

THE DENTAL ADVISOR™

“Improving Patient Care Through Research & Education”



Photography by George Poy, DDS

CAD/CAM Update

This issue of THE DENTAL ADVISOR will focus on the ever-changing world of CAD/CAM. We will review all of the chairside systems, provide tips for choosing the right system for your practice, present clinical tips for using the systems, as well as protocols for success in CAD/CAM. In addition, the role of the laboratory and milling center and the concepts of closed and open architecture systems will be discussed. Finally, materials for use in CAD/CAM will be discussed along with clinical tips and information on training and support.

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An Editors' Choice award is given to products recognized by our editors as being a unique or significant product.

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Very Good	+++
Good	++

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Clinical CAD/CAM

CAD/CAM is an acronym for computer-aided design/computer-aided manufacturing.

The **CAD** portion of the process involves the use of a scanner to create a digital model of the preparation. Once the model has been generated on a computer workstation, the restoration can be designed by the doctor, an assistant or lab technician.

The **CAM** portion of the process involves the use of a mill or special printer to fabricate what was designed during the CAD process. This could be a coping, the final restoration or a working physical model.

Q: Why would you consider changing to CAD/CAM?

A: CAD/CAM is an exciting area of dentistry that is growing in different areas every day. It offers many advantages to the dentist, assistant, and patient. The process is very precise and can reduce adjustment time. Best of all, patients love the digital impression process.

Positive Features:

- + Increased accuracy and consistency
- + Allows dentist to scrutinize their preparations carefully
- + No mixing or cleaning up impression material
- + Offers instant display and feedback, allowing a dentist to make corrections immediately
- + Positive patient experience
- + Eliminates steps: tray selection, mixing/dispensing materials, disinfection, mailing impression to/from laboratory
- + Environmentally friendly

Q: What are the different types of in-office CAD/CAM systems?

A: If you are thinking about investing in digital technology, one of the first decisions to make is what type of system will be best for your dental practice. Currently, there are two types of systems on the market:

1. Chairside CAD/CAM Systems [CEREC AC (Sirona) and E4D Dentist (D4D Technologies)]- These systems require one dental appointment, in which the dentist scans the preparation, designs and mills the restoration, has the option to stain and glaze, and seats the final restoration.

Advantages

- + One visit
- + Can cut cost on inlays, onlays, crowns and veneers by milling in-office
- + No temporary: reduced sensitivity, no debonds

Disadvantages

- Longer chair time for patient during visit
- Additional supplies needed
- Ceramic and composite blocks only

2. Digital Impression Systems [3M ESPE Lava Chairside Oral Scanner C.O.S. (3M ESPE), iTero (Cadent, Inc.), and CEREC via CEREC Connect (Sirona)]- These systems require two dental appointments. At the first appointment, the dentist scans the preparation, views the interactive digital model, and in some cases designs the restoration. The digital model is then sent electronically to the appropriate lab for fabrication of the final restoration.

Advantages

- + Cost is less for scanner only
- + Wider variety of case selection and wider variety of material
- + No need to change current laboratory
- + Saves time at seat appointment because less adjustments are needed

Disadvantages

- Requires 2nd appointment
- Model fees/scan fees
- Requires temporary
- Difficult to scan subgingivally

Comparing the Four Systems

Thousands of clinicians have inquired about the differences among these four systems. Many questions arise when considering CAD/CAM, from powdering to image capture to training and support, as well as the actual cost of the CAD/CAM restoration. Below we address these issues and many more.

CEREC AC	E4D Dentist
Powder: Yes (coating of the teeth being imaged) # of images: 1-3 Price: \$120,000/\$25,000 (scanner only) Architecture: Closed (or selectively open) Light Source: Bluecam LED Image Stabilization: Yes Mill Time: 5-10 minutes for MCXL mill + Quick mill time + Quick image capture + Crisp images, easy-to-read margins + Ability to fabricate both in-office restorations and send digital impressions to a CAD/CAM laboratory (via CEREC Connect *) - Powder needed - Some desired design tools are lacking - Cannot design multiple restorations at one time on one screen - Cannot scan from an impression	Powder: Not required, accent liquid available # of images: Minimum of 9 Price: \$116,000 Architecture: Closed Light Source: Laser Image Stabilization: Yes Mill Time: 10-20 minutes + Can scan impressions + Rapid Scan makes imaging quicker + Simultaneous design of multiple restorations + Great design tools for customizing restorations - Longer mill time - Margins not as easy to read - Requires at least 9 images for adequate detail - Does not have ability to send digital images to lab for fabrication of single- or multiple- restorations (<i>E4D Labworks to be introduced August 2009</i>)
 CEREC AC (Sirona)	 E4D Dentist (D4D Technologies)
Lava Chairside Oral Scanner C.O.S.	iTero
Powder: Yes (light dusting of the teeth being imaged) # of images: Continuous video Price: \$26,900 Architecture: Closed Light Source: LED Image Stabilization: No Die: Stereolithography (SLA) + Small wand + Great powder dispenser + Can see captured data (vs missing data) in real time + Allows dentist to capture and simultaneously view continuous 3D video images - Difficult to maintain isolation for continuous scanning - Longest learning curve for all scanners - Powder needed	Powder: No # of images: 21 Price: \$25,000 Architecture: Open Light Source: Laser Image Stabilization: No Die: Precision Milled + No powder needed + Anti-fog feature built-in scanner head + Guided scanning literally tells you what to do + Keeps track of workflow - Larger intraoral scanner head - Margin detail on images not as crisp - Missing data are not available until all scans are completed
 Lava C.O.S. (3M ESPE)	 iTero (Cadent, Inc.)

* **CEREC CONNECT:** web-based communication platform designed for *CEREC* users. Allows dentist to send digitally scanned impression from *CEREC AC* to a laboratory that has a *CEREC* mill and software for fabrication of single or multiple unit restorations.

CAD/CAM and the Laboratory

Open Architecture vs. Closed

Chairside CAD/CAM and digital impressing systems are further distinguished by the way they communicate. Closed architecture systems communicate only with equipment from one manufacturer. Company A scanner can only communicate with a Company A milling system. Open architecture equipment can communicate between different manufacturers. Scanner from company A can output an electronic file (STL) that a mill or printer from company B, C or D can work with. To further complicate matters, some 'closed architecture' systems are now being opened to select partners in what is called 'selectively open' architecture. In this case, a scanner from Company A can produce a file that a mill or printer from Company C can work with, but equipment from Companies B and D cannot work with the file. Laboratory CAD/CAM systems also fall into closed and open architecture categories, some of which are compatible with the chairside CAD/CAM and digital impressing systems and some that are not.

Q: How Does the Laboratory Fit in the Picture?

A: When deciding which system is right for a dental practice, one needs to assess what level of interaction will remain with the lab. Is the intent to lower lab bills by doing most of the design and milling work in the dental office? Is it to focus on only digital impressing and let the laboratory design, mill and finish the restorations? Or is the ideal solution somewhere in between?

If lower lab bills is the primary focus, then chairside CAD/CAM is the solution. Open and closed architecture really does not matter. If digital impressing is the main focus, then open and closed architecture is an important consideration. Consult with your laboratories to find out which systems they currently have, are considering investing in, or have access to through their partners. If the doctor wants to mill their own restorations, but still wants the option to send cases to their laboratory, both **CERAC AC** and **E4D Dentist** offer a laboratory mill option. However, at the moment these systems have closed or selectively open architecture, and may have limitations when it comes to large-span bridges, restoration height, or choice of materials.

Moving to a Digital Workflow

Traditional



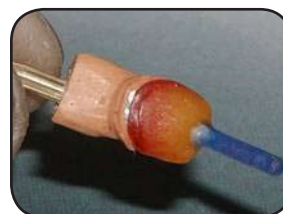
Preparation



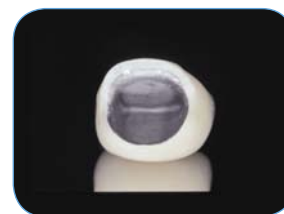
Impression



Stone Model



Wax Coping



PFM Restoration

Digital Impressing Systems (Lava C.O.S., iTero, and CEREC Connect)



Preparation



Digital Impression



Digitally Fabricated Model



CAD Process



All-ceramic Restoration

Chairside CAD/CAM Systems (CEREC AC, E4D Dentist)



Preparation



Digital Impression



Design of Restoration



Milling of Restoration



Milled Restoration

Q: What additional costs are involved with a CAD/CAM system?

A: To fabricate chairside restorations, the fees you will have to account for are the cost of the ceramic or resin block, reflective powder (if needed), diamond burs for the milling process, oven for staining/glazing, and the stain and glaze.

In addition to customary lab fees, Digital Impression Systems require additional scan and model fees.

	Scan Fee	Model Fee*	Other Fees
Lava C.O.S.	\$16-20/scan	\$16-30	Powder (\$19/bottle)
iTero	\$25/quarter arch \$35/full arch	\$18-31	Disposable sleeves (\$2.50 each)
CEREC Connect	\$25 (fee waived with acquisition system)	\$22 flat fee	

**Model fees may vary based on case size and monthly volume*

Q: What material options are available for both types of CAD/CAM systems?

A: When choosing a material for digital impressing systems the options are endless. These include anything from Gold, PFM to Ceramic and Resin restorations. However, when it comes to chairside CAD/CAM systems you must choose between All-Ceramic or Resin blocks. Listed below are the available materials for each system.

Type	E4D Dentist Materials Available	CEREC AC Materials Available
Composite	Paradigm MZ100 (3M ESPE)	Paradigm MZ100 (3M ESPE)
Feldspathic Porcelain		VITABLOCS Mark II, Esthetic Line, TriLux (VIDENT)
Leucite-reinforced Glass-Ceramic	IPS Empress CAD LT, HT and MultiBlocks (Ivoclar Vivadent, Inc.), Paradigm C (3M ESPE)	IPS Empress CAD LT, HT and Multiblocks (Ivoclar Vivadent, Inc.), Paradigm C (3M ESPE), HD17 Blocks (Benco)
Lithium Disilicate	IPS e.max CAD (Ivoclar Vivadent, Inc.)	IPS e.max CAD (Ivoclar Vivadent, Inc.)

For more information on bonding and cementation of CAD/CAM restorations, visit CAD/CAM Corner at www.dentaladvisor.com.



**VITABLOCS TriLux forte
full coverage crowns (teeth 9, 10)
(VIDENT)**



**IPS Empress CAD and IPS e.max CAD
(Ivoclar Vivadent, Inc.)**

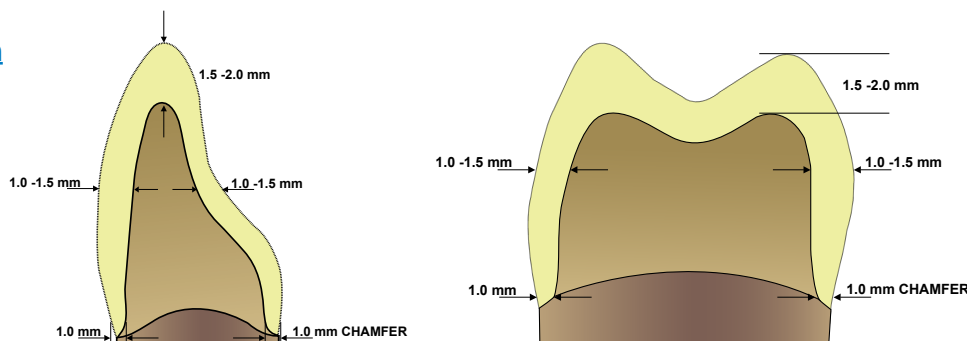
CAD/CAM Clinical Success Tips

Why Preparation Design is Critical

- Uniform reduction results in optimum ceramic strength
- Adequate reduction leads to better esthetics
- Smooth edges result in lower stress
- Lower stress decreases potential for fracture
- Ceramic restorations require a passive fit
- Scanners read smooth preparations more accurately

All-ceramic Preparation Design

- Uniform, circumferential, tooth reduction of 1.0-1.5 mm
- Circumferential chamfer
- Occlusal reduction of 2 mm
- Rounded line angles
- Reduce linguals of anteriors with football diamond to create concave lingual



Optimizing Clarity and Exposing the Margin

The accuracy of CAD/CAM restorations depends on the scanner's ability to visualize the margin of the preparation. The most effective way to accomplish this is by placing supragingival margins. In many cases, there is no option but to place subgingival margins; and, therefore, it is important to expose the margin. This can be accomplished by removing soft tissue with a laser or retracting tissue away from the margin using gingival retraction paste or packing cord.

Gingival Retraction Paste (Expasyl)	Retraction Cord	Diode Laser
Minor inflammation	Moderate inflammation	Severe inflammation
Place Expasyl (<i>Kerr Corporation</i>)	Pack cord	Trough with laser
Rinse/Remove	Powder (CEREC AC & Lava C.O.S.)	Peroxide
Powder (CEREC AC & Lava C.O.S.)	Scan	Powder (CEREC AC & Lava C.O.S.)
Scan		Scan

Q: How do I know which system is best for me?

A: It is safe to say any of the four CAD/CAM systems will improve the way a dentist scrutinizes dentistry and, as such, will improve clinical skill. The question most clinicians have is return on investment. With a significant cost difference between digital impression systems and complete chairside scan and milling systems, we are often asked how a dentist determines which is best for the office. A chairside digital impression system is ideal for a dentist who wishes to incorporate CAD/CAM technology into the practice, but would like a variety of material choices. Chairside digital impressions allow you to utilize your existing laboratory and in many cases, the laboratory can continue to use the same method to fabricate restorations. An SLA or milled model is provided to a laboratory as a working model. Complete chairside CAD/CAM is ideal for those dental teams that perform a high amount of cosmetic procedures in the posterior region. Since the materials available are highly esthetic and all-ceramic or composite, performing these procedures in one visit without temporization can be a practice builder. Those dental teams that have highly skilled dental assistants and business team members to discuss cosmetic dentistry can also benefit from chairside CAD/CAM. In addition, technologically savvy assistants as well as dentists quite enjoy the process of designing and fabricating a restoration in office. If you are thinking about switching over to CAD/CAM technology, it should be said that all of the systems offer a benefit in that the technology provides precision that cannot be obtained with traditional methods.

Integration into the Dental Practice

Training and Support

The following is included in the purchase price for each system:

CEREC AC: Two-day basic training course offered at over 21 locations and \$1000 voucher for advanced training with an instructor. Comes with two-year warranty, onsite, telephone and remote chairside service is available.

E4D: Two-day training for the dentist and an assistant at the E4D training center in Richardson, Texas (includes airfare, tuition, and accommodations). This is required prior to delivery. In addition, there is a one-day, in-office follow-up training for the whole team. A three-year warranty is included with no charge for software updates. Remote access allows SOS professionals to view scans, virtually operate design tools, upgrade software, and run diagnostic tests on the mill if needed.

Lava C.O.S.: Two-day in-office training for the dentist and team with follow-up training as needed. Additional training fee is \$1500 for the dentist. A one-year warranty is included. After the first year, for a fee of \$150/month there is unlimited telephone, network, and remote-in service and software upgrades.

iTero: Two-day, in-office training for the dentist and team with live patients followed by a one-day follow up in-office training. It comes with a 90-day warranty that can be extended for one-three years for \$150/month. Software updates are available every two-three months at no charge. Telephone remote chairside and on-site support are available.

Future Directions in CAD/CAM

As CAD/CAM continues to expand and grow to an industry standard, the trend will likely move toward bridging and open architecture. Currently, only one of the four chairside systems on the market is truly open and versatile in terms of mixing and matching. In future months, alliances, bridges, and true integration among digital manufacturers of cone beam technology, practice management software, laboratory milling, and implant manufacturers will become the norm, as has become the standard in the digital radiography market. In addition, wireless technologies and more user-friendly systems will likely appear.

THE DENTAL ADVISOR is the only facility in the U.S. that is currently evaluating CEREC AC + mill, E4D Dentist, 3M ESPE Lava Chairside Oral Scanner C.O.S., and iTero.

What Do Dentists and Assistants Have to Say About The Different CAD/CAM Systems?

CEREC AC:

- ◆ *"Love the Automatic Capture and nice crisp pictures with Cerec AC's Bluecam technology."*
- ◆ *"Cerec AC has an advantage in that you only have to take 1-3 pictures for the preparation. It usually takes me less than a minute to capture my images... what more could you want?"*

E4D Dentist:

- ◆ *"E4D Dentist uses a feature called Autogenesis to design restorations. Crown proposals look great and require minimal edits because Autogenesis takes into account the adjacent and opposing teeth and designs a tooth that best fits the patient's mouth rather than relying on the best fit of a pre-designed tooth."*
- ◆ *"With the E4D Dentist system, it is extremely helpful to have option to scan from an impression, especially when I am trying to capture an image of a molar on a patient who gags easily or in cases where it is difficult to keep everything dry."*

Lava C.O.S.:

- ◆ *"The Lava C.O.S. crowns definitely required fewer occlusal adjustments and very few adjustments of the contacts. This saved me time at the seat appointment!"*
- ◆ *"Love the touch screen technology as well as being able to see the prep in 3D."*

iTero:

- ◆ *"Having looked at all four systems, iTero has the fastest learning curve!"*
- ◆ *"The clearance tabs on the iTero are my favorite feature. It shows the amount of interocclusal clearance on my preparations, allowing me to make changes to the preparation before sending it off to the lab... say goodbye to reduction copings!"*

For more dentist and assistant comments on the different CAD/CAM systems, read the complete article at www.dentaladvisor.com.

Ivoclar Vivadent
1.800.533.6825
www.ivoclarvivadent.com

Description

The **Odyssey Navigator Diode Laser** is a portable, solid-state diode laser recommended for soft tissue modification and preventive care. The unit utilizes an 810-nm wavelength and provides up to three watts of power. It is designed to deliver laser energy in either continuous or pulse mode. The docking cradle secures the unit on a counter-top and provides a charging base for a rechargeable lithium polymer battery which offers up to 45 minutes of portable lasing. The handpiece is detachable and should be autoclaved after each use. Individually packaged, pre-stripped, pre-cleaved fiber tips snap on to the handpiece. Users of the **Odyssey Navigator** can create their own programs or select from over 30 pre-set clinical procedures from the touch screen monitor. The manufacturer recommends using the lowest power setting that will effectively modify the tissue. The **Odyssey Navigator** was evaluated by seven consultants and received a 97% clinical rating.

Suggested Retail Cost

- \$13,300.00/unit

Equipment Features

Consultants used the **Odyssey Navigator** in a variety of procedures including gingival troughing, hemostasis, gingival recontouring, frenectomy, excision, and distal wedge procedure. Every consultant found the pre-set programs very helpful. The 30 clinical procedures installed into the system, as well as the ability to create other programs, thoroughly covers all needs of the clinician. While the low-wattage setting is best to start with to avoid tissue damage, most clinicians increased the preset wattage to remove tissue more effectively. **Odyssey Navigator** features both continuous and pulse modes. The continuous mode is more aggressive, while pulse mode, with 0.05-second intervals, allows some tissue cooling between pulses. At 2.5 pounds and 7"x4"x3" (17.8x10.2x7.6 cm), the **Odyssey Navigator** is lightweight and portable. Its ease of use, convenience and the ease in which settings can be selected were the highest rated features. The touch screen and inverted screen capability are excellent. The **Odyssey Navigator** features unit-dose fiber tips which are easily changed. The wireless foot pedal is an exceptional addition to this system. When used for gingival contouring in conjunction with indirect restorative procedures, the quality of the final impression or digital scan was rated as above average. The tissue heals extremely well five to seven days post-operatively.



Consultants' Comments

- ◆ "Pre-sets are wonderful!"
- ◆ "The wireless foot pedal is convenient in the operatory and makes storage less cumbersome."
- ◆ "The pre-cleaved, single-use tips are perfect."
- ◆ "A longer cord between the unit and the wand would be nice."
- ◆ "Easy set up and convenient."
- ◆ "Fantastic product."

Patients reported little to no discomfort 12-24 hours post-operatively. One hundred percent of evaluating consultants rated the **Odyssey Navigator** Diode Laser better than their current laser, and 100% would recommend it to colleagues.

Clinical Tips

- Increase the wattage slightly from the preset values to 1.3 or 1.4 watts for more efficient tissue removal.
- Gently scrub the tissue with hydrogen peroxide on a microbrush after using the laser to remove any tissue debris and clean the surface.
- Appropriate safety eyewear must be worn by everyone present in the operatory.

Editors' Note: A 6-ft cord is available as an option. ■

Vanish XT Extended Contact Varnish + + + 1/2

3M ESPE
800.634.2249
www.3mespe.com/preventive_care

Description

Vanish XT Extended Contact Varnish is a light-cured resin-modified glass ionomer that provides a protective barrier for up to six months. The varnish releases fluoride, calcium and phosphate to reduce dentin hypersensitivity and risk of demineralization from acids. **Vanish XT** is supplied as a two-part liquid/paste system. The paste contains a radiopaque fluoro-aluminosilicate glass; the liquid contains a modified polyalkenoic acid. The material is contained in the Clicker Dispenser, providing simultaneous dispensing of each component.

Vanish XT offers a minimum 2.5-minute working time and light cure of 20 seconds. **Vanish XT** is recommended for site specific use on exposed root surfaces, newly erupted teeth, around orthodontic brackets, and on “white spot” decalcification lesions.

The kit contains a 10-g cartridge of material, a mixing pad and instructions for use. **Vanish XT** was evaluated by 29 consultants in over 378 clinical cases and received an 84% clinical rating.

Suggested Retail Cost

- \$174.90/kit

Product Features

Vanish XT is conveniently packaged in the Clicker Dispenser, which allows clinicians to dispense efficiently premeasured amounts of each component.

Consultants' Comments

- ◆ “Immediate effectiveness against sensitivity.”
- ◆ “Patients didn't mind the color compared to our other varnishes.”
- ◆ “For our orthodontic patients, it can protect against decalcification where oral hygiene is poor.”
- ◆ “It cures like a bonding agent.”
- ◆ “Flakes off with a fingernail.”
- ◆ “Surface is grainy.”

The liquid/paste is easily mixed within 15 seconds. The viscosity is appropriate for placement with a brush onto tooth surfaces and the working time allows placement of the varnish onto multiple teeth in one area before light curing. Some consultants reported that the sensitivity relief did not last as long as they had anticipated. Seventy-nine percent of consultants rated **Vanish XT** the same as or better than their most frequently used product, while 28% would switch to **Vanish XT** and 48% would recommend it to their colleagues.

Clinical Tips

- Apply with a small microbrush to achieve a thin layer.
- For enamel application, an acid etch is required before placement of **Vanish XT** Extended Contact Varnish. ■

Product Update



The evaluation of **D.T. Light Post Illusion X-RO** (extra radiopaque) was reported by all consultants to show a significant increase in the radiopacity of the **D.T. Light Post Illusion**. Laboratory testing showed that the radiopacity of the **D.T. Light Post Illusion X-RO** had doubled. One hundred percent of evaluating consultants rated **D.T. Light Post Illusion X-RO** as better than **D.T. Light Post Illusion**; one hundred percent would switch and recommend this product to their colleagues. This product received a 98% clinical rating.

Editors' Note: For the full evaluation on **D.T. Light Post Illusion**, please refer to **THE DENTAL ADVISOR**, Vol. 26, No. 5, June 2009.

DENTSPLY Professional
800.989.8826
www.dentsply.com

Description

NUPRO® NUSolutions™ is a prophylaxis paste containing fluoride (1.23% F ion) and *NovaMin*, a calcium sodium phosphosilicate. **NUPRO NUSolutions** is recommended for use as a dentin desensitization agent due to phosphate and calcium ion deposition during direct local application. The instructions state that this paste is not for use as a polish for restorations. **NUPRO NUSolutions** is packaged in unit-dose plastic cups, color-coded for each of the four flavors: spearmint, peppermint, bubblegum and citrus mint. It contains no dyes and is available in both a fine “Polish” grit and a coarser “Stain Removal” grit, which is marked on the cups. Dentists and hygienists from 21 offices used **NUPRO NUSolutions** for 751 polish and 382 stain removal procedures. This prophy paste received an 83% clinical rating.

Suggested Retail Cost

- \$242.00/case of four 175-count boxes

Product Features

NUPRO NUSolutions provided good polishing and stain removal during prophy procedures. The pastes were rated very smooth by hygienists, and patients felt little grittiness. Some clinicians

Consultants' Comments

- ◆ “Patients think it is a smooth paste.”
- ◆ “It cleans and polishes well.”
- ◆ “Does not rinse off completely.”
- ◆ “I found the paste somewhat hard to load into the cup on the prophy angle.”
- ◆ “We found it splatters quite a bit.”

found that complete rinsing of residue from the mouth was more time consuming than with their usual product; however, the manufacturer recommends only a normal rinse time to rinse away the grit but to avoid washing away the Hydroxy Carbonate Apatite (HCA) layer being formed as the NovaMin reacts with the moisture in the mouth. Often the HCA formation left a white residue at cervical and interproximal areas of the teeth. This residue was a positive feature in that it is evidence of the formation of the Hydroxy Carbonate Apatite layer. This layer when formed may also stick to soft tissues as well as hard tissue. Clinicians found that the residue detracted from the clean appearance that patients expect following a prophy and made subsequent examination of tooth surfaces difficult. Patients were very positive about the flavors and the scents. Seventy-two percent of consultants rated **NUPRO NUSolutions** the same as or better than their current polishing pastes, 59% would switch to it and 59% would recommend it to colleagues. ■

McMerlin Dental Products
800.755.0044
www.mcmerlindental.com

Request a Sample:

Visit www.dentaladvisor.com to request a sample or more information!



Description

Sock It! Oral Pain Gel is designed to manage pain from wounds and lesions in the mouth and help protect compromised tissues. According to the manufacturer, the gel establishes and maintains an optimal wound healing environment, and supplies important nutrients to cells involved in wound healing. **Sock It!** relieves pain by adhering to the wound surface and forming a barrier, thus protecting the wound from contamination and irritation. As described by the manufacturer, the gel binds cations at the site of injury and inhibits their entry into nerve cells, preventing initiation of the pain impulse without causing the numb sensation characteristic of anesthetics. **Sock It!** usually adheres to tissues (and provides pain relief) for an average of 3-4 hours. **Sock It!** is composed entirely of naturally occurring food ingredients, including a food preservative system. **Sock It!** is indicated for use on all types of wounds and lesions of the mouth, including injuries and ulcers of the oral mucosa, mouth sores, extraction sites, orthodontic irritation, denture sores, mucositis, and stomatitis. **Sock It!** is available in a box of 25 individually packaged, 10-g syringes, each with a tapered dispensing tip. **Sock It!** was evaluated by 23 consultants in over 165 clinical cases and received an 85% clinical rating.

Suggested Retail Cost

- \$240.00/box of 25 syringes

Product Features

The natural, plant-based food ingredients in **Sock It!** appealed to patients and clinicians alike. This feature allows the gel to be applied with no limit on the number of uses per day. **Sock It!** is flavored with a small percentage of essential oils found in cinnamon, clove, oregano, and thyme. Patients found the gel easy to apply but did not care for the syringe delivery. The low viscosity allows the material to flow over and cover the entire area, forming a thin film. **Sock It!** can be sent home for patient use. For example, 48% of consultants provided the gel for use on denture sores.



Consultants' Comments

- ◆ "Patients liked having something they could take home and apply topically."
- ◆ "It does just what the manufacturer says it does."
- ◆ "I love that it contains all-natural food products."
- ◆ "The texture is slippery and lumpy."
- ◆ "Syringe was a bit clumsy to use and included only one tip."

Patients' Comments

- ◆ "I had canker sores inside my mouth - **Sock It!** seemed to speed up healing time."
- ◆ "I really like that it is an all-natural product."
- ◆ "Syringe is too large."
- ◆ "Relief was immediate; however, it didn't last long enough."

Consultants also reported using **Sock It!** on ulcers and injuries of the oral mucosa and on extraction sites. Patients found that **Sock It!** provided some immediate relief, but the effect was not long lasting. Eighty percent of consultants rated **Sock It!** equivalent or better than the products they usually provide patients for oral pain relief, 52% would switch and 80% would recommend **Sock It!** to their colleagues. ■

LumaCool Whitening Pen + + + +

Lumalite, Inc.
800.400.2262
www.luma-lite.com

Request a Sample:

Visit www.dentaladvisor.com to request a sample or more information!



Description

LumaCool Whitening Pen is a whitening material that contains 7.5% hydrogen peroxide. It is conveniently packaged in a 2.5-mL pen with a twist-click dispenser and brush tip, which has approximately enough material for 40-50 applications (or one month). This product is designed for maintenance after in-office whitening and will whiten non-whitened teeth approximately one shade. **LumaCool Whitening Pen** may be applied up to three times per day, and patients are instructed not to eat for 30 minutes after application. Six consultants and 30 patients evaluated **LumaCool Whitening Pen**. This product received an 86% clinical rating.

Suggested Retail Cost

- \$86.00/10 pens

Product Features

Patients rated **LumaCool Whitening Pen** highly for its convenience and ease of use. They commented on their ability to take the pen with them and easily apply the whitening agent. Consultants reported the ability to personalize the **LumaCool Whitening Pen** with their practice names as the highest rated feature, and stated that the packaging and appearance of the pen were excellent. Both consultants and patients liked that the material appeared invisible on the teeth. Ninety percent of patients who used **LumaCool Whitening Pen** had previously whitened their teeth, 69% of patients found **LumaCool Whitening Pen** to be better than or equivalent to their prior whitening method, and 84% would continue using it. All consultants reported they would provide **LumaCool Whitening Pen** in their practices. Four out of the five consultants would recommend and purchase **LumaCool Whitening Pen**.

Clinical Tip

- Patients with ulcerative gingivitis or stomatitis should not use this product. ■



Consultants' Comments

- ◆ "It's great for patients who need just a little bit of whitening."
- ◆ "Convenient, handy, sleek and trendy."
- ◆ "Not sure about the lasting effects."

Patients' Comments

- ◆ "Convenient, easy to apply and didn't interfere with my morning coffee."
- ◆ "Gentle enough for people who have sensitive teeth."
- ◆ "Very convenient for traveling."
- ◆ "I couldn't tell how much was left in the pen."

Kuraray America, Inc.
800.879.1676
www.kuraraydental.com

Description

CLEARFIL SA CEMENT is a self-etching, self-adhesive, dual-cured resin cement with fluoride release. It is based on the *Panavia* and *CLEARFIL SE BOND* adhesive technology and has a reported film thickness of approximately 20 microns. It is indicated for cementation of crowns and bridges made of metal or ceramic as well as inlays/onlays and metal and fiber posts. It is packaged in 4.6-ml syringes in Universal (A2) and White shades and is dispensed directly from an automix syringe or using a specially designed dispenser. The *Value Kit* contains three syringes of the cement with 40 mixing tips and 10 endodontic tips. Thirty consultants used **CLEARFIL SA CEMENT** for luting more than 570 clinical restorations made of various materials. This product received a 96% clinical rating.

Suggested Retail Price

- \$99.00/Standard Kit
- \$279.00/Value Kit

Product Features

The automix syringes can be used to express **CLEARFIL SA CEMENT** efficiently through the mixing tips directly into the restoration to minimize waste. Alternatively, the plunger can be removed from the syringe and the barrels can be placed in the *CLEARFIL dispenser* for better control and extrusion of the cement. All of the features that were evaluated such as packaging, ease of dispensing, consistency and mixing tip size and shape were rated as excellent. The working time is adequate for cementation of multiple units and the setting time can be accelerated by light-curing.



Consultants' Comments

- ◆ "One of the easiest resin cements I have ever used."
- ◆ "Endo tip is great - easiest post cementation clean-up I've ever had."
- ◆ "Excess clean-up after the initial cure was great."
- ◆ "The regular push plunger is fine, but the dispenser is phenomenal!"
- ◆ "The cement is too opaque."

Most consultants found that the snap-set took longer light-curing (8-10 seconds) than the time recommended by the manufacturer (2-3 seconds). After the initial cure, the excess cement easily peels off, mostly in one piece. The cement has excellent viscosity and film thickness to allow complete seating of the restoration. There were no reports of post-operative sensitivity or restoration debonding during the evaluation period. Ninety-three percent of the consultants rated **CLEARFIL SA CEMENT** as equivalent or better than the self-adhesive cement they were currently using, while 73% would both switch and recommend it.

Clinical Tips

- Refrigerate the product when not in use.
- No etching, bonding or other surface preparation of the tooth is necessary.

3M ESPE Lava™ Crowns and Bridges + + + + 1/2

3M ESPE
800.634.2249
www.3MESPE.com

2009 Product Award Winner

Description

3M ESPE Lava Crowns and Bridges is a CAD/CAM system for anterior and posterior zirconia crowns and bridges with a maximum span of 42 mm. Tooth preparation is similar but more conservative than that for ceramic-metal restorations with a chamfer margin. Dies are scanned using a **3M ESPE Lava Scan ST Design System** followed by milling and sintering of the zirconia coping or framework. The system also accepts digital impression files from the **3M ESPE Lava Chairside Oral Scanner C.O.S.** The zirconia substructure is colored with one of seven available shades or white to coordinate with the final restoration, which is overlaid with **3M ESPE Lava Ceram** veneering ceramic. The zirconia ceramic provides high strength, while the overlay ceramic is designed for optimal esthetics. **3M ESPE Lava** restorations may be cemented with traditional or self-adhesive resin cements. This product received a 95% clinical rating.

Clinical Evaluation Protocol

- The first **Lava** restorations were placed starting in 2003. Since that year a total of over 1200 **Lava** restorations have been placed and documented. These restorations include anterior and posterior crowns, as well as 3- and 4-unit bridges.
- Most restorations were cemented with **3M ESPE RelyX Unicem Self-Adhesive Universal Resin Cement**.
- Six hundred and forty restorations were recalled at year six. The restorations included 42% molar, 39% premolar, 12% anterior, 6% bridges and 1% implants (see Figure 1)
- Restorations were evaluated on a 1 – 5 rating scale:
1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.
- The vast majority of the restorations were fabricated by Nellmar Laboratory and Alpha Dental Studio.

3M ESPE Lava Crowns and Bridges

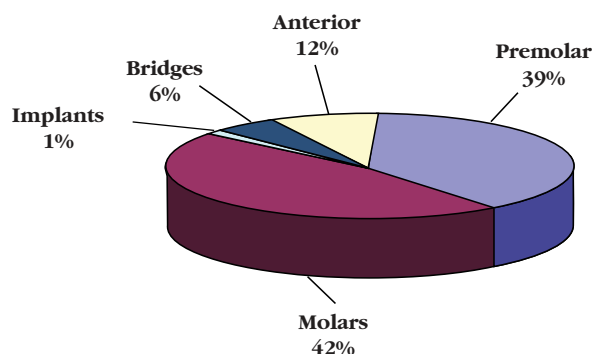


Figure 1

THE DENTAL ADVISOR

Consultants' Comments

- ♦ "Zirconia based restorations are the future in dentistry and will eventually replace most PFM restorations."
- ♦ "Overall, I have been very pleased with the Lava restorations. They are highly esthetic and life like."
- ♦ "My patients love the esthetics and the fact that the crowns do not appear grey like PFMs can."
- ♦ "Like any material there is a learning curve. I have seen Lava crowns get more and more esthetic over the six-year period I have been using them. The laboratories I work with love the outcome."

Laboratory Consultants' Comment

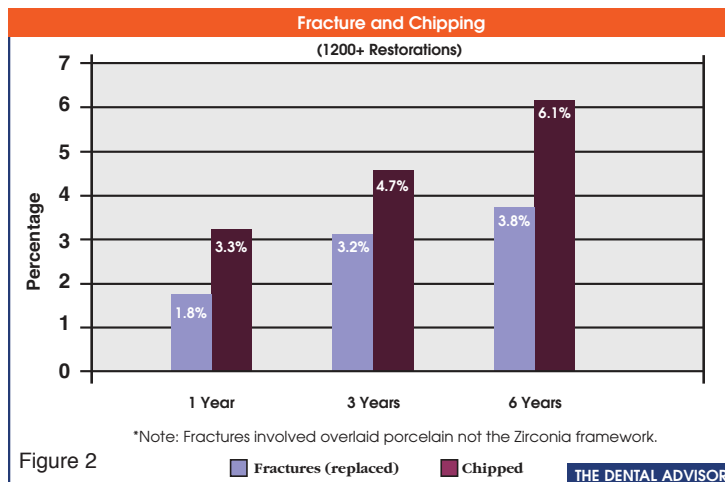
- ♦ "As a laboratory owner, it is so much more gratifying to work with zirconia as compared to metal. The results are much better."

Clinical Observations

Resistance to Fracturing and Chipping

Figure 2 shows the fracture and chipping of **Lava** restorations at 1, 3, and 6 years of service. The fractured restorations were those that were replaced. In many cases, the fractures resulted in the delamination of a large portion of the ceramic, where a large piece would literally shear off the coping. The reasons for the fractures were either due to the thickness of unsupported ceramic or possibly to rapid heating or cooling of the veneering ceramic.

Rapid cooling of the restoration can result in the build-up of undesirable stresses within the restoration. None of the fractures involved a substructure or coping failure. The chipped restorations were not replaced. Most often the chips were minor and the restoration just needed to be smoothed and polished.



6-year Clinical Performance + + + + 1/2

Esthetics

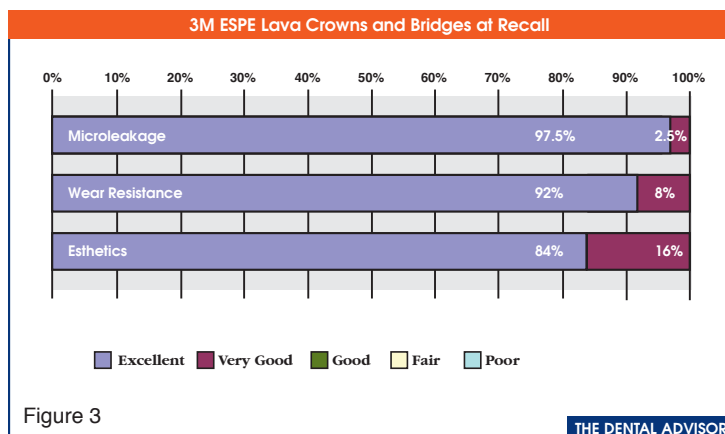
Eighty-four percent of the restorations had excellent shade match while 16% received a very good rating. *Lava* restorations have a definite edge in esthetics over PFM restorations because the *Lava* coping can be fabricated in a different shade and it can act as a good dentin simulator. Furthermore one does not have the grayish appearance of the metal to contend with. *Lava* restorations are in general more esthetic and vital in appearance.

Resistance to Marginal Staining

A distinct advantage of *Lava* crowns is the fact that the core is opaque and the margins of the zirconia core are very close or at the margin of the preparation. The design of the coping and its closeness to the margin can eliminate graying at the margin that can be detected in more translucent restorations. During the six-year evaluation, only 2.5% of the restorations exhibited slight graying at the margins.

Wear Resistance

Ninety-two percent of the *Lava* restorations exhibited no wear while 8% exhibited slight wear of the overlaid porcelain. Minimal amount of wear was noted in about 17% of the teeth opposing *Lava* restorations. This wear was most visible in anterior teeth.



Summary

3M ESPE Lava Crowns and Bridges performed exceptionally well over the six-year evaluation period in their resistance to fracture and marginal staining and exhibited minimal wear.

Editors' Note: Curved and long-span bridges up to 48 mm in length and approximately 18 mm in height will be available with the launch of the larger *Lava Zirconia Multi XL* material later this year. ■



Cutting Through The Red Tape: Infection Control & OSHA Update

presented by

Dr. John Molinari,
Director of Infection Control

Available on 3 dates:
Friday, 25th Sept 2009
Wednesday, 4th Nov 2009
Wednesday, 9th Dec 2009

Time: 9am-noon
Credit Hours: 3

This course includes:

- Infection control recommendations vs. OSHA regulations
- OSHA bloodborne pathogens standard
- Components of standard
- Bloodborne pathogens update
- Post-exposure management protocols
- Hand hygiene
- Handwashing & alcohol-based hand sanitizers
- Infection control techniques
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- Instrument sterilization & reprocessing
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- Dental waterline asepsis

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For registration information visit www.dentaladvisor.com or contact:
Jackie Lane 734.665.2020 ext.105 or jackie@dentaladvisor.com



Hygenic CanalBrush + + + 1/2

Coltène/Whaledent Inc.
800.221.3046
www.coltenewhaledent.com

Description

The **Hygenic CanalBrush** is a flexible microbrush made of polypropylene. Designed to be flexible and small, it has plastic projections that help force rinsing solutions to areas of the canal that might not be reached by files. The brush can be used by hand or in a contra-angle handpiece at a maximum speed of 600 rpm. Initial canal preparation must be of an ISO 30/0.04 size before use of the brush. Twenty-four consultants evaluated the **Hygenic CanalBrush** in over 250 clinical cases. This product received an 83% clinical rating.

Suggested Retail Cost

- \$53.45/50 brushes

Product Features

The flexible plastic design of the **Hygenic CanalBrush** allows the brush to extend into narrow canals with some ease. Using the brush appears to help force the irrigation liquid to areas that might not normally be agitated while simply rinsing. Some consultants found that the plastic tended to bend easily and twists in canals. According to the manufacturer, this happens when **Hygenic CanalBrush** is placed too deeply in the canal and binds.

Consultants' Comments

- ◆ "Nice idea to try to agitate the irrigant throughout the canal."
- ◆ "I was surprised that the brush was able to get down some of the smaller canals."
- ◆ "Plastic bent easily and looked like it got warped by the friction of the canal."
- ◆ "I prefer to use it to place post cements rather than to clean to the apex of a canal."

Most consultants found that the **Hygenic CanalBrush** was an excellent instrument for the placement of adhesives and cements. Sixty-six percent of the consultants rated the **Hygenic CanalBrush** equivalent to or better than the current technique they were using for cleaning canals and/or placing cement. Fifty-eight percent of consultants would recommend it and 38% would switch to the **Hygenic CanalBrush**.

Clinical Tip

- Run the handpiece in reverse when using the brush to help bring cement to the apical parts of the tooth. Like a lentulo spiral, the brush works better when in reverse.

Editors' Note: Since we began this evaluation, the manufacturer has added rubber stops to the **Hygenic CanalBrush** package to make it easier to determine insertion length. ■

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