



Advanced Precision for In-Office 3D Printing

Highlights from our discussion on the cara Print 4.0 with Robert Ritter, DMD



What is the best entry point for the adoption of 3D printing technology in the general dental practice? One option is to acquire a small, fast 3D printer to produce models, surgical guides, and dental appliances. Practitioners do not have to become experts in software or technology to leverage the benefits of a 3D printer. They can allow the laboratory technicians, who are experts at CAD software programs, to design the product, but instead of waiting for them to print and ship it, clinicians receive a digital file transfer that can be used to print the final product in the office at whatever resolution is preferred.

Robert Ritter, DMD, a partner in a private practice in Jupiter, Florida, has been using this workflow with the new cara Print 4.0 from Kulzer. "We've printed some models that came out very well," he told *Inside Dentistry* in his recent Product Talk interview. "I take digital scans and send them to the laboratory to do the diagnostic mock-up.

I don't have the design software myself; I let the technicians do that, because they're much faster at it than I could ever be. Then I just have them send me the files."

The new cara Print 4.0 3D printer was built by dental experts specifically for dental applications. It produces monochrome dental appliances, layer-by-layer, using a high-quality photopolymer. The printer delivers precise fabrications both faster and more economically than other printers on the market.

"It's a very simple system to use, provided that you understand the technology, or that you have your laboratory do a lot of the designing for you," Ritter says. "It's a great point of entry for most general dentists who are not used to using, what at times can be, complicated design software. It's a lot easier to let somebody who does this all day long do the design for you." Although Ritter admits that at some point, more dentists will be using design software themselves, he



notes that "until then, I'm happy with this workflow."

In-office 3D printing has the potential to change a practice's business model. "If I can have the laboratory mock something up for me, I don't need a full-blown diagnostic wax-up anymore," Ritter explains. "The cost differential on just doing a design to be printed,



NOTABLE FEATURES

Most results printed in less than 1 hour

Meets all 3D accuracy requirements

Reduces costs and processing time

User-friendly interface

Simultaneous printing of multiple appliances with no increase in time

Utilizes digital light processing that is faster and more accurate than laser light

Smoother, more homogeneous surfaces

“If a patient breaks a denture, you can automatically print it without having to send it out to a laboratory again.”

without having to wait for it, is going to lower the overall cost of the procedure as well.”

In addition to appliances, Ritter has printed a test of a denture base. “It’s great because you can print the base, and then you can print the teeth,” he says. For Ritter, that’s a great advantage of this system. “I think that there are tremendous upsides to having the ability

to print in your office. If a patient breaks a denture, you can automatically print it without having to send it out to a laboratory again. You have the files; you just have to hit print.”

When Kulzer makes the materials available in the future, Ritter’s next goal is to print a temporary restoration. “What if a patient is having an implant placed and getting a temporary from the laboratory,” he says. “I can print an additional temporary as a backup, in case she breaks the original. It’s a dramatic change in how we work, so it’s good to have a system like the cara Print 4.0—a very simple, easy machine to use.”

BOARD MEMBER BIO

Robert Ritter, DMD, is a partner in a private practice in Jupiter, Florida, and has been speaking nationally and internationally for more than 18 years on topics including dental technology and social media for the dental practice.



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