

# Office of Radiological Health

## X-RAY BULLETIN

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ORH-733: Policy on Lead Aprons used as Protective Barriers in Dentistry  
Reissued Dec. 5, 2018

This policy is the result of a review conducted by the Virginia Department of Health, Office of Radiological Health and Safety Regulations from state and private inspector survey reports. The Office of Radiological Health has always considered the use of lead aprons for patients during radiographic procedures as a regulatory requirement. However, it has come to our attention that there are other interpretations of the regulations on the use of lead aprons as protective barriers.

### Regulatory Background

The X-ray Machine Inspection Report - General Administrative form RH-F-21 is used by inspectors to report items that are common to the use of one or more X-ray machines at a facility. Among these requirements is Item 7. Gonadal shielding is necessary, but not available (12 VAC 5-481-1591-A6). **SERIOUS.** This item serves as the basis for inspectors to report the presence, or lack thereof, of lead aprons for dental facilities.

A review of 12 VAC 5-481-1591-A6:

This section applies to the situation where the patient's gonads are protected from the primary X-ray beam, as long as the shielding does not block the area of clinical interest. In the case of dentistry, the primary beam is striking the jaw and in some cases the lower skull. The primary beam is not directed towards the gonads, so the need for gonadal shielding would not be necessary using a narrow interpretation of the regulation. However, the lead apron is protecting the patient from the scatter radiation emanating from tissue struck by the primary beam. The objective is to reduce radiation exposure to the patient's gonads using a lead apron. An added benefit of using a lead apron is protection of breast tissue in female patients.

Also cited by others is Section 12VAC5-481-1591.A:

*5. Except for patients who cannot be moved out of the room, only the staff, ancillary personnel or other persons required for the medical procedure or training shall be in the room during the radiographic exposure. Other than the patient being examined:*

*a. All individuals shall be positioned such that no part of the body will be struck by the useful beam unless protected by not less than 0.5 millimeter lead equivalent material;*

*b. The X-ray operator, other staff, ancillary personnel, and other persons required for the medical procedure shall be protected from the direct scatter radiation by protective aprons or whole body protective barriers of not less than 0.25 millimeter lead equivalent material;*

This section is not applicable to the patient being X-rayed.

The American Dental Association (ADA) has recently published guidance in support of the use of lead apron and collar (Journal of American Dental Association September 2011 page 1101).

[http://www.ada.org/sections/scienceAndResearch/pdfs/forthedentalpatient\\_sept2011.pdf](http://www.ada.org/sections/scienceAndResearch/pdfs/forthedentalpatient_sept2011.pdf)

The ADA also included the use of lead apron and collar in their Accreditation Standards for Dental Assisting Education Programs 2008, page 27.

<http://www.ada.org/sections/educationAndCareers/pdfs/da.pdf>

Our conclusion is that the use of a lead apron in dental radiography has become an accepted practice and an expectation of patients. We have also heard arguments that with the use of digital imaging, radiation exposure is significantly less than conventional film radiography. VDH inspectors' observations is that some facilities now using digital radiography have not reduced the technique factor that would spare the patient any radiation exposure using this new technology.

Safety and protection of the patients remains a primary objective without placing an undue economic or operational burden on owners of radiographic systems. We welcome comments from the dental profession for or against our policy to continue use of the lead apron

As a result of this study, we are changing certain requirements regarding the use of lead aprons during radiographic exposures in dental practices to the following:

Lead aprons should be used or made available to patients during all radiographic examinations to include dental intra-oral, panoramic, and cephalometric and 3-D procedures, whether film radiography, computed radiography (CR), or digital radiography is employed.

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