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Streamline Your Cases with Validated Digital Workflows

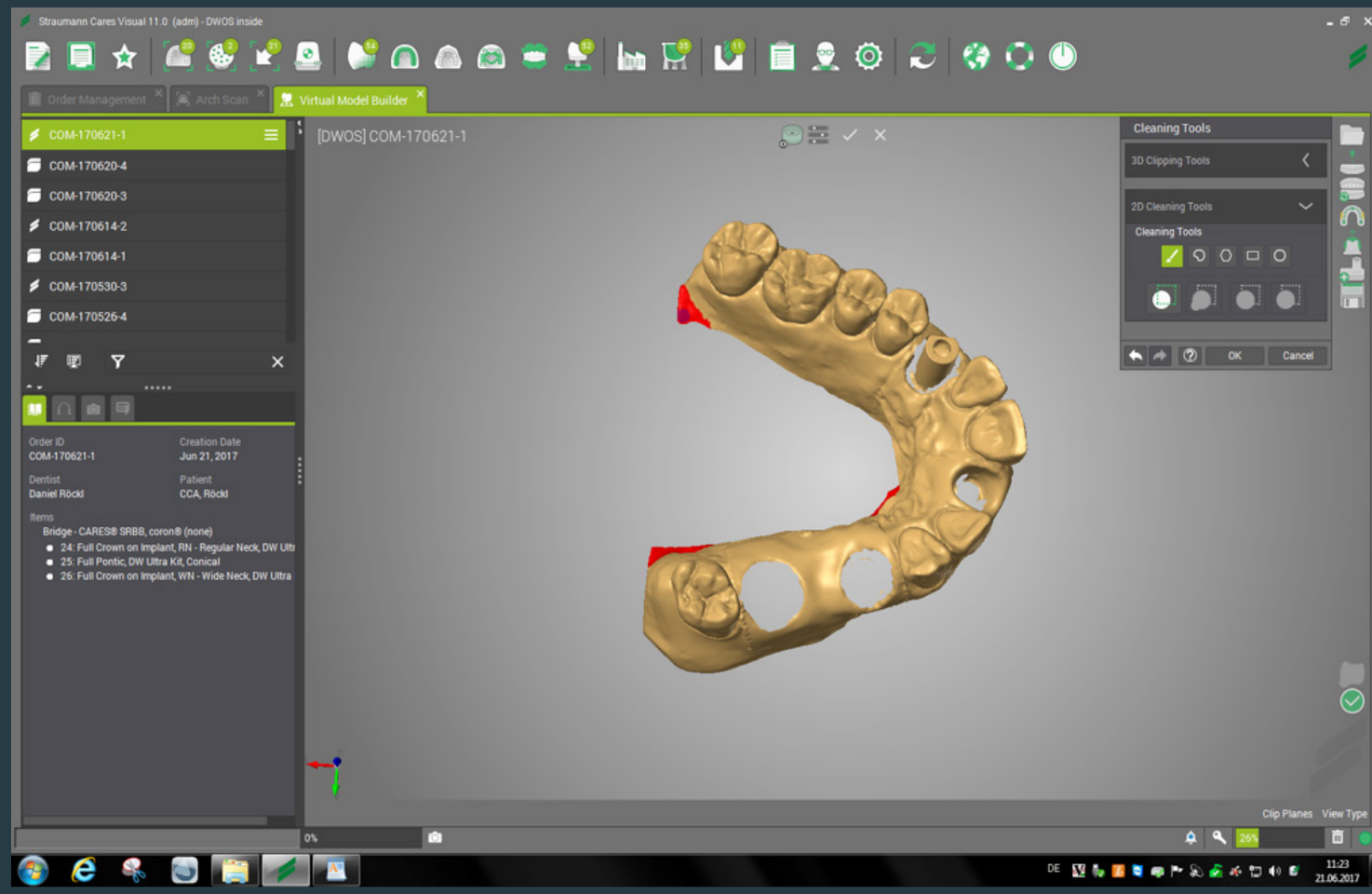
By Scott Silverstein, DDS, MS

CONNECTING Your Systems

A digital workflow streamlines the process of patient care, especially as it relates to implants. Having a full digital workflow completely in-house is more efficient—we can turn around cases and deliver restorations in a more rapid manner. In addition, we've found that the accuracy—between the printing, scanning, and other elements—is an absolute benefit to the patient, not to mention efficiencies for the clinician once everything is working seamlessly.

This practice has been fully digitized for close to 2 years. During that time, we've made changes and added equipment. We've had milling capabilities for about a year, which has been one of the most outstanding aspects—to be able to produce the restorations in-house.

Although speed is important, reliability is critical. Our digital workflow journey hasn't been without issues. Of course there's been a learning curve. Like any technology (whether it's your mobile phone or your laptop), these systems can glitch. Therefore, we prefer systems from companies that are dependable and that have good technical support.



When deciding on solutions, different devices need to communicate reliably with one another. Your intraoral scanner needs to communicate effectively with your laboratory scanner, or wherever else is necessary.

I think the most important aspect of digital dentistry is the integration of the technology between the different devices. Even if you're not incorporating the full workflow in-house, if your intraoral scanner can send files to a laboratory that can then take over the other portions of the workflow, you can still effectively go digital.

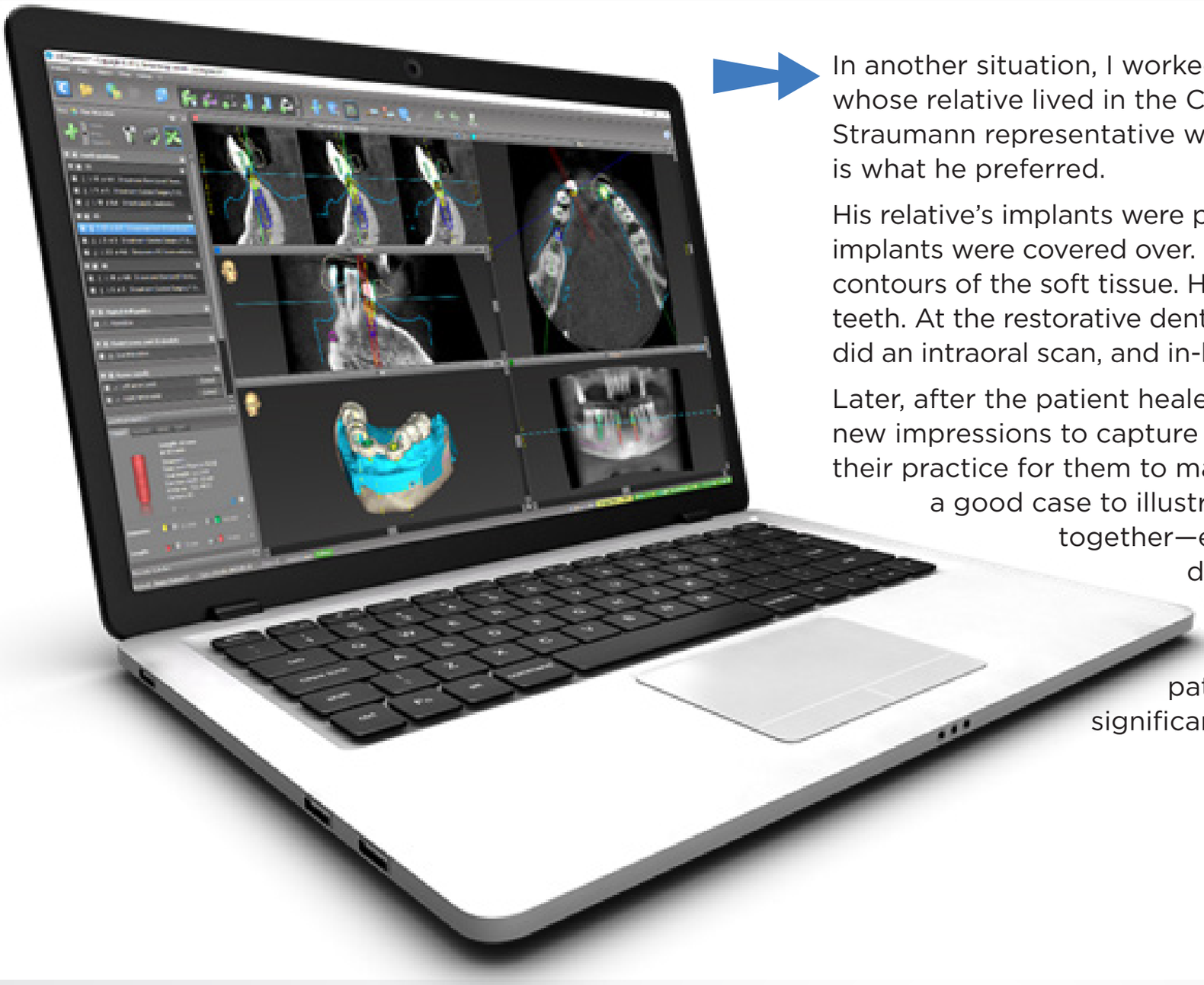
A Working EXAMPLE

When a patient loses a front tooth, it's a major issue. That scenario is a good illustration of how a digital workflow can benefit your practice, when patients have an immediate need. For the sake of discussion, let's say a maxillary anterior tooth, which is obviously an esthetic nightmare for the patient. That's when this technology really shines.

Before digital dentistry, we'd have to take an impression, send it to the laboratory, and wait several days. Now the process is much different. We can make accommodations to see the patient that day, extract the tooth, debride the socket, and place the implant. We immediately place a scan body, which is scanned with our intraoral scanner, capturing the orientation of the implant as well as the soft tissues. We send that scan to our in-house laboratory across the hall. From there, the technician uploads the STL file into the laboratory scanner and designs the tooth, which is then sent to the mill. When the restoration comes out of the mill, the laboratory technician attaches it into a type of titanium collar that goes directly into the implant.

From a practical standpoint, if everything flows well the way we want it to, the time from implant placement to a very esthetic, tissue-forming provisional restoration is approximately an hour or less. That is a huge benefit, and it's a complete paradigm shift from the analog days.

Long-Distance COLLABORATION



In another situation, I worked with a restorative doctor in another state, whose relative lived in the Cincinnati area. We connected when he asked his Straumann representative who in this location practiced digital dentistry, which is what he preferred.

His relative's implants were previously done in a two-stage surgery, and the implants were covered over. In those situations, it takes time to develop the contours of the soft tissue. However, the patient did not want to be without front teeth. At the restorative dentist's request, we uncovered this patient's implants, did an intraoral scan, and in-house fabricated his provisional restoration.

Later, after the patient healed, the restorative dentist requested that we do new impressions to capture the soft tissue. Then we transmitted the scans to their practice for them to make the final restortations. He noted that this was a good case to illustrate remote digital workflow, that we could work together—even though we're a thousand miles apart—to deliver the final product.

From our scans, he'll be able to design and make the final restoration without even seeing the patient for that portion of the treatment. That's a significant benefit for patients everywhere.

The Next Step: 3D PRINTING

With an in-house 3D printer, we have the ability to manufacture surgical guides. When you send these out to a laboratory to design and print, there's a certain cost, depending on the number of implants and the laboratory. We can effectively make a surgical guide at significant cost savings in-house (even with a "quick fee" for exporting the file). This also gives you the ability to turn cases around very quickly.

With the printer that we have, we can see a patient in the morning, scan, design, and in 2 or 3 hours, we are set up to proceed with a fully guided surgery, if I choose to do so. That's the advantage of having the printer in-house.

When selecting a printer, my recommendation is to find a manufacturer that really understand the needs of dentistry and offers the appropriate materials. The resins need to be compatible for dental applications. For surgical guides, you have to have a material that is FDA approved so that you can legally place it in a patient's mouth during the surgical procedure.

Next, you need to look at what your requirements are. In addition to surgical guides, you can do diagnostic casts and models. Some of the lower cost printers are slower, and they are probably slightly less accurate. For the first few years, we were able to work with a low-cost printer. However, if you want to have a more rapid workflow (such as the example that I gave of printing the surgical guide and doing a same day surgery), you would need a system that can print more rapidly. My first printer took approximately 2 hours to print a surgical guide, compared to about 20 or 30 minutes with my newer model.

Finally, a good technical support department is essential to help you through issues that are certain to come up. Also look at the validation of the workflow—make sure that your printer is compatible with whatever software you're using for design work. That's critical.

SYSTEMS That Work for You

I've been in practice for 30 years, with a nondigital workflow for the first 25 years, so I'm comfortable in an analog world. Moving into the digital world is definitely was a leap, but I love the technology.

Start by doing your research. Figure out what is going to be the best solution for you. Also, understanding your purpose for the equipment is important. For example, there are intraoral scanners on the market that aren't as useful for a restorative practice, for selecting shades and so forth. If you're using it for orthodontic applications, some scanners are more appropriate for that type of workflow. Think about what you want to accomplish with the technology, and then decide which devices are going to be the most compatible with what you're trying to achieve.

For the printer, if it's only for the occasional surgical guide, you don't need the high-end model. However, if you're going to be using it for printing models and orthodontic aligners and for other procedures, then perhaps you'll want to invest in a little more robust type of a printer.

If you're incorporating the full workflow in which you're fabricating the restorations in-house, then be careful with the milling unit to make sure that it can manufacture the types of restorations that you want to accomplish.

Again, I can't overemphasize the importance of technology integration. If the best intraoral scanner on the market doesn't produce files that your laboratory can work with, it doesn't matter how great the scan is.

Finally, talk with your laboratory. They have the technology experience. Ask them what they think will work best, based on your practice.

Validated DIGITAL WORKFLOWS

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The CARES 3 (up to 12 copings in 10 minutes) and 7 (up 30 copings in 15 minutes) series scanners ensure high scanning accuracy utilizing the latest generation Blue Laser Illumination system with proven high-precision mechanical and optical components.

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The backbone for digital solutions
The fully integrated, user-friendly CARES Visual software enables the design of a wide range of prosthetic restorations followed by direct transfer into the milling solution of your choice.

Straumann® CARES® M series
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The M series enables wet, wet/dry, and dry-milling in a single system. You can produce an extensive range of restorations with a unique range of materials and indications.

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Materials
Leading material offerings and application range
Straumann® CARES® CAD/CAM offers a unique portfolio of materials to provide patients and the restorative team with an unparalleled range of treatment options.

ABOUT THE AUTHOR

Scott Silverstein, DDS, MS, is a Board Certified Periodontist, Diplomate of the International Congress of Oral Implantologists, and Diplomate of the American Board of Periodontology, who maintains a private practice in Milford, Ohio. He earned his Dental Degree at the University of Texas Dental Branch at Houston, then received specialty training in Periodontics at the University of Kentucky. He devotes much time to continuing education and professional development. As a clinical instructor at the University of Cincinnati AEGD Program (Advanced Education in General Dentistry), Dr. Silverstein mentors newly graduated dentists to increase their knowledge of periodontal and implant procedures. In 2017, Dr. Silverstein launched an elite full-service on-site dental laboratory – Collaborative Dental Laboratory Services. He delivers opportunities to create customizable smiles and restorations and offers support to restorative doctors, as requested.

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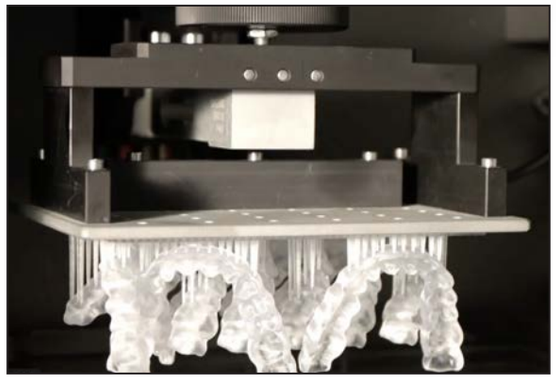
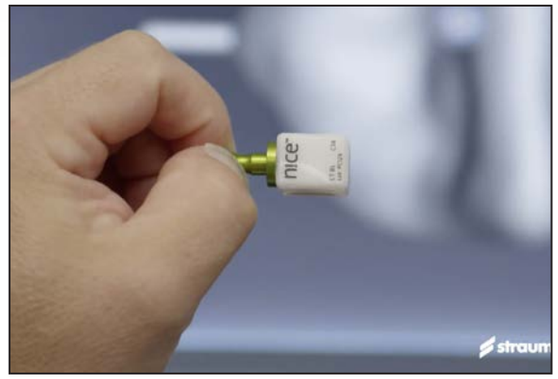
Additional Resources

In-Lab Digital Workflow Journey Video



3D Printing Solutions Video



A Lab Perspective – Working With Straumann® n!ce® Materials