Implant position in the esthetic zone

By Siamak Abai, DDS, MMedSc

Since the advent of modern root form osseointegrated implant dentistry in 1952, clinicians have strived for improvements in implant positioning in the esthetic zone to achieve predictable restorative and aesthetic results.

Years of clinical experience in conjunction with controlled clinical studies have helped establish parameters as a guide for these results. Establishing a treatment plan and clinical protocol prior to implant placement is paramount.

Treatment planning traditionally begins with comprehensive medical and dental evaluations, articulated diagnostic casts, radiographs, cone-beam computed tomography (CBCT) scans and a diagnostic wax-up. Patient demands must be taken into consideration prior to surgery, and pre-surgical mockups may be necessary to convey the information to the patient.

The advancement of CBCT technology has led dentistry into a new realm of dimensional accuracy in combination with the use of a surgical or guided stent. Proper 3-D positioning of an implant has led to more accurate clinical results.

The importance of the implant position can be manifested in the four dimensionally sensitive positioning criteria: mesiodistal, labiolingual and apico-coronal location, as well as implant angulation. The ultimate goal is not only to avoid sensitive structures, but to respect the established biological principles to achieve esthetic results.

Mesiodistal criteria
Correct implant position in a mesiodistal orientation allows the clinician to avoid damaging adjacent critical structures. A minimum distance of 1.5 mm between implant and existing dentition prevents damage to the adjacent teeth and provides proper osseointegration and gingival contours.1

Distances of less than 3 mm between two adjacent implants leads to increased bone loss and can reduce the height of the inter-implant bone crest. A distance of more than 3 mm between two adjacent implants preserves the bone, giving a better chance of proper interproximal papillary height (Fig. 1b).

Labiolingual criteria
An implant placed too far labially can cause bone dehiscence and gingival recession while an implant placed too far lingually can cause prosthetic difficulties. A thickness of 1.8 mm of labial bone is critical in maintaining an implant soft-tissue bulk.2

Inclusive Tooth Replacement Solution
The Inclusive® Tooth Replacement Solution was developed by Glidewell Laboratories as a complete, prosthetically driven method of restoring missing dentition. The solution is composed of treatment planning, implant placement, patient-specific temporization and the definitive restoration (Fig. 5a–f).

When utilizing the comprehensive range of Inclusive Digital Treatment Planning services, the clinician has absolute and precise control of each step. The clinician has control of the four dimensions of implant placement in the esthetic zone, creating a consistently predictable result.

To read the full article, go to www.inclusivemagazine.com. References are available from the publisher.
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Making digital dental restoration technology an easier experience

E4D and Henry Schein launch E4D NEVO Scanner and Design Center

E4D Technologies (formerly D4D Technologies), an award-winning developer of digital technologies for dentistry, and Henry Schein Inc. are showing the new E4D NEVO™ Scanner and Design Center here at CDA Presents in San Francisco.

Available exclusively in the United States, Canada, Australia and New Zealand from Henry Schein, the E4D NEVO Scanner and Design Center enhances the ease-of-use of digital dental restorations for the benefit of the patient and the practitioner and represents a new level of precision, proficiency and productivity versus prior E4D systems, according to E4D.

The NEVO Scanner technology is based upon years of experience with powder-free image capture in the intraoral environment and is the first scanner to use E4D’s patent-pending blue laser technology, which provides exceptional quality of data capture, video-rate speed and ease of use, according to the company.

In addition, the solid-state NEVO Scanner incorporates many other advances including fog-free scanning, ergonomic design for easy positioning, removable tips for infection control, active heat dissipation for full-arch scanning, color-coded feedback to operator and an adjustable field of view.

The new E4D NEVO Design Center is a powerful laptop computer that uses high-speed Thunderbolt™ technology* with the NEVO Scanner to provide more energy and double the bandwidth of USB 3 connections.

The new system also gives the practitioner increased flexibility and portability. Dentists can move the E4D NEVO Design Center from operatory to operatory, or even among multiple offices, all while wirelessly connected to the milling center.

"The E4D NEVO Scanner and Design Center represents what we call the ‘Natural Evolution’ of digital dentistry," said Mark Quadling, CEO of E4D Technologies. "We’ve combined the latest technologies to create an even easier-to-use restoration experience. With NEVO, we believe doctors have the potential to further improve the quality, fit and predictability of restorations, affording the patient a great outcome and strengthening the practitioner’s clinical offering.”

"Henry Schein is proud to be the exclusive partner of E4D in bringing this exciting new technology to market," said Tim Sullivan, president, Henry Schein North American Dental Group.

"We believe in a patient-centric approach to clinical care, and the new E4D NEVO Scanner and Design Center greatly enhances the benefits of digital dentistry for the patient, which in turn will enhance the practice of our customers. We fully expect that the E4D NEVO system will drive increased demand for digital dentistry, for the new user as well as for those customers who upgrade their systems.”
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