

# CHAIR SIDE

How much digital technology is necessary for your office? According to David M. Sarver, DMD, MS, who practices in Vestavia Hills, Ala., going digital is not about keeping up with the Joneses, but depends on the most time- and cost-efficient solution for your practice. A lecturer, author, and adjunct professor in the Department of Orthodontics at the University of North Carolina, Sarver presented on the appropriate use of technology in the orthodontic office at the American Association of Orthodontists meeting in Philadelphia in May.



## Digital Technology

with David M. Sarver, DMD, MS

**OP** How do you decide when to computerize your business office?

**Sarver** When orthodontists start their practices, there is sufficient time to fill out insurance forms. However, the man hours required to keep up with accounts quickly leads to considering computerization. Rather than having three employees doing paperwork, typing out letters to people who owe money, or filling out statements, the computer manages the account for you, prints out statements, and then the staff only has to drop them in an envelope to send. Computerization of the business office is generally the first technology that practices buy. Then you follow with digital patient records, treatment charting, pictures, and communication.

**OP** Is it a large time commitment to train staff to use computer technology?

**Sarver** In today's orthodontic offices, that generally does not take very long. When I first computerized my business office in 1983, it was met with great resistance by my staff, but that was a day and age when hardly anybody was computer competent. When we were first going from the appointment book to computer scheduling, they did not trust it. Now, we make on-the-fly changes in technology that my staff accepts quite readily because they are now used to it.

**OP** What technology is essential to today's orthodontic practice?

**Sarver** I think the appropriate use of technology depends on the stage in your practice life. If you are just beginning a practice, to sink \$60,000 into a radiography machine is painful and makes very little sense practically and economically. But for the 10- to 20-year-old practice with a significant volume of patients, digital radiography may offer

significant time savings, improved efficiency, and savings on materials.

For example, before I had computer systems in place, all or most of my records were not digital. The move to digital photography was a virtual no-brainer, since film photography has always been a hassle, and we were beginning to discover the ease of incorporating digital pictures into word processing. The upfront cost of the digital cameras was not too great, they were easily accepted by the staff, and they made that part of the practice run smoother. Before these changes, there was no need to scan X-rays. But once I added communication output with imbedded images, then chairside charting and record retrieval, our radiographic films had to be scanned into the system so that we could incorporate them into our computer technology. We added digital radiography when I calculated that the amount of time that my staff devoted to taking, developing, and scanning radiographs into our computer system would be neutralized and then eliminated by the cost of digital radiography. The doctor/manager has to figure out how many films the practice performs per month multiplied by how long it takes to process them, and the costs of staff time, processing, film, and maintenance.

**OP** How do you feel about digital vs film radiography?

**Sarver** It depends on the individual practice. There are two types of digital radiography—direct and indirect. With indirect, instead of putting film in a cassette and shooting an X-ray, you put a phosphor-coated plate in the cassette and expose that. Rather than processing the film then scanning the image, you simply place the phosphor plate into a drum scanner, which processes the latent image directly

into the computer system. That offers tangible time and labor savings.

Even better, direct digital radiography happens in real time. As you shoot the image, it appears on your computer screen, is then labelled and immediately stored. That is the most direct way, but it is also the most expensive in terms of initial cost. You really have to do the math for your practice to find out if it saves enough time to put in a system of this level.

When talking about digital radiography, I have heard doctors comment, "I don't mind my staff sitting there scanning because we are not busy seeing patients all the time." What would be better? Scanning X-rays, or contacting patients who had a rough appointment yesterday or any other customer service effort, which builds enough business to fill in your dead spots? I would rather free up my staff time to do customer service than what we call "make-work."

Technology allows you to expand your staff into other areas, such as the incorporation of the patient manager system. If you have three staff members tied up 2 hours a day scanning radiographs, then they don't have as much time to spend with patients. I would rather have my staff free to train and get better at chairside, do patient follow-up, and to be free to take a little time off and destress.

**OP** How often do you have to upgrade digital radiography hardware?

**Sarver** Up to 6 months ago, I was still using conventional film radiography. About 10 years ago, I upgraded to an X-ray machine that was capable of being upgraded to digital. I knew I was going to be moving in that direction eventually and decided the base machine would only get more expensive. For doctors who want to go digital but are not quite ready yet, the obvious move is to update to a



machine that will be upgradable, and then you lessen the trauma of the expense by spreading it out over a time period. Of course, the other way to approach it is to go digital now and reap the benefits, or move up to indirect digital radiography before deciding on the ultimate plunge. I did not go digital 10 years ago because I was not sure that digital radiography was technologically there yet. But I was willing to bet on the upgrade. For me, to upgrade was roughly half the cost of buying a new machine.

I am very comfortable with digital radiography, but I am pretty sure it is not for everybody—it is expensive on the front end. However, it has been my experience with technology that once you have it, you wonder how you lived without it.

**OP** *Will digital technology eventually become the main force on the playing field?*

**Sarver** I would say so, but I can't give you a time frame on it. I think it will accelerate—you must go to dental school with a laptop now, and half of the people finishing orthodontics could go to work for IBM, they are so computer literate.

Probably one of the hardest decisions for orthodontists is knowing enough about a certain technology to decide whether it fits for them. An orthodontist might say, "Everybody is going digital, I guess I'd better get a digital X-ray, or I'm not up to date." In reality, there is no arms race out there—it's what works for you. Everybody's practice is different.

**OP** *What do you think about digital models?*

**Sarver** Their biggest advantage is that you do not have to store all that plaster. Its second advantage is retrievability because they are stored in your office on disk, and you can also send virtual models to your technologically-competent colleague. A third advantage is that you can section the models in particular planes and see angulations. You can also overlay and see through them, so you can see occlusal contacts and evaluate arch form and arch coordination issues. These models also lend themselves easily to analysis of tooth-size discrepancies, which most of us don't do routinely because of the huge hassle factor involved. Without question, the further development of this technology will ultimately lead to pretreatment occlusal design through an ability to manipulate the virtual teeth into a setup of the desired final result—a real diagnostic leap that is limited only by the imagination.

I see that digital models are really beginning to have the rubber hit the road. I admit I have been cool to virtual models

because of what I considered the main disadvantage, which is even though digital models are "3-D," they are still displayed on a two-dimensional screen. They do not fulfill that 3-D look and feel of real models. The nagging disadvantage of all 3-D model scanning is there is not yet a way to relate the teeth to the face. Show me a set of models, how the teeth fit, and the great result you achieved, and I must ask the final question, "What does the patient look like?"

**OP** *Is there a way to integrate soft tissue relationships into virtual models?*

**Sarver** That will happen—no question. The direction orthodontics is taking is a very comprehensive approach to how teeth, jaws, and faces all integrate. If an orthodontist held up a set of models and said, "I am going to make your teeth look like this," the patient will likely ask, "What is my smile going to look like?" That is the value of putting soft tissue with the model.

Obviously, the everyday use of 3-D imaging technology is currently out of the financial reach of most, if not all, of us. A \$300,000 machine must be used to produce what we are talking about. I think there will be a point where orthodontists will actually have 3-D capabilities in their offices on an everyday basis, but rather than having the whole enchilada in house, I will have a less expensive machine in my office that performs the 3-D scan, then send the information over the Internet to somebody who owns a big, expensive computer that crunches all that data and sends it back to me in a usable 3-D format.

**OP** *What future advancements are you most excited about?*

**Sarver** Probably most exciting to me is that there is a bit of a technological race going on to produce not what will give a marketing advantage per se, but what produces better care for a patient. And that is really what we are all about. The most attractive technology is what makes us provide better quality care and service for the patient who walks into the orthodontic office. You want the best result you can get, always, but as cost-effectively and efficiently as possible. A lot of the technology, unfortunately, gets lost in the noise of image versus what really makes me a killer orthodontist, somebody who really can produce a great result consistently. I am excited that technology is being applied so that we can do better not only from an efficiency standpoint, but also better visualization of what we are trying to achieve for our patients. □