



Florida's Outlook On the Dental Laboratory Profession

1st Quarter 2020

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# focus

## CLEAR ALIGNERS



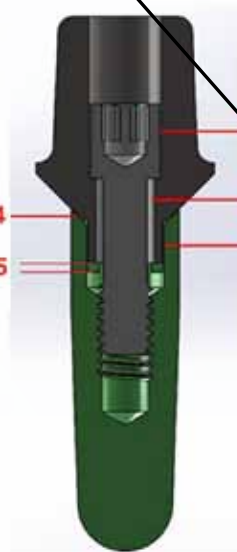
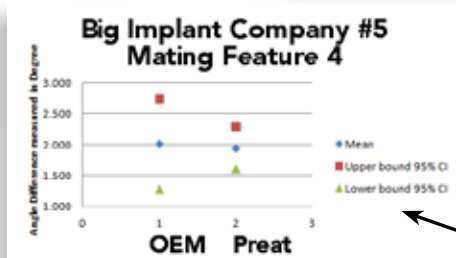
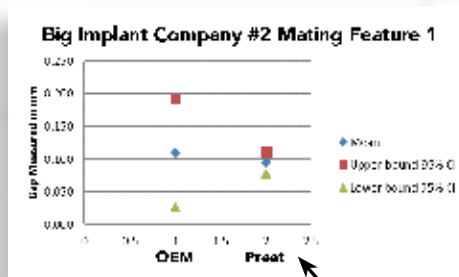
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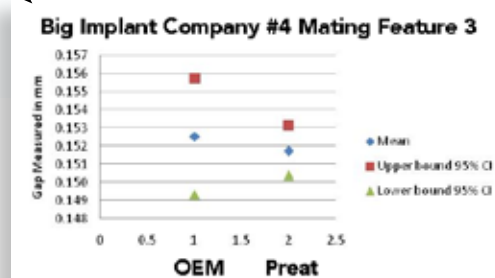
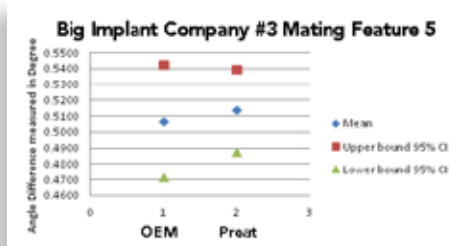
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# A Time For Reevaluation

I hope everybody had a great start to the new year. A new year means a new start, a reset, new opportunities and maybe the chance to rethink our own business to set higher goals or change plans.

Whether you are a technician, small business owner or manage a big operation, we all should take a final look back at the closed year to learn what was good and what might need some help. The beginning of a new year is the best time to change if a change is needed.

If I look back on the past year, I realized we had an amazing year in new directions in dentistry. Starting with AI (Artificial Intelligence) in dentistry, which will take over in a few years, up to direct online marketing of the aligner market.

We see that our lawmakers are getting more and more involved in regulating the dental market. For example, direct patient marketing is experiencing a hard stop in some areas of California. Even though lawmakers and associations are looking into more control over it, in my opinion, it is not going to stop.

I am very excited to see where we are heading in 2020. The Midwinter Meeting and LabDay in Chicago are very close and will show direction for the year and for the future. We are even seeing all-digital workflows and equipment getting more of a push. Also, I think there is still a need for human beings giving restorations the final natural touch.

Besides the meetings in Chicago through February, we are very busy preparing our Southern States Symposium & Expo. Looking at the speaker line up and hands-on courses, I can't wait to see everybody in Orlando to have a great time and experience fantastic education.



Alexander Wünsche, CDT, ZT  
President, Florida Dental Laboratory Association

*I think there is still a need for human beings giving restorations the final natural touch.*

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## focus

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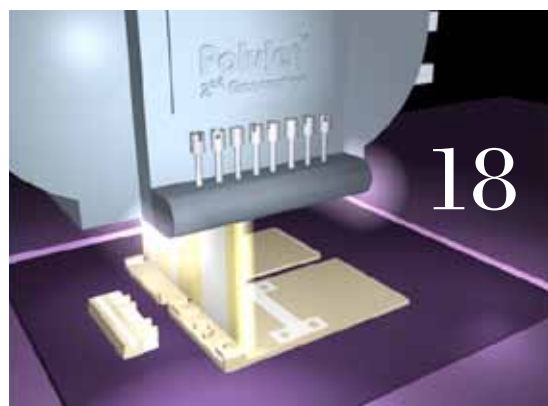
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By Travis Zick

# MANAGING FOR *Profitability*

**T**here's no question that today's dental lab operates much differently than it did just a few years ago. Price pressures and increased competition have forced a reduction in the average selling price of our fixed work. At the same time, our cost of production has decreased with the influx of innovative technology and materials we have to work with. The net result for labs that operate efficiently is a higher margin and increased profits despite the lower price points.

*There are key performance indicators (KPI) that we need to monitor.*

According to the NADL's 2019 Business Management Survey, the average profit percentage for labs across the country was higher in 2019 than it was for the prior three years. Whereas, historically, net profit in dental labs averaged around 10 percent to 12 percent. In 2019, nearly half of the survey respondents said they expected a net profit of 16 percent or higher.

However, it's imperative in today's world that labs effectively track and monitor their performance continually as we have less room for error. Daily, weekly, monthly and annually, there are key performance indicators (KPI) that we need to

monitor. A KPI is a small piece of information focusing on a key aspect of the business that must be in line for the company to be successful. At the same time, we need something to compare the KPI with to judge whether it's good or bad, which is our benchmark. A number by itself tells us nothing, but when we compare it to our benchmark, it tells us a story and typically leads to questions. Your benchmarks can come from numerous places including industry averages, lab groups or alliances, where information is shared openly, personal historical data, or simply, the goals/budgets set by your lab.

The most important KPI affecting profitability in dental labs, and manufacturing in general, is the gross margin. How much do you make from every \$1 of sales after you pay the costs to make your product? Without question, the two biggest production expenses we have in our labs, and consequently, the drivers of gross margin, are direct labor and materials. These two categories account for more than half of our total cost of operation and traditionally run around 60 percent of sales. They are also variable costs that must be controlled and kept in line when business is slow and when the lab is busy. A down month in revenue doesn't have to equate to an unprofitable month if labor and materials are kept in check. At the same time, during a busy stretch, they must be monitored for over-usage. Overtime and wasted materials will quickly eat away at profits regardless of the amount of revenue being generated.

Direct labor costs include anyone who is actively involved in making the products in the laboratory. This includes all our technicians, model people, and technical management. Our office staff, drivers, maintenance staff, sales people, and other administrative staff are indirect labor and are not included. Direct labor as a percent of sales will vary depending on the product mix in the lab. A fixed-only lab, or a lab that does a lot of implant work, should have a much lower direct labor percentage than a removable lab. However, in general, our direct labor as a percent of sales is significantly lower in today's digital laboratory than it was in a traditional lab setting. Our increased use of technology, equipment and monolithic materials means far less hands-on time. Whereas a traditional full-service lab may have had direct labor approaching 40 percent, today's labs see that number in the low 30s or less.

On the flip side, material costs as a percent of sales have increased in the digital age. This is due to the price pressure on monolithic units, the rise in implant demand, and the loss of recapturing excess materials. Thanks to alloy refining, we used to be able to recoup some of our material cost when we had miscasts, remakes, or just excess material that was ground off and captured. Unfortunately, with ceramic materials, that is not the case. Even though we use a very low percentage of the material in a zirconia puck, there is nothing we can do with the so-called extra material except throw it in the garbage. In addition, external remakes, aborted mill or print

cycles and the biggest killer, internal remakes, are all cash down the drain. I've found that most labs don't track or know what their internal remake percentages are, which is often the biggest waste of materials if it is not monitored. So, whereas direct labor has been reduced by around 25 percent in the digital age, our material costs overall have increased. The traditional full-service lab goal for materials was roughly 20 percent, but many labs today are seeing that number rise into the low to mid-20s. Material costs are a great indicator of production, efficiency and results. If your material costs seem out of line, it could be an indicator of high internal remakes or simply wasted materials.

In my role overseeing merger and acquisition activity and performing diligence on acquisition candidates for Apex Dental Laboratory Group, I review financials on numerous labs each year. When I first begin looking at a lab, I generally start with four KPI's that give me a snapshot of the lab and generate questions about how the lab operates. The first is EBITDA (Net Profit + Interest Expense + Income Taxes + Depreciation + Amortization). If the EBITDA deviates significantly from industry averages, the other three will typically offer clues as to why. Labor and material costs are viewed separately to see if there is a large deviation in either that is throwing off the gross margin. Finally, revenue per technician also offers some insight into the efficiency of the operation. Revenue per tech (total sales divided by the total number of direct employees) gives a window into

*Our increased use of technology, equipment and monolithic materials means far less hands-on time.*





*It is more important than ever to spend time working on the business rather than in the business.*

the efficiency and the mix of sales in the lab. A lab that has a high percentage of fixed or implant work will generally have a much higher revenue per tech than a removable lab. Deviations from the norm in any of these KPIs will generate questions about the operation. Is pricing where it should be? Are they paying too much for their materials and supplies? How is the overall staffing level? What are the external and internal remake percentages? If EBITDA is higher or lower than the norm, but the gross margin is in line that means overhead is either high or low. Are they paying too much for rent? What is their marketing spend? Finally, are they top-heavy with administrative salaries? All these questions come from looking at four small numbers on the lab's financial statements.

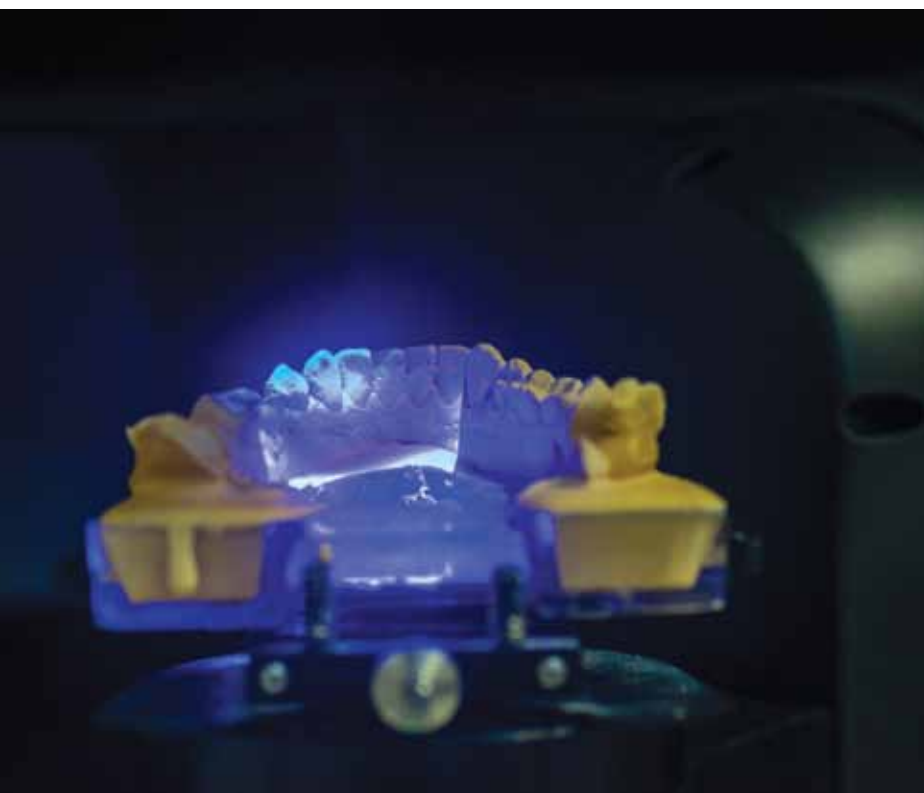
While profit, labor, materials and revenue per technician are important to level KPIs, there are many more that should be tracked daily, which will all impact those four. On a daily basis, incoming unit volume, outgoing unit volume and daily sales are tracked. The lab should set benchmarks for all three KPIs based on the amounts needed to hit or exceed your annual budget. Labor is also watched daily compared to unit volumes and sales. If outgoing units are low, labor is adjusted to maintain profitability. On a weekly or bi-weekly basis, total labor is checked against average daily

sales. Internal remakes are reviewed and production by a technician is checked (although this should be done daily by your lab management software). On a monthly basis, we review average daily sales vs. budget, total sales by department vs. the prior year, net profit and gross profit vs. our internal goals, up/down activity by account and remake reports. All of these are KPIs that will have an impact on the overall success and profitability of your business if they're out of line. They should be monitored regularly and compared to benchmarks. Finally, when establishing your benchmarks, remember they must be realistic and repeatable.

Dental laboratories today are truly manufacturing facilities, and we must manage them as such. Every step in the process affects the final outcome and affects the bottom line. As owners and managers, it is extremely important to define and measure your KPIs to keep the lab running efficiently and profitably. It is more important than ever to spend time working on the business rather than in the business. As surveys show, there is more profit to be made than there has been in years. We just have to work smarter and more efficiently to realize it. 📌

## About the Author:

Travis Zick is vice president and chief operating officer of Apex Dental Laboratory Group, a multi-laboratory holding company based out of Eau Claire, Wis., with 13 labs in seven states. For Apex, he oversees all merger and acquisition activity, including diligence, structure, and integration. After earning his finance degree from Winona State University, Zick worked as a financial analyst and commercial banker before becoming involved in the lab business. In 2015, he founded Apex Dental Laboratory Group with his partners, which has grown from four labs to 13 in four years. He has served as a transition consultant for lab owners looking to prepare their business for succession, and he has spoken and written several articles on the topic. He has also served on several national committees, and he was the 2019 NADL president.







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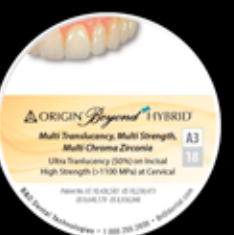
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US 9,649,179 US 9,668,837 US 8,936,848

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By Jamie Seabolt

# CLEAR ALIGNERS

What to Know and  
WHAT'S IN IT FOR YOU



## IT'S NO SURPRISE THAT CLEAR ALIGNERS ARE DOMINATING THE DENTAL INDUSTRY.

With the rise of Smile Direct Club and Invisalign's marketing campaigns, the world is well informed that they have more options than metal braces and retainers. I've spent the first 10 years of my 20-year dental career working in-office chairside and in-office lab. Many of those hours were with clear aligner therapy—before the rise of Invisalign.

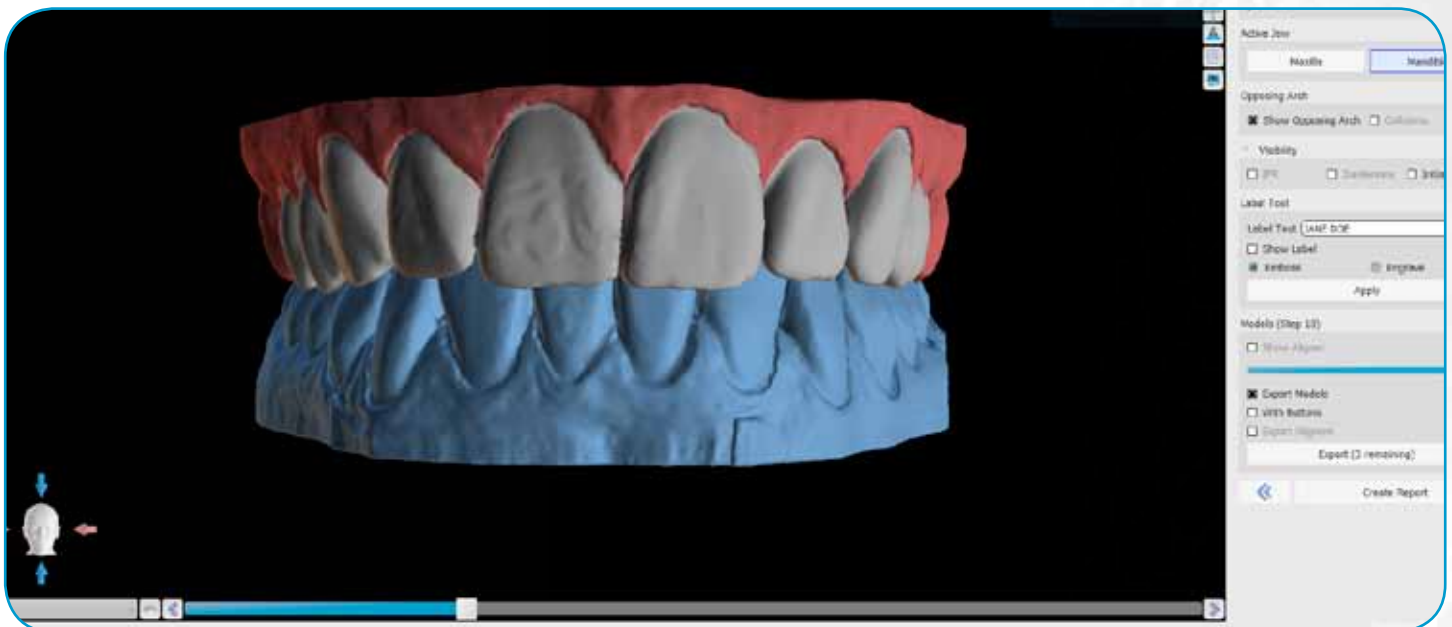
In those days, it was Raintree Essix, a system developed by orthodontist, Dr. Jack Sheridan. He developed the Essix Aligner Therapy. (Interestingly, Essix is an acronym for S-six or Sheridan's Simple System for Stabilizing the Social Six.) It's a common term we still use today. This system involved the movement of teeth by force and block-out methods, along with individual resets on stone models. While the trays were not as sleek fitting as the product rolling out today, the results were similarly predictable. Many assume clear aligners originated with the launch of Align Tech back in 1998, but the idea and technology have been in existence as far back as 1946 when Dr. Harold Kesling created the Tooth Positioner from molded plastic. Even now we are beginning to see these positioners branded and remarketed in use for myofunctional therapy.

According to MarketWatch and Forbes, the projected growth for clear aligners is more than \$1.5 billion in the next five to six years. This tremendous anticipated growth has us all asking if we want to provide this service for our dentist clients. With orthodontists and general dentists hopping aboard the clear aligner profit train, I am positive your lab has been asked if it's a service you offer. The average general dentist surveyed said they are asked, on average, four times per



day if they offer clear aligner therapy. Of the orthodontists surveyed, all of them use clear aligner therapy for at least 40 percent of their patients' treatment. A few orthodontist providers surveyed use clear aligner therapy for 80 percent of their patients' treatment. It's pretty clear that it's quickly becoming the new standard of care.

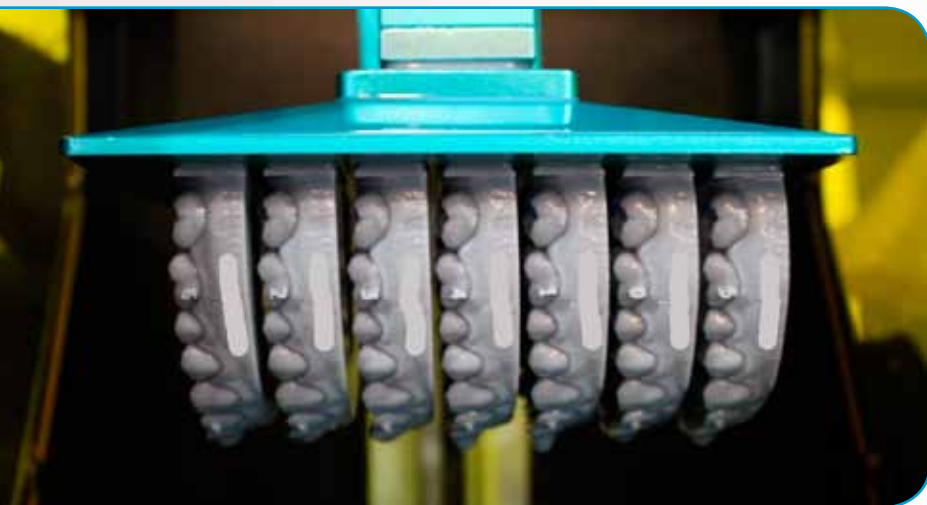
*It's quickly becoming the new standard of care.*





*The projected growth for clear aligners is more than \$1.5 billion in the next five to six years.*

Before a laboratory begins embarking on this adventure, you have to consider that fabrication of clear aligners is more than just a tray to move a tooth, as they were in years past. Many factors must be considered, especially with the complex treatment plans being accomplished with the clear aligners today. Knowing how much a tooth is able to move per set up, at what degree rotation is possible, how much torque, tip, and force can this tooth handle considering its foundation and root length. Many things come into play when forcing a root through bone and creating trauma in the oral cavity. And what happens when the tooth doesn't move as it should? Not having clear expectations and collaboration can spell trouble. It is essential to know the risks and challenges before stepping into offering a new service.



## THINGS TO CONSIDER

You need an in-depth training course. There's a baseline of education that each CAD tech needs to know. While there are great courses available, a tech would still need the basics of occlusal function and smile design to understand any course's fundamentals. The Dawson Academy, Pankey Institute or Spear Education courses would be of great benefit as well.

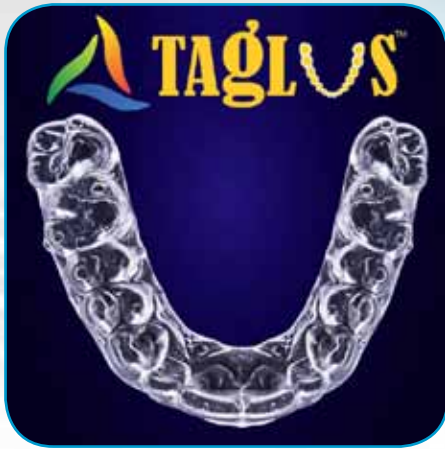
Providers should be approving each of their cases and reviewing the setups before they go to the printer for fabrication. A close collaboration with a design technician and doctor is paramount. This means the provider needs to be able to access the case on the software platform you are using and understand how it works. On many software platforms, this includes clicking through each step of alignment, ensuring that each step is possible within scope, and addressing any concerns.

## IPR AND ALIGNER GEOMETRIES

Clear aligner therapy is better achieved with additional orthodontic techniques. Removing areas of interproximal enamel and the addition of attachments, buttons, bite ramps, power ridges, and elastics are becoming increasingly necessary to provide better control of tooth movement and improved predictable outcomes. Knowing how, when and where to place and use of these techniques is key to successful outcomes. While the doctor should be recommending placement and type of attachment, this isn't always the case.

Teeth don't always track at the algorithm intended. Whether this is due to patient compliance or bone density, sometimes things need to work at a slower pace. Patients heal from injury at different tolerances, as do teeth move/tip/torque and different levels of speed and accuracy. As a matter of fact, of the orthodontists surveyed for this article, their number one frustration was predictability. While there is some challenging movement with all orthodontics, the more difficult movements to express are lateral root torque and intrusion/extrusion.

Don't be afraid to turn down a case. It's bound to happen. You will get a case that comes in for evaluation, but is not within the scope of clear aligner treatment. Whether it be obvious perio involvement, a case with existing root resorption, or the arch that may need pre-aligner therapy due



to extreme crowding. Saying no is okay. We have a traffic light system in our lab. There are green light cases (easy), yellow light (moderate) and red light (difficult). All cases fall into one of the three categories. If it's a red light case, we may suggest a pre-aligner therapy before we can begin aligners, or the case may need traditional braces, or at least start with traditional braces, for a successful outcome.

## GETTING STARTED WITH THE PROCESS

**SOFTWARE:** There are endless software options for the design of setups for clear aligners, and new software platforms are coming out each month. Whatever software you choose, it's wise to make sure your doctors are familiar with it and know how to use it as well.

**PRINTERS:** We all know there are a plethora of printers on the market. Use what works for you. For clear aligners, you'll want something with speed and accuracy, as you could be printing a lot of horseshoe models in a day. In our lab, we choose to use AnyCubic Photon's because we are able to turn them quickly, maintain them efficiently, and manually calibrate in a short amount of time. Since we have quite a few, if one needs service, we aren't impacted too much. If we only had one or two large or expensive printers go down, our entire day or week could be in jeopardy.

**PRESSURE FORMING:** If you are serious about fabricating clear aligners, the one area you don't skimp on is the pressure-forming machine. Schieff's Bio-Star is the workhorse you want on your team. I have tried them all, including it's smaller version the Mini-Star. The Bio-Star wins every time. The forming pressure (up to 70psi) provides the ability to grip and generate the necessary forces over the

attachments and tooth anatomy. Lower pressure, or vacuum machines, do not provide this with as much accuracy.

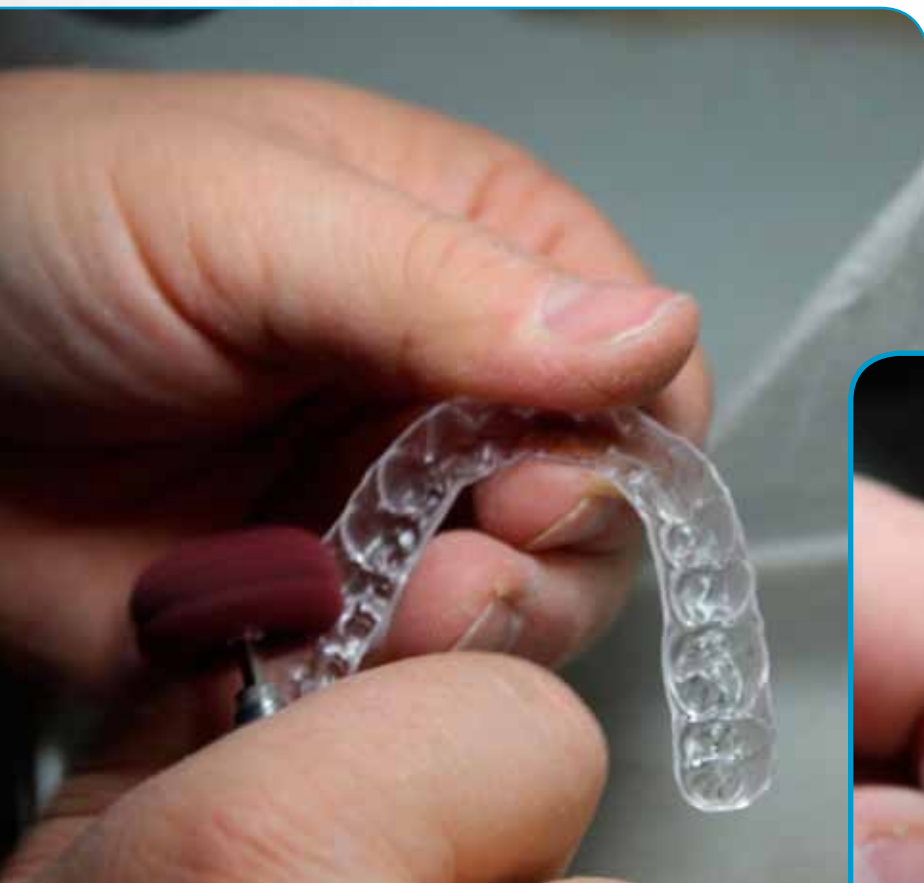
**MATERIALS:** At our lab, we prefer Essix Ace .35 or Taglus. The Essix Ace is a long-time standard and both Ace and Taglus are FDA approved. Taglus also has an attachment tray material available. If you have a case with multiple attachments or crowding, you will want a more flexible material such as Taglus because the ACE can be too ridged in those situations. There are also newer materials out on the market that orthodontists surveyed are raving over. One of those being Great Lakes new Comfort Track. It's pricey, but many surveyed claim it's as close to Invisalign's SmartTrack as you can get without ordering Invisalign.

*Clear aligner therapy is better achieved with additional orthodontic techniques.*





*Clear Aligners are the market.*



**ORGANIZATION:** We send our aligners out in a line up of baggies like sausage links. Each baggie has the name and number of the aligner tray and a reminder of when to check for IPR. You'll also want to hold on to any digital files, as it's likely you'll revisit those for aligner losses or refinements. We use an external hard-drive for all digital files.

Clear Aligners are the market. They aren't a fad, and they aren't going anywhere. The market is only going to continue to grow until it is the benchmark of care. The people have spoken, and the people want clear. As an orthodontic lab, we need to mold to the market and make it happen to stay in the game. 📌

### ABOUT THE AUTHOR:

Jamie Seabolt is president, founder and lead smile designer of Freedom Orthodontic Lab. Freedom Ortho specializes in digital smile designs and fabrication of white label clear aligners.







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# 3D Printing in the Dental Industry

By Chris Frye

*What you need to know before bringing a printer into your lab.*

It is amazing how fast the dental industry has taken to 3D printing. At the 2016 Chicago Mid-Winter meeting, there may have been eight or nine 3D printers there, a number that grew to roughly 50 at the 2019 Chicago Mid-Winter Meeting. That's quite an increase and, according to a report from SmarTech Publishing, we are only at the beginning of the real growth of printing within the industry (**Figure 1**).

*There are several different types of 3D printers being sold in the industry right now.*

There are several different types of 3D printers being sold in the industry right now. Having an understanding of their printing methods will help with your decision-making when the time comes to buy a 3D printer for your laboratory.

## SLA (Stereo Lithography Apparatus)

The original method of 3D printing was developed in 1986 by Chuck Hull, founder of 3D Systems. This method of printing uses a UV light source to cure a liquid photopolymer in a vat or tank, layer-by-layer until the part is complete. There are three main types of vat polymerization including SLA, DLP and LCD. As you can see from **Figure 2**, they are all curing a liquid photopolymer, but

in a different way. And, even though they produce the final product in a different way, their post-processing is similar. It only takes approximately 15 to 20 minutes and consists of two alcohol baths and a final cure in a separate curing station.

## Laser SLA

This form of printing uses a laser to trace the digital design. The Formlabs printer is a SLA printer. Although widely accepted because it is the original form of printing, you have one single point of curing on the build plate at a time. This makes the print times of this method longer than DLP and LCD.

## DLP (Digital Light Processing)

This form of printing is the one we see most often in the dental industry. It has two distinct advantages in speed and accuracy (resolution). DLP printing uses a light source to project what is being printed onto the entire surface of your build plate at one time, making it faster than its cousin, SLA printing. When you look at the two types of printing, you can see where the speed differences come into play. If you are printing four models with an SLA printer, the laser has to cure a layer of each model one at a time, so it will cure one model, then the second, then the third and then the fourth and then reset and start the process all over again. The projector from the DLP printer is going to flash the complete

**Figure 1.** Source: SmarTech Publishing

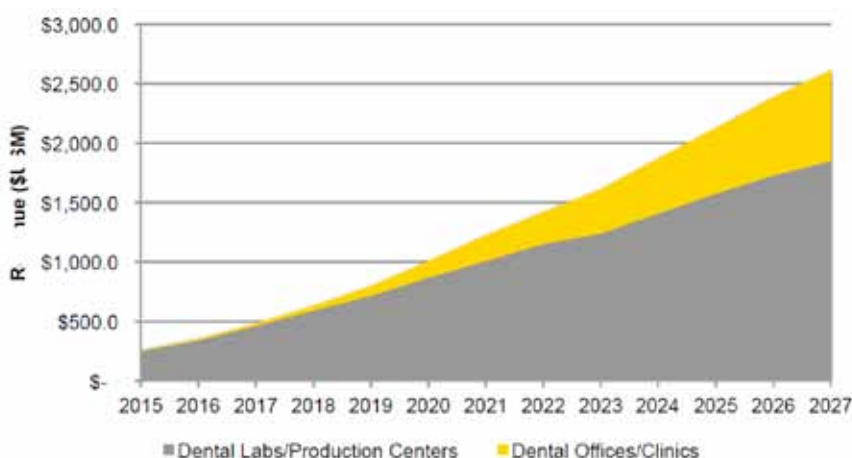
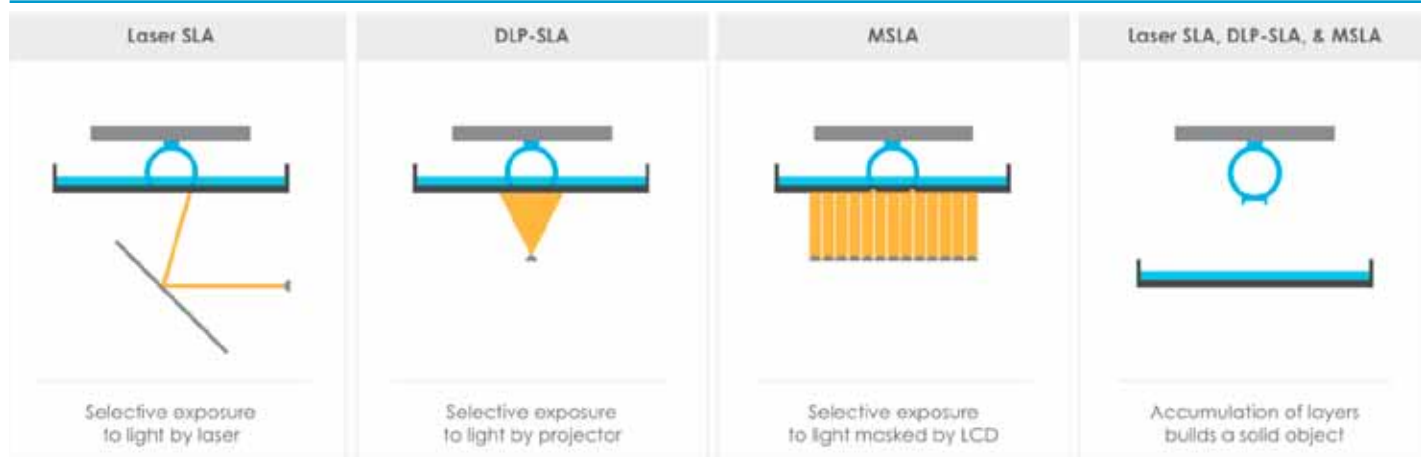


Figure 2.



individual layers of all four models at once and then reset and start the process all over again. This is how you can print a bed of models on a DLP printer in 30 minutes or less, depending on the printer and resin. Some of the common DLP printers in the industry right now are the Asiga (Whip Mix), Carbon (CLIP technology), NewPro3D, EnvisionTEC (cDLM technology), Next Dent, SprintRay, Kulzer and Ackuretta.

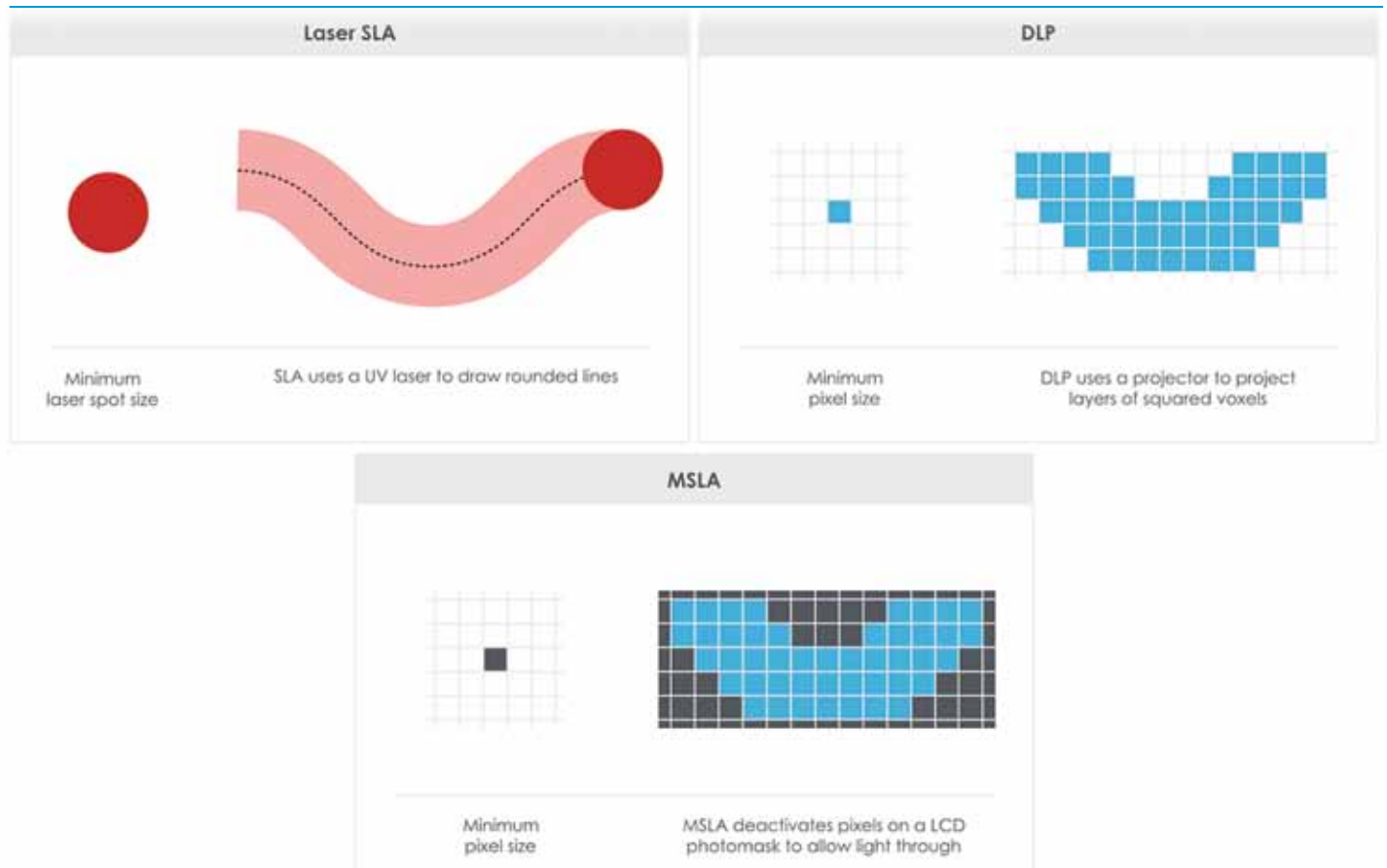
## LCD (Liquid Crystal Display)

Although this technology is all around us, LCD is the new kid on the block when it comes to 3D printing in the dental

industry. Similar to DLP technology, LCD also flashes the entire layer of everything being printed onto the build plate at one time. Instead of using a projector, the light source for LCD printers is light-emitting diodes (LED). The LCD panel acts as a photomask, only allowing enough light through needed to cure a layer of liquid resin. LCD printers that are currently being sold into the dental industry include Whip Mix, Phrozen, Structo 3D, Ackuretta, Any Cubic Photon and Kudo 3D.

DLP, LCD, and SLA printers all belong to the same family, however, as you can see in **Figure 3**, their technologies are different. DLP and LCD by their nature are much faster than

Figure 3.



*The smaller  
the pixel size,  
the higher  
the accuracy.*

SLA printing. Depending on the printers you are comparing, some DLP printers are well over three times faster than SLA printers. And, even though LCD and DLP printers are similar, there are differences. Professional DLP printers use high-quality components and, even though they cost more, you are also getting a very fast and very accurate printer. LCD printers are fairly new, very inexpensive and have primarily been sold online with the only technical support coming from Facebook user groups. It is going to be interesting to keep an eye on this technology and see where it goes. Most of us have some type of LCD/ LED TV in our family rooms. Is there a 55 inch LCD printer on the horizon? Only time will tell.

## Inkjet Printers (Polyjet and Memjet)

Stratasys (Polyjet) and 3D Systems (Memjet) use what is essentially inkjet technology to jet a model material and a support material onto a print bed layer by layer (**Figure 4**). Basically, you have a print head with two UV lights on either side that cure the resin and support material as the printer jets the material. These printers have very large print plates, but are more expensive when compared to most DLP and LCD printers and you must use either Stratasys or 3D Systems materials because they use a canister system to deliver the liquid resin. It is also important to clean the print heads after each print. Having a clogged jet will lead to failed prints and equipment downtime. Post-processing for this technology requires either water jetting the support material away (Stratasys) or baking it away (3D Systems).

## DMP or SLM (Direct Metal Printing or Selective Laser Melting)

This type of printing uses a laser to melt and fuse a bed of metallic powders together (**Figure 5**). DMP printing gives labs the ability to directly print Cobalt-Chromium fixed or removable prosthesis. These printers are still rather expensive and start at \$50,000.

These are the main types of 3D printers in labs and clinics. With these printers, you can print

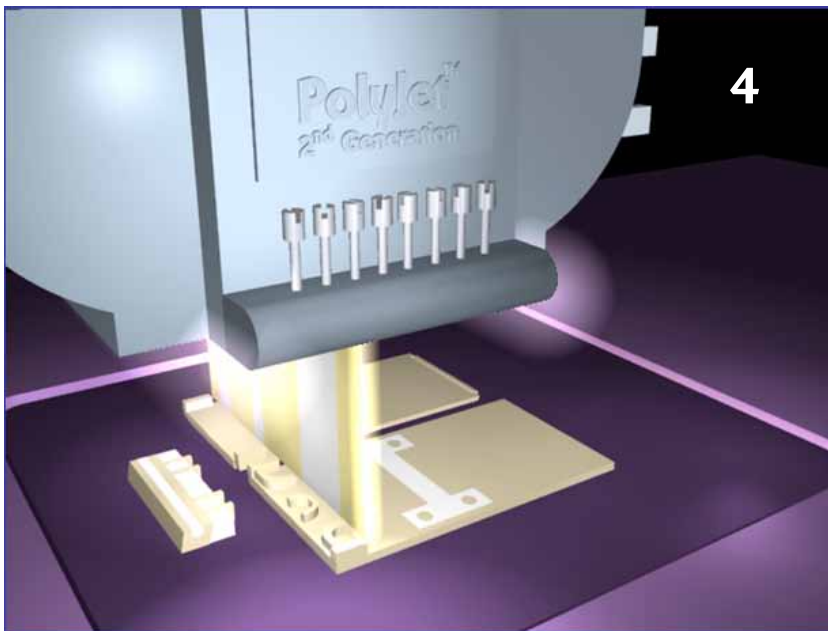
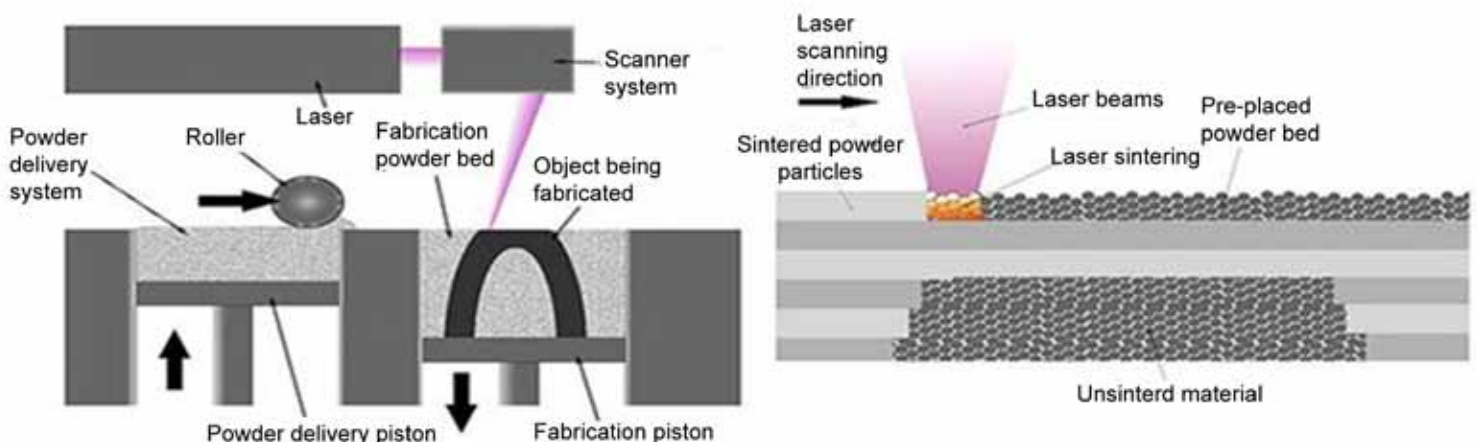


Figure 5.





crown and bridge patterns, surgical guides, splints, night guards/bite guards, models, custom Impression trays, IBT, soft gingiva, vacuum forming models/appliances, denture bases, denture teeth, temporaries, try-ins and—with DMP—removable partial denture frameworks. Now that we have taken a look at how the technology works and what we can do with it, we will look at what you need to think about when bringing a printer in house.

## Taking the Lab Out of the Stone Age (Literally)

As many of you may know, Whip Mix has been manufacturing gypsum for 100 years. At our core, we are a chemical company. Now, we are just hiring a different type of chemist, a photopolymer chemist. They develop our 3D printable resins that are taking us from **Figure 6** to **Figure 7**. So, here are a few items to consider when bringing 3D printing in house, or even just stepping up to a larger production printer.

## Quality of parts (XY Accuracy)

Often we hear that this or that printer prints at 25, 50 or 100 microns. Those numbers refer to the Z resolution, which is the controllable layer height (thickness). This defines the quality and detail of the printed object. By modifying the Z resolution, you can find a compromise between surface quality and print speeds. The quality of the part depends on the X, Y accuracy. The X, Y precision will depend on the type of 3D printing technology that you are using. The accuracy of a DLP 3D printer is defined by the size of the pixel being projected. The smaller the pixel size, the higher the accuracy.

## Other things to consider:

- Cycle Time of the Technology (How long does it take to complete a printed bed of parts?)
- The Yield of the Technology (How many models can you fit on a print bed at once?)
- Equipment Uptime
- Change Over Time (from one material to another)



- Preventive Maintenance (calibration, cleaning print heads)
- Cost Analysis
- Purchase Price
- Maintenance Cost
- Annual Maintenance Program with Manufacturer
- Uncovered Parts
- Cost of Downtime
- Contingency Plan
- Training Cost
- Materials (Consider your total cost to print a model, including the resin, tray and support material, if needed. Also, if it is an open-source printer, you can use any resin. If it is a closed system, you are required to use the resins from the printer manufacturer.)

*It is an exciting time in the dental industry and we are only at the beginning of where we are going with 3D printing.*

- Integration Analysis
- Facility Considerations
- Space
- Infrastructure
- Utilities
- IT
- Operator Considerations
- Competency
- Training
- Capacity


Another consideration is that you will most likely need to add to your CAD software package. All of these printers come with software, but it is only nesting software. If you are getting a printer to print models, you will need to add Model Builder (3Shape) or Model Creator (ExoCAD) to your design package. This is another cost to keep in mind when purchasing a printer.

If you are considering buying a 3D printer because you are starting to get a fair amount of digital impressions and just want to print models, keep in mind what you may want to print in the future. Many companies are developing resins for 3D printing, including Whip Mix, Dreve, Keystone, Detax, Dentca and others.

Also, keep in mind the FDA regulations on materials that require some type of class registration. If you look at clear materials as an example, most clear resins designate themselves as a Class IIa biocompatible material. This is a classification from the European Union (EU) and European Free Trade Association (EFTA) and has absolutely nothing to do with the FDA.

There are a lot of printers on the market today to choose from, and the key to getting a printer that will fit your needs now and in the future is to find a knowledgeable reseller to work with. Probably the most important purchase consideration is

strong technical support. These are the people you will be counting on after you have purchased your printer.

It is an exciting time in the dental industry and we are only at the beginning of where we are going with 3D printing. According to a 2018 report from SmarTech Publishing, we will have a reliable and accepted solution for printed permanent restorations in five years. Hold on to your seats. 

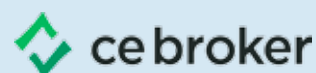
## About the Author:

Chris Frye has been a product specialist for more than 18 years. In 2012, he became involved in the 3D printing industry, helping clients understand the complexities of printing and how it can help their companies. He is knowledgeable in all forms of 3D printing, having been associated with Stratasys, 3D Systems and Asiga. He is the DTS Manager at Whip Mix Digital.



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Receive .5 hours CDT/RC Scientific credit and .5 hours of General credit towards your state of Florida dental laboratory renewal by reading this article and passing the quiz. To get your credit, complete the quiz located on the FDLA website at [www.fdma.net](http://www.fdma.net) using the *focus* Magazine link. Once you have completed the quiz, fax it to FDLA at 850-222-3019. This quiz is provided to test the technician's comprehension of the article's content and does not necessarily serve as an endorsement of the content by FDLA.





-by Dr. Steven Barrett and  
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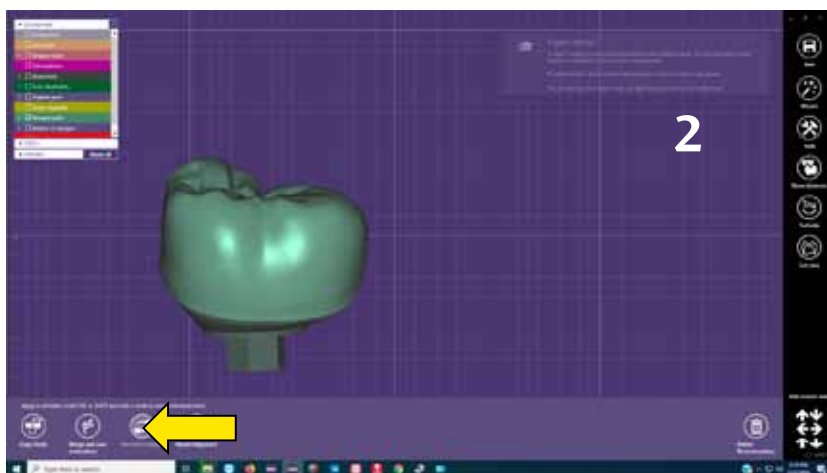
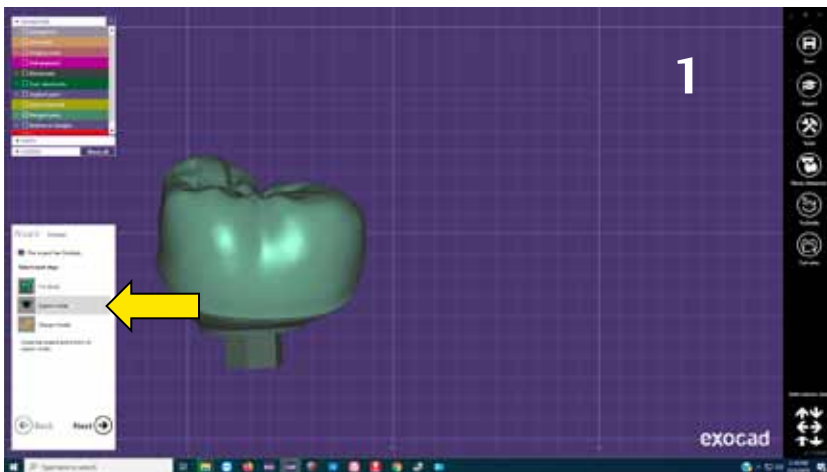
By Kevin Krumm, CDT, TE

# SCREWMENTATION CROWNS

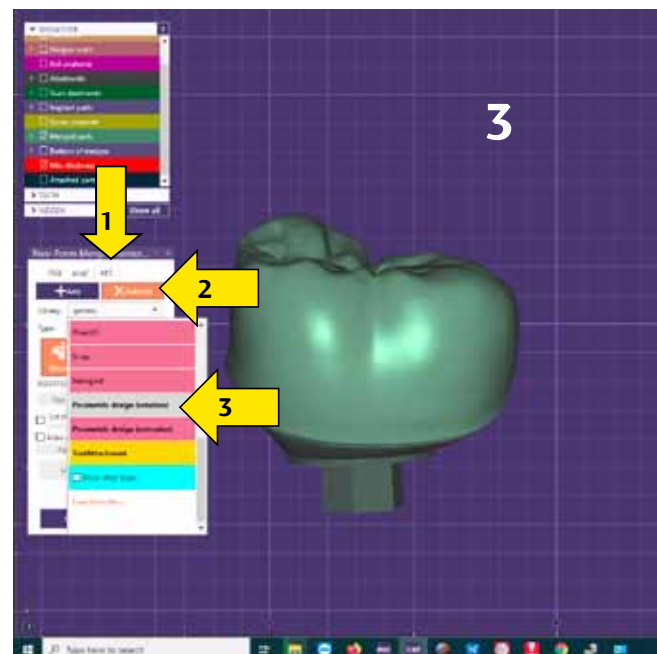
**H**ave you found yourself in the situation where the dentist wanted to cement his restoration on a custom abutment but still wants access to the screw to retrieve the crown/abutment later? In our lab, we've started referring to these as "screwmentation" crowns.

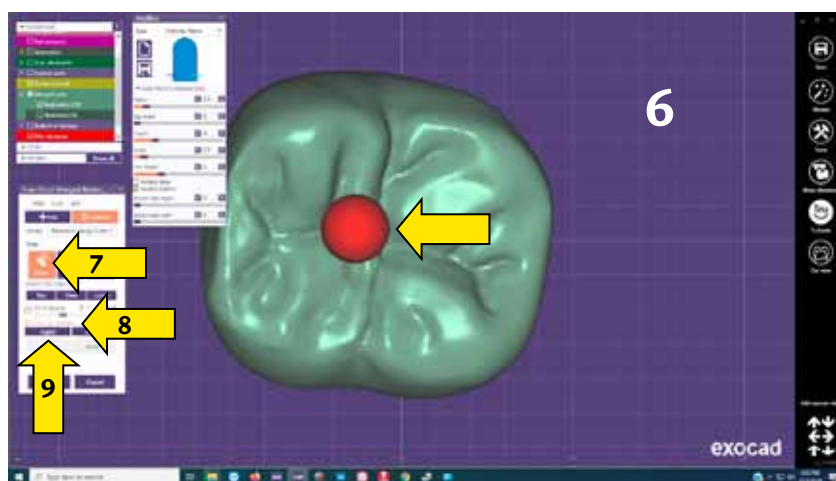
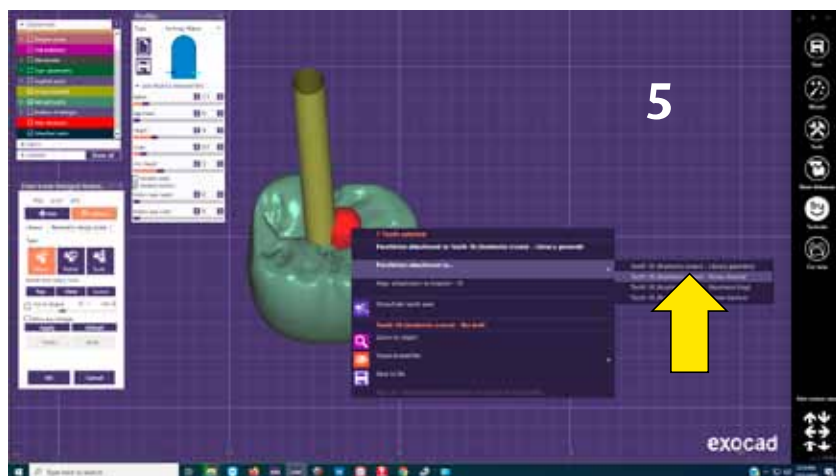
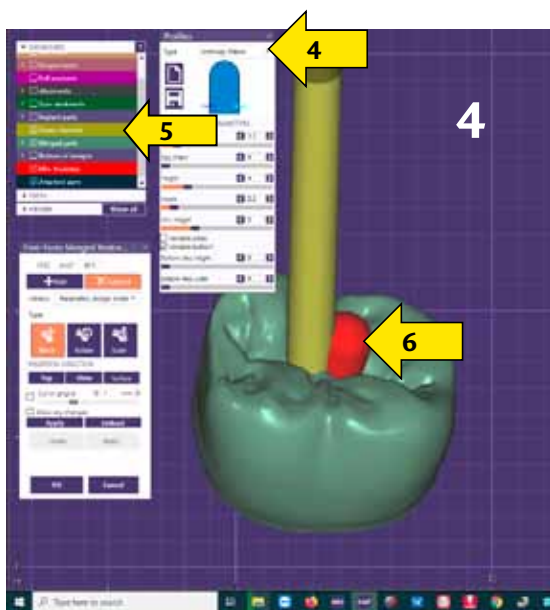
In the analog world, we could cut a hole in the wax pattern to press or cast and problem solved. Zirconia presents a higher degree of difficulty and risk to accomplish this task. Who wants to grind a hole in a sintered crown or arbitrarily punch a hole through a crown in the green state? Luckily,

zirconia crowns are designed digitally then milled. This allows us the opportunity to control where the access hole can be incorporated into the design, then milled in an ideal situation. Allow me to walk you through the steps I take to accomplish this through our Exocad design software.



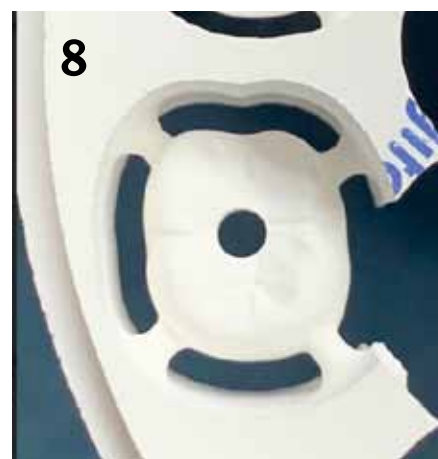
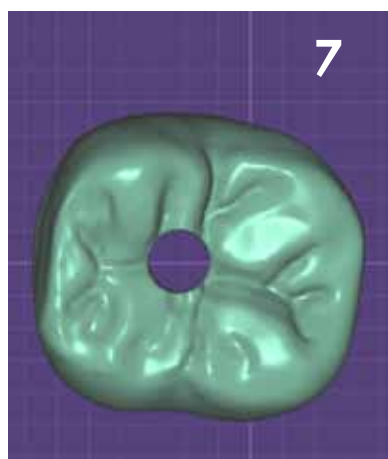
In **Figure 1**, you'll find a completed design for a single crown on a custom abutment. Using the wizard dialog box on the right, we'll select expert mode and click next. Then, we'll select free-form merged as seen in **Figure 2**. Once in free-form (**Figure 3**), we'll select attachments (Arrow 1), then subtract (Arrow 2), and then parametric design rotation option (Arrow 3). Selecting this





option will open the profiles dialog box (**Figure 4**) here we'll use the Archway Makro option (Arrow 4). We want to make sure our Screw channels are visible (Arrow 5) and then we'll place the attachment (Arrow 6). Now here's the beauty of the digital age, we can line up the attachment to the screw channel by right clicking on the attachment and selecting parallelize attachment to the screw channel as seen in **Figure 5**. After we've done that, we will need to move and scale the attachment so that it is centered over and slightly larger than the screw channel as seen in **Figure 6** by using the interaction buttons (Arrow 7). We must select the allow any changes option (Arrow 8) so that when we apply (Arrow 9), we will cut (subtract) the hole through the designed crown bottom as seen in **Figure 7**. Finally, you can see the crown (**Figure 8**) has been milled and can be processed in the same manner that you normally use to finish all your zirconia crowns.

On a final note, the advantage of digital design is that our designs are stored and can be accessed when needed. This comes in handy when your dentist calls and they have had to cut the old cemented crown off because the abutment is loose for whatever reason. You can help relieve their stress by letting them know you can get them a new crown, with an access hole later the next day, and they don't need to send you anything. Simply pull up your old design, punch a hole through it as described and process. You can show up the next day with your Super Tech cape on with a new "screwmentation" crown and strengthen your relationship by being the hero. 🦸



### About the Author:

Kevin Krumm, CDT, TE, has been a technician for 26 years. After his retirement from the Air Force in 2013, he settled in the Orlando area where he continues his career at Touchstone Dental Lab.

## Florida Mission of Mercy (FLA-MOM) is Set for April 24 - 25, 2020

Florida Mission of Mercy (FLA-MOM) is a large-scale, two-day, professional dental clinic that provides care to any patient at no cost to them, with the goal of serving the under-served and uninsured in Florida — those who would otherwise go without care.



The next FLA-MOM event will be held April 24-25, 2020 in Jacksonville. With a goal of treating 2,000 patients, FLA-MOM seeks to have a positive impact by relieving pain and infection, restoring dignity and creating smiles.

For more information, visit: <https://www.floridadental.org/foundation/programs/mission-of-mercy>

## 2020 Florida Legislative Session

The 60-day, Florida Legislative Session began Tuesday, January 14. FDLA is pursuing legislation to continue ensuring the highest quality patient care in dental offices across Florida. House bill 713 and Senate Bill 230 encompass legislation that will allow the presence of a dental laboratory technician to be onsite in close proximity to the dentist while performing complex procedures, such as full mouth reconstruction treatment plans, which generally include fabrication of a combination of dental implants and other dental devices. This change will enable a licensed dentist to request the presence of a dental laboratory technician for various treatment plan procedures.



Follow FDLA on Facebook for updates throughout the 2020 Florida Legislative Session.

## NADL Vision 21 Meeting Held in Las Vegas

NADL recently held its annual Vision 21 Meeting with more than 250 attendees including laboratory owners, technicians and manufacturers to learn about the business issues impacting dental laboratory technology.



The meeting kicked off on Thursday, with a panel on public policy and regulatory updates followed by business roundtables. The evening reception honored Foundation donors and the newly inaugurated 2020 NADL President Barbara Warner Wojdan, CDT, AAACD (pictured left) of Knight Dental Group, CDL, DAMAS.

The NADL and NBC Awards Reception ended the day by honoring the successes of those in the profession. For more information on the NADL and NBC Award Winners, visit [nadl.org/about-national-associationdental-labs/awards/](http://nadl.org/about-national-associationdental-labs/awards/).

Saturday began with a session on team building by Joseph Apap, CDT, MDT of BioDental Sciences and concluded with a keynote from Shawna Suckow, CSP, CMP on how to recession proof your dental laboratory.

Overall, the NADL's Vision 21 Meeting has helped to provide attendees valuable insight, knowledge and resources for the future. Save the Date for the 2021 Vision 21 Meeting being held January 14 – 16, 2021 at the newly renovated Palms Casino Resort & Spa. [📅](#)

Friday began with an opening keynote session by Diana Kander, who spoke about competing on value instead of price in a commodity business. This was followed by a fireside chat on next-generation dental laboratories with Megan Nakanishi from Nakanishi Dental Lab., Inc., CDL, DAMAS, Michael Farago from Concord Dental Laboratory, Inc., Dory Sartoris from DCS Dental Laboratory, Inc. and Joseph Young from Young Dental Laboratory, Inc., CDL. Friday afternoon included a session by BJ Kowalski from ROE Dental Laboratory, Inc., CDL, DAMAS about business metrics as well as a session from Jeromy R. Dixon, DMD, MBA of The DSO Project, LLC and Jamie Stover, CDT of Carbon on building partnerships with small to emerging group practices.



(Above) NADL recognizes sponsor representatives at the 2020 NADL Vision 21 Meeting



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### Oral Surgery from a Restorative Perspective

*Presented by: Philip L. Fava II, DMD, MDSc  
& Alexander Wünsche, CDT, ZT*

*Sponsored by: Amann Girrbach*

### Dental Laboratory Technology– The Future is Here

*Panelists: Nick Azzara, Rick Sonntag, RDT  
& Barbara Warner Wojdan, CDT, AAACD*

*Moderator: Bennett Napier, CAE*

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## Changes, The Future and a Magic Wand

**W**e're excited that Tom Zaleske, AS, owner of Matrix Dental Laboratory and Consulting, will be giving an eye-opening lecture at the Southern States Symposium & Expo. So, when we talked to him recently about the industry, we had to ask about that too as well as what one thing he would change about the industry if he could.



*"Chairside communication now comes from a text on a cell phone. That immediate feedback is quick to resolve many issues that arise post-appointment."*

**You've been in the dental lab business a long time, what do you think are the three biggest things that have changed the industry for the better since you started?**

**TZ:** Remember, I am speaking from my perspective as a technical trainer and single technician dental lab owner. Firstly, I would say a huge change for the better is in the ease of resource accessibility for independent study in our field. The web is literally at our fingertips. It's like having your library. Three decades ago, there were very limited ways to learn the basics and the fine points about dental technology for your lab business without traveling. Today, it's as easy as a simple word search to find an online course, peer-reviewed article, MSDS sheet, or IFU (instructions for use) on any product or topic you're interested in. That's not to say conferences are obsolete, but rather they have evolved more from being a place to roll out new products to being a place where new products and techniques people have been exposed to while researching, can be explored more in-depth, face to face with manufacturers and users of those products and techniques.

Secondly, I believe the emphasis on photography as more than a supplemental communication tool has brought the technician, once far removed from the clinical aspect and the patient, chairside. The digital camera has been instrumental in affording things like on-the-fly editing and immediate feedback to streamline communication without overly pricey and complicated lighting and camera setups. Most immediate, chairside communication now comes from a text on a cell phone. That immediate feedback is quick to resolve many issues that arise post-appointment and afford the confidence to make suggestions in a more collegial fashion.

Thirdly, I would say the change in the way technicians interact with one and another. If you were to go back 19 years ago when I first began giving presentations, there was a very guarded mentality about sharing business strategies and fabrication techniques. Over the years, I have seen that melt away to a more we-are-in-this-together mindset. Speakers/presenters have contributed greatly by example to this movement of a more united front among technicians.

**Can you tell us a little about your upcoming lecture at the Southern States Symposium & Expo?**


**TZ:** This year's presentation involves immediate denture fabrication. Discussion, suggestions, and illustration of different ways to address fabrication and treatment. Techniques that ease the patient through to a more successful treatment outcome.

**What three takeaways will attendees walk away with from your lecture?**

**TZ:**

1. Clinical questions that drive outcome.
2. Adding denture features that segue patients more comfortably into the appliance.
3. Case economics. Treatment suggestions.

**If you had a magic wand and could change anything about the industry, what would it be?**

**TZ:** I have always felt that when the treatment plan was presented to the patient, the dental prosthetics should have been a line item, billed separate and not muddled into clinical services. Clinical service fee and a prosthetic fee. Sort of like paying for parts and labor separately. 

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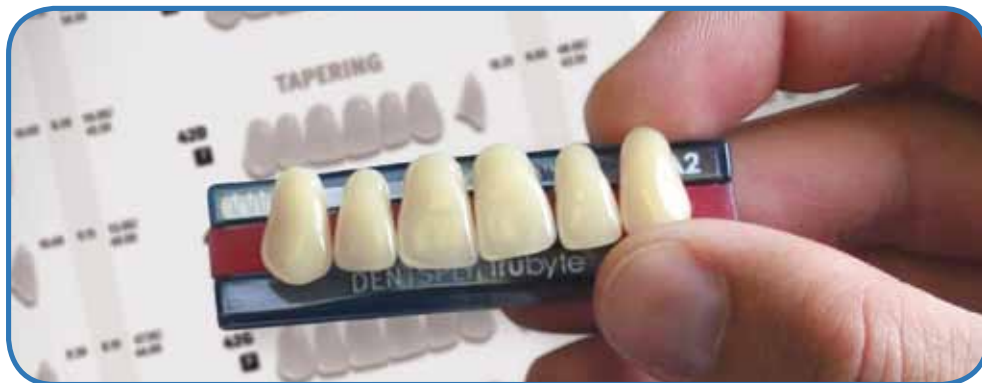
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