SUBJECT/TITLE: Portable Imaging in the Specialized Isolation Unit

PURPOSE: Define procedure for performing a portable x-ray on patient in the specialized isolation unit.

DEFINITION: None

POLICY: Radiologic Technologist will supervise the performance of portable x-ray procedures in the specialized isolation unit following the protocols for this patient population. Nursing staff will position the digital detector plate, the portable x-ray unit, and make the exposure with direct supervision from a technologist, who will remain outside of the room.

PROCEDURE:

Preparation of portable x-ray machine and room:

- PACU Portable; the exposure switch has been removed using a torque bit, and a remote control exposure switch, located on top of the screen, is to be used for making exposures.
- Remove lead aprons from the portable.
- All storage compartments in the back will be covered and secured with plastic. The plastic drape is custom made and installed by engineering.
- Drape the machine tube housing and arm with a plastic C-arm cover from the Bio Responses Kit.
- A dedicated charging station for the detector batteries will be placed in the room on the windowsill.
- Radiology engineering has checked the outlets in the room for amp loads for charging the portable x-ray machine.
- Have an approved short extension cord in the room to plug in portable machine.
- Park the portable x-ray machine in the area of the patient’s room that will be outlined with red tape.

1. The Bio Responses Kit is located in General Radiology between general room #1 and room #2. Take the Bio Response Kit and the portable x-ray machine located in PACU to SNICU Bay 4. The Bio Response Kit will be stored in the patient room, in the corner behind the portable x-ray machine.
• If the detector is dropped in the room Radiology Engineering has a second digital
detector assigned to the PACU portable x-ray machine.
• Contents of Bio Response Kit:
  o Specialized Isolation Document
  o 10 C-arm covers
  o 2 boxes of plastic detector covers
  o 1 digital detector (Obtain from Rad Eng)
  o 1 battery charging station
  o 2 digital detector batteries (Obtain from Rad Eng)
  o 2 Extension cords (Obtain from Rad Eng)
  o 2 golf tees
  o Torque Bit (for removal of exposure cord)

**Imaging the Patient; Radiology Technologist Does Not Enter the Room.**
**Portable X-Ray Machine is already in the room and the Nurse Performs the Exam:**

1. The tech will:
   a. Radiology tech will don PPE in the green zone including; yellow isolation gown, gloves,
      shoe covers, N95 mask, and face shield and remain in the ante room.
2. The nurse will:
   a. For the initial x-ray, the batteries will be in the digital detector and charged, for
      subsequent exposures, remove batteries from the charging station and install into digital
      detector.
   b. Place the digital detector into two plastic bags. Seal the inner bag with the Ziploc or with
      tape; leave the outer bag unsealed.
   c. Unplug the portable x-ray machine's extension cord from the designated wall plug.
   d. Depress both triggers on both sides of the x-ray tube housing lifting tube housing up so
      screen will light up.
   e. Depress the touch screen button located in lower left corner titled **Tech Login** to log onto
      portable and move it into the correct position to image the patient.
   f. The technologist will instruct the nurse to acquire the correct patient examination
      information on the portable and proper exposure settings.
   g. The nurse will place the detector behind the patient.
   h. The technologist will provide positioning instructions so that the nurse can align the x-ray
      tube and the detector for the exposure.
   i. The nurse will remove the remote exposure control from the top of the portable and have
      all staff stand a minimum of six feet away from the patient behind the x-ray machine
      and under the direction of the technologist the nurse will make the exposure.
   j. The technologist will instruct the nurse in properly labeling and sending the image.
Post Imaging:

1. The nurse will:
   a. Wipe off the counter top before removing the detector.
   b. Remove the detector from behind the patient.
   c. Remove the outer cover by grabbing both sides of the detector with the back side of the detector against a firm surface (such as the bed) with the open end pointed away from the nurse; pull back the outer plastic cover. Once outer cover is partially or half way pulled back, place the detector that is covered by the inner (clean) plastic cover on the counter and completely remove outer cover and put outer cover in trash.
   e. Wipe down the inner plastic cover with sanitizing wipes and then remove the detector from the inner plastic cover, place on the counter and discard the plastic cover.
   g. Wipe the detector, countertop with bleach wipes and remove battery from the detector by using a golf tee to release the spring tab on the back of the digital detector; place in charger on the window sill; place the detector on counter top.
   h. Return tube housing to the park position and move the portable x-ray machine back to the dedicated parking area in the room outlined by red tape.
   i. Plug the extension cord into the portable x-ray machine plug.

Transferring the Portable X-ray Machine and Essential Equipment between Rooms if there are two Patients in the Specialized Isolation Unit:

1. The nurse caring for the first patient in the isolation suite will do hand hygiene with alcohol-based hand rub on outer ‘green’ gloves. Remove outer ‘green’ gloves using glove in glove technique. Perform hand hygiene with alcohol-based hand rub on inner ‘blue’ gloves. Put on clean outer ‘green’ gloves. The nurse will remove the C-Arm drape by rolling the plastic back on itself from tube housing, discard and wipe down the entire machine with disinfectant wipes.
2. The nurse will perform hand hygiene with alcohol-based hand rub on outer ‘green’ gloves. Remove outer ‘green’ gloves using glove in glove technique. Perform hand hygiene with alcohol-based hand rub on inner ‘blue’ gloves. Put on clean outer ‘green’ gloves.
   a. Drive machine into ante room over the walk off mat that is saturated with a bleach to clean off the wheels and then push the machine into the doffing room.
   b. The patient care nurse will move x-ray machine into the doffing room.
   c. The Assistant will inspect the x-ray machine for signs of contamination and wipe down the entire machine with bleach wipes.
d. The Assistant in doffing room will roll x-ray machine over the disinfectant mat in Zone Green.
e. The Assistant will inspect the equipment again for signs of contamination. If equipment is considered ‘cleaned’ it will be moved to the sliding door in the doffing room.
f. Drape the x-ray machine tube housing and arm with a plastic C-arm cover.
g. Then a clean disposable sheet will be draped over the equipment during transport.
h. The Monitor or other staff member at desk will wear gloves and move the x-ray equipment to the second patient care room by sliding door.

3. The patient care nurse in the room of the second patient isolation suite will perform hand hygiene with alcohol-based hand rub on outer ‘green’ gloves. Remove outer ‘green’ gloves using glove in glove technique, perform hand hygiene with alcohol-based hand rub on inner ‘blue’ gloves, and put on clean outer ‘green’ gloves. The nurse will open the sliding door to the hallway and move the x-ray machine into room and close sliding door.

4. The Monitor or staff member that transported the x-ray machine will perform hand hygiene with an alcohol-based hand rub on gloves, remove gloves using glove in glove technique, perform hand hygiene with an alcohol-based hand rub, and put on clean gloves.

5. The Monitor will obtain the digital detector from Radiology Engineering for use. If possible, the batteries will be placed in the detector before it is put in the second patient’s room.

6. Radiology will provide two C-arm plastic covers, one extension cord, and one box of plastic detector covers from their supply area. These supplies will be placed in the designated ‘clean’ area by the sliding door in the second patient’s room.

7. The nurse in the second patient's room will then:
   If not done earlier, place the battery into the digital detector then place the detector into two plastic bags. Seal the inner bag with the Ziploc or with tape and leave the outer bag unsealed.
   a. Unplug the portable x-ray machine's extension cord from the designated wall plug.
   b. Depress both triggers on both sides of the x-ray tube housing lifting tube housing up so screen will light up.
   c. Depress the touch screen button (will work is user is double gloved) located in lower left corner titled Tech Login to log onto portable and move it into the correct area to image the patient.
   d. The technologist will instruct the nurse to acquire the correct patient examination Information on the portable and proper exposure settings.
   e. The nurse will place the detector behind the patient.
   f. The technologist will provide positioning instructions so that the nurse can align the x-ray tube and the detector for the exposure.
      The nurse will have all staff stand a minimum of six feet away from the patient behind the x-ray machine and under the direction of the technologist the nurse will make the exposure.
g. The technologist will instruct the nurse in properly labeling and sending the image.

h. Park the x-ray machine in area outline by red tape and plug the extension cord into a red outlet and then into the x-ray machine.

i. Wipe off the counter top before removing the detector.

j. Remove the detector from behind the patient.

k. Remove the outer cover by grabbing both sides of the detector with the back side of the detector against a firm surface (such as the bed) with the open end pointed away from the nurse; pull back the outer plastic cover. Once outer cover is partially or half way pulled back, place the detector that is covered by the inner (clean) plastic cover on the counter and completely remove outer cover and put outer cover in trash.


m. Wipe down the inner plastic cover with sanitizing wipes and then remove the detector from the inner plastic cover and discard the plastic cover.


o. Wipe the detector with bleach wipes in patient room.

p. After cleaning and UVC cleaning, return second digital detector to Radiology Engineering.

Removing Portable X-Ray Machine from the Isolation Suite:

1. In the patient's room remove C-Arm drape by rolling the plastic back on itself from tube housing, discard and wipe down the entire machine with disinfectant wipes.

2. Drive machine into ante room over the walk off mat that is saturated with a bleach to clean off the wheels.

3. In ante room remove plastic from the back of the portable x-ray machine and discard in trash.


5. Drive x-ray machine into the Red Zone in doffing room; wipe the entire machine down with bleach wipes.

6. Remove the vinyl sheath that runs down the tower of the x-ray machine and put in trash.

7. Wipe down the wires with bleach wipes.

9. Put detector in red bag and place in anteroom. When nurse moves x-ray machine from patient room to doffing room, he/she will move it to the doffing area. Use bleach wipes to clean the detector in the doffing rooms in Red Zone. Place the detector in the clean area in doffing room and until it has gone through a Tru-D UVC cycle. Tru-D is run daily or as needed by EVS staff.

10. Drive the portable x-ray machine over a walk off mat saturated with bleach in Green Zone. The monitor will inform EVS that a Tru-D cleaning is needed in doffing room.

11. Return x-ray equipment to patient room one after Tru-D clean using sliding door in hallway.

**Removing Bio Response Kit from the Isolation Room:**

1. The only items to be removed and disinfected from the bio response kit will be:
   - 1 battery charging station
   - 2 digital detector batteries (Obtain from Rad Eng)
   - 2 Extension cords (Obtain from Rad Eng)

2. The nurse or assistant will then:

3. Discard all other items in the bio response kit including kit container in the red bag waste and torque bit.

4. Wipe the digital detector, battery charging station and the 2 detector batteries with bleach wipes and take them into the ante room.


6. Take digital detector, battery charging station and the 2 detector batteries into Red Zone in doffing room and wipe down again with disinfectant wipes then hand it to the person in Green Zone.

**USE SAFE PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION**

- Keep hands away from face
- Limit surfaces touched
- Use slow and deliberate movements with minimum agitation when removing PPE