

COVID-19 Patient Portable Chest X-Ray Protocol

Harborview Medical Center has implemented a process for isolating and caring for patients with the COVID-19 virus. The goal is to admit a patient to an isolation room and strictly control the number of personnel/equipment entering the room.

The following process was developed to allow radiologic technologists to take a portable chest X-ray **using the DR portable** without the machine entering the room:

- The patient will be placed in a *controlled isolation* room.
- The technologist, **using the DR portable**, will remain in the hallway.
 - The hallway is considered non-isolation and PPE (Personal Protective Equipment) is not required.
- The technologist will double-bag the DR plate and hand it off to a gowned provider (i.e., nurse or technologist dressed in PPE).
- The tech outside of the room should position the portable several feet outside the doorway, aiming the x-ray tube through the glass in the door or the open door.
- The patient will be upright in the bed/stretcher or standing when possible.
 - It is important to get the patient as upright as possible.
- Gowned personnel will place the imaging plate behind the patient if they are in the stretcher.
 - If the patient is standing, gowned personnel will have the patient hold/hug the plate with their back turned toward the x-ray machine in the hall.
 - Technologists can verbally assist with the positioning of the patient and imaging plate.
- Gowned personnel will position the standing patient or the patient in the bed so that the x-ray beam is directed at the DR plate, making sure that the plate is as perpendicular to the central ray as possible.
- The patient will be at distances varying from 6 feet (if standing) to as far as 18 feet (when upright in the stretcher) from the x-ray tube.
 - Because of the variance in distance, the technologist will need to adjust exposure factors to compensate.
- The technologist will provide appropriate breathing instructions and take the exposure.
 - **If the image is satisfactory**, and has an acceptable S-number, the procedure is complete.
 - **If not**, repeat the image after adjusting the technique, imaging plate, or patient positioning.
- Gowned personnel will remove the double-bagged plate from behind the patient and wipe the outer bag with disinfectant (purple top).

- They will then remove the outer bag (without touching the inner bag) and pass the plate (with the inner bag still on) outside of the room to a nurse or technologist.
- The inner bag should then be wiped down with a purple top and the bare cassette should be passed to the technologist or placed in the DR portable slot carefully making sure that the bag does not touch the portable machine.
- Technologists can then exit the area after wiping equipment down with disinfectant as needed.

Exposure Info:

After several trial exposures with the chest phantom at 17 feet (i.e., 204 inches) were performed, it was determined that the optimum technique was 125 KVP @ 8mAs. To compare, we typically shoot a portable upright AP chest at 100 KVP @ 2.5mAs.

Technologists may need to vary technique depending on actual distance and patient size.

Notes:

- At 125 KVP, technologists can only change mAs settings, and since the portable machine has a fixed mA, only exposure time changes. As mAs is increased, exposure time increases, possibly resulting in motion artifact. Moving the patient several feet closer to the doorway may allow technologists use lower mAs setting for a more manageable exposure time.
- At our facility, we use Fuji Software that has a Virtual Grid incorporated. In the event that you are not using this software, you will need to take usual steps when using a physical grid or opt to shoot the image without a grid.