



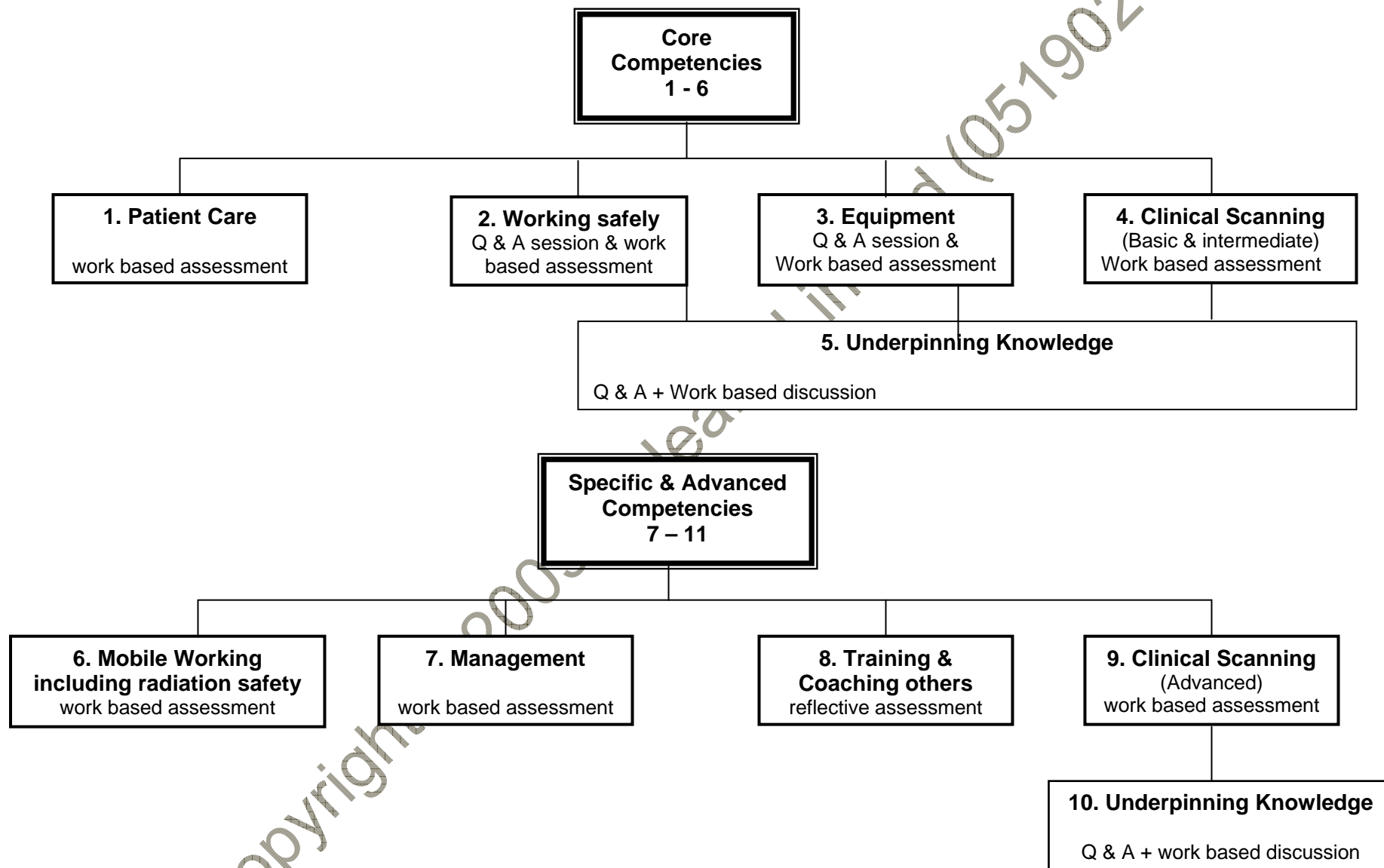
InHealth Group	Title:	PET-CT Competency Framework and Assessment Tool
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InHealth Group

PET-CT Competency Framework & Assessment Tool

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Competency Framework – PET-CT Radiographers & Technologists



METHOD OF ASSESSMENT**CORE COMPETENCIES:**

**ONE – PATIENT CARE
TWO – WORKING SAFELY AND
THREE – EQUIPMENT**

Radiographers/technologists will be assessed on the first 3 core competencies **within the first month** of their employment and must be able to demonstrate second level competency, as a minimum, in order to progress to the clinical scanning assessments.

SPECIFIC COMPETENCY:**SIX– MOBILE WORKING**

Mobile radiographers will be assessed on this specific competency during towards the **end of their second month** of employment and are encouraged to refer to the mobile assessors in their region to help them prepare.

CORE COMPETENCIES:

**FOUR- CLINICAL SCANNING AND
FIVE - UNDERPINNING KNOWLEDGE**

In order to demonstrate their competency in clinical scanning, radiographers/technologists will undertake a series of assessed examinations. They will be observed carrying out the examination during which the assessor will ask questions in order to make an assessment of their choices, reasoning and understanding of PET-CT physics, radiation protection, equipment and anatomy.

Radiographers/technologists will also be assessed on their understanding of topics listed under “underpinning knowledge” and are required, prior to the assessment, to answer these questions in written form and bring them to the assessment. The Clinical Lead will evaluate your level of understanding by marking your answers.

Assessed examinations:

BASIC: Radiographers/technologists have *up to 6 months* to carry out assessed examinations in the areas listed below. Experienced PET-CT radiographers/technologists may choose to undertake all their assessments within the first 6 – 8 weeks of employment whilst newcomers to PET-CT may wish to take the full 6 months.

Half Body scan

Head and Neck scan

Whole body scan- Melanoma or Myeloma

INTERMEDIATE: Radiographers/technologists may carry out assessed examinations in the areas below, if they work in an area where the examinations are carried out.

Brain Scan

Half Body scan for patient 16-18 years old.

COMPETENCY ASSESSMENT GRADING

Grading	Clinical Skills	Theory & Knowledge
<p>Initial – I First level competency</p>	<ul style="list-style-type: none"> • Carried out the activity safely & accurately but required support • Required prolonged time to complete the activity • Required supervision in many aspects of the activity • Lacks confidence in the skill 	<ul style="list-style-type: none"> • Demonstrated a broad understanding of the theory & knowledge • Needed prompting to provide answers
<p>Developing – D Developing competency</p>	<ul style="list-style-type: none"> • Carries out the activity competently but requires support if the unexpected occurs • Makes safe judgements and good decisions • Evidence that the radiographer is using theory and knowledge in their decision making • Is gaining confidence in the skill 	<ul style="list-style-type: none"> • Demonstrates broad understanding of the theory behind the clinical skills without any prompting. • Can provide more in depth theory, with prompting
<p>Competent – C Competent practitioner</p>	<ul style="list-style-type: none"> • Safe and effective delivery of care • Anticipates and recognises problems and reacts appropriately if the unexpected occurs • Is aware of own limitations and seeks advice • Comfortable and confident in the skill 	<ul style="list-style-type: none"> • Demonstrates a sound understanding of the theory and knowledge underpinning their clinical practice

COMPETENCY ONE: PATIENT CARE – Ensures that patient care is of a high standard and individualised to each patient.

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
<p>1.1</p> <p>Interacts appropriately with patients</p>	Demonstrates concern and respect for patients and their carers.		
	Maintains patient dignity at all times.		
	Recognises patients who are feeling particularly anxious or concerned.		
	Provides appropriate support and reassurance to such patients.		
	Demonstrates an awareness of, and responds to, the specific cultural or spiritual requirements of individuals.		
	Demonstrates sound strategies for managing the claustrophobic patient.		
	Responds appropriately to a patient request for a chaperone.		
	Explains the procedure fully to the patient prior to the examination.		
	Ensures that patient queries are answered before proceeding with the examination.		
	Anticipates individual patient's requirements eg. children, the elderly, deaf, blind and those with restricted movement.		
	Uses appropriate positioning aids to ensure patient comfort and safety.		
	Provides the patient with clear guidance on their immediate aftercare and follow up for results.		

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
<p>1.2</p> <p>Communicates effectively with patients, relatives and carers.</p>	G greets and identifies the patient appropriately.		
	Radiographer/technologist introduces him or herself to the patient and explains their role in the examination.		
	Ensures privacy and confidentiality in all discussions with patients, relatives and carers.		
	Demonstrates effective verbal communication skills.		
	Explains procedures using language that the patient will understand.		
	Explains precautions required after administration of FDG		
	Identifies and follows correct procedure for accessing translation services.		
	Demonstrates effective listening skills.		
	Ensures that the individual understands what has been explained to them before proceeding.		
	Uses appropriate non verbal communication (body language) during all exchanges with patients and relatives.		
Maintains communication with the patient throughout the examination and rest period if required.			

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
1.3 Obtains valid and effective consent for PET-CT examination.	Is able to explain the nature and purpose of the examination to the patient.		
	Radiographer/technologist does not pressure the patient to undergo the examination in any way.		
	Demonstrates the ability to explain risks and benefits of the examination to the patient in a way that the patient will understand.		
	Is aware of when to obtain valid consent.		
	Understands and applies the law relating to children and young people (under 18s) and consent.		
	Understands and applies the law relating to adults who lack the capacity to consent for themselves.		
	Identifies and applies correct procedure should consent be refused or withdrawn.		
Pregnancy check	Demonstrates that they have read and understood the pregnancy SOP		
	Demonstrates the ability to check the pregnancy status of the patient in a sensitive and confidential manner.		
	Knows how to manage a patient who is or might be pregnant		

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
<p>1.4</p> <p>Understands and applies best practice with respect to data protection legislation and information security in the workplace.</p>	<p>Is able to outline the radiographer's/technologist's responsibilities with regard to patient identifiable information.</p>		
	<p>Disposes of confidential waste according to law and local policy.</p>		
	<p>Does not, unnecessarily, use patient identifiable information during verbal communication either face to face or when on the telephone.</p>		
	<p>Adheres to the law and InHealth Information Security Management Policy with respect to all use of telephone, fax and Email in the workplace.</p>		
	<p>Is aware of protocol surrounding transferring patient data on CDs</p>		

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COMPETENCY TWO: WORKING SAFELY – Has an understanding of policy and legislation on Health and Safety and maintains a safe working environment for self, patients and colleagues.

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
<p>2.1</p> <p>Demonstrates knowledge and application of PET-CT radiation safety procedures.</p>	Can correctly identify the controlled areas in their place of work.		
	Has read the radiation procedures that include the local rules and sign to say that they have read and understood them		
	Follows the system of work to keep radiation dose ALARA		
	Uses syringe shields, tongs and other radiation PPE		
	Is aware of ARSAC		
	Follows ARSAC guidance on diagnostic reference levels		
	Spends minimum time with patient post administration of FDG		
	Monitors for hands contamination after leaving a controlled area and documents readings		
	Disposes of sharps in a safe manner		
	Is aware of why areas are controlled		
	Is aware of local ARSAC certificate holder and how to contact them		
	Monitors environment for contamination and documents readings		
	Is aware of the inverse square rule		
	Is aware of the principal of distance, shielding, time		
	Wears EPD and radiation monitor and rings		
	Uses sealed sources in safe manner		
	Demonstrates correct use of radiation monitor		
	Is aware of how to manage spill		
	Is aware of contact details for RPS and RPA		
	Demonstrates knowledge of dose limits		
	Is aware of framework for supervision		
Can explain the principals of IRR99			
Can explain the principals of IR(ME)R			
Is aware of where the EA authorisation and registrations are displayed and aware of daily limits for unsealed radionuclides and waste			

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
<p>2.2</p> <p>Understands and applies Health & Safety legislation in the workplace</p>	<p>Is aware of their principal responsibilities regarding health and safety in the workplace.</p>		
	<p>Knows who the representative of Health & Safety is for their part of the organisation.</p>		
	<p>Knows the action to take if a health and safety hazard is identified or brought to their attention.</p>		
	<p>Has familiarised him or herself with the principal risks identified in their area of work (via the local risk register).</p>		
	<p>Knows to whom incidents are reported, the method of reporting and lines of communication.</p>		
	<p>Demonstrates a sound understanding of infection control issues in relation to environmental cleanliness and their role in maintaining it.</p>		
	<p>Demonstrates a sound understanding of "standard precautions" in relation to the prevention of the spread of infection; and acts accordingly.</p>		
	<p>Understands situations when hands should be washed and when hand rub can be substituted.</p>		
	<p>Can state when only cleaning is necessary and the circumstances when disinfection is required.</p>		
	<p>Is aware of the fire regulations in their place of work ie: number to call, how to evacuate & location of assembly point.</p>		

Criteria	Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
<p>2.3</p> <p>Understands and acts according to InHealth training & procedures in the event of a patient emergency or urgent scan finding.</p>	Demonstrates good strategies in the identification and treatment of patients suffering from a panic attack brought on by claustrophobia & anxiety.		
	Can accurately describe (or demonstrate) the procedure to be followed in the event of an unexpected urgent finding on a scan.		
	Can accurately outline the local procedure for the management of a cardiac arrest in their place of work.		
	Knows the number to call in the event of a cardiac arrest in their place (or places) of work.		
	Is aware of the location and layout of the resuscitation equipment identified for the use of the department.		
	Is able to demonstrate the quality assurance checks carried out on the defibrillator.		
	Is able to demonstrate the quality assurance checks carried out on the suction equipment		
	Is able to demonstrate the quality assurance checks carried out on Oxygen cylinders		
	Is able to demonstrate the quality assurance checks carried out on the Blood Glucose monitor		
	Can accurately outline the procedure for a patient with a blood glucose level outside the normal range		
	Is aware of the location and contents of the First aid box		
	Is aware of how to raise/lower gurney.		
	Is aware of and can access standard sources of information on PET-CT safety, regulations and advice.		

CORE COMPETENCY THREE: EQUIPMENT, THE PET-CT SCANNER - Proper use of medical imaging equipment is an essential component in the safe delivery of healthcare. In demonstrating competence, staff should be able to operate the equipment appropriately and understand the basic principles underlying it's configuration & operation.

Radiographers must be assessed on each manufacturer & model of system they are required to use.

PET-CT Scanner: Manufacturer & Model # 1 : Siemens Biograph

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
3.1 Skills:		
Able to correctly identify all major components of imaging equipment.		
Performs start up and shut down procedures correctly		
Demonstrates safe use of table and gantry controls		
Is able to perform and record daily QC procedure for the system		
Can identify and test Emergency stop buttons - <i>location and circumstances of use</i>		
Is able to register a patient manually or from a RIS scheduler.		
Is able to access and select specific protocols.		
Is able to select correct start and end location		
Is able to calculate number of bed positions required		
Is able to calculate bed positions required for weight of patient and patient dose administered		
Is able to enter parameters such as injection time and dose accurately		
Is able to perform a manual reconstruction		
Understands & can demonstrate appropriate windowing and image presentation.		
Can demonstrate calculation of SUV and check SUV measurement is accurate		
Can check images for fusion		
Is aware of the effect of changes in protocols on image quality and diagnostic efficacy		
Is able to archive, retrieve and transfer to and from other locations or storage media.		
Is able to record DLP		

3.2 Knowledge: Assess only once ie. do not repeat for each manufacturer & model.		
Is able to explain the term Positron.		
Is able to broadly describe how an image is produced on a PET scanner.		
Is able to broadly describe how an image is produced on a CT scanner.		
Describe how the radiation dose to staff can be kept as low as reasonably achievable on the mobile PETCT unit		
Explain the responsibilities of the IR(ME)R duty holders		
Describe the areas IRR (99) regulates.		
Explain how artefacts can occur on PET-CT images		

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CORE COMPETENCY THREE: EQUIPMENT, THE PET-CT SCANNER - Proper use of medical imaging equipment is an essential component in the safe delivery of healthcare. In demonstrating competence, staff should be able to operate the equipment appropriately and understand the basic principles underlying it's configuration & operation.

Radiographers must be assessed on each manufacturer & model of system they are required to use.

PET-CT Scanner: Manufacturer & Model # 2 : Philips

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
3.1 Skills:		
Able to correctly identify all major components of imaging equipment.		
Performs start up and shut down procedures correctly		
Demonstrates safe use of table and gantry controls		
Is able to perform and record daily QC procedure for the system		
Can identify and test Emergency stop buttons - <i>location and circumstances of use</i>		
Is able to register a patient manually or from a RIS scheduler.		
Is able to access and select specific protocols.		
Is able to select correct start and end location		
Is able to calculate number of bed positions required		
Is able to calculate bed positions required for weight of patient and patient dose administered		
Is able to enter parameters such as injection time and dose accurately		
Is able to perform a manual reconstruction		
Understands & can demonstrate appropriate windowing and image presentation.		
Is aware of the effect of changes in protocols on image quality and diagnostic efficacy		
Is able to archive, retrieve and transfer to and from other locations or storage media.		
Is able to record DLP		

CORE COMPETENCY FOUR-CLINICAL SCANNING
BASIC: Clinical Assessment: Half Body Scan for Oncology patients

Date: _____

Assessor: _____

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
4.0 Clinical Scanning Skills:		
Is able to receive a delivery of FDG		
Is able to unpack a delivery of FDG		
Is able to fill in radioactive audit form accurately		
Is able to perform QC on calibrator and is aware of what to do if it is outside tolerance.		
Can calculate expected dose against measured dose and is aware of what to do if a discrepancy occurs.		
Can calculate patient doses		
Can calculate solid and liquid waste and record accurately		
Can perform cannulation competently		
Can perform and record blood glucose measurement accurately		
Can dispose of sharps in the correct manner		
Uses correct infection control measures, including washing hands, wearing apron and gloves, using alcohol wipes, wiping over surfaces.		
Can draw up, measure and record, required patient dose using safe dispensing procedure		
Uses PPE, including syringe shields, dispensing unit, gloves, plastic apron, FDG carrier		
Checks that patient is comfortable and warm		
Can communicate with patient effectively		
Administers FDG to patient keeping radiation dose to a minimum		
Can measure FDG residue accurately and record details		
Can direct/escort patient to the toilet keeping radiation dose to a minimum		
Follows system of work using automatic doors to keep radiation dose ALARA		
Prepares patient for scan		

Positions patient correctly on the table including using pads to support patient		
Attends to the post examination needs of the patient.		
5.0 Underpinning Knowledge:		
Prior to the assessment, radiographers are required to make brief notes on the following subjects and bring them to the assessment.		
Typical indications for a Half Body PET-CT for oncology		
Patient preparation for Half Body scan		
Normal blood glucose range for Half Body scans and explain the steps taken when outside range		
Precautions for patients living with small children		
Describe the gross anatomy of chest, abdomen and pelvis(a diagram would be useful)		
Describe the gross anatomy of the head & neck(a diagram would be useful)		
Broadly describe the pattern of spread for non small cell lung cancer		
Broadly describe the pattern of spread for colorectal cancer		
Broadly describe the pattern of spread for malignant melanoma		
Explain the inverse square law and how it can be applied in a PET-CT unit		
Describe the normal distribution of FDG		
Broadly describe the production of FDG		

BASIC: Clinical Assessment: Head and Neck Half Body scan

Date: _____

Assessor: _____

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
4.0 Clinical Scanning Skills:		
Can instruct patient for silence protocol effectively		
Can position patient using Head and Neck holder		
Can select correct scanning protocol		

BASIC: Clinical Assessment: Whole Body scan

Date: _____

Assessor: _____

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
4.0 Clinical Scanning Skills:		
Can fit table extensions		
Can position patient using table extension		
Can select the correct scanning protocol		

INTERMEDIATE: Clinical Assessment: Brain scan

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
4.0 Clinical Scanning Skills:		
Can rest patient for correct amount of time		
Can rest patient in a calm and dark environment		
Can position head		
Can immobilise head		
Can select the correct scanning protocol		

INTERMEDIATE: Clinical Assessment: Half body scan patient 16-18 years

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
4.0 Clinical Scanning Skills:		
Is aware of consent procedure for this age of patient		
Communicates with patient's relatives effectively		
Weighs patient		
Adjusts patient dose for weight using ARSAC guidance		
Rests patient in scanner room		
Uses correct CT settings		
Is aware of who is the designated person in company for children		
Is aware of the Policy for the Safeguard of Children & Vulnerable Adults		

SPECIFIC COMPETENCY SIX: MOBILE WORKING - Mobile units may differ from one manufacturer of trailer and scanner to another.

Staff should be able to operate the equipment internally and have an awareness of the components of the mobile unit to troubleshoot appropriately and understand the basic principles underlying its configuration & operation.

PET-CT Scanner: Manufacturer & Model/Trailer : _____

Skills & Knowledge Indicators	Standard Achieved	Assessors Notes
6.1 Skills & knowledge: external		
Able to safely operate lift, gate and roller shutter door for all trailers		
Understand the whereabouts of the phone and IT cables sockets in the belly compartments in case of failure and trouble shoots		
Understands the phone failure and reporting procedure		
Understands the whereabouts of the hose and supply of water		
Aware of any external issues that may affect safe working practice at each site		
Knows how to access the emergency door key held in the coded box on the front of each trailer		
Understands the procedure for safe storage of equipment on movement of the trailer		
Able to shut down the scanner and mobile unit correctly at the end of the day and make ready for movement		
6.2 Skills & knowledge: internal		
Performs start up and shut down procedures correctly for OEM		
Performs daily checks		
Is able to perform and record daily QC procedure for the system		
Is able to fill in radioactive audit form accurately		
Is able to perform QC on calibrator and is aware of what to do is it is outside tolerance.		
Can calculate expected dose against measured dose and is aware of what to do if a discrepancy occurs.		
Can calculate patient doses		
Completes the daily checks of the defibrillator, suction and Oxygen and logs accordingly		
Is able to trouble shoot if the unit fails to boot up ie knowledge of trip switches and report accordingly		

Understands the need to read the previous reports from staff in the daily diary and checks breakdown forms for information.		
Able to boot up the on- scanner PC and check the IT line is active.		
Able to log in to Cambio		
Knows how to access the safe door key held in the coded box in the control room		
Able to print referral forms from Cambio		
Able to access the day sheet and complete correctly with dissemination correctly		
Understands the need to check the site file		
Understands and can show when asked the on site cardiac arrest procedure and policy		
Can show local contact list displayed on wall		
Understands and can show when asked the on site fire policy		
Can recognise the patient's pathway and report correctly changes to it that may cause an incident		
Understands the need for storage and stock control on the unit		
Is able to register a patient manually or from a RIS scheduler.		
Can transfer images to PACS		
Can transfer patient history form and consent form to Medstamp		
Can transfer patient history form and consent form to COSMIC		
Aware of the correct waste disposal procedure as per the site's procedure for radioactive waste		
Aware of the InHealth policy on infectious patients on the unit		
Can complete and is aware of the cleaning procedure and COSHH for mobile unit and the correct forms to be documented		
Can email completed paperwork at end of day		
Is aware of dose plots and system of work for unit		
Has read the radiation procedures that include the local rules and sign to say that they have read and understood them		
Is aware of local ARSAC certificate holder and how to contact them		
Follows the system of work to keep radiation dose ALARA		
Is aware of details of escort SOP		



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