

## 3-D dentistry Scanner opens options

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By Dale Rodebaugh | *Herald Staff Writer*

Dental patients who can't visualize their problem by viewing two-dimensional X-rays aren't alone. Dentists themselves sometimes can't see all they'd like to from four bitewings and one panoramic image.



Dr. Manuel Pozo-Alonso, a Durango orthodontist, displays three views of a patient's mouth taken by a 3-D scanner he purchased recently. The relatively new technology - as applied to dentistry - improves the ability of dentists to diagnose a problem and fix it.

But new technology that blends X-rays and computers is giving dentistry a third dimension. A scanner that produces three-dimensional images allows dentists to check heretofore out-of-sight areas in the mouth, and make precise measurements for delicate procedures such as placing implants or detect anomalies in the mouth.

"It's 21st century dentistry," said Dr. Manuel Pozo-Alonso, a Durango orthodontist who owns the only 3-D dental scanner in the Four Corners. "It's hard to say how much better 3-D dental imaging is, but it provides tremendous information so we can treat patients better and enhance results."

A 3-D dental scanner also exposes a patient to only 75 percent of the radiation received in a full-mouth series of X-rays, Pozo-Alonso said.

Pozo-Alonso uses an i-CAT scanner made by Imaging Sciences International of Hatfield, Pa. The company was the first on the market with a 3-D scanner for dentistry, but other companies are coming out with models.

A 3-D scanner produces an all-angles view of the mouth, including teeth, gums, tissues, nerves, jaw, sinuses and airways, Pozo-Alonso said. The relative positions of these elements in the mouth can be critical to orthodontists, oral surgeons, periodontists and endodontists, he said.

Dr. Randy Kluender, a pediatric dentist, professor and associate dean at the University of Colorado School of Dentistry, agrees with Pozo-Alonso's assessment of 3-D dental imaging.

"It's an outstanding tool," Kluender said by telephone last week. "The 3-D scanner produces an unbelievable image."

"In X-rays you have a two-dimensional picture, you're looking front to back," Kluender said. "The 3-D scanner gives you depth."

In addition to its usual dental uses, a 3-D scanner can detect fractures, cancer or a foreign object imbedded in the mouth from an accident, Kluender said.

Dr. Brad Potter, a dentist with a specialty in radiology and also a professor at the University of Colorado School of Dentistry, said the 3-D scanner became readily available in 2001. But only recently has its use spread beyond the big city.

Six companies now produce 3-D scanners, which also are used by eye, ear, nose and throat specialists, Potter said.

"The 3-D scanner is wonderful, cutting-edge technology," Potter said.

Every dental professional could use a 3-D scanner, but at \$180,000 each it's not practical, Pozo-Alonso said.

"But it makes sense to have one in the area," Pozo-Alonso said. "I've notified all practitioners in the Four Corners and put my scanner at their service."

Several colleagues have taken him up on his offer. One request came from a general dentist who asked Pozo-Alonso to examine a 7-year-old girl who apparently was missing two permanent teeth.

"I was able, with the scanner, to slice the image into pieces to where I could see the pads," Pozo-Alonso said. "The teeth were there, and I'm sure they will come out."

Dr. Mark Blue, a Durango periodontist who does dental implants, has sent two patients to Pozo-Alonso.

"When we do an implant to replace a missing tooth, we insert a titanium screw into the bone as an anchor for a tooth cap," Blue said. "The length of the screw can be determined by a two-dimensional X-ray, but the diameter is another matter."

The 3-D scanner gives the dentist a precise view of the bone by taking a cross-section image of the jaw.

In residency, dentists had access to 3-D scanners used by medical doctors, Blue said. But a private patient who needs an implant would have to travel to a hospital and pay at least \$500 for such diagnostic service - in addition to the cost of the implant.

"The nice thing about the 3-D dental scanner is that it can be done in a dentist's office," Blue said. "I plan to use it more."

Pozo-Alonso graduated from the University of West Virginia School of Dentistry and did his specialty training at Children's National Medical Center in Washington, D.C. He practiced general dentistry for seven years in the Navy and has been an orthodontist for nine years.

Pozo-Alonso, who learned about Durango from word of mouth, arrived with his family four years ago.

