

Did you know?

More Selections from the Iowa Administrative Code.

Axel Ruprecht D.D.S., M.Sc.D., F.R.C.D.(C)

In the last column I gave an overview of the Iowa Administrative Code (IAC) that pertains to radiation and radiology and briefly looked at Chapter 38, which, as I stated, is of lesser importance to us.

I shall now look at briefly at Chapter 39, which, like Chapter 38 also has only limited impact on dental practice, and then move one to the next chapters.

Chapter 39 is entitled *Registration of Radiation Machine Facilities, Licensure of Radioactive Materials and Transportation of Radioactive Materials*. As we can see from this, much of what is covered in this chapter is outside of everyday dental practice. However, registration of radiation machine facilities is not. I shall only deal with some parts of this Chapter, because it is slated to undergo revision in the next cycle.

You may recall that Chapter 38 established fees for registering radiology equipment. Chapter 39 makes sure that you have to pay the fee by making you register equipment. Chapter 39 requires that “[e]ach person having a radiation machine facility shall... [a]pply for registration of such facility with the agency prior to the operation of a radiation machine facility.” Fortunately this is usually initiated by the dental supply companies in Iowa who are aware of these requirements. These companies fill out forms whenever they install a new x-ray unit or move a unit from one address to another, and usually supply a copy to the dentist. The supply companies send a form to the Iowa Department of Public Health (IDPH), notifying them of installation of a unit. This results in the IDPH sending a form to the dentist, which the dentist fills out and returns together with payment.

Registration is valid for a period of 12 months. The state does send out, annually, forms for renewal of the registration (and payment of the fees.)

Also of note is the fact that although you must register your units, the code forbids any person from advertising that the facility is registered with the agency or “state or imply that any activity under such registration has been approved by the agency.”

As well, a person who disposes of x-ray equipment shall notify the agency in writing within 15 days of:

- (1) The name and address of persons who have received these machines;
 - (2) The manufacturer, model, and serial number of each radiation machine transferred;
- and

(3) The date of transfer of each radiation machine.

Of interest as well, although not something that the dentist may think about is that Chapter 39 requires that the registrant (you) “prohibit any person from furnishing radiation machine servicing or services...until such person provides evidence that the person has been registered with the agency as a provider of service.” It may be of importance to note that such services relate not only to x-ray unit installation and servicing, but also to “processor or processor servicing.” This applies to outside contractors who provide maintenance and repair services to your processing equipment.

But not all is lost. Chapter 39 does specifically exempt “[d]omestic television receivers.”

There are some other items dealing with x-ray units, but these would rarely apply to dentists.

Let us now turn to Chapter 40, Standards for Protection Against Radiation. This Chapter has more in it that pertains to dentists and dentistry. Indeed, it states that “this chapter applies to persons licensed or registered by the Agency to receive, possess, use, transfer, or dispose of sources of radiation.” That would include us.

Early on this Chapter states that every reasonable effort should be made to maintain radiation exposures... as low as is reasonably achievable (ALARA). “The term ‘as low as is reasonably achievable’ means as low as is reasonably achievable taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, other societal and socioeconomic considerations, and in relation to the utilization of ionizing radiation in the public interest.” This is generally the principle underlying radiation use in most jurisdiction, and thus not unique to Iowa.

Chapter 40 does have several required programs and record keeping activities. These may not make very exciting reading, but they do bear review.

One requirement is that

40.10(1) Each licensee or registrant shall develop, document, and implement a radiation protection program sufficient to ensure compliance with the provisions of this chapter. See 40.81(136C) for record-keeping requirements relating to these programs.

641—40.81(136C) Records of radiation protection programs.

40.81(1) Each licensee or registrant shall maintain records of the radiation protection program, including:

- a.* The provisions of the program; and
- b.* Audits and other reviews of program content and implementation.

40.81(2) The licensee or registrant shall retain the records required by 40.81(1)“*a*” until the Agency terminates each pertinent license or registration requiring the record. The licensee or registrant shall retain the records required by 40.81(1)“*b*” for three years after the record is made.

In my opinion, this means that the dentist should have a program to ensure that the equipment used for making radiographs (the x-ray unit and processor or digital system) are operating as designed by the manufacturer, such as daily checks on the units using a control film against which films exposed at a standardized set of factors and processed in a standardized manner are checked against a control film. There should be stated protocols to ensure that the dental staff does not receive unnecessary exposures. Records of machine repair and maintenance should be kept.

40.10(2) The licensee or registrant shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and public doses that are as low as is reasonably achievable (ALARA).

I interpret this to mean that the facility has proper radiation protection barriers and/or uses distance to reduce radiation to the staff, or that, where necessary, protective clothing is worn. With respect to keeping public doses ALARA, no radiographs are made for other than diagnostic purposes, and only after examination by the dentist, and then only when there is a reasonable expectation of deriving information necessary for diagnosis and treatment. Some of this is covered in Chapter 41.

41.1(3) *Administrative controls.*

Ch 41, p.7 Public Health[641] IAC 4/2/03

(7) Individuals shall not be exposed to the useful beam unless (1) there is a previously established professional relationship with the licensed practitioner of the healing arts or a licensed registered nurse who is registered as an advanced registered nurse practitioner pursuant to Iowa Code chapter 152, which includes a physical examination unless it is otherwise clinically appropriate; and (2) a written order for the radiation exposure has been issued by the individual in (1). The written order may be issued after the exposure that is the result of an emergency or surgery setting.

This latter section is currently under review for applicability in dentistry, in response to a comment from the Iowa Dental Association. It does, however, reiterate the desire of the IDPH to ensure that patients are only exposed to radiation for diagnostic purposes after a clinical examination has been carried out.

40.10(3) The licensee or registrant shall, at intervals not to exceed 12 months, review the radiation protection program content and implementation.

This is self explanatory.

Chapter 40 also has specific occupational dose limits. These pertain to radiation received in the workplace as part of occupational activities.

641—40.15(136C) Occupational dose limits for adults.

40.15(1) The licensee or registrant shall control the occupational dose to individual adults, except for planned special exposures pursuant to 40.20(136C), to the following dose limits:

- a.* An annual limit, which is the more limiting of:
 - (1) The total effective dose equivalent being equal to 5 rem (0.05 Sv); or
 - (2) The sum of the deep dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 50 rem (0.5 Sv).
- b.* The annual limits to the lens of the eye, to the skin of the whole body, and to the skin of the extremities which are:
 - (1) A lens dose equivalent of 15 rem (0.15 Sv), and
 - (2) A shallow dose equivalent of 50 rem (0.5 Sv) to the skin of the whole body or to the skin of any extremity.

If proper procedures are followed in the dental setting, including staff members not routinely holding films in the patient's mouth, not holding the x-ray tubehead, or being present in the operatory during exposures, and standing in protected areas, staff members should not receive any dose during the making of dental radiographs.

I shall stop here for this time, inasmuch as this is already getting too big for enjoyable bedtime reading, and continue next time.