NHPP Scatterings

Special Edition, March 27, 2020

The nation and the VA are working to respond to the COVID-19 epidemic. We need to be flexible and balance radiation safety and regulatory compliance with clinical care and other safety matters to meet the nation's needs. NHPP prepared this guidance in consultation with the VHA National Radiology Program.

Interim Radiation Safety Guidance for Performing X-Ray Radiography Outside a Shielded Room During the COVID-19 Epidemic

During the current epidemic, some VA medical facilities are using mobile ("portable") x-ray machines in non-traditional areas to image patients. In many cases, these areas are not shielded to protect people from radiation.

The primary use is chest radiography. Chest radiographs are relatively low dose exams (effective dose ≈ 0.02 mSv/image), and so the scattered radiation from the patients will also be low. Nonetheless, measures should be taken to keep the radiation doses to the x-ray machine operator and other nearby people as low as reasonably achievable (ALARA). To that end, the following guidelines are provided. These guidelines apply only to use of mobile x-ray units in an improvised area during the epidemic, a "COVID x-ray area"; they do NOT apply to the use of portables in the ICU, patient rooms, etc.

Area Conditions:

- The area should be as far from the public, other patients, and VA staff work areas as can be reasonably achieved.
- The area should have some sort of barrier to exclude persons not involved in exams. This can be as simple as stanchions with chain or cubicle partition walls. The barrier should be at least 6 feet from the patient being imaged.
- The area should have a sign indicating when x-ray exams are in progress. This sign can be removed when exams are not being performed.
- There should be radiation protective apparel (e.g., a lead apron) for the operator.
- The area surrounding the x-ray imaging area must be considered. Areas beyond the image receptor in the direction of the x-ray beam will be exposed to radiation. Placing the image receptor against a gypsum wall that has a high occupancy space (e.g., office) on the other side would be a poor choice. Consider placing the image receptor against a solid concrete wall or utilize a mobile radiation shield. Spaces adjacent to the temporary x-ray area may need to be vacated.
- Temporary shielding can be used to protect nearby areas of high occupancy. Rolling radiation shields from Radiology are an option. Leaded aprons draped over temporary walls are another option.

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X-ray Operator:

- The operator should wear a dosimeter ("radiation badge") while acquiring images.
- The operator should stand at least 6 feet away from the part of the patient in the primary x-ray beam.
- The operator should wear a protective lead garment or stand behind a mobile radiation shield during image acquisition. Leaded protective garments should be worn under any isolation gowns.
- The operator should announce that he/she is taking an image and ask people near the patient to move away.

Other VA Staff in the Area:

- Other VA staff in the area, if more than 6 feet from the patient being imaged, will receive very little radiation and do not need to wear lead protective apparel. However, if they are concerned, they can move further away, stand behind the operator, stand behind a mobile radiation shield, or don lead protective apparel. Options other than wearing lead protective apparel may be best, because the lead protective apparel will need to be disinfected.

Patients on Gurneys:

- Patients on gurneys waiting for exams should be kept at least 6 feet from the patient being imaged.
- When images are taken with the x-ray beam pointed at the floor, additional shielding of the primary x-ray beam should not be necessary.

Standing Patients:

- For images taken with the x-ray beam pointed at walls (horizontally), the x-ray beam should be aimed toward an area with low occupancy or toward a wall that provides good shielding (e.g., concrete or brick wall). Alternatively, a mobile radiation shield could be placed behind the image receptor.

VA Radiation Safety Officers should assist Radiology in establishing protective measures.

NHPP acknowledges the Los Angeles County Radiologic Health Branch and the California Department of Public Health for their work in developing some of these guidelines.

Reference: https://hps.org/physicians/documents/Doses_from_Medical_X-Ray_Procedures.pdf

Please contact an NHPP Program Manager if you have questions about this topic.

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