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## **Progressive Dental utilizes this technology in providing care to our patients.**

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### **More dentists tap lasers to banish bacteria**

*By Susan Jenks  
Gannett News Service*

John Bryan lay patiently as his dentist, Dr. Chris Edwards, shot laser energy into his gums, without anesthesia, to reshape them. The procedure lasted just two to three minutes, creating minimal bleeding and discomfort. "I like that it didn't hurt," says Bryan, an Indialantic, Fla., resident hoping to improve his smile. "It's a little irritated, that's all."

The use of lasers, or "scalpels of light," in dentistry stretches back several decades, experts say, although a handful of general dentists in Florida's Brevard County, including Edwards, are ushering the technology into newer territory. Its most recent application is as a last step to a traditional root canal, to wipe out any bacteria lingering in the tubules, or tiny holes, surrounding a tooth's roots. Earlier this year, the U.S. Food and Drug Administration approved a laser, which is made by Biolase, an Irvine, Calif., company, for this use.



In root canals, lasers are not yet used on their own, Edwards says, primarily offering an added antimicrobial effect at the end of a standard procedure. But some studies, mostly out of Europe, suggest lasers also act as a bio-stimulant on adjacent tissues, promoting the production of early cells, called stem cells, and a faster healing response, Edwards says.

According to the American Association of Endodontists, the nation's leading group for dentists specializing in root canal treatments, some 14 million root canals are performed in the United States each year, with about a 95 percent success rate in saving damaged or diseased teeth. The standard procedure involves a combination of hand and rotary instruments to remove the pulp, where the blood supply lies, and the nerve, through which the tooth senses hot and cold. Afterward, the pulp chamber and root canals are filled and sealed to prevent bacteria from entering the tooth and infecting it in the future. Edwards says he performs root canals with the laser on all teeth except the molars, which often have multiple root involvement, requiring a specialist's touch.

"The laser is the future of medicine -- not just dentistry," Edwards say, despite a high cost and varying insurance coverage for patients. "I could never imagine not using it."

#### **Plenty of uses**

Laser technology already reaches across most medical specialties. Cosmetically, it is used to smooth out wrinkles or zap unsightly spider veins and warts, or to reshape the eyes through LASIK procedures to correct and improve vision.

And, in the clinical arena, physicians use lasers to vaporize tissues in enlarged prostates, seal off damaged or leaking blood vessels, break apart kidney stones and, in general, access areas of the body where other technologies are unable to go. Ironically, perhaps, that is one of the

disadvantages singled out by the endodontic association in a two-page position statement commenting on laser use in root canal treatment.

Although several studies have shown lasers reduce the "quantity of micro-organisms" in root canals, the statement noted that laser probes cannot be "curved to follow the natural curvatures of the tooth root" the way existing instruments can.

The association also said temperature rises when laser energy and tissues in the tooth interact, possibly charring the canal space and "damaging it to the point the tooth may be lost."

Dr. Gerald Glickman, chairman of endodontics at Baylor College of Medicine in Dallas and president-elect of the endodontic specialty group, cited the need for more sophisticated research. "Not much has changed since our statement was issued in 2001," he says. "We don't recommend protocols using advanced technology unless there is significant research behind it; there needs to be randomized, prospective clinical trials."

### **Laser's limits**

Edwards readily acknowledged some of the laser's limitations.

For example, lasers can't be used on teeth with fillings in place, as the laser light is unable to cut through metal, or generally fill cavities between teeth. And the technology does not always eliminate the need for anesthesia, although in most cases, it can be greatly reduced, according to Edwards. But the laser he uses, he says, is far cooler than the most commonly used laser in dentistry, the diode laser, and has an attached water irrigant that reduces the temperature risks seen in some other systems.