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## Vascular Interventional Radiology

### I. Description

Describes policies and practices followed in Vascular Interventional Radiology to reduce the risk of healthcare-associated infection

### II. Rationale

Diagnostic and treatment procedures conducted in Vascular Interventional Radiology are often invasive and involve the use of percutaneous catheters and drains. Strict adherence to infection control practices is necessary to reduce the risk of healthcare-associated infection.

### III. Policy

#### A. Definition of Areas

Vascular Interventional Radiology consists of procedure rooms, scrub and control areas, storage rooms, utility rooms, and staff work rooms. There is also the Patient Recovery Unit (PRU) where patients are prepped and recovered. The contiguous areas of Vascular Interventional Radiology include the hallway, clean and dirty utility rooms, physician's reading room, physician workroom and examining room. The entire Vascular Interventional Radiology area also includes offices, and a conference room.

#### B. Vascular Interventional Radiology

##### 1. Personnel

- a. Personnel should adhere to guidelines established by the Occupational Health Service (OHS) (see policy: "[Infection Control and Screening Program – OHS](#)").
- b. Healthcare personnel should adhere to all personnel guidelines in the Infection Control Policy "[Infection Control Guidelines for Adult and Pediatric Inpatient Care.](#)"
- c. Hand hygiene will be performed in accordance with the Infection Control Policy "[Hand Hygiene and Use of Antiseptics for Skin Preparation.](#)"
- d. Personnel should be familiar with the "[Cleaning, Disinfection, and Sterilization Infection Control Policy.](#)"
- e. When performing or assisting with procedures in the procedure rooms, the VIR dress code and the

VIR policies will be followed.

- f. Infection control education that includes bloodborne pathogens and tuberculosis education is required annually via LMS.
- g. Employees should report all needlestick/sharps, mucous membrane, and non-intact skin exposures from blood and other potentially infectious materials. Hospital employees should report the exposure to OHS by calling the Needlestick Hotline at 984-974-4480. University employees should report the exposure to University Employee Health Service at 984-974-9119.

## 2. Procedure Rooms

Access will be limited to the minimum number of persons needed to safely perform the procedure and on occasion, observers. The physician in charge of the procedure, the Technical Supervisor or the procedure RN is responsible for controlling the number of persons present by approving observers, consultants, etc. Observers are required to stand in the control room and must be properly attired. The main door to Vascular Interventional Radiology has a posted sign, which reads: "Authorized Personnel Only Proper Attire Required." (see section 4.a. "Dress Code").

### a. Cleaning and Maintenance

- i. **Daily:** All permanent equipment within the room, as well as all countertops and wall units are to be cleaned with an EPA registered disinfectant (e.g. MetriGuard Sani-Cloth) at least daily. Environmental Services personnel will 'terminally clean,' wet mop the floors, clean countertops and sinks with an EPA-registered disinfectant and change trash bags daily.
- ii. **Between cases:** Equipment positioned close to the patient and the radiographic table, are to be cleaned with an EPA-registered disinfectant after patient use. Floors are to be cleaned between each patient when visibly soiled. Trash will be pulled as needed.
- iii. **Weekly:** Monitoring equipment will be wiped down with an EPA registered disinfectant weekly or when visibly soiled.
- iv. **Blood spills:** Blood spills are to be cleaned promptly with a 1:10 sodium hypochlorite (bleach) solution or an EPA-registered disinfectant.
- v. **Computer keyboards:** Computers should be used with clean hands. Keyboards and mouse are to be cleaned on a routine basis (e.g., weekly), using a disinfectant wipe such as Sani-Cloths.
- vi. **Lead aprons:** Lead aprons are to be cleaned with an EPA-registered disinfectant on a routine basis and when visibly soiled.

### b. Environment

- i. **Air control:** The rooms will be maintained at positive pressure with respect to the corridors. Movement in and out of the procedure room should be kept to an absolute minimum. This will allow the airflow system with its positive pressure room design to keep bacterial entrance to a minimum. Doors are to remain closed at all times. Pressure differentials are monitored on a routine basis by the Plant Engineering.
- ii. **Traffic pattern:** Vascular Interventional Radiology (VIR) is divided into 3 zones to orient personnel to aseptic protocols.
  - **Unrestricted Zone:** Defined as patient examining room, offices, conference room, reading room and physician workroom.

- Semi-Restricted Zone: Defined as the procedure rooms (when not in use), control rooms, utility rooms, scrub rooms, and connecting corridors. Signs will be posted at all entrances, stating dress code requirements.
- Restricted Zone: Defined as each procedure room when a sterile procedure tray is set up or a procedure is in progress.

c. Laundry

Soiled linens will be placed in a fluid-resistant linen bag. Full laundry bags will be placed in the soiled holding room for pick-up.

d. Waste Disposal

Personnel should comply with the policy, ["Guidelines for Disposal of Regulated Medical Waste."](#)

Blood and other potentially infectious material greater than 20 mL per unit will be discarded by pouring contents into the hopper and discarding the resealed container in a regular trash bag. If a container cannot be emptied, it is placed in the regulated medical waste bin (red bag).

- i. All emptied blood product containers (bags and bottles) as well as administration tubing will be placed in a regular trash bag.
- ii. All needles and sharps will be disposed of in the sharps disposal container located in each procedure room.

3. Other Spaces in the Vascular Interventional Area

- a. Hallways, contiguous spaces and PRU will be cleaned daily by Environmental Services (ES) per ES policy. The floors will be washed, stripped of wax, and re-waxed as needed.
- b. Offices, conference rooms and other spaces will be cleaned in the routine hospital manner.

4. Procedure Teams

These teams consist of professional personnel who carry out the procedures. There are generally two physicians, one or two radiological technologists and one radiological nurse (or Critical Care nurse) involved in the performance of all procedures.

a. Dress Code

- i. Refer to Appendix 1: Infection Control Attire in Restricted Zones from the [Guidelines for infection control of Perioperative Services](#) will be followed for procedural rooms.
- ii. Unrestricted Zone: Street clothes are permitted.
- iii. Semi-Restricted Zone: Street clothes and uniforms from other departments are not permitted. Personnel entering the Semi-Restricted Zone must dress in hospital laundered scrubs provided by the department. Hair must be contained in a disposable cap or hood. Personally-owned cloth caps are permitted. Personal head coverings must not be worn for more than one day without laundering. Shoe covers are worn when there it is anticipated splashes or splatters of blood or other potentially infectious materials may soil shoes. Disposable jumpsuits are provided for certain visitors (i.e., photographers, police guards, a parent invited to accompany a child to an operating room, ICU staff transporting and monitoring critically ill inpatients, or others with short, purposeful visits).
- iv. Restricted Zone: In addition to Semi-Restricted Zone attire, a mask which fully covers the nose

and mouth will be worn when entering the procedure room if a procedure is about to begin, is underway, or if sterile instruments are exposed. Disposable masks will be used and should be changed between cases. An impervious sterile gown must be worn over scrub attire if performing a procedure. Lead aprons will be worn under gowns by all personnel involved with the procedure, when needed. Hair on the head and face (i.e. beards) must be fully covered to prevent shedding of hair and squamous cells. Large sideburns and ponytails must be covered or contained. Disposable bouffant and hood style covers will be provided. Bald and shaved heads must be covered to prevent shedding of squamous cells. Personally-owned cloth caps are permitted. Personal head coverings must not be worn for more than one day without laundering. Personal head coverings soiled with blood or OPIM must be discarded and must not be taken home for laundering. If scrubbed, eye protection must be worn as specified in the [Exposure Control Plan for Bloodborne Pathogens](#).

- v. **Exiting and Re-entry:** When leaving the department above for public areas, personnel will change scrubs if soiled. Mask, hat, and shoe covers will be removed upon leaving the department. Upon re-entering the Semi-Restricted and Restricted Zones, the dress code will be followed as described.
- b. **Surgical Hand Antisepsis:** Personnel involved directly with the procedure should perform hand and arm antisepsis prior to entering the room. Surgical hand antisepsis may be accomplished with a scrub-less alcohol/CHG antiseptic (e.g. Avagard) or with an antimicrobial agent (e.g. CHG) and scrub brush. For detailed instruction on surgical hand antisepsis, refer to Appendix 5 of the [Infection Control Policy for Perioperative Services](#). The purpose of hand and arm antisepsis is: a) to rid the skin of gross dirt and transient microbes; b) to reduce resident microbes to near zero; c) to leave a residual activity on the skin so as to retard growth of microbes on the hands of those persons who will be functioning as a part of the sterile procedure team. **Observers:** All persons not included above in the procedure team will be considered observers. These will include consultants (e.g., physicians from other services), students, and others approved to watch procedures. Observers will be asked to wear jumpsuits and hats. Shoe covers are worn if exposure of the feet to bloodborne pathogens is reasonably anticipated. Observers should remain in the control area at all times. If, however, the observer(s) must enter the procedure room, they must perform hand hygiene and don a lead apron and mask.

## C. Patient Management

### 1. Transportation

- a. Outpatients are placed on stretchers that belong to PRU. The stretchers are covered with a clean sheet that is changed between patients. Stretchers are cleaned with an EPA-registered disinfectant between each patient. All patients entering the VIR procedure room should be dressed in a clean hospital gown. Pediatric patients may have clean pajamas or diapers and clean t-shirts.
- b. A patient's personal dress should not accompany the patient into the procedure room.
- c. All patients have their hair covered with a cap. Patients undergoing angiograms or aortagrams do not need to wear a hat.
- d. Patients who are undergoing a central line insertion near the head should wear a surgical mask until covered with a sterile drape. After draping, the mask may be removed if the patient is able to keep the head turned away from the site.

### 2. Skin Preparation and Drape

Sites to be used will be identified by the physician in charge of the procedure. If hair removal is necessary, it will be removed by using hair clippers. The site will then be cleansed with an appropriate antimicrobial agent. A sterile drape sheet will be used to isolate the site as well as to cover the patient. During draping, draping material should be compact, held higher than the OR bed, and draped from the surgical site to the periphery. Care should be taken to handle sterile drapes as little as possible, and once the sterile drape is positioned, it should be disturbed as little as possible. Draping material below the level of the table is not considered sterile.

3. Central lines should be dressed according to the **Nursing Policy Central Venous Access Device (CVAD) Care & Maintenance (NURS 0074)**. CHG/Alcohol should not be removed from the skin.

## D. Equipment

### 1. Instrument Control

- a. Disposable procedure trays are used. While setting up the procedure tray, the technologist will use aseptic technique and must adhere to the sterile zone dress code. Once trays are set up for a procedure, if not being used immediately they should be covered to prevent contamination of opened supplies. Opened, covered trays are good for up to 24 hours as long as they are kept in a monitored and secured area. Upon completion of the case, all open, unwrapped supplies are to be discarded.
- b. While a case is in progress in the procedure room, the instrument table with open instruments should be considered "off limits" to unscrubbed individuals.
- c. Occasionally an electric teakettle is utilized to boil sterile water. The steam from the teakettle is used to modify the shape of certain catheters. To ensure sterility of the water vapor, the water must be boiled at a vigorous, rolling boil for 5 minutes prior to use. After each use, the kettle is emptied, rinsed out and dried. The external surface will be cleaned with an EPA registered disinfectant (i.e. MetriGuard or Sani-cloth) and stored in an upside down position in a designated clean area.

### 2. Pressure Monitoring Flush System

Sterile disposable transducers are utilized for pressure monitoring.

- a. The transducer cable must be disinfected between uses with an EPA registered disinfectant (i.e. SaniCloth)
- b. Hand hygiene should be performed before handling the pressure monitor set.
- c. Set-up of the system should take place in a clean area, away from sinks and other possible contaminants.
- d. Retrograde back-up of blood should be prevented by frequently checking for leaks and loose connections and by maintaining a continuous adequate pressure within the flush system.

### 3. Catheters

All of the catheters used in the procedure rooms are disposable. These catheters are shipped from the manufacturer and are considered sterile unless the package is damaged. They are used once and discarded. Catheters that have reached the manufacturer's expiration date should be removed from stock.

### 4. IV Fluids

New IV fluids and connectors will be opened for each case in the procedure room. The flush used for

cases is supplied to the table in a closed tubing system. A new bottle of IV contrast is opened at the beginning of each case and is only used for one patient.

## **E. Other Procedures Performed in Interventional Rooms**

1. On occasion, staff from departments other than Radiology, perform procedures in the procedure rooms (or participate in ongoing procedures).
2. Room cleaning, personnel attire, and patient management will be the same as required for all other procedures that are performed by Interventional Radiology staff.

## **F. Implementation and Monitoring**

The responsibility for both the implementation and monitoring of this policy belongs to the Division Chiefs of Neuro and Vascular Radiology, Vascular Surgery, the Technical Supervisor, Clinical Nurse IV, Vascular and Radiology Nursing Director and Clinical Supervisors.

### **Attachments:**

#### **Applicability**

UNC Medical Center

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