GORDON J. CHRISTENSEN
CLINICIANS REPORT®
NOVEMBER 2011, VOLUME 4 ISSUE 11

Clinicians Report® Announces Change in Leadership

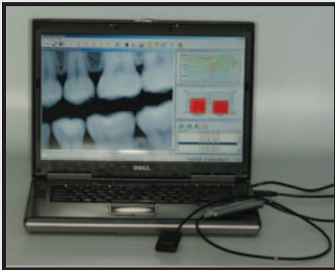
Dr. Paul L. Child Jr., the CEO of Clinicians Report® for the last 3-1/2 years, will be leaving CR at the end of 2011 to pursue other interests as he continues his contributions to the dental profession. We wish Paul the best in his new endeavors and are pleased that he will continue to serve CR Foundation® as a member of the CR Board of Directors.

Dr. Gordon J. Christensen, the Co-Founder of CR, has been appointed to the position of CEO. He will lead the experienced team of over 400 clinicians in 19 countries and 40 on-site scientists, engineers, and support staff. Additionally, Gordon continues to practice, speak internationally, and provide leadership for needed research in CR.

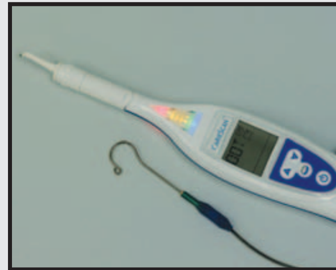
New Caries Detection Systems: Reliable and Accurate

Gordon and Paul's Clinical Bottom Line: It is well known that current dental radiographs, analog or digital, do not show the exact extent of dental caries. Occlusal caries must be relatively large to show definitively on typical bite-wing or periapical radiographs. This is a major void in the profession. Several new methods now on the market identify caries well, and can be used to augment radiographs. However, current caries detection products identify either occlusal or proximal caries, but none identify both reliably and accurately. *The TRAC Research division of CR has performed extensive evaluations to verify the clinical effectiveness of the four products in this research report.*

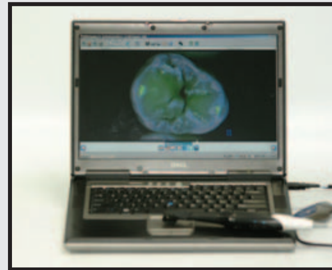
When was the last time you had a patient become hostile when you indicated caries needing treatment or the last time you wondered how to convince a patient that his choices and habits had to change to improve his oral health? Would it help if a neutral team member had technology that showed the patient real-time images of his teeth that identified and highlighted carious areas? Several newer caries detection instruments have this capability. Whether you plan to try to remineralize, seal, or excavate a carious lesion, correct detection is still a critical goal. **This report summarizes results of work by the TRAC Research team using four systems which detected initial carious lesions accurately *in vivo* with no false positives in all 75 teeth scheduled for clinical treatment.**



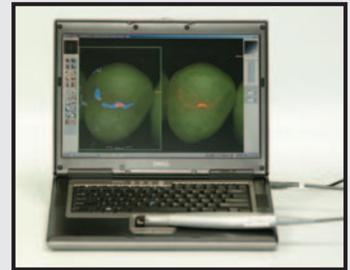
Logicon by Carestream
Interproximal lesion detection on radiographs using grayscale analysis software
(www.carestreamdental.com)



CarieScan Pro by CarieScan
Occlusal lesion detection by AC impedance spectroscopy
(www.us.cariescan.com)



SoproLIFE by Acteon
Occlusal lesion detection using tooth fluorescence
(www.us.acteongroup.com)



Spectra by Air Techniques
Occlusal lesion detection using tooth and porphyrin fluorescence
(www.airtechniques.com)

Minimum computer specs: RAM = 256, hard drive memory = 50 gig minimum, display monitor = 32 bit color minimum, and USB 2.0 port

Continued on page 2

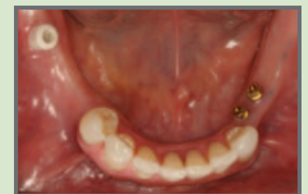
Implant Attachments for Removable Prostheses: Which is Best?

Gordon and Paul's Clinical Bottom Line: All of us dread making removable complete and partial dentures, and many patients are dissatisfied with the results. Our frequent inability to successfully deal with an inadequate bony ridge, large tongue, poor occlusal characteristics, inadequate contour on remaining teeth, and a myriad of other factors can be relatively well overcome when acceptable retentive and supportive attachments are used on implants or remaining teeth. But which are the best attachments? *CR scientists and clinicians provide guidance in this report.*

The mandibular implant supported/retained denture, with two or four implants, has been the most provided implant stabilized removable prostheses for decades. Despite the widespread acceptance and relative ease of fabrication, it is still not provided *(or offered)* to many patients in need of this service. Regardless of resorbed ridges and long-term denture wear, usually a surgeon can place at least two implants *(if not four)* between the mental foramen *(caution should be taken with some patients with conditions that may be contraindicated for implant placement, such as bisphosphonate therapy, radiation treatment, etc.)*. While Locators are currently the most used attachment, ERA and o-rings have been popular, and, together with other new brands, are all viable options that clinicians may choose from today.

This article will discuss the major abutment/attachment combinations, their advantages and limitations, results from CR Science testing, and CR clinical tips.

Continued on page 4



Combination implant-tooth retained/supported RPD on mini implants *(3M ESPE/IMTEC)* and standard diameter implant *(Neoss)*.

Products Highly Rated in Clinical Trials

X-Otomes: Instrument combines characteristics of periotomes and root elevators. ***(Page 6)***

EndoSequence Root Repair Material: Easy to use, hydrophilic, and radiopaque. ***(Page 6)***

Profluorid L: Liquid varnish helps relieve tooth sensitivity. ***(Page 6)***

New Caries Detection Systems: Reliable and Accurate *(Continued from page 1)*

Methods

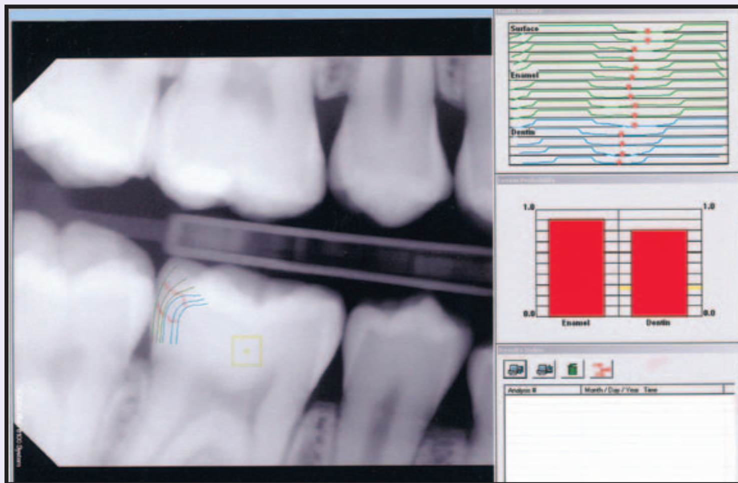
Each patient's bitewing radiographs made on the Kodak RVG system were enhanced, subjected to Logicon software for interproximal caries detection, and saved. The three other caries detection systems were then used in the oral cavity clinically one at a time for detection of initial occlusal caries, and the data were saved. Carious lesions were excavated, cultured *(aerobic and anaerobic)* and photographed during each step of sequential removal of initial enamel, deep enamel, initial dentin, deep dentin, and final prep to validate the caries detection data from the four systems.

How the Systems Detect and Display Caries and What Interferes with Accurate Detection

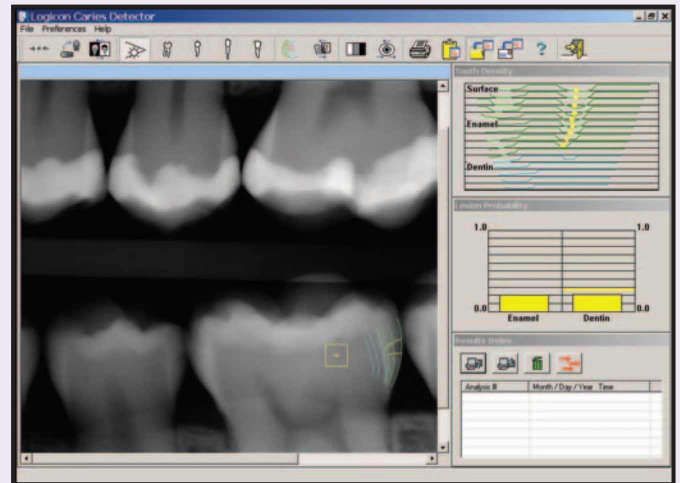
A. Interproximal Caries Detection Systems *(1 system is listed)*

1. Logicon: Analyzes grayscale *(4096 shades of gray currently),* recognizes caries patterns, and compares to a library of 600 teeth to identify healthy and carious tooth structure on digital bitewing radiographs made on Kodak RVG equipment. The pictures below show computer screen images of data presented for viewing by the clinician and patient, plus clinical images of the teeth during the excavation to prove the system's analysis. Conditions that commonly interfere with detection by this system are: overlapped proximal surfaces, restorations on proximal surfaces, concave proximal surfaces, or artificial radiolucencies caused by some holders.

Logicon computer display of bitewing radiograph showing caries into dentin

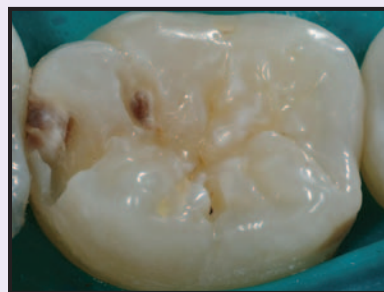


Logicon computer display of enhanced bitewing radiograph showing caries to DEJ

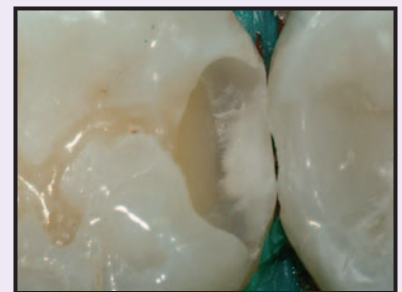


This image shows the tooth displayed on the Logicon analysis above during excavation to document the Logicon findings.

Note: The occlusal lesions shown are not detected by Logicon.

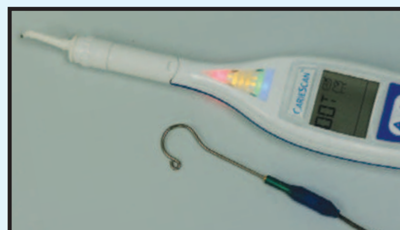


This image shows the site identified by Logicon above and the excavation to document the Logicon findings. Both show caries extended to the DEJ.



B. Occlusal Caries Detection Systems *(3 systems are listed alphabetically by brand name)*

1. CarieScan Pro: Low voltage current is directed through the tooth *(note lip hook in image below)* to evaluate mineral density. A numerical value between 0 and 100 is displayed on the instrument along with color-coded lights. No zeroing is required because the tooth is compared to a library of over 2000 sites to identify healthy and carious tooth structure. *No clinical tooth image is displayed,* but data can be transferred by Bluetooth to proprietary software called RemoteView which both displays and tabulates the examination data in colored graphics *(one example is shown at right).* Conditions that commonly interfere with detection include restored sites, excess saliva, and over drying.



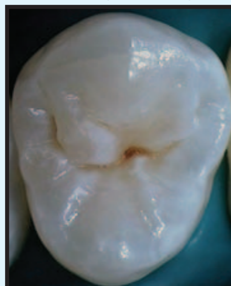
New Caries Detection Systems: Reliable and Accurate *(Continued from page 2)*

How the Systems Detect and Display Caries and What Interferes with Accurate Detection *(Continued)*

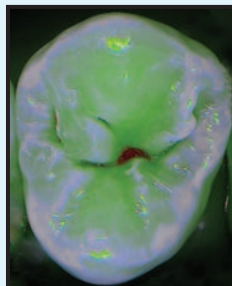
B. Occlusal Caries Detection *(Continued)*

2. SoproLIFE: The same handpiece emits white light for intraoral camera imaging or 450 nm LED blue light for caries detection. Conditions that commonly interfere with detection include restored sites, stained surfaces, and calculus in fissures. Also too much light in the operatory during the analysis can impede perception.

Computer display showing clinical appearance *(a)* and caries detection *(b)*



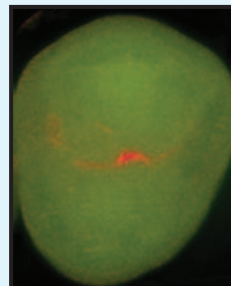
a. Daylight Mode used for intraoral camera image



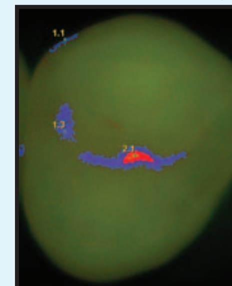
b. Diagnostic Mode used to indicate lesion location

3. Spectra: Handpiece emits 405 nm LED blue light to show porphyrin metabolites from cariogenic bacteria, and Analysis Mode gives color-coded map and numbers indicating lesion location and severity *(ingress into tooth)*. Conditions that commonly interfere with detection are restored sites and calculus in fissures.

Computer display showing porphyrin on tooth *(a)* and lesion severity map *(b)*



a. Detection Mode used to detect porphyrins



b. Analysis Mode shows lesion location and severity

Similarities and Differences Among the Four Systems

Note: ***Because the systems evaluated differ substantially in the methods used to detect caries, the chart below is not designed as a comparison chart, but rather to show what each product can and cannot do. Clinicians interested in purchasing a caries detection system need to inspect each system and decide which features are most needed in their practice. Currently, no one system has every feature.***

	Retail list price	Comfort of intraoral component	Accurate ID interproximal caries	Accurate ID occlusal caries	Displays clinical appearance before treatment	Clearly indicates caries location to patient	False positives	Indicates caries severity †	Ease and speed of use	Retains record of exam	Allows hard copy for patient	Tabulates results of exam	Possible to use for remineralization monitoring	Easily transfers to major practice management software	Necessary pre-treatment of teeth
1. Logicon	$1995	Good	Yes	No*	No	Yes	None	Yes	Good	Yes	Yes	No	Yes	No	None
2. CarieScan Pro	$2995	Excellent	No*	Yes	No	No	None	No / Yes †	Excellent	Yes	Yes	Yes	Yes	No	Quick dry tooth surface
3. SoproLIFE	$6470	Good	No*	Yes	Yes	No	None	No	Good	Yes	Yes	No	No	Yes	Clean tooth using any method
4. Spectra	$4995	Good	No*	Yes	No	Yes	None	Yes	Good	Yes	Yes	No	Yes	Yes	Analysis Mode: clean any method and dry

** Device not designed for this use*

No / Yes † *No = FDA wording restrictions defining number readout preclude this use in the U.S.*
Yes = Definition of numbers displayed outside U.S. give clear indication of caries severity

Main Features Summary:

1. **Logicon:** Can monitor tooth density change due to both de- and remineralization on interproximal surfaces displayed by digital radiographs, but its use is restricted currently to the Kodak RVG system only *(Carestream)*.
2. **CarieScan Pro:** Easiest and fastest to use and tabulates results of the exam in several different forms, but does not display a real-time image of the patient's tooth during the exam.
3. **SoproLIFE:** The same corded handpiece contains an excellent intraoral camera plus a caries detector. This allows the patient to view the tooth clinically first then with the detector colors superimposed, but the reddish coloration indicating caries is subtle and requires a darkened operatory and some experience to learn to see it on a monitor screen quickly.
4. **Spectra:** Corded handpiece has controls that allow display of caries location and severity. This display is quickly and easily understood by both patients and clinicians, but this device does not have intraoral camera capability to view the tooth as it appears clinically.

How the Four Caries Detectors can Improve Patient Treatment

1. Three of the four systems detect initial *occlusal caries* reliably and accurately. Up until now, this has not been possible using traditional methods such as radiographs and visual / tactile examination.
2. Data generated by all four systems helps to dispel patient doubts about legitimacy of caries diagnosis.
3. All four systems give patients a clear understanding of their caries status.
4. Three of the four systems allow patients to see the relative severity of the lesions which enables them to share in decisions on if and when to excavate. Caries severity is not determined easily by the SoproLIFE.
5. All four systems can provide printouts for patients to carry home to consider their oral health status in the privacy of their home.
6. Accurate caries detection followed by lesion monitoring over time to determine lesion arrest, progress, or regress can give patients the opportunity to change habits and choices to conserve irreplaceable tooth structure.

Note: Detection is not a reason to excavate. The dentist and patient must consider past caries experience, lesion size and location, oral hygiene, saliva flow rate, diet, etc. in making a decision on treatment.

Conclusions: All four caries detection systems reported have performed well and better than all previous products in rigorous trials of their accuracy in multiple real-world clinical environments. Because they differ substantially in design, output, and features, clinicians must study the chart above to identify features they need most. Only the Logicon detects *interproximal lesions* reliably and accurately. The other three systems detect *occlusal lesions* equally reliably and accurately. Their ability to detect and record initial *occlusal caries* marks a significant first for dentistry which warrants consideration for routine use by clinicians. Although today there is debate on how to manage initial carious lesions, dental clinicians' responsibility to detect and record caries accurately has not changed.

Implant Attachments for Removable Prostheses: Which is Best? *(Continued from page 1)*

Desirable Characteristics of Attachments

- Adequate retention of prosthesis
- Minimal loss of retention over time
- Simple to place, remove, and replace retentive elements
- Vertical resiliency upon loading
- No permanent deformation of attachment
- Small size attachment housing and abutment
- Angled abutments to correct for implants that are not parallel
- Wide angle tolerance for divergent implants
- Affordable cost

Attachment Options

Implant supported attachments generally fall into two categories: 1) male insert types and 2) sphere and o-ring types. Carefully compare the main characteristics listed below to determine which attachment is best for a specific clinical situation.

Male attachment with plastic/nylon insert *(ERA, Locator, GPS, others)*

- Rigid support of prosthesis, but less resiliency *(vertical movement upon loading)*
- Replaceable inserts offer differing levels of retention
- Requires separate abutment; angled abutments available for divergent implants
- Custom abutment cuff heights available for various gingiva thicknesses
- Can be initially difficult for patient to remove prosthesis until attachment "breaks in"
- Inserts can be deformed and lose retention over time

Metal spheres with o-ring *(ORS, MDI, Saturno, others)*

- Flexible support of prosthesis with greatest resiliency *(vertical movement upon loading)*
- Various sphere sizes available *(smaller is preferable)*
- Many one-piece sphere/implant options available
- Custom implant/abutment cuff heights available for various gingiva thicknesses
- O-rings are inexpensive and simple to replace
- Many options available for small diameter *(mini)* implants

Attachment Characteristics

Dentists must select the most appropriate attachment depending on space availability, patient hand dexterity, implant parallelism, and financial resources.

Photo						
Product Name *Company*	**ERA** *Sterngold*	**GPS** *Implant Direct Sybron*	**Locator** *Zest Anchors*	**MDI O-Ball** *3M ESPE (formerly IMTEC)*	**ORS** *Attachments International*	**Saturno** *Zest Anchors*
Approximate costs	$27/Attachment $94/Abutment $5/Replacement insert	$100/Attachment and abutment $4/Replacement insert	$31/Attachment $115/Abutment $6/Replacement insert	$22/Attachment $66/Implant $2/Replacement o-ring	$30/Attachment $45/Sphere abutment $1/Replacement o-ring	$33/Attachment *Use any brand of sphere* $2/Replacement o-ring
Attachment housing sizes available ***(diameter x height)***	Micro: 4.4 x 2.3 mm Standard: 5.6 x 2.8 mm	Standard: 5.5 x 2.2 mm	Standard: 5.4 x 2.3 mm	Micro: 4.3 x 3.3 mm Standard: 4.7 x 3.6 mm *(both for 1.8 mm sphere)*	Micro: 4.2 x 2.2 mm *(for 1.8 mm sphere)* Standard: 5.1 x 2.5 mm *(for 2.25 mm sphere)*	Micro: 5.0 x 3.5 mm *(for 1.8 mm sphere)* Standard: 5.7 x 3.8 mm *(for 2.25 mm sphere)*
Resiliency ***(vertical play)***	0.40 mm	0.24 mm	0.17 mm	0.67 mm	0.66 mm	1.02 mm
Insert longevity	Fair	Good	Excellent	Good	Excellent	Excellent–Good
Tolerance of non-parallelism ***(angled abutments available)***	Fair *(Excellent with use of 5°, 11°, 17° angled abutments)*	Good *(Excellent with use of 15°, 30° angled abutments)*	Excellent–Good	Excellent	Excellent	Excellent
Ease of changing insert	Good: requires handpiece, custom bur, pick, and custom insertion tool	Excellent–Good: requires custom removal and insertion tools	Excellent: requires custom removal and insertion tools	Excellent: requires pick; new o-rings press in by hand	Excellent: requires pick; new o-rings press in by hand	Excellent: requires pick and custom insertion tool

Summary of Testing

- **Retention:** O-ring attachments exhibited low but consistent retention forces *(1–2 lbs.)*. Male-type attachments exhibited low to high retention forces *(0–12 lbs.)* depending on insert selected, allowing clinician to adjust retention to compensate for number of implants, wear, or other clinical factors.
- **Wear:** Accelerated wear tests showed ERA attachments drop in retention within a few weeks time before stabilizing. Correct alignment and insertion are necessary for all brands to prevent premature wear and deformation.
- **Resiliency:** O-ring attachments exhibited greatest resiliency *(vertical movement)* and horizontal play. Male-type attachments had less play and are indicated when more rigid support is desired.
- **Non-Parallelism:** Non-parallel abutments can hamper alignment and seating; reduce retention; and result in premature wear. O-ring attachments tolerated divergent angles best. Angled abutments available for ERA and GPS can improve parallelism to maintain optimum path of insertion and retention.

CR Clinical Tips for Success with Implant Attachments

- **Options:** Use attachment best suited to patient needs. Attachments International can customize attachments for any implant.
- **Abutments:** Use angled abutments if necessary to correct for non-parallel implants.
- **Retention:** Use lighter retention for four or more implants *(for ease of removal)*.
- **Pick-up Procedure:** Rely on mechanical and adhesive retention. Make undercuts and vent hole in prosthesis where attachment housing will be placed. Use GC Fit Checker to ensure housing does not touch denture. Use ERA PickUp resin *(Clinicians Report July 2009)* or other self- or dual-cure resin to embed housing. Use light pressure to avoid tissue displacement and loading of implant instead of proper tissue/tooth/implant support. ***Overloading (patient biting too hard) can lead to tissue irritation, denture tooth loss, and cracks in the prosthesis.***
- **Implant Types:** Combine implants sizes as necessary for reduced cost and increased support. Mini implants are a simple, low-cost alternative to extensive grafting and more complicated implant systems. Use two mini implants next to each other in substitution for one standard size implant.
- **Bar use:** Use of a milled or cast bar *(with various types of retentive attachments)* has decreased with increased use and popularity of multiple non-splinted implant retained overdentures *(2 or 4 implant retained/supported overdentures)*. If the patient has the financial capacity ***and*** vertical space required for a bar, it can be another great option. However, removing excessive bone to create space for a higher costing prosthesis is discouraged.
- **Teamwork:** Surgical, restorative, and laboratory elements must be coordinated carefully.

CR Conclusions: Dentists are encouraged to use attachments for removable prostheses since they are known to improve patient comfort, satisfaction, and function. There is not a "best" attachment since each patient has different needs. Locators are among the most used implant attachments. O-ring attachments *(MDI, ORS, and Saturno)* are the most resilient and retain the prostheses best at divergent angles at a lower overall cost. Angled abutments *(available for ERA and GPS)* can easily correct implants that are not aligned. When patient finances allow, many clinicians now consider at least two implants under complete mandibular dentures and some maxillary dentures to be "standard of care." Implants under removable partial dentures are being used more and can eliminate some clasps, and increase retention, support, and patient acceptance.

CE Self-Instruction Test—November 2011

"Clinical Success is the Final Test"

1. **Earn Up to 11 Credit Hours.** Receive 1 credit hour for successful completion of each month's test *(January 2011 through November 2011).* This is a self-instruction program. CR Foundation is an ADA CERP recognized provider and an AGD approved PACE program provider.

2. **Complete the Test.** Tests for each issue of Clinicians Report are available online at www.cliniciansreport.org or by calling 888-272-2345.

CE Self-Instruction Test—November 2011 *Check the box next to the most correct answer*

1. When considering the four caries detection systems described in this report, the following will detect ***occlusal*** dental caries:
   - ❒ A. SoproLIFE, CarieScan, Logicon
   - ❒ B. SoproLIFE, CarieScan, Spectra
   - ❒ C. Only Logicon
   - ❒ D. Logicon, Spectra, CarieScan
2. When considering the four caries detection systems described in this report, the following will detect ***interproximal*** dental caries:
   - ❒ A. SoproLIFE, CarieScan, Logicon
   - ❒ B. SoproLIFE, CarieScan, Spectra
   - ❒ C. Only Logicon
   - ❒ D. Logicon, Spectra, CarieScan
3. Which dental caries detection system uses grayscale analysis software and currently can be used with only the Kodak RVG system?
   - ❒ A. SoproLIFE
   - ❒ B. Logicon
   - ❒ C. Spectra
   - ❒ D. CarieScan
4. All four caries detection systems included in this report detect dental caries:
   - ❒ A. With the same accuracy as previously available electronic caries detection devices
   - ❒ B. At a similar level as currently available analog radiographs
   - ❒ C. With better accuracy than previously available electronic caries detection devices
   - ❒ D. At a similar depth level as digital radiographic images
5. Which of the following is ***not*** an ideal characteristic of attachments?
   - ❒ A. Large housing and abutment size for increased retention
   - ❒ B. Minimal loss of retention over time
   - ❒ C. Affordable cost
   - ❒ D. Vertical resiliency upon loading
6. Which of the following is ***true*** of clinical tips with attachments?
   - ❒ A. Always use heavy retentive elements when combined with four or more implants.
   - ❒ B. Rely on chemical and adhesive retention for the pick-up procedure.
   - ❒ C. Avoid angled abutments for malaligned implants.
   - ❒ D. It is highly recommended to always remove excessive bone to create room for a milled bar.
7. Which of the following is ***false*** regarding attachment options?
   - ❒ A. Some inserts lose their retention over time and can be permanently deformed.
   - ❒ B. Mini implants are increasing the use of sphere and o-ring abutment/attachments.
   - ❒ C. Only one cuff height is available for each attachment system.
   - ❒ D. O-rings are simple to replace.
8. X-Otomes are a set of unique extraction instruments with desired characteristics, ***except:***
   - ❒ A. Large diameter handles allow greater force during extraction.
   - ❒ B. Tip designs are a combination of periotome and root elevator features.
   - ❒ C. Thin handle design encourages delicate use.
   - ❒ D. Sure-grip handle allows for force without hand slippage.
9. EndoSequence Root Repair Material is ***not*** indicated for:
   - ❒ A. Repair of root perforations and resorptions
   - ❒ B. Pulp capping
   - ❒ C. Class V restorations
   - ❒ D. Root end fillings and apexification
10. Profluorid L is a unique fluoride varnish for the following desired features, ***except:***
    - ❒ A. Combination of 5% NaF, 5% CaF, and eugenol
    - ❒ B. Very thin liquid varnish consistency
    - ❒ C. Clear color upon application
    - ❒ D. Thick rosin with unique flow and adhesion

3. **Print Participant Information.** For additional participants, photocopy this page and list requested information.

Name ______________________ Email ______________________

Address ______________________ Phone ______________________

City ______________________ State ________ ZIP ______________

❒ Please send my tests results directly to the Academy of General Dentistry. *(AGD# ______________________)*

4. **Annual Enrollment Fee for 2011.** Select one:
   - ❒ $88 Clinicians Report Subscriber
   - ❒ $108 non-subscriber
   - ❒ Already enrolled

Payment Method: ❒ Visa ❒ MC ❒ AMEX ❒ Discover ❒ Check *(Payable to CR Foundation®)*

| | | | | | | | | | | | | | | | |

Cardholder's Signature ______________________ Exp. ________ CID ________

(Signature Required)

5. **Send your test answers and enrollment fee to: Clinicians Report**
   Fax: 888-353-2121 or Mail: 3707 N Canyon Rd, Bldg 7, Provo UT 84604

To receive credit, all 2011 tests are due by December 15, 2011

Products Highly Rated in CR Clinical Trials *(Continued from page 1)*

Atraumatic Extraction Instrument Combines Characteristics of Periotomes and Root Elevators

The honed, narrow tips of these extraction instruments are designed to sever the periodontal ligament fibers, preserve tissue structures, and preserve bone as they create more precise space along the mesio-distal plane. The sure-grip handle design allows for force to be transferred during extraction without slipping. A variety of tips/angles are helpful and allow access for extractions. Thin handle design encourages delicate use compared to sets with larger handles.

Advantages:
- Good selection of tips and angles
- Allows removal of teeth that are broken at the base
- Good at separating PDL *(may mallet if necessary)*
- Good handles, good grip, comfortable in hand
- High quality, well made

Limitations:
- As with other delicate instruments *(like periotomes),* tips may bend or break with excessive force
- More useful in anterior extractions

X-Otomes

A.Titan Instruments
877-284-8261
www.atitan.com

$120/Instrument

$800/Set of 7 instruments with cassette

CR Conclusions: 72% of 18 CR Evaluators stated they would incorporate X-Otomes into their practice. 89% rated it excellent or good and worthy of trial by colleagues.

Premixed Root Repair Material is Easy to Use, Biocompatible, Hydrophilic, and Radiopaque

This easy to use material has application for repair of root perforation, repair of root resorption, root end filling, apexification, and pulp capping. EndoSequence Root Repair Material is available in both pre-loaded syringes and a moldable putty form for desired handling. Material has alkaline pH during setting and moisture is used in the setting reaction. When using the pre-loaded syringes, the intra-canal tips can be bent to facilitate ideal placement.

Advantages:
- Easier to use and place than previous similar products
- Good dispenser *(tip/syringe)* for easy dispensing
- Radiopaque
- Multiple uses for a variety of clinical conditions
- No mixing required

Limitations:
- Material set time was too long for some Evaluators *(>4 hours)*
- Cost and expiration date may limit quantity of product inventoried in the practice

EndoSequence Root Repair Material

Brasseler
800-841-4522
www.brasselerusa.com

$150/1 gm syringe

CR Conclusions: 95% of 19 CR Evaluators stated they would incorporate EndoSequence Root Repair Material into their practice. 95% rated it excellent or good and worthy of trial by colleagues.

5% Sodium Fluoride and 5% Calcium Fluoride in Liquid Varnish Helps Relieve Tooth Sensitivity

Fluoride varnish has been successfully used for cervical tooth sensitivity. This new liquid varnish is a thin synthetic resin that includes 5% sodium fluoride, 5% calcium fluoride, and eugenol. It has been used as an aid to bleaching sensitivity and does not interfere with vital tooth bleaching. Profluorid L is available in dropper bottle dispensing or in single-dose packets. Must shake bottle to mix contents prior to dispensing.

Advantages:
- Varnish was easy to apply
- Provided good desensitization
- Consistency is extra thin
- Color is clear upon application
- Varnish sets fast following application

Limitations:
- Although not strong, eugenol odor and flavor was a negative for several evaluators
- As with other cervical desensitizers, longevity is patient dependent

Profluorid L

VOCO
888-658-2584
www.vocoamerica.com

$65/Kit with 4 gm bottle, brushes, and wells

$1.70/Single-dose package

CR Conclusions: 68% of 22 CR Evaluators stated they would incorporate Profluorid L into their practice. 86% rated it excellent or good and worthy of trial by colleagues.

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