

**PRACTICAL CLINICAL COURSES**  
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**V1119**  
**Optimizing Digital Radiography – Solving Challenges**

Karen Preston, MAEd, RDH, FHEA  
Gordon J. Christensen, DDS, MSD, PhD

**Materials Included:**

C.E. Instruction Sheet  
Products List  
Clinicians Responsible  
Goals & Objectives  
Overview  
Supplemental Materials  
AGD Post-Test

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**PRACTICAL CLINICAL COURSES**

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**PRACTICAL CLINICAL COURSES**  
*Sources of Products Discussed in*

**V1119 Optimizing Digital Radiography – Solving Challenges**

Presented by: Karen Preston, MAEd, RDH, FHEA & Gordon J. Christensen, DDS, MSD, PhD

1. **Aurora VIP**  
Sodium Dental  
14 Barnhart Drive  
Suite A  
Hanover, PA 17331  
(800)821-8962  
[www.sodiumdental.com](http://www.sodiumdental.com)
2. **Clio Prime Sensor**  
SOTA Imaging  
1073 N. Batavia Street  
Suite B  
Orange, CA 92867  
(866)407-5015  
[www.sotaimaging.com](http://www.sotaimaging.com)
3. **DEXIS IXS Digital Intraoral Sensor**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
4. **DEXIS NOMAD Pro 2**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
5. **DEXIS NOMAD Pro 2 Control Panel**  
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(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
6. **DEXIS Platinum Handheld Digital Sensor Holders**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
7. **DEXIS Titanium & Platinum Sensor Holder**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
8. **DEXIS Titanium Sensor Holder**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
9. **Dream Sensor**  
DentiMax  
4115 E. Valley Auto Drive  
Suite 101  
Mesa, AZ 85206  
(800)704-8494  
[www.dentimax.com](http://www.dentimax.com)
10. **Instrumentarium Control Panel by KaVo Kerr**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)
11. **Intraoral Sensor Paddle Holder**  
Carestream Dental LLC  
3625 Cumberland Blvd  
Suite 700  
Atlanta, GA 30339  
(800)944-6365  
[www.carestreamdental.com](http://www.carestreamdental.com)
12. **Planmeca Control Panel**  
PLANMECA USA, Inc.  
11727 Fruehauf Drive  
Charlotte, NC 28273  
(630)529-2300  
[www.planmeca.com](http://www.planmeca.com)

13. **Rinn Eezee-Grip  
Digital Sensor Holders**  
Dentsply Sirona Inc.  
13320-B Ballantyne Corporate  
Charlotte, NC 28277  
(800)877-0020  
(717)845-7511  
[www.dentsplysirona.com](http://www.dentsplysirona.com)
14. **Rinn XCP-DS Fit**  
Dentsply Sirona Inc.  
13320-B Ballantyne Corporate  
Charlotte, NC 28277  
(800)877-0020  
(717)845-7511  
[www.dentsplysirona.com](http://www.dentsplysirona.com)
15. **Rinn XCP-ORA One Ring &  
Arm Positioning System**  
Dentsply Sirona Inc.  
13320-B Ballantyne Corporate  
Charlotte, NC 28277  
(800)877-0020  
(717)845-7511  
[www.dentsplysirona.com](http://www.dentsplysirona.com)
16. **RVG 6200 Sensor**  
Carestream Dental LLC  
3625 Cumberland Blvd  
Suite 700  
Atlanta, GA 30339  
(800)944-6365  
[www.carestreamdental.com](http://www.carestreamdental.com)
17. **ScanX Phosphor Plates**  
Air Techniques, Inc.  
1295 Walt Whitman Road  
Melville, NY 11747  
(800)247-8324  
(516)433-7676  
[www.airtechniques.com](http://www.airtechniques.com)
18. **Schick 33 Intraoral Sensor by  
Dentsply Sirona**  
Patterson Dental  
1031 Mendota Heights Road  
St. Paul, MN 55120  
(800)328-5536  
[www.pattersondental.com](http://www.pattersondental.com)
19. **Vatech Wave Sensor**  
Henry Schein Dental  
135 Duryea Road  
Melville, NY 11747  
(800)372-4346  
(631)843-5500  
[www.henryschein.com](http://www.henryschein.com)

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## **PROGRAM**

### **V1119 Optimizing Digital Radiography – Solving Challenges**

#### **CLINICIANS RESPONSIBLE:**

**Karen A. Preston, MAEd, RDH, FHEA**

*Associate Professor – Dental Hygiene, Utah Valley University  
Board of Directors, CR Foundation*

**Gordon J. Christensen, DDS, MSD, PhD**

*Founder & CEO, Practical Clinical Courses  
Senior Consultant & Previous CEO, CR Foundation  
Practicing Prosthodontist, Provo, Utah*

#### **GOALS & OBJECTIVES**

At the completion of this video presentation, viewers should be able to:

1. List the challenges currently present in digital radiography.
2. Discuss the frequency of use of digital radiography in typical practices.
3. Compare the ROI of digital radiography with other dental procedures.
4. Discuss radiation protection procedures.
5. Compare the characteristics of current CMOS sensors.
6. Describe how to optimize the life expectancy of CMOS sensors.
7. Discuss sensor holders.
8. Compare control panel choices.
9. Discuss proper radiation exposure for specific types of patients.
10. List methods to improve quality of digital images.
11. Discuss the value of panoramic radiographs.
12. List reasons for errors in panoramic radiographs.
13. Discuss potential needs for maxillary sinus radiographs.
14. Discuss potential needs for TMJ radiographs.
15. Explain the need for extraoral bitewings.
16. List the major areas in dentistry needing cone beam.
17. Describe the clinical placement of sensors for all locations in the mouth.
18. Compare the image quality of analog radiographs and digital radiographs.
19. Discuss differences in radiation need for radiographs of children, large adults, and small adults.
20. List the advantages of digital radiographs over analog radiographs.

## OVERVIEW

### **V1119 Optimizing Digital Radiography – Solving Challenges**

Digital radiography has now been in dentistry over two decades, and some improvements have been made since that time. The radiographs made with this technology have some advantages over analog radiology, but also some serious limitations. The following subjects are included in this presentation:

- Challenges currently present in digital radiography
- Frequency of use of digital radiography in typical practices
- ROI of digital radiography with other dental procedures
- Radiation protection procedures
- Characteristics of current CMOS sensors
- How to optimize the life expectancy of CMOS sensors
- Sensor holders
- Control panel choices
- Proper radiation exposure for specific types of patients
- Methods to improve quality of digital images
- Value of panoramic radiographs
- Reasons for errors in panoramic radiographs
- Potential needs for maxillary sinus radiographs
- Potential needs for TMJ radiographs
- Explain the need for extraoral bitewings
- Major areas in dentistry needing cone beam
- Clinical placement of sensors for all locations in the mouth
- Image quality of analog radiographs and digital radiographs
- Differences in radiation need for radiographs of children, large adults, and small adults
- Advantages of digital radiographs over analog radiographs

## SUPPLEMENTAL MATERIALS

### **V1119 Optimizing Digital Radiography – Solving Challenges**

1. Lima CAS, Nascimento EHL, Gaêta-Araujo H, Oliveira-Santos C, Freitas DQ, Haiter-Neto F, and Oliveira ML. [Is the digital radiographic detection of approximal caries lesions influenced by viewing conditions?](#) Oral Surg Oral Med Oral Pathol Oral Radiol. 2020 Feb;129(2):165-70. doi: 0.1016/j.oooo.2019.08.007. Epub 2019 Aug 13.
10. Clark JL, Wadhvani CP, Abramovitch K, Rice DD, and Kattadiyil MT. [Effect of image sharpening on radiographic image quality.](#) J Prosthet Dent. 2018 Dec;120(6):927-33. doi: 10.1016/j.prosdent.2018.03.034. Epub 2018 Jun 29.
3. Van der Stelt PF. [Panoramic radiographs in dental diagnostics.](#) Ned Tijdschr Tandheelkd. 2016 Apr;123(4):181-7. doi: 10.5177/ntvt.2016.04.15208.
4. Christensen GJ. [Ask Dr. Christensen: Do you need cone beam radiography?](#) Dental Economics. 2012 Aug;102(8):26-30.
5. Child PL and Christensen GJ. [Digital Radiography: An Improvement?](#) Dentistry Today. 2010 Aug;29(8):100-01.
6. Christensen GJ. [Ask Dr. Christensen: Interproximal caries and digital radiographs.](#) Dental Economics. 2005 Jan;95(1):70-72.
7. Christensen GJ. [Why switch to digital radiography?](#) J Am Dent Assoc. 2004 Oct;135(10):1437-39.

## POST-TEST

### **V1119 Optimizing Digital Radiography – Solving Challenges**

1. Which of the following is NOT a challenge with digital radiography?
  - a. Thick sensors
  - b. Rigid sensors
  - c. Storage of data
  - d. Relatively short life expectancy of sensors
  
2. A typical general practice dental office makes at least \_\_\_\_ images per day.
  - a. 20 to 40
  - b. 30 to 100
  - c. 60 to 100
  - d. 100 to 1,000
  
3. Return on investment of digital radiographs after buying the machine is:
  - a. about the same as other dental procedures.
  - b. lower than other procedures.
  - c. not constant nor predictable.
  - d. among the highest of all procedures.
  
4. Lead aprons for radiation protection are:
  - a. known to be necessary.
  - b. now claimed to be elective by the ADA.
  - c. necessary only for children.
  - d. to be discontinued.
  
5. Images made from CMOS sensors:
  - a. are more accurate than analog film.
  - b. are less accurate than film.
  - c. are easier to make than analog.
  - d. require longer time to make.
  
6. Proper radiation exposure is:
  - a. the same for all body sizes.
  - b. more for children.
  - c. more for females.
  - d. variable from patient to patient.
  
7. Panoramic radiographs:
  - a. can't be made on a cone beam.
  - b. require more radiation than a full-mouth series.
  - c. are potentially your most educative concept.
  - d. are difficult to make.



**POST-TEST (CONT'D)**

**V1119 Optimizing Digital Radiography – Solving Challenges**

- 8. Extraoral radiographs:
  - a. can be made only on a cone beam device.
  - b. show all of the teeth similar to a panoramic radiograph.
  - c. are acceptable for screening and determining presence of moderate caries.
  - d. require more radiation than an analog panoramic.
  
- 9. Cone beam images:
  - a. are not necessary in most general practices.
  - b. show about the same information as analog panoramic images.
  - c. are ranked to be the most necessary current technology.
  - d. are about \$25,000 to purchase.
  
- 10. Some of the main advantages of digital images include:
  - a. easy storage and retrieval.
  - b. low radiation.
  - c. requires no solutions.
  - d. all of the above.

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