



Waves of Opportunity

Developments in ultrasonic technology have allowed clinicians to widen the scope of its application — creating new sales opportunities for reps in the know

By Christopher Paquette

It's laughable to look back on the origins of some of the technology we now use — like those clunky, brick-like mobile phones, or dinosaur computers with floppy disks. Today, these technologies have evolved in ways that would have been hard to imagine back then. And so it is with ultrasonic units, which have expanded far beyond the realm of those first bulky units introduced in the 1950s. Initially intended for tooth-cutting procedures, such as cavity prep, they didn't start to gain popularity until the 1990s, when dental hygienists started embracing the technology for scaling and root planing. But with the advent of more powerful units and new designs in ultrasonic inserts and tips (UITs), this modality began to attract new interest from general dentists and specialists, who saw its application for procedures ranging from root canals to periodontal bone surgery and more.

When an informed sales executive can clearly translate the benefits that ultrasonic technology can bring to a practice, clinicians will want to ride this wave as a practice builder. In order to guide clients to appropriate choices in units and accessories, dental sales professionals must be aware of the distinguishing features of today's magnetostrictive and piezoelectric systems, as well as recent innovations in units and UITs.

Research continues to show that the two modes of ultrasonic technology — magnetostrictive and piezoelectric — are equally effective in removing calculus, so the choice between them for these procedures boils down to preference. Magnetostrictive units generate an elliptical (or curved) vector of movement at the tip that transfers energy to all sides. The ultrasonic energy is created by a pulsing magnetic field that is applied to the unit's metal stacks, a process that produces heat and requires the use of liquid cooling (which also serves as lavage). Piezoelectric technology relies on ceramic disks or quartz plates, and generates relatively little heat, so it requires less or no water for cooling (although water is still used for lavage purposes). Piezo tips operate with a linear stroke and the lateral surfaces of the tip are used as the working sides.

Regardless of which technology is preferred, many experts agree that a blended approach — the use of both traditional hand instrumentation and ultrasonics — is most effective for scaling and root planing. Stacy A. Matsuda, RDH, BS, MS, an instructor at Oregon Health & Science University School of Dentistry in Portland, and who has been in clinical practice for more than 30 years, states, "While I am a strong proponent of ultrasonics and would not practice without this technology, I firmly believe that curved, bladed hand instruments must follow the use of ultrasonic therapy in order to access the deeper contours of root surfaces that are virtually inaccessible to straight-profile UITs."

FROM OCCASIONAL TO DAILY USE

The most pronounced change in ultrasonic use has been its transition from an adjunctive, occasionally used instrument to one that is used daily in most practices. When asked what factors have brought ultrasonic technology into such prominence, Ron Kaminer, DDS, a Hewlett, New York-based general practitioner who also serves as a consultant and lecturer, first points out that the cost of this technology has come down. Further, he adds, "The use of ultrasonics is efficient, comfortable for patients, and allows clinicians to deliver a higher level of care."

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Matsuda attributes the change to the beneficial actions of lavage, as well as the fact that ultrasonics spare some of the muscular fatigue associated with hand instrumentation. In addition, UITs do not require sharpening, and that's a time-saver. After a UIT dulls and shortens from wear, it is discarded and replaced. This presents account execs with a key talking point when engaging clients about the need to replace worn-out UITs. "I would emphasize that using a UIT that's past its prime is akin to spinning wheels in the mud — nothing is achieved,"

CHOOSE YOUR WEAPON

Although magnetostrictive technology is most prevalent among United States clinicians, piezoelectric units are gaining market share. The question that arises is whether there will come a day when piezo might become the dominant technology in this country. Ron Kaminer, DDS, a general practitioner, lecturer and consultant in Hewlett, N.Y., observes, "It is all about cost and education. Piezos are still generally more expensive than magneto units. And because piezo tips operate in a different manner than magnetostrictive inserts, education is critical. If piezo is taught in schools and the cost comes down, these devices will become more prevalent."

Stacy Matsuda, RDH, BS, MS, a periodontal dental hygienist and a clinical instructor at Oregon Health & Science University School of Dentistry in Portland, states that, based on the versatility of piezo technology for endo, surgery and high-performance periodontal debridement, these units could absolutely become the dominant technology.

"There has been a rapid rise in piezo use in this country," affirms Donna Stach, RDH, MEd, a professor in the Dental Hygiene Department at the University of Colorado School of Dental Medicine in Aurora, "but I'm not sure why, because, in my opinion, they are harder to use. Piezo units work well enough, but I think it's hard to adapt well to the proximals of posterior teeth when using the lateral sides of a piezo tip."



says Matsuda, who adds that an instrument with 1 mm of tip wear has lost 25% of its initial efficiency, and 50% with 2 mm of wear. "The question for clinicians," she says, "becomes, 'How badly do they want all of their therapeutic efforts to succeed?'"

Another factor that has likely stirred this sea change is the way in which this technology is presented in dental and dental hygiene schools. For many clinicians, ultrasonics were not emphasized during their tenure of schooling — or at least not to the degree they are today. Donna Stach, RDH, MEd, a professor in the Dental Hygiene Department at the University of Colorado School of Dental Medicine in Aurora, states that new research and wider dissemination of the research shows that ultrasonics are more effective in treating periodontal disease and removing endotoxins from the teeth than previously thought. This has raised the profile of this modality among today's practitioners.

NOW TRENDING

Also drawing interest are the lightweight, ergonomic handpieces that help reduce clinicians' musculoskeletal stress and fatigue. And, as the use of ultrasonics has become more widespread, the selection of UITs has become more diverse. This is a key point for salespeople and good news for clinicians, who can now choose designs suited to match almost every clinical situation. This speaks

Point of Sale <

ULTRASONIC TECHNOLOGY

- To successfully help clinicians upgrade their ultrasonic armamentariums and take on new procedures, sales pros must be conversant in current trends and innovation, and show a knowledge of ultrasonic inserts and tips (UITs) that can help practices expand.
- Ultrasonic use has grown in popularity as the selection of new UITs has become more diverse.
- Manufacturers are providing thin UITs that can handle higher power settings, enabling them to efficiently remove tenacious calculus.
- Moving beyond dental hygiene and periodontal procedures, the development of specialized ultrasonic devices and matching UITs have opened their use for other surgical, endodontic, orthodontic and general dentistry applications.
- Some strategies to boost ultrasonic-related sales include showcasing UIT kits, emphasizing the benefits of an expanded selection of tips, and reminding clinicians about the importance of replacing worn UITs.

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to another discussion worth having with clients, as sales reps are likely to encounter clinicians who use only a small selection of UITs for all of their patients — a practice that limits this technology's effectiveness.

Reps need to show how a more diverse selection of UITs can boost procedural efficiency and improve patient outcomes. A dental hygienist treating a patient with heavy plaque, for example, would benefit from using UITs that can handle higher power levels that can more easily break up tenacious deposits than ones suited for lower power settings and lighter accumulations. Magnetostrictive and piezoelectric manufacturers now offer thin tips that are able to withstand high power settings to knock out heavy calculus. The thinner tips, many which have a diameter half the size of a traditional tip, are also used for patients with tight tissues or close root proximity. They offer improved adaptation to the root surface, reduce the risk of tissue damage, and improve access to deep pockets.

Commenting on other trends in this area, Matsuda points to higher amplitude platforms and tip refinements, including the addition of blades, diamond coatings, and cryogenic treatment to improve durability. Manufacturers are also developing UITs designed for implant maintenance and esthetic restorations — the former utilize a plastic tip or carbon composite over the working surface to minimize the potential for scratching titanium implant surfaces.

Speaking from a dentist's perspective, Kaminer suggests making the buying process easy by taking a bundling approach with UITs. "Offering procedure-specific kits, such as for perio, endo or surgery, will help sales," he says. "Dentists like kits."

The addition of handpiece light sources is another development that's motivating clinicians to upgrade their armamentariums. Instead of having to constantly adjust an overhead operatory light, clinicians can rely on a fiber-optic light source or light emitting diode to provide a clear view of the field of operation. Some light sources are either built into the handpiece or attached to the outside by a separate sleeve that can be adjusted while in use. Some manufacturers are even offering light sources that are powerful enough to transilluminate through gingiva so that subgingival dark calculus can be seen if it is near the margin.

A SWELL OF POSSIBILITIES

As noted, in addition to dental hygiene applications, general dentists and specialists are tapping ultrasonic technology for a wide range of procedures, including implant therapy and sinus lifts. This ability stems, in large part, from the introduction of more powerful piezoelectric units operating at frequencies that allow them to remove hard tissue, such as bone. By comparison, a more economically priced and less powerful scaling unit, whether piezo or magnetostrictive, will not cut it for these types of surgical procedures.

One of the upsides to this modality, Kaminer reports, "Is that because there is no spinning bur, piezo surgery units are safer than rotary units when removing bone. These units can be fitted with tips designed to remove small amounts of bone, tips to remove larger amounts, or ball-shaped tips that smooth off rough edges. There are also diamond-coated tips to help cut things in a cleaner fashion." Essentially, he says, the design of tips and units allows for minimally invasive procedures that will lead to better healing and less post-operative pain for patients.

TERMS TO KNOW

Lavage: Rinsing the dentition with water or medicaments helps remove debris and bacteria during ultrasonic procedures, and is also said to promote healing.

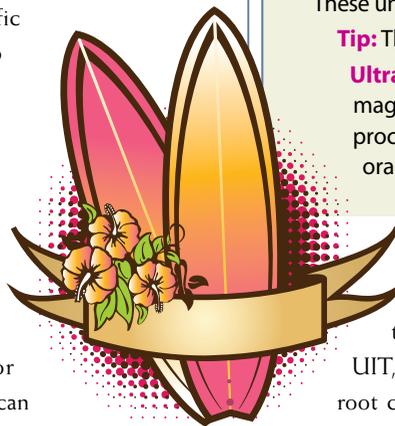
Insert: Almost resembling a ballpoint pen cartridge, this is the replaceable working end of a magnetostrictive ultrasonic unit.

Magnetostrictive: A form of ultrasonic technology that moves the tip of the insert elliptically, with all sides of the tip designated as working sides. These units generate heat and need to be liquid cooled.

Piezoelectric: An ultrasonic technology that generates a linear, back-and-forth tip motion, with the lateral sides designated as the working sides. These units produce little heat and require less or no water for cooling.

Tip: The working end of a piezoelectric ultrasonic instrument.

Ultrasonics: In the context of this article, units that use magnetostrictive or piezoelectric energy to facilitate dental procedures ranging from scaling and root planing to complex oral surgeries.



In addition, general practitioners and endodontists are tapping ultrasonic systems for endodontic treatment, such as root canals. Given the right unit and UIT, Kaminer says, "Ultrasonics can be used to open up the root canal system, irrigate the canal, and even open lateral canals by the sonic transmission of irrigants. Select units also have the sonic energy to loosen old posts by vibrating them out of the root canal, so these devices can be used for post and pin removal."

LET THE WAVE TAKE YOU

In spite of all her enthusiasm for ultrasonic technology, Matsuda is afraid that these units are too often perceived as magic wands. "I would love salespeople to reinforce the absolute necessity for quality care to be delivered with this technology, and to emphasize there are no shortcuts to definitive therapy."

Though it's been fascinating to watch this wave build, experts predict that ultrasonic technology will only become more prominent in the future. And that's why for sales reps and clinicians alike, this is a wave worth catching. 

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TIP REPLACEMENT OPPORTUNITY

Supplying dental professionals with replacement UITs is an area that lends ongoing sales opportunity. Unfortunately, clinicians commonly use worn UITs that should have been thrown out eons ago. Because tip wear can be subtle, however, a wear guide is a helpful tool. Placing the existing tip over the guide is a fast indicator. Generally, most tips should be discarded within nine to 12 months of normal use, and even sooner for those that see heavy service or are regularly used at high power settings. Yet, apart from the calendar, tips should be regularly monitored for wear. Some offer a gold-colored titanium nitride coating that provides a visual indication that the tip needs to be replaced. When the gold color has worn off, it's time to switch out.

According to Donna Stach, RDH, MEd, from the University of Colorado School of Dental Medicine in Aurora, most if not all UIT manufacturers offer a card that serves as a wear gauge. "Get your clients to mount the card in a prominent place where they can monitor the length of the working tip easily and frequently," she states. "Help dental teams think of UITs as valuable but delicate instruments that need lots of TLC."

Addressing the frugal dental customer, Hewlett, New York-based general dentist and lecturer Ron Kaminer, DDS, notes that unless the UIT is broken and obviously needs to be replaced, some clinicians may be hesitant to replace a worn instrument. In this case, a return-on-investment approach just might work, he tips — in other words, play the "loss of procedural efficiency" and "compromised outcomes" cards.