

THE DENTAL ADVISORTM

Improving Patient Care Through Research & Education



Infection Control

Dental Waterline Infection Control

The demonstration of high concentrations of microbial accumulation in coolant water for high-speed dental handpieces was first reported in 1963. Later research determined that the long narrow plastic tubing that delivers compressed air and water to handpieces provides an optimal environment for microbial growth.

This issue of THE DENTAL ADVISOR discusses the contamination of dental unit waterlines, potential risks associated with contaminated water, and infection control strategies. Representative products and processes for treatment of dental water are presented.

June 2014

Vol. 31, No. 05

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RATINGS:

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

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



Over the last few years, the infection control group at THE DENTAL ADVISOR has tested bacterial levels of dental unit waterlines from numerous practices and it is always difficult telling a good dentist they have bad water. Usually the first reaction we see is astonishment or disbelief, which quickly turns to slight irritation. "How could this be? We treat our lines regularly with such and such cleaner, why is it not working?" Our best advice - when it comes to dental unit waterline cleaning systems - is to read the instructions thoroughly. Multiple approaches and new technologies have been introduced into the market to address dental waterline colonization and each product requires specific maintenance to attain optimal performance. For instance, some products require waterlines to be shocked prior to product use, while others require monthly or yearly treatment. Some systems use distilled water and others tap water. Sometimes you need to purge the lines at night other systems require a 2-3 minute flush in the morning. The purpose of the following discussion is to briefly discuss both the principles of dental waterline contamination and effective technologies and products that can address this potential problem. We welcome your comments and suggestions. Please contact us with questions, comments or concerns at jmolinari@dentaladvisor.com or pnelson@dentaladvisor.com.

Introduction

Medical literature contains extensive clinical and scientific evidence documenting waterborne infections in hospital settings, and as a result, the potential challenge presented by contaminated water has become a major concern during provision of dental treatment (Table 1). Ongoing studies continue to investigate the mechanisms of microbial colonization, potential health problems for dental health care workers and their patients, as well as possible approaches for reducing/ controlling microbial presence.

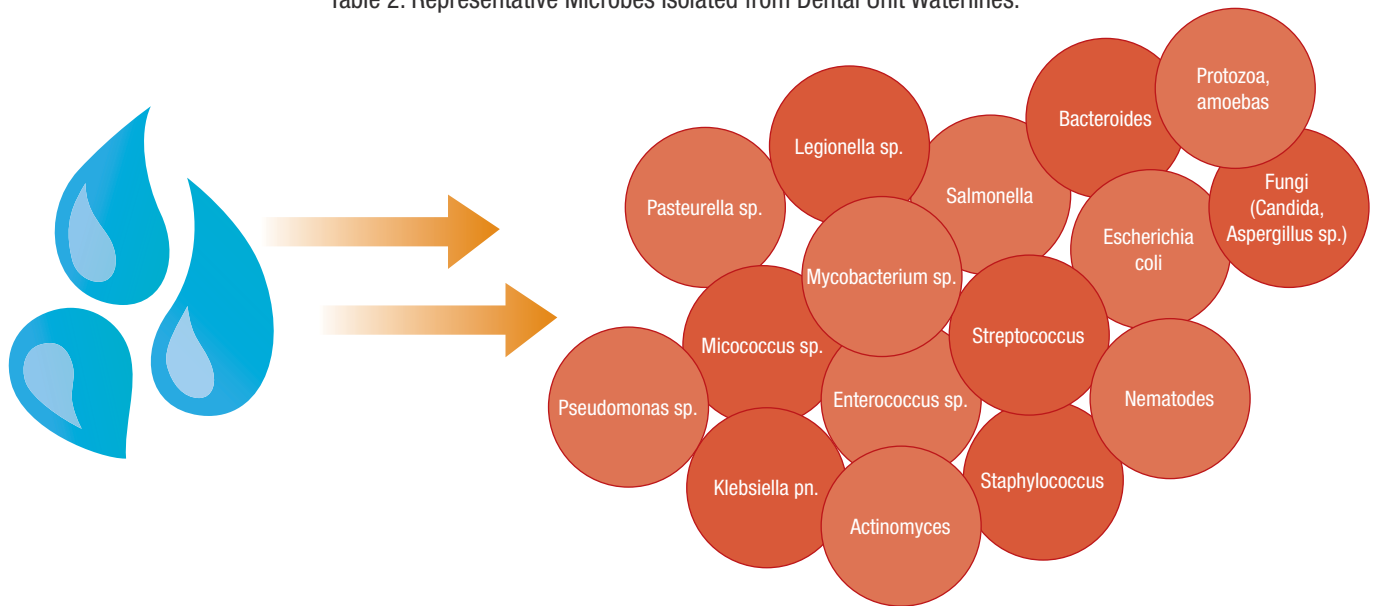
Table 1. Dental Unit Waterline Concerns.



Contamination of Dental Water

Accumulated data have shown that dental unit waterlines can be rapidly colonized by organisms that thrive in aqueous environments and can form biofilms inside line lumens. This contamination occurs because certain unique waterline factors (e.g., system design, flow rates, materials) promote bacterial growth. Multiple classes of organisms have been identified in collected water samples, ranging from nonpathogenic to pathogenic species (Table 2). Although the incoming water from an external source is sanitized and meets public health safety standards for potable quality (<500 cfu/mL of bacteria and <1 coliform), water coming out of the waterline may eventually contain up to 1,000,000 cfu/mL.

Table 2. Representative Microbes Isolated from Dental Unit Waterlines.



Central to microbial contamination of aqueous environments is the formation of biofilms. A bacterial biofilm is defined as a “structured community of bacterial cells enclosed in a self-protective polymeric matrix and adherent to an inert or living surface.” Biofilms begin when free-floating (planktonic) bacteria attach themselves to solid surfaces and establish early “pioneer” colonies. As microbial growth continues, an oligosaccharide matrix called a “glycocalyx” is also synthesized by some bacterial species. Biofilms tightly adhere to the walls of dental unit waterlines. This slime layer provides a structural framework that protects the organisms within the biofilm from desiccation, exposure to chemicals, and destruction from other microbes. Protected by this tenacious coating, bacteria continue to replicate, and form micro-colonies that continue to coalesce, producing continuous sheets of biofilm. As water flows through the lines and comes in contact with microbial accumulations, some clumps of biofilm may be dislodged and come out in exit water as solid material (Figure 1).

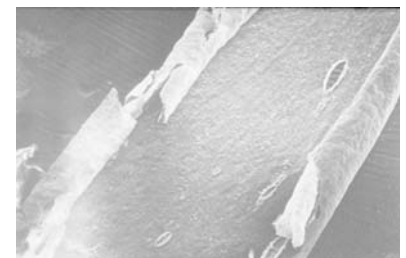


Figure 1. Scanning Electron Micrograph of Biofilm Breaking off Walls of a Dental Waterline.

Potential Risks from Highly Colonized Waterlines

While most of the isolated waterline microbes typically originate from the public water supply, oral bacteria from patient saliva also can be retracted through air/water syringes and handpieces. The overwhelming majority of these bacteria are classified as opportunistic pathogens and do not usually pose a high risk of disease for healthy persons. However, there are increasing numbers of patients with weakened immune systems who routinely seek dental treatment, and who can be periodically exposed to microbial opportunists via colonized water. Historical evidence of clinical infection in this type of patient has been reported following medical exposure to waterborne pathogens, such as *Pseudomonas*, *Klebsiella*, *Legionella*, and non-tuberculous *Mycobacterium* species. Despite the presence of bacteria in numbers greatly exceeding levels established for drinking and recreational waters, few cases of illness among patients or dental health-care workers have been documented. However, because most dental offices are located in outpatient settings, epidemiological links between an infection and recent exposure to contaminated dental water are difficult to establish. This situation changed dramatically in 2012 with publication of the first documented instance of dental patient infection (Legionnaires disease) from highly contaminated waterlines used during two treatment appointments. The same bacterial serogroup was isolated from the dental handpiece waterline and the patient’s bronchial aspirate.

Waterline Infection Control Strategies

Although flushing water through dental waterlines can clear organisms suspended in the bulk fluid, the effects are transient. Bacterial counts can quickly rise to levels that equal or exceed pre-flush levels as biofilm grows or is dislodged by flowing water. The most recent CDC infection control guidelines for dental unit waterlines recommend that:

1. *Water of drinking quality must be used for routine dental care, and*
2. *Sterile water should be used for surgical procedures that involve exposure of bone, the vascular system, and tissue that is normally sterile.*

Properties of an Ideal Waterline Infection Control Agent

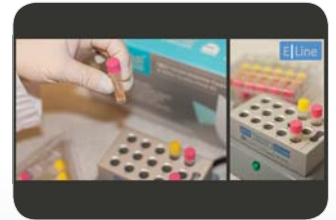
- Rapid “cidal” (i.e., lethal) antimicrobial action
- Exhibit broad-spectrum antimicrobial activity against bacteria, fungi, protozoa
- Ability to disrupt/ disperse accumulated biofilms
- Exhibits “substantivity” to minimize or prevent microbial accumulation on treated surfaces
- Non-toxic to equipment or patients
- Non-pyrogenic
- Non-allergic
- Non-corrosive to metals
- No damaging effects on rubber or synthetic materials
- Does not interfere with performance of any dental restorative or therapeutic agents

Clinical monitoring of water quality can ensure that procedures are properly performed and that devices are working in accordance with the manufacturer’s previously validated protocol. Monitoring dental unit water quality can assist in identifying problems in performance or compliance, and also provides documentation. There is no need to identify specific organisms unless investigating a waterborne illness or a unit that is refractory to treatment. Testing should accurately detect a wide concentration range and type of aerobic, mesophilic, heterotrophic, waterborne bacteria within a reasonable incubation time at room temperature. Generally, there are two options to monitor dental unit water quality: commercial self-contained test kits (*Eline Water Quality Check*, Germiphene, Co.; *HPC Total Count Test Kit*, Millipore, Co.) or commercial water-testing laboratories. Dentists should consult with the manufacturer of their dental unit or water delivery system to determine the best method for maintaining acceptable water quality (i.e., <500 CFU/mL) and the recommended frequency of monitoring.

Over the past few years, THE DENTAL ADVISOR has conducted numerous studies on dental waterline treatment systems. During our investigations, we have occasionally observed high microbial concentrations of up to 100,000-1,000,000 cfu/ml, despite the use of commercial treatments. In one sense dentistry is being asked to be proactive in its approach to reducing the “potential” of the dental unit waterline for cross-contamination and cross-infection. With the widespread application of effective, accepted infection control principles routinely exhibited in most dental facilities, exposing either patients or the waterline to water of poor microbiological quality is not acceptable.

E|Line™ Water Quality Check Kit

Germiphene Corporation
 Contact:
linda@germiphene.com
www.Germiphene.com



Product Description: Take charge of your office water today. With **E|Line™**, you can rest assured that your efforts to clean/ disinfect your waterlines literally shows. *Biofilm and Bacteria Test Vials* indicate, via color change, water containing bacteria counts greater than 200 cfu/mL. Conveniently test on site. Easy to read, clear results in just 24 hours. Available: 37°C Dry Block Incubator, Single Test Vial Set (with Record Log), Triple Test Vial Set (with 3 Record Logs). Each Test Vial Set includes 12 vials: 6 Biofilm Test Vials + 6 Bacteria Test Vials.

Summary

The keys for accomplishing dental unit waterline asepsis remain the same as for other infection control goals - application of basic infection control principles and compliance with product instructions. Contaminated waterlines, like contaminated hands, instruments, and environmental surfaces, should be cleaned first to remove accumulated microbial and extracellular material before treatment. Compliance with a manufacturer’s step-by-step procedures for accomplishing this removal is essential. Minimizing subsequent waterline colonization may require another series of protocols, some of which may be more time consuming than anticipated. Thus, the whole dental team needs to be aware of product costs, necessity for compliance, and the time required to reach recommended waterline microbial concentrations. Research developments in recent years have led to not only greater individual options for dental practitioners, but also the availability of combination system products, which contain separate waterline cleaning agents and maintenance chemicals (Table 3).

Table 3. Representative Dental Unit Waterline Treatment Products

Product	Manufacturer	Active Ingredients	TDA Testing
ICX Tablets	A-dec	Sodium percarbonate, silver nitrate, cationic surfactants	NT
BlueTab Waterline Maintenance Tablets	ProEdge	Silver dihydrogen citrate	NT
Team Vista Dental Waterline Cleaner	Hu-Friedy	Organic citrus botanicals (VistaClean), stabilized chlorine dioxide (VistaTab)	92% clinical evaluation
DentaPure DP365B & DP365M Cartridges	DentaPure	Elemental iodine	Laboratory
Monarch Lines	Air Techniques	Ethanol, chlorhexidine	Laboratory
Mint-A-Kleen	Anodia Systems	Glycerin, chlorhexidine	NT
MicroClear	Rowpar Pharmaceuticals	Chlorine dioxide	NT
Sterilex Ultra (liquid & powder forms)	Sterilex Corporation	Alkaline peroxygen with phase transfer catalyst	NT
Sterisil Cartridge & Straw	Sterisil	Cartridge, silver; Straw, ionized silver resin	NT
Citrisil Blue	Sterisil	Silver, citric acid	NT
VistaClear HP	Vista Research Group	Multi-stage biochemical filters	NT

NT = Not Tested

Clinical Tips

- Make sure to carefully read the instructions of your dental waterline treatment system. Proper maintenance of waterlines usually includes a monthly or quarterly shock treatment to remove accumulated microbial debris.
- If you are using a reverse osmosis treatment system to prepare water for filling dental unit bottles, the lines and tank associated with the treatment unit must also be shocked. This step is usually done at the same time as when the filters are changed; however, your treatment system's instruction manual should provide specific guidance.
- For most municipally fed dental waterline units, there are cylindrical filters located in the junction box that need to be replaced at least once a year. Contact your local service technician for help.
- Some dental units have a small water heater located in the junction. This is used to supply warmer water for the comfort of the patients. However, in reality the warmer water is creating a more optimal environment for bacterial growth. Therefore, have your local service technician turn-off the heater or make it so the waterlines bypass the heater completely.

Team Vista

++++ 1/2
Hu-Friedy
(800) 483-7433
www.hu-friedy.com



Product Description: *Team Vista* provides continuous cleaning of dental waterlines associated with delivery units utilizing independent water bottles. *VistaTab* is a non-corrosive, antimicrobial tablet used for periodic cleaning and control of microbial contaminants in dental unit waterlines. *VistaClean* is a daily irrigant solution designed to protect waterlines and equipment from deposits and scale. *Team Vista* as environmentally friendly, non-toxic and odor-free. *Team Vista* was evaluated by 10 consultants in over 534 uses and received a 92% clinical rating.

Sterisil® Straw

Sterisil Inc.
(719) 622-7200
www.sterisil.com



Product Description: *Sterisil® Straw and Antimicrobial Bottle* are the solution to transitioning from daily tablets to a single yearly change out. The *Sterisil® Straw* works 365 days to continuously* disinfect and maintain dental unit waterlines. Easily installed by replacing the existing pick-up tube with the *Sterisil® Straw*.

**EPA registered to produce less than or equal to 10 CFU per ml HPC Purity*

Citrisil™ Blue + Shock

Sterisil Inc.
(719) 622-7200
www.sterisil.com



Product Description: *Citrisil™ Blue* tablets continuously* disinfect and maintain dental waterlines. Start with one *Citrisil Shock Tablet™* and follow with one *Citrisil™ Blue* tablet per refill of each self-contained water bottle. *Citrisil™ Blue* conveniently provides the user with a light blue tint for visual compliance.

**EPA registered to produce less than or equal to 10 CFU per ml HPC Purity*

Research Report

John A. Molinari, Ph.D. and Peri Nelson, B.S.
THE DENTAL ADVISOR Biomaterials Research Center
Ann Arbor, Michigan

Investigation of E|Line Water Quality Test kit

Objectives:

1. To evaluate the sensitivity of **E|Line Water Quality Test kit** to detect known concentrations of representative waterborne bacteria.
2. To investigate the sensitivity of **E|Line Water Quality Test kit** in the detection of representative biofilm bacteria.

Materials and Methods:

Bacterial suspensions of commercial *Staphylococcus aureus* ATCC # 25923, *Escherichia coli* ATCC # 25922, and *Pseudomonas aeruginosa* ATCC # 49129 were prepared by aerobically culturing bacteria in 10 mL of trypticase soy broth at 37°C for 24 hours. Working concentrations were calculated based on the measured optical density of each bacterial culture using the Spectronic 2000 spectrophotometer (Thermo Fisher Scientific, Inc). Stock cultures were diluted to 10^1 , 10^2 , and 10^3 colony forming units (cfu)/mL using sterile saline. **E|line Bacteria Test Vials** (Germiphene Corporation) were filled with 1 mL aliquots of *S.aureus* and *E.coli* dilutions. Similarly, *P.aeruginosa* dilutions were added to the **E|line Biofilm Test Vials** (Germiphene Corporation). Bacterial test solutions were removed from test vials after 25 minutes of exposure and then incubated in the **E|line Dry Block Incubator** (Figure 3) at 37°C for 18-24 hours. Vials were visually inspected for internal color changes immediately following incubation. Control specimens were created using sterile saline and evaluated in the same manner as test specimens.

Results:

Test Bacteria

Stock concentrations were consistent with typical 24-hour cultures for each microorganism (Table 1). No abnormalities in growth rate or contamination were detected.

Test Vials

After 18-24 hour incubation, all bacterial test vials exposed to 10^1 (n=3) and 10^2 cfu/ mL (n=3) bacterial solutions (*S. aureus* and *E. coli*) remained in their original green state and therefore tested negative for containing 200 cfu or more (Table 2). Positive results were observed for the test specimens exposed to representative microorganisms at 10^3 cfu/mL concentration (n=3). These results were easily detectable by the distinct color change from green to yellow

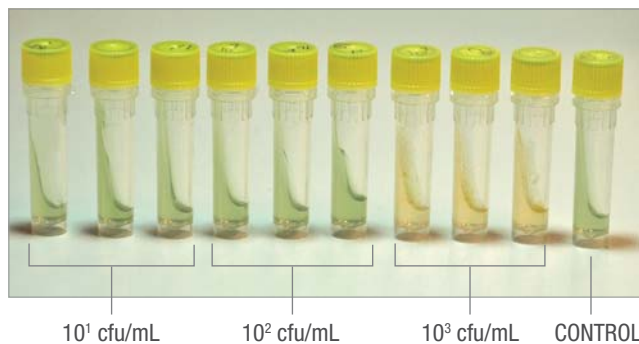
Table 1. Stock concentrations of test bacteria.

Microorganism	Concentration (cfu/mL)
<i>S.aureus</i> ATCC # 25923	1.9×10^{10}
<i>E.coli</i> ATCC # 25922	9.6×10^8
<i>P.aeruginosa</i> ATCC # 49129	4.6×10^8

Table 2. Bacteria test vial results.

Concentration (cfu/mL)	# Positive tests
<i>Staphylococcus aureus</i>	
Sterile saline	0/3
10^1	0/3
10^2	0/3
10^3	3/3
<i>Escherichia coli</i>	
Sterile saline	0/3
10^1	0/3
10^2	0/3
10^3	3/3

Figure 1: Bacteria test vials



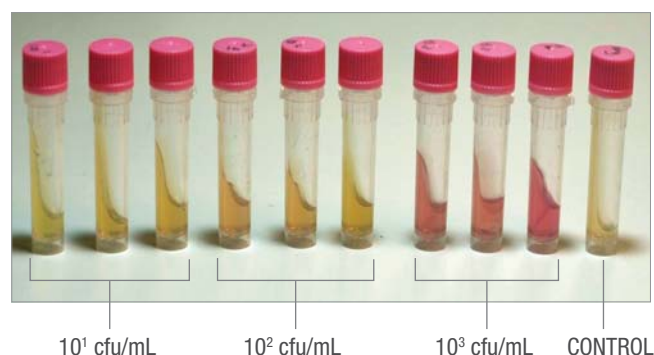
Investigation of E|Line Water Quality Test kit (cont.)

Number 56 – September 2013

Table 3. Biofilm test vial results.

Concentration (cfu/mL)	# Positive tests
<i>Pseudomonas aeruginosa</i>	
Control	0/3
10 ¹	0/3
10 ²	0/3
10 ³	3/3

Figure 2: Biofilm test vials.



(Figure 1). Biofilm test results demonstrated the same level of accuracy in detecting representative microbes as the bacteria test vials (Table 3). Results were negative, and no color change was observed when the biofilm test vials were challenged with the two lowest concentrations of *P. aeruginosa*, 10¹ and 10² cfu/mL. When exposed to the highest challenge concentration, a pink color resulted indicating a positive test result (Figure 2). All control specimens containing sterile saline produced negative results.

Summary:

Within days of installing a new dental unit, biofilms begin to form in the lumens of waterline tubing and bacterial levels reached 50-100 times the amount recommended by the American Dental Association (<200 cfu/mL). Commercial waterline treatments can remove biofilms and maintain acceptable microbial levels if used properly and monitored frequently. However, our research has found that many practices are unknowingly using treatments incorrectly and waterline microbial levels are alarmingly high. The **E|line bacteria and biofilm test system** offers dental healthcare practitioners a rapid, reproducible, and easy way to monitor the efficacy of their waterline treatment system.



Figure 3: E|line Dry Block Incubator.

OralID

Oral ID

(855) 696-7254 | www.oralid.com

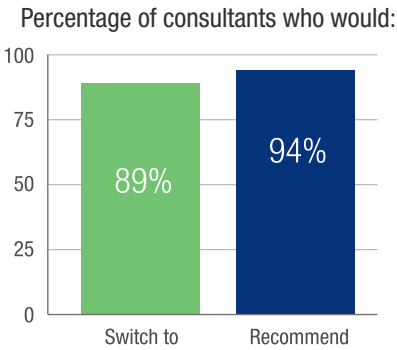
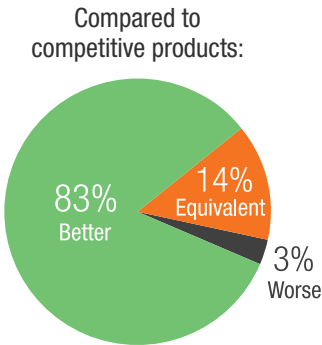
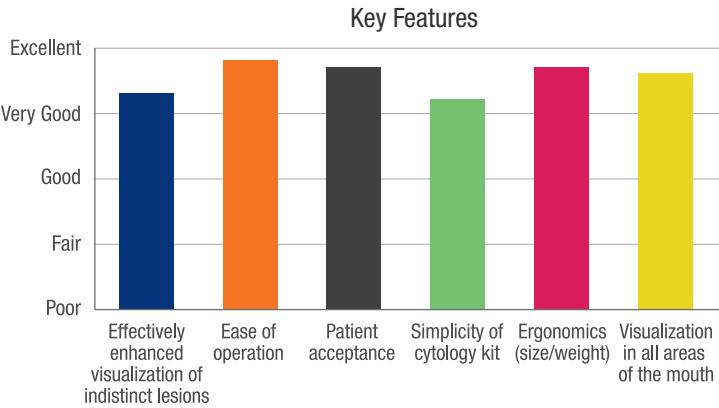
Description

OralID™ is a portable, hand-held light designed to be used as an adjunctive device for oral mucosal screening. **OralID** emits a blue light into the oral cavity resulting in the green fluorescence of normal, healthy tissue while abnormal tissue will appear dark. **OralID** is intended to aid in visualization of oral mucosal abnormalities, such as oral cancer and dysplasia. **OralID** requires no consumables as it can be wiped with a disinfectant between patients. The kit includes the **OralID** device, two pair of eyewear with filtered yellow lenses for the user, four standard batteries, a **SmartFilterID™** for photographing lesions with a smart device, and a two-year warranty. Free lifetime team training, which consists of a one-on-one live webinar held at any time needed, is also included with each purchase. For the cases of “when you need to know more,” the kit includes 3 **CytID™** kits as well, which is advanced liquid-based oral cytology that provides quantitative data of suspect lesions. Rechargeable batteries and DSLR camera filters are also available. **OralID** was evaluated by 36 consultants in 1622 uses. This oral cancer screening device received a 96% clinical rating.

Suggested Retail Cost \$1,295/kit

Product Features

OralID is simple and easy to use; no rinses or disposable items are required. Because of its simplicity, consultants found it easy to integrate into their normal exam routines. **OralID** is battery-operated and looks and operates like a common flashlight with a push button on the end of the unit. The eyewear was reported to be comfortable and effectively filtered the high intensity light. Patient acceptance was high and they became more aware that an oral cancer screening was being performed. The inclusion of the **CytID** cytology kits gives dentists an option for testing a suspicious area before performing a biopsy or referring the patient to a specialist.



+++++

Consultants' Comments

"Other fluorescence units are big, bulky and expensive; OralID is small and portable."

"I like this additional tool to aid in the possibility to pick up abnormal activity of tissue to better serve the patients I care for."

"So simple...why would you not use it?"

"I would switch to OralID because it can detect abnormalities that the eye cannot."

Clinical Tips

- Perform a conventional oral exam before using the **OralID**.
- For best results turn off or dim lights in the room.
- Take digital photographs for documentation with either a DSLR Camera Filter Adapter Kit or with the **SmartFilterID** (included) for smart devices. ■

Super-Snap X-Treme

SHOFU DENTAL CORP.

(800) 827-4638 | www.shofu.com

Description

Super-Snap X-Treme is an enhanced version of the green (fine) and red (superfine) polishing disks included in the original Super-Snap polishing system. **Super-Snap** is a four-step disk system that includes black (coarse) and violet (medium) disks for contouring and finishing plus green and red disks for polishing composite restorations. The grit on the polishers contains aluminum oxide and there is no metal center on the disk. The **Super-Snap X-Treme** red and green disks are thicker and stiffer in order to increase durability and tactile feel. The red disk has a new 3-D semispherical grit coating designed to create space for ground debris and to discharge that debris during polishing, resulting in a smoother, glossier finish with less heat production. The disks are available in 8 and 12 mm diameters and have an elastic silicone shank that fits onto disposable plastic or re-usable metal mandrels. **Super-Snap X-Treme** was evaluated by 16 consultants in 399 uses. These composite polishers earned a 98% clinical rating.

Suggested Retail Cost

100 disk kit	\$47.60
50 disks	\$25.05

Clinical Observations

Quality of disks

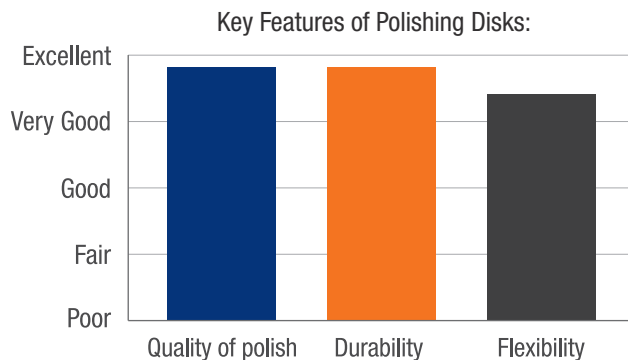
Super-Snap X-Treme disks hold up well for single-patient use. The continuous surface (with no metal center) is a distinctive positive feature of the **Super-Snap** system.

Durability

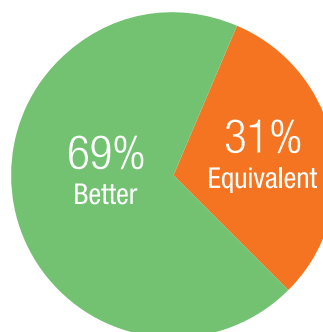
Super-Snap X-Treme disks are an improvement over the original polishing disks. The thicker disks do not twist or crease and fewer disks are needed to complete a polishing procedure. Less clogging of the finishing surface was noted compared to the original disks.

Flexibility

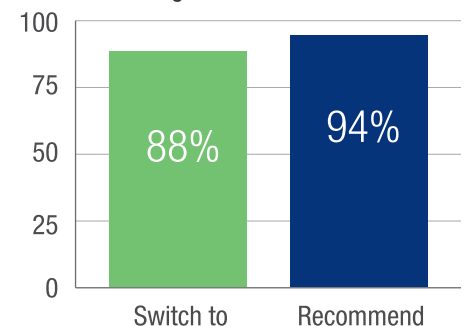
The thicker disks have some cushion that allows them to bend and adapt to the contours of the tooth, yet are still thin enough to polish interproximal areas. Double-sided grit eases access to all angles of the teeth.



Compared to polishing disks currently used:



Percentage of consultants who would:



+++++



Consultants' Comments

"Produced a glass-like finish to composite restorations."

"Distinct color coding."

"Much more durable than original disks."

"Increased flexibility adapts to tooth contours."

"Ideal for anterior restorations."

Quality of polish

Super-Snap X-Treme produce a smooth, high-gloss finish to composite restorations. Polished surfaces have no detectable surface roughness or "swirling" effect. The shape is ideal for polishing broad, flat areas such as anterior teeth.

Mandrel

The silicone hub underneath the disk easily presses onto the serrations of the mandrel, and it has enough elasticity to grip securely during rotation. Single-use or metal autoclavable mandrels fit securely into contra-angle latch handpieces.

Clinical Tips

- Finish composite to a smooth surface with the black and violet disks before using **Super-Snap X-Treme**.
- Do not exceed 15,000 rpm. ■

BEAUTIFIL-Bulk Flowable

SHOFU DENTAL CORP.

(800) 827-4638 | www.shofu.com

Description

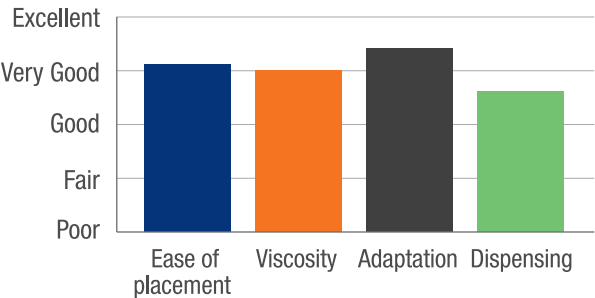
BEAUTIFIL-Bulk Flowable is a low-viscosity, bulk-fill composite indicated for use as a base/liner in Class I and II restorations. It offers continuous fluoride release and rechargeability and low shrinkage stress. The composite self-levels and has a 4 mm depth of cure. **BEAUTIFIL-Bulk Flowable** comes in 2.4 g syringes with 18G needle tips or 0.23g compules. Curing times with an LED light are 20 seconds for the dentin shade and 10 seconds for the universal shade. **BEAUTIFIL-Bulk Flowable** syringe was evaluated by 30 consultants in 608 uses. This flowable bulk-fill composite received an 88% clinical rating.

Suggested Retail Cost	
2.4g syringe	\$37.45
Compules/0.21g x 20 compules	\$80.55

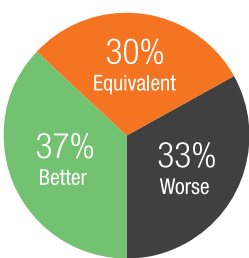
Product Features

BEAUTIFIL-Bulk Flowable is a very good option as a base layer in composite restorations. The material adapts well to cavity walls and self-levels on the surface. The 4 mm depth of cure allows efficient filling of deep areas without incorporating air bubbles or voids. This high-viscosity flowable is easiest to extrude through the large gauge tips included. Consultants appreciated the fluoride release as a positive feature, especially when used to fill cervical areas.

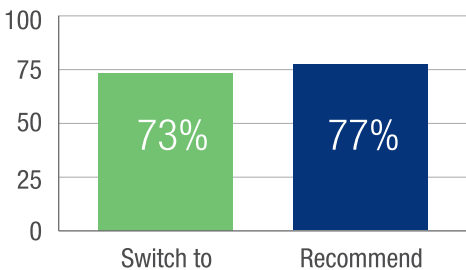
Key Features of BEAUTIFIL-Bulk Flowable:



When compared to products consultants currently use:



Percentage of consultants who would:



Consultants' Comments

- "Great viscosity—stays where placed."
- "Adapts well with no bubbles."
- "Fluoride release is always a bonus."
- "Good radiopacity."
- "Include more than five tips with each syringe of composite."
- "Improve ergonomics of the syringe - the finger wings spin too easily."

Clinical Tips

- BEAUTIFIL-Bulk Flowable** can also be used for minimally invasive posterior restorations. ■

Iris Instrument Cassettes

Benco Dental

1-800-GO-BENCO / (800) 462-3626 | www.benco.com

Description

Iris Instrument Cassettes are designed to safely and securely hold dental instruments throughout the sterilization process. They are available in three sizes: five-instrument (7" x 3"), 10-instrument (7" x 6"), and 16-instrument (7" x 11"). The stainless steel cassettes contain silicone insert rails that are available in five colors: blue, yellow, purple, red, and green. The tops and bottoms separate and are interchangeable. Additional venting along the ends promotes full steam penetration. **Iris Instrument Cassettes** were evaluated by 23 consultants in 624 uses. These instrument cassettes received an 86% clinical rating.



Consultants' Comments

- "It was nice to have room for all of the instruments for the required procedure laid out in one cassette."
- "They are very well built and stay locked."
- "Instruments stay secure, even when cassettes are stored on edge."
- "High quality material and design - should last a very long time."
- "Need to stock extra size of pouches or wraps to sterilize the medium and large size cassettes."
- "A black anodized finish inside the cassette would give good contrast with instruments."
- "The medium size did not fit in the Statim 5000."

Genie

Sultan Healthcare

www.sultanhealthcare.com

Description

Genie is a system of VPS impression materials available in two setting times and five viscosities. Both the rapid set (2:10) and standard set (4:30) materials were evaluated. Viscosities include extra-light body, light body, regular body, heavy body, and putty; all are berry flavored. **Genie** is packaged in 50 mL cartridges plus mixing tips or two 400 g jars of putty with scoops. Cartridges fit Type 50 dispenser guns. **Genie** was evaluated by 30 consultants in 556 uses. This VPS impression material received a 91% clinical rating.

Suggested Retail Cost

\$ 33.90/two 50ml cartridges

Product Features

Genie, used mainly in crown and bridge applications, is rated as a very good impression material. Dental assistants commented on the easy mixing of the putty and smooth extrusion of the tray material. The color contrast between the light body (green) and tray material (purple) is excellent. Blending of the two viscosities was seamless yet easy to distinguish by color. Many consultants found that **Genie** performed

+++ + 1/2

Consultants' Comments

"Patients liked the fast set time and the taste."

"I used **Genie** years ago and was reminded how good it is."

"Easy to extrude."

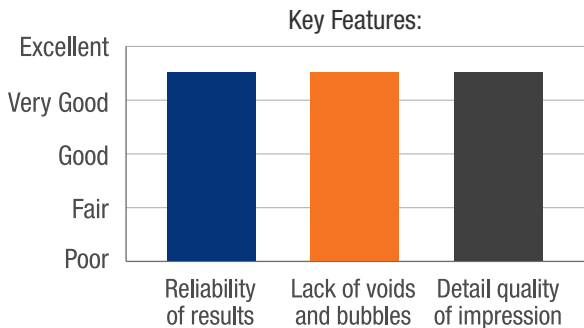
"Pleasant scent."

"Very few bubbles or voids."

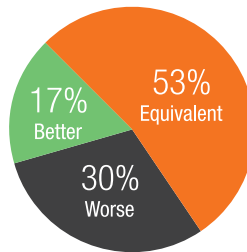
similarly to their current material, resulting in often flawless impressions. The fast-setting material was preferred in most cases. The light berry scent and taste were well received by patients.

Clinical Tips

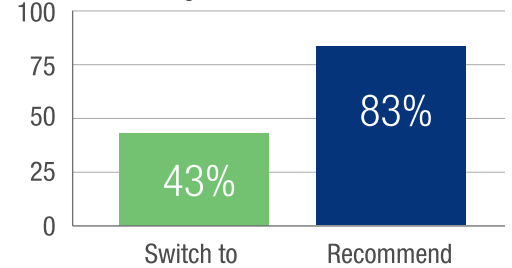
- Completely dry the area for the best detail in the impression.
- Bright lighting facilitates reading detail of the dark (purple) heavy body material. ■



Compared to current product:



Percentage of consultants who would:



Iris Instrument Cassettes (cont.)

Product Features

Iris Instrument Cassettes lock easily, holding instruments intact through cleaning and sterilization. Instruments are stable in the silicone rails, and auxiliaries reported that they liked the color coding for identification of contents. The top and bottom sections of the cassettes connect securely; the lock can be gripped and turned even with wet gloves. Size selection was a factor of individual preference, as the **Iris Instrument Cassettes** sizes did not correspond to those of other brands. The large size is ideal for operative procedure set-ups and includes open space for miscellaneous items. The medium size was used mainly by dental hygienists. ■

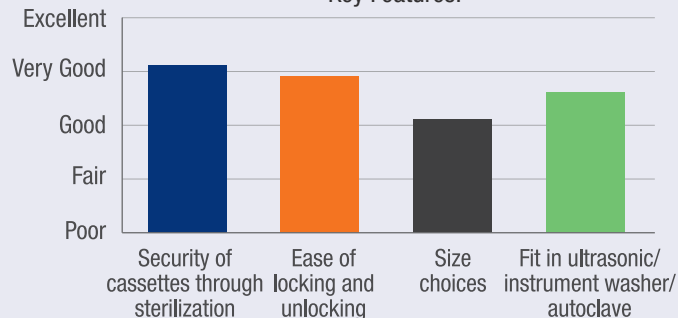
Suggested Retail Cost

5-instrument cassette \$59.99

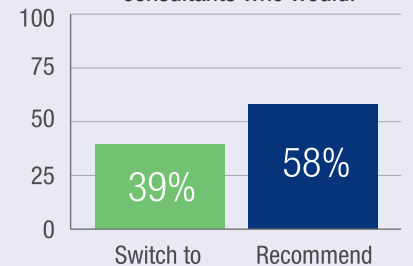
10-instrument cassette \$80.99

16-instrument cassette \$99.99

Key Features:



Percentage of consultants who would:



Gazelle Nano Composite Polishers

Microcopy

(800) 235-1863 | www.microcopydental.com

Description

Gazelle Nano Composite Polishers are single-use composite polishers, individually packaged and pre-sterilized. **Gazelle Satin Polishers** (white) contain aluminum oxide and are appropriate for universal composite restorations. They should be used with light pressure.

Gazelle Hi-Gloss Polishers (blue) contain diamond particles and are designed for more esthetic restorations using feather light pressure. The polishers are intended to be used dry, but water may be used for cooling if needed. Both are available in a point, cup or disc and should be used at a maximum speed of 5,000 rpm. **Gazelle Nano Composite Polishers** were evaluated by 32 consultants in 641 uses. This composite polisher received a 96% clinical rating.

Suggested Retail Cost

Gazelle Satin Polisher is \$2.35 each. Box of 25 is \$58.75.

Gazelle Hi-Gloss Polisher is \$4.45 each. Box of 10 is \$44.50.

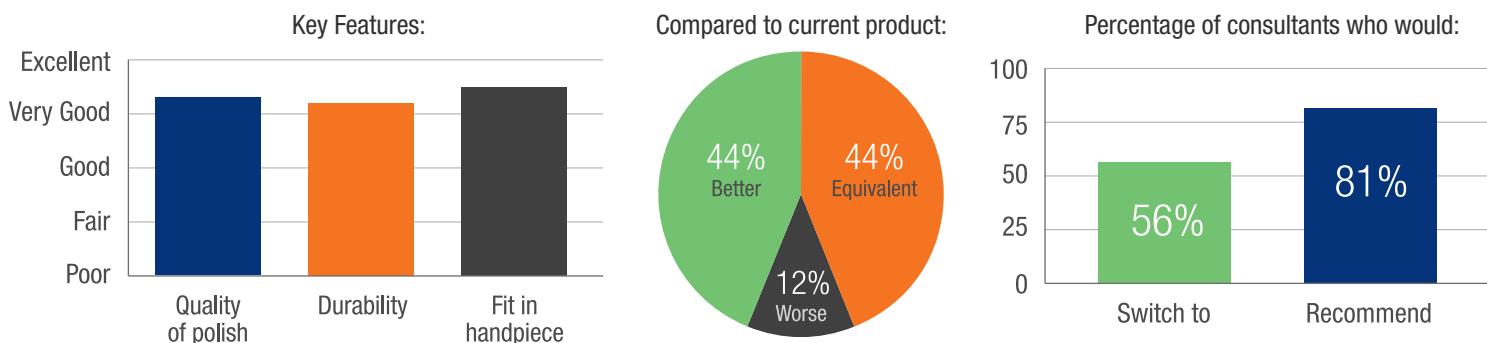
Gazelle Polishers exclusively available through Microcopy.

Product Features

Gazelle Polishers produced smooth surfaces on composite restorations.

Consultants used the **Gazelle Satin** mainly for posterior restorations.

Gazelle Hi-Gloss produced a high gloss surface and was ideal for restorations in the esthetic zone. Using light pressure on a dry surface,



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

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C. Adamson, MI · A. Albright, NY · N. Alexa, MI · B. Argersinger, NC · A. Bagchi, MI · B. Barricklow, OH · L. Bartoszewicz, MI · J. Bechtel, MI · C. Bhatti, MI · L. Bishop, MI · T. Bizga, OH · G. Bloomfield, MI · J. Bostic, OH · N. Brezden, MI · C. Brown, LA · W. Brownscombe, MI · S. Bunek, MI · J. Bunek, MI · J. Bush, PA · H. Cadorette, MI · P. Campo, NY · P. Cracchiolo, MI · D. Chacko, TN · P. Chaiken, IL · R. Cherry, FL · J. Chips, PA · T. Chips, PA · W. Co, MI · M. Connelly, MI · S. Dillingham, NY · R. Dost, VA · A. Dutko, MI · J. Dwahan, MA · M. Elford, MI · O. Erdt, MI · F. Facchini, MI · F. Falcao, FL · M. Feinberg, NY · L. Feldman, NJ · S. Finlay, MD · M. Fluent, MI · M. Frankman, SD · L. Gee, OK · C. Goldin, MI · B. Greenwood, UT · J. Griffin Jr., MO · P. Gronet, KY · H. Gulati, MA · D. Haas, Ontario · J. Haddad, MI · S. Harden, GA · J. Hastings, CA · D. Hauck, CA · J. Hengehold, MI · B. Herrmann, CA · D. Hock, MI · D. Hassoun, MI · C. Huang, CA · P. Indianer, MI · J. Ireland, MI · C. Jaghab, MI · J. 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 · M. Koczarski, WA · 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 · C. Manduzzi, MI · K. Mantzikos, NY · F. Margolis, IL · M. Mason, NY · T. McDonald, GA · C. McLaren, MI · J. McLaren, MI · M. McMullin, MI · H. Menchel, FL · L. Metsger, PA · M. Migdal, MI · J. Minsky, CA · R. Mizrahi, NY · M. Moeller, MI · G. Molinari, MI · L. Montes, NY · M. Murphy, MI · J. Nash, MI · A. Nazarian, MI · N. Nealis, IL · M. Nemeth, MI · V. Nerikar, FL · C. Noe, MD · J. Olitsky, FL · J. Olsen, MI · F. Orlando, NY · R. Oshrain, NY · A. Overall, MI · S. Owens, MI · M. Paquette, MI · J. Park, IL · J. Parrott, MI · M. Patel, MI · C. Pike, MI · T. Poirier, MI · D. Radtke, MI · G. Raichelson, Ontario · G. Ramos, NY · C. Ramsey, FL · T. Reeves, TN · N. Rego, CA · G. Reskakis, NY · J. Riggs, MI · J. Rowe, AR · F. Ruder, FL · A. Saddy, MI · L. Seluk, MI · R. Selvan, NJ · M. Shapiro, MI · S. Shoukfeh, MI · P. Shumaker, MI · J. Smith, MI · C. Stevens, OK · B. Stevenson, MI · P. Symeonides, NY · S. Tamber, MI · S. Tamber, MI · G. Tarantola, FL · T. Teel, IN · T. Trullard, 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 · Technique Crown and Bridge, Inc., NC



Consultants' Comments

"Final polish was fantastic!"

"High-gloss finish."

"Very durable for a single-use product."

"Color coding makes it easy to differentiate the two polishers."

the composite quickly achieved a lustrous surface. The black plastic shank of the **Gazelle Polishers** fit securely into latch handpieces, and the tips were durable through the polishing procedures. Having a sterilized, disposable polisher was an advantage with regard to infection control.

Clinical Tips

- Finish composite to a smooth surface before using **Gazelle Polishers**.
- Avoid prolonged pressure. Heat generation can cause damage to the composite margins.
- Apply water spray to cool if necessary. ■