

DENTAL ADVISOR™

Product insights you can trust.

MAR-APR 2023

Vol. 40, No. 02



Clear
Aligner
Technologies





In this month's issue, we offer a very simplified view of clear aligners so that those who have not implemented as of yet can understand the basics, and those who have can glean some pearls of practice. In my practice, since COVID, we have seen a rise in demand for both clear aligners and whitening. We reached out to our evaluator base and have shared some of those results with you as well. We'd love to hear your thoughts; as always feel free to reach out to our team at connect@dentaladvisor.com or to me personally at drbunek@dentaladvisor.com.

PUBLISHER: DENTAL CONSULTANTS, INC.

John M. Powers, Ph.D.
Sabiha S. Bunek, D.D.S.

CHIEF EXECUTIVE OFFICER

Sabiha S. Bunek, D.D.S.

EDITORIAL BOARD

Gary Bloomfield, D.D.S.
Julius Bunek, D.D.S., M.S.
Eric Brust, D.D.S., M.S.
Michelle Elford, D.D.S.
Robert Green, D.D.S.
Nizar Mansour, D.D.S., M.S.
Marcy Murrell, D.D.S.
James Olsen, D.D.S.
Kathy O'Keefe, D.D.S., M.S.
L.W. Seluk D.D.S., M.S., M.S.
Brad Stieper, D.D.S., M.S.
Anthony Valentine, D.D.S.
Peter Yaman, D.D.S., M.S.

CHIEF OPERATING OFFICER

Mary E. Yakas, B.A., C.M.C.

**VICE-PRESIDENT
CUSTOMER ENGAGEMENT**

Linda Bellisario, M.B.A., R.D.H.

CREATIVE DIRECTOR

Jim Dombrowski

SCIENTIFIC RESEARCH

John A. Molinari, Ph.D.
Matt G. Cowen, B.S.
Delaney Graham, B.A.

CLINICAL EVALUATOR COORDINATOR

Lesley Correll, B.A., B.S., R.D.H.

Please send inquiries and address changes to:

DENTAL ADVISOR

Ann Arbor, MI 48104
Call: 800.347.1330 - 734.665.2020
Fax: 734.665.1648
Email: connect@dentaladvisor.com
Website: dentaladvisor.com

No unauthorized duplication or reprints may be made. Inquiries concerning duplication may be directed to the publisher. Copyright ©2022, Dental Consultants, Inc. All rights reserved. Printed in the U.S.A. (ISSN 0748-4666) by Print-Tech, Inc.

VISIT US ON SOCIAL MEDIA

f FACEBOOK
[FB.COM/THE DENTAL ADVISOR](https://www.facebook.com/thedentaladvisor)

Instagram
[@THE_DENTAL_ADVISOR](https://www.instagram.com/the_dental_advisor)

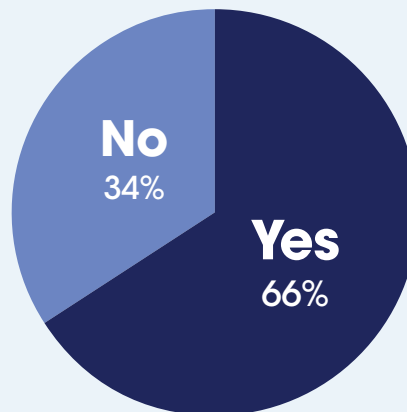
Twitter
[@DENTALADVISOR](https://twitter.com/dentaladvisor)

LinkedIn
[/COMPANY/DENTAL-ADVISOR](https://www.linkedin.com/company/dental-advisor)

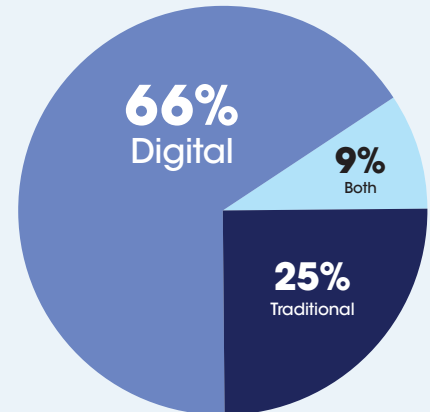
YouTube
[BIT.LY/DENTALADVISOR](https://www.youtube.com/bit.ly/dentaladvisor)

BY THE NUMBERS

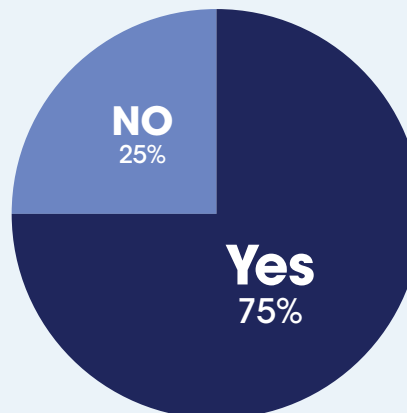
We asked our consultants their opinion on Clear Aligners



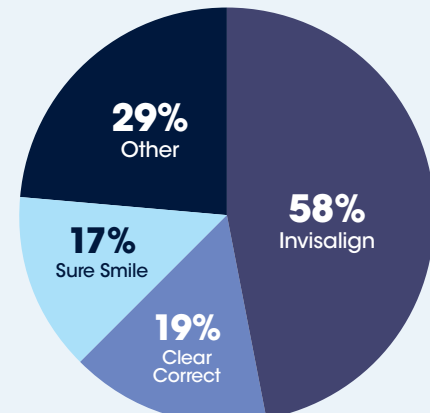
Are you using clear aligners in your office?



What type of impressions are you taking for clear aligner cases?



Have you seen a demand for clear aligners in the past two years?



What brand of aligners are you currently using?



Clear Aligner Technologies

TAKING IMPRESSIONS

DIGITAL IMPRESSIONS

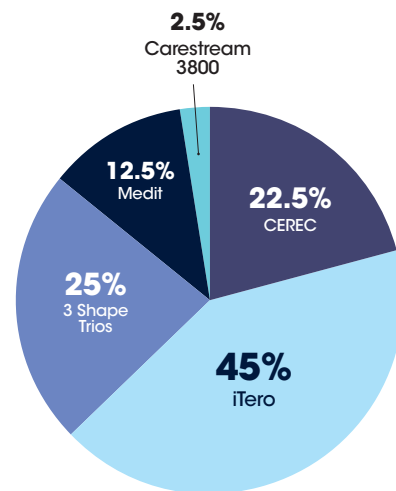
If you choose digital scanning for aligner cases, you will want to investigate how the software works in proposing treatment plans for your patients. Many scanners are proprietary to a single clear aligner system, so your choice is affected by the scanner you choose. Some are open platform and allow you to utilize any laboratory or case planning software.



Photo courtesy of Dr. James Olsen

PHYSICAL IMPRESSIONS

Many dentists are unaware that you can provide clear aligners using traditional impressions if you are not ready to invest in an intra-oral scanner. All that is needed is a PVS impression material that is able to capture a clear and detailed impression of both arches. A bite registration will also be required.



We asked our consultants, what brand of digital scanner are using for clear aligner cases?

ACQUIRING RECORDS (PHOTOS & XRAYS)

Before submitting any aligner case, a series of photos and xrays need to be taken.

The main goal in taking a series of photos is to capture all teeth clearly from different angles. Here are a series of photos that are commonly taken. There are many tools that can assist with proper photography, including a high-resolution camera, cheek retractors, and intra-oral mirrors. The use of a DSLR camera is not required, as many people often submit their photos using a point-and-shoot or smart phone camera.



Cheek retractors



Intraoral mirror



Photos courtesy of Dr. Sabiha Bunek

Product Features

G-aenial A'CHORD™ (GC America, Inc.)

G-aenial A'CHORD™ is an advanced unishade composite system which provides the ideal balance of simplicity, esthetics, and new technology in one product! With only 5 core shades, **G-aenial A'CHORD** can achieve the esthetic of all 16 Classic VITA shades while delivering high durability and natural fluorescence. **G-aenial A'CHORD's** combined *Full-Coverage Silane Coating (FSC)* and *High Performance Pulverized CERASMART® (HPC)* technologies deliver:

- Simplified handling
- High wear resistance, color retention, and radiopacity
- Easy polishing with high gloss retention
- Natural fluorescence that mimics natural light reflection in any light
- Universal flexibility for use in anterior, posterior, large or small restorations

For complex cases requiring a more exacting esthetic, an extended portfolio of cervical, opaque, enamel, and bleach shades are available. **G-aenial A'CHORD** helps take the guesswork out of shade matching and provides your patients with long lasting, life-like restorations.



3M™ Scotchbond Universal Adhesive

is a single-bottle adhesive that provides uncompromising performance and bond strength whether used for direct or indirect restorations. Its simple application process helps the adhesive perform reliably, regardless of user technique. The product is moisture-tolerant, exhibiting high bond performance on moist and dry substrates. With **3M Scotchbond Universal Adhesive**, dentists have an easy-to-use solution that provides consistent results for all surfaces in total- or self-etch mode. It assures dentists of virtually no post-operative sensitivity—in both the total- and self-etch technique, and provides exceptional bond strength to dentin and enamel.

- First radiopaque universal adhesive
- Bonds and seals caries-affected dentin, supporting minimally invasive preparations
- BPA and BisGMA free
- High bond strength to etched glass ceramic; equivalent to silane
- No dual cure activator needed



OMNICHROMA Flow BULK (Tokuyama)

The **OMNICHROMA** Family of products now has a new Bulk Fill Flowable. **OMNICHROMA Flow BULK** is a low-viscosity bulk fill flowable one shade composite which requires no capping layer and is suitable for:

- Direct anterior and posterior restorations
- As a cavity base or liner
- Blocking out cavity undercuts before fabricating indirect restorations
- Repair of porcelain or composite
- One shade recreates all tooth shades from A1 to D4.
- The shade matching capability of **OMNICHROMA®** in a bulk-fill flow.
- Shade matching can be maximized by utilizing the **OMNICHROMA Blocker Flow** material in addition to **OMNICHROMA® Flow BULK**. This can also help adjust translucency.



Clear Aligner Technologies

ONBOARDING PATIENT & REVIEWING TREATMENT PLAN

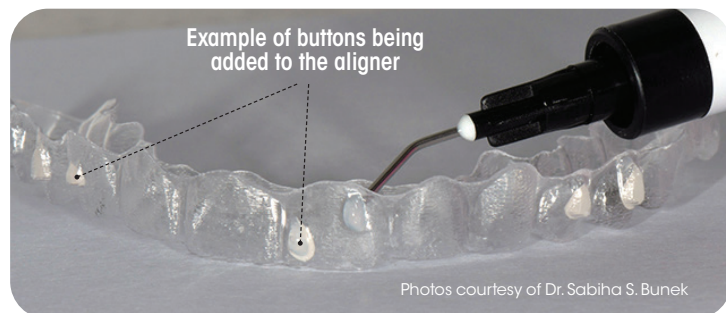
Once you have all records collected, your patient information is ready to submit to the clear aligner company of your choice. Many softwares are intuitive in that they walk the user through submission of a new patient. Some decisions will need to be made before submitting a case for the treatment plan, including which arches you are treating and an estimate of treatment time. Typical wear time is one to three weeks.



After being submitted to the manufacturer, a treatment plan will be created for review. It is important to carefully check the treatment plan and proposal for length and the goals of treatment. Some companies have orthodontists oversee treatment plans, while others have treatment proposals generated by a computer. A dentist new to clear aligners may want proposals set for them, while an experienced clinician may want the ability to customize treatment plans.

CASE DELIVERY

(ATTACHMENTS, INTERPROXIMAL REDUCTIONS, PATIENT TAKE-HOME TOOLS)



ATTACHMENTS

When the trays arrive from the manufacturer, they need to be seated with composite attachments or buttons. These help anchor the aligners in place for successful movement of the teeth. Unlike orthodontic brackets, composite buttons do not need to be placed on every tooth; rather, they are placed strategically to hold the trays in place. First, you will etch the teeth and then perform your preferred bonding protocol to the teeth indicated in the treatment plan. Next, dispense a packable or highly filled flowable composite into the clear aligners. Once the composite is in place, put the aligners on the patient's teeth and light cure. Remember to remove any flash.

INTERPROXIMAL REDUCTION

Another important process at tray delivery is IPR or interproximal reduction. The purpose of IPR is to create space for teeth to move correctly. Very minimal tooth structure is removed during the procedure.



Clear Aligner Technologies

PATIENT TAKE-HOME TOOLS

There are several tools available for patients to use at home during treatment.

There are several options for keeping aligners clean, removal of aligners and chewable therapeutic devices to stimulate jaw movement.



Munchies® developed as a clear aligner therapy treatment from EOCA.



Ortho Key is a tool designed to remove aligners in a hygienic way,



Dental Pod ultrasonic cleaning machine for dental aligners from Zima Dental.

CASE COMPLETION



REMOVING ATTACHMENTS

Now that the case is complete, attachments will need to be removed. Polishing may also be required at this time to achieve a smooth and glossy surface.



RETENTION

As treatment progresses, maintaining results becomes the goal. Depending on the company you use, they may provide a retainer free of charge, and others may charge a fee. Doctors who own 3D printers may print a final model and make a retainer for their patient. If a patient loses their retainer, you can easily use the 3D model to create a new one.



Example of black triangles



BLACK TRIANGLES

Once attachments are removed esthetics will need to be assessed. It may be necessary to fill small gaps of "black triangles" which are gaps along the gumline.



BEFORE



AFTER

BEFORE and AFTER photos showing positive results of clear aligner therapy.

All photos courtesy of Dr. Sabiha Bunek

Call out to the dental professional community:

Join our Clinical Advisory team

DA DENTAL ADVISOR

Celebrating
40
YEARS



We are celebrating
**40 years as Trusted
Advisors in dentistry!**
Come join our Clinical
Advisory team and be
on the cutting-edge as
an early adopter of the
latest innovations in
the market.

Join your colleagues of **more than
300 dental professionals** across the country.

To learn more:
contact Lesley Correll,
BA, BS, RDH at [lesley@
dentaladvisor.com](mailto:lesley@
dentaladvisor.com) for
more information



As a clinical consultant you are able to be on the cutting edge as an early adopter of the latest dental products and equipment.
You and your team have an opportunity to influence the future of dentistry.



13 CLINICAL EVALUATORS

430 TOTAL USES

93% CLINICAL RATING

Key features: Universal composite • Highly Esthetic • BPA Free

Description

Luna 2 is a universal nano-hybrid composite with:

- Nano and micron sized filler particle
- 77% filler load
- 7 Vita shades, 2 opaque, 1 incisal and 2 bleach shades

Indications

- Anterior and posterior restorations
- Core build ups
- Splinting
- Composite and porcelain repair

Unique Attributes

- Innovative logical shade matching technology & chameleon effect for easier and precise shade selection
- BPA free
- Nearly double the opacity of the original **Luna**



Clinical Tips

- Know where your margins are in the posterior, because the shade match is so good, it's hard to see the difference.
- A composite heater works well with this composite

"GREAT FINAL ESTHETICS! POLISHES NICELY."



Class V restoration of tooth #8

Photos courtesy of Dr. James Johnson

Evaluators' Comments

"The optical qualities and chameleon effect were very good."

"Blended well in the anterior esthetic zone."

"Luna 2 does not stick to instruments when sculpting like other composites."

"It would be nice to have fluoride release"

Consultants who would:

100% Recommend to a colleague

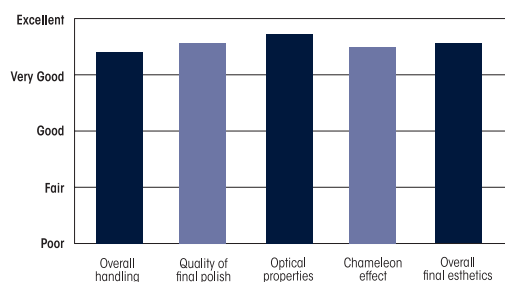
Consultants who would want to stock in office:

23% Yes, instead of current product

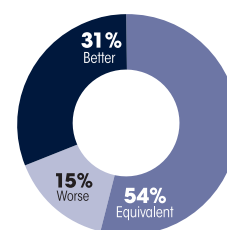
46% Yes, in addition to current product

23% I might want to order this product for certain cases

Evaluation Summary:



Compared to Competitive Products:





37 CLINICAL EVALUATORS

869 TOTAL USES

91% CLINICAL RATING

Key features: Single-shade, flowable composite • Bulk Fill

Description

OMNICHROMA® Flow BULK is a single-shade bulk-fill composite:

- One shade recreates all tooth shades from A1 to D4.
- 3.5mm bulk fill.
- Relies on Smart Chromatic Technology and structural color to shade match.
- Supra-nano spherical fillers, 260 nm all equal in size & shape.

Indications

- All classes of direct anterior and posterior restorations.
- Cavity base or liner.
- Repair of porcelain/composite.

Unique Attributes

- The shade matching capability of **OMNICHROMA®** in a bulk-fill flow.
- Shade matching can be maximized by utilizing the **OMNICHROMA Blocker Flow** material in addition to **OMNICHROMA® Flow BULK**. This can also help adjust translucency.



Clinical photos by Dr. Franco Facchini

Clinical photos by Dr. John Hamerink



Clinical Tips

- Cure fast. Do not let it sit too long as it will flow with gravity.
- Stain must be blocked out, otherwise it will show through. Especially if replacing an amalgam.
- Use the blocker, but don't use too much or else it becomes too white and fails to pick up shade from surrounding tooth structure.

"EASY TO USE AND SUPER-FAST."

Evaluators' Comments

"It was amazing for Class I composites and small repairs. You cannot even see the margin! Very impressive."

"Nice middle of the road consistency for most functions."

"Works well for cervical restorations and as a bulk fill under occlusal restorations."

"Easy esthetics and I love the bulk fill option."

"I tried this for Invisalign buttons and they blended with the teeth really well."

"Slightly too translucent and slightly slump - but expectedly so given it's flowable nature."

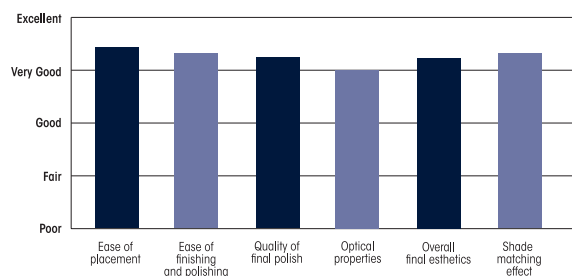
86% Consultants who would:
Recommend to a colleague

14% Consultants who would
want to stock in office:
Yes, instead of current product

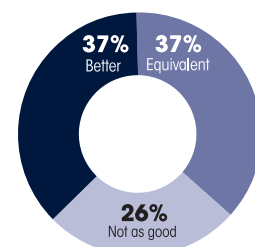
66% Yes, in addition to current product

6% I might want to order this product
for certain cases

Evaluation Summary:



Compared to Competitive Products:





21 CLINICAL EVALUATORS

92 TOTAL USES

86% CLINICAL RATING

Key features: NiTi rotary endodontic files • 3 file shaping sequence
• Multiple use files

Description

JIZAI is a new generation of NiTi rotary files:

- Procedural based sequencing
- Tip size, taper, and sequence number etched on the shank of the file
- Smooth cutting with less screw-in effect
- Significantly lower risk of ledge, transportation, and perforation due to flexibility
- Unique shape helps prevent over instrumentation and excessive engagement on the canal walls

Indications

- Straight and curvy canals.
- Available in 21 mm, 25 mm, 28 mm, and 31 mm files in a taper of .04 and .06
- Orifice opener and Glider files for opening and establishing glide path
- Multiple use

Unique Attributes

- Design is based on concept of pursuing smoother and minimum-invasive treatment. Specifically, the unique shape enhances flexibility and centering ability.
- The file axis is designed off-center to provide a larger "pocket" space for debris removal during instrumentation.
- Significant flexibility allows for use in curvy canals with memory.
- Memory is released upon sterilization and the file returns to its initial shape.



Files included in this evaluation

- **JIZAI** Orifice Opener
- **JIZAI** Glider
- **JIZAI** Shaping files (I, II, and III)

"VERY SMOOTH CUTTING WITH NO BINDING."

Evaluators' Comments

"It was a simple system and quite easy to use."

"Small numbers of files required to complete the root canal."

"Very nice to have a system that is designed as a multi-use instrument. The files did return to their original shape after use and sterilization."

"These files are flexible yet strong!"

"Quicker cutting than my current file system."

"The orifice opener was bit rigid."

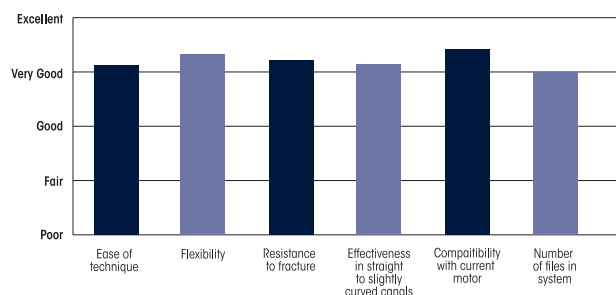
"I would like to see matching gutta percha points with this system."

71% Consultants who would:
Recommend to a colleague

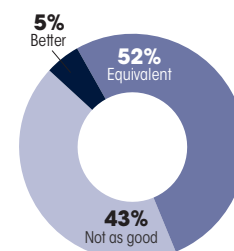
48% Consultants who would
want to stock in office:
Yes, in addition to current product

29% I might want to order this product
for certain cases

Evaluation Summary:



Compared to Competitive Products:





8 PRACTICES

1449 TOTAL USES

94% CLINICAL RATING

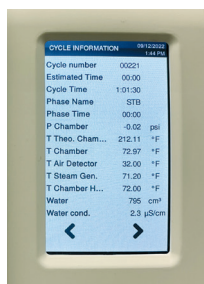
Key features: Steam autoclave • Closed-door vacuum assisted drying
• Low maintenance • High-tech features

Description

The **Lexa Sterilizer** is a steam autoclave that offers versatile cycle program options for several loads, guaranteed by the closed-door drying process with HEPA filters and the use of new water with each cycle.



Photos courtesy of Dr. Ona Erdt



The Lexa Sterilizer offers an intuitive touchscreen menu interface with customizable sterilization options.



Indication

- Sterilization of any dental instrument or handpiece

Unique Attributes

- Single-use water management - providing fresh water for each cycle.
- Easy maintenance: no cleaning cycles required
- Vacuum assisted drying for "bone dry" instruments after every cycle
- Cycle recording on a USB memory stick
- WiFi enable-able for easy traceability

THIS IS NICER,
MORE INTUITIVE,
AND MORE
EFFECTIVE THAN
OUR STERILIZER.

Evaluators' Comments

"The **Lexa Sterilizer** offered completely dry instruments at the end of every cycle!"

"The size of the bin and depth allows you to set cassettes flat or straight."

"The touch screen was great and easy to use."

"It is a time savings to have the system plumbed due to the autofill and drain feature; otherwise this has to be done manually."

Consultants who would:

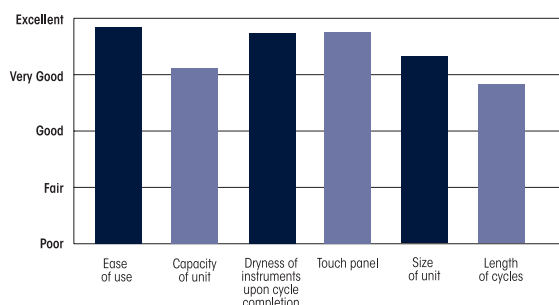
90% Recommend to a colleague

Consultants who would purchase for their office:

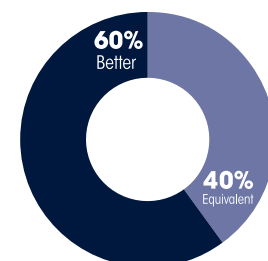
90% Yes, instead of current sterilizer

10% I might consider purchasing this equipment as second sterilizer

Evaluation Summary:



Compared to Competitive Products:



3M™ Filtek™ Supreme Flowable Restorative: Now With Expanded Indications

M. Cowen, J.M. Powers



INTRODUCTION:

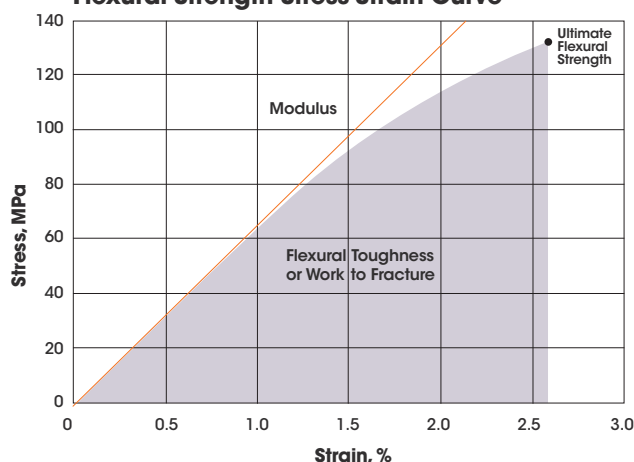
Filtek™ Supreme Flowable Restorative which was first launched in 2017 has had its clinical efficacy closely tracked by 3M in the proceeding years. Due to its clinical performance, and general greater understanding of the excellent performance of the more recent low viscosity composites, 3M has expanded the indications of use of **Filtek Supreme Flowable Restorative** to include all classes (I-V) of restorations.

To support the clinical evidence of these expanded indications, DENTAL ADVISOR has independently tested the critical material properties of flexural strength, fracture toughness, polishability and hardness of **Filtek Supreme Flowable Restorative** compared to three other materials which also have current indications of use for all classes of restorations. These composites were the **GrandioSO Heavy Flow** from VOCO, **Beautiful Flow Plus X F00** (high viscosity version) from Shofu, and **Tetric EvoCeram Universal Restorative** from Ivoclar.

RESULTS SUMMARY:

Filtek™ Supreme Flowable Restorative has similar or better material properties than the other 3 materials tested which have current indications for Class I-V Restorations. In particular, **Filtek™ Supreme Flowable Restorative** has the best maximum polishability, high flexural strength and fracture toughness which rivals conventional composites.

Flexural Strength Stress-Strain Curve



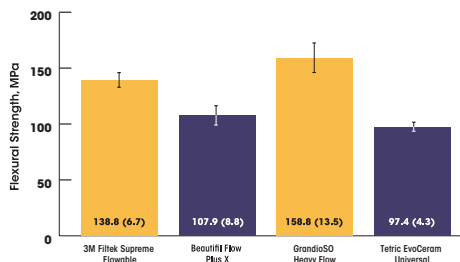
Here is an example stress-strain curve from a flexural strength test with Filtek Supreme Flowable Restorative. The Elastic Modulus is based on the slope, the Ultimate Flexural Strength is the highest load before fracture, and Work to Fracture is based on the area under the curve and is a measurement of the total energy absorbed until failure.

Flexural Strength is an important test for the mechanical strength of materials, especially for class I and II restorations which tend to be the most load bearing. The FDA and ISO 4049 require over 80 MPa for any intra-orally cured composite restorative. Flexural strength is tested by bending 2x2x25 mm bars until failure.

Work to Fracture or Flexural Toughness are both ways to describe the total energy that the flexural strength bar undergoes until fracture. While flexural strength is determined by the maximum force the bar breaks at divided by the cross-sectional area, these properties are a measure of the area under the stress-strain curve. This is a useful metric to delineate between materials that may break at a high force, but absorbs an overall lower amount of energy before breaking.

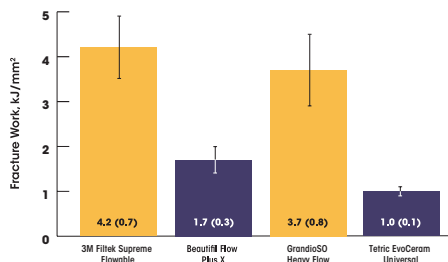
Flexural Modulus is the resistance to deforming (non-permanently) when a stress is applied to it. It can be thought of as the stiffness of the material. Materials with a higher modulus tend to be more brittle materials like ceramics, which can have a modulus of over 50 GPa, compared to a composite which typically have a modulus between 5-12 GPa.

Flexural Strength, MPa



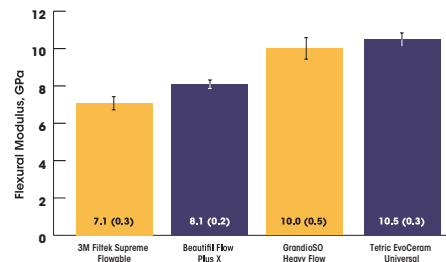
Filtek Supreme Flowable Restorative tested with a high flexural strength of 139 MPa, which is similar to many packable conventional composites.

Fracture Work



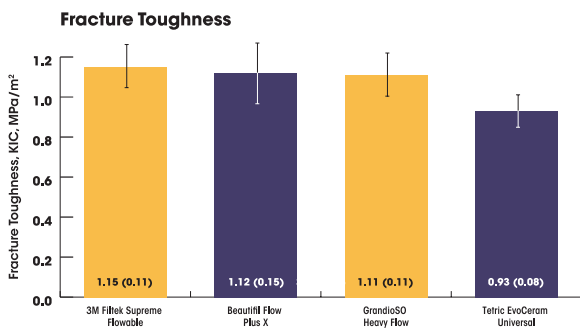
Filtek Supreme Flowable Restorative absorbed the most energy before breaking of the composites tested.

Flexural Modulus, GPa

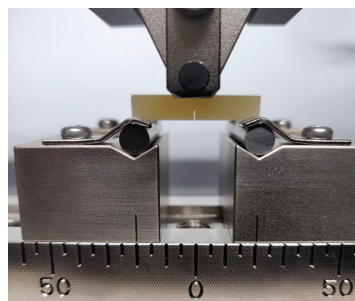


Filtek Supreme Flowable Restorative has a slightly lower modulus than the other materials tested, which may allow the product to absorb more energy in flexure.

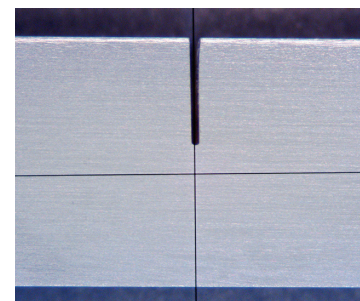
Fracture Toughness is a property that is most closely related to the resistance of chipping of materials. It is tested by creating a defect in a bar of the material and testing it similarly to flexural strength in a 3-pt or 4-pt bend to measure the resistance for the flaw to spread until failure. This is particularly important for any restorations with incisal edges such as class IV restorations where chipping most often occurs.



Filtek Supreme Flowable Restorative has similar or better fracture toughness than the other composites.

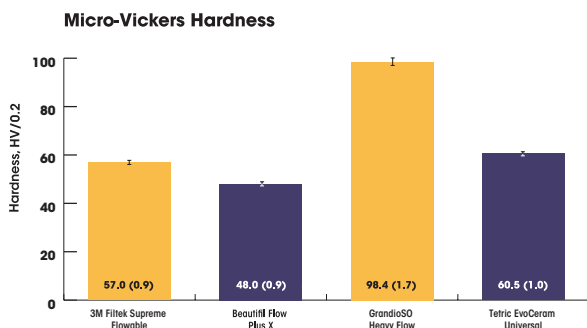


Notched Bar loaded in 3-pt flexure



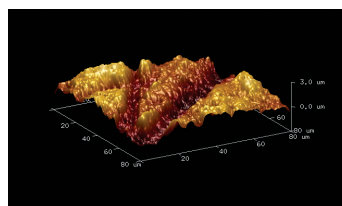
2 mm notch with 5 mm thickness

Hardness of dental restoratives is an important property which measures the resistance to deformation by a hard object, in the case of the Vickers hardness test, a diamond pyramidal indenter. Hardness is generally related to the surface wear resistance of dental composites, where a low hardness might indicate a higher wear rate from eating and brushing.

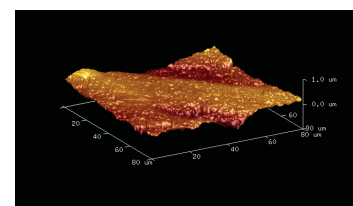


Filtek Supreme Flowable Restorative has a Vickers microhardness of 57 HV, which is similar to many packable composites which typically have a hardness over 50 HV.

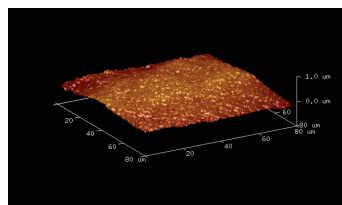
Filtek Supreme Flowable Restorative



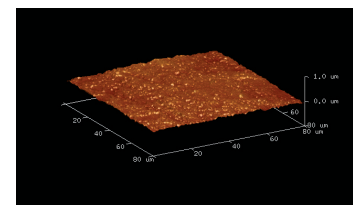
Initial 320 grit



20s



40s



60s

Polishability of composites is an important property to determine whether composites are suitable for surface-based restorations. The polishability can be analyzed by looking at the specular reflectance, also known as gloss. Gloss values (GU) over 60 are typically thought of as clinically acceptable for most cases, but higher values can be achieved with longer polishing time, which is also correlated with lower surface roughness.

Composite surfaces should at minimum have a mean surface roughness (Ra) of under 200 nm to minimize bacterial adhesion, and should have under 100 nm Ra to minimize staining. Some flowable composites with an inadequate amount of fillers will tend to become rougher over time, or not be able to be polished past a certain point by a variety of polishers. In this study, we measured the gloss and surface roughness of the composites after 20, 40, and 60 seconds of polishing with the **Sof-Lex™ Diamond Polishing System** after starting from a rough state with 320-grit sandpaper to simulate a rough, irregular surface created by creating anatomy with burs or diamonds. The surface roughness was measured with an Atomic Force Microscope over 80 x 80 μm which has a higher accuracy than many profilometers used as the probe tip is under 20 nm in thickness.

RESULTS:

Polishing, means (standard deviations)												
	Filtek Supreme Flowable			Beautifil Flow Plus X			Grandioso Heavy Flow			Tetric EvoCeram		
Parameter	20s	40s	60s	20s	40s	60s	20s	40s	60s	20s	40s	60s
Gloss, gu	62.7 (5.4)	76.8 (3.6)	91.2 (0.8)	60.3 (5.5)	78.4 (2.1)	90.4 (0.5)	59.0 (6.0)	70.8 (4.7)	86.3 (2.5)	65.0 (4.4)	78.0 (2.8)	88.7 (1.8)
Roughness, Ra, nm	87.2 (21.4)	71.4 (8.0)	30.3 (4.3)	89.3 (12.4)	36.0 (16.7)	25.1 (0.6)	72.4 (34.5)	54.0 (22.1)	41.6 (2.9)	81.9 (10.0)	62.5 (3.7)	42.3 (3.0)

Filtek Supreme Flowable Restorative had the highest final gloss of any of the composites indicating an ability to create a highly polished state. All composites also showed a clinically acceptable polish of approximately 60 GU and under 100 nm mean surface roughness after 20 seconds of polishing with the **Sof-Lex™ Diamond Polishing System**.

G-aenial A'CHORD Simplified Unishade System (GC America)



Introduction

With the *G-aenial® A'CHORD* system, a natural final restoration can be obtained by following the shade guide provided in the kit to determine the patient's layering combination for enamel, core, and opaquel shades. This system is a simplified shade system, with only five core shades to replace 16 VITA shades and is highly esthetic.



The patients' shade guide for an invisible restoration



Fig. 1: Pre-treatment photo



Fig. 2: Caries removal and long bevel placed

Clinical Procedure, Case and Results

A 64 year-old patient presented with extreme wear on all of his anterior teeth on the linguals with caries in exposed dentin on tooth #9.

The patient's VITA shade was determined to be a D2; therefore, his formula, for a highly esthetic restoration that was nearly invisible, was the JE enamel shade, the AO2 opaquer, and the A2 core shade (which replaces A2, D2, C1, and D3 from the VITA shade guide).



Fig. 3: First layer placed to form an enamel shell utilizing a putty matrix



Fig. 4: Enamel shell formed using enamel shade JE

A putty matrix was fabricated prior to preparing the tooth. Caries was removed as well as undermined enamel. Long bevels were placed for a perfect blend into the enamel with a flame shaped carbide bur. The tooth was cleaned with *Consepsis* (Ultradent), and the enamel selectively etched with 37% phosphoric acid (Vista Dental). After rinsing the enamel and drying the preparation, *CLEARFIL Universal Bond Quick* (Kuraray Dental) was placed, air thinned, and light cured. The initial composite placement was a shell of the JE enamel on the lingual with the *Optrasculpt* (Ivoclar) composite instrument.



Fig. 5: Second layer placed with opaque shade AO2



Fig. 6: Third layer placed with core shade A2

From this shell a slight opaque layer, AO2, was placed, leaving a small amount of enamel shade along the incisal edge for translucency. The consistency of this material is very sculptable, making it easy to place the material exactly where it is wanted without slumping. The core shade, A2, was placed and it was immediately noted that it just seemed to disappear into the preparation as the shade matched perfectly.



Fig. 7: Final layer of enamel shade placed



Fig. 8: Final restoration

After the bulk of the preparation was filled with the core shade, a layer of the JE enamel shade was placed over the facial and connected to the lingual shell of enamel that was left exposed for a naturally translucent incisal edge. A light layer of wetting resin (Clinicians Choice) was used to smooth and blend on the felt pad side of the Optrasculpt instrument for an invisible margin. The final restoration was finished with a flame carbide bur, and *Soft-Lex* discs (3M). The final polish was placed achieved with *FlexiCups* (Cosmedent), a felt *FlexiBuff* (Cosmedent), and *Enamelize* (Cosmedent) polishing paste.

Conclusion

With this system, determining the perfect shade/layering combination is as easy as following a recipe. The simplified shade aspect makes it possible to still create natural, beautiful restorations for patients while only having to carry five core shades in the office, minimizing inventory significantly from having to carry 16 shades to cover the entire VITA spectrum. The *G-aenial A'CHORD* system makes layering for highly esthetic restorations easy and more predictable.

Efficacy of Comparative Evacuation System Cleaners

J.A. Molinari, D. Graham

Purpose:

To evaluate and compare the **Monarch CleanStream Evacuation System Cleaner** (Air Techniques) to competitor evacuation line cleaners in their ability to keep dental evacuation line tubing clean after one month of clinical use.

Experimental Design:

The entirety of this study was conducted in a busy dental practice, all within the same operator, using the same evacuation line location, and operated by the same trained dental professional. Each of the three comparative evacuation line cleaning products was exclusively used for one month in the operator.

Prior to starting the study, the pre-existing evacuation line tubing of the saliva ejector was removed, and new tubing was installed. A dental test soil was flushed through the line to establish a baseline of debris.

Monarch CleanStream Evacuation System Cleaner was utilized on the evacuation line following the pre-cleaning and daily use instructions and was then used exclusively in the operator for one month, following the product instructions. After the month was completed, the saliva ejector line tubing was removed and a new line tubing was installed prior to the next product's testing period. The steps above were repeated for **A-dec Evacuation System Cleaner** (A-dec Inc.), and again for **PowerScrub Vacuum Line Cleaner** (Solmetex).

The evacuation line tubing that was removed after each testing period was brought back to the laboratory for visual analyses. Five random one-inch sections of tubing were cut open and microscopically photographed from each of the treated evacuation line tubes. Control samples included random sections from new, unused, untreated tubing.



Results:

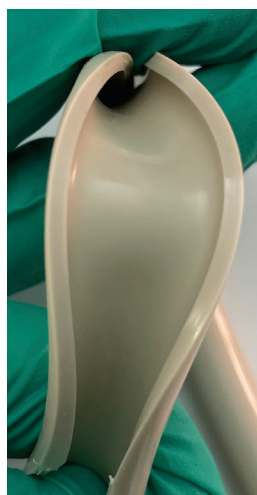
The inner tubing from the evacuation line treated with **Monarch CleanStream Evacuation System Cleaner** showed very little debris accumulation after one month of use (Figure 2). No build-up of debris was found with the naked eye throughout the entirety of the inner tubing (Figure 1).

The inner tubing from the evacuation line treated with **A-dec Evacuation System Cleaner** showed variable debris accumulation after one month of use (Figure 3). Patches of debris build-up were observed with the naked eye throughout the entirety of the inner tubing (Figure 1).

Lastly, the inner tubing from the evacuation line treated with **PowerScrub Vacuum Line Cleaner** showed variable debris accumulation after one month of use (Figure 4). Patches of debris build-up were observed with the naked eye throughout the entirety of the inner tubing (Figure 1).

The unused tubing serving as a control showed no debris within the tubing (Figure 5).

Figure 1.



Monarch CleanStream Evacuation System Cleaner treated line

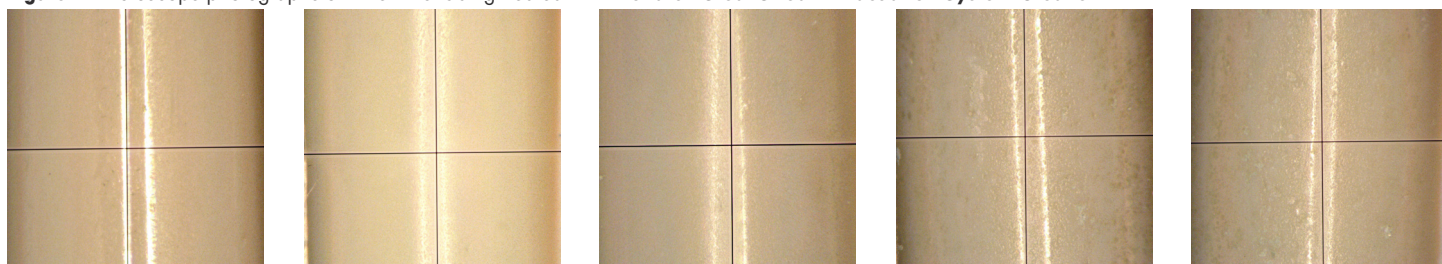
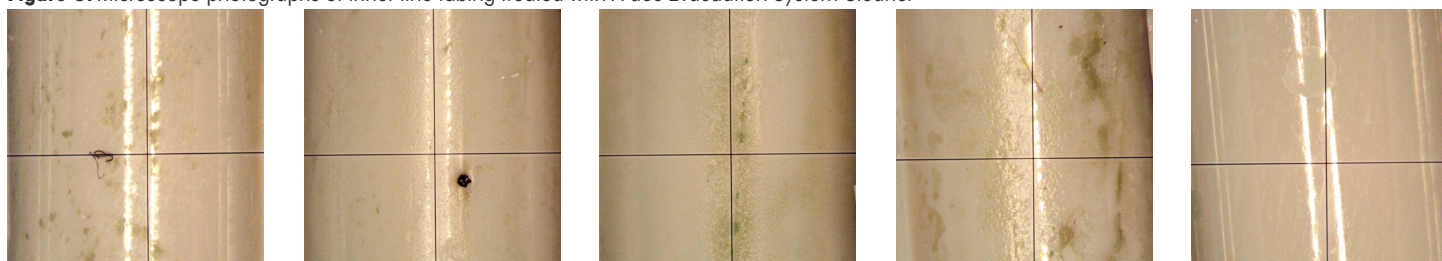
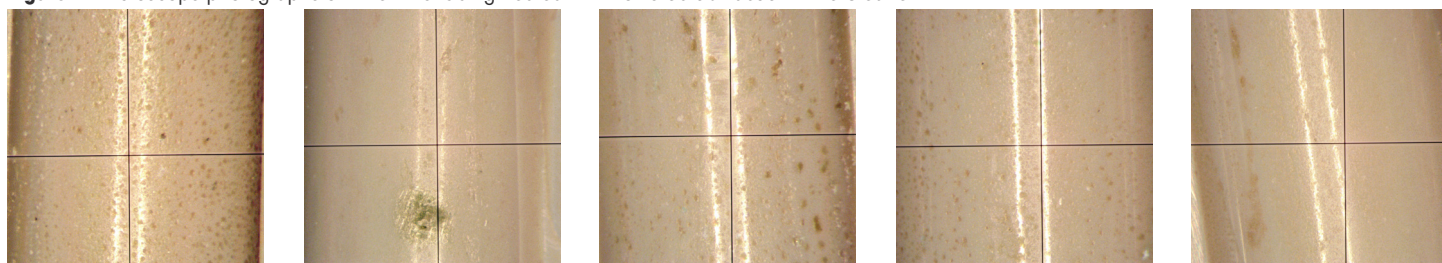
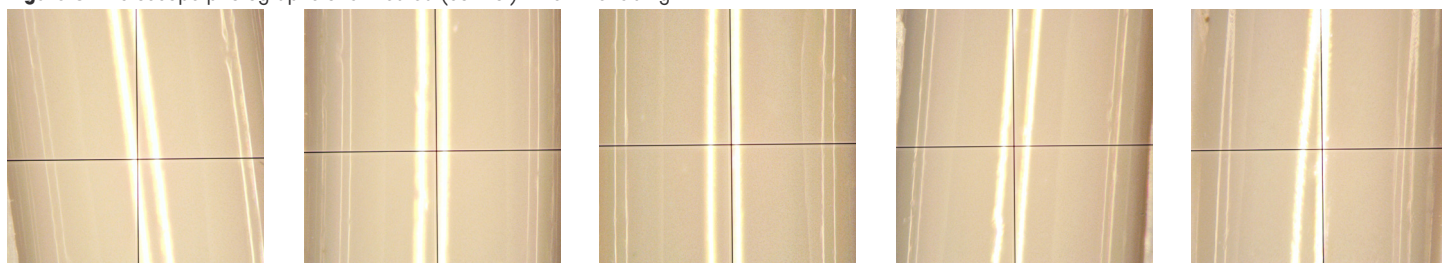


A-dec Evacuation System Cleaner treated line



PowerScrub Vacuum Line Cleaner treated line.

Note: The slit in the middle of the tubing occurred when cutting the tube open in the lab.

Figure 2. Microscope photographs of inner line tubing treated with **Monarch CleanStream Evacuation System Cleaner****Figure 3.** Microscope photographs of inner line tubing treated with *A-dec Evacuation System Cleaner***Figure 4.** Microscope photographs of inner line tubing treated with *PowerScrub Vacuum Line Cleaner***Figure 5.** Microscope photographs of untreated (control) inner line tubing

Conclusion:

In clinical practice, evacuation lines need to be treated daily to support optimal suction and vacuum function. Utilizing an evacuation system cleaner that can reduce debris accumulation in the tubing of the lines can ensure proper maintenance is occurring, and can potentially save on maintenance costs down the line for the dental practice.

After visual and microscopic analyses of the inner tubings from the treated evacuation lines, it was found that treatment using **Monarch CleanStream Evacuation System Cleaner** resulted in the cleanest evacuation line tubing after 30 days of clinical use. The results of this investigation provide an insight for the potential results of long-term use in a clinical setting. Future testing could include long-term treatment to test this hypothesis.



2023 CHICAGO MIDWINTER MEETING

SDI INNOVATIVE COMPANY OF THE YEAR 2023

Samantha Cheetham, SDI CEO & Managing Director
Dr. Sabiha Bunek, DENTAL ADVISOR, CEO & Editor-in-Chief
Adrian Atyimas, SDI Sales Manager, USA



2023 CHICAGO MIDWINTER MEETING

DMG

Luxa Core Z Dual

Preferred Award: Composite
Core Material

Jessica McDaniel, Territory Manager

Tessi Cobb RDH, Special Markets Manager



2023 CHICAGO MIDWINTER MEETING

Ultralight Optics, Inc. Featherlight LED Headlight System Top Award: LED Loupe Light

Ultralight Loupe Face Shield Top Award: Face Shield

Ron Nguyen, CEO, Ultralight Optics, Inc.



2023 CHICAGO MIDWINTER MEETING



Zest Dental Solutions

Preferred Award: Bulk EZ Plus

Zach Burkett, Nick Aralis and Troy Anderson



Ivoclar

Top Awards: Bluephase PowerCure, Monobond Plus, Ivoclean, Variolink Esthetic and VivaStyle Whitening Strips
Karen Gutmann, Matt Danwinand John L. Mayer



Clinician's Choice

Top Award: ASAP Indirect +

Peter Alport



HuFriedyGroup

Top Award: Crosstex Surgical Face Masks

Danny Forcucci



Premier Dental

Top Awards: Traxodent & Enamel Pro

Michael D'Errico, Jeff Spiker and Laura Dawson



Kuraray Dental

Top Awards: CLEARFIL MAJESTY ES Flow, CLEARFIL SE Protect, PANAVIA SA Universal and CLEARFIL Universal Bond Quick

Amanda McLeod and Dinesh Weerasinghe



Learn more from our latest

digital media

dentaladvisor.com



eBook



eBook



Motion Graphic Video



Motion Graphic Video



Motion Graphic Video



Clinical Video

DA DENTAL ADVISOR™

VISIT US ON SOCIAL MEDIA

