



Patient Services

Radiation Use Policy

The following policy has been developed in the interest of establishing a consistent standard concerning the use of ionizing radiation within the Dental College of Georgia. This radiation use policy complies with the Federal Radiation Control for Health and Safety Act of 1969, the Consumer-Patient Radiation Health and Safety Act of 1981 and the Rules and Regulations for X-rays of the Georgia Department of Human Resources. The primary goal of this policy is to assure the safe effective use of ionizing radiation and to minimize the potential risk from adverse biological effects to patients, students, faculty, and staff.

1. Deliberate exposure of an individual to dental radiographic procedures for training or demonstration purposes shall not be permitted unless there is a documented diagnostic need for the exposure by a licensed faculty dentist of the Augusta University Dental College of Georgia.
2. No operator (faculty, student or dental auxiliary) shall hold the receptor in place for the patient during the exposure. Digital receptor holding devices, bite tabs, or other positioning devices should be used to position the digital receptor during exposure.
3. The operator must stand at least 1.8 meters (6 feet) from the patient and behind the barrier provided for each x-ray exposure cubicle in the Dental College of Georgia. The operator shall be positioned outside the path of the useful beam and be able to directly observe the patient during each exposure.
4. The tube housing, the cone, or the position indicating device must never be hand held during the exposure. If equipment is not stable, report the problem to the radiation protection supervisor for the Dental College of Georgia, and use another unit.
5. Radiographic machines designed for use with an intraoral image receptor shall limit the source-to-skin distance to not less than 12 inches .
6. Only shielded open-end position indicating devices will be used in order to minimize scatter radiation.
7. When a cylindrically collimated x-ray machine is being used, the circular beam shall be limited to no larger than 7.0 centimeters (2.75 inches) at the end of the cylinder. When rectangular collimation is used, the useful beam at the end of the collimator shall not have a diagonal measurement of greater than 7.0 centimeters (2.75 inches).
8. Photostimulable phosphor plates and direct digital sensors shall be used for intra oral imaging and direct digital sensors for extra oral radiography.
9. Each dental x-ray machine shall contain filtration of 2 mm of aluminum equivalent if operated at less than 70 kilovolt peak (kVp), and 2.5 mm of aluminum equivalent if operating at 70 kVp or above.
10. Leaded aprons will be used on all x-ray patients of the Dental College of Georgia as an additional precaution to prevent unnecessary scatter radiation exposure to the body of the patient. Thyroid shields shall be used in all situations, except when diagnostic information will be lost by their use (panoramic and some extraoral radiographic procedures).

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11. Periodic radiation protection surveys and inspections will be made by the radiation safety officer, Augusta University. All recommendations by the radiation safety officer concerning collimation, filtration (HVL), beam alignment, exposure output, radiation leakage, etc., will be implemented immediately.
12. All operators will follow prescribed exposure techniques that are programmed into each radiographic equipment unit. If radiographic density is inappropriate (image is not diagnostic), the exposure technique and the digital processing procedure will be evaluated and corrected immediately by the faculty dentist or supervising staff member on duty. If problem persists it should be reported to the radiation safety officer at DCG.
13. As a general policy, all newly admitted patients to the Dental College of Georgia must have adequate radiographic examinations to assist in diagnosis prior to treatment in the school's clinics. In all situations, the need for radiographs shall be determined by using high-yield selection criteria as the basis of professional judgment. The following shall be adhered to in regards to criteria for exposure:
 - a. All radiographs shall be prescribed in writing by a licensed dentist.
 - b. Radiographs ordered on a routine basis (e.g. case complete examinations) or for screening purposes will not be permitted.
 - c. A radiographic examination shall not be ordered before the patient's medical and dental history has been reviewed and an extraoral and intraoral evaluation has been completed.
 - d. If prior radiographs are available, they should be evaluated by a faculty member before new radiographs are prescribed. Only those additional views needed for complete diagnosis and treatment planning should be exposed. The faculty member will determine if sufficient time has passed, since the patient's last radiographic examination, to warrant a new examination.
 - e. Radiographs should be made only on patients capable of compliance or under appropriate sedation.
 - f. Subsequent follow-up (recall) radiographic examinations for Dental College of Georgia patients will be based on the diagnostic need of the patient as determined by the faculty dentist after a thorough health history review and oral examination of the patient.
 - g. Radiographs obtained for administrative purposes only, including those for insurance claims or legal proceeding, should not be made.
 - h. Radiographs of patients shall not be made merely for the purpose of training or demonstration.
 - i. Cone beam computed tomography should be considered as an adjunct to conventional intraoral and extraoral imaging. As with conventional intraoral and extraoral imaging, CBCT should only be ordered when the treating dentist has deemed it necessary to complete diagnosis and treatment planning of the case.
 - j. The following shall apply to dental board examination patients:
 1. Request for radiographs for all board examination patients shall be signed by a licensed dentist.
 2. Radiographs should not be made for testing purposes alone. Radiographs acquired should contribute to the proper diagnosis and treatment of the patient.
 3. Radiographs made on site for, or as part of, board examinations shall be made in compliance with the Dental College of Georgia's radiation use guidelines.
 4. The type and number of radiographs needed shall be dictated by the oral and maxillofacial disease clinically evident or suggested by the history or other tests.
 5. Radiographs should not be required at specific time intervals to document treatment progress for board certification purposes. Rather, the clinical progress as monitored by the candidate (and his or her mentor in the case of a student) should

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be used as a guide to the need for radiographs.

- k. Newly admitted adult patients will generally receive a radiographic examination to determine a base-line for the patient. This may include a panoramic radiograph, bitewings, selected periapicals, or a series of full mouth radiographs (FMX).
 - l. Edentulous patients may receive a panoramic radiograph, as deemed appropriate by the faculty dentist.
 - m. Patients under 12 years of age may receive a complete child periapical survey and bitewings, a panoramic radiograph with bitewings and selected periapical views (if indicated), bitewings only, bitewings and selected periapicals, occlusals or no radiographs if none are indicated. The complete child periapical survey will vary depending on the age of the child; however, all child surveys will contain fewer radiographs than the adult periapical survey.
 - n. The radiation exposure of endodontic patients for pre-operative and post-operative radiographs will be kept to a minimum level consistent with clinical requirements. The limits of exposure in each case will be determined by the professional judgment of the faculty dentist. Where possible, a single radiograph at each stage of the endodontic procedure will be acquired. Multiple radiographs from different angles may be acquired on a restricted basis and only when the information to be gained is considered to significantly enhance the diagnosis and treatment. When multi-angle projections are required, documentation of their need will be made in the treatment record by the supervising faculty.
 - o. Emergency patients will receive only those radiographs needed to diagnosis and treat the immediate emergency problem.
 - p. The Dental Radiographic Selection Criteria Panel's recommendations shall be followed in regards to radiographic examination of pregnant patients. Quoting directly, "Accordingly, there appears to be no rationale to preclude a properly justified dental radiographic examination because of pregnancy. In some cases, radiography may be arbitrarily deferred during pregnancy for purely psychological reasons." Appropriate protective shielding of the patient will always be used.
14. Radiation monitoring of operator exposure _ need input from EHS
15. Occupationally exposed pregnant individuals shall not exceed an equivalent dose to the fetus of 0.5mSv (50 mrem) equivalent dose per month once their pregnancy has been declared.
16. Documentation of all radiographs and radiation exposures will be maintained in the patient's electronic record. The patient's treatment record should include the date, prescription detailing type and number of radiographs and any remakes necessary. The number of radiographs acquired should also be entered into the radiographic log sheet.
17. All radiographs will be electronically processed via axiUm and examined through the viewing software MiPACS. Each series of radiographs are labeled with patient's name, the date and time of exposure, right and left orientation-and the anatomic description. The radiographs are permanently stored on servers and routinely backed up.
18. The Dental College of Georgia will have a Quality Assurance Program designed to produce radiographs of consistently high quality with minimal exposure. This program will consist of the following:
- a. Projection Techniques
 - 1. Before students will be allowed to acquire radiographs on a patient, they will have didactic instruction in oral and maxillofacial radiology plus laboratory instruction in acquiring radiographs on a mannequin.
 - 2. There will be direct supervision of all students during their first clinical experiences in radiology.

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3. All radiographs will be reviewed for errors by departmental faculty or staff immediately after they have been processed. When practical, the patient will not be dismissed until indicated remakes have been completed. Students who must remake 5 or more films will be directly supervised and instructed by faculty and / or appropriate staff member.
 4. To minimize retakes, each image is analyzed for accuracy and software tools are utilized to adjust density and contrast
 5. Receptor holders and alignment devices will be used to aid students in the correct alignment of the position indicating device, the image receptor, and the area of interest.
 6. A radiographic phantom measuring dynamic range, contrast resolution, and spatial resolution will be used to verify adequate exposure settings and diagnostic quality.
 7. Computer monitor contrast and spatial resolution will be verified using the MiPACS SMPTE pattern.
 - b. The x-ray equipment in the Dental College of Georgia will be inspected by members of the Radiation Safety Office at a frequency that complies with current federal and state regulations. The results of these tests and any corrective measures taken will be maintained by the Dental College of Georgia radiation supervisor. If during the routine use of any x-ray machine, an error is noted in its operation, the machine will immediately be put out of service until the appropriate corrective repairs can be made. Any suspected malfunction should be reported to the radiation supervisor so that appropriate corrective measures may be instituted.
 - c. All receptors will be stored in the respective clinics/ dispensary and distributed for clinical use each day. Phosphor plates are routinely inspected and damaged ones will be taken out of circulation and replaced with a new phosphor plate.
 - d. All image processing scanners shall be maintained and operated in such a manner that insures optimum diagnostic quality of radiographs. In the event of scanner -malfunction the scanner will be immediately replaced with one in working condition. The biomedical staff in the school is responsible for proper functioning/ maintenance of the scanners. Along with the IT staff, the biomedical team periodically inspects the scanners and updates the imaging software.
18. Radiographic procedures will be completed following institutional infection control guidelines. All patients will be treated as potentially infectious and the following will be adhered to:
- a. The control panel, tube head, and position indicating device will be covered with disposable plastic wrap. Any other surface likely to be touched during the radiographic examination will also be covered.
 - b. Operators will wash their hands as they enter the clinic before proceeding with the radiographic procedures. The operator must wear personal protective -equipment including closed toe shoes and full sleeve clinical gowns.
 - c. Protective gloves, masks, and eye wear will be worn during intra oral radiography to minimize risks to the operator and the patient.
 - d. Receptor holders will be sterilized prior to patient use and left unopened until the procedure begins. Disposable items and supplies will be used whenever practical.
 - e. Supplies and receptors will be kept on a covered work surface. Charts and other types of forms will be kept away from the work area.
 - f. Each receptor is protected in a plastic sheath to avoid contamination from saliva or blood. Receptors are wiped with denatured ethyl alcohol before reusing the same receptor

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- on another patient. If the PSP is accidentally touched with contaminated gloves then it must be wiped with germicidal disposable wipes
- g. The operator should remove the contaminated gloves before proceeding to the scanning room.
 - h. The patient's electronic record is accessed on a computer attached to the scanner to electronically process the images. The computer keyboard and mouse should be covered with plastic wrap and the counter surface adjacent to the scanner should be covered with a blue napkin. The operator then dons a new pair of gloves and each image is scanned individually and saved to patient's electronic record.
 - i. At the completion of the procedure, all touched surfaces (x-ray tube housing, x-ray arm, counter top, control panel, dental chair, lead apron, keyboard and mouse if used) will be wiped down with a disinfectant recommended by the Dental College of Georgia Infection Control Guidelines.

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