

**Course:** DEN 123 Dental Radiology

**Topic:** Patient Education and the Dental Radiographer

**Audience:** Adult Learners – Dental Hygiene Students, Associate 1st-Year Level

**Instructional**

**Objectives:** Upon completion of this lesson, the dental hygiene students should be able to:

1. Define key terms associated with patient education.
2. Discuss the importance of educating patients about dental images.
3. List the three methods that can be used by the dental radiographer to educate patients about dental images.
4. Deduce answers to common patient questions about the need for dental images, x-ray exposure, the safety of dental x-rays, digital imaging, and other miscellaneous concerns.
5. Promote the necessity of dental imaging for detecting disease.

**Materials:** PowerPoint computer equipment  
Radiology Brochure Template

**References:**

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Image Gently. (2012). *Dental X-rays for Children: What Parents Should Know*. Retrieved February 23, 2022, from [https://www.imagegently.org/Portals/6/Dental/IG14\\_DentalBrochure.pdf](https://www.imagegently.org/Portals/6/Dental/IG14_DentalBrochure.pdf).

Ostrander, S. (2018, August 1). *Take it right the first time | registered dental hygienists*. RDH. Retrieved March 2, 2022, from <https://www.rdhmag.com/patient-care/article/16408259/take-it-right-the-first-time>

**Personnel:** None Needed

**Time:** 50 minutes

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
4 minutes	<p><b>I. INSTRUCTIONAL SET</b></p> <p><u>A. Introduction</u> Taking dental radiographs is a basic standard of care that is necessary for detecting disease. Educating patients on the importance of dental radiographs is critical for patient compliance. Therefore, the dental radiographer must be able to explain the importance of dental imaging, use various methods for patient education, and answer common questions regarding dental radiographs.</p> <p><u>B. Established Mood</u> As a dental hygienist, you are typically the one to spend the most time with patients and the primary provider of education. The education you provide on the importance of dental x-ray images will help promote patient compliance and lead to early and potentially lifesaving detection of disease that would otherwise go unnoticed.</p> <p><u>C. Gain Attention/Motivation</u> Imagine you working in clinical practice, and you have a patient that absolutely refuses to have radiographs taken. How would you handle this situation? What would you say to the patient? Should you still treat a patient that refuses to have dental x-ray images?</p> <p><u>D. Established Rationale</u> By knowing the various methods for patient education and how to answer common questions related to dental radiographs, you will be able to effectively educate your patients on the importance of why dental x-ray images are a necessary part of routine care.</p> <p><u>E. Established Knowledge Base</u> Do any of you have prior experience with taking dental radiographs as a dental assistant? If yes, have you worked with a patient that refused to have dental x-ray images taken? How did you handle the situation? Or have any of you worked with a patient in the clinic that you know refuses to have radiographs taken? Did you have a discussion with that patient about the importance of radiographs? If yes, how did the conversation go?</p>	<p><b>Slide #1:</b> Patient Education and the Dental Radiographer Title</p> <p><b>Note:</b> This topic along with the previously discussed information on chapter 12 is purposefully saved for when you start seeing patients in the radiology lab.</p> <p><b>Q:</b> Think back to before you were in dental hygiene school. Did you think it was important to have dental x-rays? If so, why?</p> <p><b>A:</b> Answers will vary.</p> <p><b>Slide #2:</b> Pictures indicating radiograph refusal.</p>

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	<p><u>F. Instructional Objectives</u></p> <p>After completion of today's lecture, you will be able to define key terms associated with patient education, discuss the importance of educating patients about dental images, list the three methods that can be used by the dental radiographer to educate patients about dental images, answer common patient questions about the need for dental images, x-ray exposure, the safety of dental x-rays, digital imaging, and other miscellaneous concerns, and promote the necessity of dental imaging for detecting disease.</p>	<p><b>Slide #3:</b> Objectives</p>

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
3 minutes	<b>I. Patient Education</b> <b>A. Importance of Patient Education</b> <ol style="list-style-type: none"> <li>Enhances understanding</li> <li>Decreases fear of x-ray exposure</li> <li>Increases motivation</li> <li>Increases motivation for regular dental visits</li> </ol> <b>B. Methods of Patient Education</b> <ol style="list-style-type: none"> <li>Videos</li> <li>Oral Presentation</li> <li>Printed Literature</li> <li>A Combination</li> </ol>	<b>Slide #4:</b> Patient Education  <b>Slide #5:</b> Importance of Patient Education  <b>Slide #6:</b> Methods of Patient Education
1 minute	<b>II. Frequently Asked Questions from Patients</b> <b>A. Types of Frequently Asked Questions</b> <ol style="list-style-type: none"> <li>Necessity Questions</li> <li>Exposure Questions</li> <li>Safety Questions</li> <li>Digital Imaging Questions</li> <li>Miscellaneous Questions</li> </ol> <b>B. Necessity Questions</b> <ol style="list-style-type: none"> <li><b>Are dental x-ray images necessary?</b> <ol style="list-style-type: none"> <li>Primary benefit is disease detection</li> <li>Early detection of diseases</li> <li>Detection of diseases unnoticed with clinical exam</li> </ol> </li> <li><b>How often do I need dental x-rays?</b> <ol style="list-style-type: none"> <li>Determined by dentist</li> <li>Based on individual needs</li> <li>Most frequently asked question*</li> </ol> </li> <li><b>How often do children need dental x-rays?</b> <ol style="list-style-type: none"> <li>Same guidelines as adults listed above</li> </ol> </li> <li><b>Can I refuse dental x-rays and be treated?</b> <ol style="list-style-type: none"> <li>May result in dentist declining to treat</li> <li>Treating without radiographs is considered negligence</li> </ol> </li> <li><b>Can you use images from my previous dentist?</b> <ol style="list-style-type: none"> <li>Yes, if recent and of diagnostic quality</li> </ol> </li> </ol>	<b>Q:</b> What method of patient education are you most likely to use in the clinic? <b>A:</b> Answers will vary.  <b>Slide #7:</b> Intro to Frequently Asked Questions  <b>Slide #8:</b> Types of Frequently Asked Questions
5 minutes		<b>Note:</b> Asks students for possible answers to frequently asked questions and discuss answers from the Radiology textbook.  <b>Slide #9:</b> Necessity Questions
1 minute	<b>C. Exposure Questions</b> <ol style="list-style-type: none"> <li><b>How do you limit my exposure to x-rays?</b> <ol style="list-style-type: none"> <li>Dentists prescribe based on individual needs</li> <li>Use of lead apron and thyroid collar</li> <li>Use of digital sensors instead of film</li> </ol> </li> </ol>	<b>Slide # 10:</b> Exposure Questions <b>Note:</b> Use of digital sensors reduce exposure time 50-90%.

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
4 minutes	<p><b>2. Why do you use a lead apron?</b></p> <ul style="list-style-type: none"> <li>a. To protect vital tissues from scatter radiation</li> <li>b. To shield radiosensitive organs from radiation</li> </ul> <p><b>3. Should I avoid dental x-rays during pregnancy</b></p> <ul style="list-style-type: none"> <li>a. According to ADA and FDA no need to avoid</li> <li>b. No detectable exposure with use of lead apron</li> <li>c. Some dentists postpone due to patient concerns</li> </ul> <p><b>4. Why do you leave the room when x-rays are used?</b></p> <ul style="list-style-type: none"> <li>a. For exposure, risk should outweigh benefit</li> <li>b. Patient receives diagnostic benefit</li> <li>c. Dental radiographer does not receive any benefit</li> <li>d. To take precautions for limiting exposure</li> </ul>	<p><b>Note:</b> Vital tissues include reproductive, blood-forming, and thyroid tissues.</p>
2 minutes	<p><b>D. Safety Questions</b></p> <p><b>1. Are dental x-rays safe?</b></p> <ul style="list-style-type: none"> <li>a. All radiation is harmful to tissue</li> <li>b. No amount of radiation is safe</li> <li>c. Prescribed only if diagnostic benefit outweighs harm of exposure</li> </ul> <p><b>2. Will dental x-rays cause cancer?</b></p> <ul style="list-style-type: none"> <li>a. No recorded case of cancer from dental x-rays</li> <li>b. Risk of development of fatal cancer 3 in 1 million</li> <li>c. Risk of spontaneous cancer 3,300 in 1 million</li> </ul>	<p><b>Slide #11:</b> Safety Questions</p> <p><b>Note:</b> It is important to answer safety questions as accurately and honestly as possible.</p>
2 minutes	<p><b>E. More Radiation than Dental X-rays</b></p> <ul style="list-style-type: none"> <li>1. Spending 3 days in Atlanta</li> <li>2. Watching TV/using computer every day for a year</li> <li>3. Living with ceramic or granite</li> <li>4. Eating food/drinking water</li> <li>5. Cleaning cat litter every day for a year</li> <li>6. Background radiation</li> </ul>	<p><b>Slide #12:</b> More Radiation than Dental X-rays</p> <p><b>Note:</b> Most radioactive foods include Brazil nuts, lima beans, bananas, white potatoes, carrots, red meat, and beer.</p>
3 minutes	<p><b>F. Digital Imaging Questions</b></p> <p><b>1. What are the advantages of digital imaging?</b></p> <ul style="list-style-type: none"> <li>a. Requires less radiation for diagnostic image</li> <li>b. Gives us an instant image</li> <li>c. Stored, transmitted, manipulated electronically</li> <li>d. Environmentally friendly</li> </ul> <p><b>2. Are risks associated with digital imaging?</b></p> <ul style="list-style-type: none"> <li>a. Yes, but risks reduced due to less exposure time</li> <li>b. Exposure time reduced 50 to 90%</li> </ul>	<p><b>Slide #13:</b> Digital Imaging Questions</p>
1 minute	<p><b>G. Miscellaneous Questions</b></p> <p><b>1. Can a Panoramic x-ray be exposed instead of a complete intraoral series?</b></p> <ul style="list-style-type: none"> <li>a. No, a complete series shows more detail</li> </ul>	<p><b>Slide #14:</b> Miscellaneous Questions</p>

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	<ul style="list-style-type: none"> <li>b. Helps detect changes in teeth and bone</li> <li>c. Panoramic shows general condition of teeth and bone</li> </ul> <p><b>2. Who owns my dental images?</b></p> <ul style="list-style-type: none"> <li>a. Property of the dentist</li> <li>b. Patients have reasonable access</li> <li>c. Patients can request copy</li> </ul>	<p><b>Note:</b> Patients can request a personal copy of their dental images or request for a copy to be sent to another dental office.</p>
5 minutes	<p><b>III. CLOSURE</b></p> <p>A. <u>Summary of Major Points – Relate Back to Objectives</u></p> <p>I hope you have a better understanding of the importance of patient education when taking dental radiographs. I hope you can take what you learned today and utilize the discussed terms and methods to effectively deliver patient education. Remember, patients will often have questions regarding dental radiographs. Use the information we reviewed today to help answer common patient questions and promote the necessity of dental imaging for detecting disease.</p> <p>B. <u>Provide a Sense of Accomplishment</u></p> <p>I hope you will be more comfortable and well equipped for providing patient education about the importance of dental radiographs and for answering questions related to dental x-ray images.</p> <p>C. <u>Assignment</u></p> <p>For a better understanding of how to answer patient questions regarding dental radiographs and children, visit the link on this slide found on the ADA's <a href="http://mouthealthy.org">mouthealthy.org</a>. The link will take you to a brochure that helps answer common questions parents have regarding dental x-rays for children.</p>	<p><b>Slide #15:</b> Image Gently Brochure</p> <p><b>Q:</b> In the future, how will you handle the situation if your patient refuses dental radiographs?</p> <p><b>A:</b> Ask questions to find out why the patient is refusing. Answer questions and discuss importance of dental radiographs for diagnosing disease. Ask clinic dentist if continued treatment is permitted.</p>

**TIME**

12 minutes

**CRITICAL THINKING ACTIVITY**

Use the information you learned in this lesson and the template posted in PLATO to create a brochure answering a common patient question about dental radiographs. See the instructions below.

1. Find a partner.
2. Create a brochure about dental radiographs.
3. Use the brochure template provided in PLATO.
4. Choose a frequently asked question from today's lecture.
5. Answer your selected question and list 3 facts to ease patient concerns.
6. Use information from credible resources.
7. Include images, charts, tables, etc. Be creative!

5 minutes

Review brochures as a class.

1. What question did you select to answer in your brochure?

**Answer:** Students may select any of the necessity, exposure, safety, digital, or miscellaneous questions discussed in the lesson. Examples include: Are dental x-ray images necessary? Why do you use a lead apron? Are dental x-rays safe? What are the advantages of digital imaging? Who owns my dental images?

2. What facts did you include to educate your patient and answer their question?

**Answer:** Answers will vary depending on the selected question. Students will list facts regarding the purpose and importance of dental x-ray imaging. For example, the purpose of dental radiographs is for the detection of disease, dental radiographs are only prescribed when the benefit of the images outweighs the risk of harm, the lead apron is used to protect reproductive, blood-forming, and thyroid tissues, etc.

Students will submit their completed brochures by the beginning of the next class period via the Drop Box in PLATO. The brochures are not graded. They will count towards the students' participation and attendance grades.

**NOTES-MEDIA-Q/A****Slide #16:**

Critical Thinking Activity Instructions

**Note:** Introduce activity to students and discuss instructions. Give students time to complete activity. Walk around room and answer questions. Review brochure, questions, and facts at the end of the class period.

## Test Questions

Objective #1: Define key terms associated with patient education.

Test Item: In regard to the term “safe” when discussing dental x-rays, all of the following are true **EXCEPT** one. Which one is the **EXCEPTION**?

- a. Biologic damage occurs with all types of dental imaging.
- b. Dental x-rays are both harmful and safe at the same time.
- c. All x-rays are harmful to living tissue.
- d. No amount of radiation is considered safe.

Objective #2: Discuss the importance of educating patients about dental images.

Test Item: All of the following are reasons supporting the importance of patient education **EXCEPT** one. Which one is the **EXCEPTION**?

- a. Enhances understanding
- b. Decreases fear of x-ray exposure
- c. Decreases patient’s risk for caries
- d. Increases motivation for regular dental visits

Objective #3: List the three methods that can be used by the dental radiographer to educate patients about dental images.

Test Item: Methods used by the dental radiographer to educate patients about dental images include all the following **EXCEPT** one. Which one is the **EXCEPTION**?

- a. Videos
- b. Surveys
- c. Oral Presentation
- d. Printed Literature

Objective #4: Deduce answers to common patient questions about the need for dental images, x-ray exposure, the safety of dental x-rays, digital imaging, and other miscellaneous concerns.

Test Item: Patient education increases patient cooperation and the likelihood of patients accepting prescribed treatment. What would you say to a patient that refused dental radiographs due to concern of radiation exposure? Write your response in one paragraph (4-5 sentences).

Objective #5: Promote the necessity of dental imaging for detecting disease.

Dental radiographers must be able to answer common patient questions about dental x-ray images and educate patients on their purpose and importance. Explain what you would say to educate a patient inquiring about the necessity of dental x-rays. Write your response in one paragraph (4-5 sentences).

Correct Answers:

1. B



2. C
3. B
4. If I had a patient that refused dental radiographs due to concern of radiation exposure, I would discuss the safety measures taken to limit radiation exposure. I would talk to my patient about the use of the lead apron that limits radiation exposure to reproductive, blood-forming, and thyroid tissues. I would also mention that the use of digital imaging has reduced radiation exposure by 50-90%. I would mention some dental x-ray comparisons to radiation exposure in daily life such as cleaning the litter box and living in a house with granite countertops. Finally, I would talk to the patient about individualizing radiograph intervals based on patient risk and only prescribing dental x-ray images when the benefit outweighs any harm.
5. If I had a patient that asked why dental x-ray images were necessary, I would answer the question by focusing on the fact that dental x-ray images are primarily used for detection of disease and specifically *early* detection of disease. Early detection of diseases minimizes treatment and prevents bigger problems from occurring in the future. Dental x-ray images help detect diseases and conditions that would otherwise go unnoticed with only a clinical exam. Examples of diseases and conditions detected in dental x-ray images include tooth decay, gum disease, cysts, and tumors.