Jim, the last time *Dentaltown Magazine* visited your lab there were a few new technologies you had implemented—primarily CAD/CAM. What has come to fruition since?

**Glidewell:** The past two years have been very exciting. The company has continued to invest time and money in CAD/CAM technology. CAD/CAM restorations now account for a large percent of our business; in our all-ceramic department alone, 65 percent of IPS e.max cases are done using CAD/CAM technology (e.max CAD) and this number will continue to grow.

Dentists have already discovered the precision of contacts, fit and occlusion made possible through computer-aided design and milling processes. I would venture to say that they are as excited about the consistency of CAD/CAM as we are. And for doctors who own a CEREC system, we offer a broader range of CAD/CAM products including full-cast gold, PFM, BruxZir and even bridgework when they send us their digital scan files.

We’ve found that our CAD/CAM-fabricated crowns and bridges require less chairside adjustment, and provide a consistency of quality that meets the standard of care for both dentists and patients. In addition we are pushing model-less restorations, which reduce turnaround time and cost. In fact the price to send a digital scan for a model-less crown is 10 percent off our list price for an IPS e.max or BruxZir crown.

Speaking of BruxZir Solid Zirconia, the concept of a monolithic, solid zirconia restoration has really resonated with our doctors’ desire for a chip-proof crown or bridge, especially for their bruxing and grinding patients. BruxZir offers a high-strength solution that is durable. In a recent study at the...
University of Alabama at Birmingham, BruxZir crowns wore enamel virtually the same as e.max. And while we’ve said again and again that BruxZir is more brawn than beauty, the feedback these full-contour zirconia crowns and bridges have received is very favorable. Patients, when given a choice between BruxZir, a metal occlusal PFM and cast gold, will choose the most lifelike, tooth-colored restoration, which is BruxZir.

What’s more, the precision fit of contacts and occlusion has received praise from doctors too, which is no surprise to us since BruxZir Solid Zirconia restorations are made using 100 percent CAD/CAM technology.

We’ve also introduced our Inclusive line of custom implant abutments. Available in All-Zirconia, Zirconia with Titanium Insert and Titanium, Inclusive Custom Abutments offer high quality for an affordable price. They also offer greater value with all the parts and services included in the price and are available for up to seven of the most popular implant systems in 20 implant platforms.

In 2007, you indicated that CAD/CAM was the future of dentistry. In the time since, how has CAD/CAM changed your lab?

**Glidewell:** It has improved our consistency of fit, contacts and especially occlusion. When we design restorations using CAD technology, we have the ability to dial in the occlusion and contacts to precise measurements. This precision ensures that occlusion will require minimal adjustment and the contacts will snap floss. These benefits added together save the dentist valuable chairtime.

In 2009, more than 45 percent of our entire fixed crown and bridge production was made with some form of either CAD or CAD/CAM. Today, we are seeing fewer returns, adjustments and complaints from our customers. The fact that we are working with more doctors than ever before attests to the quality and consistency CAD/CAM provides.

In which manner has CAD/CAM technology changed the processes in your labs?

**Glidewell:** We’ve gotten even closer to using CAD/CAM as a solution to the “human input” inconsistencies that exist. Dental technicians, invariably, put their subjective judgments into every crown, whereas a CAD/CAM system only interprets its information digitally and repeats it digitally every time. It has a perfect recall, if you will. The technicians produce good crowns one day, then maybe they didn’t feel good the second day – so each technician’s work can even look somewhat different from day to day. Then across the spectrum of technicians that we have here, the up-and-down quality variations are much more noticeable. With a CAD/CAM system, it reproduces the same quality again and again.

How do you determine whether a case gets sent through CAD/CAM or via dental technicians?

**Glidewell:** There are no CAD/CAM cases that get done without technician involvement just yet. CEREC would be the closest to a completely CAD/CAM-fabricated restoration, but currently it still needs some refinement of anatomy, margins, contours and then has to be stained and glazed. If the doctor prescribes it or there are no technical issues, such as no space for ceramic, unclear margins, etc., then we use some version of CAD/CAM.

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How do you standardize the form and morphology of the crowns and how do you control the quality of the restorations?

Glidewell: We started to standardize our crown morphology originally through the use of a dental technology DVD, Common Sense Laboratory Technology for Dental Technicians, which attempts to teach a repeatable morphology. Then we educated our technicians on the use of silicone occlusal molds, pre-made wax patterns and pressable ceramics. Today we work from a digital scan taken from either the mouth or model, design the crown with CAD, and output that directly to CAM for ceramic milling or printing of a wax pattern.

The control of quality with 10 people in a lab is the same as if you have 1,000 in a lab. But a common perception is that a lot of the technicians aren’t as good as the rest, and dentists always seem to want your “best technician” to work on their cases. The truth is we don’t have a group of “best technicians;” rather, each technician is expected to try his or her best, but none will ever realistically attain a repeatable, perfect quality product. However, the more we become involved with CAD/CAM products, the better control you will have on quality. Machines don’t care how they feel in the morning; they just perform their tasks.

Is there still a concern that Glidewell is getting “too big”?

Glidewell: No, we’re not concerned with becoming too big; we are just growing with the needs of the growing dental profession. Although we have a large number of technicians, there may be only three to four technicians that work on an individual case. We also determine through a Peak Performance Profile where each technician excels. They may specialize in zirconia or PFM or posterior or anterior. One of the other advantages of our size is the ability to buy in bulk. We are able to pay less for supplies and materials, and we pass the savings on to our customers.

Where are you investing most of your time and money right now?

Glidewell: People ask me how much of my money I am going to invest in R&D this year, but I don’t see it as my money being invested. I see it as the dentists’ money being invested to improve technology and lower cost, which directly benefits them. We invest heavily in our digital manufacturing, specifically CAD/CAM technology. In fact, we’ve been doing digital manufacturing in one form or another for nearly ten years. We hired an industry-respected 3D specialist to help put the rest of our systems together – to marry the software, the hardware and the application into one workable system. Since then, we’ve continued to add to the research and development team, which has grown to 53 people and comprises scientists, chemists and engineers.

In the first year, we gave the digital manufacturing team a really big research budget – around $1 million. We decided we were going to spend it all on the equipment and systems we needed. We have had breakthrough after breakthrough. We’ve been very, very fast because our specialists do not have to go to a committee looking for approval. We’re not a publicly owned corporation where we have to drain profits. Our commitment to R&D and digital manufacturing has distinguished us, and we’ve grown very, very rapidly.

You’ve also opened up new departments at Glidewell, like implants. When and why did you decide to jump into the implant market? How has it impacted your business?

Glidewell: Our “jump” back into the implant market was spawned by new technology. Before new technology improved predictability and patient outcome, there were too many risks involved in implantology. However, thanks to today’s digital treatment planning technology, cone beam scans and surgical templates, planning the outcome of an individual case is more promising than ever before. We have a great team at the lab that collectively has worked in the dental implant market for many years, and it is their experience that is helping to ensure the success of our implant services at Glidewell Laboratories.

How has customer relations changed/improved over the past few years?

Glidewell: First, we have always had a “live” person answering every call that comes into the lab. We don’t have an answering machine that routes calls to the right department. A dentist’s time is valuable, and we don’t want to waste it. Providing outstanding service is and will always be our top priority. The goal for our customer service team is to be knowledgeable and empowered to make decisions that satisfy the needs of the cus-

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A less than great department, that’s what you will be known for—your weaknesses, not your strengths. Remember, bad news travels far and fast, and good news travels very slowly, if at all! In fact, if I had a weak department today, without a firm conviction that I could improve it tomorrow, I think it would be best to shut it down rather than being known by that department’s reputation.

What are the three most important things you would like to improve (still doing) to get an effective communication between lab and dentist?

**Glidewell:** The future dental lab will use 3D imaging systems to videoconference with dentists in real time with real pictures. This will eliminate mistakes and also give patients a better overall product. Intraoral scanning will eliminate errors and result in a better fitting prosthesis. More accuracy will come from eliminating silicone impression materials and die stones. Plus, good CAM systems will ensure a level of quality that does not vary like that of today’s technicians. It seems as if today, every technician wants to put their own personal style on a restoration—not always with the best outcomes. Some are good, even great; but in the future, the average will be higher. Outcomes will be more predictable. We do not do digital imaging because it does not give an accurate representation of what will realistically work for the patient (unlike a diagnostic wax-up on their own models). The future that I envision would make prosthetic appliances more affordable and bring more patients into good oral health. Today, many patients are locked out of dentistry because of the high costs. As a profession, we must find ways to make dentistry more affordable and accessible.

To learn more about Glidewell Laboratories, please visit www.glidewelldental.com, or call 800-854-7256.