

Topic:

Radiation Safety: Infection Prevention

Root Cause of the Performance:

Dental assistants can easily cross-contaminate equipment and patients, leading to the potential for disease and infection transmission. This is often due to a lack of in-depth training. There is also the potential of previous poor habits in workplaces where infection control was not well enforced.

Gap: This information is necessary for these students for licensing requirements and to avoid malpractice.

- Knowledge: The students taking the course (Dental Radiation Safety for the Dental Assistant) that includes this module, range from high school students to dental school students (doctoral program). This results in a wide array of backgrounds in microbiology (concept based and procedure based). Some students have experience in sanitary practice settings, while others have none. Students may or may not know the difference between disinfected, sanitary, and sterile.
- Skills: Some students taking the course will have a background in the medical/dental setting, while others may not. Some may have experience as dental assistants already, and have observed radiograph exposure and infection control methods (both good and bad). Students are unlikely aware of the process of setting up the room, ensuring sterility and sanitation, and the steps to take to limit cross-contamination, as well disposal methods.
- Attitude: It is likely that a student will be less receptive to this module if previous workplace experiences had a laissez faire attitude about infection control. Those with no previous experience may feel confusion, in conjunction with a lack of awareness.
- Need: Learners need to protect patients, themselves, fellow staff members, patient's family members, and their own families. This will also protect the learner and their workplaces against liability concerns. This will help maintain and even improve community trust in the dental office and the profession as a whole. The learner must meet professional standards and board of dentistry regulations to stay employed and avoid litigation. This need has become even more evident in times of COVID-19.

Objectives: Following this lesson, the learner will be able to:

- Follow CDC guidelines for infection control in dental radiography.
- Perform infection control measures required for digital radiograph exposures in the dental setting.

Target Learner Information (in addition to previous information):

Dental assistants are entry-level professionals with varying arrays of educational backgrounds. Those taking this course range between age 16 and age 55, typically. Those in dental professions are likely to be hands-on learners, as they will be working hands-on. However, this course is in the online only format. The class typically consists of between 25 and 40 students. There is a subgroup of students who are taking the course for a requirement as part of the Accelerated Dental Assisting Academy. That course has sooner due dates. The students in that program must pass this course in order to proceed in their program. With that in mind, it is very important that course content is consistent with what the students will be expected to know for their dental assisting board licensure exams. There is no perceived concern regarding course content and cultural differences. Some learners are currently in school, and some have not been in a school setting for many years. This can greatly affect their ability to utilize technology, including access to the Canvas course. The dental assisting career path is female dominated.

Few males take the course. It will be important to consider gender fluidity in word choice to be inclusive. As students in this course are expecting to thrive in dental practices in the United States, language barriers are not likely in this course. The students are typically part-time and full-time employees. It is estimated that they come from the middle socioeconomic bracket. Some reside in rural areas, while others reside in urban areas. All reside within the state of Virginia, or at least plan to work in Virginia. The more rural the area, the more likely the student is to have connectivity issues. Some take the class using older equipment (computers, webcams, etc.). Most students have extensive family responsibilities. Students pay \$249 to take the course. The subgroup students pay over \$1,000 for their program, and must pass this course to complete the program. Those who fail the course's final exam may be given a retake for \$99.

Context Analysis:

- Instructional Context: No funds are available to produce/enhance this micro learning module. The format is online learning. It will be provided asynchronously, and must be self-paced. Accommodations may be necessary for students, but accommodations typically are given for exams, not for the actual learning. Students have been accessing previous versions of this information via online text, powerpoint, and recorder lecture. They need access to Canvas, a computer, internet, and Lockdown browser.
- Performance Context: The only evaluation for this course is with the final exam, in which students must obtain a 75% to pass. There are module quizzes, but they are not officially graded, and students are allowed to retake them as many times as they want. Practice quizzes should be taken seriously, as they are indicative of progress and understanding. Because this is an online course with no clinical practice, learners will demonstrate clinical competency in their workplaces after completing the course. Management in their workplaces will be responsible for evaluating clinical competence.

Content/Task Analysis:

- Facts:
 - A. Vocabulary:
 - Liability
 - Malpractice
 - Negligence
 - Positioning Devices
 - Procedural Gloves
 - Rubber Gloves
 - Barrier Tape
 - CaviWipes
 - Risk Management
 - Standard of Care
 - Sterile
 - Disinfected
 - B. Concepts:
 - Legal considerations (includes principles and rules)
 - Equipment
 - Barriers
 - Wiping
 - Disposal
 - Order, including glove use (procedure)

Task Analysis: This module involves both mental and physical tasks

Glove, deglove
Hand washing
Surface disinfection

Use of barriers

Acknowledge areas that are uncleanable

What is autoclavable, disclosable, wipeable

Steps, in order

*Few cues exist in the “real world” true environment to let a dental assistant know that they are committing a cross-contamination. The assistants will have to know how to prevent these occurrences and remedy them prior to affecting others and themselves with these incidents.

Outline:

- I. Introduction
 - A. Topic
 - B. Why it matters
 - 1. Standard of care
 - 2. Risk management
 - 3. Protect against disease transmission
 - 4. How would you feel?
 - 5. “If saliva were red” video clip
 - C. Where we’ve been, what we’re about to learn, and where we’re headed
- II. Vocabulary
 - A. Legal terms
 - 1. Liability
 - 2. Malpractice
 - 3. Negligence
 - B. Equipment
 - 1. Procedural gloves
 - 2. Rubber gloves
 - 3. Barrier tape
 - 4. CaviWipes
 - 5. Sensor
 - C. Biological
 - 1. Disinfect
 - 2. Sterilize
 - 3. Universal precautions
- III. Legal considerations
 - A. Consumer/Patient safety
 - 1. Protect the patient
 - 2. Protect yourself
 - 3. Protect coworkers
 - 4. Protect family members
 - B. Liability/Malpractice
 - 1. Protect your workplace and profession
 - 2. Public trust
 - 3. Avoid mishaps
 - 4. Maintain licensure and job
 - C. Board Certification
 - 1. Course certificate
 - 2. Employer and patient expectations
 - 3. OSHA, Joint Commission, and CDC
 - D. CDC
 - 1. Guidelines
- IV. Equipment
 - A. Radiograph equipment
 - 1. Tubehead, arm, control box, buttons
 - 2. XCP’s

- 3. Lead apron
- B. Technology/Electrical equipment
 - 1. Computer
 - a) Mouse
 - b) Keyboard
 - c) Screen
 - 2. Switches
 - a) Radiograph machine
 - b) Lights
 - 3. Counters, paper towels, and floor!
- C. Sleeves and barrier tape
 - 1. Types
 - 2. How to use
 - 3. Areas commonly applied to
 - 4. Why?
 - 5. What if? Scenario
- D. CaviWipes
 - 1. What they do
 - 2. Where to use
 - 3. Where NOT to use
 - 4. Gloves!
 - 5. Wet, not dry
 - 6. Universal precautions!
- E. Gloves
 - 1. When to use procedural gloves
 - 2. When to use rubber gloves
 - 3. Handwashing
- F. Disposal and Autoclave
 - 1. What gets tossed
 - 2. What gets sterilized
- V. Closure
 - A. Overview of concepts
 - B. Questions?
 - C. Thank you
 - D. Additional resources
 - E. References
- VI. Quiz