the uncertain clinical world of our professional practice, students need to be given plenty of support to grapple with the information within the context for which it was designed. Teaching for this preferred qualitative learning “… requires processes which enable the student to actively construct meaning, largely through interaction with their tutors, their peers, the informative material and the learning environment”.

3.3 Characteristics of effective clinical teaching

Rather than categorise teaching as either good or bad it is more helpful to think about clinical teaching in terms of its effectiveness in facilitating learning.

3.3.1 Examples of positive interaction

• Practitioner integrates question and answer techniques into teaching.

• Combination of one-to-one, small or select group and larger group discussions.

• Interactions occur in a variety of contexts – in the treatment room, with or without a patient, or elsewhere.

• Students empowered and encouraged to initiate interactions.

• Students conceptual understanding (as well as rote knowledge) regularly probed, challenged and enhanced.

• Probing questions, to draw out students level of understanding.

• Individually or grouped, students are pulled into spirited debate, involving why? what? or if? type questions, which require higher order thinking.

• Students who believe they have mastered a given subject are challenged to think even further into the subject or related issues.

• Recap and review sessions, to develop or recognise, foster and acknowledge global understanding.

3.3.2 Examples of negative interaction

• Excessive emphasis on factual recall.

• Excessive tutor-talk stifles a student’s ability to test understanding through discussion.

• Limited probing and/or interaction.

• Tutor exercises insufficient active listening skills.

• Too much information and detail in one session.

• Too many one-to-one discussions.
• Not enough group discussion, some individuals singled out (positively or negatively) while others may be neglected.

• Physical separation for one-to-one discussions stifling the possibility of group involvement. Although, at times, such a course is necessary or at least prudent to avoid embarrassment.

3.4 Designing an ideal adult learning clinical experience

The experiential model of learning and the novice to expert model of clinical skill development were described in the previous section. In particular we described a

Method for learning from Direct Observation:

Keeping in mind this method the following teaching/instructional design is suggested for the beginning practitioner once they have mastered their initial examination:

Stage 1: Prior briefing during which the task and its difficulties are discussed and the clinical supervisor assesses what the beginner knows about the particular examination.

Stage 2: Concrete clinical experience in which:

(1) the supervisor/expert practitioner will model the appropriate activity; and
(2) the supervisor/expert allows the beginner to emulate the approach

Stage 3: Application phase beginners are provided with a similar activity and the opportunity to apply the skills developed in the first case.

Stage 4: Debriefing phase beginners explore with the supervisor their strengths and weaknesses. This phase provides the parties with the opportunity to develop a clinical action plan to facilitate the further clinical skill development of the beginner as he or she moves along the continuum from beginner to expert practitioner.

The creation of an “ideal” adult learning experience is one element in the teaching and learning equation. Supervisors must also learn how to effectively teach someone a new skill.

3.5 Criteria for effective instruction

How can we determine the effectiveness of our instructional approach? Best and Rose, (1995) suggest the following criteria:

• clarity of speech;
• appropriate to the beginner’s level;
• responsive to cues from the beginner;
• provides encouragement;
• demonstrates flexibility;
• logical sequencing;
• body language and verbal instruction match;
• provides a demonstration; and
• allows permission for clarification.

3.6 Ways of improving instructional skills

The quality of student learning is shaped by the approach taken by practitioners to the task of passing on their knowledge and skills to beginners. We can always improve our instructional and teaching approaches. We suggest at this point you might care to respond to the following questions.

• What sort of questioning technique do you use? Open versus closed ended questions.
• How much time do you spend talking – do you let the beginner explain their needs to you?
• What tone of voice do you use?
• Do you hide your lack of understanding beneath jargon.
• What do you do what the beginner cannot answer the question? Do you direct them to do some reading? do you tell them the answer? Or do you find other ways to assist them to solve the problem? (adapted from Best and Rose,1995)

3.7 How to be an effective clinical tutor/supervisor

Plan reflectively: Try not to leave anything to chance (may be unavoidable), review and revise your approaches and styles regularly. Nominate others – recognise and use your human resources: Effectively spreads workload, specific expertise/knowledge, broader/richer range of experience for students, but give clear guidance (to both student and supervisor).

Use the Learning Contracts to remind yourself what needs to be achieved during the student’s attachment. Within each ‘teaching event’, be realistic, sequence progress into manageable chunks, based on time, duration and number/seniority of students, always incorporate an assessment of the students prior knowledge. Use feedback with/from students. Modify as appropriate. Set a good example: You (and your designated colleagues) are a role model for the profession, demonstrate your experience in action by performing quality examinations, be wary of the use of short-cuts or the adaptation of a “good enough” approach to patient interactions. Involve the students in an active participatory process. Fully observe them in all aspects, to identify and correct any problems. Be sympathetic and supportive, especially with junior students. Again use the contracts to negotiate with the student to vary the level of support as they progress.

An awareness of such a list of activities can at first be alarming. However, every clinical supervisor will have recognised most, if not all, of these elements from their memories of their day-to-day interactions with their students, interns and younger qualified peers. Reflective recognition of these
and perhaps other functions, can promote a more focussed approach to the quality of the time spent with your students.

For further information please refer to the 2009 Faculty publication: *Practical Guide for Clinical Educators*. This publication comprises 4 topics:

1. Planning teaching sessions
2. Teaching small groups
3. Giving effective feedback (including a DVD Giving Feedback which is not available on the web link), and
4. Assessment in the clinical setting.

Each topic is structured to:

- Introduce practitioners to the objectives and content
- Build on their existing knowledge and previous experience
- Provide realistic case scenarios that illustrate the key learning points in the topic, and
- Identify further relevant reading or other resources.

This publication is available is provided as a separate PDF located in the same place as the Guidelines on our Home Page

### 3.8 The voices of our students: DVD clips featuring advice from students regarding teaching, learning and feedback

At the end of 2011 we invited interested students to share with us their experiences around clinical teaching and learning. These clips can be viewed by following the links which are provide in the same location as you accessed these Guidelines on our Home Page

### 3.9 More than teaching

The role played by radiographers and sonographers when attempting to impart a wide range of professional facts, interpretations and behaviours to young adults is difficult to fully categorise in print. In fact you will be doing more than teaching during those interactions with students. During interactions with students, radiographers impart knowledge, promote skill development and promote professionalism and facilitate the development by students of a professional identity.

#### 3.9.1 The getting of wisdom – ways of imparting knowledge

- Help students to identify what he or she does/doesn’t know.
- Focus on literature appropriate to practice.
Section Three

- Encourage students to regard printed course work as a crucial resource.
- Bring knowledge/experience to relate to general theory for specific cases.
- Help students to achieve a holistic view of the patient.
- Bridge the gap between classroom and clinic.
- Learn from your students – encourage them to bring new knowledge into your sphere of patient assessment and treatment.
- Be aware of the progress and demands of the whole curriculum.
- Encourage reflection – through and on practice.

3.9.2 Becoming a member of the profession: Promoting professionalism

- Maintain, model, explain and ensure continuing standards of professional practice.
- Check and review plans.
- Empower a controlled progression toward independent decision making.
- Explore the students attitudes to people in the clinical situation.

Reference

3.10 The idea of a reflective practitioner

In section 2.2 we described the Monash approach to structuring clinical learning. The Learning Contracts for Professional Development are aimed at facilitating the professional development of students especially in relation to assisting them to integrate science with practical know-how and in developing their reflective capacities. To become professional practitioners, students need to learn how to become skilled at thinking about what they do during the “hot” action of clinical practice and afterwards in quieter moments when they can “mull” over what they did and saw and begin to make links between the various cases they complete. Through an active engagement in a range of reflective exercises they will see how each examination they complete will add to their store of radiographic and clinical knowledge and overall professional repertoire. What do we mean by the term reflective practitioner? What for that matter do we mean by the term “reflection”? The next section is an extract from a chapter written about these matters by Marilyn Baird and Jane Winter. See Chapter Seven in the book: Rose, M., & Best, D. (eds) (2005) *Transforming practice through clinical education, professional supervision and mentoring*. Churchill Livingstone, Edinburgh.

Characteristics of a reflective practitioner

In the following extract from a first year radiography student critical learning experience report, we are introduced to the kind of approach to patient care that is a consequence of an habitual approach to practice that appears to lack any engagement in reflective thinking on the part of Radiographer A.
Clinical Studies’ Manual for Radiographers

... Radiographer A did not communicate with patients well. The radiographer routinely takes patients to the room and immediately directs them to assume a position. There is no attempt to build rapport through smiling or even asking how the patient is. The only communication was one-sided: the radiographer giving the patient directions. There was no general conversation with patients unless the patient spoke first. From my perspective I took the behaviour to imply the radiographer lacked a real concern for the patient simply wishing to get the job done as quickly as possible. Radiographer B was the complete opposite. This practitioner has a genuine concern for patients and treats them as individuals not just another “hand x-ray”. I saw this radiographer build rapport from the moment of greeting the patient. This was done by forming eye contact, smiling and saying: “Hi my name is …”. Throughout the examination I noted the radiographer being kind, polite and showing empathy. The radiographer chatted about general topics and often stood by the table and talked to the patient without setting up equipment so eye contact could be made and genuine interest shown. Whilst communication does not alter the quality of the images and it might slightly increase the examination time, when performed well, the total experience is pleasant for the patient and satisfying for the radiographer (2003 first year radiography student following completion of a 4-week clinical rotation).

There is little doubt the student believed the patient was better served by practitioner B. In contrast to practitioner A, practitioner B is a thoughtful radiographer who has gone beyond a focus upon the technical aspect of his or her work. Radiographer B is demonstrating a concern with the ethical and moral dimensions of practice as well as “contextual”, “interpersonal” and “integrative” competence (Johnston, 1995). Yet can we ascribe to the actions of this radiographer the label of reflective practitioner?

Certainly radiographer B has taken the first step in the process envisaged by Dewey (1933), by making a conscious decision to direct his or her actions in an “intelligent” and “creative” way. This practitioner seems to have the particular attitudes of mind that Dewey (1933) believed are a precursor to reflective thinking, namely:

- “open-mindedness”;
- “whole-heartedness”; and
- “responsibility”.

It is only when these attitudes are embraced, can practitioners could engage in that form of thinking that frees them from “impulsive” or “taken-for-granted” and habitual approaches to their practice. What kind of thinking are we talking about? Fish & Twinn (1997) argue the reflective practitioner actually moves beyond the “commonsense view” that practitioners should think about their actions during and after the delivery of a professional service. Reflective thinking is not idle navel gazing and imagining how practice could be different (Bolton, 2001). Reflective thinking is deliberative orderly (Wales, et al., 1993). Furthermore, it is not a self-absorbed process that solely focuses upon self-reflection and self-monitoring without seeking feedback from colleagues (Bolton, 2001).

Reflective thinking is a serious intellectual activity that means taking a step back either before, during or after we act with a view to improvement or change. Engagement in reflective thinking means a commitment to a structured and critical review of one’s practice leading to refinement and new understandings (Fish & Twinn, 1997).
Thus, in contrast to habitual or conformist practitioners, reflective practitioners:

- have the capacity to be open to new ideas and approaches to practice;
- seek to improve the quality of their work for the benefit of the patient;
- are enthusiastic and passionate about their work;
- see what they do as worthwhile and meaningful;
- act in an intellectually and morally responsible manner recognising the role values and beliefs play in shaping the quality of patient care;
- adopt a problem solving and holistic approach to their practice seeking collaborative solutions to practical workplace issues and concerns;
- acknowledge their limitations and level of competence; and
- know how to engage in a critical conversation with their practice and their inner self and in the process gain new knowledge and insight into the meaning of their practice.

The reflective practitioner is unashamedly “enticed and engaged by thinking” (Loughran, 1996, p.5) always wanting to know why something is worth believing. Such practitioners openly question and possibly challenge the dominant institutional, political and economic imperatives that intrude upon practice and in the process seek to mitigate their impact upon the delivery of quality patient care (Smyth, 1986; Bolton, 2001).

References
SECTION FOUR

ASSESSMENT AND CLINICAL PERFORMANCE
4.1 Assessment as part of the learning process

The experiential model of the learning process together with the novice-to-expert model of clinical skill development explained in Section 2 helps us to understand that knowledge, skills and attitudes are in a continuous process of development. The model can assist us to appreciate why our expectations regarding a student’s ability to plan, implement and evaluate radiographic examinations need to be modified.

Another reason for the adoption of this model of learning is that it demonstrates how important feedback is to the quality of the learning outcome. If we want students to develop professionally and personally as a consequence of undertaking Clinical Studies, we need to be committed to providing them with purposeful and fair feedback about their clinical participation and performance.

Continuous evaluation in the form of process feedback is an integral part of the teaching process; and is necessary from the initial overview to the final summary of an examination. To facilitate student progress along the continuum from novice to expert practitioner the effective provision of feedback is essential.

Formalised assessment can provide students with multi-level feedback. When conducted in an appropriate manner using a carefully constructed assessment tool, the process can diagnose areas of weakness and areas of strength as well as encourage and challenge students to excel in their approach to clinical practice. At the same time, if a student fails to meet the expected standard, the process should make it clear to the student why such a judgement was made. At no time should formalised assessment be seen as a disciplinary event. Rather, as with formative assessment, summative assessment should also be seen as an integral part of the learning process.

4.1.1 Why formally assess student performance and attitudes?

There are a number of reasons that formal clinical assessments occur. The university treats the clinical studies rotations very seriously. Student must demonstrate they are up to the expected standard. Formal assessment can act as a motivator to students who have been less than self-directed in the workplace. Formal assessments can also establish the strengths and weaknesses of the student’s practical skills and knowledge base and allow for a more accurate and personal learning plan to be developed for the remainder of the placement. Finally, assessments can provide insight into the quality of the clinical instruction and teaching provided by practitioners. You are strongly advised to read the publication Practical Guide for Clinical Educators provided to you as a PDF in the same location on our Home Page as you found these Guidelines.

4.1.2 Challenges and responsibilities associated with the role

There are many challenges associated with this role. From acting as a friend and colleague to the student, at the time of the specific assessment the practitioner is suddenly cast in the role of judge and jury. Being fair and “objective” is a key expectation of the role. It is crucial that you understand the criteria against which your judgements are to be made. As a professional there is an
onus upon you to understand the framework we have developed and within which the assessment tools are situated.

The real challenge will come as you balance your own personal perspective of the student’s performance against the university’s assessment schema. For example, many clinical assessors recognise that performance in that one clinical examination may not tell the total picture. The student may have been satisfactory up until that point in time when the final decision has to be made. Nevertheless a summative judgement must be made irrespective of the situation. Again we strongly advise you to read the publication Practical Guide for Clinical Educators.

Please note: It is mandatory that ONLY the designated tutor/supervisor or their approved deputy complete the Clinical Skills assessments. Also, each assessment must be accompanied with comments. It is unacceptable to simply indicate a P level without justifying the decision.

4.1.3 Handling the role

You have to learn to handle the consequences of the judgement and know when to intervene to protect the patient. The best way to prepare for the role of assessor is to understand the process and the underlying philosophy of the assessment approach. For example, is the assessment approach a competency based system that focuses only upon observable behaviours? Therefore are you only required to comment and make a judgement about the actual performance?

Alternatively are you expected to ask the student to provide a rationale for their actions? If so ensure you have appropriate questions that can elicit this information. Are you prepared to handle the emotion surrounding assessment? Are you are aware of the professional codes of behaviour and practice standards as these may well be incorporated into the specific assessment tool devised?

Finally, do you understand the scoring system we request you use for the determination of the performance grade?

At this stage review SECTION 2 of these Guidelines. Monash University draws upon the Novice to Expert Model of Clinical Skill Development to assess its students’ practical ability and their clinical decision-making capacities. We recognise the difficulties and challenges associated with the assessor role and ask you to carefully read the following sections as we attempt to clarify our assessment approach.

4.2 How to give meaningful feedback

4.2.1 Phases of feedback

All radiographers who supervise and teach students will need to provide feedback to them. There are three major phases of the provision of feedback and these include:

- asking for feedback;
• providing feedback; and
• receiving feedback.

For feedback to be a meaningful exchange between the student and the clinical supervisor there needs to be a give and take of information, feelings and perceptions. **We strongly advise you to read the publication Practical Guide for Clinical Educators provided as a PDF in the same location as these Guidelines on our Home page.**

### 4.2.2 Guidelines for the provision of feedback

- Before giving feedback make sure the student has had the opportunity to discuss their performance and feelings about it with you.
- Be clear, precise and specific. Direct the feedback to actual behaviour that has been observed.
- Give feedback on the students’ resources and strengths, as well as their limits and weaknesses.
- Give useful, appropriate feedback on behaviour that the student can change in a realistic time frame.
- Give descriptive or factual feedback based on first hand evidence.
- Be fair and honest, not judgemental – feedback should not focus on the others’ values, beliefs and personality traits.
- Immediate feedback is more meaningful and practical since the student can relate it to what has actually happened.
- Too much feedback at once should be avoided.
- Feedback should always be supportive and conducted in private, away from patients, staff and other students.
- Feedback should be focused; descriptive of the behaviour observed and detailed enough so that the student is able to determine what aspects of their performance they must change.
- Verify your perceptions, be flexible enough to change your perceptions and ascertain that the student understands your feedback.
- Highly effective teachers are good providers of “process feedback” (feedback with explanation).

### 4.3 Formalised assessment

The attainment of clinical competency is an important goal in the clinical program. However, students are beginning radiographers or sonographers. It is all too easy to forget how daunting the clinical environment can be for beginners. We therefore need to ensure that our expectation about student performance matches their level of clinical development.

The formalised assessment forms are organised in relation to what we refer to as:
4.4 Dimensions of professional practice

A professional practice possesses a number of features that are observable and assessable. We believe that all radiographic examinations possess the following professional dimensions:

- Pre-treatment Preparation & Patient Assessment;
- Procedural Technique and Clinical Problem-solving;
- Professional Communication;
- Image Interpretation and Evaluation; and
- Organisational and Legal Obligations.

Besides assisting the students to think about their professional development, these Dimensions of Radiographic Practice form the basis of the formal assessment of the student’s Radiographic Clinical Skills that you, as their clinical supervisor, conduct during the student’s clinical attachment. The Department of Medical Imaging and Radiation Sciences expects that at the end of each clinical rotation, students will have demonstrated progression along the continuum from novice or Beginner to either Intermediate Beginner, Advanced Beginner or Competent Radiographer in relation to these 5 Dimensions of Professional Practice:

Each formal clinical assessment is divided into the 5 sections thereby providing the assessor with the opportunity to make a judgement about student performance against each dimension of practice. At the same time the scheme acknowledges that the sum of the performance is greater than its individual parts and therefore the scheme allows the assessor to provide a holistic grade at the completion of the assessment.

N.B.: Examples of the Structure of the Clinical Assessment forms are provided in 4.8

4.5 Using the novice to expert model of clinical skill development to assess student performance

An explanation of this model and the characteristics behaviours for each level of development was provided in Section 2 of these Guidelines. The attractiveness of this model is that at the early stages of development students can still pass the assessment according to the criteria established for the level at which they are being assessed. In other words, the model recognises the development nature of clinical skill development and rewards students as they struggle to master the multi-faceted nature of practice. This means you will need to refer to the summary sheet provided in Section 2.4

Since 2010 new guidelines have been created in respect to the award of P grades in cases of repeat projections and the use of side markers. These have been incorporated within each clinical assessment proforma. As well, since 2010 the anatomical structures students are required to identify in general radiographic examinations are clearly specified in a special appendix placed at the back of each of the student clinical workbooks.
4.6 Performance grading for assessment: Policy Statement

At the same time as you assess the capacity of the student to realise the attributes expected of them at their stage of development, you will be required to grade the performance from a fail grade 0 or 1 or a Pass at either grade 2, 3 or 4. In determining the final overall grade for the examination, please take into account the following policy statement:

If a projection was repeated and it was outside of the control of the student it is possible for the student to achieve a pass grade of 2. If there was a single repeat due to student inattention then a Fail level 1 can be awarded. It there are two or more repeats due to student inattention a fail 0 must be awarded.

To assist you in the determination of the grade we have developed criteria that we ask you to use. In 4.6.1 below we provide the basic criteria to be applied to each developmental level i.e. Beginner, intermediate beginner, advanced beginner and competent student radiographer.

4.6.1 Beginner (B)

**PASS LEVEL 4: [P4]** Student exhibited the actions expected of a Beginner. Required virtually no prompting in respect to the implementation of this element of the examination. A satisfactory examination with no repeat exposures required.

**PASS LEVEL 3: [P3]** Student exhibited the characteristics expected of a Beginner. **Minor** prompting was required in respect to this element of the examination. On balance a satisfactory examination with no repeat exposures.

**PASS LEVEL 2: [P2]** Student exhibited most of the characteristics expected of a Beginner. However **prompting** on the part of the assessor was required in this element of the examination to prevent a repeat exposure. **The student did however remain in control of the examination.** On balance given the level of experience, a satisfactory performance.

**FAIL LEVEL 1: [F1]** Student exhibited some of the characteristics expected of a Beginner. However, in respect to this element of the examination the clinical supervisor had to **intervene and participate** in the examination to prevent the patient from having a repeat exposure.

**FAIL LEVEL 0 [0]** Either the student demonstrated significant areas of weakness with respect to their knowledge and understanding of this Dimension or the student was totally dependent upon the assessor for direction or in the interests of patient safety the assessor had to assume control of the examination.
4.6.2 Intermediate Beginner (IB)

**PASS LEVEL 4: [P4]**  
Student exhibited the actions expected of an Intermediate Beginner. Required virtually no prompting in respect to the implementation of this element of the examination. A satisfactory examination with no repeat exposures required.

**PASS LEVEL 3: [P3]**  
Student exhibited the characteristics expected of an Intermediate Beginner. Minor prompting was required in respect to this element of the examination. On balance a satisfactory examination with no repeat exposures.

**PASS LEVEL 2: [P2]**  
Student exhibited most of the characteristics expected of an Intermediate Beginner. However prompting on the part of the assessor was required in this element of the examination to prevent a repeat exposure. The student did however remain in control of the examination. On balance given the level of experience, a satisfactory performance.

**FAIL LEVEL 1: [F1]**  
Student exhibited some of the characteristics expected of an Intermediate Beginner. However, in respect to this element of the examination, the assessor had to intervene and participate in the examination to prevent the patient from having a repeat exposure.

**FAIL LEVEL 0 [0]**  
Either the student demonstrated significant areas of weakness with respect to their knowledge and understanding of this Dimension or the student was totally dependent upon the assessor for direction or in the interests of patient safety the assessor had to assume control of the examination.

4.6.3 Advanced Beginner (AB)

**PASS LEVEL 4: [P4]**  
Student exhibited the actions expected of an Advanced Beginner. Required virtually no prompting in respect to the implementation of this element of the examination. A satisfactory examination with no repeat exposures required.

**PASS LEVEL 3: [P3]**  
Student exhibited the characteristics expected of an Advanced Beginner. Minor prompting was required in respect to this element of the examination. On balance a satisfactory examination & no repeats.

**PASS LEVEL 2: [P2]**  
Student exhibited most of the characteristics expected of an Advanced Beginner. However prompting on the part of the assessor was required in this element of the examination to prevent a repeat exposure. The student did however remain in control of the examination. On balance given the level of experience, a satisfactory performance.

**FAIL LEVEL 1: [F1]**  
Student exhibited some of the characteristics expected of an Advanced Beginner. However, in respect to this element of the examination the assessor had to intervene and participate in the examination to prevent the patient from having a repeat exposure.

**FAIL LEVEL 0 [0]**  
Either the student demonstrated significant areas of weakness with respect to their knowledge and understanding of this Dimension or the student was totally dependent upon the assessor for direction or in the interests of patient safety, the assessor had to assume control of the examination.
4.6.3 Competent (C)

PASS LEVEL 4: [P4]  
Student exhibited the actions expected of a competent student radiographer. Required virtually no prompting in respect to the implementation of this element of the examination. A satisfactory examination with no repeat exposures required.

PASS LEVEL 3: [P3]  
Student exhibited the characteristics expected of a competent student radiographer. Minor prompting was required in respect to this element of the examination. On balance a satisfactory examination with no repeat exposures.

PASS LEVEL 2: [P2]  
Student exhibited most of the characteristics expected of a competent student radiographer. However prompting on the part of the assessor was required in this element of the examination to prevent a repeat exposure. The student did however remain in control of the examination. On balance given the level of experience, a satisfactory performance.

FAIL LEVEL 1: [F1]  
Student exhibited some of the characteristics expected of a competent student radiographer. However, in respect to this element of the examination the assessor had to intervene and participate in the examination to prevent the patient from having a repeat exposure.

FAIL LEVEL 0 [0]  
Either the student demonstrated significant areas of weakness with respect to their knowledge and understanding of this Dimension or the student was totally dependent upon the assessor for direction or in the interests of patient safety the assessor had to assume control of the examination.

4.7 Action in case of a fail grade

If a student fails an assessment their performance will be treated in the same way as it would had the examination been conducted on campus. Upon their return to the university their performance in this unit will be recorded and submitted for consideration by the Examination Board. Depending upon their results in other units, they will be given an opportunity to undertake supplementary assessment in regards to their Radiographic Clinical Skills at a time to be determined by the university.
### 4.8 EXAMPLES OF CLINICAL ASSESSMENT FORMS

**YEAR ONE:** Initial Radiographic clinical skills Assessment (Beginner level - hurdle)

PLEASE CIRCLE WHICH EXAMINATION WAS UNDERTAKEN ONE OF:

1. **Hand** (a PA and PA oblique +/- lateral according to patient requirement),
2. **Finger** (a PA, PA Oblique and Lateral)
3. **Foot** (PA, PA oblique)
4. **Forefoot/toes** (PA, PA Oblique with lateral if toes require this)

PLEASE NOTE: If the student does not implement the authorised approach to the identification of the patient the student automatically FAILS the assessment.

**IF A PROJECTION WAS REPEATED AND IT WAS OUTSIDE OF THE CONTROL OF THE STUDENT IT IS POSSIBLE FOR THE STUDENT TO PASS THE EXAMINATION HOWEVER YOU CANNOT AWARD A GRADE HIGHER THAN 2**

<table>
<thead>
<tr>
<th>PRACTICAL SKILL</th>
<th>PASS</th>
<th>FAIL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the student correctly evaluate the radiographic request form?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student correctly identify, prepare &amp; communicate with the patient?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student correctly implement the departmental protocol for radiographic technique of this area i.e. exposure selection/SID /collimation side markers etc.?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student correctly instruct &amp; position the patient for the radiographic projections?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Was the correct centring point selected by the student?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student correctly evaluate the radiographic request form?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student correctly process the image in your PACS system?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student to discharge the patient appropriately after completion of the examination?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did the student correctly forward the images for reporting in your PACS system?</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Learning outcomes – the student will add these and base the outcomes on your verbal feedback

Date: __________________________       Student Signature: __________________________
Radiographic clinical skills assessment Semester 1 – Intermediate beginner level

Examination of the wrist (+/- scaphoid views), elbow, ankle PLEASE CIRCLE WHICH EXAMINATION WAS UNDERTAKEN

ONE OF:
1. Wrist (a PA, lateral and PA oblique should be performed with further protocol driven scaphoid projections added if required),
2. Elbow (AP and lateral projections are required with any further views according to clinical and protocol needs)
3. Ankle (AP, Mortise (AP oblique) and Lateral)

PLEASE NOTE: If the student does not implement the authorised approach to the identification of the patient the student automatically FAILS the assessment. IF A PROJECTION WAS REPEATED AND IT WAS OUTSIDE OF THE CONTROL OF THE STUDENT IT IS POSSIBLE FOR THE STUDENT TO PASS THE EXAMINATION HOWEVER YOU CANNOT AWARD A GRADE HIGHER THAN 2

1. Evaluation of the request form and preliminary patient preparation. How well did the student:

<table>
<thead>
<tr>
<th>Understand the clinical history on the request form and relate this information to the selection of the radiographic projection, image processing, speed selection and exposure technique</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identify the patient, explain the examination to the patient and prepare the patient for the examination?</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Essentially in determining your grade and formulating your comments, ask yourself the following questions:

- Did the student understand the clinical history and relate this information to the selection of the radiographic projections, imaging system (where appropriate) and exposure technique?
- Were any deficiencies in the clinical notes recognised and if so what action did the student take before proceeding with the examination?
- What use was made of previous images or departmental protocols in the planning phase of the examination?
- Evaluate the performance of the student in gaining patient consent for the examination, explaining the examination to the patient and preparing the patient for the examination.

2. Selection and use of an appropriate radiographic technique:

<table>
<thead>
<tr>
<th>Implement and sequence the radiographic projections?</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select an appropriate exposure technique?</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position the patient for the projection, align the CR and collimate the beam?</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use side markers, immobilisation, radiation protection and implement infection control?</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process the images according to protocol?</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

In determining your grade and formulating your comments, ask yourself how well the student

- implemented and sequenced the radiographic projections;
- utilized the imaging system;
- selected an appropriate exposure techniques and provided a justification for the decision;
- positioned the patient for the projections, aligned the CR and collimated the x-ray beam;
- apply immobilisation, radiation protection and infection control;
- processed/post-processed the resultant image/s.
3. Care of the patient throughout the examination:
How well did the student;

<table>
<thead>
<tr>
<th></th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attend to the patient’s needs clinically and culturally?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Provide the patient with adequate explanation and instructions?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Handle and touch the patient being cognisant of the patient’s cultural background?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Appropriately discharge the patient after the examination?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
</tbody>
</table>

4. Evaluation of the radiograph:
How well did the student;

<table>
<thead>
<tr>
<th></th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess the radiographic image in terms of quality and radiographic positioning paying attention to the exposure index or equivalent of your system?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Identify unacceptable images and suggest measures to correct the problem? If images are all acceptable question the student about appearances that would indicate the image is unacceptable and warrants a repeat – award marks according to answer.</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Identify the radiographic anatomical structures as indicated in the checklist in Appendix One in this Workbook?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Indicate any abnormal areas and attempt to provide a diagnostic label? If no abnormality seen ask student for appearances that would suggest a problem is evident and mark accordingly.</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
</tbody>
</table>

5. Organisational and legal obligations Did the student:

<table>
<thead>
<tr>
<th></th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross check the images in terms of patient identification, previous images and side markers?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Correctly prepare and send the images for reporting?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
</tbody>
</table>

6. Final Assessment
In determining the final overall grade for the examination, please take into account the following policy statement: If a projection was repeated and it was outside of the control of the student it is possible for the student to achieve a pass grade of 2. If there was a single repeat due to student inattention then a Fail level 1 can be awarded. It there are two or more repeats due to student inattention a fail 0 must be awarded.

<table>
<thead>
<tr>
<th></th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 3 2</td>
<td>1 0</td>
</tr>
</tbody>
</table>

Student strengths

Student areas for improvement

___________________________________________________________________________

Date | Assessor Signature. | Student Signature.
PLEASE CIRCLE WHICH EXAMINATION WAS UNDERTAKEN

ONE OF:

- **Knee examination** (an AP/PA, lateral and either an intercondylar fossa view or a patella view or all 4 projections or AP + Lateral + both obliques),
- **Thoracic spine** (AP; lateral & ideally a coned view for cervico-thoracic junction or thoraco-lumbar junction)
- **Lumbar spine** (AP; coned AP L5/S1; lateral; coned lateral L5/S1 and ideally both oblique projections)
- **Cervical spine** (a separate C1 – C2 projection; AP 3-7; a lateral C1 –C7, ideally both oblique projections and, if necessary a cervico - thoracic junction)
- **Shoulder girdle and humerus** (Either 3 projections for the joint or 2 projections for the entire humerus)

PLEASE NOTE: If the student does not implement the authorised approach to the identification of the patient the student automatically FAILS the assessment.

IF A PROJECTION WAS REPEATED AND IT WAS OUTSIDE OF THE CONTROL OF THE STUDENT IT IS POSSIBLE FOR THE STUDENT TO PASS THE EXAMINATION. HOWEVER A PASS GRADE 2 IS THE HIGHEST THAT CAN BE GIVEN. IF THERE ARE TWO OR MORE REPEATS A FAIL MUST BE AWARDED.

<table>
<thead>
<tr>
<th>1. Evaluation of the request form and preliminary patient preparation. How well did the student;</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand the clinical history on the request form and relate this information to the selection of the radiographic projection, image processing, speed selection and exposure technique</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Identify the patient, explain the examination to the patient and prepare the patient for the examination?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
</tbody>
</table>

Essentially in determining your grade and formulating your comments, ask yourself the following questions:

- Did the student understand the clinical history and relate this information to the selection of the radiographic projections, imaging system (where appropriate) and exposure technique?
- Were any deficiencies in the clinical notes recognised and if so what action did the student take before proceeding with the examination?
- What use was made of previous images or departmental protocols in the planning phase of the examination?
- Evaluate the performance of the student in gaining patient consent for the examination, explaining the examination to the patient and preparing the patient for the examination.

Comments:
### 2. Selection and use of an appropriate radiographic technique:

How well did the student;

FAILURE TO USE SIDE MARKERS & IN AN APPROPRIATE MANNER AUTOMATICALLY MEANS THE HIGHEST LEVEL OF ACHIEVEMENT IS 2

<table>
<thead>
<tr>
<th>Task</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement and sequence the radiographic projections?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Select an appropriate exposure technique?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Position the patient for the projection, align the CR and collimate the beam?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Use side markers, immobilisation, radiation protection and implement infection control?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Process the images according to protocol?</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

In determining your grade and formulating your comments, ask yourself how well the student

- implemented and sequenced the radiographic projections;
- utilized the imaging system;
- selected an appropriate exposure techniques and provided a justification for the decision;
- positioned the patient for the projections, aligned the CR and collimated the x-ray beam;
- apply immobilisation, radiation protection and infection control;
- processed/post-processed the resultant image/s.

### Comments:

### 3. Care of the patient throughout the examination:

How well did the student;

<table>
<thead>
<tr>
<th>Task</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attend to the patient’s needs clinically and culturally?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Provide the patient with adequate explanation and instructions?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Handle and touch the patient being cognisant of the patient’s cultural background?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Appropriately discharge the patient after the examination?</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

### 4. Evaluation of the radiograph: How well did the student;

<table>
<thead>
<tr>
<th>Task</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess the radiographic image in terms of quality and radiographic positioning paying attention to the exposure index or equivalent of your system?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Identify unacceptable images and suggest measures to correct the problem?</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Identify the radiographic anatomical structures as indicated in the checklist in Appendix One in this Workbook?</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
5. Organisational and legal obligations Did the student:

<table>
<thead>
<tr>
<th>Did the student:</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross check the images in terms of patient identification, previous images and side markers?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>Correctly prepare and send the images for reporting?</td>
<td>4 3 2 1 0</td>
<td></td>
</tr>
</tbody>
</table>

6. Final Assessment

In determining the final overall grade for the examination, please take into account the following policy statement: If a projection was repeated and it was outside of the control of the student it is possible for the student to achieve a pass grade of 2. If there were two or more repeats a fail must be awarded.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Student strengths

___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

Student areas for improvement

___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

<table>
<thead>
<tr>
<th>Date</th>
<th>Assessor Signature.</th>
<th>Student Signature.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Year 2 & 3 Assessment of Mobile image intensifier examination in theatre

Student Name:

Operative procedure & Clinical notes

Role of the Radiographer:

1. **Pre-examination preparation and patient assessment**
   - Interpretation and evaluation of the request form.
   - Assessment of previous radiographs or images/reports (where applicable).
   - Use of the mobile image intensifier.
   - Communication with operating theatre staff.
   - Gaining further clinical information if required (e.g. pregnancy check, infection status).
   - Confirming patient identification.
   - Infection control and maintenance of sterile field.
   - Radiation protection (use of radiation hazard signs, protection of operating theatre staff).

Evaluate the ability of the student to understand the clinical history and relate this information to the surgical procedure being performed and the projections required using the image intensifier.

What use was made of previous images in the planning phase of the examination?

Evaluate the effectiveness of the communication between the operating theatre staff and the student.

Was the student able to use the image intensifier and correctly position it relative to the patient and operating table?

What precautions did the student take to ensure that the sterile field was maintained?

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

2. **Procedural technique and clinical problem-solving**

   Evaluate the ability of the student in relation to the following:
   - Patient positioning (if applicable, e.g. cannulated screw for # NOF).
   - Radiographic technique: fluoroscopic exposure factors/ subject to image distance/ collimation (use and manipulation of)/ centring and use of dose reduction modes.
   - Appropriate orientation of C-arm.
   - Effective manipulation of C-arm (height, rotation, angulation).
   - Maintenance of sterile field.
   - Radiation protection – patient, operating theatre staff and the student.
   - Removal of image intensifier after the procedure.

Assessment (please circle level of pass or fail)

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
3. **Professional communication**

   Assess the communication skills of the student during the examination in relation to the following:
   - Interaction with surgeon: anticipation/ technique (e.g. centring)/duration of fluoroscopy.
   - Placement of image intensifier and monitor.
   - Maintenance of sterile field.
   - Radiation protection.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

4. **Image interpretation and evaluation**

   Evaluate the ability of the student:
   - To interpret the images in terms of radiographic quality and positioning.
   - To identify unacceptable images and suggest measures to correct the problem/s.
   - To describe the radiographic anatomy and, where relevant, any radiographic pathology as per the anatomy list in Appendix One in the Workbook.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

5. **Organisational and legal obligations**

   - Evaluate the ability of the student to ensure any hard copy images include patient identification and side markers.
   - Evaluate the ability of the student in recording fluoroscopic time and dose, if relevant.
   - Evaluate the ability of the student to prepare any hard copy images for reporting.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

**Final assessment grade**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

**Student strengths**

**Student areas for improvement**

<table>
<thead>
<tr>
<th>Date</th>
<th>Assessor Signature.</th>
<th>Student Signature.</th>
</tr>
</thead>
</table>
Mobile radiographic examination assessment form (used in years 2 and 3)

Student Name: __________________________________________________________

Radiographic examination: ________________________________________________

Hospital ward: __________________________________________________________

Condition of patient: ____________________________________________________

Projections taken: ______________________________________________________

Did the student positively identify the patient?  YES  NO

NB FAILURE TO DO MEANS AN AUTOMATIC FAILURE FOR THIS ASSESSMENT

1. **Pre-examination planning and patient assessment**

   • Interpretation and evaluation of the request form.
   • Assessment of previous radiographs/reports (where applicable).
   • Use of the mobile x-ray machine.
   • Communication with ward staff.
   • Gaining further clinical information if required (for example, pregnancy check, infection status).
   • Patient welcome and identification.
   • Infection control.
   • Patient consent.
   • Explanation of the examination.
   • Preparing the patient for the examination.

Evaluate the ability of the student to understand the clinical history and relate this information to the selection of a radiographic technique.

Were any deficiencies in the clinical notes recognised and if so what action did the student take before proceeding with the examination?

What use was made of previous images in the planning phase of the examination?

   **Evaluate the effectiveness of the communication between the ward staff and the student.**

   • Was the student able to use the x-ray machine and correctly position it relative to the patient’s bed?
   • What precautions did the student take to ensure that infection risk to the patient was minimised?
   • Evaluate the performance of the student in gaining patient consent for the examination, explaining the examination to the patient and preparing the patient for the examination.

**Assessment (please circle level of pass or fail)**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
2. **Procedural technique and clinical problem-solving**

Evaluate the ability of the student in relation to the following:
- Radiographic technique: exposure factors/ FFD/SID / collimation
- Patient positioning (taking account of the status of the patient).
- Central ray (CR).
- Steps taken to prevent a lordotic view of the chest (if a chest examination).
- Patient immobilisation.
- Use of side markers.
- Radiation protection – patient, other staff and the student.
- Removal of mobile machine after the examination.

**Assessment (please circle level of pass or fail)**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

3. **Professional communication**

Assess the communication skills of the student during the examination and afterwards in relation to the following:
- The patient’s needs and right to privacy throughout the examination.
- Explanation and instructions to the patient.
- Patient handling/touching.
- Patient aftercare.

**Assessment (please circle level of pass or fail)**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

4. **Image interpretation and evaluation**

Evaluate the ability of the student:
- To interpret the radiograph images/s in terms of radiographic quality and radiographic positioning.
- To identify an unacceptable radiograph or image and suggest measures to correct the problem/s.
- To describe the radiographic anatomy and, where relevant, any radiographic pathology.

**Assessment (please circle level of pass or fail)**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
5. **Organisational and legal obligations**

Evaluate the ability of the student to cross check the radiograph in terms of patient identification, previous films/images and side markers. Evaluate the ability of the student to prepare the radiograph/image for reporting.

**Assessment (please circle level of pass or fail)**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

6. **Final assessment grade**

If a projection was repeated and it was outside of the control of the student it is possible for the student to achieve a pass grade of 2. If the error was due to student inattention to detail a Fail grade must be awarded.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Student strengths**

___________________________________________________________________________________

___________________________________________________________________________________

**Student areas for improvement**

___________________________________________________________________________________

___________________________________________________________________________________

Date | Assessor Signature. | Student Signature.
YEAR THREE CT clinical skills assessment

To be performed by CT Supervisor or approved deputy.

Assessment 1: CT examination of the brain (Advanced Beginner)

Clinical notes: ____________________________________________________________

Did the student positively identify the patient? YES NO

NB FAILURE TO DO MEANS AN AUTOMATIC FAILURE FOR THIS ASSESSMENT

1. Pre-examination planning and patient assessment

- Interpretation and evaluation of the request form in terms of clinical history and the selection of the CT procedural technique.
- Assessment of previous radiographs and scans/reports (where applicable).
- Patient welcome and identification.
- Gaining further clinical information if required (for example, pregnancy check/history of allergy/clinical history).
- Patient consent and explanation of the examination.
- Preparing the patient for the examination.
- Preparation and administration of medium (if applicable) contrast.

Did the student understand the clinical history?

Were any deficiencies in the clinical notes recognised and if so what action did the student take before proceeding with the examination?

What use was made of previous imaging or departmental protocols in the planning phase of the examination?

Evaluate the performance of the student in gaining patient consent, explaining the examination to the patient and preparing the patient for the examination.

Assessment (please circle level of pass or fail)

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Comments: ____________________________________________________________

Note: The student must be adequate in all aspects to pass section 2 (below). If the student fails section 2 it will result in an OVERALL FAIL for this examination.
2. **Procedural implementation**

- Positioning of patient in the gantry.
  
<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
</tr>
</thead>
</table>

- Selection of correct CT protocol.
  
<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
</tr>
</thead>
</table>

- Demonstrate an understanding of the scanning parameters and their relationship to the clinical examination: algorithm/FOV/slice thickness/table increment/pitch/scan range.
  
<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
</tr>
</thead>
</table>

- Ability to perform the scan: scout/planning of scan/image acquisition and timing in relation to the delivery of contrast/assistance with delivery of contrast where necessary.
  
<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
</tr>
</thead>
</table>

**Overall Assessment for this element of the procedure (please circle level of pass or fail)**

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Comments:** *(If student has been deemed inadequate in any aspect of this please justify your decision.)*

3. **Professional communication**

Assess the communication skills of the student during the examination and afterwards in relation to the following:

- The patient’s needs and right to privacy throughout the examination.
- Explanation and instructions to the patient.
- Patient handling/touching.
- Patient aftercare and discharge.
- Professional communication with medical and nursing staff.
### Assessment (please circle level of pass or fail)

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

#### 4. Image interpretation and evaluation

To what extent could the student:
- Determine whether images have included all relevant anatomy.
- Evaluate whether the appropriate algorithm(s) have been employed to reconstruct the images.
- Create hardcopies of images using appropriate window level and width settings.
- Recognise normal anatomical structures: sinuses, orbits, optical nerves, lobes of brain, cerebellum, tentorium, pons, ventricles, pineal gland, choroid plexus, internal/external capsule, thalamus, caudate nucleus, major fissures & sulci.
- Recognise abnormal anatomy.
- Describe pathology, if present in addition to the basic appearances that may be present in the hypothetical cases of tumour, infarct, oedema and haemorrhage (subdural, extradural, subarachnoid and intracerebral).

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

#### 5. Organisational and legal obligations

To what extent could the student:
- Cross check the images in terms of patient identification, and side annotation.
- Prepare the images for reporting.
- Archive the images.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

#### 6. Final assessment grade (using Advanced Beginner criteria)

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Date | Assessor Signature. | Student Signature.
YEAR FOUR End of Placement Examination of General Radiographic Skills

Instructions:

1. This assessment must take place between weeks 18 and 24 depending upon student rotations within the department and whether they are in CT or MRI.

2. Students must ask their designated supervisor to assess their general radiographic abilities across a range of typical examinations that present over a concentrated period of 3 hours either morning or afternoon during the working week.

3. The supervisor must list the examinations he or she observed and write them down within the assessment proforma.

4. The examinations must be different from those selected for the mid – cycle examination.

5. The patients themselves must be from a range of cultural backgrounds, ages and present with a range of clinical conditions.

6. The assessor must complete the proforma based upon their observations across the range of examinations they have observed the student perform.

7. There is no grade for this assessment. Instead the supervisor needs to determine the student position on the novice to expert continuum.

8. If the assessor is of the view based upon the criteria provided within the assessment proforma the student has not reached either the advanced beginner or competent stage of development a fail must be indicated in the final assessment box.

The characteristics of the advanced beginner and competent radiographer are provided on page 37 of the PCP workbook given to the students for reference during the formal assessment process.

End of Placement Examination of General Radiographic Skills

Name of supervisor performing the examination

_____________________________________________________________________

Assessor to list the examinations performed by the student and the condition of the patient

<table>
<thead>
<tr>
<th>Radiographic Examinations</th>
<th>Patient condition, age, cultural background</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DATE OF ASSESSMENT__________________________________________**

1. **Evaluation of request forms and preliminary patient preparation.** How well did the student;

<table>
<thead>
<tr>
<th></th>
<th>Advanced Beginner (please tick)</th>
<th>Competent (please tick)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand the clinical history on the request forms and relate this information to the selection of the radiographic projection, image processing, speed selection and exposure technique</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify patients, explain the examination to patients and prepare patients for the examinations?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**In arriving at your determination ask yourself how well the student**

*Did the student understand the clinical history and relate this information to the selection of the radiographic projections, imaging system (where appropriate) and exposure technique?*

*Were any deficiencies in the clinical notes recognised and if so what action did the student take before proceeding with the examination?*

*What use was made of previous images or departmental protocols in the planning phase of the examination?*

*Evaluate the performance of the student in gaining patient consent for the examination, explaining the examination to the patient and preparing the patient for the examination.*

2. **Selection and use of an appropriate radiographic technique:**

   **FAILURE TO USE SIDE MARKERS & IN AN APPROPRIATE MANNER AUTOMATICALLY MEANS THE HIGHEST LEVEL OF ACHIEVEMENT IS ADVANCED BEGINNER**

<table>
<thead>
<tr>
<th></th>
<th>Advanced Beginner (please tick)</th>
<th>Competent (please tick)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement and sequence the radiographic projections?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select an appropriate exposure technique?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position the patient for the projection, align the CR and collimate the beam?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use side markers, immobilisation, radiation protection and implement infection control?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process the images according to protocol?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**In arriving at your determination ask yourself how well the student**

- implemented and sequenced the radiographic projections;
- utilized the imaging system/s;
- selected an appropriate exposure techniques and provided a justification for the decision;
- positioned the patient for the projections, aligned the CR and collimated the x-ray beam;
- apply immobilisation, radiation protection and infection control;
- processed/post-processed the resultant image/s.

### 3. Care of the patient throughout the examinations:
How well did the student

<table>
<thead>
<tr>
<th>Advanced Beginner</th>
<th>Competent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attend to patient’s needs clinically and culturally?</td>
<td></td>
</tr>
<tr>
<td>Provide patients with adequate explanations and instructions?</td>
<td></td>
</tr>
<tr>
<td>Handle and touch patients being cognisant of the patient’s cultural background?</td>
<td></td>
</tr>
<tr>
<td>Appropriately discharge patients?</td>
<td></td>
</tr>
</tbody>
</table>

### 4. Evaluation of the radiographs:
How well did the student:

<table>
<thead>
<tr>
<th>Advanced Beginner</th>
<th>Competent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess the radiographic image in terms of quality and radiographic positioning paying attention to the exposure index or equivalent of your system?</td>
<td></td>
</tr>
<tr>
<td>Identify unacceptable images and suggest measures to correct the problem?</td>
<td></td>
</tr>
<tr>
<td>Identify the radiographic anatomical structures you expect at this level of experience?</td>
<td></td>
</tr>
<tr>
<td>Indicate any abnormal areas and attempt to name the condition/s ?</td>
<td></td>
</tr>
</tbody>
</table>

### 5. Organisational and legal obligations
To what extent did the student:

<table>
<thead>
<tr>
<th>Advanced Beginner</th>
<th>Competent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross check the images in terms of patient identification, previous images and side markers?</td>
<td></td>
</tr>
<tr>
<td>Correctly prepare and send the images for reporting?</td>
<td></td>
</tr>
</tbody>
</table>

### 6. Final Assessment
On the basis of the overall performance of the student, please **circle** if the student has met the overall criteria to safely perform these examinations at the defined level of competency

<table>
<thead>
<tr>
<th>Fail</th>
<th>Advanced Beginner</th>
<th>Competent</th>
</tr>
</thead>
</table>

**Student strengths (assessor to complete)**


**Student areas for improvement (assessor to complete)**


<table>
<thead>
<tr>
<th>Date</th>
<th>Assessor Signature.</th>
<th>Student Signature.</th>
</tr>
</thead>
</table>
EXAMPLE OF A YEAR TWO PROFESSIONAL DEVELOPMENT PROJECT

Clinical decision making case reports

You are required to write 2 separate reports about 2 general radiography examinations that will allow you to fulfil the reporting requirements below. This means you need to select cases with a high probability of pathology.

One case needs to be a **trauma case** involving extremities and the other can be any other radiographic examination e.g. a chest examination or a lumbar spine etc. The cases selected must be ones in which you have had significant input in terms of patient care and radiographic positioning. The format for these case studies is provided below.

In the Competency Based Standards for Radiography (Egan, 1992), the Australian Institute of Radiography has confirmed that in emergency situations/urgent conditions, sole radiographer situations or in the absence of a radiologist, a radiographer may report a “professional opinion of medically significant findings to the medical personnel responsible for the patient’s treatment when considered necessary or requested” (p.84). Therefore, in contrast to the usual reports you have been writing up, these case studies should provide you with an opportunity to further improve your professional communication skills and radiographic interpretational skills.

For each case report include the following:

1. **CLINICAL PROBLEM:** A full description of the clinical problem as provided on the request form including completion of a *Clinical History Template Form* for each patient (they follow this section)

   Outline the medical terminology on the form. You may need to do further reading about the condition or ask for assistance. Include a definition of the patient’s clinical condition suspected by the referring doctor.

2. **THE PATIENT’S ACCOUNT OF THEIR PROBLEM.** Carlton (1996) believes that radiographers have a duty to collect a focussed history specific to the examination being performed. Please refer to your *Year 1 Professional Skills’ Workbook* for guidance about how to approach a patient and, in a professional manner, gather additional information. You must never be intrusive with your questions. Remember patients have the right to privacy and respect. Also as you learned last year, this information may not necessarily come via a face to face discussion with the patient. For example, you may find that the patient uses the positioning part of the radiographic examination as an opportunity to give you precise details about the location and intensity of the pain. For example, Carlton (1996) suggests that providing a radiologist with a clinical history acquired through gentle palpation of the ribs will greatly assist in the identification of a hairline fracture. The process of exploring the nature of the patient’s problem e.g. localisation of the pain, its duration in days or months and severity will also assist you in responding to item 4 below.
3. List the RADIOGRAPHIC PROJECTIONS taken and TECHNICAL FACTORS used. Where relevant, provide notes on any modifications to the routine positioning sequence together with any supplementary projections.

4. YOUR INTERIM DIAGNOSIS: While the radiographs are being processed and based on your assessment, write down what you expect to see on the radiographs e.g. a Colles’ fracture or arthritis. There may not be pathology although ideally you will have chosen a case with a high expectation of pathology. Include your interim findings in the report.

5. ABC ASSESSMENT: Following the discharge of the patient you need to write a short descriptive account of what the radiographs have shown. In first year you were provided with a method of assessing radiographs. Review the general principles provided in the recommended text “Manual of Radiographic Interpretation for General Practitioners” (see p.29 and pp.86-87). The following system of radiographic assessment suggested by the authors of the recommended text, ABC of Emergency Radiology should be followed in your descriptive radiographic account.

**ABCs System of Radiological Assessment for Injury/Disease to Bones and Joints**

**Adequacy:** (e.g. do the projections show the joint above and below the fracture).

**Alignment:** (e.g. anterior or posterior displacement, medial or lateral displacement).

**Bones:** (e.g. increase or decrease in density; periosteal reaction; cortical thickening; alteration in trabecular pattern, alteration in the shape of a bone).

**Cartilage and Joints:** (e.g. joint space narrowing, alteration in the shape of a joint).

**Soft tissues:** (e.g. is there evidence of soft tissue swelling).

**ABCs System of Radiological Assessment for the Chest**

Projection and exposure
Posture
Rotation
Degree of inspiration
Male or female
Mediastinum – trachea and the heart
Hila
Diaphragm
The radiolucency of both lungs
The bony thorax
Extrathoracic soft tissues

**A System of Radiological Assessment for the Abdomen**

Psoas shadow
Renal outline
Intestinal gas pattern
Calculi
Bones and joints

6. RADIOLOGIST’S REPORT: When you have written your radiographic appraisal of the examination you must follow up the case and read the radiologist’s report comparing the expert opinion with your own. Where practicable, seek permission to obtain a copy of this report for inclusion with your case study (ensure patient details are removed).

Include any information you are able to obtain on the patient’s management and treatment and follow-up.

7. CONCLUDE each case report with your personal thoughts about the examination. Did the requirement to analyse the images from the perspective of providing an opinion to a medical practitioner affect the quality of the radiographs you produced? What did you learn from the experience of comparing your account with the expert report? What effect did the process of talking with the patient about their problem have upon the quality of your work?

Suggested Reading for Clinical Decision Making Reports


References

Carlton, R R. The golden opportunity: translating personal interaction skills into high stake professional roles. Paper to the International Society of Radiographers and Radiologic Technologists 10th International Teacher’s Seminar, University of Nottingham, 1996.


Radiographic Clinical History Template: CHEST/THORACIC CAGE

1. Area and type of symptoms

ROI.................................................................................................................................
(Please also indicate on lung chart)

- Symptoms:

☐ Cough  ☐ Bleeding  ☐ Sputum/discharge  ☐ Infection/inflammation
☐ SOB  ☐ Chest pain  ☐ Other (comments).................................

2. Current History

- Mechanisms:

☐ Trauma  ☐ Metastatic spread  ☐ Other (comments)....................................................................................................................

3. Past History

- Previous imaging/surgery/treatments:

☐ Emphysema  ☐ Asthma  ☐ Pneumonia  ☐ Bronchitis  ☐ TB

☐ Chest surgery (year of surgery/comments).................................  ☐ Other (comments)............................

4. Special questions:

Pregnant YES / NO

5. Psychosocial/occupational history – if applicable:

☐ Current smoker  ☐ Coalmines or asbestos worker  ☐ Previous smoker  ☐ Duration (if applicable)

☐ Other (comments)....................................................................................................................

6. General comments on patient condition

......................................................................................................................................................................................
......................................................................................................................................................................................
Radiographic Clinical History Template: EXTREMITIES

1. Area and type of symptoms

ROI and referred pain: (please also indicate on body chart)
..........................................................................................................................
- Symptoms:........................................................................................................

2. Current History

- Mechanisms: (Comments)..............................................................................

☐ Trauma  ☐ Metastatic spread  ☐ Infection/inflammation
☐ Degenerative (OA/RA)  ☐ Other (comments)..............................................

Behaviour of Symptoms & irritability: (comments).................................
..........................................................................................................................

3. Past History

- Previous imaging/surgery/treatments:

☐ prosthesis (long/short)  ☐ pins  ☐ replacements  ☐ cancer

☐ surgery (year of surgery)...................................................  ☐ Previous injury to ROI (comments).................................................................

4. Special questions:

Pregnant YES / NO

5. Psychosocial/occupational history - if applicable:

☐ Regular activity/exercise/sport  ☐ Requirements of occupation (repetitive strain, overuse)

☐ Comments ..........................................................................................................................

6. General comments on patient condition

........................................................................................................................................
........................................................................................................................................

..............................................................
Radiographic Clinical History Template: SPINE

1. **Area and type of symptoms**

   *ROI*: (please also indicate on body chart)

   - □ cervical
   - □ cervico-thoracic
   - □ thoracic
   - □ thoraco-lumbar
   - □ lumbar
   - □ lumbo-sacral

   - **Symptoms:** .................................................................

   - □ pain on movement
   - □ numbness
   - □ Tingling/pins&needles
   - □ Other (comments) ...........................................................

2. **Current History**

   - **Mechanisms**: (Comments) ..............................................

   - □ Trauma
   - □ Degenerative disease
   - □ Metastatic spread
   - □ Congenital malformations/disease

3. **Past History**

   - **Previous imaging/surgery/treatments:**

   - □ back screws
   - □ spinal infusion
   - □ cancer
   - □ surgery (year of surgery) ................
   - □ Previous injury/condition to ROI (comments) ..................

4. **Special questions:**

   - Pregnant YES / NO
   - □ Dentures (for c-spine)
   - □ Osteoporotic

5. **Psychosocial/occupational history – if applicable:**

   - □ Regular activity/exercise/sport
   - □ Occupational requirements (repetitive strain, heavy lifting)
   - □ Comments ..........................................................................

6. **General comments on patient condition**

   ...........................................................................................................