APPENDIX E

RECOMMENDATIONS FOR EDUCATIONAL REQUIREMENTS FOR DENTAL RADIOLOGY PERSONNEL
Ionizing Radiation Control Policy
(revised June 1995)

The ionizing radiation policy of the College of Dental Medicine shall include the guidelines established by the Medical University of South Carolina Radiation Safety Manual, the Standards for Predoctoral Radiology Instruction and Radiological Services of the American Dental Association Council on Accreditation, The National Council on Radiation Protection and Measurements: Report No.35: Dental X-ray Protection, and the State of South Carolina Department of Health and Environmental Control Regulation 61-64, X-rays (Title B).* It is understood that clinical experience and necessity may take precedence on occasion.

These guidelines shall be followed by College of Dental Medicine faculty, staff, and students concerning all procedures wherein patients are exposed to ionizing radiation. Adherence to this policy will standardize the use of radiation throughout the College of Dental Medicine and will result in the lowest possible patient risk while providing the maximum diagnostic yield (radiographic information from which a patient benefits). The policies within this document will be reviewed annually by the College of Dental Medicine Clinical Affairs Committee and as specific needs arise.

As this important diagnostic aid is used, we must all understand the serious responsibility we have to minimize patient exposure to ionizing radiation. This will be accomplished through highly selective use of this diagnostic modality, careful technique throughout the procedure, monitoring of equipment performance, and mandatory application of safety.

* These documents are located in the office of the Radiation Safety Officer.
College of Dental Medicine Radiation Safety Officer

The Head of Dental Radiology of the Division of Oral Medicine, Department of Stomatology, shall, by appointment of the Dean, serve as the College of Dental Medicine Radiation Safety Officer. He shall be responsible for:

1. The ongoing implementation of a quality assurance program to be followed daily throughout all clinics in the College of Dental Medicine.
2. Checking x-ray units throughout the College of Dental Medicine annually for machine output and timer accuracy.*
3. Modifications or location changes of existing radiographic equipment and planned installation and location of new equipment.
4. Investigation of any and all incidents concerning health hazards related to x-ray equipment and usage.
5. Maintenance and monitoring of records concerning operator dosimeter reports.

* This is in addition to the yearly testing done by the State and the Medical University of South Carolina.
POLICIES AND PROCEDURES

1. Radiographs are ordered only when the anticipated benefit to the patient outweighs the established possible hazard to the patient.

   1.1 Radiographs are not to be made for checking margins of restorations and seating of crowns, except when the margin is clinically unobtainable.

   1.2 Radiographs are not to be made exclusively for administrative purposes.

2. Selection criteria (established by the U.S. Department of Health and Human Services) must be used when prescribing radiographs. (Appendix I)

   2.1 Radiographs should never be prescribed solely on time intervals. The intervals recommended in the selection criteria document will vary according to the patient's findings after a clinical examination.

   2.2 When properly used, selection criteria guidelines do not need to be altered because of pregnancy. Prudence would suggest the postponement of elective procedures until after the pregnancy is terminated.

   2.3 Students may suggest obtaining radiographs, but only the faculty may prescribe radiographs which they feel will clearly benefit the patient. Faculty student discussions of the rationale for ordering radiographs are encouraged.

3. A complete mouth radiographic survey is most often a part of the total oral or dental evaluation of the patient and is needed to establish the baseline condition of the patient upon entry into the school's dental care program.

   3.1 A complete mouth survey may consist of intraoral radiographs depicting teeth-bearing or edentulous areas of mandible and maxilla, a panoramic radiograph, or a combination of intra- and extra-oral radiographs.

4. Radiographs of the patient made outside of the dental school can be used for patient evaluation if diagnostically adequate. Additional radiographs may be ordered to complete inadequate surveys.

5. The number and type of radiographs ordered must be consistent with the clinical needs of the patient. This must be determined by the professional judgement of the faculty dentist.

6. A record of each radiograph made must be placed in the patient's chart.

7. All radiographic exposures, including retakes and progress films, shall be recorded in the patient's progress notes and completed exposures entered on the patient's Radiation Exposure Record sheet (Appendix II). This will show the date of the examination, signature of the supervising faculty member, the number and the type of exposures made, and exposure parameters. This
information is intended to document the patient's history of exposure to ionizing radiation and indicate the timing and type of radiographs for diagnostic evaluation.

8. Requests for transferal of radiographs to private dentists or other institutions shall be referred to the office of the Associate Dean for Clinical Affairs.

8.1 These requests shall be honored when the patient has no obligations to the school or at the discretion of the Associate Dean for Clinical Affairs.

8.2 In most cases, duplicate radiographs will be sent and the original radiographs will remain in the patient's College of Dental Medicine chart.

8.3 This forwarding of duplicate radiographs will usually be made by mail to a dentist, physician, or third party organization if written or verbal contact has been established with the patient and the receiving party.

9. Intra-oral radiographs for teaching purposes shall be made initially on inanimate objects (manikins, skull, etc.) by students to gain technique proficiency. This shall be prior to student's exposure of patients.

10. The x-ray operator must never hold a film for the patient during x-ray exposure.

11. The operator must stand behind a radiation barrier equipped with a transparent window to allow visual observation of the patient during exposure.

12. The operator must not hold the tube head during exposure.

13. Only ANSI speed E intraoral dental film will be used.

14. Radiation beams used for intraoral radiography must be collimated such that the beam diameter will not exceed 2.75" at the patient's face.

15. Radiation beams will be filtered with a total filtration of 1.5 mm aluminum equivalent for machines which operate at less than 70 kVp and 2.5 mm aluminum equivalent for machines operating at or above 70 kVp.

16. A lead apron with thyroid collar will be used on all patients whenever it does not interfere with the radiographic technique. Thyroid collars will not be utilized during panoramic exposures.

17. The minimum target to film distance used for intraoral radiography shall be 8 inches.

18. X-ray machines shall only be operated by faculty members, authorized staff, or authorized students.

19. Students shall make radiographs in supervised clinical facilities.
19.1 Student access to radiographic facilities will be controlled by monitoring the facility and locking it when not in use.

19.2 Students will not expose films on patients without prior instruction.

20. Written criteria will be used for this task. The supervising faculty will concentrate on adequate coverage, contrast, density, sharpness, distortion, etc. Faculty should reject the film only if problems in these areas render the film useless in providing answers to the diagnostic questions posed. A film should NOT be rejected if the required diagnostic information is obtained, but the film otherwise suffers from technique-related errors.

21. For non-complete mouth survey patients, students must have direct supervision by a faculty member on the 2nd repeat radiograph (i.e. the third attempt). Faculty shall personally make the radiograph if a fourth attempt is necessary.

22. For complete mouth survey patients, students requiring six or more repeat radiographs shall receive direct faculty supervision. If ten or more repeat radiographs are needed, the exposures shall be made in conjunction with a faculty member.

23. All machines shall have appropriate exposure parameters posted near the control panel.

24. Film processing will be conducted according to the instructions of both the film manufacturer and the processor manufacturer.

25. All persons whose major function is radiography shall wear radiation dosimeters. It is not essential for students or other personnel to wear such devices if their work does not produce an operator exposure of more than .25 mSv/week.

26. The Radiation Safety Officer will keep all dosimetry records on file.

27. Periodic radiation equipment calibration surveys are to be made yearly. These records will be kept on file by the Radiation Safety Officer. In addition, the following will be observed:

27.1 Suspected machine malfunction should be immediately reported to both the school's maintenance office and to the Radiation Safety Officer.

27.2 Installation of new x-ray units shall be done only by qualified personnel. These units must be tested and calibrated before being put into service.

27.3 Quality assurance of processing machines must be performed daily. In the primary processing area (i.e. Oral Radiology Clinic, 3rd floor) this shall consist of sensitometric analysis. In other clinical areas, this shall consist of visual inspection of chemicals, rollers, and temperature. Test radiographs, totally exposed and non-exposed, should be made prior to machine usage for patient films.
27.4 Information must be posted concerning normal maintenance of film processors, including cleaning, replenishment, and solution changes.

28. All films shall be properly identified both before and after processing. Students, staff, or faculty who expose and process films are responsible for mounting them and placing them in the patient's chart.

29. All films which do not become part of the patient's chart (unused, outdated, clinically unacceptable), will be collected in a container and deposited from time to time at the second floor dispensary. These films will be collected by the MUSC Radiology Department for silver recovery and proper disposal.

30. Experiments involving ionizing radiation exposure of patients must have the prior approval of the MUSC Institutional Review Board for Human Research and the College of Dental Medicine Radiation Safety Officer.

31. Radiology curricula shall follow, as closely as practicable, the guidelines established by the American Association of Dental Schools and the American Dental Association Standards for Predoctoral Dental Radiology Instruction and Radiological Services.

32. Radiology curricula shall have outlines and objectives which are kept on file in the office of the Associate Dean for Academic Affairs.

33. This policy shall be reviewed periodically for possible revision.