Predictability in Implant Planning with 3D Imaging - Clinical Case Report

By Norberto Velázquez, DDS

Greenville, NC, Dr. Velázquez graduated from dental school in 2002 and attended a general practice residency (GPR) in Oklahoma City, Oklahoma from June of 2002 until June 2003. Shortly after finishing the GPR residency, Dr. Velázquez moved to Greenville, NC and worked in Kinston for the J.H. Rose Dental Clinic as the Dental Director for four years. Dr. Velázquez has advanced education in implantology and enjoys working on cosmetic procedures, oral surgery, crown and bridge (prosthetics), implants, and dentures. He just finished another intensive implant course.

The case presented represents a typical instance where an implant is required in the area of the first or second premolar. A three-dimensional scan is used to accurately locate the exact position of important anatomical structures or landmarks. The 3D scan and software allow moving, slicing, and viewing the anatomy from any direction. A critical step is the ability to mark the position of the nerve (marked in red in the images below) – this becomes especially helpful when virtual implants are used.

A first look might indicate that the implant on this image (1) could interfere with the inferior alveolar nerve and mental foramen. This is not the case. This image (2) is a disto-facial view of the 3D scan showing appropriate clearance between the implant, inferior nerve, and the mental foramen — as indicated by the grey circle. In addition, the Invivo software provides a visual indication of such clearance by coloring green the implant model in the lower left of the screen.

The arch section of the software shows axial, sagittal, and coronal slices. Multiple views (3) provide a more comprehensive understanding of the anatomical features of the patient. After surgery, a follow up with a post-operative image (4), either 2D or 3D, can be done based on case necessity.

Dr. Velázquez’s Conclusion

The GXDP-700 system offers several functionalities that benefit my patients. The advantage of this extra dimension to both implant patients for me, and orthodontic patients for my wife, is incalculable. This machine has become a basic part of the diagnostic process for implants — like my explorer and mirror. It allows me to see the location of important anatomical structures and landmarks so I can avoid additional or unnecessary invasive procedures.

With the scan, I can inform patients of my implant treatment plan, and show them how the surgery will proceed. They gain confidence in my knowledge of their dental anatomy even before surgery begins. Before 3D, a surprise could pop up during surgery. Then, the patient would be disappointed that he or she was not going to get an implant immediately, but needed an additional procedure first, such as grafting. My patients understand that I have implemented this technology for the sake of their dental health.

For a dentist, the opportunity for improved diagnostic capabilities is always a benefit to the patient. While they are not always directly aware of all the advantages, the information that I obtain from these pans and scans is beneficial for their care. I witness these benefits every day, in increased patient communication and more successful treatment outcomes.

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Understanding the Advantages of 3D Dental Imaging

By Kavo

With the advent of any new technology, it’s important for dental professionals to consider not only cost and risks, but also the benefits of switching. In the case of 3D dental imaging, the advantages are clear, granting practitioners and patients alike a better clinical experience.

A dental 3D scan allows clinicians to view dental anatomy from different angles. A 3D scan can help gain a better view of bone structures, such as adjacent root positions, in order to locate canals and root fractures, as well as provide the ability to more accurately measure anatomical structures. These scans also support a wide range of diagnosis and treatment planning, making them extremely flexible. Further, they increase the possibility of treatment success, granting practitioners greater predictability and confidence in preparing for extractions, performing root evaluations, and placing implants.

3D dental imaging also delivers the power of repeatability, providing fast and accurate imaging that’s consistent—and thus, reliable. Using a 3D dental scanner equips dental professionals with a comprehensive view, letting them see specific conditions in the region of interest to determine whether a treatment is necessary. Because details show up so clearly, patients can be more confident in a dentist’s decision. In addition, the use of dental imaging technology often creates a more comfortable and engaging dental visit for the patient.

The Gendex GXDP-700 Series features the pinnacle of 3D dental imaging technology, allowing dentists to plan for more predictable treatment outcomes by taking advantage of powerful 3D software analysis and simulation tools. Plus, dental practitioners can control the exposure and the slice of the scanned areas using the system’s flexible field-of-view (FOV) to meet individual patient and clinical needs. As a practice grows to offer additional imaging capabilities, the GXDP-700 imaging solution can be upgraded within your own timeline and budget.

X-ray imaging, including dental 3D (CBCT), provides a fast, non-invasive way of answering a number of clinical questions. Dental CBCT images provide three-dimensional (3D) information, rather than the two-dimensional (2D) information provided by a conventional X-ray image. This may help with the diagnosis, treatment planning, and evaluation of certain conditions. Dental CBCT should be performed only when necessary to provide clinical information that cannot be provided using other imaging modalities. Concerns about radiation exposure are greater for younger patients because they are more sensitive to radiation.

Contact Information

For more information about the use, benefits, and risks of CBCT, visit: www.kavo.com/MEA
Or email us: info.mea@kavo.com
Restoration is becoming Easier and Affordable for all Dental Practices

By Norberto Velázquez, DDS

O's Solutions is the title name for the new CAD/CAM system from Carestream Dental that was launched in the Middle East at AEEDC last February. The system consists of an intraoral scanner, CBCT impression scanning system, restoration design software, and chair side milling machine. All of the parts are separate creating an open Web-based system that enables dentists to use the complete product family or choose any of the products as a stand-alone unit. The benefit of this offers is an easy sharing of restoration cases between dentists and laboratories.

The important thing about any system is not having to be tied into using every individual product, software or consumable that is incorporated in that system. Although this may be beneficial if you feel there is security in working with one single supplier you may on the other hand prefer the features of another supplier’s product that you want to use instead of the one that is provided.

At Carestream Dental we have seen many Dentists choose the CS 5500 Scanner to capture images for their digital restoration work. They have preferred the elegant slim and easy to use design of the scanner which makes it simpler and more reliable to capture detailed scans of the patient’s teeth that can then be e-mailed to their laboratory for completion.

The CS 5500 scans patients’ teeth directly to acquire true colour, 2D and 3D images. With an average precision of 50 μm, the CS 5500 scans to a depth ranging from -2 to +45 mm and offers high angulation scanning of up to 45 degrees. It features a light guidance system that enables dental professionals to focus more on patients’ mouths while capturing data by limiting the time practitioners need to watch a monitor during scans. The CS 5500 also has an internal heater that prevents the mirror from fogging during digital impression acquisitions. To further streamline the scanning process, the scanner does not require a trolley or the use of powder, saving practitioners time and making the experience more pleasant for patients.

Here is what Leading dentists have had to say about their experience using the CS 5500.

Dr. Carsten Stockleben
Hannover, Germany
http://www.stockleben.com/

“Weith the CS 5500, it’s easy. You just say ‘I want my scanner,’ put it in, and start. It’s small, it’s light, it can be connected to any computer via USB, so I don’t have to have a big trolley with a computer and a monitor that have to be driven around the operatories. You don’t need powder, you don’t have to mess around in the patient’s mouth, keep it dry, put the powder in, and so on. It makes it much easier. It’s got a guiding system and that allows me to concentrate and to take the impression or the scan in the mouth, and that’s fantastic.”

Dr. Dan DeBrosse
North Rive Dental
Ellenton, FL, USA
www.northerndental.com

“There’s no need to have a trolley or the use of powder, you don’t have to mess around in the patient’s mouth, keep it dry, put the powder in, and so on. It makes it much easier. It’s got a guiding system and that allows me to concentrate and to take the impression or the scan in the mouth, and that’s fantastic.”

By using the CS 5500 intraoral scanner, we eliminate many of the problems that come with using impression materials and pouring casts—all you have to do is scan the tooth and send the data to your restoration software or the lab. But probably the most important feature of the whole scanner is something so simple—that it’s not connected to a trolley. It’s not connected to a tower or a workstation. You’re going to be able to take this light, ergonomic scanner and plug it right into your workstation in the operatory, quickly and easily.”

Dr. Ernesto Jaceloni
care@jaceloni.com

“The CS 5500 is just one way we redefine imaging. Discover more at carestreamdental.com © Carestream Health, Inc. 2014.

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Isolite wins 2014 Scandefa Award in Copenhagen

By Dental Tribune International

COPENHAGEN, Denmark: Reporting on this year’s Scandefa, the organisers announced that over 10,000 visitors and about 200 exhibitors mainly from Denmark, Sweden and Germany attended the Scandinavian dental trade show from 2 to 5 April. At the opening of the show, dental equipment provider Unident was given the 2014 Scandefa Award for the Isolite oral isolation system.

Isolite is a single-use isolation mouthpiece that retracts and protects the patient’s cheeks and tongue, increasing patient safety. It obstructs the entrance to the throat, which not only adds to patient comfort, but also allows the dentist to monitor the patient’s airway.

“Using Isolite, practitioners can achieve optimal control of the oral environment and make the treatment more comfortable for the patient at the same time,” Marinette Larsson, Chief Marketing Officer at Unident, told Dental Tribune ONLINE in Copenhagen.

The mouthpiece, which is available in five different sizes, was developed by Isolite Systems, a US medical device manufacturer that specialises in dentistry. Unident is the exclusive supplier of the system in Scandinavia. Founded in 1962, the company today has offices in Stockholm in Sweden, in Horten in Norway, and Copenhagen in Denmark.

The next Scandefa will be held from 15 to 17 April 2015. The annual Scandefa Award recognises the most innovative dental products on the Danish market.