

How to Deliver Crowns to Patients in a Single Visit



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The In-Office Digital Design and Milling System that Makes Single-Visit Dentistry Easy and Economical

The glidewell.io In-Office Solution (Glidewell Dental), introduced in February 2018, is an innovative, totally integrated chairside system for designing and milling single, full-contour BruxZir NOW Solid Zirconia and other industry-leading materials for delivery of prosthetic crowns to patients in a single visit. The system is designed such that if the single-visit scenario is not ideal for certain cases the same software interface can be used to communicate the restoration design to Glidewell Dental for fabrication.

The glidewell.io In-Office Solution simplifies the restoration design process by incorporating a sophisticated type of machine learning technology. This makes it possible for the proprietary software, developed in collaboration with the Generative Adversarial Network at the University of California, Berkeley, to automate the design process by instantly analyzing morphologic data from more than 5 million clinician-approved cases at Glidewell Laboratories and suggesting a design based on preapproved parameters.^{1,2} The operator can choose to accept the computer-generated design or further refine and customize tooth morphology before milling.



The comprehensive glidewell.io system is comprised of the iTero Element scanner (Align Technology, Inc.), fastdesign.io Software, the fastmill.io In-Office Mill, and the optional finalstage.io Ceramic Oven (for use with nonsintered materials) for a seamless, digital work flow. Precisely fitting crowns can be milled from BruxZir NOW Zirconia for immediate delivery in less than 40 minutes. Clinicians can also choose to use CAMouflage NOW for inlays, onlays and full-coverage crowns; Obsidian lithium silicate ceramic milling blocks for full-contour anterior and posterior crowns; or BioTemps NOW provisional blocks if an affordable temporary crown is needed, all of which can be milled in 18 minutes or less.

In this e-book, 3 long-time BruxZir Solid Zirconia users describe their experiences using the glidewell.io system.

BEFORE



AFTER



Providing Single-Visit Dentistry

Cary LaCouture, DDS, is a general dentist who owns 2 restorative dental practices in Colorado—1 in Franktown and the other in Parker. Dr. LaCouture has been practicing for about 30 years and has 3 associates. He became interested in using in-house computer-aided design and computer-aided manufacturing (CAD/CAM) milling around 15 years ago. “I had it in my office for a short time, but it was too cumbersome,” he recalls. “Plus the materials we were processing weren’t what I wanted to use. I’m a long-time BruxZir user because I have so many patients who need really strong posterior restorations. I always said to myself, ‘The day we can mill a zirconia like BruxZir in-house, I’m in.’ I believe we were the first to preorder it at the 2017 Glidewell Dental Symposium in Dallas. We bought our second mill in October 2018.”

Dr. LaCouture’s practices focus on families. “We take care of great families. We have a lot of multigeneration families in our practices where grandma and grandpa, mom and dad, and all the kids are patients. It’s a great mix of long-term patients and a lot of new ones.” Dr. LaCouture explains that among these patients there are many with “harsh bites and traumatic occlusion” and that using BruxZir has changed his practice. “I love it,” he says. “I can restore the mouths of these heavy bruxers and heavy occluders with confidence.”

Jeffrey J. Sprout, DDS, is a general dentist who has been in practice more than 20 years. He owns a large practice in Evergreen, Colorado, that has 42 staff members, including 5 dentists, and provides the full range of general dentistry, as well as implants, endodontics, and Invisalign (Align Technology, Inc.). “We’re kind of a super general practice,” he says. He has been using BruxZir for at least 15 years. He also had been offering same-visit dentistry, using the E4D (Planmeca).



Cary LaCouture, DDS, graduated from Baylor College of Dentistry in Dallas, Texas, in 1985 and practices full time in Franktown and Parker, Colorado. He is an active member of the American Dental Association, and founder of Burning Tree Family Dentistry and Creekside Dental. Dr. LaCouture serves internationally in clinics located in Cambodia, Haiti, Malaysia, Rwanda, and Jamaica. He is committed to and lectures on high-tech health care and practice management. Dr. LaCouture is an avid outdoor photographer, maintains his status as a United States Professional Tennis Association Tennis Professional at Parker Racquet and teaches yoga at CorePower Yoga in Parker. He can be reached at gotgrin@hotmail.com.



Jeffrey J. Sprout, DDS, is a native Coloradan who has been serving Evergreen and the surrounding communities for more than 20 years. An award-winning dentist, Dr. Sprout earned his bachelor of science degree from the University of Colorado and his dental degree from the School of Dentistry at the University of Colorado in 1997. Dr. Sprout has taken hundreds of hours of continuing education and maintains memberships with the American Dental Association, the Academy of General Dentistry, the Colorado Dental Association, and the Metro Denver Dental Society. He loves spending time with his wife and business partner Beverly and their 2 children and enjoys back country skiing, mountain biking, running, and fly fishing. He can be reached at jeff@evergreendentalgroup.com.

Dr. Sprout was an early adopter of glidewell.io as well, with the primary reason being that he could start milling his own BruxZir crowns. Another reason was because it was a simple technology shift for his group—they were already using the iTero Element scanner for Invisalign and restorative cases. “We just ordered our sixth iTero scanner,” Dr. Sprout says. “It works seamlessly with the glidewell.io system. That was a bonus for us. Now we get to use a great material, along with all the other technology we’re already familiar with.”

glidewell.io Restorative Materials

BruxZir NOW:

The only fully sintered zirconia for in-office use. Indicated for posterior crowns demanding maximum strength. Flexural strength: 1,100 megapascals. Mills in less than 40 minutes. Preshaded. Tooth preparations are minimal, similar to full-cast gold. No oven or postmilling processing needed. Conventionally cemented, no bonding. Available in 14 preshaded blocks. Ideal for bruxers; chip resistant.

CAMouflage NOW:

Versatile 80% ceramic-filled nano-hybrid resin composite for permanent and temporary applications. Flexural strength 193 MPa. Indicated for inlays, onlays, single-unit anterior and posterior crowns. Mills in less than 10 minutes. No firing, staining, or glazing necessary. Easy finish, high-gloss retention. Shade remains stable with natural opalescence and fluorescence. Can be amended with direct intraoral composites.

Having a slightly different experience is Thomas Barton, DDS. Dr. Barton started several practices with a partner, sold them to a dental service organization (DSO), opened and sold additional practices, worked with several other DSOs, and now has a general practice affiliated with Heartland Dental in San Antonio, Texas. He too was using an in-house CAD/CAM system for a while before glidewell.io came on the market. “If there’s anybody who likes to be efficient and save not only their time, but their patients’ time, it’s me,” Dr. Barton says. “When somebody walks in with a broken tooth and needs a crown, being able to do it in 1 visit makes me really accepting of that technology.”

BruxZir Solid Zirconia has been Dr. Barton’s preferred posterior material for a long time. When he heard that glidewell.io was designed to work with the iTero scanner and BruxZir NOW milling blocks, Dr. Barton said it was meant to be and got his system in May 2018. “The timing just all came together,” Dr. Barton says. “Now I am the first of more than 900 Heartland offices using the iTero and the glidewell.io system together.”



Thomas Scott Barton, DDS, received his dental degree from the University of Texas Health Science Center at San Antonio, San Antonio, Texas, in 1989. He has also completed advanced education in Straight Wire Orthodontics and dental implantology and is certified in Invisalign. He is a member of the Academy of General Dentistry, Texas Academy of General Dentistry, American Orthodontic Society, and a fellow with the International Congress of Oral Implantologists. Dr. Barton is a stockholder of a Heartland Dental practice located in San Antonio. He enjoys spending time with his wife Terra and their family, as well as playing golf, tennis, and music. He can be reached at (210) 293-0696, TBarton@mydentalmail.com, and WhisperingOaksFamilyDental.com.

How It All Works

The popularity of all-ceramic crowns has increased over recent years because they are more esthetic, conservative, and biocompatible. Patients and clinicians alike prefer the monolithic solid zirconia for posterior restorations because it eliminates metal and porcelain layering, which is subject to wear. “These crowns are so strong,” Dr. Sprout remarks. “I’ve replaced a lot of porcelain-fused-to-metal crowns that chipped in the last 20 years. We just don’t have that problem anymore, which is fantastic.”

BruxZir NOW, exclusive to Glidewell milling systems, is the only fully sintered solid zirconia in the dental market for use with chairside milling systems, which means it is the only chairside zirconia that requires no oven firing. When a BruxZir NOW crown comes out of the mill, it is ready to seat.



**BruxZir
NOW**

Glidewell Dental spent more than 7 years developing the glidewell.io chairside system. Much of the proprietary technology used is the same as found at Glidewell Laboratories. With glidewell.io, clinicians do not have to wonder whether the crown they are milling themselves will be the same quality they are used to getting from Glidewell Laboratories. It is essentially the same software Glidewell uses in-house; it has just been redesigned for use in dental practices, and the milling unit has been condensed down to a machine with a small footprint that is convenient for the dental office.

glidewell.io Restorative Materials (continued)

BioTemps NOW:

Polymethyl methacrylate material designed for chairside milling of affordable anterior and posterior temporary restorations. Helps maintain gingival position. Can be used to preview final results. Opalescence and fluorescence mimic natural teeth. Mills in less than 10 minutes. No oven necessary. Low water sorption. Six shades plus 1 bleaching shade available. Excellent shade stability. Up to 6 months wear time with flexural strength of 50 MPa or greater and excellent abrasion resistance.

Obsidian lithium silicate ceramic milling blocks:

Monolithic glass-ceramic with lifelike translucency similar to natural teeth, ideal for single-unit anterior and posterior restorations. Available in 14 shades, including 2 bleach shades. Indicated for full-coverage crowns, veneers, inlays, onlays, and substructures. Mills in less than 20 minutes. High flexural strength (385 MPa). Resists chipping. Traditionally cemented.

There is a reason why glidewell.io was designed to mimic the equipment in Glidewell's own laboratories. It was done to create a bridge, a direct relationship with Glidewell. The result is that if anyone operating any part of the system has any technical issues or wants help designing a restoration—whether it is during the learning curve period or at any point in the future—they can speak, text, or chat online directly and immediately with a knowledge expert at Glidewell who will walk them through it, offer assistance via remote connection and help them design the crown, or take over and complete it for them.

Many glidewell.io customers are able to build a relationship with a specific member of the technical support team. Glidewell Dental strives to connect clients with the person they have a history with so they are not constantly talking to just anyone.

Step-by-Step Process

As one would expect, chairside scanning and milling processes are pretty standard.

Dr. Sprout's office averages a little more than 300 crowns a month now. "It's a typical tooth preparation. There's no real change there," Dr. Sprout explains. "We scan the prepared tooth, the teeth around it, and the opposing arch, which takes just a couple of minutes. What's great about using the scanner is if there isn't enough clearance in an area you just go back, rescan the prepped tooth, and change it right then. That's really helped eliminate remakes."



BEFORE



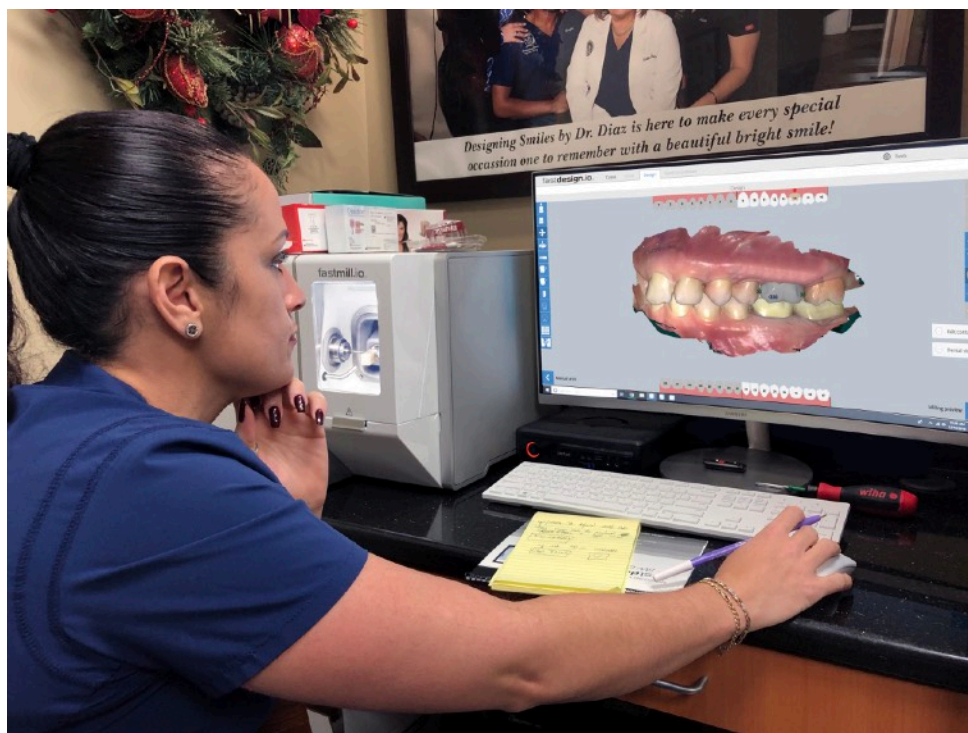
AFTER



Next, he picks the shade and material, depending on the needs of the case. “Then it goes to our full-time lab person,” Dr. Sprout continues. “She marks the margins, and designs the crown. When the design goes into the mill, she indicates what shade to use, and mills it out. If it’s Obsidian she fires it in the oven and custom stains or shades it. But if it’s a BruxZir crown, there’s no firing at all. Once it’s milled, she’ll finish and polish it, and it’s all ready to seat.”

Dr. Barton’s assistants are trained to scan, mill, and design crowns as well. “When I was using a previous system, the auxiliaries basically did everything,” Dr. Barton explains. “After preparing the tooth, the next I saw the patient, I was checking and then cementing the crown. But I actually enjoy doing the design part. Computers can do a lot and usually whatever the design software generates itself is really, really good. Occasionally there are things we dentists know that the computer doesn’t know that we would modify. We might want to smooth this out, bulk that up, or make the contacts tighter. A lot of personal preferences can be set up as defaults. You can always make changes or modify anatomy as you need to.”

Dr. Barton is currently producing about 40 crowns per month and is helping the assistants with further training because as he gets busier he knows he will need them to take over more of the nonclinical aspects of the process. “Because the fastdesign.io Software basically does it itself, if you understand the process, you can just tweak it. The dentist then has to deliver the restoration and make sure it fits precisely,” he says.



Drs. Barton, LaCouture, and Sprout appreciate being able to use such a variety of glidewell.io restorative materials. “You’ve got choices in what you can manufacture chairside,” Dr. Barton explains. “Now I can use my preferred crown material with chairside technology. Because Glidewell Dental makes its own materials, it’s very consistent.”

Dr. LaCouture’s team has milled more than 350 crowns in-house so far. He thinks the process is “super fun” and says that 2 of his clinical assistants are amazing at it. “We all work together as a team. They do 80% of the process. I check the design, the margins, and the occlusion, and we’ll work on the final design together. It takes us only minutes. Our fastest total turnaround time is about 55 to 58 minutes.” Some of Dr. LaCouture’s patients wait in the office, while others prefer to come back later in the day. “We’re flexible, but they know that it will be done in about an hour and that they’ll have it that same day.”



The Learning Curve

If you have not been using digital scanning or software to design and mill crowns, there is a learning curve. “Initially it takes more time and energy to figure out how to use it, but it’s not bad,” Dr. LaCouture says. “It doesn’t matter if you’re young or old. It depends on if you’re willing to make changes in your work flow. It’s really kind of an awesome change, but it’s not something everybody likes. You just have to develop your skill set. Our 2 milling assistants love it. And they’re good at it—they’re minutes ahead of me all the time.

“And yes, it takes more ‘time’ to design and mill the crown in-house,” Dr. LaCouture continues. “Instead of having someone else do it, you’re doing it in house and you think, ‘Well, wait a second!’ But that’s why you get it. Not everybody wants to do that. There are a lot of people who would rather just send the scans into the lab and not mess with it. But with glidewell.io you have a lot more control.”

Having used other chairside milling systems, Dr. Barton admits there was still a little learning curve for him, but that there was less downtime with Glidewell’s support. “The technical and general support that I receive using their products are super,” he says. “If I had a snag with other products, I was stuck. I had to figure it out myself, or temporize, remake, or send it to a lab. I’ve got access to Glidewell during my office hours if I have trouble. One of their lab technicians or an IT person can remote into my computer or my mill and take care of any issues. Glidewell’s response has been superior. I can’t give them enough credit for their support and what they’ve done with their products.”

A dedicated laboratory technician processes all the crowns in Dr. Sprout’s office. “Glidewell has been amazing as far as getting our lab tech up to speed and training her,” he relates. “They are available within a few seconds. All she has to do is call and they’ll remote in and take care of everything. I cannot speak highly enough about them. They’ve been amazing with that.”

Other Advantages of the Technology

Dr. Sprout does not miss temporary crowns at all, and neither do his patients. “By milling our own crowns in the office, we don’t have to do temporaries anymore. That’s an upside. They’re not coming off on the weekends, and doctors don’t have to go in to re-cement them.”

He says they really have had no problems with the system or the materials. “We had a ton of faith because we’ve been using BruxZir for years. It’s not like it’s a new material we’re trying out. And the crowns are conventionally cemented, which saves time. Bonding crowns takes longer. It’s another whole process to do.”

Dr. Sprout's laboratory technician worked with him for over 20 years as an assistant but was a technician before that. "For her, this has been a great transition," he says. "She runs her own lab and is in charge of milling and designing all day. She couldn't be happier.

"The whole process is pretty easy and seamless. We've got it down now to where it's very predictable and the results are fantastic. The patients love the process and the results," Dr. Sprout continues. "And they just love the single visit."

The fastdesign.io software gives clinicians and in-house laboratory technicians a choice when it comes to fabrication. They can design and mill in the office, send the digital impression and prescription to Glidewell Dental, or plan for a hybrid of the 2 processes. If a case has to be sent to the laboratory, a BioTemps provisional crown can be milled in less than 10 minutes with the fastmill.io In-Office Mill.

Dr. LaCouture says both the materials and process are user- and patient-friendly. "We use it with confidence, and we have restored some crazy worn dentition. We almost always use BruxZir NOW for posteriors," he says. "It doesn't wear down the other teeth. Another thing is that it's very tissue friendly. I place a lot of margins subgingivally. I wasn't anticipating it, but I found that in cases of severe erosion on the lingual or severe erosion or abfractions on the buccal, that as I place these margins and cover the teeth the tissue is very happy, it's nice and pink."

Dr. LaCouture is also very happy with the esthetics of BruxZir. "I'd give it a 10. I haven't noticed anything that concerns me esthetically. If I do a good job with the color match—I try real hard, but I'm not perfect—it's exactly how we placed it no matter how long ago we placed it."

BEFORE



AFTER



The patient did not like old composite restorations and enamel defects on teeth nos. 7 through 10. Obsidian Shade A1 3/4 veneers were delivered in same-day treatment appointment.

Photos courtesy of Dr. Thomas Barton.

Dr. Barton appreciates the strength of the BruxZir NOW crowns he is milling. “That’s what most dentists prefer, from a posterior wear standpoint,” he says. “The hardness is equivalent to gold and porcelain, and the material is superior.” He likes the fact that in many cases the shade choices are just fine, and in others he can customize them if he wishes. “Many dentists like bread and butter, and then there are dentists who like a lot of detail. BruxZir crowns go either way. You can make and deliver a crown with the existing products. With Obsidian, you can put a glaze on it so you get a nice luster and lifelike result. You can customize it with shading or add striations. That takes a little bit more experience. Not every dentist has the desire or the skills to do that.”

Regardless, he says, “The patients love same-day dentistry. It’s a big seller, and it’s become a big referral base. I have patients who appoint specifically for that reason. We are a world of instant gratification now. Nobody wants to go back and do the same thing again. By far, this is one of the biggest assets in my practice.”

Continuous Training

It’s true that it takes years of training and experience for a laboratory technician to master the expertise needed to create prosthetic crowns that look, feel, and function like natural teeth. Customizing crowns is a detailed, laborious process, even when using CAD software. However, fastdesign.io takes the mystery and the labor-intensiveness out of the equation with an algorithm that automates the software’s ability to design crowns using “generative models.” Artificial intelligence and machine learning technology enable the software to analyze data from literally millions of past clinician-approved cases completed at Glidewell Laboratories and to propose a design based on those parameters and the owner’s programmed-in personal preferences.¹

BEFORE



AFTER



On the human side, Glidewell Dental offers continuing education courses in various locations throughout North America to clinicians interested in the glidewell.io system. Participants get an in-depth demonstration and hands-on experience in using an iTero Element intraoral scanner, designing a CAMouflage NOW crown with fastdesign.io, and watching it being milled in the fastmill.io.

According to the American College of Prosthodontists, single crown replacement is the most common restorative dental procedure.

Source: American College of Prosthodontics. Facts and figures: procedures. Available at: <https://www.gtoapro.org/facts-figures/>. Accessed February 5, 2019.

Glidewell Dental receives a lot of positive feedback from dentists who go through the training process and experience for themselves how easy it is to use the system. When a practice purchases the system, an installation team spends a full day setting up the equipment onsite at the office, thoroughly demonstrating again how to design and mill crowns. The installation team actually helps the clinician deliver a single-visit crown to a patient and remains available from then on to assist the practice in any way they can.

The Bottom Line

The glidewell.io system is economical, averaging a fraction of the cost of other systems. In addition, Glidewell Dental offers a financing program. Since the launch of glidewell.io, Glidewell Dental has been able to document within their customer base that owners are receiving a return on investment within the first 3 months.

Initially, users average about 20 crowns a month, and by the fourth or fifth month, they are usually up to about 40 restorations. That alone is putting money back in their pockets in savings on materials, time, laboratory costs, and shipping.

Likelihood of Dentists Recommending Single-Unit Crowns

Dentists belonging to The National Dental Practice-Based Research Network were surveyed about frequency of recommending single-unit crowns to patients. They reported being likely to do so if teeth were fractured, cracked, or had root canals (especially posterior teeth) or a broken restoration. There was substantial variation in offering crowns as a treatment option, and it was noted that practice owners—particularly those in the Southwest—practitioners with a balanced work load, and those who used digital scanners were more likely to do so. Other factors included amount of caries present, change in vertical dimension, esthetics, busyness of the practice, and whether patients had insurance.

Crowns were more frequently recommended by owners of private practices and by practitioners with in-office milling units (compared with dentists using commercial laboratories or an in-office laboratory). The in-office milling association may have been due to the increased efficiency of the protocol (same-day delivery), as well as personal preference and enjoying the process. It was noted that the study had certain limitations and choosing a type of treatment is influenced by complex factors.

Source: McCracken M, Louis DR, Litaker MS, et al.; The National Dental Practice-Based Research Network Collaborative Group. Treatment recommendations for single-unit crowns: findings from The National Dental Practice-Based Research Network. JADA. 2016;147(11): 882-890.

Dr. Sprout says, “Like anything in dentistry, the technology is not cheap. There’s a lot of capital expense involved. I’ve got a cone beam and 6 iTero scanners. We bought 1 fastmill.io unit and then a second one in just a few months once we realized how convenient it was. Now we’re thinking we may need a third. It’s been a great investment from our standpoint and that mill will definitely pay for itself.”

Dr. LaCouture agrees and says the ROI is also realized in the benefits for patients. “The ROI is a patient who thanks you profusely for not using all that stuff in their mouth. Eight times out of 10 when a patient finds out they can have their crown replaced the same day they insist upon it. They love it, and they tell everybody else about it. The era in which we live is all about convenience. It’s all about effectiveness and efficiency. We’re in a time where we can do it. Really, the barriers are with people—not with technology.

“I think, too, that it makes the dental team more responsible for patient care,” Dr. LaCouture continues. “We get to design the crown and see them again the same day. There are dentists who probably don’t want to see the same patient twice in a day, even if it’s just for an hour. They want to be seeing someone else. That’s good for the doctor, but what’s best for the patient? The best for the patient is to not have to be in a provisional. They want to get their tooth and move on with their life, to be eating and talking, and all that stuff.”

BEFORE



AFTER



Before and after images show a BruxZir single-visit case. Photos courtesy of Dr. Cary LaCouture.

A 3-Year Comparison of Laboratory Versus In-House Milling Costs

By Thomas Barton, DDS

In 2016, with no in-office milling technology, my average number of single crowns per month was 24. Total 2016 laboratory expenses were \$80,284, including single crowns, bridges, veneers, and removable dentures. That represented 5.73% of total expenses for the year (including salaries, rent, and supplies).

In May/June 2017, I began using CEREC technology (Dentsply Sirona) for same-appointment single crowns. I averaged 25 single units per month in 2017. Total laboratory expenses were \$38,420, which was 2.79% of total expenses. This was a more than 50% savings in laboratory costs and an overall increase in production from the previous year.

I started using the iTero Element scanner (Align Technology, Inc.) in 2018 and the glidewell.io system that May. Average number of single crown units was 28 per month. Total 2018 laboratory expenses were \$43,212. This was 2.7% of our overall expenses with an increase in production over the previous year and working fewer days overall.

Generally, I work out of 3 chairs. My chair time production is worth \$375 per chair. Some dentists may produce more, some less, but that is my statistical production rate. We usually allow a 30-minute block of time to reappoint a patient for a traditional crown seating (not made in 1 visit). Because the billing of the crown has generally already occurred, time in the chair for delivery is \$0.00.

Doing single-visit crowns saves us virtually \$187.50 in chair time. We are also saving patients valuable time. We do not have to make an impression and send it to a laboratory for production, which may take 2 to 3 weeks. The patient does not have to struggle with a temporary that may be uncomfortable or even fall off.

In summary, preparing and producing simple crowns in a single visit has reduced my actual laboratory costs per year by more than 50% and saves an additional \$4,687.50 per month by not having to reappoint crown-delivery chair time (\$187.50 x 25 crowns average). Patient satisfaction and referrals are high. While we now purchase milling blocks (BruxZir NOW and Obsidian), our overall supply costs are remaining neutral or are going slightly down.

Conclusion

The glidewell.io system is off to a great start. In the past year, it has been shown to offer multiple solutions to a variety of challenges dentists face every day. It brings an integrated digital work flow together with intraoral scanning, CAD/CAM, and artificial intelligence that garners the expertise of real dentists' cases as well as Glidewell Dental's knowledge and experience on the laboratory side. The whole system was developed to focus on usability, interactivity with technical support, economics, esthetics, and patient satisfaction. These qualities make the glidewell.io In-Office Solution an ecosystem that is perhaps the simplest way to offer same-appointment crowns. Its precision and simplicity make the glidewell.io In-Office Solution an ideal way for more dental professionals to begin experiencing the power of digital dentistry.

Dr. LaCouture says of this approach to single-visit dentistry, "It may still be new right now, but in the near future, it's going to be the norm."

Visit glidewell.io for more information

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IN-OFFICE SOLUTION

And sign up for 8 CE credits with —
Introduction to Same-Appointment Dentistry
with CAD/CAM Technology: Hands-On
Course

References

1. Hwang J-J, Azernikov S, Efros AA, Yu SX. Learning beyond human expertise with generative models for dental restorations. Available at: <https://arxiv.org/abs/1804.00064>
2. Producing 250 crowns in-office per month: a glidewell.ioTM Practice Report. *Chairside Magazine*. 2018; 13(2). Available at: <https://glidewelldental.com/education/chairside-dental-magazine/volume-13-issue-2/producing-crowns-in-office>.

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