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“Digital impressions and CAD technology allow dentists to digitally scan the tooth and send the image to a CAD machine, which automatically mills the restoration. In some cases, we can now have crown placement in the same day,” says Urbanczyk.

Dental implants have also made huge advances over the last 10 years. They have become stronger, virtually eliminating the problem of breakage and fracture. New materials allow for a shorter wait time, and computer-guided surgery is leading to more precise, less invasive and safer dental implant placement surgery, with faster healing and less post-operative discomfort.

“New materials are allowing us to affordably mass-produce biologically active chemicals such as bone morphogenetic protein and tooth enamel matrix protein derivative so we can predictably regrow bone and soft tissues. Now we can place implants in areas where they previously would not have held. In the future, we will be able to regenerate and replace oral structures that have been lost to disease or time, leading to more effective and natural restoration of lost dentitions,” explains McNamara.

Although they were first introduced more than 40 years ago, lasers are now being used in a number of new ways on both hard and soft tissue, including cavity prevention and preparation, diagnostics, bleaching, wound healing and uncovering of impacted teeth. With an erbium laser, cavities can now be treated without the need for a drill or anesthesia. Lasers will also be used to create photochemical reactions that target and eliminate specific cells or pathogens.

“I think that in the future the most significant use of lasers in dentistry will be in the area of soft tissue recontouring, mainly in cosmetic and restorative dentistry,” says Dr. Mark Kortebein of Oral Surgery Associates of Milwaukee.

McNamara sees a future where some surgery will be performed robotically. “The site for the implants, for example, will be prepared by a small machine affixed to the teeth or jaw, allowing pinpoint precision of surgery,” he says. Don’t worry — the new technology won’t be putting dentists out of a job anytime soon. McNamara says someone will still have to plan and supervise the surgery. **M**

Industry Forecast

WHAT DOES THE FUTURE OF SPECIALIZED DENTISTRY LOOK LIKE?

BY GUY FIORITA

Ten years ago, computer-guided implant placement was one of the hottest new technologies in dentistry. Now it’s becoming standard practice. Innovations in dentistry come along at a constant pace, and although some technologies fade away quickly, others change the industry for years.

The advancement of digital radiography, for example, is proving to be one of the most important changes in recent years — the technology is replacing conventional X-ray technology and therefore eliminating the problem of radiation exposure. Now the next step has arrived, as digital goes 3-D with the introduction of Cone Beam Computerized Tomography (CBCT). “In endodontics, CBCT has been a real game changer,” says Dr. Richard Urbanczyk of Endodontics Specialists of Wisconsin. “We now have the capability of seeing lesions and pathologies that in the past could never be seen without performing exploratory surgery. For the patient and the practitioner, this means treatment planning can occur more precisely, outcomes can be predicted with a greater degree of reliability, and procedure times can be diminished because the CBCT provides a road map before the procedure is ever started.”

Digital technology is now being used to make models for crowns, bite guards, artificial teeth and surgical guides for implant placement. “I use digital all the time now, especially for computer-guided dental implant surgery,” says Dr. Timothy McNamara of Progressive Periodontics and Dental Implants. “I take a 3-D image of the patient’s jaw to design a guide that fits perfectly and also restricts the drill’s position to only drill in the exact spot where the program has directed it to go.”

For many procedures, digital imaging also cuts wait times to a minimum.

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