

Ragle Dental Laboratory: First Regional Production Center for Cadent



An early adopter of digital technology, laboratory owner Jerry Ragle, CDT, talks about his latest foray into the digital world—milling models using data from digital impressions.

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How to Create a Customer-Driven Lab

BY GEORGE OBST

Want to boost sales, market share and profits even if dentistry is in a temporary no-growth or downward mode? Put your clients in charge of running your laboratory by consistently seeking their feedback and making changes to improve operations and service based on what you hear.

This customer-driven business concept is detailed in *The Customer-Driven Company: Moving from Talk to Action*, by Richard Whiteley, and I saw it work firsthand during my 20 years as a member of Dental Services Group's (DSG) management team.

Before you can give customers what they want...

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Cone Beam Technology: Taking Implant Services to New Heights

Cone Beam Computed Tomography provides a true, three-dimensional reproduction of the patient's anatomy for implant treatment planning and precise anatomical measurements such as the width of the mandible between the cortical plates (bottom image). LMT profiles three innovative laboratory owners who are installing cone beam CT scanners in their facilities to provide this optimum diagnostic tool to their dentist-clients.

Coverage starts on page 10

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Cone Beam in the Dental Laboratory: Taking Implant Services to New Heights

MARIBETH MARSICO / SENIOR EDITOR

As a testament to their commitment to implant dentistry, a few innovative laboratory owners have purchased cone beam CT scanners to scan implant patients in-house and offer the ultimate diagnostic tool to dentist-clients.

Cone beam computed tomography (CBCT)—a new generation of CT technology—made its debut in implant dentistry at the beginning of this decade. Providing a true, three-dimensional reproduction of the patient's anatomy, cone beam CT scans are becoming the optimum tool for implant treatment planning, allowing the dental team to precisely analyze bone density, see anatomical interferences and use measurements that correspond exactly to the patient's anatomy. As a result, CBCT machines have started appearing in dental radiology centers and even in some dentists' and specialists' offices around the country.

Now, they're also appearing in a more unexpected place: dental laboratories. A few innovative laboratory owners with long histories in implantology have opted to install CBCT machines to scan patients in-house, knowing the impact this advanced diagnostic tool could have on implant plan-

ning. "When I first saw cone beam images four years ago, they just 'wowed' me. It motivated me to adopt this technology to provide a better alternative for implant diagnostics," says Andy Jackson, owner of Evolution Lab in Buffalo, New York, who purchased an Ithma Elite CBCT machine nine months ago.

Having the CBCT in the laboratory allows these owners to offer their dentist-clients one-stop shopping for implant cases. Aside from the prosthetics themselves, the labs can handle every step of implant planning, including the study models, radiographic template fabrication and CBCT scan. Then, they can incorporate the digital images (called DICOM files) into implant planning software to plan the case and produce a surgical guide that's extremely accurate with regard to implant position, angulation, diameter and depth.

Of course, offering these diagnostic services is possible without having the scanner in the lab. Patients can get the CBCT scan at a dental radiology lab or a specialist's office and have the DICOM files forwarded to the laboratory. But these laboratory owners say that having the scanner in-house means they know they will get exactly what they need.

"Many radiographic labs, even dental ones, are not always well-versed on what's needed for implant planning and are more used to doing scans for orthodontic treatment or to check for airway obstructions. I've even had patients who were scanned without the radiographic template in place," says Mark Jackson, RDT, vice president and co-owner, Precision Ceramics, Montclair, California, who purchased the Ithma Elite six months ago. "But when local clients send their patients here, I'll fabricate the correct radiographic template and take the scan and know that we have all of the data we need." Jackson also has a complete operatory and plasma TV on the wall so dentist-

clients can go to the laboratory to plan the case, even with the patient in the chair.

Another benefit is that dentist-clients have the option of a "neutral scan center." In other words, since most dentists and specialists don't have these machines in their offices, they're often referring patients to other specialists for the scan. "Once the patient's there, he might ask, 'if you're doing the scan, doesn't it make sense for you to do my implants, too?'" and the referring doctor risks losing a patient," says Daniel Llop, CDT, president of nSequence Center for Advanced Dentistry in Reno, Nevada, who installed the i-CAT machine two years ago.

Because the CBCT service is so unique for laboratories, these owners are also finding it to be a door-opener for new implant clients. "I let them know if they only want me to scan the patient, fine. If they want me to also do the planning and surgical guides, fine. But hopefully I also get the golden ring, which is the prosthetics," says Mark Jackson. He points out that CBCT scans have applications outside of implant dentistry so orthodontists, oral and maxillofacial surgeons and ear, nose and throat specialists are potential markets.

Installation and Other Considerations

Although CBCTs are a fraction of the cost of conventional CT units, they are still a costly investment: in the neighborhood of \$200,000. Construction requirements aimed at preventing radiation seepage vary by state. For example, Andy Jackson converted a shade-taking room to house his CBCT and, to meet New York State requirements, had to use lead-lined sheet-rock, glass, doors and even lead plugs on every screw or nail head. His total cost for construction was \$15,000.

Mark Jackson also used those same lead materials to >>

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>> convert his laboratory's conference room into a scanning and implant planning center. He also upgraded the air conditioning system to provide less than 4° of temperature variance recommended by the machine's manufacturer and, because the CBCT unit is so sensitive to movement, he solidified the foundation with steel reinforcements and an overlying 8" concrete slab. Because he also installed a fully equipped operatory and a separate patient entrance to the laboratory, his costs were close to \$200,000.

In terms of staffing, because there's a dental practice in the same building, Mark Jackson has

his scans taken by a dental assistant under the supervision of a dentist. Evolution Lab's Andy Jackson has a part-time dentist on staff who does the scans and evaluates cases, while nSequence's Llop employs a full-time, certified dental X-ray technician who is also involved with implant planning.

Another issue is a big one that can't be overlooked: liability. "When you have patients coming into the laboratory, you become a provider—that's a whole new set of rules and you bring yourself closer in the liability chain," says Llop. Since installing the CBCT machine, Llop maintains malpractice insurance and, to lower

any kind of liability, has a board-certified maxillofacial radiologist read every scan, whether or not it's ordered by the referring doctor.

Given the cost of this undertaking, it's not surprising that none of these laboratory owners think of their CBCT machines as a profit center. But like early adopters of any new technology, venturing into uncharted territory adds to their reputation as innovators and demonstrates their commitment to providing dentist-clients with state-of-the-art treatment options. "We're strong advocates of this technology and want it to be part of the whole solution we offer for implant treatment," says Llop, who

has additional uses for the unit in his continuing education center and research and development department.

"At the end of the day, does the machine pay for itself? In time it will; right now we're getting \$2,000 to \$3,000 a month for scans," says Andy Jackson, who charges \$195 to \$279 per scan, depending on whether the referring doctor is a client of the laboratory. "But more importantly, I'm accomplishing my goal, which is to be part of treatment planning before implants are placed. That's when I can make the biggest difference." LMT



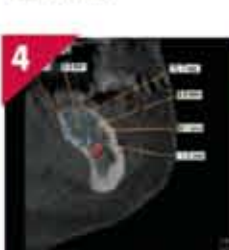
1 DANIEL LLOP, CDT, nSequence Center for Advanced Dentistry, Reno, Nevada.

2 ANDY JACKSON, Evolution Dental, Buffalo, New York.

3 A DEMONSTRATION VIDEO of the CBCT scan process on Jackson's website (view it at www.evolutiondental.net or in LMT's digital edition at www.LMTmag.com).

4 A CBCT SCAN showing precise bone measurements, allowing the dental team to best use the available bone and choose an implant that provides the optimum crown-to-root ratio and emergence profile. The inferior alveolar nerve is marked in red, making it easier for the surgeon to avoid it.

5 MARK JACKSON, RDT, Precision Ceramics, Montclair, California.



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More About Cone Beam Technology

Cone Beam Computed Tomography (CBCT), also called Cone Beam Volumetric Tomography, provides high resolution three-dimensional images of the patient's mouth, face and jaws. Unlike the two-dimensional world of X-rays, the CBCT offers detailed, cross-sectional axial, coronal, sagittal and panoramic views so that the dental team can accurately identify the location and dimensions of all anatomical structures and measure the quality of the bone.

Although the use of conventional medical CT scan data starting in the 1990s showed promising advancements in the area of implant planning, it never really made it into the mainstream due to the high

radiation and high cost of those machines—two concerns alleviated by CBCT. Because CBCT uses a cone-shaped beam to acquire the entire set of images in a single pass around the patient, radiation exposure is only a fraction of that experienced with conventional CT scans.

Also advantageous to the patient is that CBCT scans cost only about one-third as much as conventional CT scans, or approximately \$300 (often paid out-of-pocket). Other benefits are a significantly shorter scanning time (under 30 seconds) and patients are standing or sitting (rather than laying down as they would for conventional CT scans). ■