BEST PRACTICE PROTOCOLS
FOR
LIMITED PRACTICE MEMBERS
IN
RADIOLOGICAL TECHNOLOGY PRACTICE
AS
BASIC RADIOLOGICAL TECHNICIANS

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PART 1

PURPOSE AND PRINCIPLES

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INTRODUCTION

The Basic Radiological Technician's Best Practice Protocols (BPPs) are based mainly on the Standards of Practice developed and adopted by the Canadian Association of Medical Radiation Technologists (CAMRT) which are the benchmark standards for the profession of Medical Radiation Technologists nationally.

Also influencing and contributing to the Limited Practice Best Practice Protocols are those Standards of Practice adopted by the College of Medical Radiation Technologists of Ontario (CMRTO).

PURPOSE

The main purpose of the Best Practice Protocols, their Standards to Practice, is to provide a guide and model for the Basic Radiological Technician in terms of expectations to reach the practice of excellence summit.

These Best Practice Protocols are to be considered basic or minimum standards. They are the foundation for professional excellence.

These Best Practice Protocols will:

- Assist in evaluating the quality of practice by Radiation Technologists (MRTs) engaged to evaluate the Basic Radiological Technician
- Provide a common base for Basic Radiological Technician practice and serve as a tool for the training of the Radiological Technician
- Assist in minimizing legal risk
- Provide the reference and framework for appropriate patient care
- Recognizes the scope of responsibilities and duties the Basic Radiological Technician is exposed to
- Be supplemental to and compliment the CAMRT Standards of Practice and relevant legislation

ROOTS

The Best Practice Protocols are rooted in the Code of Ethics of the CAMRT and the supporting and complementary Code of Ethics of the Ontario Association of Medical Radiation Technologists (OAMRT) as well as the Risk Management Guidelines (RMGs) and the Radiological Technology Discipline Best Practice Protocols.

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ENVIRONMENT

The Basic Radiological Technician, like their colleague, the certified Medical Radiation Technologist (MRT) works in a variety of settings where collaboration with other health-care providers, on the health-care team, is a core element of practice.

The Profession of Medical Radiation Technology, which includes the practice by BRWs/Radiological Technicians, is essential to the health care system, especially patient outcomes. This position in the health-care system provides an influence to the health-care system. Likewise, BRWs/Radiological Technicians, must be aware that legislation, professional guidelines, policies, procedures and practice protocols governs and/or impacts on X-ray practice.

The health-care environment is a developing and changing one. BRWs/Radiological Technicians must be capable of practising in such an environment.

PRINCIPLES

The Best Practice Protocols are based on principles. These principles are inherent in the work the Basic Radiological Technician does and include:

- High quality patient care is essential to good health-care outcomes
- The patient is the primary focus
- Being is accountable to patients, their employers, their community and society as a whole and acts as an advocate for the patient
- The exposure of risk to the patient must be as minimal as reasonably achievable
- The public has a right to be informed, treated with the highest respect and that the Basic Radiological Technician will adhere to the standards established for health care
- That the Basic Radiological Technician will adhere to “Reflective Practice” where the Basic Radiological Technician will conduct self-assessment on ones practice, observe other BRWs/Radiological Technician’s practice and take steps to improve their competency and strive for excellence
- The Basic Radiological Technician is a supporter and advocate of patients’ rights.

MAJOR LINKS

The major links supporting these Standards of Practice include, but are not limited to:

- Federal legislation governing health-care
- Safety Code 20A
- CAMRT Code of Ethics
- OAMRT Code of Ethics
- Canadian Charter of Rights and Freedoms

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- Human Rights Code
- CAMRT Risk Management Guidelines
- OAMRT Risk Management Guidelines
- OAMRT Best Practice Protocols
- CAMRT Standards of Practice
- Workplace Hazardous Materials Information Systems (WHIMIS)
- HARP Act

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PART 2

THE MODEL

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DIMENSIONS OF PRACTICE MODEL

Overview

The framework for these Best Practice Protocols is based on four (4) core areas of practice called "Dimensions" of Practice.

These Dimensions, although noted separately for simplicity, are in actual fact, interwoven with each other. This makes them interactive and transparent. The result is a synergy in which the outcome is clinical competence.

The Dimensions of Practice are:

- Knowledge
- Clinical Proficiency
- Communications
- Accountability

The Practice Protocols in Part 3 of this document are the operationalization or the practical application of the Dimensions of Practice which include the various Domains, Domain Elements and Performance Indicators.

Definitions

The components of the Dimension of Structure model or template are defined as follows.

Domain - a major grouping of the elements of a particular Dimension of Practice that make up that Dimension.

Domain Elements - these are the distinct and identified components that are specific to that Practice Domain.

Performance Indicators - these are reference points or illustrations of how the standard can be applied in a specific Dimension of Practice and are results (outcome) specific. They may be behavioural, skill and knowledge related, all of these or a combination of these. They are the reference points to measure and/or describe how the standards will be achieved within a particular Practice Domain. Performance evaluation should be based on these indicators and practice protocols be formulated on these as benchmarks.

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DIMENSION OF KNOWLEDGE

Standard

This standard requires that the Basic Radiological Technician acquires and applies relevant knowledge to ensure the effective provision of quality patient care.

Domains

The Domain includes the two components of Critical Thinking and Continuous Learning.

The element of Critical Thinking includes the activities of: problem solving, decision making, improvisation, logical and creative thinking.

The element of Continuing Learning includes: continuing education, self-assessment and performance assessment.

Performance Indicators

The gauges or benchmarks for performance for this Dimension include the following:

- Awareness of the philosophy of continuous learning
- Identification of personal continuing education needs
- Shares knowledge of the profession with other health-care providers
- Demonstrates independent thinking, problem solving, and viewing situations from different perspectives
- Utilizes factual evidence and sound logical judgement to select an appropriate course of action
- Demonstrates originality, flexibility, imagination, and inventiveness to generate ideas, alternatives and solutions to work problems.

DIMENSION OF CLINICAL PROFICIENCY

Standard

This standard requires that the Basic Radiological Technician uses a combination of knowledge, skills, judgement, experience and adaptability in providing quality health care.

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Domain

The Domain includes the two components of the Application of Knowledge, Skills and Judgement (KSJ), and Interpersonal Skills.

The element of the Application of Knowledge, Skills and Judgement include the following categories: professional, technical, adaptability, flexibility, analysis and decision making.

The element of Interpersonal Skills includes the categories of: communication, consultation, collaboration, conflict resolution and counselling.

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Performance Indicators

The gauges or benchmarks for this Dimension include:

- Demonstrates comprehensive knowledge and technical skills in accordance with the job requirements
- Uses critical thinking skills in adapting to the changing clinical performance requirements
- Utilizes resources and demonstrates effective time management in the completion of the task commensurate with the BRWs/Radiological Technicians' training
- Applies clinical knowledge, skills and judgement to maximize patient goals and health outcomes
- Strives to enhance their skill and knowledge through continuing education opportunities
- Applies and practices good verbal, written and listening skills in consultation with or in collaboration with colleagues and other members of the health-care provider team.

DIMENSION OF COMMUNICATION

Standard

The standard requires that the Basic Radiological Technician develop, use and promote the effective exchange of ideas, thoughts and information to support the achievement of all of the Dimensions of Practice.

Domain

The Domain has three components which are: Verbal, Written and Non-Verbal elements.

The element of Verbal Communications includes: language proficiency, body language and conflict resolution skills.

The element of Written Proficiency includes both language proficiency and documentation.

The element of Non-Verbal Proficiency includes effective listening and body language.

Performance Indicators

The gauges or benchmarks include:

- The Basic Radiological Technician speaks and writes so that they are understood
- The Basic Radiological Technician listens and observes attentively and effectively,

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promoting a respectful exchange of information
- ! The Basic Radiological Technician demonstrates comprehension of written and verbal information
- ! Ensures dissemination of the information appropriately
- ! Applies conflict resolution principles successfully.

DIMENSION OF ACCOUNTABILITY

Standard

The Basic Radiological Technician is accountable to the patient, the employer, the Radiologist(s) and the Profession. They are responsible for ensuring that his or her practice and conduct conforms with legal, ethical and professional requirements.

Domain

This Domain consists of four (4) components, they being:

- ! Ethics
- ! Health Information Management
- ! Advocacy
- ! Resource Management

The element of ethics includes: patient rights, moral virtues, societal rules and values, and Professional Conduct.

The elements of Health Information Management (HIM) includes: confidentiality, security, and the accuracy and clarity of documentation.

The element of Advocacy includes: communication, patient and public education, informed consent and safety.

The element of Resource Management involves prioritization and utilization.

Performance Indicators

The gauges or benchmarks are:

- ! Recognizes the Code of Ethics of the profession as the basis for the provision of health-care services to meet the specific needs and rights of the patient, the public, the institution and the Profession
- ! Acts as a patient advocate by promoting and providing health care services consistent with legislation, the patients' goals and health-care outcomes

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- Relates the appropriate information to the appropriate individuals
- Obtains the patient's consent (verbal, implied or written) for a procedure through appropriate explanation and instruction
- Applied Risk Management and Quality Assurance principles that relate to the practice
- Accepts responsibilities for their own decisions and actions
- Ensure confidentiality
- Advocates for the effective and efficient utilization and management of resources
- Practices within their competency level.

COMPETENCY PROFILE

The Basic Radiological Technician training program has a competency profile and of which have been developed, using the Dimensions of Practice Model.

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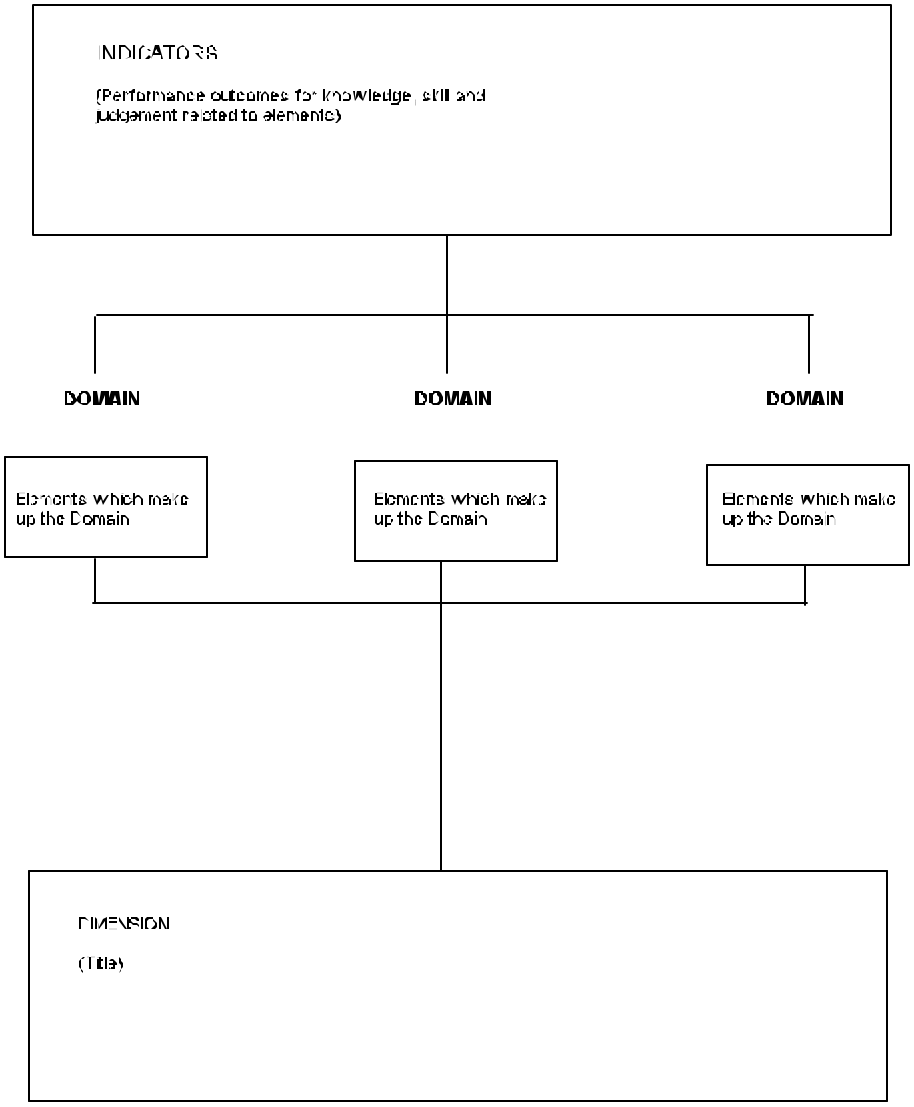
DIMENSIONS OF PROFESSIONAL PRACTICE MODEL TEMPLATE

DIMENSION: _____ (Statement of Philosophy)



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PART 3

BEST PRACTICE PROTOCOLS

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PRACTICE PROTOCOLS

The Basic Radiological Technician Manual published jointly by Mohawk College and McMaster University, is the main reference for performing all examinations and must be referred to before and during all X-ray examinations.

PROTOCOL 1

Situation:

The Basic Radiological Technician arrives for work.

Action:

- Check to see what is happening for that day and what X-ray patients are booked
- Take those requests (Request for Consultation also called Requisitions) that have been made up for the booked patients OR have the "requisitions" made up for the booked patients
- Set up the X-ray room/area to include:
  - making sure the X-ray table/stretcher has clean sheets
  - markers, tape and other equipment is present
  - lead aprons, lead dividers and other equipment is clean. If not, clean them
  - check the wet tanks to ensure the chemical tanks are full and not contaminated, turn the water on
  - make sure the darkroom is clean and the air exhaust system on

    OR

    In the case of an automatic processor, turn the water on, wipe off the crossover racks, turn the machine on and run a test film through

  - check to see that the safety lights and ID stamper are working

  In the case of computer radiography (CR) equipment, that the activation procedures are done.

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PROTOCOL 2

Situation:

The Basic Radiological Technician is asked to take an X-ray.

Action:

- Check the "requisition" as to what body part is to have an X-ray
- Check the "requisition" that the reasons for the X-ray is on it. If not, have the person who ordered the X-ray put the reason on it
- Check that the "Requisition" has been signed by the appropriate health professional.

PROTOCOL 3

Situation:

The request is confirmed.

Action:

- The "requisition" is checked for completeness to include:
  - Patient's name, band, date of birth (DoB)
  - Name of person who ordered the X-ray/authorization
  - The exam requested
  - The reason for the exam
  - Clinical information
- Assign an X-ray number
- Make up the photo marker/ID card which must have:
  - Name of the patient
  - Band/T Number
  - Date of X-ray exam
  - X-ray exam number
  - Date of Birth (DoB)
  - Community/Health Centre name

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PROTOCOL 4

Situation:

The room has to be prepared for the requested exam.

Action:

General

- Ensure the X-ray Table/Stretcher, lead strips, aprons, cassettes and other devices are clean and in good working order
- Ensure the sheets and pillow cases are clean
- Ensure exhaust fan is on

Wet Developing

- Ensure the chemicals in the wet tanks have been stirred and there are no chemical splashes on the darkroom bench
- Set out the proper sized film hangers and check that they work

Processor Developing

- Ensure the processor is on and warmed up and one (1) unexposed film is put through the processor
- Ensure the exhaust fan is on

PROTOCOL 5

Situation:

The correct examination has to be prepared for.

Action:

- Re-check the requisition as to what exam is to be done
- Look up the exam in the Basic Radiological Technician Manual
- Select the appropriate cassettes, markers and protective devices

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- Check that the cassettes are loaded
- Obtain and wear at waist level, the personal dosimeter (TLD) assigned to you and only to you.

PROTOCOL 6

Situation:

The patient needs to be brought to the X-ray room.

Action:

- Identify the patient by confirming their name, and that they are having an X-ray
- Match the name to the "requisition"
- Check that the body part the "requisition" has on it, is the one the patient is complaining about and confirm that the correct body part is being examined. If in doubt, re-confirm with the health professional who ordered the X-ray.
- Explain to the patient what the exam is all about (what you are going to do) and allow them to ask questions
- Ensure the patient's physical and emotional limitations are taken into account
- In the case of females in the child bearing years, ask them if they are or may be pregnant. If they say yes, ask them if they still wish to have the examination. If they say "no" they do not want the exam, do not proceed. If they say "yes", call the Department of Diagnostic Imaging at the base hospital.

PROTOCOL 7

Situation:

The patient needs to be properly attired for the examination and their dignity respected.

Action:

- Check that the patient can dress and undress. If not, obtain help
- Ensure the patient is instructed to remove only the clothing items, rings, chains, etc. that will interfere with the X-ray image. Tell them why you have to have them do this
- Ensure the patient is provided with the proper gown and ensure their dignity is maintained by covering areas where the clothing has been removed.

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PROTOCOL 8

Situation:

The patient has to be positioned.

Action:

- Check the Basic Radiological Technician Manual for the views that have to be taken
- Make sure the area you are taking the patient to is safe for the patient to move off the table/stretcher or on to the floor
- Assist the patient to get on the X-ray table/stretcher or to the chest stand. Make sure they cannot fall. Get help if you need it.
- Explain to the patient what you are going to do (for each position you will put them into). Allow the patient to ask questions and provide answers to his/her questions
- Taking due care, put the patient in the general position you want them in to do the actual positioning for the film
- Explain to the patient where you are going to touch them and why and ask them if this is OK
- Touch the patient only in those areas needed to get a diagnostic film such as centering points or to move or remove clothing in the centering area
- Measure the patient along the path of the X-ray beam, check the technique chart and set the technique on the X-ray machine
- Align the X-ray cassette with the X-ray light field. Make sure none of the equipment will injure the patient
- Cone to the body part as the Basic Radiological Technician Manual indicates
- Ensure that the Infection Control Standards have not been compromised (a sterile area made unsterile).

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PROTOCOL 9

Situation:

Making the X-ray exposure (prescribing the radiation).

Action:

- Double check that the patient is positioned properly and the cassette and X-ray table are centered properly and the body part is immobilized
- Double check the MAS and KV and ensure it is the best technique for the part having an X-ray in terms of giving the lowest radiation entrance dose possible
- Ensure that the lead protection is being used as it is stated in the Basic Radiological Technician Manual
- Ensure the film is the right size so it is large enough for the part being examined and small enough that film is not wasted
- Ensure all markers are on the film and properly positioned
- Ensure everyone in the room is protected from unnecessary X-ray exposure
- Use the collimator light to check the patient's position and the correct centering as the exposure is being made
- Instruct the patient just before the exposure is taken concerning breathing and/or moving as the BRW Manual states.

NOTE: Sometimes it is a good idea to show the patient what you want them to d, as well as telling them, and even get them to practice it.

PROTOCOL 10

Situation:

The exposure has been made.

Action:

- Instruct the patient what they can do (breath, move, etc.)
- Remove the cassette
- Take the marker off the cassette and put it where you can find it
- Have the patient relax while you put the cassette in the passbox or in the darkroom
- Obtain the next cassette, the markers and reposition the patient ensuring the patient's safety

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- Repeat Protocols 7, 8 and 9 until the examination is completed
- Before proceeding to Protocol 11, ensure the patient is not left in an unsafe position or situation. If it appears that the patient needs to be observed, get help from the Nurse-in-Charge.

Note: 1. For CR equipment, you must process the image as per the established equipment protocols.

2. It is essential that for CR equipment, the patient information entered into the database is correct, as it will be very difficult to correct the error.

PROTOCOL 11

Situation:

The film needs to be processed.

Action:

Wet Darkroom Facilities

- Ensure that the darkroom is light tight
- Ensure the safe lights are on
- Ensure the exhaust fan is on
- Place the ID card/photo marker in the ID stamper
- Close the door and ensure there is no white light
- Take the film out of the cassette gently to ensure it is not scratched or has fingernail marks
- Stamp the film in the left hand corner
- Carefully put the film(s) on the film hanger(s) by clipping it at the top first then at the bottom where the clips are on springs. Make sure you don't scratch the film(s)
- Check that the film(s) is/are secure and won't fall off
- Set the timer clock according to the time/temperature chart
- Put the film in the developer and shake gently. Make sure no chemicals splash on you or the work bench
- Activate the timer
- When the timer goes off, follow the procedure in the Basic Radiological Technician Manual to "fix" the film
- Make sure no chemicals splash on you or the work bench
- Make sure your hands and the work bench have no chemicals or water on them
- Fill the cassettes and close them securely, placing them in the designated storage

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space

- **!** Open the door only when it is safe to do so in terms of the film.

Automatic Processing

- **!** Ensure the processor has been warmed up and the lid is on properly
- **!** Ensure no light is coming in and the door is locked
- **!** Take the film out of the cassette gently so as not to scratch it
- **!** Place the film in the ID stamper and stamp the film
- **!** Feed the film into the processor. Never pull the film back!
- **!** Fill the cassettes
- **!** Retrieve the film from the processor. Never pull it out.

CR Processing

- **!** You must follow the established instructions/details exactly.

PROTOCOL 12

Situation:

The films have been processed.

Action:

- **!** Check that all the required views as listed in the Basic Radiological Technician Manual were done
- **!** Check the films/images for film quality and positioning using the standards of the Basic Radiological Technician Program and the images that are in the Basic Radiological Technician Manual
- **!** If they meet the established standards then proceed to Protocol 13
- **!** If the film(s) are not acceptable then take the appropriate steps to repeat the film (in the case of OR check the window/scale of the image)

NOTE: If you are having difficulty call the Medical Radiation Technologist On call at the Diagnostic Imaging Department at the Base Hospital. It is important that the patient not receive unnecessary X-rays.

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PROTOCOL 13

Situation:

The exam is complete.

Action:

- Ensure the equipment does not interfere with the patient as he/she prepares to leave the room
- Ensure that the area is safe for the patient to move through
- Assist the patient to get up and to get off the X-ray table/stretcher if that is where they were, while maintaining their dignity and ensuring your safety, in terms of lifting
- Instruct the patient as to what they need to do next. If you don't know, then find out and tell the patient
- Give them an estimated time they will have to wait and what they can or cannot do while waiting
- Assist them to their dressing room./change area
- Place your TLD in the designated holder or place so it is not exposed to high heat, direct sunlight or X-rays
- Ensure the lead aprons and thyroid collars are correctly stored to avoid damaging them in any way

NOTE: In the case of CR equipment, follow the past processing instructions/protocols

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PROTOCOL 14

Situation:

The documentation has to be done.

Action:

- Ensure that all the information required for the patient's log is recorded
- Ensure that the requisition has the exposure factors, films used, developer temperature, the development time used, patient thickness, and the initials of those Basic Radiological Technician who took the films
- Complete the comment form if you need to give information to the Radiologist
- Prepare the films for transportation ensuring that they are dry
- Match the requisition with the films and place in the proper envelopes for transportation/mailing
- Make out all the transportation documents required
- Ensure the films are sent out within twenty four (24) hours of being taken.

NOTE: For CR examinations, follow the instructions/protocols exactly.

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SPECIAL GUIDELINE 1

Situation:

Films cannot be developed on site/in-site.

Action:

- Stamp the films with the patient's information
- Place the requisitions in an envelope, and if possible place, them in the light-tight case, if you have one
- Place the films while in the darkroom with no white light present in the light-tight case and ensure it is locked OR place all films in a large cassette
- Ship the films to the Diagnostic Imaging Department of the Base Hospital.

SPECIAL GUIDELINE 2

Situation:

The films cannot be developed immediately.

Action:

- Stamp the films with the patient's information
- Put the films in an envelope
- Put the envelope in the film bin
- Close the film bin and ensure it is properly closed
- When the situation allows it, process the films

SPECIAL GUIDELINE 3

Situation:

You are told to do a film of a body part you are not trained to do.

Action:

- Refuse to do the film
- Notify the Medical Radiation Technologist On Call in the Diagnostic Imaging Department of the Base Hospital.

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SPECIAL GUIDELINE 4

Situation:

The Basic Radiological Technician has a responsibility to be reflective of their practice in terms of professional development and illustrate that they are maintaining clinical competence.

Action:

- Maintain a personal record/log of cases done
- Maintain a record of any medical related training done
- Keep the Basic Radiological Technician Society's Membership card in a safe place. Ensure that the Membership is renewed every two (2) years (refer to the Basic Radiological Technician Society's Membership Rules)

SPECIAL GUIDELINE 5

Situation:

The Basic Radiological Technician is ordered to take an X-ray they are not trained to do despite telling the person who ordered the examination that you cannot do it. (Special Guideline 3).

Action:

- Refuse to do the film
- Notify the Medical Radiation Technologist On Call in the Diagnostic Imaging Department of the Base Hospital.

SPECIAL GUIDELINE 6

sSituation:

The Basic Radiological Technician asks a female patient whether she suspects she is pregnant or is pregnant and the patient answers "yes".

Action:

- Call the Diagnostic Imaging Department of the Base Hospital
- Inform the Nurse-in-Charge of the instructions given by the Radiologist or the Medical Radiation Technologist On Call.

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NOTE: If the patient suspects they are pregnant then the Basic Radiological Technician may consult the Nurse-in-Charge about having a pregnancy test done.

SPECIAL GUIDELINE 7

Situation:

The Basic Radiological Technician is asked to do an examination on a patient of the opposite sex and feels uncomfortable with doing the examination due to the nature of the examination.

Action:

- Discuss the situation with the Nurse-in-Charge and request that a practitioner of the same sex as that patient, do the exam
- If the Nurse-in-Charge directs that the examination be completed by yourself, document the situation and request that you have someone present of the same sex as the patient
- If no one can observe, then proceed with the examination and document the situation. If the patient presents a problem during the exam, halt the exam and proceed no further and document the situation and inform the Department of Diagnostic Imaging at the Base Hospital.

SPECIAL GUIDELINE 8

Situation:

The equipment does not work or does not work properly.

Action:

- Review the manual(s)
- Attempt to fix the problem using the troubleshooting instructions, including doing QC tests
- If the equipment still will not work, then STOP using it and notify the Base Hospital, providing the details of:
  - what the problem is
  - what you did about it
  - in the case of the X-Ray machine or image processing equipment (wet tanks; processor; CR device), provide the results of the QC tests performed.

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