

THE DENTAL ADVISOR™

“Improving Patient Care Through Research & Education”



Photography by Katie Zydzel, British Columbia

Update on LED Curing Lights

Light-emitting diode light-curing (LED) units are now a mainstay of many general practice offices. These units are an effective choice for replacing alternative light sources such as quartz-tungsten-halogen (QTH) and high-intensity QTH units. LED units are lightweight, typically portable (battery-driven), effective, and in some circumstances able to out-perform other light types with respect to unit durability and curing performance.

This issue of THE DENTAL ADVISOR reports on the characteristics of LED light-curing units and compares 9 LED units.

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

RATINGS

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

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LED Light-curing Units

Ideal Features

- Compatible with variety of initiators (3rd-generation)
- Battery holds a charge for several hours of use - extra battery provided
- Sensor to indicate low battery
- Light tip 8-10 mm in diameter
- Good ergonomics – lightweight
- Easily accessible controls
- Digital readout clearly displayed
- Probe is long enough (>7 cm) to reach posterior surfaces
- Stable docking station/stand
- Autoclavable light tip or protective barrier
- Built-in radiometer
- Easy to disinfect

Advantages

- + Battery-powered
- + Portable - compact, lightweight
- + Energy efficient - long battery life
- + Durable - diodes last 5000 hours

Disadvantages

- Narrow spectral range - most units only work with CQ photo-initiator
- Heat generated in chip
- Heat generated at tip

The LED Source

LED chips used in dental light-curing units have not been specifically designed for dental use. Rather, the need for light-based communication, concentrated digital data storage, and large-screen video displays fueled the quest for a solid-state source that was “blue.” Shortly after the introduction of these chips for other uses, it was found that the main output wavelengths of the blue LEDs serendipitously fell within a major absorption band of the most common photo-initiator used, camphorquinone (CQ). By activating CQ with power within its most abundant absorption range, the LED light proved to be more effective than a QTH, even though it generated a lower total power output.

Clinical Tips

- Minimize heat by having the assistant direct a stream of air or a high-volume vacuum over the tooth crown during light curing. Placing a wet cotton roll directly on the tooth crown opposite the side of exposure will also lessen temperature rise, but not to the same extent as when using air.
- Minimize direct exposure to light sources by use of effective “blue-blocking” eyeglasses or shields for the clinician and the patient.
- Determine the loss of beam intensity with distance by holding the light guide at different distances from a dental curing radiometer. Curing potential of a restorative material is dependent on total energy received. Determine power at tip end, multiply that by the recommended exposure duration – the product is the light energy intensity delivered. When moving the tip away, measure that power level and divide it into the light energy intensity calculated above. The result will be the exposure duration needed to account for power loss with increasing distance.
- Evaluate a light's heat dissipation capabilities by applying the longest sequence of typical exposure durations used in practice and determine if the unit shuts off or if heat greatly decreases during that time.
- Periodically evaluate the output of a light-curing unit with a radiometer to detect changes in intensity.

Q : What is unique about high-intensity LED Units?

A: High-intensity LED units increase driving power to the chip to obtain higher output levels. These units commonly utilize an internal fan to cool the chip or use metal-coated unit bodies to help dissipate internal heat.

Q : Is it still important to use a radiometer?

A: Periodic evaluation of LED light performance with a radiometer is recommended. Typically, LED chips do not fail instantaneously, but have reduced output with prolonged use. There is no clinically relevant difference between radiometers for LED and QTH units, and absolute values from radiometers cannot be used to predict the potential for curing. Tip diameter can also greatly affect measurements. Use of these devices should be restricted to evaluating operating performance over time of a specified curing light/light guide combination.

Clinical Notes

Openings or Gaps in Light Unit Housing

- Openings may allow disinfectant fluids to enter the unit and possibly degrade the electronics over time – clean with care.

Weight (Exclusive of Battery)

- Indicator of an internal heat-sink capability – the greatest detriment to diode life is overheating.
- Increased diode temperature can result in decreased output.
- More expensive units use internal fans or large metallic components to draw heat away from the diode as the light is used. They also incorporate more sophisticated electronics that monitor and adjust changes in chip-driving current to attempt to maintain constant levels of output.
- Less expensive units shut down to avoid overheating, tend to have inadequate heat-sinking features, and use rudimentary electronics.

Heat

- High-power units get hot internally, having the potential to damage a patient's lip, tongue, or cheek.
- Run the unit through a number of sequential, repeated exposures and sense the temperature to gauge amount of heat at housing and tip.

Battery

- Lithium-ion - longer charge, no memory effect, 40% more capacity than Ni-Cad.
- Nickel-metal-hydride (Ni-MH) - less memory effect and greater capacity than Ni-Cad.
- Nickel Cadmium (Ni-Cad) – older technology, must use battery until drained before recharge or it develops a “memory effect.”

Q : What new features are available in LED units?

A: Some new units generate light at two or more different wavelengths (poly-wave lights) to provide radiant energy to polymerize materials having CQ as well as other photo-initiators, where a higher frequency (around 400 nm) is needed. Also some lights have two or three intensity levels available.

Q : Are the temperatures generated by LED units important?

A: With the advent of high-intensity lights, temperatures from exposure to LED units have become a significant clinical issue. Although LED light-curing units have been advertised as being “cool” and not raising tooth temperature, temperatures are raised (*see pages 4 and 5*). Heat emitted from LED tips may affect pulpal vitality, patient comfort and curing of the resin.

Ergonomics

- Pencil grips - allow easy use of many controls with one finger.
- Gun – familiar, requires adjusting controls with two hands.
- Cordless units - battery size, weight, and positioning affect unit balance and ease of use.
- Corded units – balance between unit and cord weights affects holding comfort.
- Investigate the ability to place the tip easily into difficult-to-reach regions.

Tip End Configuration of Conventional, Glass-fibered Guides

- Turbo - increased power output, but decreased exposure area - should not be used for distances greater than 4 mm.
- Curved.
- Sheathed (non-glare) or unsheathed (light-sabers) - opaque, sheathed, blackened guide provides more throughput to the target and is easier on the eyes.

Tip End Configuration of Pencil-grip Models

- No guide - chips located at pencil end.
- Covered with glass or plastic lens.
- Covered by clear glass or plastic plate - tends to provide the worst uniformity of beam irradiance.

Translating the Science

High-intensity LED Light-curing Units - The Heat They Produce

A primary goal for improvement of LED light-curing units has been to increase the light intensity - the thought being, the higher the intensity, the more rapid and more thorough the cure. Unfortunately, heat generation is a typical consequence of higher light intensity. The amount of heat that develops when light interacts with tooth tissue, resin composite or soft tissues is dependent on: the intensity of the light, how much of the light is reflected or absorbed by the particular material, and how fast the heat is conducted away.

A recent survey of 160 Clinical Consultants of THE DENTAL ADVISOR indicated three of their principal concerns about the high-intensity light-curing units coming into the marketplace were:

1. Is there a risk of damaging the pulp with a high-intensity light?
2. How much does the temperature of the composite restoration increase during light curing?
3. Can a patient's oral soft tissues be burned with the tip of the light?

To answer these concerns, THE DENTAL ADVISOR Biomaterials Research Center conducted experiments using several high-intensity (1000-1600 mW/cm²) and ultra-high-intensity (4000-5000 mW/cm²) lights (*see table, page 5*) to determine the increase in temperature of the dental pulp and composite restoration during a typical curing cycle and the temperature increase of soft tissue in direct contact with the tip of the curing lights.

That temperature increase of the dental pulp ranged from 0.0 to 1.2 °C, with many of the light-curing units showing no increase in pulp temperature. This insignificant temperature rise can be explained by the fact that the time the light was on was short enough that the insulating qualities of the tissues and composite restoration protected the pulp. Therefore, following the recommended curing times should protect the pulp tissue from excessive heating.

That temperature increase of the composite restoration was higher, ranging from 8 to 27 °C for a single curing cycle of the light. There are times, however, when a clinician will use three curing cycles in succession to ensure thorough curing. When three cycles were simulated in our experiment, temperature increases were as high as 40 °C. However, when each pulse was followed by a 6-8 second delay, the temperature increase was similar to that of a single curing cycle. A short delay in between pulses can, therefore, protect the restoration from increasing in temperature with each consecutive pulse.

Direct contact with soft tissue caused temperatures in the range of 42 to 58 °C. Intolerable pain is produced with a contact temperature of 50°C. Every one of the lights tested can produce a painful burning sensation if the light-curing tip is inadvertently placed in contact with the lip, tongue, cheek, or gingiva over the length of the curing cycle. Therefore, care must be taken to avoid direct contact with these tissues especially when consecutive pulses are used.



TRANSLATING THE SCIENCE

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THE DENTAL ADVISOR'S **Translating the Science** provides information on the clinical relevance of research on the properties of dental materials and equipment.

Table. Average Temperature Increase (ΔT) in Restoration and Pulp Chamber and Maximum Temperature of Soft Tissue in Direct Contact with the Curing Tip						
LED Curing Light	Company	Light Energy Intensity, [Light Intensity X Time]	Restoration Average ΔT , °C (Standard Illumination Period)	Restoration Average ΔT , °C (Three consecutive illuminations [1 second between each])	Average ΔT , °C in Pulp Chamber From 37°C	Average Maximum Temp., °C of Soft Tissue in Direct Contact with Light Tip
FUSION (20 s, 9.5mm ϕ tip)	DentLight, Inc.	1500 X 20= 30000	27.2	38.9	1.2	57.2
the CURE Cordless LED Curing Light (20 s, 8mm ϕ tip)	Spring Health Products	1200 X 20= 24000	18.3	23.3	0.8	52.8
FLASHlite Magna (20 s, 11mm ϕ tip)	Discus Dental	1100 X 20= 22000	25.0	30.6	1.0	58.3
DEMI (20 s, 7.2mm ϕ tip)	Kerr Corporation	1100 X 20= 22000	18.3	25.6	1.0	50.0
Coltolux LED (20 s, 8mm ϕ tip)	Coltene/Whaledent, Inc.	1000 X 20= 20000	9.4	9.4	0.0	48.9
Valo (Standard --20 s, 9mm ϕ tip)	Ultradent Products, Inc.	1000 X 20= 20000	17.8	22.2	0.8	50.0
Celalux2 (20 s, 7mm ϕ tip)	VOCO America	1000 X 20= 20000	12.2	10.8	1.1	46.2
starlight pro (20 s, 6.8mm ϕ tip)	Mectron	1000 X 20= 20000	8.1	10.7	0.5	42.0
FUSION (10 s, 9.5mm ϕ tip)	DentLight, Inc.	1500 X 10=15000	20.6	26.1	0.6	51.1
FlashMax (3 s, 4mm ϕ tip)	CMS Dental	5000 X 3= 15000	9.4	14.4	0.0	56.1
Valo (Plasma--3 s, 9mm ϕ tip)	Ultradent Products, Inc.	4500 X 3= 13500	17.8	21.1	0.1	53.3
the CURE (10 s, 8mm ϕ tip)	Spring Health Products	1200 X 10= 12000	11.1	17.2	0.0	42.2
Beyond CL 628 (10 s, 7.7mm ϕ tip)	Beyond Dental	1100 X 10= 11000	11.1	12.8	0.0	46.7
FLASHlite Magna (10 s, 11mm ϕ tip)	Discus Dental	1100 X 10= 11000	17.8	22.2	0.0	46.7
Celalux2 (10 s, 7mm ϕ tip)	VOCO America	1000 X 10= 10000	11.7	11.1	na	42.2
starlight pro (10 s, 6.8mm ϕ tip)	Mectron for Protechdent	1000 X 10= 10000	7.6	10.1	0.1	42.3
Valo (High--4 s, 9mm ϕ tip)	Ultradent Products, Inc.	1400 X 4= 5600	8.3	17.8	0.0	45.0
Acteon Mini 2 (5 s, 7.5mm ϕ tip)	Acteon Dental	1000 X 5= 5000	12.2	13.3	0.0	50.0
Range		5000 - 30,000	7.6 - 27.2	9.4 - 38.9	0.0 - 1.2	42.0 - 58.3
Average		15,894	14.7	18.8	0.4	48.9

Clinicians may be concerned that the light produced by their curing light is too intense and is creating high temperatures. The intensity of the light is generally a function of the inverse of the distance to the lighted surface. So, for most lights, moving the light further from the subject decreases the resulting heat. However, some lights focus the light at a point away from the tip. For example, one of the lights tested (*Valo*, *Ultradent Products, Inc.*, Plasma mode) was hottest at a distance of about 2 mm from the tip. The best way to tell if you could produce pain in a patient's soft tissue is to experiment with the light on your fingertip.

In conclusion, all of the lights are safe when manufacturers' instructions are followed. The clinician should be careful to not direct the light at soft tissues due to the potential of high temperatures being generated.

LED Light-curing Units

Product	Company	Cordless	Built-in Radiometer	Weight, oz	Clinical Rating
3M ESPE Elipar S10 LED Curing Light	3M ESPE	Yes	Yes	8.8	ce
Coltolux LED	Coltene/Whaledent, Inc.	Yes	No	2.2	95%
FLASHlite Magna LED Dental Curing Light	Discus Dental	Yes	Yes	4.3	92%
FUSION	DentLight, Inc.	Yes	No	3.9	93%
i-Light	DENT'N Co.	Yes	No	8.1	86%
radii plus	SDI North America	Yes	Yes	6.2	93%
bluephase G2	Ivoclar Vivadent	Yes	Optional	9	98%
Allegro LED	Den-Mat Holdings LLC	Yes	Numeric Value	12	95%
the CURE	Spring Health Products	No	No	1.5	96%

ce = Currently Evaluating. For more information on LED Light-Curing Units visit the Product Comparison Tables or the online issue at www.dentaladvisor.com.



**BEYOND Cordless LED
Curing Light**
(Beyond Dental & Health)



Coltolux LED
(Coltene/Whaledent)



FlashMax
(CMS Dental)



radii plus
[SDI (North America), Inc.]



TDA Recommends The Following Products

LED Curing Lights

- Bluephase G2 (Ivoclar Vivadent Inc.)
- FUSION (DentLight, Inc.)
- Flashlight Magna (Discus Dental LLC)



FUSION
(DentLight, Inc.)

Director of Infection Control

John A. Molinari, Ph.D.

Flu Season 2009-2010

Many people do not realize that influenza is one of the most infectious microbial diseases. Symptoms of this acute viral infection develop rapidly after an incubation period of about 2 days (1-4 day range), and include rapid development of a fever (101-102 F), myalgia, muscle weakness, sore throat, runny nose, and a severe, recurrent non-productive cough. Symptoms typically last for about 2-3 days, but can linger for up to a week. Although most clinical cases are self-limiting, certain virulent influenza virus strains circulating in the population can predispose patients to potentially life-threatening secondary pneumonia. You may have previously read that approximately 36,000 people die annually in the US from influenza complications. This number is based on recurring statistics collected over a period of years.

Since April of this year, global attention and concern have focused on the emerging A/H1N1 (i.e. "swine flu") influenza pandemic. This outbreak continues to spread in many countries with the real possibility of a second wave of severe infections beginning this Fall. Despite the current trends and predictions for A/H1N1 disease, however, we must not forget that we are already entering the 2009-2010 seasonal flu season. Many scientists and public health authorities believe that disease from seasonal flu viruses along with extensive pandemic A/H1N1 illness may cause this flu season to be worse than usual, with the result being an increased number of influenza cases, more hospitalizations, and subsequent deaths from complications.

Despite reports of severe illness and the potential for rapid spread of infection in patient care facilities, many health care professionals still fail to adequately protect themselves. Dental care providers are among the most at-risk health care workers (HCW) for contracting influenza, and yet I often hear comments like "I received the vaccine once years ago and came down with the flu a few days later from the injection so I am never getting that shot again."

This perception is conveyed to others and can make people fearful of vaccination. You as health care providers need to be armed with the appropriate information to counteract it.

At the outset you should be aware of fact that neither the available seasonal flu vaccine nor the soon-to-be-released A/H1N1 vaccine, which are administered by intramuscular injection, contain live influenza viruses. After cultivation in chick embryo tissue cells, harvested viruses are treated and inactivated with formalin. These inactivated microbes are then fragmented into viral components which are used as the immunizing agents. Thus, in addition to an absence of viable virions, the final preparation does not contain any intact viruses. Unfortunately, despite this quality control process the misperception of contracting influenza from inactivated vaccine remains a common HCW and public health concern.

Another common belief is that onset of respiratory symptoms during the winter months is synonymous with influenza. Please remember that there are a number of other viruses that cause flu-like symptoms during months when influenza virus transmission is most common. Both the flu and common cold show respiratory symptoms but they are caused by different viruses. In general the flu is much worse than a cold, with symptoms such as fever, body aches, extreme fatigue, and dry cough being more intense. Most people who have developed influenza have little doubt about what they had. Thus, the next time you hear someone say that they came down with the flu from the vaccine injection, consider that it wasn't an influenza virus infection after all. For additional information about these and other influenza topics, please consult the CDC website, www.cdc.gov.



Have a Question You Would Like to Ask Dr. Molinari?

Visit our Infection Control Corner to submit your question online, at www.dentaladvisor.com.

StarDental/DentaleZ Group
866.DTE.INFO
www.dentalez.com

Description

The **NuTorque™** programmable electric handpiece system is lightweight and compact and is indicated for general dentistry procedures including crown preparation, cavity preparation, caries removal, finishing and polishing, and endodontic treatment. The system includes a **NuTorque** Control Unit with tubing, **NuTorque** motor (brushless), power supply with transformer, main cable, and manuals. Various attachments are available: high-speed attachment 1:5 (standard and mini head), slow-speed attachment 1:1 (friction grip, latch, straight), and endo attachment 16:1 latch. The speed range is up to 200,000 rpm with torque control ranging from 0.1 to 3.0 Ncm and capabilities of 384 Ncm. The handpiece has 360 degree rotational attachments. The customizable touch screen display includes numerous useful options, such as three operative memory presets and five endo memory pre-sets for common procedures. An automated endo-mode safety feature includes auto-reverse, auto-reverse forward and auto-forward stop. **NuTorque** was evaluated by 11 clinical consultants in 1380 uses. This handpiece received a 97% clinical rating.

Suggested Retail Cost

- \$3200/system

Equipment Features

Consultants reported that the **NuTorque** electric handpiece system was easy to integrate into clinical use. The operative pre-set programs were effective for caries removal, cavity preparation, crown preparation and finishing and polishing. When desired, the settings were easily changed on the touch screen of the control unit. Attachments were quickly changed by simply snapping them on and off of the motor. Light output from the fiberoptics, as well as the tapering neck and gentle angle, make access and visibility about as good as it gets. The effectiveness and usefulness of different endo auto reverse features were highly rated. The lightweight titanium housings on the **NuTorque** attachments have a good grip and are well balanced with the motor. The most used attachments were Electric 1:5 and Electric 1:1 FG. Fifty-four percent of consultants reported that **NuTorque** was better than their usual handpiece. Overall, 73% would switch to it and 91% would recommend **NuTorque** to their colleagues.



Consultants' Comments

- ◆ "Best electric handpiece I have used."
- ◆ "It was easy for our dental assistant to connect to the existing handpiece line."
- ◆ "Versatile; very easy to change from endo to restorative."
- ◆ "Very quiet."
- ◆ "Water shuts off immediately."
- ◆ "Add digital adjustment for water flow."
- ◆ "Make the light brighter."

Clinical Tips

- Motor and attachments are autoclavable.
- Try the pre-sets before changing them.
- Use finger (no instruments) on the touch screen.
- Do not use if patient has a pacemaker. ■

S.S. White Burs, Inc
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www.sswwhiteburs.com

Laboratory Product:

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Description

Great White Z is a line of diamond instruments specifically designed to quickly cut and adjust sintered zirconia copings and ceramic crowns. The instruments have a friction grip shank for use in a high-speed handpiece. The **Great White Z** introductory kit includes four diamonds in a bur block: one round-end taper diamond, two sizes of round diamonds and one football-shaped diamond. The diamonds are also available in 5-pack refills in each shape. **Great White Z** diamond instruments were evaluated by technicians in seven dental laboratories in over 246 cases. The product received a 91% clinical rating

Suggested Retail Price

- \$49.95 Introductory kit
- \$33.50 5-Pack refill kit

Product Features:

Great White Z is designed for maximum cutting efficiency for zirconia substructures with greater durability compared to standard diamonds and carbide burs. **Great White Z** cut well, allowing contouring of zirconia while leaving a fairly smooth surface. The specialty shapes allow for adaptability and flexibility in one kit. The football shape was reported to be the most versatile as well as the most used in the laboratory, followed by the round-end taper, the large round, and finally the small round. The packaging was well received; however, the autoclavable feature of the bur block is not necessary for lab use. The cutting efficiency of the burs was the most highly rated feature. Overall, 72% of labs that evaluated **Great White Z** would switch to the product, and 72% would recommend these burs to their colleagues.



Laboratory Comments

- ◆ "Good for finishing margins."
- ◆ "It's my favorite brand."
- ◆ "Works well for adjusting zirconia."
- ◆ "A flame shape and a narrower taper would be useful."

Laboratory Tip

- Use water spray while cutting to keep zirconia cool. ■

N'Durance Dimer Flow + + + +

Septodont, Inc.
800.872.8305
www.septodontusa.com

Description

N'Durance Dimer Flow is a light-cured, radiopaque, flowable composite with nano-dimer conversion technology which provides low shrinkage. The composite is filled 41% by volume with ytterbium trifluoride and barium glass filler particles. **N'Durance Dimer Flow** is indicated for use in Class III and V restorations, repair of crown margins, and if applied immediately after the bonding adhesive, as a liner at the base of restorations, as well as to modify margins of composite temporary crowns. It is syringe delivered, and available in shades A1, A2, A3, A3.5, B1, C2, Universal Opaque, and Bleach White. **N'Durance Dimer Flow** was evaluated by 30 consultants in 888 clinical cases and received an 86% clinical rating.

Suggested Retail Cost

- \$51.95/refill kit

Product Features

N'Durance Dimer Flow provides a good shade match after curing and very good esthetics. The final polish was rated as very good despite the grainy texture of the material. The composite has a medium viscosity for ease of handling; however, the syringe tip could be larger for easier dispensing. Radiopacity was rated as very good. Seventy percent of evaluators rated **N'Durance Dimer Flow** equal to or better than their most frequently used flowable composite and 87% would recommend it to their colleagues.



Consultants' Comments

- ◆ "The material stacks and stays in place beautifully."
- ◆ "Nice shade selection and final shade match."
- ◆ "Not overly sensitive to ambient light."
- ◆ "Make applicator tips a little larger."

Clinical Tip

- Guide the flowable composite into place with an explorer tip. ■

Product Update



radii plus [SDI (North America), Inc.] is a cordless, rechargeable LED light-curing unit that received a 93% clinical rating in a review by THE DENTAL ADVISOR in Vol. 23, No. 3, April 2006. **radii plus** is now more versatile with attachments for curing, bleaching and transillumination. Attachments for curing include the standard Contra Angle, optional Right Angle, and 1 mm and 2 mm autoclavable tacking tips.

There is also an Ortho LED attachment that runs for 5 minutes. Attachments for bleaching include both Single Tooth and Full Arch. The **radii plus** Diagnostic LED attachment emits white light to allow transillumination of tooth structure and an adapter tip that replaces the lens cap is available to create a fine beam of light to illuminate sites where access is difficult. **radii plus** has a five-year warranty.

Editors' Note: For the full evaluation on **radii plus**, please refer to THE DENTAL ADVISOR, Vol. 23, No. 3, June 2006.

Dent'N Co.
+33 (0) 4 72 54 82 99
www.dentnco.com

Description

i-Light is a high-intensity LED light that can be used for curing dental materials and for tooth whitening. The unit has a metal housing with a single display window that shows curing time and mode. The lithium-ion battery provides cordless operation, or the unit may be plugged in with the AC cord that is included. **i-Light** contains a cooling gel inside the unit rather than a fan to reduce heat. For light curing materials, the time selection can be set at 2 to 9 seconds. When used as a bleaching light, the unit is screwed onto a rolling floor base with a flexible arm. To activate the hydrogen peroxide gel, whitening mode pulses the light on and off for 15 minutes through a broad, crescent-shaped attachment. Total time for whitening of upper and lower arches is about 45 minutes. The power output for light curing is 1800-2500 mW/cm² at a wavelength of 420-490 nm. **i-Light** was evaluated by seven clinical consultants in 25 uses as a bleaching system and 139 uses as a curing light. This product received an 86% clinical rating.

Suggested Retail Cost:

- \$1950.00

Equipment Features

The high-powered **i-Light** effectively cured dental materials in less time than consultants' standard lights. The narrow barrel shape and slim light guide enhance access to all areas of the mouth; however, the location of the on/off button is not in a comfortable position to activate. The unit is heavy, with most of the weight in the battery, which makes it stable to dock but unbalanced while in use. Consultants reported that they were satisfied with the overall effectiveness of tooth whitening using **i-Light**. Patients also were highly satisfied with tooth whitening at the time of treatment and after 7 to 10 days. Sensitivity and comfort varied among patients. Seventy-one percent of consultants reported that **i-Light** was equivalent to their currently used curing light and 14% reported it was better than their current curing light. Overall, 29% of consultants would switch and 43% would recommend **i-Light** to their colleagues.



Consultants' Comments

- ◆ "Sleek, modern in appearance."
- ◆ "Great assortment of light guide sizes."
- ◆ "Teeth can get hot from the light."
- ◆ "The wheeled base for whitening had minimal assembly instructions."
- ◆ "Make the arm of the bleaching unit more flexible."

Clinical Tips

- Use the shortest curing time possible to minimize heat on the tooth.
- Avoid placing the light on gingival tissue.
- Don't use **i-Light** for tacking resin cement – the cement will fully cure in two seconds. ■

DentLight, Inc.
877.570.9748
www.dentlight.com

Description

FUSION is a cordless LED (light-emitting diode) curing light that can be used for the polymerization of dental materials, including restorative resins, bonding agents, bases, liners, pit and fissure sealants, and dental laboratory materials. **FUSION** has a light intensity of 1500 mW/cm² and a wide light spectrum suitable for dental materials that cure in the wavelength range of 390-490 nm. **FUSION** features an LCD screen with a backlit metal keypad control on an aluminum housing, available in silver, pink, blue, and gold. The unit includes a table-top metal charging base with an optional mount for docking on the dental unit. The rechargeable lithium-ion battery charges in 90 minutes; an indicator shows power remaining in the battery. The unit also may be powered by an AC cord. **FUSION** was evaluated by 21 consultants in over 1000 clinical uses and received a 93% clinical rating.

Suggested Retail Cost

- \$739.00

Product Features

FUSION features a 360° swivel light probe with a 10-mm tip that rotates to reach many areas of the mouth. The unit has standard and high intensity power levels and 5-, 10- and 20-second modes. Consultants most commonly used the standard power, curing in 10-second increments. The sequential mode allows for full-arch curing with one-click operation. Consultants noted that the buttons on this pen-style unit were in a comfortable position to activate by feel. Turning the unit on requires the power key to be held down for a period of time rather than a quick push that would have been preferred by consultants.



Consultants' Comments

- ◆ "Small and lightweight with several curing options."
- ◆ "Easy access to posterior areas."
- ◆ "Fast curing - ideal when you need a quick procedure."
- ◆ "Raised activation buttons are great!"
- ◆ "Intensity is higher than necessary."

Otherwise, the unit was easy to use and position in the mouth. The charger base is small and stable. The option of using **FUSION** with or without a cord was a valuable feature to consultants who have experienced battery failure in other units. Of those evaluating this unit, 68% found **FUSION** equivalent to or better than their current light curing unit; 57% would switch to it and 71% would recommend it to a colleague. ■

Cure-Thru IntegraPost + + + + 1/2

Premier Dental Products Co
888.670.6100 • 610.239.6000
www.premusa.com

Description

Cure-Thru® IntegraPost™ is an esthetic resin post with zirconia-rich glass fibers that are factory silanated. The post is light transmitting, radiopaque and white in color. It is indicated for use in endodontic post build-up for support where less than half of the coronal tooth structure remains. Posts have corresponding drills, are color-coded and are supplied in four sizes: 0.96, 1.08, 1.21, and 1.46 mm. The Intro Kit contains a total of 20 posts, 5 of each size, and 4 corresponding drills. Products provided separately are *IntegraCem*, *IntegraBond* and *CompCore AF Syringe Mix Stack*. **Cure-Thru IntegraPost** was evaluated by 23 consultants in 184 clinical cases and received a 94% clinical rating.

Suggested Retail Cost

- \$200.00/Intro kit

Product Features

Cure-Thru IntegraPost features easily identifiable color-coding that matches the color of the drill. The instructions were rated above average to excellent. The taper and sizes of the posts were well received.

Consultants' Comments

- ◆ "Color-coded posts and drills are well matched and provided good fit to the canal."
- ◆ "Drills were excellent – chatter-free."
- ◆ "Posts were easy to cut."
- ◆ "Package posts in a re-sealable container."
- ◆ "Provide a starter drill."
- ◆ "Add a retentive top to the post design and provide more taper."
- ◆ "A complete kit with bonding agent, cement and core materials would be appreciated."

Consultants reported that the drills cut effectively and that the posts were easy to cut to length. **Cure-Thru IntegraPost**, when used with *IntegraCem*, *IntegraBond* and *CompCore AF Syringe Mix Stack*, was rated easy to use.

Clinical Tips

- Cut the post to length with a diamond bur after it is cemented and the core build-up is completed.
- Use self-cured activator in the bonding agent and place the core material immediately. ■

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THE DENTAL ADVISOR
www.dentaladvisor.com

Septodont
1.800.872.8305
www.septodontusa.com

Description

ProJel-20™ is a 20% benzocaine topical anesthetic gel packaged in 12 g tubes for distribution to patients and 60 g jars for use in the operator. The gel is indicated for temporary relief of pain associated with minor irritation or injury in the mouth and gums or of pain due to canker sores, denture sores or orthodontic appliances. **ProJel-20** is available in four flavors: Cherry, Pina Colada, Bubblegum and Mint. **ProJel-20** was evaluated by 19 consultants and 52 patients with nearly 400 uses. It received an 86% clinical rating.

Suggested Retail

- \$44.95/12 Tube Variety Pack
- \$26.95/6 Pack of a single flavor
- \$12.95/Jar of a single flavor

Product Features

Patients found **ProJel-20** to provide fast and effective pain relief more successfully than over-the-counter remedies; however, there was unanimous desire for the effect to last longer. Patients reported no bitter aftertaste from the dye-free flavoring. The packaging of **ProJel-20** in a small plastic tube was rated highly by both patients and consultants for its convenience and ease of use. Consultants reported that **ProJel-20** was most useful for denture and canker sores. Fifty-three percent of patients and consultants reported **ProJel-20** the same as their most frequently used product, while 43% rated it as better. Eight-four percent of patients reported they would continue to use the **ProJel-20**. Sixty-five percent of consultants would recommend **ProJel-20** to colleagues. ■



Consultants' Comments

- ◆ "Great product; it's nice to have a variety of flavors."
- ◆ "Worked quickly."
- ◆ "Convenient, easy to apply."
- ◆ "Would like to see pain relief last longer."

Patient Comments

- ◆ "Easy to apply and carry."
- ◆ "Tastes great!"
- ◆ "Could last a little longer."

CROSSTEX, International
1.800.872.8305
www.crosstex.com

Description

Ultra-Sensitive Mask is an ear-loop design specifically for users with sensitive skin. The product is free of chemicals, inks, dyes and fragrance and has a fluid-resistant outer layer with a white hypoallergenic inner cellulose layer. Each *Ultra-Sensitive Mask* is constructed with an extra-long, aluminum nose piece and is designed not to lint, tear or shred. *Ultra-Sensitive Face Mask* is also available in *No Fog* and *No Fog with Shield* versions. Ultra Sensitive Mask was evaluated by 28 consultants in 987 clinical uses and received a 91% clinical rating.

Suggested Retail Price

- \$15.99/50 count box

Product Features

The extra-long aluminum nose piece of *Ultra-Sensitive Mask* provides a comfortable fit that remains formed to the nose, even during lengthy procedures. It was reported that the softness of the mask was very good and that those with skin sensitivities were able to wear it without irritation. This mask is a level 5 mask (ASTM high performance rating) - perfect for long procedures where typically heavy to moderate amounts of fluid are produced. Several evaluators stated that they appreciated the lack of chemical odors. Overall, 43% of consultants reported that the *Ultra-Sensitive Mask* was better than their current face mask and 74% would recommend it to colleagues.



Consultants' Comments

- ◆ "Great for sensitive skin."
- ◆ "Stays formed to my nose."
- ◆ "I can't use other masks."
- ◆ "The ear loops are a little rough."

Clinical Tips

- Adapt the mask closely to the nose to prevent air leakage upward, especially if glasses or loupes are worn.
- Be sure to pull mask over your chin. ■

Aurelia Quest Powder Free Nitrile Gloves + + + +

SUPERMAX, Inc.
1-877-AURELIA
www.aureliagloves.com

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



Description

Aurelia Quest Gloves are white, powder-free nitrile gloves for use in dental examinations that are designed to fit and feel like latex gloves. They are latex-free and are packaged with 100 gloves per box in sizes extra small to extra large. **Aurelia Quest Gloves** are finger textured for accurate gripping capability. Twenty-five consultants evaluated **Aurelia Quest Gloves** in over 1000 clinical cases. This glove received an 88% clinical rating.

Suggested retail cost:

- \$6.50/box

Product Features

Consultants reported that the fit and feel of **Aurelia Quest Gloves** was very close to that of latex gloves. The fit is very comfortable and the gloves are easy to put on and take off. The strength is very good, yet tearing occasionally occurs while donning. The flexibility is greater than most other non-latex gloves with excellent tactile sense and adequate durability. Sixty-eight percent of consultants rated **Aurelia Quest Gloves** equivalent to or better than their most frequently used gloves, and 80% would switch and/or recommend the product to a colleague. ■



Consultants' Comments

- ◆ "Good tactile sense."
- ◆ "Best nitrile glove I've tried, and I've tried a lot of them!"
- ◆ "Great fit, great feel and easy to put on."
- ◆ "Better than most non-latex gloves."
- ◆ "I loved the feel and flexibility."
- ◆ "Better flexibility than my current nitrile glove; but higher tearing."
- ◆ "I use to hate wearing latex-free gloves, they were either too big or too small; these gloves are just perfect!"

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