



HEALTH HOLDING

HAFER ALBATIN HEALTH
CLUSTER
MATERNITY AND
CHILDREN HOSPITAL

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| Department: | Infection Prevention and Control Department | | |
| Document: | Departmental Policy and Procedure (DPP) | | |
| Title: | IPC Guidelines for Radiology and Radiation Oncology | | |
| Applies To: | Radiology Staff | | |
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1. PURPOSE:

- 1.1 To establish guidelines in order to prevent any potential transmission of infection which can either be patient or procedure related both in an acute care setting or ambulatory setting.

2. DEFINITONS:

- 2.1 Radiology departments, whether hospital-based or ambulatory, encompass a wide range of specialized procedures and accommodate large, diverse patient populations. Advances in medical technology have paved the way for increasingly complex services involving both diagnostic and therapeutic aspects. Infection risks are patient- or procedure-related and range in severity from minimal with procedures performed on intact skin to high with invasive procedures.

3. POLICY:

- 3.1 Radiology departments that see hospitalized inpatients and ambulatory outpatients need to consider the potential for disease transmission from infected patients to healthcare personnel, from infected/ colonized patients to other patients, and from healthcare personnel to patients
- 3.2 Evaluation of the services provided in these areas should be considered during the infection prevention risk assessment process. Infection Preventionist (IP) needs to assess the potential infection issues relative to the services provided by the department and the patient population receiving services.
- 3.3 The field of interventional radiology encompasses a broad range of both diagnostic and therapeutic techniques. An appropriately designed and staffed intervention room is vital for adequate infection prevention.

4. PROCEDURE:

- 4.1 For prevention of infection transmission:
 - 4.1.1 The Radiology Department will be notified about the isolation status of the patient by the referring department prior to transport.
 - 4.1.2 Screen patients with illness that can be spread thru airborne route (e.g., Mycobacterium tuberculosis (MTB) patients) and identified to the radiology department. Train the staff to recognize symptoms that may put them at risk (e.g., patient with a cough) and be knowledgeable regarding appropriate infection control procedures, including isolation and barrier precautions.
 - 4.1.3 Evaluate to determine if patients with illness needing airborne isolation can be seen in the radiology department versus portable examination that can be performed in the patient's room.
 - 4.1.4 If transport to the radiology department is necessary, provide patients with surgical mask to wear for transport to and from the department
 - 4.1.5 Instruct the patients to cover their nose and mouth with a tissue when coughing or sneezing and to be separated as much as possible from other patients.

- 4.16 Evaluate promptly patients who manifest symptoms suggestive of pulmonary tuberculosis and do not allow them to congregate in common waiting areas.
- 4.1.7 In Radiology Departments where patients with MTB are frequently treated, a negative pressure ventilation room is recommended. But in ambulatory settings, where such patients are infrequently seen, additional engineering controls, such as a portable HEPA filter may be needed to supplement the general ventilation in commonly used areas.
- 4.1.8 Reserve certain times of the day for accommodating patients with active TB to prevent exposing patients infected with human immunodeficiency virus (HIV) or other immunocompromised persons to MTB.
- 4.1.9 Observe basic infection control precautions and isolation precautions between inpatient and ambulatory care areas. Isolation procedures must be able to follow the patient across the continuum of care and at the same time be appropriate for the environment.
- 4.1.10 Clean and disinfect surfaces that come in direct contact with patients with clean sheets or table paper and/or clean and disinfect between patients.
- 4.1.11 Clean and disinfect the surrounding regularly with hospital-approved disinfectants at the end of each day or shift or more frequently if visibly soiled/contaminated.
- 4.1.12 Practice standard precautions when performing invasive procedures such as angiography to prevent the risk for exposure to blood-borne pathogens via injuries from contaminated sharps.
- 4.1.13 Adhere to strict aseptic technique whenever invasive procedures are performed.
- 4.1.14 To prevent sharp injury, employ engineering controls such as procedures to minimize handling of contaminated sharps, especially not recapping used sharps, and using safety vascular access devices.
- 4.1.15 Dispose contaminated sharps and used syringes appropriately in puncture-resistant disposable containers. In the nuclear medicine department, where unsealed radioisotopes are used, emphasize safe handling of the radiologic materials and contaminated sharps.
- 4.1.16 The potential exist for procedure-related transmission of microorganisms if sonographic probes are not cleaned in between uses. Endo cavitory ultrasound probes, including vaginal ultrasound probes, require cleaning and high-level disinfection between uses because of contact with mucosal surfaces. Use of condom-type covers is important adjunct in preventing gross contamination of such items.
- 4.1.17 Clean and disinfect reusable equipment use for invasive sterile procedures. For radiology centers who perform their own sterilization using table top sterilizers, IP must make sure that they have well-documented processes for training personnel and monitoring sterilization results.
- 4.2 Radiation Oncology Services. List of adverse effects from radiation therapy and recommendations:
 - 4.2.1 Local effects: The patient's skin is frequently affected by radiation treatments which include erythema, vesication, desquamation, and hyperpigmentation. Infection prevention measures are an integral part of the management of both early- and late-onset effects on the skin. Recommendations for reducing damage to irritated skin include:
 - 4.2.1.1 Developing goals of patient care and infection prevention aimed to promote and maintain skin integrity, promote and maintain nutritional status, and protect from further injury/irritation.
 - 4.2.1.2 Minimize mechanical (friction), chemical (soaps and detergents), and thermal (sun exposure) irritants.
 - 4.2.2 Systemic Effects: Systemic effects of radiation on the body are determined by the proportion of body are involved, the dose received, and the specific organs involved.
 - 4.2.3 Head and neck cancer: Significant oral and nutritional problems are reported in approximately 80% of patients undergoing radiation therapy for head and neck cancers. Mucositis, xerostomia (drymouth), loss of taste, dental caries, osteoradionecrosis, and trismus are seen in this patient population.
 - 4.2.3.1 Develop oral care and treatment guidelines for patients with oral and gastrointestinal mucositis.

- 4.2.4 Bacteremia is a risk for patients treated for Hodgkin or non-Hodgkin lymphoma and may be treatment for disease related. Recommend Pneumococcal vaccination and possibly Haemophilus influenza vaccines before the start of treatment.
- 4.2.5 Radiation-induced Colitis-radiation directed at the colon generally induces mucosal inflammation and cellular damage. Maintain adequate hydration to prevent diarrhea associated dehydration.
- 4.2.6 Pelvic Radiation Therapy - effects on skin breakdown in the perineal area because of location, local factors (increased warmth, moisture, lack of ventilation) and amounts of skin folds in the perineum with dry and wet desquamation.
- 4.2.7 Brachytherapy uses catheter or applicator-placed radioactive sources near to the tumor to deliver localized radiation for treatment. High dose brachytherapy is associated with significant complications ranging from tissue irritation to ulceration and hemorrhage. Follow aseptic technique when performing such procedures to prevent infection.
- 4.3 Interventional Radiology
 - 4.3.1 Laboratory setting. The interventional radiology suite is located with the radiology department. Some specific requirements need to prevent the risk of infection:
 - 4.3.1.1 Adopt similar standard as the surgical operating room, provide a one-way system of patient and staff movement within the interventional area.
 - 4.3.1.2 Design the procedure rooms into two: one for non-sterile procedures such as drain insertion and the other room for sterile procedure such as central venous catheter insertion.
 - 4.3.1.3 Size of the room should be at least 400 square feet; and in some cases, particularly if the room is to function as a specialized suite for endovascular stenting, commentators suggested a minimum size of 600 square feet.
 - 4.3.1.4 Ensure a smooth surface in the intervention room, including electrical cabled to allow easy cleaning and disinfection according to hospital-approved disinfectants.
 - 4.3.1.5 Provide seamless floors and washable ceilings.
 - 4.3.1.6 In terms of air quality, employ similar standards to those used in the operating room. Positive pressure exists in the intervention room and air should be renewed by filter between 20 and 35 times per hour. Ambient air should have a temperature of 20°C (68°F) to 25°C (73°F) and a humidity of 20 to 60%.
 - 4.3.1.7 Adjoining rooms should allow waiting areas for both inpatients and outpatients.
 - 4.3.1.8 If anesthetic facilities are available, an anesthetic preparation room and a recovery room are needed.
 - 4.3.1.9 Provide a soiled utility room adjacent to the intervention room where contaminated materials can be stored is important to allow controlled disposal of waste material.
 - 4.3.2 Staffing: Ensure enough staffing which is generally composed of radiologist, anesthetist, nursing staff, and radiographic technicians.
 - 4.3.3 Standard Precautions
 - 4.3.3.1 Adhere to standard precautions in any setting in which exposure to contaminated bodily fluid may occur. The interventional operator should wear a surgical scrub suit, a lead coat with a minimum of 0.5 mm lead, and a sterile surgical tunic that is changed between cases.
 - 4.3.3.2 Wear surgical cap, facemask, and eye protection (should be lead lined).
 - 4.3.4 Procedural preparation. Most interventional techniques are performed using a conscious sedation technique. Anesthetic support is available for major interventional cases. Infection control recommendations:
 - 4.3.4.1 Preparation of the patient's skin prior to surgery with clipping for hair removal.
 - 4.3.4.2 Perform a surgical hand wash prior to an interventional procedure. Provide automatic controls and elbow-operated liquid disinfectant dispensers over a deep sink.
 - 4.3.4.3 Clean and disinfect the interventional room after each procedure. Perform terminal cleaning at the end of each operating day to minimize the degree of environmental contaminants by microorganisms, dirt and dust. This process should start at the

highest level from the ceiling and lighting fixtures to all room equipment and progress to ground level fixtures and the floor.

5. MATERIALS AND EQUIPMENT:

- 5.1 **Forms and Records:**
 - 5.1.1 N/A
- 5.2 **Materials and Equipment**
 - 5.2.1 N/A

6. RESPONSIBILITIES:

- 6.1 Radiology Department

7. APPENDICES:

- 7.1 N/A

8. REFERENCES:

- 8.1 GCC Infection Prevention and Control Manual . 3rd Edition 2018.
- 8.2 Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014) Chapter 58: Imaging Services and Radiation oncology. In APIC Text of infection control and epidemiology (4th ed.)

9. APPROVALS:

| | Name | Title | Signature | Date |
|---------------------|---------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------|-------------------|
| Prepared by: | Ms. Marilou C. Magallano | IPC Practitioner |  | December 08, 2024 |
| Prepared by: | Mr. Meshal Ayed Al Shammari | Head of Radiology Department |  | December 08, 2024 |
| Reviewed by: | Ms. Awatif Hamoud Al Harbi | IPC Director |  | December 10, 2024 |
| Reviewed by: | Mr. Sabah Turayhib Al Harbi | Nursing Director |  | December 15, 2024 |
| Reviewed by: | Mr. Abdullellah Ayed Al Mutairi | Quality & Patient Safety Director |  | December 18, 2024 |
| Reviewed by: | Dr. Thamer Naguib | Medical Director |  | December 25, 2024 |
| Approved by: | Mr. Fahad Hazam Al Shammari | Hospital Director & IPC Committee Chairman |  | December 26, 2024 |