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TECHNICAL BULLETIN

DATE: September 14, 2023
TOPIC: Use Limitations for Portable and Mobile X-ray Machines
CONTACT: Radiation Control Supervisor, ratiationcontrolprogram@health.nv.com
TO: All Registrants of a Radiation-Producing Machine

This technical bulletin pertains to the medical use of portable and mobile radiation-producing machines in Nevada. Radiation-producing machines are regulated under Nevada Revised Statutes (NRS) Chapter 459 and Nevada Administrative Code (NAC) Chapter 459.

Purpose

The Radiation Control Program (RCP) as part of the Department of Health and Human Services, Division of Public and Behavioral Health, has identified the need to clarify the requirements of NAC 459.556(1)(c) and (d) regarding the use of portable and mobile x-ray equipment. Pursuant to NAC 459.556(1)(c) portable or mobile x-ray equipment may be used only for examinations where it is impractical to transfer the patient to a stationary radiographic installation. NAC 459.556(1)(d) allows registrants to request authorization to use portable or mobile equipment in lieu of stationary equipment for a period of not more than 90 days while the facility is awaiting the delivery of new stationary equipment or the repair of registered stationary equipment.

Where patients are ambulatory (including walk-in clinics and doctor's offices) a permanently installed stationary imaging system should be used for the following reasons:

- Portable and mobile x-ray machines are intended for bedside use when a patient cannot be transported to the designated imaging room with a permanently installed imaging system. Examples include intensive care, critical care, emergency, and surgical patients.
- Portable and mobile x-ray machines have limited imaging factors. Some technique settings require a longer exposure time, which results in an increased patient dose and may lead to image blur.
- Portable and mobile x-ray tubes are not as stable during imaging. Unstable tubes result in repeat images, which leads to an increase in patient dose, and poor-quality images due to tube motion.
- Inconsistent source-to-image distance affects anatomy magnification. Without a means to ensure the source-to-image receptor distance is constantly accurate and the correct angle is used, it would not demonstrate the accuracy and constancy of a standard technique required for the exam. This inaccuracy could likely result in repeat imaging due to magnification and anatomy cut-off, which leads to an increase in patient dose.
- Portable and mobile x-ray machines limit the types of exams that can be ordered, which could reduce patient care and is not considered a best practice.

Overall, the use of portable and mobile x-ray machines in place of a permanently installed imaging system, may result in the following:

- Increased radiation dose to the patient
- Increased repeat imaging
- Substandard images
- Increased chance of a missed diagnosis

Additional information and forms can be found at
http://dpbh.nv.gov/Reg/RPM/Radiation_Producing_Machines_-_Home/

Questions

For updated guidance, review the Division of Public and Behavioral Health Technical Bulletin web page regularly. Call 775-687-7550 or email ratiationcontrolprogram@health.nv.com for other questions regarding this topic.

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