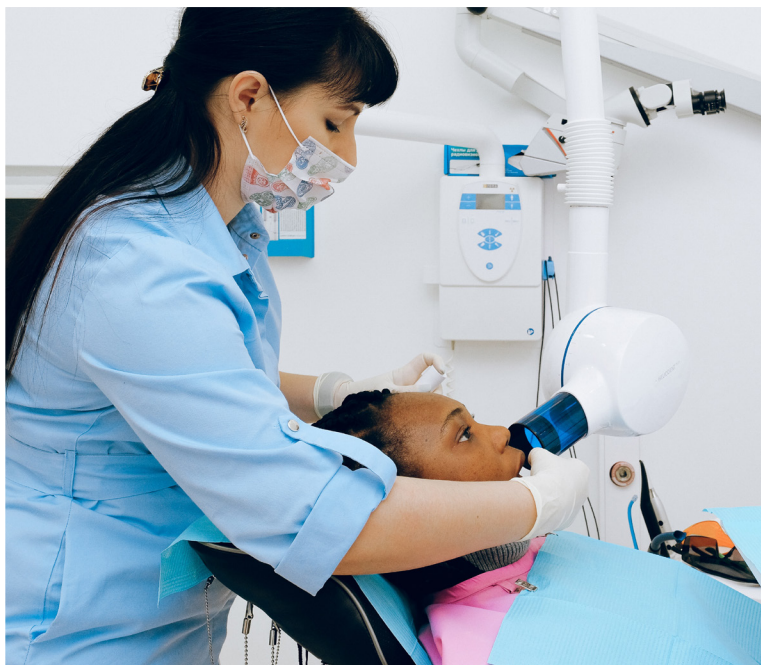




Dental Radiation Safety and Infection Control

Curriculum



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Dental Radiation Safety and Infection Control Curriculum



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About the Author



Angela McBride has been a dental assistant for over 10 years. She took an unusual path to end up in her career because she started with a bachelor's degree in sport management. When she needed a career change, she chose dentistry because she had always been interested in teeth.

Upon completing an associate degree in specialized technology, Angela worked in a dental office, gaining valuable experience in the clinical and administrative side of the industry. She is a certified dental assistant (CDA) and expanded functions dental assistant (EFDA).

Eventually, Angela put her knowledge to use as an instructor at a CODA-approved dental assisting school. Since then, she has completed an M.A. in adult learning and training and has worked with a high school online education platform to create a four-semester dental assisting course. Angela has always been passionate about passing on her knowledge to those interested in a career in dental assistance.

Dental Radiation Safety and Infection Control Curriculum

This curriculum, accompanying slide presentation, and scenario cards will help participants understand dental radiation, its risk factors, operator and patient protection, and infection control.

Curriculum Structure

The *Dental Radiation Safety and Infection Control Curriculum* is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Purpose and Technique of Dental Radiographs	70 to 110 minutes
Two	Dental Radiation Safety	70 to 110 minutes
Three	Infection Prevention and Control	70 to 110 minutes
	Total	3.5 to 5.5 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives, and a Lesson at a Glance table, listing lesson activities, materials required, suggested preparation steps and approximate class time.

Lesson Sections

The actual lesson follows the overview, which contains some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a demonstration, or a review of previous lesson information. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One – Purpose and Technique of Dental Radiographs

Lesson Overview

In this lesson, participants will learn the purpose of radiographic images and techniques used to safely expose an image.

Lesson Objectives

After completing this lesson, participants will be able to:

- Describe uses for dental X-rays
- Discuss techniques for managing patients with special medical needs
- Identify techniques for managing patients with special dental needs
- Name techniques for managing pediatric patients

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Dental Radiology Safety Purpose and Technique</i> worksheet • <i>Dental Radiology Safety and Infection Control Instructor Resource</i>	1. Print/photocopy the <i>Dental Radiology Safety Purpose and Technique</i> worksheet (one per participant).	10 minutes
LEARN	• <i>Purpose and Technique of Dental Radiographs</i> slide presentation • <i>Intro to Radiology Notes Page</i>	1. Prepare the <i>Purpose and Technique of Dental Radiographs</i> slide presentation for viewing. 2. Print/photocopy the <i>Intro to Radiology Notes Page</i> (one per participant).	30-40 minutes
REVIEW	• Dental Radiology Safety and Infection Control Scenario Cards • <i>Dental Radiology Safety and Infection Control Quiz</i> • <i>Dental Radiology Safety and Infection Control Quiz – Answer Key</i>	1. Print the <i>Dental Radiology Safety and Infection Control Quiz</i> (one per participant).	30-60 minutes

Lesson One – Purpose and Technique of Dental Radiographs

FOCUS: Developing Awareness for X-rays and Their Purpose

10 minutes

Purpose:

To help participants learn why X-rays are a valuable diagnostic tool for dental offices.

Materials:

- *Dental Radiation Safety Purpose and Technique* worksheet
- *Dental Radiation Safety Purpose and Techniques Instructor Resource*

Facilitation Steps:

1. Distribute the *Dental Radiation Safety Purpose and Technique* worksheet before or at the beginning of class.

Have the *Dental Radiation Safety Purpose and Technique Instructor Resource* page available.
2. Have participants read through the information and complete the worksheet.
3. Call the class back together and have participants share answers to the questions on the worksheet. This discussion will help prepare participants for what they will learn in this lesson about the basic purpose and technique of dental radiographs.

Name: _____ Class: _____

Dental Radiation Safety Purpose and Technique

Skill: Understanding the value of X-rays

READ the following:

You're working in a general dental office, and your next patient, Emilio, is establishing care with your office. After you've reviewed his medical and dental history, the dentist, Dr. Romano, comes in to perform a visual examination. The visual examination reveals a few areas of concern, but the dentist recommends a full series of X-rays to complete the diagnosis and formulate a treatment plan.

You take the X-rays, and once Dr. Romano reviews them, she presents the information to Emilio. There are three teeth, #3MO, #4DO, and #22IL, that need fillings. #2 is showing an abscess forming near the root. The patient says he hasn't experienced any symptoms, such as sensitivity when he chews. Dr. Romano recommends root canal therapy to resolve the issue before it causes any pain.

REFLECT on the situation:

Even though Dr. Romano completed a visual examination, why do you think she recommended a full set of X-rays?

What emotions do you think Emilio is feeling?

What do you think the dental assistant should say or do in this situation?

What do you think would have happened if Dr. Romano didn't recommend a full set of X-rays?

SHARE your thoughts with a peer when it's discussion time.

Dental Radiation Safety Purpose and Technique Instructor Resource

Skill: Understanding the value of X-rays

READ the following:

You're working in a general dental office, and your next patient, Emilio, is establishing care with your office. After you've reviewed his medical and dental history, the dentist, Dr. Romano, comes in to perform a visual examination. The visual examination reveals a few areas of concern, but the dentist recommends a full series of X-rays to complete the diagnosis and formulate a treatment plan.

You take the X-rays, and once Dr. Romano reviews them, she presents the information to Emilio. There are three teeth, #3MO, #4DO, and #22IL, that need fillings. #2 is showing an abscess forming near the root. The patient says he hasn't experienced any symptoms, such as sensitivity when he chews. Dr. Romano recommends root canal therapy to resolve the issue before it causes any pain.

REFLECT on the situation:

Even though Dr. Romano completed a visual examination, why do you think she recommended a full set of X-rays?

X-rays are recommended because you can't see the bones and tooth structure underneath the gum tissue. X-rays reveal these structures, allowing the dentist to complete a thorough diagnosis.

What emotions do you think Emilio is feeling?

Emilio may be feeling scared and confused because he wasn't having any symptoms of a problem.

What do you think the dental assistant should say or do in this situation?

The dental assistant should explain to Emilio that the abscess was just starting to develop, but it's better that they caught it early. Otherwise, it could have started causing pain and required Emilio to make an additional trip to the dentist office.

What do you think would have happened if Dr. Romano didn't recommend a full set of X-rays?

A diagnosis of the abscess would not have been made, eventually causing Emilio pain and discomfort.

Lesson One – The Purpose and Technique of Dental Radiographs

LEARN: Why X-rays Are Important and Proper Techniques

30 – 40 minutes

Purpose:

Participants will receive a thorough introduction to the purpose of dental X-rays and techniques used to expose images safely.

Materials:

- *Purpose and Technique of Dental Radiographs* slide presentation
- *Intro to Radiology Notes* Page

Facilitation Steps:

Share the following information as you show the slide presentation. Give participants the notes page so they may write down information that is important for them to remember.

Slide 1: Introduction slide

Slide 2: Goals and Objectives

The only prerequisite for this lesson is basic dental anatomy. It's helpful to understand the structures of the tooth.

Slide 3: Introduction to Dental Radiographs

X-rays, also known as radiographs, provide your dentist access to the areas within and between your teeth. Because they provide your dentist with a complete view, dental X-rays are crucial to a thorough diagnosis and treatment plan. They help dentists observe the health of your teeth, including the roots, the position of your jaw, and the structure of your facial bones.

X-rays help the dentist identify and treat dental issues before they get worse or more complex.

Slide 4: Why Are X-Rays Useful?

Many types of dental X-rays help the dentist create a picture of a patient's oral health. The most used dental X-rays include bitewings, periapical, and panoramic radiographs. Each one

provides different information about the mouth. For example, bitewings are taken to locate signs of decay between posterior teeth.

Periapical X-rays help focus on a specific tooth or area, while a panoramic X-ray provides the entire mouth in one image.

Slide 5: How Often Are X-rays Needed?

The condition of everyone's teeth differs. Some people who have just been diagnosed with gum or dental disease may require X-rays every six months, whereas others who are not receiving ongoing dental care may only require an X-ray every few years. Your dentist may suggest a panoramic X-ray to evaluate your oral health if you're a new patient and haven't had one recently.

Slide 6: Patients With Physical Disabilities

Techniques for radiographic examinations frequently need to be changed to accommodate patients with special needs. You must be ready to adapt your methods to the unique requirements of each patient.

A physical disability may affect a person's mobility, hearing, or vision. Every dental office must make every effort to ensure that your office meets the needs of such patients. A family member or caretaker frequently goes to the dentist with a person who has a physical handicap. You might ask them to help you with the patient's physical requirements or communication. You should know typical limitations and the adjustments required to help patients with such issues.

Vision Impairment

When a patient is blind or visually impaired, it's crucial to communicate with them verbally. Since they cannot see, you must inform them of what you are doing, explaining each step before you complete it.

Hearing Impairment

You have a few options for deaf or hard-of-hearing patients. If a caregiver has accompanied them, you can ask them to be your interpreter. You may use hand gestures or communicate via writing. Some deaf and hard-of-hearing patients may read lips. You can communicate with them by removing your mask, facing them, and speaking slowly and clearly.

Mobility Impairment

If your patient uses a wheelchair, you may need to expose radiographs while they remain seated.

Slide 7: Patients With Developmental Disabilities

A developmental disability is a significant, persistent impairment of cognitive or physical functioning that begins before adulthood. Autism, CP, epilepsy, and cognitive impairment are a few developmental disabilities. You must do your best to cater to the specific needs of the patient with a developmental disability.

A developmental disability may cause coordination issues or difficulties understanding instructions. As a result, obtaining intraoral photos could be challenging. Mild sedation may be helpful if there are issues with coordination or comprehension.

You must be aware of when a patient can't handle intraoral exposures. These individuals shouldn't be subjected to intraoral imaging because doing so would deliver nondiagnostic images and expose the patient to unnecessary radiation. Patients who can't tolerate intraoral exposures may be given extraoral images, such as panoramic X-rays.

Using these techniques will help limit retakes, reducing patient exposure.

Slide 8: Patients With Special Dental Needs

To accommodate patients with special dental needs, like edentulous, pediatric, and endodontic

patients, you may need to change how you take X-rays.

Edentulous Patients

Edentulous patients are those without teeth. You may need X-rays for an edentulous patient for the following reasons:

- Locating root tips, impacted teeth, cysts, tumors, or other anomalies
 - Detecting objects embedded in the bone
 - Monitoring the level and health of bone
- Edentulous radiographs must include all areas of the arches. However, because no teeth are present, the radiographs may become distorted using traditional exposure methods. A panoramic radiograph is the most common way to ensure all mouth areas get recorded on the receptor. However, a periapical may be required for more detailed information.

If the paralleling technique is used, place a cotton roll on both sides of the bite block to replace the missing teeth. For severely absorbed alveolar ridges, use the bisecting technique instead.

For partially edentulous patients, you may use image receptor-holding devices by placing a cotton roll on the bite block in place of the missing teeth.

Endodontic Patient

The main problem radiographing an endodontic patient involves receptor placement and stabilizing it around the endodontic instruments, rubber dam, and clamp. You can solve this problem by using an EndoRay receptor holder during exposure for root canal treatment. This specialized holder fits around the rubber dam clamp, maintaining space for any instruments and filling materials.

Gagging patients

Some patients have a hypersensitive gag reflex. To help prevent triggering this reflex, the operator must have confidence in their abilities to expose a diagnostic radiograph. If the patient senses you are nervous, it could stimulate a psychogenic response, resulting in a gagging patient.

Dental Radiation Safety and Infection Control Curriculum

One way to combat this issue is to limit the time a receptor remains in the patient's mouth. The longer it remains in the oral cavity, the more likely the patient will gag. Furthermore, begin exposing radiographs in the anterior and end with posterior exposures.

Slide 9: Pediatric Patients

In pediatric patients, images are helpful for:

- Monitoring conditions of the teeth and bones
- Detecting changes related to caries and trauma
- Evaluating growth and development

Always explain X-ray procedures to children in terms they understand. For example, call the lead apron a coat and the tubehead a camera. These are things they understand and know are safe.

Practice the concept of Tell, Show, Do. Tell the patient what you are doing then show them with a demonstration. Allowing them to touch the instruments will help them understand they are not harmful. Finally, when you believe the patient feels comfortable, do the procedure.

If the child cannot sit still for the film to stabilize, ask the accompanying adult to help. They can wear a lead apron and thyroid collar and hold the film or the child during exposure.

For safe exposure to children, reduce exposure factors to accommodate the patient's size. Shorter exposure times help reduce blurring if the child shifts their position. Always follow the manufacturer's recommendations for exposure factors.

Slide 10: Patients With a Shallow Palate

Sometimes you must make modifications for patients with a shallow palate because the bite-block tilts using standard techniques. Use the following methods to expose X-rays on a shallow palate.

Cotton rolls: Place one cotton roll on either side of the bite block. This technique will help you

capture the exposure but reduce periapical coverage.

Vertical angulation: Adjust the vertical angulation by 5-15 degrees.

Slide 11: Patients With a Bony Growth

A torus (tori) is a bony growth within the oral cavity. They can occur on the maxilla or mandible, requiring an adjustment in technique.

Slide 12: Patients With Edentulous Spaces

Modifications may be required for any variation in anatomy, such as edentulous spaces. Place a cotton roll in the area without teeth to support the film-holding device. Not supporting this device can lead to an image with a tipped occlusal plane.

Intro to Radiology Notes Page

Directions: Take notes in the space provided as information is shared in the slide presentation and lecture on this topic.

Question	Notes
Name four uses of dental radiographs.	
What are the recommendations from the ADA for frequency of radiographs?	
What technique adjustments must be made for patients with physical disabilities?	
What technique adjustments must be made for patients with special dental needs?	

Intro to Radiology Notes Page – Answer Key

Directions: Take notes in the space provided as information is shared in the slide presentation and lecture on this topic.

Question	Notes
Name four uses of dental radiographs.	Help dentists locate decay between teeth and beneath fillings, cysts and tumors, bone loss and periodontal disease, tooth position, supernumerary teeth, congenitally missing teeth, and abscesses
What are the recommendations from the ADA for frequency of radiographs?	Recall children at high risk for caries every 6-12 months and adults every 6-18 months. Recall children at low risk for caries every 12-24 months and adults every 24-36 months. Recall patients with periodontal disease based on professional judgement from the dentist.
What technique adjustments must be made for patients with physical disabilities?	When a patient is blind or visually impaired, it's crucial to communicate with them verbally. Since they cannot see, you must inform them of what you are doing, explaining each step before you complete it. For deaf and hard-of-hearing patients, if a caregiver has accompanied them, you can ask them to be your interpreter. You may use hand gestures or communicate via writing. Some deaf and hard-of-hearing patients may read lips. You can communicate with them by removing your mask, facing them, and speaking slowly and clearly. If your patient uses a wheelchair, you may need to expose radiographs while they remain seated.
What technique adjustments must be made for patients with special dental needs?	For edentulous patients, use cotton rolls to replace the missing teeth, the bisecting the angle technique, and a panoramic radiograph. For endodontic patients, use the EndoRay. For gagging patients, start in the anterior and end in the posterior.

Lesson One – Purpose and Technique of Dental Radiographs

REVIEW: Purpose and Technique of Dental Radiographs

30-60 minutes

Purpose:

Participants will apply the knowledge learned in the lecture. They will problem-solve a series of special needs by role-play, using simulated radiographic exposures.

Materials:

- Dental Radiation Safety and Infection Control Scenario Cards
- *Purpose and Techniques of Dental Radiographs Quiz*
- *Purpose and Techniques of Dental Radiographs Quiz – Answer Key*

Facilitation Steps:

1. Using their notes, have participants review the purpose and techniques of dental radiographs.
2. Divide the class into five small groups. Give each group one of the scenario cards for radiology techniques.

Potential scenarios include:

- Pediatric radiographic techniques
- Radiographic techniques for special needs patients
- Radiographic techniques for specific oral conditions
- Radiographic techniques for aging patients, patients of childbearing age, and more

3. Have each small group read through the scenario. They should choose one person from the group to be the dental assistant and one to be the patient.

Explain to the groups that they will role-play the scenario for the whole class.

4. Each group should act out the scenario for the entire class. After each role-play, a group discussion can be facilitated to answer the questions regarding that scenario.
5. Depending on how much class time you have available, you could work through five scenarios per day for an entire week for a total of 25 scenarios.

Please note that in each of the three lessons focusing on dental radiation safety, scenario cards are used in the review section of the lesson.

For planning purposes, decide which scenarios you wish to use with each lesson.

6. When participants are finished with the scenarios, instruct them to complete the quiz.
7. Have participants self-check their answers as you share from the answer key.

Name: _____ Date: _____

Purpose and Technique of Dental Radiographs Quiz

Select the best answer to the following multiple-choice questions:

1. Radiographs give your dentist access to which of the following?
 - a. Areas within and between your teeth
 - b. The root structures
 - c. The position of your jaw
 - d. All the above
2. A physical disability may affect a person's:
 - a. Mobility, hearing, and vision
 - b. Mobility and hearing
 - c. Mobility and vision
 - d. Vision and hearing
3. _____ may be helpful if intraoral images become challenging to capture on a patient with developmental disabilities.
 - a. Rescheduling the appointment
 - b. Postponing X-rays until the next appointment
 - c. Mild sedation
 - d. Retaking the X-ray until a good one comes out
4. Which of the following statements is correct?
 - a. Edentulous patients do not require radiographs because they do not have teeth
 - b. Start in the posterior for a patient with a hypersensitive gagging reflex
 - c. There are no adjustments needed for taking an X-ray on an endodontic patient
 - d. Use a cotton roll to replace any missing teeth in an edentulous patient
5. Radiographs are useful in pediatric dentistry for which of the following reasons?
 - a. Monitoring conditions of the teeth and bones
 - b. Detecting changes related to caries and trauma
 - c. Evaluating growth and development
 - d. All the above

Purpose and Techniques of Dental Radiographs Quiz – Answer Key

Select the best answer to the following multiple-choice questions:

1. Radiographs give your dentist access to which of the following?
 - a. Areas within and between your teeth
 - b. The root structures
 - c. The position of your jaw
 - d. All the above**
2. A physical disability may affect a person's:
 - a. Mobility, hearing, and vision**
 - b. Mobility and hearing
 - c. Mobility and vision
 - d. Vision and hearing
3. _____ may be helpful if intraoral images become challenging to capture on a patient with developmental disabilities.
 - a. Rescheduling the appointment
 - b. Postponing X-rays until the next appointment
 - c. Mild sedation**
 - d. Retaking the X-ray until a good one comes out
4. Which of the following statements is correct?
 - a. Edentulous patients do not require radiographs because they do not have teeth
 - b. Start in the posterior for a patient with a hypersensitive gagging reflex
 - c. There are no adjustments needed for taking an X-ray on an endodontic patient
 - d. Use a cotton roll to replace any missing teeth in an edentulous patient**
5. Radiographs are useful in pediatric dentistry for which of the following reasons?
 - a. Monitoring conditions of the teeth and bones
 - b. Detecting changes related to caries and trauma
 - c. Evaluating growth and development
 - d. All the above**

Sources

1. Bird, D., & Robinson, D. (2021). In *Modern Dental assisting* (pp. 532–542). essay, Elsevier.
2. *First 50 years*. ISU Health Physics Radinf. (n.d.). Retrieved July 30, 2022, from <https://sites.google.com/isu.edu/health-physics-radinf/history-of-radiation-and-radiation-protection/first-50-years>
3. *The importance of dental X-rays: Colgate®*. The Importance of Dental X-Rays | Colgate®. (n.d.). Retrieved July 31, 2022, from <https://www.colgate.com/en-us/oral-health/x-rays/the-importance-of-dental-x-rays#>
4. *Intro Dental Radiography I*. Google Sites: Sign-in. (n.d.). Retrieved July 30, 2022, from <https://sites.google.com/site/introdentalradiographyi/>
5. *Management techniques - radiographic techniques for the pediatric patient*. Dentalcare. (n.d.). Retrieved August 2, 2022, from <https://www.dentalcare.com/en-us/ce-courses/ce63/management-techniques>
6. MedCrave Publishing. (n.d.). *Dental Health, Oral Disorders & Therapy*. - MedCrave online. Retrieved July 30, 2022, from <https://medcraveonline.com/JDHODT/JDHODT-09-00325>

Lesson Two – Dental Radiation Safety

Lesson Overview

In this lesson, participants will learn the basics of radiation safety, including X-ray production, patient safety, and operator safety.

Lesson Objectives

After completing this lesson, participants will be able to:

- Explain how X-rays are produced
- Describe how to protect the patient from excess radiation
- Discuss how to protect the operator from excess radiation
- Explain the ALARA concept

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Focus on Patient Safety</i> worksheet • <i>Focus on Patient Safety Instructor Resource</i>	1. Print/photocopy the <i>Focus on Patient Safety</i> worksheet (one per participant).	10 minutes
LEARN	• <i>Dental Radiation Safety</i> slide presentation • <i>Radiology Safety Notes Page</i>	1. Print/photocopy the <i>Radiology Safety Notes Page</i> (one per participant). 2. Prepare the <i>Dental Radiation Safety</i> slide presentation for viewing.	30-40 minutes
REVIEW	• Dental Radiology Safety and Infection Control Scenario Cards • <i>Dental Radiology Safety and Infection Control Quiz</i> • <i>Dental Radiology Safety and Infection Control Quiz – Answer Key</i>	1. Print the <i>Dental Radiation Safety and Infection Control Quiz</i> (one per participant).	30 to 60 minutes

Lesson Two – Dental Radiation Safety

FOCUS: Focus on Patient Safety

10 minutes

Purpose:

To help participants learn why patient safety is so important during dental radiology procedures.

Materials:

- *Focus on Patient Safety* worksheet
- *Focus on Patient Safety Instructor Resource*

Facilitation Steps:

1. Distribute the *Focus on Patient Safety* worksheet before or at the beginning of class.
2. Have the *Focus on Patient Safety Instructor Resource* page available.
3. Have participants read through the information and complete the worksheet.
4. Call the class back together and have participants share answers to the questions on the worksheet. This discussion will help prepare participants for what they will learn in this lesson about the basics of patient safety during dental radiation procedures.

Name: _____ Class: _____

Focus on Patient Safety

Skill: Protecting patients from over-exposure to radiation

READ the following:

Mr. Lawson is at the dental office for his six-month recall appointment. You remind him that it is time to take his bitewing X-rays to check for signs of proximal decay and ask permission to proceed. Mr. Lawson looks very hesitant and then declines radiographs. He states that he recently visited the emergency room and received X-rays of his chest because he was having trouble breathing and was worried about being exposed to too much radiation.

You express your sympathy towards his feelings but gently remind him that Dr. Romano cannot complete a thorough diagnosis without the X-rays and explain the low radiation dose. You also explain what steps you are taking to protect him, and he eventually changes his mind, giving permission to proceed with the bitewings.

REFLECT on the situation:

What emotions do you think Mr. Lawson is feeling?

What emotions do you think you would feel in this situation?

Why was it essential to explain the radiation safety techniques you would use to protect him from excess radiation?

What would you say to Mr. Lawson if he declined after you explained the safety techniques?

SHARE your thoughts with a peer when it's discussion time.

Focus on Patient Safety

Instructor Resource

Skill: Protecting patients from over-exposure to radiation

READ the following:

Mr. Lawson is at the dental office for his six-month recall appointment. You remind him that it is time to take his bitewing X-rays to check for signs of proximal decay and ask permission to proceed. Mr. Lawson looks very hesitant and then declines radiographs. He states that he recently visited the emergency room and received X-rays of his chest because he was having trouble breathing and was worried about being exposed to too much radiation.

You express your sympathy towards his feelings but gently remind him that Dr. Romano cannot complete a thorough diagnosis without the X-rays and explain the low radiation dose. You also explain what steps you are taking to protect him, and he eventually changes his mind, giving permission to proceed with the bitewings.

REFLECT on the situation:

What emotions do you think Mr. Lawson is feeling?

Mr. Lawson may be feeling scared and nervous about the impact of receiving another dose of radiation so close to his chest X-ray at the emergency room.

What do you think you would feel in this situation?

Sympathetic towards Mr. Lawson's concerns.

Why was it essential to explain the radiation safety techniques you would use to protect him from excess radiation?

Routine radiographs are useful in detecting oral health conditions. Skipping one set could result in missing a diagnosis and leading to an advanced condition. Explaining the safety techniques to protect him would help ease his mind and consent to the X-rays.

What would you say or do if Mr. Lawson declined after you explained the safety techniques?

Thank him for considering the procedure and document his refusal in the patient chart.

Lesson Two – Dental Radiation Safety

LEARN: Radiation Safety Lecture

30 – 40 minutes

Purpose:

Participants will receive a thorough introduction to radiation safety, including X-ray production, patient safety, and operator safety.

Materials:

- *Dental Radiation Safety* slide presentation
- *Radiology Safety Notes Page*

Facilitation Steps:

Share the following information as you show the slide presentation. Give participants the *Radiology Safety Notes Page* so they may write down information that is important for them to remember.

Slide 1: Introduction slide

Slide 2: Goals and Objectives

The only prerequisite for this course is basic dental anatomy. It's helpful to understand the structures of the tooth.

Slides 3-4: Dental X-Ray Production

When the components of the X-ray machine work together, X-rays are produced. It begins with electricity from the wall outlet supplying power to the rest of the machine.

An electrical current travels through a cord connected to the wall and moves to the control panel. From the control panel, it moves through the extension arm and into the tubehead.

The current moves towards the filament and step-down transformer, reducing the 110 or 220 voltages to 3 to 5 volts. Those 3 to 5 volts heat the tungsten filament, releasing electrons as the filament is heated. Electrons remain in an electron cloud until the high-voltage circuit is activated.

After pressing the exposure button, electrons hovering in the cloud near the cathode are projected across the tube to the anode using the

molybdenum cup to direct the electrons towards the tungsten target.

When the electrons hit the anode, their energy is converted into X-ray energy and heat. 99% exits the tube as heat, with the remaining 1% converting to X-rays.

The heat produced during this process gets carried away by the copper stem and absorbed by the insulating oil surrounding the tube. Any X-rays produced bounce off the target in all directions, but the leaded glass housing prevents them from escaping. A small number of X-rays exit through the unleaded glass window, tubehead seal, and aluminum disks, with the aluminum disks removing any X-rays with long wavelengths.

As the X-rays pass through the lead collimator, the size of the beam is restricted. The remaining beam travels down the lead-lined tubehead and exits at the opening of the PID.

Slides 5-7: Patient Radiation Safety

Patient protection begins before any radiation exposure. The first step in limiting the amount of radiation exposure is following the proper prescription or order for dental radiographs. The dentist uses their professional judgment to determine how often and how many radiographs a patient needs.

The second pre-exposure step is to use the proper equipment. Every dental X-ray tubehead must have aluminum filters, a lead collimator, and a position indicating device.

- The glass window, insulating oil, and tubehead seal make up inherent filtration.
- Added filtration refers to the aluminum disks positioned between the lead collimator and the tubehead seal. Aluminum disks filter out the long, low-energy X-rays

- Total filtration is a combination of inherent and added filtration

A lead collimator restricts the size and shape of the X-ray beam. It may be round or rectangular with rectangular restricting the beam to slightly larger than a size 2 receptor.

The position indicating device (PID) helps direct the beam towards the patient. It also comes in a round or rectangular shape with two lengths: short (8 inches) and long (16 inches). A long PID is more effective in reducing radiation exposure than a short PID because the beam spreads out less.

Patients are directly exposed to radiation and it's vital to take steps to protect them. Protecting them begins with placing the thyroid collar and the lead apron.

- Lead apron: When properly placed, the lead apron starts at the neck and covers down to the reproductive and blood-forming tissues. This shield protects the patient from scatter radiation and is mandated by many states.
- Thyroid collar: Often a continuation of the lead apron, the thyroid collar is placed around the neck to protect the thyroid gland. It may be connected to the lead apron or a separate piece.

When using film-based receptors, film speed identifies how much radiation is needed to produce the image. Faster film speeds require less radiation exposure.

Adjusting the exposure factors limits the amount of radiation a patient receives. This includes adjusting the kVp, mA, and time controls to ensure an accurate image is captured, reducing the need for additional exposures.

After exposing dental X-rays, the dental assistant must carefully handle and process the films to prevent errors that lead to unnecessary retakes.

When the traditional films are not handled carefully, artifacts, such as a fingerprint, fingernail scratch, or dirt or debris, make a film undiagnostic, requiring the operator to

retake the desired area and expose the patient to additional radiation.

Proper processing techniques must be used to develop films. Improper processing leads to films that are too dark or too light, requiring additional retakes.

Slides 8-9: Operator Radiation Protection

As the operator, the dental assistant must use proper protection measures to avoid occupational exposure to radiation. Failure to follow any rules of radiation protection may receive too much throughout their career, resulting in chronic radiation exposure. Following all rules and regulations prevents radiation exposure and any resulting side effects.

Operators can protect themselves by following these guidelines:

- Avoid standing in the direct line of the primary beam
- Stand behind a lead barrier or wall with adequate drywall thickness
 - If a barrier is unavailable, stand at a right angle to the beam
- Stand at least 6 feet from the X-ray machine

Another technique to protect operators is radiation monitoring. Both equipment and dental team members can be monitored.

A dosimeter is used to measure how much occupational exposure of radiation a dental team member has received, with a badge being a common type. This badge measures how much gets emitted from a crystal within the dosimeter when heated. The intensity of the light depends on the amount of radiation exposure. A dosimeter badge is often labeled with the dental team member's name, identification number, and location the badge is worn.

Dental X-ray equipment must be monitored for signs of leakage radiation. If there is a faulty seal, radiation may escape through the cracks or gaps. Dental X-ray equipment can be monitored through devices purchased

from the manufacturer or state health department.

Slide 10: ALARA Concept

A general guideline for exposing patients to radiation is always to keep it at a minimum. You can remember this using the memory aid, ALARA, which stands for “as low as reasonably achievable.” This means you use every method possible to minimize the risk of radiation exposure.

Radiology Safety Notes Page

Directions: Take notes in the space provided as information is shared in the slide presentation and lecture on this topic.

Question	Notes
Where do the electrons needed for X-rays originate from?	
What are the types of filtrations inside the X-ray tubehead?	
What device(s) is/are used to protect the patient from radiation?	
How can the operator protect themselves from radiation?	

Radiology Safety Notes Page – Answer Key

Directions: Take notes in the space provided as information is shared in the slide presentation and lecture on this topic.

Question	Notes
Where do the electrons needed for X-rays originate from?	An electron cloud
What are the types of filtrations inside the X-ray tubehead?	Inherent and added
What device(s) is/are used to protect the patient from radiation?	Thyroid collar and lead apron
How can the operator protect themselves from radiation?	Avoid standing in front of the primary beam, stand behind a barrier, and stay at least 6 feet away from the machine

Lesson Two – Dental Radiology Safety

REVIEW: Radiology Safety

30-60 minutes

Purpose:

Participants will apply the knowledge learned in the lecture. They will problem-solve a series of special needs by role-play using simulated radiographic exposures.

Materials:

- Dental Radiation Safety and Infection Control Scenario Cards
- *Radiology Safety Quiz*
- *Radiology Safety Quiz – Answer Key*

Facilitation Steps:

1. Using their notes, have participants review the patient safety considerations during dental radiology procedures.
2. To understand patient safety considerations in dental radiology, divide the class into five small groups. Give each group one of the scenario cards for radiology techniques.

Potential scenarios include:

- Pediatric radiographic techniques
- Radiographic techniques for special needs patients
- Radiographic techniques for specific oral conditions
- Radiographic techniques for aging patients, patients of childbearing age, and more

3. Have each small group read through the scenario. They should choose one person from the group to be the dental assistant and one to be the patient.

Explain to the groups that they will role-play the scenario for the whole class.

4. Each group should act out the scenario for the entire class. After each role-play, a group discussion can be facilitated to answer the questions regarding that scenario.
5. Depending on how much class time you have available, you could work through five scenarios per day for an entire week for a total of 25 scenarios.

Please note that in each of the three lessons focusing on dental radiation safety, scenario cards are used in the review section of the lesson.

For planning purposes, decide which scenarios you wish to use with each lesson.
6. When participants are finished with the scenarios, instruct them to take a few minutes to complete the quiz.
7. Have participants self-check their answers as you share from the answer key.

Name: _____ Class: _____

Radiology Safety Quiz

Select the best answer to the following multiple-choice questions:

1. When the electrons hit the anode, their energy is converted into X-ray energy and heat. What percentage of electrons convert to X-rays?
 - a. 1%
 - b. 5%
 - c. 10%
 - d. 15%
2. During exposure, one of the most important steps to limiting radiation exposure is by using the _____.
 - a. Lead barrier
 - b. Dosimeter badge
 - c. Safety glasses
 - d. Lead apron and thyroid collar
3. Stand at least _____ feet away from the X-ray machine when exposing radiographs.
 - a. 3
 - b. 6
 - c. 9
 - d. 12
4. Use a _____ to measure occupational radiation exposure.
 - a. Lead apron
 - b. Lead barrier
 - c. Receptor-holding device
 - d. Dosimeter badge
5. What does ALARA stand for?
 - a. As long as radiation allows
 - b. As low as reasonably achievable
 - c. As long as reasonably achievable
 - d. As long as results arrive

Radiology Safety Quiz – Answer Key

Select the best answer to the following multiple-choice questions:

1. When the electrons hit the anode, their energy is converted into X-ray energy and heat. What percentage of electrons convert to X-rays?
a. 1%
b. 5%
c. 10%
d. 15%
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b. Dosimeter badge
c. Safety glasses
d. Lead apron and thyroid collar
3. Stand at least _____ away from the X-ray machine when exposing radiographs.
a. 3
b. 6
c. 9
d. 12
4. Use a _____ to measure occupational radiation exposure.
a. Lead apron
b. Lead barrier
c. Receptor holding device
d. Dosimeter badge
5. What does ALARA stand for?
a. As long as radiation allows
b. As low as reasonably achievable
c. As long as reasonably achievable
d. As long as results arrive

Sources

1. Bird, D., Torres, H. O., & Robinson, D. (2021). Foundations of Radiography, Radiographic Equipment, and Radiation Safety. In *Modern Dental assisting* (pp. 834–853). essay, Elsevier.
2. Iannucci, J. M., & Howerton, L. J. (2017). Radiation Protection. In *Dental radiography: Principles and techniques* (Fourth, pp. 51–61). essay, Elsevier.
3. Iannucci, J. M., & Howerton, L. J. (2017). Radiation Physics. In *Dental radiography: Principles and techniques* (pp. 19–20). essay, Elsevier.

Lesson Three – Infection Prevention and Control

Lesson Overview

In this lesson, participants will learn the basics of infection prevention, including using standard precautions for equipment and standard precautions for patients and operators.

Lesson Objectives

After completing this lesson, participants will be able to:

- Explain the Centers for Disease Control and Prevention guidelines for infection control in dental radiology
- Describe the infection control requirements for preparing the dental operatory for radiation exposures
- Discuss the infection control protocol when making exposures using conventional dental X-ray film, phosphor storage plates, and digital sensors
- Explain infection control procedures during and after X-ray exposure
- Describe procedures during X-ray film processing

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Focus on Infection Prevention</i> worksheet • <i>Focus on Infection Prevention Instructor Resource</i>	1. Print/photocopy the <i>Focus on Infection Prevention</i> worksheet (one per participant).	10 minutes
LEARN	• <i>Infection Prevention and Control in Dental Radiology</i> slide presentation • <i>Infection Prevention and Control Notes Page</i>	1. Print/photocopy the <i>Infection Prevention and Control Notes Page</i> (one per participant). 2. Prepare the <i>Infection Prevention and Control in Dental Radiology</i> slide presentation for viewing.	30-40 minutes
REVIEW	• Dental Radiology Safety and Infection Control Scenario Cards • <i>Dental Radiology Safety and Infection Control Quiz</i> • <i>Dental Radiology Safety and Infection Control Quiz - Answer Key</i>	1. Print the <i>Dental Radiation Safety and Infection Control Quiz</i> (one per participant).	30 to 60 minutes

Lesson Three – Infection Prevention and Control

FOCUS: Focus on Infection Prevention

10 minutes

Purpose:

To help participants learn why infection prevention is so important during dental radiology procedures.

Materials:

- *Focus on Infection Prevention* worksheet
- *Focus on Infection Prevention Instructor Resource*

Facilitation Steps:

1. Distribute the *Focus on Infection Prevention* worksheet before or at the beginning of class.
2. Have the *Focus on Infection Prevention Instructor Resource* page available.
3. Have participants read through the information and complete the worksheet.
4. Call the class back together and have participants share answers to the questions on the worksheet. This discussion will help prepare participants for what they will learn in this lesson about the basics of infection prevention during dental radiation procedures.

Name: _____ Class: _____

Focus on Infection Prevention

Skill: Protecting patients and dental professionals from cross-contamination of infectious diseases

READ the following:

In your dental office, dental assistants must share a digital sensor between operatories. As a result, understanding infection control guidelines and how to quickly prepare the digital sensor is crucial. You and another dental assistant, Aiysha, both have patients that require an X-ray. Since your patient arrived first, you prepare the sensor by placing a protective plastic barrier over it and connecting it to the computer in the operatory.

You lay the sensor on the dental tray and walk to the reception area to greet your patient. When you return to the operatory, you notice that the sensor is in a different position. You ask Aiysha if she used the sensor for her patient, and she says she did not. Neither of you knows why the sensor is in a different position, but you must proceed with the X-ray because Aiysha needs to use it too.

Though you know you put on a fresh barrier, you replace it with a new plastic shield and proceed with the X-rays on your patient.

REFLECT on the situation:

Why did you replace the plastic barrier when you know you put a fresh one on before greeting your patient?

What emotions do you think you would feel in this situation?

Why was it essential to replace the barrier before proceeding with X-rays?

What could happen if you proceeded to take X-rays without replacing the barrier?

SHARE your thoughts with a peer when it's discussion time.

Name: _____ Class: _____

Focus on Infection Prevention

Instructor Resource

Skill: Protecting patients and dental professionals from cross-contamination of infectious diseases

READ the following:

In your dental office, dental assistants must share a digital sensor between operatories. As a result, understanding infection control guidelines and how to quickly prepare the digital sensor is crucial. You and another dental assistant, Aiysha, both have patients that require an X-ray. Since your patient arrived first, you prepare the sensor by placing a protective plastic barrier over it and connecting it to the computer in the operatory.

You lay the sensor on the dental tray and walk to the reception area to greet your patient. When you return to the operatory, you notice that the sensor is in a different position. You ask Aiysha if she used the sensor for her patient, and she says she did not. Neither of you knows why the sensor is in a different position, but you must proceed with the X-ray because Aiysha needs to use it too.

Even though you know you put on a fresh barrier, you replace it with a new plastic shield and proceed with the X-rays on your patient.

REFLECT on the situation:

Why did you replace the plastic barrier when you know you put a fresh one on before greeting your patient?

When you're unsure if something is contaminated, it's always better to replace the barrier than risk spreading an infectious disease.

What emotions do you think you would feel in this situation?

Frustration, confusion, and anger because someone potentially used the digital sensor when it was already prepared for another patient.

Why was it essential to replace the barrier before proceeding with X-rays?

It minimizes the risk of cross contamination.

What could happen if you proceeded to take X-rays without replacing the barrier?

You don't know if the digital sensor was used, therefore it could be contaminated. Using that barrier on your patient could cause your patient to be infected through the blood or saliva from another patient.

Lesson Three – Infection Prevention and Control

LEARN: Infection Prevention and Control

30 minutes

Purpose:

Participants will receive a thorough introduction to infection prevention and control procedures for dental radiation.

Materials:

- *Infection Prevention and Control in Dental Radiology* slide presentation
- *Infection Prevention and Control Notes Page*

Facilitation Steps:

Share the following information as you show the slide presentation. Give participants the *Infection Prevention and Control Notes Page* so they may write down information that is important for them to remember.

Slide 1: Introduction slide

Slide 2: Goals and Objectives

There are no pre-requisites for this lesson.

Slide 3: Centers for Disease Control and Prevention Guidelines

Due to the high risk of equipment becoming contaminated with blood and saliva, dental radiography poses special infection control challenges. There are numerous paths for cross-contamination: the image receptor, the control panel, the lead apron and thyroid collar, and the processing area. Using direct digital imaging methods may reduce the risk; however, it doesn't eliminate it because barriers are still required.

The Centers for Disease Control and Prevention (CDC) lists dental radiology as a cross-contamination source and recommends handling potentially infected items. You can find the complete list of recommendations in the *Guidelines for Infection Control in Dental Health-Care Settings*.

Guidelines include the following:

- Use gloves when exposing radiographs and handling contaminated film packets. Wear other personal protective equipment to protect against blood and other bodily fluids.
- When possible, use single-use or heat-tolerant film-holding and positioning devices. Heat sterilize instruments between patients.
- Use aseptic techniques to transport and handle exposed films.
- Use FDA-cleared barriers for digital sensors.

Consult the manufacturer on how to disinfect and sterilize digital sensors and corresponding computer hardware.

Slide 4: Infection Prevention in the Operatory

You won't often find blood spatter and saliva in the X-ray processing area; however, disease transmission is still possible. X-ray equipment, positioning devices, image receptors, and other operatory surfaces become contaminated when they meet saliva.

To ensure the dental team and all patients remain protected, you must prepare the operatory. You do this by identifying any surfaces that require protecting with barriers or disinfecting at the completion of the procedure. Any surface that cannot be easily cleaned and disinfected requires a surface barrier.

Surface barriers are used on electrical switches to prevent an electrical short.

Slide 5: Film and Phosphor Storage Plates

After removing the film from the patient's mouth, they are visibly contaminated with saliva and should be carefully handled to minimize cross-contamination. One technique that is used is placing an FDA-approved, clear, plastic

barrier over the film packet. Some companies sell films pre-packaged in a barrier.

After exposing a barrier protected film, they are carried to the processing area. The barrier must be removed without touching the inner film packet, which allows you to touch the inner packet.

Phosphor storage plates (PSP) are reusable; therefore, they must be placed in a sealed barrier before they are placed in a patient's mouth.

You can further reduce the possibility of cross-contamination by decontaminating the outer film packet or PSP barrier before removing any contents for processing and scanning. This step is done by wiping the packet on a paper towel sprayed with disinfectant after removing it from the patient's mouth.

Slide 6: Digital Sensor

After using a digital sensor, it should be heat sterilized or cleaned with a high-level disinfectant between patients. However, current technology does not allow for sensors to be heat sterilized or immersed in a high-level disinfectant. For now, the CDC recommends using an FDA-approved plastic barrier. It gets placed over the sensor and part of the attached cable.

Slide 7: Positioning Instruments

Positioning instruments are considered semi-critical instruments because they contact the patient's mouth. They should be heat sterilized between patients or you should use disposable devices and dispose of them after a single use.

Once the instruments are sterilized, they should remain unopened in the package until the patient is seated. They'll watch you open the package and appreciate knowing sterile instruments are being placed in their mouth.

Slide 8: Operator Protection

Gloves and protective clothing should always be worn while exposing X-rays and handling dental image receptors.

Masks should be worn if there is a high chance that blood or other bodily fluids may splatter or if you or the patient has a cold.

Slide 9: Film and PSP Packets

A primary source for contamination during dental X-ray exposure is the film or PSP packet. As the film or PSP gets removed from the patient's mouth, so does saliva and occasionally blood. Wearing gloves while handling contaminated packets will protect you; however, after removing the receptor from the patient's mouth, use a dry 2 x 2 gauze square to dry it off.

Film or PSP packets should never be sterilized as it will destroy them. Some dental films can withstand a light spray of disinfectant. However, soaking them in a high-level disinfectant can cause film emulsion to deteriorate, damaging the image. It's always best to consult with the manufacturer to learn the best methods for infection control.

Slide 10: Transferring Receptors

After drying and disinfecting the film or PSP, place it in a disposable paper cup labeled with the patient's name. This cup helps with transporting the receptors to the darkroom. Avoid touching the outside surface of the paper cup with gloved hands.

If PSPs aren't going to be scanned right away, remove them from their barrier envelope while wearing gloves and place them into a black transfer box. This box protects them from exposure to white light before scanning.

Slide 11: Positioning Instruments

After using a positioning instrument, return it to the covered workspace immediately after removing it from the patient's mouth. Avoid placing positioning instruments on a surface without a barrier.

Slide 12: Cleaning the Operatory

After completing all exposures, contaminated items must be thrown away, and unprotected surfaces must be disinfected. Handle contaminated items with caution. Always wear gloves when working with contaminated items, including surface barriers and film packets.

Carefully remove all barriers to prevent accidental cross-contamination of a clean surface. While wearing gloves, remove the positioning instruments from the operatory and

transport them to the designated sterilization area.

Slide 13: Cleaning and Disinfecting

After all contaminated items have been discarded and transported to their designated area, you can remove your gloves and wash your hands.

Prepare to disinfect the treatment room by donning protective eyewear and utility gloves. Clean and disinfect any uncovered areas using a hospital-grade disinfectant that is registered with the Environmental Protection Agency (EPA).

Slide 14: After Exposure

Following specific control procedures after exposure is just as crucial as during exposure.

You shouldn't touch the plastic cup with your gloved hands. After you have removed your gloves, washed, and dried your hands, dismissed the patient, and cleaned the area, you can carry the container to the processing area.

Infection Prevention and Control Notes

Page

Directions: Take notes in the space provided as information is shared in the slide presentation and lecture on this topic.

Question	Notes
Where can you find the CDC's guidelines for infection control in a dental office?	
List the areas of the dental operator that may need surface barriers or disinfecting after X-ray exposures.	
Can image receptors withstand heat sterilization?	
What kind of disinfectant should be used to clean any area without surface barriers?	

Infection Prevention and Control Notes

Page – Answer Page

Directions: Take notes in the space provided as information is shared in the slide presentation and lecture on this topic.

Question	Notes
Where can you find the CDC's guidelines for infection control in a dental office?	Guidelines for Infection Control in Dental Health-Care Settings
List the areas of the dental operatory that may need surface barriers or disinfecting after X-ray exposures.	X-ray tubehead and PID, control panel, dental chair, lead apron and thyroid collar, computer keyboard and mouse, and image receptor
Can image receptors withstand heat sterilization?	No
What kind of disinfectant should be used to clean any area without surface barriers?	Hospital-grade disinfectant registered with the Environmental Protection Agency (EPA)

Lesson Three – Infection Prevention and Control

REVIEW: Infection Prevention and Control

30-60 minutes

Purpose:

Participants will apply the knowledge learned in the lecture. They will problem-solve a series of special needs by role-play using simulated radiographic exposures.

Materials:

- Dental Radiation Safety and Infection Control Scenario Cards
- *Infection Prevention and Control Quiz*
- *Infection Prevention and Control Quiz – Answer Key*

Facilitation Steps:

1. Using their notes, have participants review the infection prevention and control procedures.
2. To understand the infection prevention and control procedures in dental radiology, divide the class into five small groups. Give each group one of the scenario cards for radiology techniques.

Potential scenarios include:

- Pediatric radiographic techniques
- Radiographic techniques for special needs patients
- Radiographic techniques for specific oral conditions

- Radiographic techniques for aging patients, patients of childbearing age, and more

3. Have each small group read through the scenario. They should choose one person from the group to be the dental assistant and one to be the patient.

Explain to the groups that they will role-play the scenario for the whole class.

4. Each group should act out the scenario for the entire class. After each role-play, a group discussion can be facilitated to answer the questions regarding that scenario.
5. Depending on how much class time you have available, you could choose to work through five scenarios per day for an entire week for a total of 25 scenarios.

Please note that in each of the three lessons focusing on dental radiation safety, scenario cards are used in the review section of the lesson.

For planning purposes, decide which scenarios you wish to use with each lesson.

6. When participants are finished with the scenarios, instruct them to take a few minutes to complete the quiz.
7. Have participants self-check their answers as you share from the answer key.

Name: _____ Class: _____

Infection Prevention and Control Quiz

Select the best answer to the following multiple-choice questions:

1. All the following should be protected with surface barriers except:
 - a. X-ray tubehead
 - b. Control panel
 - c. Film
 - d. Positioning instrument
2. A digital sensor must be _____.
 - a. Heat sterilized
 - b. Soaked in a high-level disinfectant
 - c. Protected with an FDA-approved clear barrier
 - d. Nothing because it cannot transmit diseases
3. After exposure, a receptor should be placed in a _____ before transporting it to the processing area.
 - a. Plastic bag
 - b. Lead box
 - c. Paper towel
 - d. Disposable plastic cup
4. You should wear gloves while removing surface barriers after exposing radiographs.
 - a. Always true
 - b. Sometimes true
 - c. Always false
 - d. Sometimes false
5. Positioning instruments are classified as _____ and must be heat sterilized.
 - a. Non-critical
 - b. Semi-critical
 - c. Medium critical
 - d. Critical

Infection Prevention and Control

Quiz – Answer Key

Select the best answer to the following multiple-choice questions:

1. All the following should be protected with surface barriers except:
 - a. X-ray tubehead
 - b. Control panel
 - c. Film
 - d. Positioning instrument**
2. A digital sensor must be _____.
 - a. Heat sterilized
 - b. Soaked in a high-level disinfectant
 - c. Protected with an FDA-approved clear barrier**
 - d. Nothing because it cannot transmit diseases
3. After exposure, a receptor should be placed in a _____ before transporting it to the processing area.
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Sources

1. Iannucci, J., & Howerton, L. J. (2017). Infection Control and the Dental Radiographer. In *Dental radiography: Principles and techniques* (pp. 162–169). essay, Elsevier.
2. Robinson, D. S., & Bird, D. (2017). Legal Issues, Quality Assurance, and Infection Prevention. In *Modern Dental assisting* (pp. 582–587). essay, Elsevier - Health Sciences Div.



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