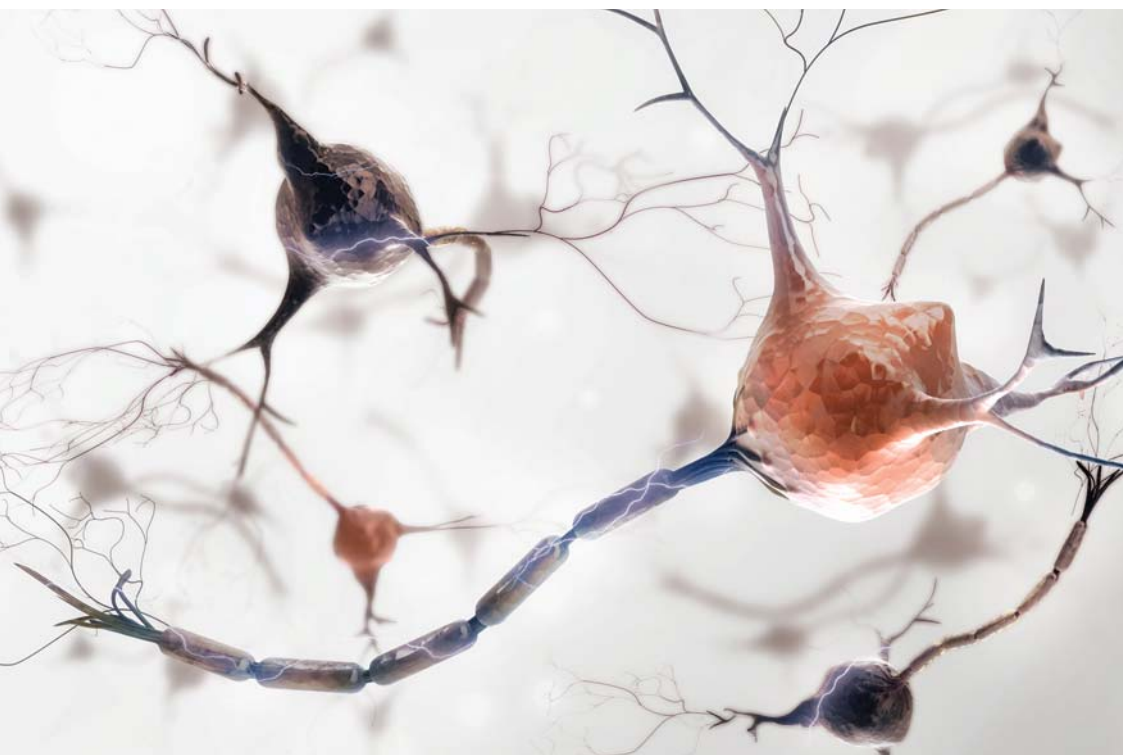


THE DENTAL ADVISOR™

Improving Patient Care Through Research & Education



Dentin Hypersensitivity: Treatment and Prevention

Dentin hypersensitivity is a common oral health problem affecting many adults in the US. Cold, tactile, and evaporative stimuli may cause slight sensitivity or painful sensations in 15-20% of the adult population. Patients can often be unaware of their condition and it can be undiagnosed for several reasons, including the severity of symptoms, and many clinicians do not routinely screen for it. Additionally, those who suffer may neglect oral hygiene, be non-compliant with oral hygiene instructions, or completely avoid dental appointments. Few patients seek professional treatment to improve their condition and many utilize over-the-counter products and remedies to relieve their symptoms.

This issue of THE DENTAL ADVISOR reviews the characteristics, diagnosis, and treatment of dental hypersensitivity with an emphasis on products that can be used for therapeutic management.

April 2013

Vol. 30, No. 03

MAIN TOPIC

Dentin Hypersensitivity:
Treatment and Prevention 2

CLINICAL EVALUATIONS

Structur 3
(Self-cured Provisional Composite)..... 7
FIT CHECKER™ ADVANCED BLUE
(VPES Silicone)..... 10
EmPower Dual
Enzymatic Detergent..... 10
ChildLife Toothpaste Tablets 11

LONG-TERM EVALUATIONS

Mojo Veneer Cement:
Two-year Clinical Performance..... 8

EDITORS' CHOICE



Hg Containment System 5
Ivoclean
(Cleaning Paste)..... 6
CLEARFIL DC CORE PLUS
(Core Build-up Material)..... 11
CLEARFIL S3 BOND PLUS
(Bonding Agent) 12

www.dentaladvisor.com

RATINGS:

Excellent + + + + +
Very Good + + + +
Good + + +

SENIOR EDITORS

John W. Farah, D.D.S., Ph.D.
John M. Powers, Ph.D.

EDITOR-IN-CHIEF

Sabiha S. Bunek, D.D.S.

EDITORIAL BOARD

John A. Molinari, Ph.D.
Peter Yaman, D.D.S., M.S.
William A. Gregory, D.D.S., M.S.
Santine Anderson, D.D.S.
Julius E. Bunek, D.D.S., M.S.
Lori K. Brown, D.D.S.
Marie Fluent, D.D.S.
Brent Kolb, D.D.S.
Nizar Mansour, D.D.S.
Charles I. McLaren, D.D.S., M.S.
Kathy O'Keefe, D.D.S., M.S.
Thomas Poirier, D.D.S.
William T. Stevenson, D.D.S.
Robert J. Stevenson, D.D.S.
Gytis Udrys, D.D.S.

CONTRIBUTING AUTHOR

Marie T. Fluent, D.D.S.
Sabiha S. Bunek, D.D.S.

EXECUTIVE TEAM

Jackie Farah, M.A.Ed.
Heidi L. Graber
Tricia G. Hurtt
Jennifer N. Ireland, C.D.A., R.D.A., B.S.
Jennifer Kalasz
John A. Molinari, Ph.D.
Peri D. Nelson, B.S.
Courtney Richardson, B.F.A.
Christopher Voigtman
Nelson Williams, M.S.
Mary E. Yakas, B.A., CMC
Ron Yapp, M.S.

PUBLISHER

Dental Consultants, Inc.

Please send inquiries and address changes to:

THE DENTAL ADVISOR,

3110 West Liberty, Ann Arbor, MI 48103
Call: 800.347.1330 - 734.665.2020
Fax: 734.665.1648
Email: info@dentaladvisor.com
Website: www.dentaladvisor.com

No unauthorized duplication or reprints may be made. Inquiries concerning duplication may be directed to the publisher. Copyright ©2013, Dental Consultants, Inc. All rights reserved. Printed in the U.S.A. (ISSN 0748-4666) by Print-Tech, Inc.

This publication is printed on paper that is 50% recycled and has 25% post-consumer content.

From the Desk of Dr. Bunek, Editor-in-Chief



During routine hygiene exams, it is not unusual for a patient to squirm when I touch a sensitive tooth or in some cases even warn me ahead of time not to "touch that one tooth!" Tooth sensitivity is a highly prevalent condition that affects many of our patients. Ice cream, a sip of coffee, and even breathing in air can trigger short, transient pain. Typically caused by wear and tear on enamel and/or cementum, dentin hypersensitivity is a nuisance but for many patients, can be easily treated.

So, what can you do to help lessen the pain of sensitive teeth? To help sort out the confusion, in this month's issue we will focus on products that can be used to manage dentinal hypersensitivity. With the help of our guest co-author, Dr. Marie Fluent, we will review the characteristics, diagnosis and treatment of dentinal hypersensitivity. As always, I welcome your comments and suggestions; you can reach me at drbunek@dentaladvisor.com. Thanks for your continued support and reading!

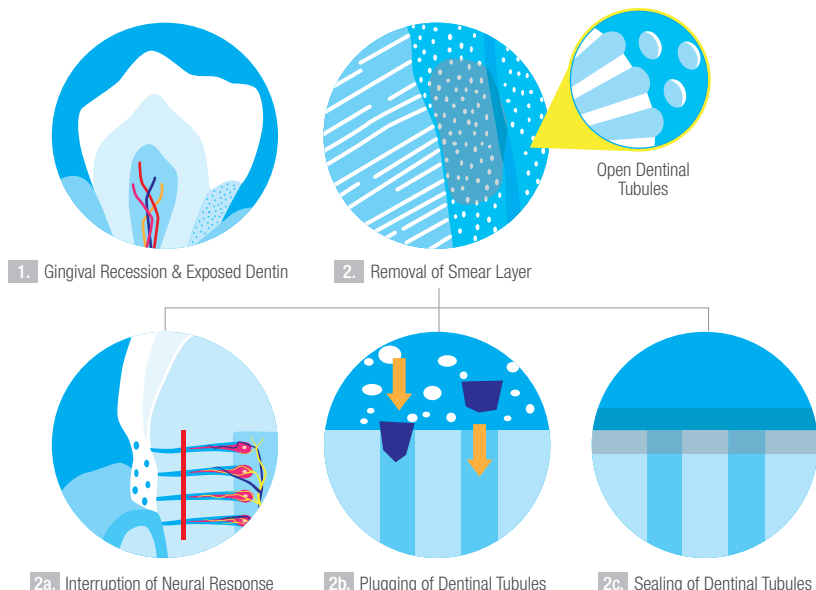
Understanding Dentinal Hypersensitivity

Dentin hypersensitivity is a common complaint, and often characterized by sharp, transient pain arising from exposed dentin. The pain is in response to external stimuli, such as cold or hot, sweets, tactile, or breathing in cold air. In some cases it can interfere in an individual's daily life by affecting eating, drinking, and even speech. The most commonly accepted theory for dentinal hypersensitivity is the hydrodynamic theory. It suggests that hypersensitivity is the result of movement of fluid within the dentin tubules resulting in a pressure change. The change in pressure activates intra-dental nerve fibers, via a mechano-receptor response to cause pain.

Factors Contributing to Dentinal Hypersensitivity

Gingival Recession	Loss of Enamel	Periodontal Disease and its Treatment (both surgical and non-surgical)
Exposed dentin caused by gingival recession. Some common causes of gingival recession are: mechanical trauma, orthodontics, tooth anatomy or position.	Attrition, erosion, and abrasion can lead to loss of enamel, resulting in dentin exposure.	Both periodontal disease and its treatment have been associated with loss of gingival tissues. As recession occurs, the cementum is easily removed via chemical or physical means and the underlying dentin becomes exposed.

Open Dental Tubules and Treatment Modalities



Diagnosis & Management

Treatment of dentinal hypersensitivity starts with an accurate diagnosis. Clinicians must rule out other possible causes of dentin hypersensitivity before treatment (i.e., cracked tooth, caries, defective restoration, pulpitis, bleaching sensitivity, etc.).

A. In-office Treatment Options

1. In-office Fluoride Varnishes

Varnishes are available as sodium fluoride preparations that are painted directly on the teeth by dental health providers. These products are not intended to adhere to the teeth permanently. They hold a high concentration of fluoride in close contact with the teeth for many hours. They must be reapplied at regular intervals with at least two applications per year for effectiveness. The Food and Drug Administration (FDA) has approved fluoride varnishes as an effective desensitizing agent, but has not cleared these products as anti-caries agents. However, fluoride varnishes are widely used for both of these purposes in the US, Canada and Europe today. For a comprehensive list of fluoride varnishes evaluated by THE DENTAL ADVISOR, see Table 1.

There are two main approaches to the treatment of dentin hypersensitivity: one option is to occlude open dentin tubules and the second is to interrupt the neural response to pain stimuli.

Product	Company	Active Ingredient	Flavors	Rating
MI Varnish	GC America	5% NaF, Recaldent	Strawberry	91%
Alpha Pro White Varnish	Dental Technologies	5% NaF	Strawberry, Melon, Bubblegum	91%
3M ESPE Vanish 5% Sodium Fluoride White Varnish with TCP	3M ESPE	5% NaF, tricalcium phosphate	Melon, Cherry, Mint	91%
Duraflor Halo 5% Sodium Fluoride White Varnish	MEDICOM	5% NaF	Spearmint, Wild Berry	93%
Enamel Pro Varnish	Premier Dental Products	5% NaF, ACP	Strawberries 'n Cream, Bubblegum	n/a
Kolorz ClearShield Fluoride Varnish	DMG America	5% NaF	Watermelon, Bubblegum, Mint	91%
Profluorid Varnish	VOCO America	5% NaF	Melon, Caramel, Mint, Cherry	86%
Sparkle V 5% Sodium Fluoride Varnish with Xylitol	Crosstex	5% NaF	Bubble Gum, Mint	91%
VELLA Varnish, 5% Sodium Fluoride	Preventive Technologies, Inc.	5% NaF	Spearmint, strawberry	84%
Zooby 5% Sodium Fluoride Varnish	Denticator, Inc.	5% NaF	Turtle Melon	86%

Table 1: Fluoride varnishes evaluated by THE DENTAL ADVISOR.



TDA Recommends: Fluoride Varnishes

- **3M ESPE Vanish 5% Sodium Fluoride White Varnish with TCP** (3M ESPE)
- **Kolorz ClearShield Fluoride Varnish** (DMG America)
- **Sparkle V 5% Sodium Fluoride Varnish with Xylitol** (Crosstex)



Kolorz ClearShield Fluoride Varnish
 + + + + ½
 DMG America
 (800) 662-6383
 (201) 894-5500
www.dmg-america.com



Product Description: Kolorz™ ClearShield Fluoride Varnish is a 5% sodium fluoride varnish indicated for use as both a treatment for dentinal hypersensitivity and as a cavity liner under amalgam restorations. One mL of ClearShield contains 50 mg of sodium fluoride (22.6 mg of F-). It contains xylitol and other natural sweeteners and is gluten-free. Kolorz ClearShield is available in 35-count, 0.4-mL unit-dose packages (watermelon-flavored). Kolorz ClearShield was evaluated by 31 consultants in over 600 applications. This product received a 91% clinical rating.

3M ESPE Vanish 5% Sodium Fluoride White Varnish
 + + + + ½
 3M ESPE
 (800) 634-2249
www.3mespe.com



Product Description: 3M ESPE Vanish 5% Sodium Fluoride White Varnish is a calcium, phosphate and fluoride-containing varnish for application to enamel and dentin for the treatment of hypersensitive teeth. It is sweetened with xylitol and contains a tri-calcium phosphate ingredient. The product is available in Cherry, Melon and Mint flavors in unit-dose packages. 3M ESPE Vanish 5% Sodium Fluoride White Varnish was evaluated by 18 consultants in 681 uses. It received a 91% rating.

In-office Treatment Options (cont.)

2. Desensitizers

In addition to fluoride varnishes, additionally chairside topical desensitizers are available to treat hypersensitive dentin. Products such as **Shield Force Plus** (Tokuyama Dental America) are applied similarly to a self-etching bonding agent, and provide immediate relief from sensitivity by utilizing a monomer that interacts with calcium ions sealing the dentinal tubules. Other products such as **Gluma PowerGel** (Heraeus) contain glutaraldehyde which treat hypersensitivity by precipitating plasma proteins, resulting in decreased permeability and inhibited fluid flow into the dentinal tubules. This gel is delivered in a syringe similar to a flowable, placed on the tooth for 30-60 seconds and then rinsed off with water. For a comprehensive list of other desensitizing agents evaluated by THE DENTAL ADVISOR, see Table 2.

Product	Company	Active Ingredient(s)	Topical Gel/Paste	Topical Liquid	Rating
 Gluma Desensitizer PowerGel	Heraeus	Glutaraldehyde			86%
 MI Paste Plus	GC America	CCP-ACP-F			97%
 Shield Force Plus	Tokuyama Dental America	Resin Sealant			97%
Alpha-Ease	Dental Technologies	Glutaraldehyde, Sodium Fluoride			91%
Admira Protect SingleDose	VOCO	HEMA, Fluoride, Ormocer			95%
Remin Pro	VOCO	Hydroxyapatite, Sodium Fluoride			ce

Table 2: Desensitizers evaluated by THE DENTAL ADVISOR.



TDA Recommends: *Desensitizers*

- **Gluma Desensitizer PowerGel** (Heraeus)
- **MI Paste Plus** (GC America)
- **Shield Force Plus** (Tokuyama Dental America)

B. Home Treatment Options

Home-use Prescription Fluoride Toothpaste: Prescription fluoride toothpastes generally contain 5000 ppm fluoride ion to combat caries and treat hypersensitivity by occluding dental tubules. They may also contain calcium and phosphate to remineralize softened enamel and dentin. **Clinpro 5000** (3M ESPE) is a prescription-strength toothpaste that contains tri-calcium phosphate (TCP), which strengthens tooth structure and reverses white spot lesions. **Topex ReNew** (Sultan Healthcare) contains prescription-strength fluoride and a remineralizing agent, *NovaMin*, to occlude dentinal tubules for immediate and long-lasting relief of sensitivity.

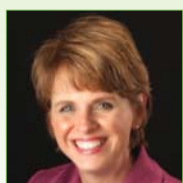
Desensitizing Paste: **MI Paste Plus** (GC America) is a water-based cream containing 900 ppm sodium fluoride and *Recalcident*, which also aids in remineralization, caries prevention and neutralizes an acidic oral environment. **Remin Pro** (VOCO) is a water-based paste containing hydroxyapatite (calcium and phosphate), 1,450 ppm of sodium fluoride, and Xylitol. The combination of these three components protects against demineralization and erosion.

OTC Desensitizing Toothpaste: These toothpastes typically contain a potassium salt to interrupt the neural response to pain stimuli. Many sensitivity toothpastes also contain fluoride, tartar control or whitening agents. Two weeks of twice daily use is required for measurable reductions in sensitivity and longer periods of time (four to eight weeks) for significant pain relief.

Summary

Gingival recession is the primary cause of dentinal exposure and a major contributing factor for dentin hypersensitivity. Enamel erosion caused by acidic foods and beverages also contributes to dentin exposure, although it plays a secondary role to gingival recession in exposing dentin at the cervical margin. Acid erosion plays an important role in opening exposed dentin tubules. There are two main treatment approaches to provide relief of dentin hypersensitivity. The first is to interrupt the neural response to pain stimuli and the other is to occlude or seal open tubules to block fluid transmission. Effective treatment and prevention strategies includes rendering the dentin sclerotic, and non-sensitive and may include OTC products, professionally applied fluoride varnishes, prescription medicaments, and in-office therapies. Dentin hypersensitivity sufferers need not suffer in silence any more.

About the Author: Marie Fluent, DDS



Marie Fluent, DDS, is a graduate of the University of Michigan, School of Dentistry. She has enjoyed more than 20 years of dental practice in Virginia, Maryland and Michigan and is currently in private practice in the greater Ann Arbor community. Dr. Fluent is an Adjunct Clinical Lecturer for the University of Michigan and a faculty member and a clinical instructor in the Dental Assisting Program at Washtenaw Community College. Dr. Fluent is an assistant editor for THE DENTAL ADVISOR and lectures and presents hands-on workshops on the topics of dental materials and infection control in the dental office.

Hg Containment System

Anterior Quest

(877) 750-4347 | www.anteriorquest.com

Description

The **Hg Containment System** is a containment unit and removal service for management of mercury and amalgam in dental wastewater. This system includes a gravity unit with patented, filterless technology that is designed to be plumbed into any wet or dry vacuum system. As opposed to amalgam separators which use filtration, the **Hg Containment System** is reportedly the only system on the market providing 100% containment of mercury and amalgam. This dual-tank system consists of an upper pressure tank and a lower holding tank. The system is plumbed into the vacuum line between the pump and the main suction line from the operatories and collects the solid waste before reaching the vacuum unit and trap. Visual inspection of the site tube on the lower tank should be performed weekly. Every 60 days, the system is emptied by *Anterior Quest*, and the waste is taken to a licensed disposal facility for safe recycling. The tank can be emptied directly, or an output line can be plumbed to the outside of the building for service without disturbing those in the office. The **Hg Containment System** is fabricated from 12-gauge stainless steel and is available in four standard sizes (30, 60, 90 and 120 gallon capacities), depending on the office's needs. The manufacturer also designs custom-made units when necessary due to size or space requirements. The manufacturer claims guaranteed compliance with government standards requiring installation of an amalgam separator with 95% or greater efficiency. The Hg Containment Series comes with a two-year limited warranty. **Hg Containment System** was evaluated by 20 consultants over a six-month period. This system earned a 99% clinical rating.

Suggested Retail Cost

Hg-60 unit	\$2695.00
Average annual service fee	\$450.00-550.00

Equipment Features

The **Hg Containment System** provides a solution for removal of mercury and amalgam from dental wastewater in a manner that is virtually maintenance free. It runs in the background, providing dentists with peace of mind that this solid waste is being handled in a manner that exceeds the compliance standards. The unit itself is attractive and well constructed of heavy grade stainless steel. Installation requires no electrical connection; it involves splicing into the existing vacuum line with PVC pipe and causes no decrease in suction. When used in conjunction with a wet vacuum, consultants found that the suction trap, which previously required frequent cleaning, remained very clean. A clear sight tube on the holding tank was checked weekly by consultants, and it never indicated a full tank before *Anterior Quest* arrived for removal of the waste. Dental staff members never have to handle any contaminated waste. The ability to customize the unit to fit into available space is considered to be a unique and valuable

+++++



Consultants' Comments

"Elegant in its simplicity."

"I love that our custom-sized unit fits perfectly in its space."

"No expensive filters to replace."

"No more cleaning of the suction trap!"

"The removal service is quick and quiet - I didn't even know the service was here."

"Site tube was a little hard to read on one unit."

feature. One hundred percent of consultants rated the **Hg Containment System** better than various amalgam separators they have used. One hundred percent would switch to the **Hg Containment System** and 100% would recommend it to a colleague.

Clinical Tips

- Watch the fluid window - call for service if the tank is full.
- Continue to use a non-foaming enzymatic cleaner for the suction lines. ■



Editors' Note

Read more about Anterior Quest's **Hg Containment System** in *THE DENTAL ADVISOR* Clinical Case Report No. 31, November 2012, available at www.dentaladvisor.com



Ivoclean

Ivoclar Vivadent, Inc

(800) 533-6825

(716) 691-0010

www.ivoclarvivadent.com

++++ 1/2



Description

Ivoclean is a universal cleaning paste indicated for cleaning of prosthetic restoration surfaces that have been contaminated during intraoral try-in.

Ivoclean contains sodium hydroxide and is for extraoral use only. It is compatible with all dental restorative materials including glass-ceramics, zirconium oxide ceramics, aluminum oxide ceramics, precious metal alloys, base metal alloys and lab-fabricated composite restorations.

Ivoclean is designed to enhance adhesion between indirect restorative materials and adhesive cements by effectively cleaning contaminated bonding surfaces. The lavender-colored solution is supplied in a 5 g dropper bottle. The solution must be shaken before use, applied to the restoration and then thoroughly rinsed. **Ivoclean** was used by 24 consultants in 484 uses. It received a 91% clinical rating.

Suggested Retail Cost

\$29.00/5 gram bottle

Product Features

Contamination of indirect restorations with saliva or blood during try-in is a common occurrence. **Ivoclean** was developed specifically to clean restorations before cementation. The solution must be shaken vigorously, and the clear bottle allows the user to visually confirm that homogeneity has been achieved. **Ivoclean** is easy to spread with a brush and rinses away easily. Contaminants such as blood and saliva can be completely removed. Colored indicator pastes or sprays, which tend to stain etched ceramic surfaces, also come off cleanly. Testing at THE DENTAL ADVISOR Biomaterials Research Center confirmed that the use of **Ivoclean** was effective in maintaining or improving the bond strength of resin cement to zirconia and lithium disilicate after contamination of these surfaces with saliva. Seventy-four percent of consultants found **Ivoclean** to be better than other methods of cleaning restorations after try-in, while 22% found it to be equivalent. Eighty-two percent would switch to **Ivoclean** and 89% would recommend it to a colleague.



Infection Control with Dr. John Molinari

There are new products on the market that talk about being "eco-friendly," yet many infection control products are labeled as disposable, and I hear some may even be toxic to the environment.

What is the status of environmentally friendly infection control?

A new era of developing strategies and marketing products designed to address environmental issues is rapidly expanding into multiple areas of infection control. Early investigations, especially those assessing the extent of waste in hospitals, helped to increase awareness of the accumulated toll in landfills. One study found that care for the average hospitalized patient could generate an average of 15 pounds of waste per day, leading to major costs in waste removal and usage of landfill space. Many hospitals and other healthcare facilities took the initiative to correct this problem by using approaches which include initiating programs that use more recyclables and reusable items, and looking for products that reduce the amount of disposable waste.

"Green dentistry" has also become more than merely a slogan in the profession. As you attend upcoming conferences and meetings you will find that a number of established and newer companies have entered this area. A number are focusing on the use of disposable items. Widespread use of disposable covers, tips, traps, instrument wraps, pouches, and other items has helped to streamline infection control with regard to time and reprocessing efforts in practice settings, clinical consumers sometimes commented on the large amounts of waste generated. Advances in research into the cost effective manufacture of recyclable and



Consultants' Comments

"Better cleansing method than what I currently use."

"Color is easy to see."

"I feel better using this product and doing everything I can to enhance bonding."

"Can be used with provisional restorations."

"Easy to use and simple to add to the clinical procedure."

"The alkaline pH makes this a unique product."

*"A proven system for achieving Strong Bonds to all indirect restorations; **Ivoclean** - Monobond Plus Multilink Automix."*

"Solution separates in the bottle - shake well."

Clinical Tips

- Do not use intraorally.
- Wear proper personal protective equipment to prevent injury to skin and eyes during application and rinsing.
- Shake well before use.
- Contents and container must be disposed of as hazardous waste. ■

Structur 3

VOCO

(888) 658-2584 | www.voco.com

Description

Structur 3 is a self-cured composite for the fabrication of provisional restorations. It is indicated for crowns, bridges, inlays, onlays, veneers, and long-term temporaries. The paste-paste material is based on VOCO's nano-hybrid technology with multifunctional methacrylate acid esters. **Structur 3** does not require polishing and is reported to produce durable, highly esthetic temporaries with a natural gloss finish that does not discolor over time. **Structur 3** should be inserted over the prepared teeth within 30 seconds after start of mixing and the temporary must be removed from the mouth during the short elastic phase (1:00-1:30 minutes after start of mixing). The temporary can be removed from the impression/matrix after 4 minutes. The oxygen-inhibited layer should be removed by wiping with alcohol and then the restoration can be finished. **Structur 3** is available in 50 mL cartridges in shades A1, A2, A3, A3.5, B1, B3, C2, and BL and in 5 mL *QuickMix* syringes in shades A1, A2, A3 and B1. **Structur 3** was evaluated by 37 consultants who fabricated 842 provisional restorations. It received an 86% clinical rating.

Suggested Retail Cost

Cartridge Kit	\$179.00
Quickmix Syringe Kit	\$38.00

Product Features

Structur 3 is a hard, durable provisional material. Consultants noted that margins were crisp and did not chip during finishing. The surface of **Structur 3** has a nice gloss that does not require polishing in areas that were not finished or adjusted. Occlusal surfaces and margins usually required polishing. The large selection of shades satisfied most procedures, and the esthetics of **Structur 3** was rated very good. Many consultants reported challenges with the working and setting times. Setting in the mouth may require longer than the instructions indicate,

++ ++

Consultants' Comments

"Strong temporaries."

"Minimal polishing required."

"Hard, durable and trims well."

"Nice esthetics."

"Timing the removal from the mouth can be tricky - short elastic phase."

"Heavy layer of material sticks to adjacent teeth."

and early removal can lead to fracture or tearing of the material. The temporary can lock on if left on the tooth too long. Consultants rated retention and fracture resistance above average. Twenty-seven percent of consultants rated **Structur 3** better than other provisional materials they were using and 46% rated it equivalent. Forty-one percent would switch to **Structur 3** and 70% would recommend it to a colleague.

Clinical Tips

- Test the setting of the material intraorally prior to removal from the mouth.
- Remove oxygen-inhibited layer on the internal aspect with alcohol before cementing.
- Wear a mask during trimming to prevent inhalation of the fine dust.
- Bleeding the cartridge before changing mixing tips is not required, according to the manufacturer. ■



biodegradable plastic and paper items appears to be accelerating, with the hope that what was once destined for deposit in landfills may now be recycled and used again, in a similar way that aluminum cans are reprocessed. You may also be surprised to find that more plastic wraps and covers that we frequently use are now manufactured as biodegradable. This technology has also made its appearance into the areas of instrument reprocessing and environmental surface disinfection. Available solutions used with clean contaminated instruments prior to heat sterilization can now contain multiple enzymes to enhance removal of bioburden. These components are biodegradable, thereby preventing introduction of potentially harmful chemicals into ground water. Even relatively recent applications of environmental surface disinfectant solutions and wipes are seeing continued progress towards reducing chemical waste. Tuberculocidal disinfectant preparations that are less harmful to the environment, even biodegradable, are already available. In addition, as more people look to approaches for reducing plastic waste, be prepared for the availability of disinfectant wipe packets which are manufactured as refills in reusable plastic containers.

There are a number of web sites and organizations available to provide you with additional information and current developments in this area. Two informative groups to initially consult can be found at www.ecodontistry.org and www.osap.org.

Mojo Veneer Cement

Pentron

(800) 551-0283, (714) 516-7557 | www.pentron.com

Description

Mojo Veneer Cement is a light-cured esthetic resin cementation system that is designed for use with porcelain, ceramic and composite veneer restorations. **Mojo Veneer Cement** shades include Light, Dark, Clear, and Movie Star™ White, and each shade is complemented by a water-soluble, try-in gel that is designed to match perfectly to the cured cement. **Mojo Veneer Cement** shades can be mixed for customization to further “warm” or “brighten” the shade. Light cure **Mojo Veneer Cement** for 1-2 seconds to tack veneers in place while easily removing any excess cement (Figure 1). Once cement is removed, a final cement polymerization is achieved by light curing each surface for 20 seconds. The kit contains: four, 2.3 g cement syringes and four, 1.6 g try-in gel syringes; 4 mL bottle of *Bond-1* primer/adhesive; 1 mL syringe of 37% phosphoric acid etching gel; 3 mL bottle of silane; 40 syringe tips; and manufacturer’s instructions.

Clinical Evaluation Protocol

During the original evaluation, 25 clinical consultants used **Mojo Veneer Cement** to lute over 325 restorations. A total of 29 restorations were recalled over the past two years and are continuing to be monitored for clinical performance. Restorations observed at recall ranged in age from less than six months to 2 years (Figure 2). Six criteria were evaluated at each recall and photographs were taken when available. The categories evaluated were: resistance to fracture, esthetics, resistance to marginal discoloration, wear resistance, lack of postoperative sensitivity, and retention. Restorations were evaluated on a 1-5 rating scale: 1= poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.



Figure 1. Ease of clean up of **Mojo Veneer Cement** after 1 to 2 second tack cure.

2-year Clinical Performance

+++++



Doctors' Comments

"The try-in gels were excellent. They offered an accurate preview of the final color and also cleaned up very easily."

"I love the viscosity – it was thick enough to prevent floating of the veneer but thin enough to not affect the seating in a negative way."

"I would rather have more shades than try to mix them together."

"The labels on the try-in pastes and the cements should have a more distinct differentiation. Labeling of shades is hard to read."

Patients' Comments

"My veneers look great! I couldn't be happier."

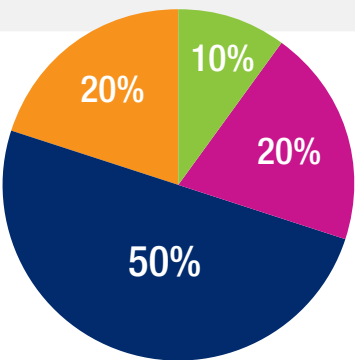
"The dark tooth is gone!"

"I like that I got the 'movie star' shade!"

FIGURE 2

Age of restorations at recall (months).

- 0-6
- 6-12
- 12-18
- 18-24



Mojo Veneer Cement Two-year Clinical Performance (cont.)

Results at Recall

Resistance to Fracture

Resistance to fracture was rated as excellent (Figure 3). One three-unit all-ceramic bridge fractured at the connector. This failure was attributed to lack of inter-occlusal clearance and a narrow porcelain connector, rather than the cement. Actually, when the bridge was removed, the clinician commented that the retention and lack of stain on the **Mojo Veneer Cement** used on the abutments was “phenomenal.”

Esthetics

Esthetics at two years was rated excellent (Figure 3). The shade of the restorations blended well with the teeth and no shade shifting was noted. Restorations that were cemented with Dark or Movie Star shades of **Mojo Veneer Cement** exhibited stable color appearance (Figure 4).

Resistance to Marginal Staining

No marginal staining was observed over the two-year recall period (Figures 3 and 5).

Wear Resistance

No marginal wear, ditching, or erosion were observed over the two-year recall period (Figure 3).

Lack of Postoperative Sensitivity

Of the restorations recalled, only two patients reported sensitivity following immediate placement of the restorations. This sensitivity was reported as “mild” and lasted two to three weeks. No long-term sensitivity was reported by any of the patients recalled and no restorations had to be removed for sensitivity (Figure 3).

Retention

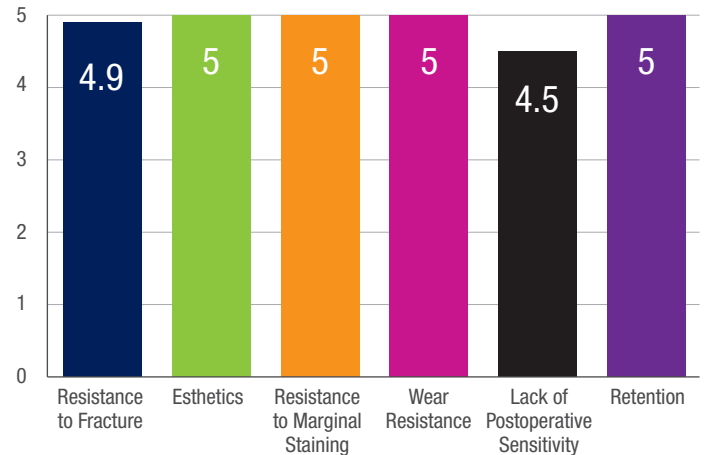
There were no debonds that occurred during the evaluation period (Figure 3).

Summary

All consultants rated **Mojo Veneer Cement** as excellent. Of the 29 restorations tracked in this study, all of them received excellent ratings in all categories. Of the over 325 restorations placed, there have been no reported debonds or clinical concerns. **Mojo Veneer Cement** is proving to be a top performing esthetic resin cement. It received a clinical rating of 98%.

FIGURE 3

Results at Recall.



Initial injury, Initial veneer placement, and 18 mos post op.



Figure 4. Color stability and optimal esthetics at time of placement and at 18+-month recall of restorations.



Teeth #6-11 at 18 mos recall.



Tooth #9 at 1 year recall.

Figure 5. Marginal durability at time of placement and at recall of restorations.

FIT CHECKER™ ADVANCED BLUE

GC America Inc
(800) 323-7063, (708) 597-0900 | www.gcamerica.com

Description

FIT CHECKER™ ADVANCED BLUE is a VPES silicone indicated for checking the fit of ceramic restorations. It can be used on the intaglio surface of the ceramic for disclosing areas of poor fit and may also be used on the margins, proximal surfaces and occlusal contacts. The blue color enhances visibility of the product against the white ceramic surface. **FIT CHECKER™ ADVANCED BLUE** is supplied in a 56g (48mL) automix cartridge. Once extruded, the material sets in one minute. Each kit contains two cartridges of material plus six mixing tips. **FIT CHECKER™ ADVANCED BLUE** was evaluated by 21 consultants in 280 uses. It received an 86% clinical rating.

Suggested Retail Cost \$141.75/Kit

Product Features

FIT CHECKER™ ADVANCED BLUE is neat and easy to apply. Dentists found it most useful to check the fit of the internal surface of a crown on the tooth. The blue color makes it easy to see areas of burn-through, indicating where adjustments should be made. After use, the silicone easily peels out of the crown. If the ceramic has been treated with hydrofluoric acid, **FIT CHECKER™ ADVANCED BLUE** can leave a blue stain on the etched surface. The mixing tips were useful for applying the material in multi-unit restorations but were considered wasteful for single units. Forty-three percent of consultants found **FIT CHECKER™ ADVANCED BLUE** better than other methods of

++ ++

Consultants' Comments

- "I don't need it very often, but when I do, it works well."
- "Dark color makes high spots show up very clearly."
- "Fast, easy clean up."
- "I use this to cover the screw heads on implant abutments."
- "Include small intraoral tips with the mixing tips."

checking the fit of ceramic restorations, and 33% found it to be equivalent. Fifty-two percent of consultants would switch to **FIT CHECKER™ ADVANCED BLUE** and 71% would recommend it.

Clinical Tips

- Etched ceramics should be thoroughly cleaned and re-etched after use of **FIT CHECKER™ ADVANCED BLUE**.
- Dispense the material and hand mix it when only a small amount is needed.
- To relieve the internal surface of a crown, use an explorer or pencil to mark the surface where the silicone has burned through; peel out the silicone; then proceed with adjustment.
- Contamination with condensation silicones, polysulfides, eugenol, uncured resins, and latex gloves will delay or prevent setting. ■

EmPower Dual Enzymatic Detergent

TotalCare
(800) 841-1428 | TotalCareProtects.com

Description

EmPower Dual Enzymatic Detergent is a multi-purpose, dual-enzymatic cleaning solution indicated for use as a pre-soak, an ultrasonic cleaning solution and an evacuation system cleaner. **EmPower** removes blood, tissue, mucous, and other protein-rich fluids, while providing advanced corrosion protection. The manufacturer describes the product as safe for stainless steel, soft metals, hard plastics, rubber and glass. Formulated with a neutral pH (7.5-8.5), **EmPower** can be used in manual, ultrasonic and automatic cleaning systems and is compatible for use with amalgam separators. **EmPower** is available in a one-gallon concentrate with pump dispenser and includes a pictorial instruction sheet for appropriate and consistent dilution. **EmPower** is also available in a fragrance-free version. **EmPower** was evaluated by 34 consultants in over 1100 uses. This dual enzymatic cleaning solution received a 91% clinical rating.

Suggested Retail Cost \$37.79/gallon

Product Features

EmPower performs multiple cleaning functions and is simple to use. It is effective in cleaning debris off of instruments and rinses away cleanly. The pump dispenses one ounce, which is mixed with one

++ ++ 1/2

Consultants' Comments

- "Great product."
- "I like that it is multi-purpose and low foaming."
- "My assistants really like it!"
- "Cleans instruments well."
- "Mild scent."
- "No need to stock multiple cleaning supplies."
- "I prefer the fragrance-free version."

gallon of water; the blue liquid concentrate mixes thoroughly with water. No staining of instruments was noted. Thirty-four percent of consultants rated **EmPower** better than other cleaners they were using and 54% rated it equivalent. Fifty-nine percent would switch to **EmPower** and 71% would recommend it to a colleague.

Clinical Tips

- Mix with warm water.
- Shake mixed solution well before each use. ■

CLEARFIL DC CORE PLUS

Kuraray America

(800) 879-1676 | www.kuraraydental.com

Description

CLEARFIL DC CORE PLUS is a two-component, radiopaque, dual-cured core build-up material supplied in an automix delivery system. **CLEARFIL DC CORE PLUS** is compatible with **CLEARFIL S³ BOND PLUS**, a light-cured, self-etching bonding agent or dual-cure bonding agents may also be used. Working time for **CLEARFIL DC CORE PLUS** is three minutes; chemical curing time in the mouth is six minutes. Light curing time is 10 seconds for a 1.5 mm depth and is 20 seconds for 2 mm. **CLEARFIL DC CORE PLUS** is available in two colors: dentin and white. Each kit contains one syringe of core material with 20 mixing tips and intraoral tips. Thirty-one consultants placed 454 cores using **CLEARFIL DC CORE PLUS**. This core material received a 91% clinical rating.

Suggested Retail Cost \$152.00/Kit

Product Features

The small automix syringe of **CLEARFIL DC CORE PLUS** is easy to handle and allows direct placement into the tooth. Working time and setting time were very good, but consultants wanted an increased depth of cure. Consultants appreciated the ability to cut the material immediately after curing. The white material is easily distinguishable

+++ 1/2



Consultants' Comments

"Easy to use with **CLEARFIL S³ BOND PLUS** - no dual-cure activator is required."

"Cuts like dentin."

"Adapts well to teeth and posts."

"Stacks well without slumping."

"Shallow depth of cure."

"I would like to store it at room temperature."

from tooth structure, and the hardness of the core cuts similar to dentin. The clinical procedure is simple and quick when using **CLEARFIL S³ BOND PLUS**. Twenty-six percent of consultants rated **CLEARFIL DC CORE PLUS** better than other core materials they had used and 65% rated it to be equivalent. Fifty-five percent would switch to **CLEARFIL DC CORE PLUS** and 90% would recommend it.

Clinical Tip

- Store under refrigeration and bring to room temperature before use. ■

ChildLife Toothpaste Tablets

ChildLife Essentials

(310) 305-4640, (800) 993-0332 | www.ChildLife.net

Description

ChildLife Toothpaste Tablets are a new and advanced chewable alternative to traditional toothpaste, suggested for children 3-12 years old. The tablets have a berry flavor and are designed to make brushing fun and easy for youngsters. **ChildLife Toothpaste Tablets** are all natural and contain the active ingredients of *ExoCyan Cran*® (American cranberry extract), and Xylitol. **ChildLife Toothpaste Tablets** are fluoride free and do not contain any sodium lauryl sulfate, triclosan, synthetic dyes, petro-chemicals, artificial flavorings, artificial sweeteners, gluten or casein. They are available in 60-count bottles. Value is comparable with a tube of children's toothpaste; however, the one tablet per brushing assures parents the exact dosage each and every time. Instructions are to chew, brush and rinse twice a day. Consultants distributed **ChildLife Toothpaste Tablets** for evaluation by 27 families with children. **ChildLife Toothpaste Tablets** received a 76% clinical rating.

Suggested Retail Cost \$6.49/60-count bottle

Product Features

ChildLife Toothpaste Tablets are a safe alternative to toothpaste for even very young children. One tablet per brushing provides easy and simple dosage delivery. The packaging is an easy-to-open bottle that is neat, clean and sanitary, which reduces microbial transmissions between family members compared to the conventional tube of toothpaste

+++

Parents' Comments

"Convenient for travel."

"My child liked that it wasn't spicy."

"Great for taking to school to brush at lunch."

"Less mess than toothpaste."

"Texture is gritty."

"I prefer a fluoridated toothpaste for my child."

"Offer in a mild mint flavor."

delivery method. Thirty percent of parents felt that **ChildLife Toothpaste Tablets** increased their child's interest in brushing. Patient ratings of the taste varied greatly, with some liking the berry flavor, while others found it did not leave a fresh feeling in the mouth. Young children tended to chew the tablet and swallow it like a vitamin, leaving little residue in the mouth for brushing. To be fair, as with any delivery system, including conventional toothpaste, there is a learning curve with young kids. Twenty-two percent of parents found **ChildLife Toothpaste Tablets** to be better than other toothpastes they had used and 7% found them to be equivalent. Thirty percent of parents would switch to **ChildLife Toothpaste Tablets** and 41% would recommend them to friends and family. ■

CLEARFIL S³ BOND PLUS

Kuraray America

(800) 879-1676 | www.kuraraydental.com

Description

CLEARFIL S³ BOND PLUS is a 7th-generation, light-cured, single-component bonding agent that simultaneously treats both dentin and enamel. This new formulation contains fluoride and has a shorter application time of 10 seconds, compared to 20 seconds for **CLEARFIL S³ BOND**. It maintains Kuraray's MDP monomer, and no shaking is required. Application involves applying the liquid to the tooth and leaving it on for 10 seconds before blowing air and light curing for 10 seconds. **CLEARFIL S³ BOND PLUS** can be used with all light-cured materials and with the dual-cured **CLEARFIL DC CORE PLUS** without the addition of a dual-cure activator. **CLEARFIL S³ BOND PLUS** is available in both 4 mL bottles and single-dose delivery. **CLEARFIL S³ BOND PLUS** was evaluated by 33 consultants in over 660 uses. This 7th-generation bonding agent received a 96% clinical rating.

Suggested Retail Cost

\$130.00/Kit

Product Features

CLEARFIL S³ BOND PLUS is quick and easy to use with no shaking, mixing, scrubbing or need for multiple applications. The time required for the procedure was rated excellent. The liquid coats the tooth well, leaving a glossy surface after light curing. The compatibility between **CLEARFIL S³ BOND PLUS** and **CLEARFIL DC CORE PLUS** allowed dentists to perform core procedures with this simple adhesive system. Thirty-six percent of consultants rated **CLEARFIL S³ BOND PLUS** better than other 7th-generation bonding agents they had used and 52% rated it to be equivalent. Seventy-six percent would switch to **CLEARFIL S³ BOND PLUS** and 88% would recommend it to a colleague.

+++++



Consultants' Comments

"The material easily wets the surface to be bonded."

"This adhesive did not require a separate dual-cure activator to be used with CLEARFIL DC CORE PLUS."

"A single coat with no scrubbing."

"High bond strength."

"No post-operative sensitivity."

"Viscosity is a little thick."

"Refrigeration is inconvenient."

Clinical Tips

- Refrigeration is required.
- Etch uncut enamel with phosphoric acid.
- Use within seven minutes of dispensing.
- Use silicone-coated matrix bands to prevent the material from sticking to the band. ■

SPECIAL THANKS TO:

Select Senior Clinical Consultants (Over 20 years):

J. Amara, CT · R. Fisher, OH · W. Gregory, MI · E. Katkow, MD · J. Lockwood, MI · J. Mayer, OH · W. Nagy, TX · G. Poy, MI · J. Shamraj, MI · R. Trushkowsky, NY · P. Yaman, MI

Senior Clinical Consultants (15-19 years):

S. Anderson, MI · R. Anthony, OH · K. Baker, TX · F. Berman, PA · L. Brimhall, MT · M. Briskin, NY · L. Brown, MI · R. Ciccone, MI · C. Colbert, MI · M. Conrad, PA · J. Dingman, WI · J. Doueck, NY · M. Dwoskin, MI · M. Eannaccone, NY · R. Engle, IL · K. Fairbanks, MI · K. Fischer, IN · G. Franco, NY · N. Garlisi, OH · K. Goodman, MI · S. Graber, IL · P. Grandsire, NY · B. Gursky, MI · E. Gutman, NY · K. Hamlett, TX · G. Hart, OH · R. Herwig, KS · J. Kaminski, MI · R. Kaprielian, NJ · M. Kastner, OH · C. Kehr, MI · M. LaMarche, WA · J. Leitner, MI · R. Lezell, MI · M. Livernois, NC · B. Manne, FL · N. Mansour, MI · N. Markarian, CA · J.W. Mikesell, IL · G. Mosso, PA · E. Mosso, PA · E. Odenweller, OH · J. Paris, TX · D. Parris, GA · D. Peterson, MD · T. Pieper, WY · D. Pitak, MI · V. Plaisted, NY · D. Qualliotine, NC · C. Reed, MI · P. Sandvick, WI · K. Schwartz, FL · J. Shea, MO · B. Shumaker, NJ · B. Sims, NY · H. Tetelman, OH · C. Trubschenck, CA · P. Tu, CA · S. Ura, NH · W. Walcott, MI · L. Wee, MI · D. Wojtowicz, MI · R. Wilkie, MI · M. Zahn, MI

Clinical Consultants (14 years or less):

A. Albright, NY · N. Alexa, MI · B. Argersinger, NC · A. Bagchi, MI · B. Barricklow, OH · S. Barth, MI · L. Bartoszewicz, MI · J. Bechtel, MI · L. Bishop, MI · T. Bizga, OH · J. Bostic, OH · N. Brezden, MI · C. Brown, LA · W. Browncombe, MI · S. Bunek, MI · J. Bunek, MI · J. Bush, PA · H. Cadorette, MI · P. Campo, NY · D. Chacko, TN · P. Chaiken, IL · R. Cherry, FL · W. Co, MI · M. Connelly, MI · S. Dillingham, NY · R. Dost, VA · A. Dutko, MI · M. Eiford, MI · O. Erdt, MI · F. Facchini, MI · F. Falcao, FL · M. Feinberg, NY · L. Feldman, NJ · M. Fluent, MI · M. Frankman, SD · L. Gee, OK · C. Goldin, MI · B. Greenwood, UT · P. Gronet, KY · H. Gulati, MA · D. Haas, Ontario · J. Haddad, MI · S. Harden, GA · J. Hastings, CA · B. Herrmann, CA · D. Hock, MI · P. Indianer, MI · J. Ireland, MI · C. Jaghab, MI · M. Kachi-George, MI · D. Kapp, NY · J. Karam, MI · S. Kazan, MI · E. Kelly, GA · J. Kelly, GA · L. Kemmet, MN · D. Keren, NY · C. Kobish, MI · M. Koczarski, WA · R. Koepke, OH · B. Kolb, MI · C. Latham, OH · R. Le, NC · T. Leonard, FL · S. Lever, MD · I. Levine, NY · E. Lowe, BC, CAN · J. Lusby, MI · M. Man, NY · K. Mantzikos, NY · F. Margolis, IL · M. Mason, NY · T. McDonald, GA · C. McLaren, MI · J. McLaren, MI · M. McMullin, MI · M. Migdal, MI · J. Minsky, CA · R. Mizrahi, NY · G. Molinari, MI · L. Montes, NY · M. Murphy, MI · J. Nash, MI · A. Nazarian, MI · N. Nealis, IL · M. Nemeth, MI · C. Noe, MD · J. Olsen, MI · R. Oshrain, NY · A. Overall, MI · S. Owens, MI · M. Paquette, MI · J. Park, IL · M. Patel, MI · T. Poirier, MI · S. Pomerance, MI · D. Radtke, MI · G. Raichelson, Ontario · G. Ramos, NY · C. Ramsey, FL · G. Reskakis, NY · J. Riggs, MI · J. Rowe, AR · F. Ruder, FL · M. Shapiro, MI · S. Shoukfeh, MI · P. Shumaker, MI · J. Smith, MI · B. Stevenson, MI · P. Symeonides, NY · S. Tamber, MI · S. Tamber, MI · G. Tarantola, FL · T. Teel, IN · T. Trullard, MI · G. Udry, MI · Lyn. Vandelaar, MI · M. Vanderbeek, MI · H. Vann, MS · M. Waranowicz, MI · J. Wehr, MI · E. Whittier, FL · L. Williams, MI · K. Wilson, MI · D. Wolf, MA · W. Wright, CA · H. Yeung, CA · D. Young, MI · P. Zanetti, MI · J. Zanetti, MI · S. Zimmer, MI

Laboratory Consultants:

Apex Dental Milling, MI · Bullinger Dental Lab, MI · Centric Dental Laboratory, TX · Cornerstone Dental Studio, Inc., MI · David's Dental Laboratory, NY · Expertec Dental Lab, MI · Heritage Dental Laboratory, IL · Nellmar Laboratory, LLC, MI · Technique Crown and Bridge, Inc., NC