## PRACTICAL CLINICAL COURSES

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## V1174 Implementing Cone Beam CT Imaging into Your Practice

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## **Materials Included**

C.E. Instruction Sheet
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AGD Post-Test

## Gordon J. Christensen PRACTICAL CLINICAL COURSES

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## Gordon J. Christensen PRACTICAL CLINICAL COURSES

Sources of Products Discussed in

## V1174 Implementing Cone Beam CT Imaging into Your Practice

Presented by: Dale A. Miles, DDS, MS, FRCD(C) & Gordon J. Christensen, DDS, MSD, PhD

## 1. Carestream 3D Imaging Solution

Carestream Dental LLC 1765 The Exchange Atlanta, GA 30339 (800)944-6365

www.carestreamdental.com

## 2. EasyRiter

Dentrix Marketplace 1220 South 630 East American Fork, UT 84003 (801)847-7001 www.dentrixmarketplace.com

### 3. Galileos

Sirona Dental, Inc. USA 4835 Sirona Drive Suite 100 Charlotte, NC 28273 (800)659-5977 www.sironausa.com

## 4. i-CAT by Imaging Sciences Int'l

Henry Schein 135 Duryea Road Melville, NY 11747 (800)372-4346 (631)843-5500 www.henryschein.com

## 5. PaX Imaging Systems

Vatech America 2200 Fletcher Avenue Suite 705A Fort Lee, NJ 07024-5084 (888)396-6872 (201)210-5028 www.vatechamerica.com

### 6. ProMax

Planmeca USA. Inc. 100 North Gary Avenue Suite A Roselle, IL 60172 (630)529-2300 www.planmeca.com

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## **PROGRAM**

## V1174 Implementing Cone Beam CT Imaging into Your Practice

## <u>CLINICIANS RESPONSIBLE:</u> Dale A. Miles, DDS, MS, FRCD(C)

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

CEO, Practical Clinical Courses CEO, CR Foundation Practicing Prosthodontist, Provo, Utah

## **GOALS & OBJECTIVES**

At the completion of this video presentation, participants should be able to accomplish the following:

- 1. Discuss the evolution of cone beam radiology into dentistry.
- 2. Discuss the possibility that cone beam will become standard of care in dentistry.
- 3. List the current common uses of cone beam in dentistry.
- 4. List which type of practitioner will probably use cone beam most.
- 5. Compare the radiation dose of cone beam to periapical and bitewing radiographs.
- 6. Discuss the potential for upgrading panoramic devices to cone beam.
- 7. Discuss the potential need for modifying your dental office when incorporating cone beam into your practice.
- 8. Discuss the current cost of cone beam devices.
- 9. Discuss the need for more computer storage in your office when integrating cone beam.
- 10. Compare diagnostic and treatment planning software for cone beam.
- 11. Describe field of view as related to cone beam.
- 12. List some methods of using cone beam for patient education.
- 13. Discuss the potential for cone beam in endodontics.
- 14. Discuss the potential for cone beam when removing impacted teeth.
- 15. Discuss the potential for cone beam when encountering dilacerated teeth.
- 16. Discuss the potential for cone beam use in implant planning and placement.
- 17. Discuss the legal risk of using cone beam relative to occult pathology.
- 18. Discuss recording cone beam findings.
- 19. List ways to incorporate cone beam into your practice.
- 20. Define oral and maxillofacial radiologists and how to find them.

## **OVERVIEW**

## V1174 Implementing Cone Beam CT Imaging into Your Practice

Cone beam radiology has had a significant influence on dentistry over the past 15 plus years. However, the expense of incorporating it into practice has limited its acceptance. Currently, prices for this technology have come down significantly and more dentists are purchasing cone beam units.

This concept is extremely valuable for especially: endodontics, removal of impacted teeth, and implant planning and placement.

This video includes the following information:

- Evolution of cone beam a historical perspective
- Will cone beam become standard of care?
- What are the current common uses of cone beam?
- Which type of practitioner needs cone beam?
- What is the average cone beam radiation dose in microsieverts?
- A comparison of the various types of cone beam machines
- Office facility changes needed
- Typical costs for cone beam
- Imaging software: diagnostic vs. treatment planning
- Field of view
- Patient education
- Use in endodontics
- Finding lateral endodontic canals
- Removing impacted teeth
- Identifying dilacerated roots
- Planning and placing implants
- Identifying implant placement problems
- Risk and liability: occult pathology
- Risk and liability: reporting
- What are oral and maxillofacial radiologists, where to find them, and how to use them?
- Obtaining access to cone beam

## **REFERENCES**

## V1174 Implementing Cone Beam CT Imaging into Your Practice

- 1. Abdinian M, Razavian H, Jenabi N. In Vitro Comparison of Cone Beam Computed Tomography with Digital Periapical Radiography for Detection of Vertical Root Fracture in Posterior Teeth. J Dent (Shiraz). 2016 Jun;17(2):84-90.
- 2. Elsaltani MH, Farid MM, Eldin Ashmawy MS. Detection of Simulated Vertical Root Fractures: Which Cone-beam Computed Tomographic System Is the Most Accurate? J Endod. 2016 Jun;42(6):972-7. doi: 10.1016/j.joen.2016.03.013. Epub 2016 Apr 27.
- 3. Almasoud NN, Tanneru N, Marei HF. Alveolar bone density and its clinical implication in the placement of dental implants and orthodontic mini-implants. Saudi Med J. 2016 Jun;37(6):684-9. doi: 10.15537/Smj.2016.6.14274.
- 4. Martins JN, Mata A, Marques D, Caramês J. Prevalence of Root Fusions and Main Root Canal Merging in Human Upper and Lower Molars: A Cone-beam Computed Tomography In Vivo Study. J Endod. 2016 Jun;42(6):900-8. doi: 10.1016/j.joen.2016.03.005. Epub 2016 Apr 15.
- 5. Widmann G, Fischer B, Berggren JP, Dennhardt A, Schullian P, Reto B, Puelacher W. Cone Beam Computed Tomography vs Multislice Computed Tomography in Computer-Aided Design/Computer-Assisted Manufacture Guided Implant Surgery Based on Three-Dimensional Optical Scanning and Stereolithographic Guides: Does Image Modality Matter? Int J Oral Maxillofac Implants. 2016 May-Jun;31(3):527-33. doi: 10.11607/jomi.4222.
- 6. Danesh-Sani SA, Movahed A, ElChaar ES, Chong Chan K, Amintavakoli N. Radiographic Evaluation of Maxillary Sinus Lateral Wall and Posterior Superior Alveolar Artery Anatomy: A Cone-Beam Computed Tomographic Study. Clin Implant Dent Relat Res. 2016 May 30. doi: 10.1111/cid.12426. [Epub ahead of print]
- 7. Rosen E, Venezia NB, Azizi H, Kamburoglu K, Meirowitz A, Ziv-Baran T, Tsesis I. A Comparison of Cone-beam Computed Tomography with Periapical Radiography in the Detection of Separated Instruments Retained in the Apical Third of Root Canal-filled Teeth. J Endod. 2016 May 26. pii: S0099-2399(16)30195-9. doi: 10.1016/j.joen.2016.04.016. [Epub ahead of print]
- 8. Dusseldorp JK, Stamatakis HC, Ren Y. Soft tissue coverage on the segmentation accuracy of the 3D surface-rendered model from cone-beam CT. Clin Oral Investig. 2016 May 21. [Epub ahead of print]
- 9. Bayat S, Talaeipour AR, Sarlati F. Detection of simulated periodontal defects using cone-beam CT and digital intraoral radiography. Dentomaxillofac Radiol. 2016 May 18:20160030. [Epub ahead of print]
- 10. Koivisto T, Chiona D, Milroy LL, McClanahan SB, Ahmad M, Bowles WR. Mandibular Canal Location: Cone-beam Computed Tomography Examination. J Endod. 2016 May 11. pii: S0099-2399(16)30031-0. doi: 10.1016/j.joen.2016.03.004. [Epub ahead of print]
- 11. Insua A, Monje A, Chan HL, Zimmo N, Shaikh L, Wang HL. Accuracy of Schneiderian membrane thickness: a cone-beam computed tomography analysis with histological validation. Clin Oral Implants Res. 2016 May 3. doi: 10.1111/clr.12856. [Epub ahead of print]

## REFERENCES (CONT'D)

## V1174 Implementing Cone Beam CT Imaging into Your Practice

- 12. Jiang T, Lee SM, Hou Y, Chang X, Hwang HS. Evaluation of digital dental models obtained from dental cone-beam computed tomography scan of alginate impressions. Korean J Orthod. 2016 May;46(3):129-36. doi: 10.4041/kjod.2016.46.3.129. Epub 2016 May 20.
- 13. Crespi R, Capparé P, Crespi G, Lo Giudice G, Gastaldi G, Gherlone E. Immediate Implant Placement in Sockets with Asymptomatic Apical Periodontitis. Clin Implant Dent Relat Res. 2016 Apr 28. doi: 10.1111/cid.12422. [Epub ahead of print]
- 14. Lavanya R, Babu DB, Waghray S, Chaitanya NC, Mamatha B, Nithika M. A Questionnaire Cross-Sectional Study on Application of CBCT in Dental Postgraduate Students. Pol J Radiol. 2016 Apr 23;81:181-9. doi: 10.12659/PJR.895688. eCollection 2016.
- 15. Charette JR, Goldberg J, Harris BT, Morton D, Llop DR, Lin WS. Cone beam computed tomography imaging as a primary diagnostic tool for computer-guided surgery and CAD/CAM interim removable and fixed dental prostheses. J Prosthet Dent. 2016 Apr 14. pii: S0022-3913(16)00145-1. doi: 10.1016/j.prosdent.2016.02.004. [Epub ahead of print]
- 16. Kanagasingam S, Mannocci F, Lim CX, Yong CP, Patel S. Diagnostic accuracy of periapical radiography and cone beam computed tomography in detecting apical periodontitis using histopathological findings as a reference standard. Int Endod J. 2016 Apr 11. doi: 10.1111/iej.12650. [Epub ahead of print]
- 17. Assadian H, Dabbaghi A, Gooran M, Eftekhar B, Sharifi S, Shams N, Dehghani Najvani A, Tabesh H. Accuracy of CBCT, Digital Radiography and Cross-Sectioning for the Evaluation of Mandibular Incisor Root Canals. Iran Endod J. 2016 Spring;11(2):106-10. doi: 10.7508/iej.2016.02.006. Epub 2016 Mar 20.
- 18. Christensen GJ. Ask Dr. Christensen: Why do I need cone beam? Dental Economics. 2016 Mar;106(3):76-8, 80.
- 19. Lan M, Zhe Q, Xiang Z, Wenli H. Anatomical presentation of edentulous sites in the posterior maxillary in cone beam computed tomography. Hua Xi Kou Qiang Yi Xue Za Zhi. 2016 Feb;34(1):85-90.
- 20. Wen SH, Lin ZT, Zhu M, Ge JY, Wang TM. Comparative study of root canal morphology of mandibular incisors by cone-beam CT and canal staining and clearing technique. Shanghai Kou Qiang Yi Xue. 2016 Feb;25(1):6-10.
- 21. Anbiaee N, Eslami F, Bagherpour A. Relationship of the Gonial Angle and Inferior Alveolar Canal Course Using Cone Beam Computed Tomography. J Dent (Tehran). 2015 Oct;12(10):756-63.
- 22. Christensen GJ. Ask Dr. Christensen: Do you need cone beam radiography? Dental Economics. 2012 Aug;102(8):26-30.
- 23. Child PL, Christensen GJ. Digital Radiography: An Improvement? Dentistry Today. 2010 Aug;29(8):100-101.

## **POST-TEST**

## V1174 Implementing Cone Beam CT Imaging into Your Practice

- 1. Radiation dosage of an average cone beam image is:
  - a. similar to a standard medical CT scan.
  - b. prohibitive.
  - c. much lower than an average medical CT scan.
  - d. lower than an average medical CT scan.
- 2. When placing cone beam in your office, an average dental office computer system:
  - a. will usually be adequate for image storage.
  - b. will need to be increased in storage capacity.
  - c. must be completely changed.
  - d. none of the above.
- 3. Field of view for cone beam:
  - a. is one standard size only.
  - b. does not relate to radiation dose.
  - c. should be set as large as possible.
  - d. should be set at a size that shows the area being treated.
- 4. When buying a digital panoramic device:
  - a. cone beam can be added to any current panoramic device.
  - b. cone beam is already present when you buy most panoramic devices.
  - c. make sure the panoramic device can allow cone beam to be added later.
  - d. none of the above.
- 5. Use of cone beam in endodontics:
  - a. often shows canals not shown on 2D devices.
  - b. often shows additional roots not shown on 2D devices.
  - c. can show dilacerated roots.
  - d. all of the above.
- 6. The three most common uses of cone beam currently are:
  - a. endo, perio, oral surgery.
  - b. endo, impactions, implants.
  - c. pedo, oral surgery, perio.
  - d. pedo, endo, implants.

## POST-TEST (CONT'D)

## V1174 Implementing Cone Beam CT Imaging into Your Practice

- 7. Changes in your physical facility when incorporating cone beam:
  - a. requires lead in the walls.
  - b. is standard from one geographic area to another.
  - c. varies from one geographic area to another.
  - d. requires one layer of plaster board, which is considered to be adequate radiation protection.
- 8. The high cost of cone beam:
  - a. should restrict you from incorporating it into your practice.
  - b. does not vary from one manufacturer to another.
  - c. is soon paid back as you learn to use the device.
  - d. requires a high clinical fee.
- 9. Use of cone beam in implant dentistry:
  - a. is limited to planning implant placement.
  - b. is limited to making guides for implant placement.
  - c. is helpful in both planning and placing implants.
  - d. is not necessary.
- 10. Relative to standard of care in dentistry:
  - a. cone beam is standard of care in all areas of dentistry.
  - b. cone beam is rapidly becoming standard of care in endo, implants, and impactions.
  - c. cone beam is rapidly becoming standard of care in oral surgery, endo, and perio.
  - d. cone beam is not predicted to become standard of care in dentistry.

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