
Radiation Protection in Dentistry, NCRP Report No. 145, National Council on Radiation Protection and Measurements, 2003, 191 pp. (soft cover), \$50, NCRP Publications, 7910 Woodmont Avenue, Suite 400, Bethesda, MD 20814-3095; ISBN 0-929600-81-9; <http://www.ncrp.com>.

REPORT NO. 145 is the replacement for the previous publication *Dental X-ray Protection*, NCRP Report No. 35, which was published in 1970. There are a great many differences between the two publications, including a 4-fold increase in pages for the new report. Much of the length difference can be found in the extensive appendices of Report No. 145. The body of the text contains chapters on introduction, general considerations, radiation protection in dental facilities, role of equipment design, role of the qualified expert, and conclusions. The appendices cover radiography-related biohazards, including infection control; risk assessment; evaluation of radiation safety performance and equipment performance; selection criteria; image receptors; shielding design for dental facilities (the largest appendix); and radiation quantities and units.

The report is very prescriptive, with over 100 *shall* or *shall not* statements, covering everything from the type of image receptor (image receptors of speeds slower than ANSI speed Group E films *shall not* be used for intraoral radiography) to beam collimation (rectangular collimation of the x-ray beam *shall* be routinely used for periapical radiography) to design of the radiography facilities (shielding design by a qualified expert *shall* be provided for all new or remodeled dental facilities). Many of the recommendations in the report are contrary to current common radiography practices in dentistry, particularly with respect to receptor speed (ANSI Group D film is still more commonly used than faster films) and collimation (rectangular collimation is used by only a small percentage of dentists even though it has been recommended for

many years). If the states adopt the NCRP recommendations, as is commonly done, most dental offices will not be in compliance.

In several places throughout the report it is mentioned that doses from dental radiography are very low, with effective doses numerically equal to the unavoidable natural background radiation received in a few hours to a few days by the average American. For that reason there has been some criticism that the report is overly prescriptive and that the costs to bring all the dental offices into compliance may be higher than can be justified by the amount of dose reduction afforded by the recommendations. Obviously, this is not the opinion of the NCRP, which proposes a very conservative approach to the use of ionizing radiation.

One feature of the report that will be appreciated by health physicists is the extensive appendices. In the introduction it is stated that the report is intended to be a stand-alone document since the target audience may not have ready access to related documents. Since one of the recommendations is shielding design by a qualified expert, which has not generally been the rule for standard dental offices, health physicists will find the appendix on this topic to be of great help as their workload increases because of this.

In summary, NCRP Report No. 145 is intended to provide the guidance to reduce the radiation dose from dental radiography to the absolute minimum, to patients, operators, and the general public. While there can be some debate about whether some of the recommendations are more extreme than is necessary, the publication appears to served its purpose and should be a useful document for many years. It belongs on the shelf of everyone concerned with radiation protection.

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