One patient, one doctor: 30 years of implant innovation

AO keynote to focus on ‘whole person’ at Orlando meeting

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| Cover image provided by Zest Dental Solutions. The LOCATOR F-Tx Fixed Attachment System is a simplified, time-saving solution for fixed full-arch restorations. |

To learn more about this technology, see page 14.
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One patient, one doctor: 30 years of implant innovation

Author_Jack A. Hahn, DDS

Since placing my first dental implant 45 years ago, many implant systems have come and gone, several of which I designed myself. If there’s one thing I’ve learned from the thousands of implant cases I’ve completed during the course of my career, it’s that regardless of the implant system chosen, long-term success depends on following the basic principles of treatment planning, surgery and prosthetic design.

Innovations in implant design have streamlined and simplified treatment, making it easier to produce ideal outcomes. Key advancements, such as the screw-shaped implant body, the internal prosthetic connection and the tapered body design, have been crucial in making implantology the essential mode of tooth replacement it is today.

The following case illustrates more than three decades of implant evolution within the mouth of a single patient. Each implant this patient received throughout the years represents a small but significant step forward, culminating in the placement of the Hahn™ Tapered Implant (Glidewell Direct; Irvine, Calif.), which I designed in order to make treatment simpler, more predictable and as accessible to as many patients as possible.

The patient

The patient, whom I’ve been treating for more than 30 years, has received implant therapy several times to treat tooth loss from fracture or decay. Because this treatment occurred episodically through-

Fig. 1 Dr. Jack A. Hahn and Glidewell Laboratories President and CEO Jim Glidewell display the Hahn Tapered Implant — the culmination of decades of clinical observations and innovation.

(Photos/Provided by Dr. Jack A. Hahn)
out many years, I’ve utilized several different implant systems to replace the patient’s teeth. As a result, the patient has implants with internal as well as external hex connections, ranging from an outdated blade-form design to the very latest tapered implant. The experience I’ve had both designing and placing these implants for this patient and thousands of others has given me the unique opportunity to observe my results and determine what designs and protocols work and what can be improved, as I’ve strived to advance implant design throughout the years.

_The implants_

• **JAH 2000 Blade Implant** (Fig. 3): I first placed an implant for this patient in 1988. It was the JAH 2000, which I designed as a flat, two-piece implant with wings. The blade implant was indicated for thin ridges where a root-form implant could not be placed without bone grafting. Blade implants were typically connected to other implants or teeth, and could be cut, shortened and shaped to align with the anatomy of the bone, which was commonly required when placing blade-form implants at the time. For this patient, two teeth anterior to the implant were prepared, an incision was made, a trough was drilled in the patient’s very narrow ridge, the implant was placed and a five-unit bridge was delivered to replace three teeth in the posterior mandible. Notice that I adjusted the distal inferior portion of the implant so as not to impinge on the mandibular nerve.

The JAH 2000 was a significant improvement over what was on the market at that time. I designed the neck to extend lower than the tops of the wings, allowing more bone to integrate around the neck of the implant. Decades after implant placement, this blade design continues to serve many of my patients well.

• **Steri-Oss HL** (Fig. 4): The Steri-Oss HL implant in the area of tooth #26 is HA-coated and was placed immediately into an extraction site of a tooth that was lost to severe caries.

Beginning in 1986, my practice was one of multiple centers conducting a 12-year study on nearly 3,000 Steri-Oss implants. We gained provisional ADA approval for extraction with immediate implant placement and loading.

The Steri-Oss HL had a machined collar, which facilitates excellent hard- and soft-tissue preservation. As the clinicians in the 12-year study noted at the two-year follow-up, there was little to no bone loss radiographically around the machined collar. That’s why I decided to include a machined collar in my later designs.

• **Replace® Select Tapered** (Fig. 5): I placed several Replace Select implants (Nobel Biocare; Yorba Linda, Calif.) for this patient throughout the years, and the tapered shape simplified positioning within the available bone, especially in the area of the premaxilla. Prior to the Replace Select, most implants were parallel-walled, and in 1993 I came up with the concept of a tapered design, although it didn’t come to market until 1997. The idea arose from my experience with single-tooth replacements in the anterior maxilla, where I’d often need to tilt parallel-walled implants to the facial to avoid perforating the subnasal fossa. The roots of natural teeth are tapered, so
it occurred to me that implants should be tapered as well. The bone is not square; it’s a series of triangles that is best accommodated by a tapered shape.

A flat top with an internal connection offered an esthetic advantage because the implant could be placed at or slightly below the crest of the bone, without an external component causing metal to show through the crown. This led to the design of the tri-lobe internal connection of the Replace Select, which was first introduced by Steri-Oss and became the most popular design in the Nobel Biocare implant portfolio after the company acquired the brand in 1998.

The thread pattern of the Replace Select was similar to that of the parallel-walled Steri-Oss implant, but I wanted to have a variant of aggressiveness in the pitch of the threads as it came up to the apex. I knew that another company was coming out with four different implants for the different qualities of bone, and I wanted to beat them to the punch. So I said, “Let’s put four different thread patterns in one implant,” which really helped with the degree of taper and cutting into denser bone.

The tapered shape of the Replace Select was ideal for two-stage treatment, but the thread design wasn’t aggressive enough to provide the stability I needed for single-stage surgery. This left me wanting a thread design that was more sharp-edged — but not too aggressive — which was one of the formative ideas behind the Hahn Tapered Implant.

**Hahn Tapered Implant (Fig. 6):** Like several of the implants I’ve placed for this patient, the two Hahn Tapered Implants shown in the panoramic radiograph (Fig. 2) were placed immediately following extractions. The patient is active socially and has always wanted an immediate temporary after having
Fig. 7. Dr. Hahn in his Cincinnati office holding the patent for the original tapered implant design.

Figs. 8-10. After recently suffering a fracture, the patient’s lower left canine was extracted and replaced with a Hahn Tapered Implant and provisional crown.
a tooth extracted. In both cases, I extracted the tooth, prepared the site and placed the implant.

The patient’s root-canal–treated mandibular canine needed to be separated from the posterior bridge connected to the patient’s JAH 2000 blade implant. Because both of the Hahn Tapered Implants achieved excellent initial stability, immediate provisional crowns were delivered. The patient’s other implants have performed well, but required more work to get the outcome I wanted. With the Hahn Tapered Implant, there are fewer steps.

The Hahn Tapered Implant’s ability to remain engaged with the palatal bone and attain maximum primary stability is the result of its deep, sharp threads, which I consider the implant’s most important design innovation. By the time I began developing the Hahn Tapered Implant, I had concluded that the thread patterns of the previous implant systems I designed weren’t aggressive enough. As a result, the implant could wander toward the thin cortical bone of the facial plate during placement. Other implant systems on the market that had a sharper-cutting thread design were too aggressive and could cause microfractures in narrow bone or ridges.

So I designed a new tapered implant, including threads that were just aggressive enough, and brought it to Glidewell Laboratories. The engineers and business leaders at Glidewell, many of whom I’ve enjoyed working with in past endeavors, were happy to meet with me. I told them, “We need a tapered implant that doctors can easily place, stays right where you want it, and gets maximum primary stability.” They looked at my drawings, and their team of engineers helped me fine-tune the design until we got the thread pattern just right.

We ended up with an implant that can be directed against the palatal bone, avoids the facial plate and fits within tight anatomical spaces. The Hahn Tapered Implant includes a 1 mm-machined collar. Because both hard and soft tissue is stable around a machined collar, this design affords doctors the flexibility in crestal positioning they need to meet the esthetic demands of each case. We designed the implant with a conical connection to ensure a strong, stable seal.

The prosthetic connection also facilitates platform switching, which has been shown in numerous studies to preserve bone and gingival tissue around the implant-abutment interface. To ensure an optimal restorative outcome, the Hahn Tapered Implant System features contoured healing abutments and matching transfer copings.

Since we launched the Hahn Tapered Implant in 2015 and began working with experienced practitioners, we’ve received nothing but positive feedback. The comment that I hear repeatedly is: “Jack, I love your implant.” Looking back at this patient’s radiograph, I know that we’ve come a long way with implant design.

**Conclusion**

The various implants I’ve designed and placed in this patient throughout the years demonstrate that success is highly predictable as long as we adhere to the proper diagnostic, surgical and restorative principles. At the same time, advancements in implant design have simplified surgery and made it easier to establish the implant positioning and stability needed to achieve the best outcome possible. I’m proud to have contributed to this evolution and look forward to the innovations to come.

References available upon request from the publisher.

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**about the author**

Dr. Jack A. Hahn earned his DDS from The Ohio State University College of Dentistry and completed postgraduate coursework at Boston University, New York University, the University of Michigan and the University of Kentucky. A pioneer in the field of implant dentistry, Hahn has been placing and restoring implants for more than 45 years. Hahn developed the Nobel Replace dental implant system for Nobel Biocare and oversaw the design of the Hahn Tapered Implant. Recipient of the Aaron Gershkoff Lifetime Achievement Award in implant dentistry and the Venue and LEAD magazine Healthcare Leadership Award, Hahn was honored with the Lifetime Achievement Award from the American Academy of Implant Dentistry in June 2015. Hahn is also editor-in-chief and clinical editor of Inclusive magazine. He lectures to dentists around the world and maintains a private practice in Cincinnati, Ohio. Contact him at replace7@mac.com.
Dental clinicians often play instrumental roles in restoring the integrity of a patient’s face; they also are in a unique position to help their patients appreciate the internal beauty as well. This is what I plan to address during my keynote presentation, titled “Beauty Reconsidered,” at the Academy of Osseointegration’s 2017 Annual Meeting.

Neuroscientists tell us that our brains are hard-wired to recognize and respond to beauty. There is a region of the brain where neurons specifically fire when we gaze upon a face. Within months of birth, infants use this brain region to recognize and discriminate among faces and the emotions portrayed by these faces. So, when something disrupts our facial appearance — whether it is caused by disease, deformity or trauma — it can have a profound impact on how others see us and how we see ourselves. Facial changes affect our sense of well-being.

That’s why it is critical for dental clinicians to treat the whole person. You aren’t just restoring a part of the patient’s anatomy; you are restoring their sense of completeness. There may be surgical limitations to the repair, but as you approach a patient’s restorative plan, I urge you to consider how you can assist them in redefining what is beautiful.

Join me at AO’s meeting, taking place March 15-18 in Orlando, Fla. Let’s do this together: Let’s teach ourselves and our patients that beauty is not determined by a surgical outcome alone. Beauty is defined by authenticity, compassion and perseverance in the face of adversity.
Flapless implant placement with an internal sinus lift using dynamic guided navigation

Author: Naheed Mohamed, DMD

Today, implant surgery is focused on being minimally invasive with an emphasis on prosthetically guided implant placement. Implants that are not placed in a prosthetically favorable position are at risk for future complications involving the prosthetic components or peri-implant tissues. Successful implant placement is not only judged by osseointegration but also the esthetics. In a climate where implant therapy is held to the highest of standards, using advanced tools to simplify surgical dental implant placement is a requisite for success.

Currently computer-guided surgery involves the use of a CBCT (cone-beam computer tomography) scan and possibly an intra-oral scan to allow personalized digital surgical planning. This plan is then transferred to the patient in the form of surgical guides to aid in accurate implant placement. These guides, however, are static and do have some drawbacks. They are not always stable depending on whether they are supported by teeth, mucosa or bone. Limited mouth opening does become an issue when surgical guides are used to place implants for posterior dentition. And, lastly, if there is any error in the digital planning, segmentation of the anatomy or data transfer to the guide fabrication, the error is passed down onto the guide’s implant position. If errors are noted during surgery, then the guide essentially becomes useless.

The next evolution in guided dental implant surgery involves the use of a CBCT (cone-beam computer tomography) scan and possibly an intra-oral scan to allow personalized digital surgical planning. This plan is then transferred to the patient in the form of surgical guides to aid in accurate implant placement. These guides, however, are static and do have some drawbacks. They are not always stable depending on whether they are supported by teeth, mucosa or bone. Limited mouth opening does become an issue when surgical guides are used to place implants for posterior dentition. And, lastly, if there is any error in the digital planning, segmentation of the anatomy or data transfer to the guide fabrication, the error is passed down onto the guide’s implant position. If errors are noted during surgery, then the guide essentially becomes useless.

The next evolution in guided dental implant surgery comes from neurosurgery and orthopedic spine surgery, where it has been used for quite some time. ClaroNav Inc., has developed a live navigation system using optical tracking cameras (Fig. 1) during implant surgery to provide the surgeon with CBCT-based real-time three-dimensional drill guidance during implant surgery. One of the main advantages of this Navident system is that dynamic navigation allows intra-operative changes to implant position in real time if any errors or anatomical complexities are noted during the surgery. The flexibility of having a guided implant placement in a digitally planned ideal location without the need for a static surgical stent and having the osteotomies live navigated on CBCT data using optical tracking is a game changer for implant dentistry. This open system also has the flexibility of using any implant system and any drill to guide placement. The case presented below showcases the flexibility of real-time navigation where Straumann implant drills are used for placement of an implant with a simultaneous internal sinus lift using the Hiossen CAS-KIT drills with the Navident system.

Case report

The patient was a 57-year-old healthy female who was referred to our clinic to replace the missing maxillary second premolar at the 2.5(13) site with a dental implant. The Navident workflow consists of four main sequential steps: stent fabrication, CT (computer-tomography) scan with the stent and affixed CT marker in the patient’s mouth, digitally planning the implant surgery in the Navident software and, lastly, completing the live guided implant surgery. One of the biggest advantages of the Navident system is that these four sequential steps can all be completed in one appointment, provided the clinic has an available CBCT scanner.

The NaviStent functions as a retainer onto which the CT marker is affixed to while the patient undergoes her CBCT scan. The NaviStent is a custom single-use retainer made of a thermoplastic material called Naviplast then can be heated in hot water and molded to the patient’s dentition. The stent was trimmed, and the planned implant site was cut open to expose...
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case study  flapless implant placement

Fig. 2. A screenshot from the Navident software showing the digitally planned crown and implant (yellow) placement.

Fig. 3. The drill is shown here being calibrated on the JawTag, which is fixated to the NaviStent in the patient’s mouth.

Fig. 4. The clinical view of the handpiece being used to drill the osteotomy as it is being guided on the monitor. Note the DrillTag shown above attached to the surgical handpiece that allows it to be tracked.

Fig. 5. A screenshot showing the Navident software navigating screen while the drill (in green) is being live guided against the CBCT cross sections. The CBCT cross-sectional views as well as the target bull’s eye on the left allow the surgeon to navigate the drill to the ideal digitally planned position.

Fig. 6. An immediate postoperative clinical view of the surgical implant site, showing the flapless surgery of the single-stage implant-guided placement with a healing abutment.

Fig. 7. Postoperative peri-apical radiograph showing a Straumann Bone Level Taper 4.1x10 mm implant placed with an internal sinus elevation.

The CT marker was then fixed to the stent by way of a thumb screw. The NaviStent with the attached CT marker was placed into the patient’s mouth. The stent was checked for stability in the patient’s mouth. A CBCT scan was completed for the entire maxillary arch, being sure to include the arm of the CT marker, which contains the aluminum fiducial. The CBCT scan was then imported into Navident software. The Navident software automatically registers the fiducial and asks you to inspect the registration to ensure there is no malalignment. Our implant position is prosthetically determined, so our first step was to place a virtual crown at the 2.5 (13) site. The vertical height of bone from the ridge to the sinus floor was measured using the software measuring tool and found to be 7.4 mm (Fig. 2).

Our treatment plan involved placing a Straumann Bone Level Tapered SLActive Roxolid 4.1 mm x 10 mm implant as a single-stage flapless approach with an internal sinus elevation. Taking advantage of the freedom of the Navident system, we were able to plan our surgery to place a Straumann dental implant and complete our internal sinus lift using the HIOSSEN CAS-KIT (Crestal Approach Sinus Kit). To control our drilling depth and use the live navigation to guide us to the sinus, a digital implant was placed in the ideal location with respect to the digital crown. This digital plan would guide us to the sinus floor for the sinus elevation and allow ideal implant placement.

Live navigation implant surgery and internal sinus elevation

The patient was seated for the implant surgery. Local anesthetic was given. The single-use JawTag was fixated to the NaviStent with the provided thumb screw. The tag adapter was mounted onto the surgical handpiece and fastened in place, according to the company’s instructions. The single-use DrillTag was attached to the tag adapter on the surgical handpiece. The NaviStent was placed into the patient’s mouth with the JawTag visible for the Navident camera to detect.

Once the CT markers are visible by the camera, they become visible on the side panel on the monitor. The next step was to calibrate the drill axis by placing the handpiece head onto the calibration peg present on top of the JawTag. The handpiece was...
then rotated back and forth around the peg to register and calibrate the drill axis. The system then prompts us to calibrate the drill. The initial precision point drill was then placed onto the handpiece and calibrated by placing the drill tip into the dimple present at the center of the target on the JawTag (Fig. 3). Once the drill tip was calibrated, it then became visible on the monitor against the CT image when it is placed into the surgical field.

Our next step was to verify the drill tip position. This was done easily by placing the tip of the bur on a landmark in the jaw to verify accuracy of its positioning. In our case, the tip of the drill was verified by placing it on the cusp tip of the neighboring tooth 2.4 (13). The drill was then brought to the surgical site (Fig. 4), and the navigated drilling screen comes up, which shows a target view and cross-sectional views of the CT images with the drill image visualized in its real-time position (Fig. 5). The target and cross-sectional views allow you to position the drill into the ideal digitally planned implant position based on the live view of the drill over the CT images.

The drilling process was started with a precision drill to punch a dimple into the bone and give us a soft-tissue bleeding point. The bleeding point was then used as a marker to remove a 4 mm diameter of crestal gingiva with a tissue punch. The Straumann pilot drill was then calibrated and verified on the handpiece. The 2.2 mm pilot drill was then used to drill at 800 rpm to about 7 mm into the osteotomy using the live navigation to guide us into the digitally planned position. The second 2.8 mm drill in the Straumann Bone Level Tapered implant protocol was calibrated, verified and live navigated to the desired position at a depth of 7 mm into the osteotomy.

The drills were now switched to the Hiossen CAS-KIT drills to allow removal of the cortical bone at the floor of the sinus without damaging the Schneiderian membrane. The CAS-Drill tip has an inverse conical shape that forms conical bone chip as it drills to allow it to safely elevate the sinus membrane without perforating it. The bone particles formed when drilling discharge upward producing a membrane auto-lift function. The Hiossen CAS 3.3 mm drill was used with an 8 mm stopper as a backup to prevent us from forcefully pushing too deep into the sinus. The CAS drill was calibrated and verified and then live navigated to access the sinus membrane.

Once the membrane was exposed through the osteotomy, it was elevated using hydraulic pressure with the CAS-Kit Membrane Lifter and sterile saline. Cortical allograft chips were then gently pushed into the void created from the membrane elevation. The jaw stent was removed, and the implant was placed through the osteotomy with direct vision. The Straumann Bone Level Tapered 4.1 mm x 10 mm implant was placed with 50 Ncm of primary stability. A healing abutment was then hand-torqued in place (Fig. 6).

A postoperative peri-apical radiograph (Fig. 7) was taken to assess the implant placement. The implant can also be live navigated into place; however, it needs to be calibrated by touching the tip of the implant over the JawTag dimple, and because of the risk of contamination, we chose to place it with direct vision. The company recommends placing a sterile piece of nylon over the dimple when calibrating the implant to keep the conditions sterile.

Because of the flapless live-guided Navident protocol, we were able to release the patient with no sutures required and minimal trauma to the site. The patient was prescribed anti-inflammatory analgesics and placed on a 7-day antibiotic course. Her healing was uneventful with minimal discomfort to the area.

Conclusion

Computer-guided placement of dental implants is significantly more accurate than free hand surgery.6 In areas of complex anatomy, computer-guided navigational surgery is superior to conventional implant surgery when it comes to preventing iatrogenic injuries.7 This technology can contribute to considerable improvement in quality and accuracy of dental implant placement.

The live real-time view of the exact position of the drill minimizes the potential risk of damage to critical anatomic structures.8 The optical tracking system seems to be more accurate and have more flexibility during surgery but does require more training to develop hand-eye coordination for using the system.9 However, once mastered, this new system can improve on accuracy of surgery, reduce surgeon anxiety, improve patient confidence and work as a powerful marketing tool for your practice.

References available upon request from the publisher._
Introducing LOCATOR F-Tx:
A new way to think about
fixed full-arch restorations

Author_ Zest Dental Solutions Staff

LOCATOR F-Tx is a simplified, time-saving solution for fixed full-arch restorations with no compromise to prosthesis strength or esthetics, according to Zest Dental Solutions.

Optimized for efficiency and chair time savings compared to conventional screw-retained systems, it features a novel, patent-pending "snap-in" attachment that eliminates the need for sub-gingival cement or screw access channels.

A new solution for immediate provisionalization, Zest Dental asserts, the fully integrated system accommodates the full range of final restorative options including all-acrylic, metal-reinforced acrylic, PFM and all-zirconia frameworks.

_Secure snap-fit design

This patent-pending retention system works similar to a ball and socket, allowing the denture attachment housing to securely snap into place and then pivot to the desired position. Once in place, it’s fixed for the patient and can easily be removed by the clinician during hygiene and maintenance visits.

_Simplified angle correction/stress-free passive fit

• The LOCATOR F-Tx Abutment features a unique, spherical coronal geometry, which allows the denture attachment housing to rotate in any direction and correct up to 40 degrees of convergence/divergence between two implants, eliminating the need for angled abutments.
• Chairside processing procedures at final prosthesis delivery ensures a stress-free passive fit.

_Denture attachment housing

• Denture attachment housing is threaded internally to accept a PEEK Retention Ball that snaps into the LOCATOR F-Tx Abutment.
  • Features an anodized pink finish for improved esthetics.
  • Aggressive grooves and flats limit vertical and rotational movement.
  • Denture Attachment Housing is passively picked-up in the prosthesis via a chair side technique.

_Retention/processing balls

• PEEK retention balls are available in low-, medium- and high-retention levels based on the needs of the case.
  • A processing ball comes pre-inserted with the denture attachment housing, an additional processing ball is included, and both are used for provisionalization and laboratory procedures.

_Abutment

• Unique, spherical coronal geometry allows the Denture Attachment Housing to correct up to 40 degrees of convergence/divergence between two implants and pivot in any direction to position the housings into the ideal location for the prosthesis.
• DuraTec™ Coating provides a hard, smooth and wear-resistant abutment exterior with an esthetically pleasing gingival tone.

_All-in-one packaging

• LOCATOR F-Tx features all-in-one packaging that is sterile and includes everything you need: abutment (with cap to deliver the abutment to the implant site), denture attachment housing with pre-inserted processing ball, an extra processing ball, as well as one blue (low), tan (medium) and green (high) retention ball.
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SEE WHAT'S THE NEXT BIG THING IN 3D IMPLANT DENTISTRY
Study in JOI finds accuracy of X-Guide navigation is ‘11x better than freehand implant placement’

_The Journal of Oral Implantology reported a new study that confirms the accuracy of placing dental implants using the X-Guide dynamic 3-D navigation system._

_The model-based study appearing in Journal of Implantology (JOI), the official publication of the American Academy of Implant Dentistry, was used to determine the accuracy of placing dental implants using the X-Guide™ dynamic navigation system._

_The study focused on measurements of the overall accuracy of implant placement relative to the virtual plan. It also compared accuracy of static guides, implants placed freehand, as well as other navigation systems on the market. The results show that the 3-D angular accuracy of the X-Guide™ system is approximately 11 times better than freehand, and 2-D lateral positional accuracy is approximately eight times better than freehand._

_The X-Guide™ system by X-Nav Technologies is a dynamic navigation surgical system that gives the ability to achieve more accurate placement of implants, right in your office. Interactive, turn-by-turn guidance during live surgery gives the ability to control the exact position, angle and depth – like GPS for your handpiece._

_The authors also stated that while both static and dynamic image navigation are highly accurate, dynamic navigation systems have the following advantages:_

- The patient can be scanned, planned and undergo surgery on the same day.
- The plans can be altered during surgery when clinical situations dictate a change.
- The entire field can be visualized at all times.
- Accuracy can be verified at all times.

_Further clinical indications of dynamically guided systems include:_

- Limited mouth opening.
- Tight interdental spaces that preclude the use of guidance tubes in CAD/CAM guides.
- Distal implants (i.e. second molars) that are precluded from CAD/CAM static guides by prolongation height.
- And the inability to take impressions because of hyper exaggerated gag reflex.

_Increased accuracy is now immediate and in-office_

_In addition to the X-Guide system's implant-planning software, surgeons tell us they are also excited to bring navigation technology into the dental office._

_Increased accuracy is now immediate. Same-day guided surgery can be a reality for more surgeons and patients: There are no additional processing or shipping delays that are common in the static guide process, and it's a fraction of the cost of traditional guides, the company states._

_With the X-Guide's patented technology, learning and integrating navigation technology is easy, the company asserts. It is important to note that with this system, the surgeon concentrates on a single target to assist in precisely guiding the implant. The result – consistently achieve a more desirable functional and esthetic outcome, according to the company._

_Industry-leading navigation technology_

_X-Nav Technologies is pleased to assert that the X-Guide system has gathered a lot of attention as an industry-leading navigation system. According to X-Nav Technologies, surgeons have navigated more than 8,000 dental implants using the X-Guide dynamic 3-D navigation system._

_Surgeons using X-Guide navigation have told the company that they enjoy being able to offer their patients minimally invasive and accurate surgery, while referring dentists appreciate that navigated implant placement offers them better restorative accuracy. Another benefit to surgeons using this technology is the potential for decreased neck and back pain because of the improved surgical position ergonomics, the company stated._
Respects your needs. Today and tomorrow.

**NEW**

North American official
**Implantmed SI-1015** product launch!

Please visit W&H at the **AO in booth #1322** to see the all new Implantmed SI-1015.

Now available from your dental supplier or via w&h.com/na.
W&H Implantmed SI-1015: Respects your needs

Author: W&H Staff

_W&H introduced the Implantmed surgical unit in 2001. The company asserts it’s a high-quality device — safe, simple to use with a high degree of precision and flexible application options. The new generation builds on those tried-and-tested features and adds an array of all new benefits: a color touch-screen interface, a wireless foot pedal, shorter/lighter and more powerful motor with LED+ capability and a unique ISQ module for assessing the stability of an implant.

W&H Implantmed SI-1015 supports practitioners for both oral surgery and implantology.

_Simplicity: New color touch screen user interface and redesigned pump

The new Implantmed SI-1015’s user interface helps the practice team to streamline. A high-tech color touch screen with a tempered glass surface makes it easy to operate and disinfect. The logically designed navigation system and the customizable programs allow the operator to focus on the surgery.

The Implantmed can be customized for up to six individual users for reduced risk in group practices using multiple implant brands and their individual protocols. Staff will appreciate the redesigned coolant pump as the irrigation tubing can now be loaded faster under sterile conditions.

_Improved safety

Immediate load ... early load ... or the conventional route?

Deciding on the best time for loading implants is becoming more complex when trying to take into account all of a patient’s risk factors.

The integrated automatic thread-cutter function and precise torque control actively helps the operator during implant placement — especially in dense bone. Using the documentation function stores all parameters, the implant insertion torque/time graph, optional ISQ measurement data, documentation ID and tooth position on a USB stick for patient records. As an option, the W&H Osstell ISQ (Implant Stability Quotient) module for the Implantmed SI-1015 is a non-invasive measuring system of primary stability/osseointegration.

Combining the detailed insertion torque graph with the ISQ measurement, reduces risk in deciding optimum loading time and assists in monitoring osseointegration of an implant.

_Precise: Powerful motor and new surgical handpieces with LED+

In its class, the new motor is the strongest (6.2 Ncm), lightest and shortest. The ergonomic shape and balance combined with a W&H handpiece reduces operator physical strain. Five new short surgical handpieces with LED+ fully illuminate — regardless of the motor speed.

Quality stainless steel with scratch-resistant coating is best for a gloved hand, optimum hygiene and will preserve the “as new” appearance, according to the company.

_Flexibility: Wireless multi-functional, multi-device foot pedal

The new optional wireless foot pedal offers even greater flexibility and convenience, according to the company. The Implantmed can be operated easily with the foot control as an alternative to the touch screen. One foot pedal can be used with multiple W&H devices (Piezomed, etc.).

_Simplicity: New color touch screen user interface and redesigned pump

_Improved safety

_Precise: Powerful motor and new surgical handpieces with LED+

_Flexibility: Wireless multi-functional, multi-device foot pedal
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To learn more, please visit our website at www.zestdent.com/FTx or call 800.262.2310.
Nouvag AG: ‘We talk implantology’

For more than 40 years, Nouvag AG has committed itself to the development and manufacturing of medical devices and instruments and it asserts that it’s become famous throughout the world for its Physio-Dispenser. The device was the first equipped with a peristaltic pump to deliver a sodium chloride water solution for the cooling of the rotating instruments to eliminate the feared necrosis of bone and its surrounding tissues. By constant further development and the implementation of new technologies and materials, great progress was achieved in many medical branches.

The company’s latest development in the field of implantology is the motor system MD 11 that is now available in version 2.0. It has now implemented the function of thread cutting and made the device handling even easier than it already was. During its development, much attention was given to a quiet, low-vibration motor running. The insertion of the tubing set is done with very little effort because of the great visibility of the mounting bracket and easy-to-reach notches in the bracket, the company asserts. To be able to fully concentrate on the job and not have to put the instrument down, the display shows all information at a glance; no key pressing necessary. Even the activation of the cooling pump and the changing of the pump speed is done with a foot press on the switches of the pedal. Also the rotation direction of the motor is directed by a foot switch.

To make the set of the MD 11 complete, the company offers all required contra angles such as the 1:1, 16:1, 20:1, 32:1 and a 70:1. The 20:1 Contra Angle, available also with LED spotlight, covers the largest field of the implantologists’ tasks. Further information can be obtained at www.nouvag.com, where you’ll find technical data, pictures, accessories and even the user manual.
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Dynamic Navigation Society

DNS is the educational division of ClaroNav, which organizes courses worldwide. Interested dental clinicians can attend Navident training sessions and hands-on courses.

Leading clinicians from around the world have joined the Dynamic Navigation Society (DNS) to be at the forefront of dynamic guided dental surgery.

Peer-to-Peer Education is critical to the success of any evolving technology and with our current group of renowned clinicians we feel we are in an excellent position to lead the way.

DNS organizes high quality courses all over North America, Europe and Asia. Courses are offered in a variety of formats to accommodate the clinician’s schedule. Curriculum includes education on demo models and observation of live surgery. First feedback has been extremely positive, as clinicians discover the way from a good treatment plan to an excellent surgical outcome.
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