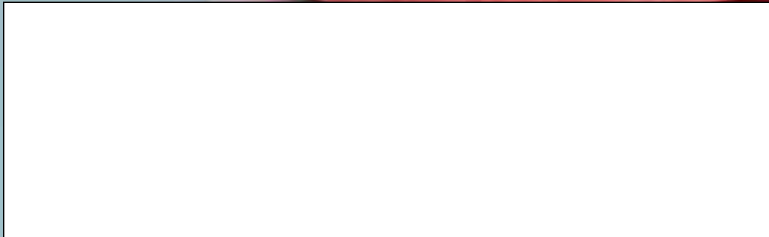




focus

REMOVABLES *in the Lab*

DENTURES TRENDING
HIGHER FOR
FLORIDA LABORATORIES





CAD/CAM VARIETY

MILLING UNIT M1
ABUTMENT



MILLING UNIT M1
SOFT



MILLING UNIT M1
WET



MILLING UNIT M1
WET HEAVY METAL



Removable Appliances – A Growing Trend

Gail Perricone and Andrew Perricone at GPS Dental Lab Inc.

Ten years ago, if someone were to ask me, how big is your removable department? I would have said that it is a small department, maybe 10-15 percent of the lab. Today, I would say 30-35 percent.

Why is that?

More than 35 million Americans do not have teeth and 178 million people are missing at least one tooth. These numbers are expected to grow in the next two decades. The number of partially edentulous patients will continue to increase in the next 15 years to more than 200 million individuals. Partial edentulism affects the majority of adult Americans. This is why removable labs and departments have had such growth.

The days of hand packing dentures and metal partial frames will be taking a back seat to digital dentures and CAD/CAM designed partial frameworks that are then milled. We do more nylon and acetyl resin partials every day. We are expanding our removable department as we speak and hope to be designing and printing partials by the New Year.

All this is exciting to me. Now if we can expand the pool of technicians that would be the icing on the cake.

This month, *focus* takes a look at the growing removable prosthetic market in Florida and nationally. Whether you're looking to expand your removables department, start a new one or you are bucking the removables trend, there is information in this issue that will help you. In addition, it's never too early to start thinking about the May 5-7, 2016 Southern States Symposium & Expo. No doubt denture training and business courses will be available and I, for one, am excited to see how much more of the digital denture equipment is out there by then.



By Gail Perricone

GPS Dental Lab Inc.
FDLA president



The number of partially edentulous patients will continue to increase in the next 15 years to more than 200 million individuals.

FDLA Mission

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FDLA Vision

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- Recognition
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- Innovation

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**Jillian Heddaeus, CMP,
IOM**
Executive Director &
focus Publisher
jillian@fdla.net

Bennett E. Napier, CAE
Senior Advisor
bennett@fdla.net

Cassandra Corcoran
Editor
editor@fdla.net

John Galligan
Advertising Sales/
Publications Coordinator
advertising@fdla.net

Christina Welty
Program Manager
membership@fdla.net



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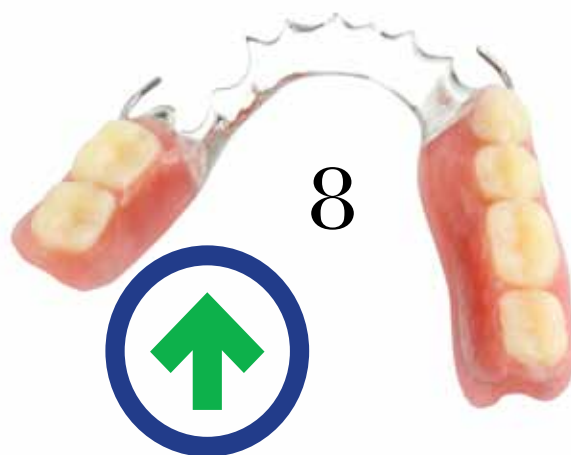
By Tony Circelli, Heraeus Kulzer LLC, scrap
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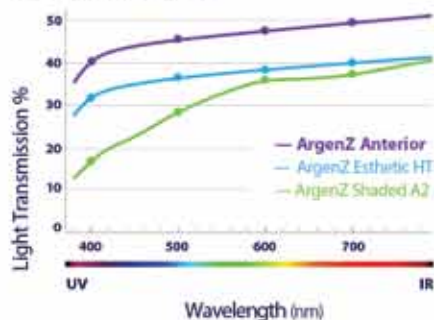
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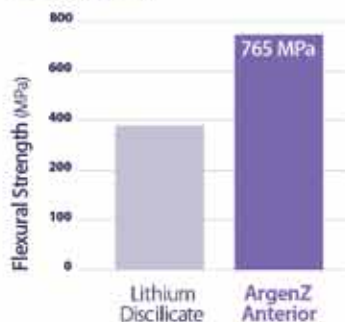


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3Shape Quick Tip:

How to Ease into Dental Manager 2015

By Cory Lambertson

As we all know, change is a very scary topic to encounter—especially when it affects the work flow of your business. When comparing Dental System 2015 to previous versions, you will notice that the interfaces of the software are completely different. Buttons are moved around on the design sections, smile composer and sculpt are combined, and we have a new scanning software titled ScanIt Dental. Change is intimidating, but it should never be feared. Even though these changes have taken place, here are a few tips to help ease the transition into Dental System 2015.

Tip #1: Set the default design module to Dental Designer 2014

If you want to utilize the benefits of updating to Dental System 2015 and ScanIt Dental, but you are not comfortable with the changes made in Dental Designer 2015, we have a solution for you. In the Dental System Control Panel you can modify the settings to continue using Dental Designer 2014. There are two methods of changing between Dental Designer 2015 and 2014.

The first method is in the order form under order settings. As you can see

in the images with this article, there is a drop down menu beside Design Module that will let you switch between the Dental Designer interfaces.

The second method sets the design module to automatically default as Dental Designer 2014 per material type (but can also be reversed when needed). This method is setup in the Dental System Control Panel under the Materials tab in Basic Elements. The default design module will need to be set for each material you use. This is done by selecting a material and then selecting the drop down menu next to Default Design Module. As you can see in the images accompanying this article, you can select which interface you would like to use.

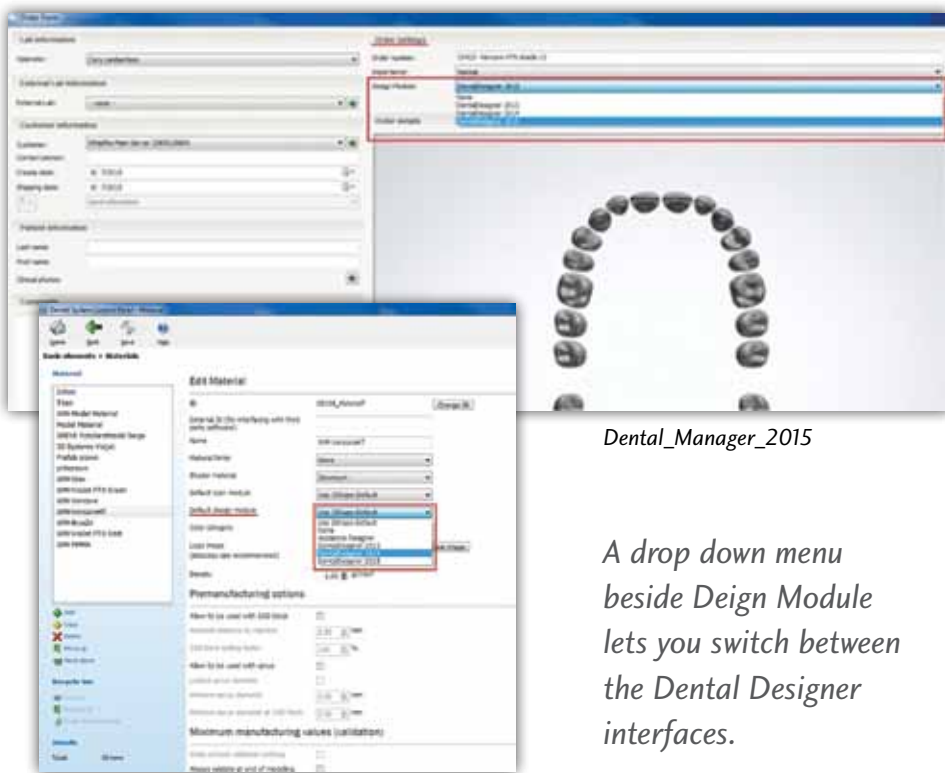
Tip #2: Keeping Smile Composer and Sculpt Tool separate

One of the biggest differences in Dental Designer 2015 is that Smile Composer and Sculpt Tool were combined into one single tool. In the 2014 version, the crowns were unconnected in Smile Composer and then were snapped to the margin line when continuing onto the Sculpt Tool. In 2015, the crown is automatically snapped to the margin line before any changes to the design have taken place, so if the crown isn't in the ideal orientation it makes the design process feel cumbersome from the beginning. This automatic setting can be turned off, helping the workflow feel like it did in 2014. This setting can be changed under System Settings within the control panel. Under the design options, there is a check box titled Automatically Connect Anatomy. To have the anatomy disconnected from the margin line under Smile Composer make sure the check box is not selected.

About the Author:

Cory Lambertson is a technical services representative at Whip Mix. As a certified 3Shape and Roland trainer, he develops and conducts CAD/CAM equipment and software training and provides technical support/assistance to our digital customers. Before joining Whip Mix, he worked for two years in his father's dental laboratory, Heartland Dental Laboratory in Hillsdale Mich., as 3Shape CAD/CAM technician. ①

Article Source: Whip Mix



Dental_Manager_2015

A drop down menu beside Design Module lets you switch between the Dental Designer interfaces.

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DENTURES

TRENDING HIGHER

FOR FLORIDA LABORATORIES



Dentures aren't the glamour side of the dental laboratory. For decades, they've been the ugly cousin to the shine, luster and hue of ceramics and implants but several factors converged to give dentures a glamour makeover of their own that made the specialty more appealing to dental laboratory owners and contributed to the 12 percent increase in laboratories offering denture services nationwide.

When it comes to dentures, there are three main questions every laboratory owner and manager should be asking themselves:

1. What is responsible for the upward trend?
2. How can you take advantage of it?
3. What are the upcoming denture trends so you can position your laboratory to benefit?

Here are the answers, *focus* found.

"More than 30 million Americans currently are missing all their teeth in one or both jaws. Despite

advances in dentistry, that number is expected to grow as the population ages. As a consequence, demand for dentures is expected to increase through at least the year 2020," Patricia Sullivan writes in *Dental Economics*.

While the number of adults having all of their teeth extracted decreased from 30 percent in 1998 to 16 percent today, according to the Centers for Disease Control, the number of dental laboratories offering complete denture services has risen from 44 percent in 2005 to 56 percent in 2015, according to the National Association of

Dental Laboratories. During the same time period, according to NADL, the number of laboratories offering partial dentures has increased from 44 percent to 54 percent.

And soon, these won't be just your grandpa's dentures we're talking about. Like so many things in the dental laboratory, the upcoming trend for dentures can be summed up in one word: digital.

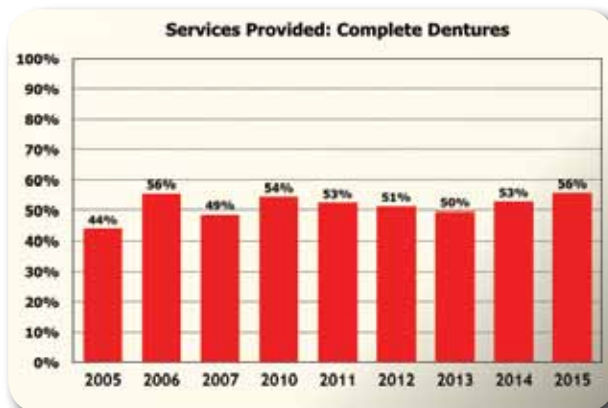
"Following on from its recent approval of 3D printed drugs, the FDA has cleared a material used in 3D printing dentures for use with humans. DENTCA has received approval for a material it uses to 3D print the bases of dentures, opening the way for the company to offer its personalized dentures and baseplates to the world at large. Using a 3D scanner and its 3D printed denture process, DENTCA can produce perfectly tailored resin dentures directly from 3D models, basically automating the manufacturing process. The firm is now in a great position to capitalize on this news, but it won't be long before other orthodontic companies follow suit," according to Medical Expo News. "Dr. Jason Lee, inventor of the process, believes the new 3D printable Denture Base 'will eventually replace traditional heat-cured and autopolymerizing conventional denture making methods.'"

You can watch a video about the 3D printed dentures at https://www.youtube.com/watch?v=iCTpUIQe_8.

DENTCA is not alone in the race to become the preferred digital denture equipment manufacturer. At the International Dental Show, German dental manufacturer Merz Dental introduced the Baltic Denture System to structure and simplify the complex digital manufacturing process for full dentures.

"This production process is the most innovative one there is. It's easy and intelligent at the same time, yielding a predictable result and the highest possible efficacy for the dentist and the patient," said Friedhelm Klingenburg, CEO of Merz Dental to the Dental Tribune.

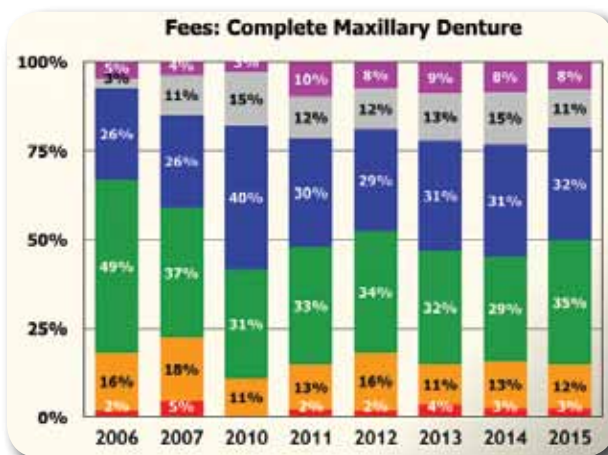
Other players in the digital denture market include Heraeus Kulzer (Pala Digital Denture System), AvaDent (Digital Denture Solutions) and Ivoclar Vivadent (Wieland Digital Denture). Talk to your manufacturer and supplier representatives today to find out what digital denture services they offer and if any would fit your laboratory.



Source: NADL



Complete dentures up from **44%** to **56%** of labs

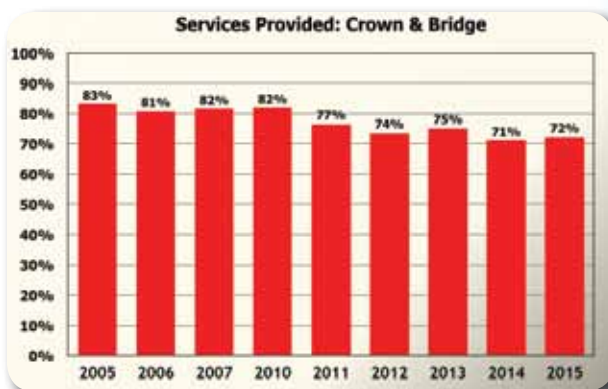


Source: NADL



Complete maxillary denture avg. fee up from **\$275** to **\$305***

Labs charging >\$200 up from 34% to 51%



Source: NADL



MOST LABORATORIES PROVIDE MULTIPLE SERVICES

Crown & bridge down from **83%** to **72%** of labs

What all of the companies offering digital denture equipment have in common is the drive to update a process that has remained virtually unchanged for a millennia and is in demand.

According to GSK Consumer Healthcare:

- Globally, 810 million denture wearers are aged 60 years or over – this is expected to reach 2 billion by 2050 (22% of global population).
- The incidence of denture wearing is high in this aging group and, therefore, you will see

THE
UPCOMING
TREND FOR
DENTURES
CAN BE
SUMMED UP
IN ONE WORD:
DIGITAL.

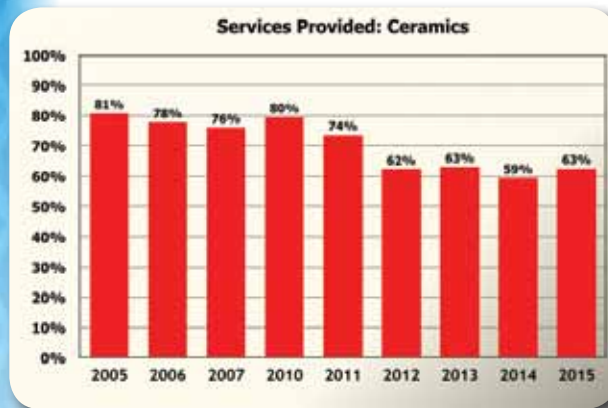
an increase in the number of patients with dentures.

According to the American College of Prosthodontists:

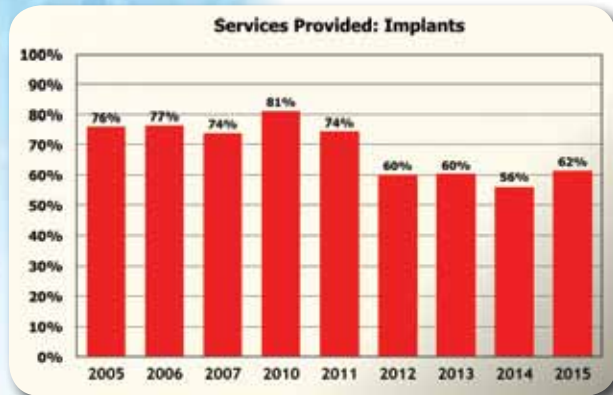
- About 15 percent of the edentulous population has dentures made each year.
- More than 35 million Americans do not have any teeth, and 178 million people in the U.S. are missing at least one tooth. These numbers are expected to grow in the next two decades.

- In the geriatric population, the ratio of edentulous individuals is 2 to 1. About 23 million are completely edentulous and about 12 million are edentulous in one arch.
- 90 percent of those who suffer from edentulism have dentures.
- The number of partially edentulous patients will continue to increase in the next 15 years to more than 200 million individuals. Partial edentulism affects the majority of adult Americans.
- About 15 percent of the edentulous population has dentures made each year.

Ceramics down
from 81% to
63% of labs



Source: NADL



Source: NADL

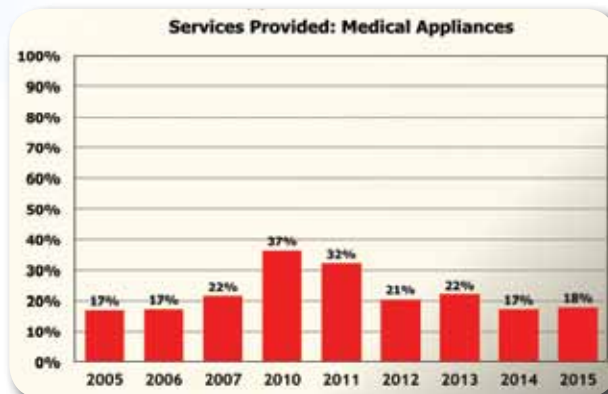


Implants down
from 76% to
62% of labs



2005-10: Medical
appliances rose
from 17% to 37%

2010-15: Medical
appliances down
from 37% to 18%



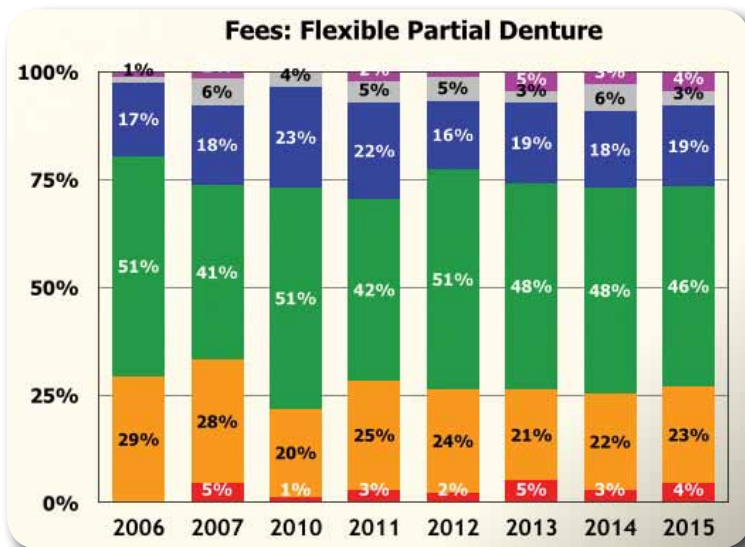
Source: NADL

Even with all of the dental options available today, dentures are in demand and that demand has increased and is expected to continue to be. So how can you position your laboratory to best meet that demand? To find out, we chatted with Robert "Bobby" Olszewski laboratory director of Florida Laboratories in Orlando. The National Dentex laboratory is continuing to see an increase in 2015 for removable prosthetics and attributes at least part of that to the large senior population in the Sunshine State who are living on a fixed income. Their removable department is staffed with seven technicians. There are three keys to operating a successful removable department, according to Olszewski.

"First of all, everything starts with a great attitude as you must have technicians that are not only knowledgeable in their craft but also deeply care about the products they make for the patients they serve," he said. "Next, you must be able to support your team as this is accomplished through training, quality materials, and equipment. Finally, everyone must remember that problems will happen and your team must anticipate and adapt to change. Maintaining a positive attitude is critical to navigate the ebbs and flows of the dental laboratory business as your team must be proactive rather than reactive."

Training plays a huge part in creating a successful removable department.

"We at Florida Laboratories are very fortunate to be a part of the National Dentex Corporation (NDX) family as NDX makes extensive investments in training and technology," Olszewski said. "In addition to NDX training, our technicians learn additional skills and insights by reading the latest industry periodicals in



Source: NADL



Flexible partial denture avg. fee **up from \$243 to \$257***

Labs charging >\$200 up from **19% to 26%**



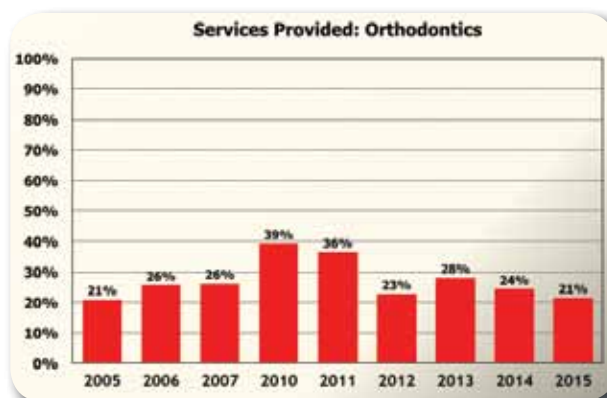
addition to working closely with all vendor representatives on technology developments as well as taking advantage of seminars and study-clubs.”

Recently, DENTSPLY partnered with the Foundation for Dental Laboratory Technology to create a Virtual Full Denture Training Program that is a comprehensive training opportunity for denture technicians. (Editor’s note: Read more about the Virtual Full Denture Training Program on page 12.) In addition, you can visit the foundation’s continuing education provider directory to find partial and complete denture workshops, seminars and courses in Florida.

A true sign of the upward trends in denture demand is the amount of attention manufacturers and suppliers are placing on it when talking with dentists.

“There is a huge opportunity for dentists to capitalize on the growing removables market, and now is the time to get started—even if you’ve never thought about offering dentures in your practice before,” Ivoclar Vivadent writes in its More Than A Denture white paper. “There’s no question the removables industry will continue to grow. The demand for high-quality dentures will only get stronger, making this a great time to add denture services to your practice, or to improve the services you already offer.”

Make sure your voice is one that your dentist clients hear when it comes to dentures (complete and partial) so that you can best position your laboratory. [i](#)

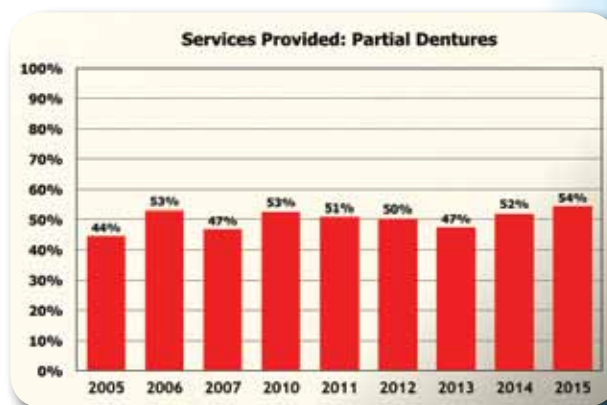


Source: NADL



2005-10:
Orthodontics rose from **21% to 39%**

2010-15:
Orthodontics declined from **39% to 21%**



Source: NADL



Partial dentures up from **44% to 54%**

TRAINING PLAYS A HUGE PART IN CREATING A SUCCESSFUL REMOVABLES DEPARTMENT.

Foundation for Dental Laboratory Technology Offers VIRTUAL FULL DENTURE TRAINING PROGRAM



The Virtual Full Denture Training Program is underwritten and produced through the generosity of DENTSPLY Prosthetics to provide new learning tools for dental technicians in removable technology that will enrich the Foundation's removable curriculum.

This five -module removable video program, which counts for 2.5 hours of scientific credit for CDTs, documents a patient case from initial chairside assessment through placement of the final dentures. Each individual module was scripted and produced to document each step of the denture process between the dentist and the dental laboratory technician.

Dr. Lars Bouma and Mr. Jerry Kaizer, CDT (Murray-Kaizer Dental Lab, CDL) provided clinical and technical guidance throughout the program development and production. This unique program provides a visualization of the chairside and laboratory protocols and delivers key insights into the collaboration needed between the dentist and the technician to ensure the best denture solution for the patient. The course is broken into the five modules, which can be purchased individually for \$50 or as one course for a reduced rate of \$175.

MODULE I

Basic Anatomy to Custom Tray covers the impression process with the patient, and the use of preliminary and custom impression trays. The video starts with maxillary edentulous anatomy followed by mandibular edentulous anatomy and includes a step by step explanation of landmarks and how dentures interact with landmarks. Additionally, the video will demonstrate the preliminary impression/models, how to fabricate the custom tray and make the final impression, and will finish up with identifying maxillary and mandibular landmarks on the model. Graphics and photo images are used throughout the entire video to help participants visualize each step in thorough detail. The video wraps up with review questions and terms.



MODULE II

Fabrication of Bite Rims and Patient Use transitions to a point where the patient will be fitted with a base plate and bite rims. This appliance will aid the dentist and laboratory in determining the vertical height necessary to produce a well fitted denture. The two major components of this video are fabricating the base plate and bite rim, and maxillary and mandibular bite registration. Participants will learn how to prepare and outline master models, fabricate light cured base plates, apply wax sticks, industry measurements, and how to trim and finish the wax. The video wraps up with review questions and terms.

MODULE III

Articulation and Set-Up focuses on the denture process from bite rims to tooth set up. It begins with the review of the bite rims, bite registration impression material and evaluation of the midline and takes the participant through the mould selection, shade selection, the tooth selection process and articulation. Additionally, the video covers set-up, occlusion, tooth arrangement, adjustments and evaluation. The video wraps up with review questions and terms.

MODULE IV

Wax-Up, Try-In and Adjustments focuses on the contour and wax-up, try-in, and clinical and lab adjustments. Several waxing techniques are demonstrated throughout this video. This video takes the participant through the wax try, clinical modifications and adjustments, and additional laboratory instruction for the completion of the denture. The video wraps up with review questions and terms.

MODULE V

Processing, Finish and Polish and Delivery, wraps up the five-module removable video program. The laboratory technician receives the verified try-in from the dentist and gets the wax ups ready for investment followed by processing with acrylics. In this video, the press packing method will be demonstrated followed by the processing, finishing and polishing. Patient instructions for care are discussed showing additional collaboration between the dentist, and the laboratory to benefit the patient. The video wraps up with review questions and terms.

For more information and to purchase the program, please visit www.dentallabfoundation.com/index.cfm?c_id=18. 



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By Dr. Marko Ahonen

e.max Impulse V1 Same-Day Veneers

The patient had suffered an accident and lost part of her front teeth. The first pictures are just how I analyze her other teeth for any additional trauma and what kind of texture she has on her other teeth.





Treatment started at 8 a.m. with local anesthesia and minimal prepping of teeth (400um). Design process was 80 percent biocopy and only the missing edge was designed individually. This really helps with design because when you give the software what 80 percent of the teeth should be then program gives a great initial proposal. This way, design process was less than 10 minutes.

The anterior teeth really needed a lot of handling after milling. First, the surface texture must be handmade, some parts are roughened and some parts are polished and line angles are made clearer. Please note that glaze only emphasizes surface textures not the other way around. I made a two rounds with e-max™ stains to get everything right.

E-max™ Impulse is a great material for anterior teeth. I used Impulse V1 here. It is a medium translucency (versus high translucency and low translucency). After the first staining was completed, there were some parts that were too see-through so I added some more stain called crema to mask area lacking tooth structure and to create mamellon effect.

At noon, I bonded laminates in place using Variolink Veneer cement. ①

Source: Sirona Dental Systems



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Comparing the Color of Implant Lateral Teeth Between Two Patients

In this article, we will be discussing two case studies for female patients who had implants surgically placed in order to replace their lateral teeth. The challenge with the first case, our patient in her mid-40s, was the difference in length of gingival tissue between Nos. 7 and 10, which was corrected in the final analysis. But in trying to mimic the adjacent teeth, the author had to also consider the size of teeth, contour and shape as well as the amount of enamel present from the incisal to the body areas. The author also noted the obvious characteristics to consider in the patient's dentition, such as the heavy white calcification stain from the gingival area to the subtle vertical white crack lines. There was no possible way to match all of the above with a traditional shade tab and so he worked with his custom-made ceramic tabs.



Figure 1 (above)
Post-op

Figure 2 (right)
Custom shade matching



As he looked closer at the adjacent teeth, he noted that while Nos. 8 and 9 appeared to look the same, when examined closely, No. 9 actually has more transparency. He therefore approached his work with a B2 body base color and Enamel Opal 4 from GC Initial and an overlay with number 59 for the enamel, incisal and body third areas. For the gingival area, he used Cervical Translucencies 22 and 25. He applied subtle stain and touched up the interproximal color. He also kept in mind that the surface texture would be dull, not shiny in appearance.

In the second case, the patient, a woman in her mid-30s, also had two zirconia abutments placed. Her centrals were not symmetrical in that they were of a different size, with No. 8 being wider than No. 9. As well, the color is slightly different between them, especially the transparency. For her case, the author used a bleaching dentin color, Translucency Modifier 4 and Enamel 58, overlaid with Enamel 60 for the incisal third and Clear Fluorescence in the gingival area. He also kept in mind his plan for her dull surface texture, final stain, horizontal white calcification, body area and incisal third area while fabricating the restorations.



Figure 3 (left)
Cast model

Figure 4 (below)
Try-in the mouth No. 7



Case Studies

In our first study, we see post-operative images of our patient (**Figure 1**) after the Nobel Biocare zirconia abutments were placed. In (**Figure 2**), the author recorded the patient's custom shade matching in the lab, checking for color saturation, opacity and translucency. **Figure 3** is the cast model with soft tissue image.

The author next tried No. 7 in the mouth for a fit and color match check (**figure 4**). He noted that the color tone needed a little adjustment. He next applied Lustre Paste L3 (**figure 5**)—a light blue color—in order to add that extra tone—with the restoration in the mouth. With a mirrored view, the author checked the final restorations (**figure 6**) for total effect. Both

restorations were fabricated from Amann Girrbach zirconia copings and were given a layered finish.

In another try-in the mouth, (**figure 7**) he checked No. 7 again for a gingival, incisal and body color match. When he tried the



Figure 5 (above)
Lustre Paste application



Figure 6 (above right)
Mirrored view



Figure 7 (right)
Second try-in the mouth



Figure 8 (above)
Tissue color check



Figure 9 (below)
Try-in the mouth No. 10

crown all the way in the mouth (**figure 8**), he was checking for the pink tissue color match in order to decrease the length of the gingival area's appearance. He and the patient were happy with the results of that effort. He then tried in the restoration for No. 10 over the abutment (**figure 9**). As we can see, this restoration did not have any pink tissue added to the gingival because the tooth length was acceptable. **Figure 10** is an immediate insertion view of the restoration in the mouth.

The author carefully checked the incisal length of Nos. 7 and 10, which was too long and would interfere if the patient were to grind her teeth (**figure 11**). He informed the patient that he would need to reduce the incisal edge and she was, at first, opposed. But once he explained to her the danger of porcelain fracture, she relented. In (**figure 12**), the reader can see the results of the author's grinding efforts.

We can now move on to the second case study.



Figure 10 (above)
Immediate try-in shot



Figure 11 (above)
Incisal length check



Figure 12 (above)
Incisal length after grinding

In **figure 13**, post-operatively, readers please note that the patient's centrals are short in length, opposite of our first patient's natural dentition.

The restorations are shown here in a mirrored view image (**figure 14**). For a texture and color check, this is an extremely important picture because the author can see everything he needs to before try-in. Without this check-up, he has found over time that his crown will not be a perfect match. His method for getting to this stage is based on his custom shade recording and is different than that which is done with traditional shade tab matching. His key observations have to do with looking for the characteristics that are already built into his custom fabricated shade tabs: white calcification, subtle translucency, halo effect, subtle gingival tone, horizontal lines, etc., before ever trying a final restoration in the mouth. These very specific, specialized shade tabs help provide him with a road map to follow that ensures the success of the restoration's final appearance.

In the author's experience, as well, he has observed that often when a patient's custom shade is first recorded, there is a subtle difference between what is noted then and what is noted later. Another circumstance he has encountered happens when he receives a photograph of the patient's shade because it can appear very different from the actual dentition. These situations happen, again in his experience, about 20 percent of the time. There could be many reasons as to why this occurs, but it can create an uncertainty with the restoration's fabrication. The final result is that there are times he will see a patient more than once when a custom shade has been recorded and followed.

Figure 15 denotes a No. 7 partial try-in for the restoration, with **figure 16** as a full try-in in the mouth for harmony of color



Figure 13 (above)
Case Study No. 2, post - op view



Figure 14 (above)
Mirrored view



Figure 15 (above)
Partial try-in for No. 7



Figure 16 (above)
Full try-in

and fit check. In **figure 17**, the author partially tried in No 10, with a fit check (**figure 18**) following. Our second patient's tissue line is low, which can limit the technician's ability to create an esthetic restoration because there is not as wide or high of an area with which to work. Overlapping tissue is not recommended for hygiene purposes.

As for the final staining application, the author paints onto the restoration, his goal is to create subtlety with each restoration. The adjacent teeth must be matched in order for the appearance to be natural so his goal is to always try and mimic nature with each application.

In **figure 19**, we have an immediate shot of the restoration in the mouth, retracted view, with surface texture and color harmony check. **Figure 20** is a final view of the pleased patient.

This article has been intended to demonstrate just how different two patients can be, while expecting the same outcome in their final result. But if a technician understands tooth color, enamel overlay, the size of teeth comparison to adjacent teeth and how to exactly measure occlusion contact,



Figure 17 (above)
Partial try-in No. 10

Figure 18 (below)
Fit check



color matching is easy. These patients required different dentin color and surface texture application, but their desired outcomes were accomplished. Both were pleased with the final results. ●

About the Author

Luke Kahng, CDT, is owner and president of LSK121 Oral Prosthetics, one of the largest dental laboratories in the country, located in Naperville, Ill. He has published more than 100 articles in major national dental publications. Additionally, Kahng has authored several books, including *Anatomy from Nature*, *The Aesthetic Guide Book*, *Smile Selection Plus CS3 Clinical Cases* and *The Kaleidoscope Wax-Up Book*. These books have been distributed throughout the world as must-haves for dentists eager to gain more knowledge in their industry.



Figure 19 (above)
Immediate shot - retracted

Figure 20 (below)
Final view



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The Gold Standard:

Understanding the Precious Metal Process and Refining

Precious metals are a mainstay of your restorative dental business and the scrap that comes from daily work with these metals can add up to a significant value. As the prices of these precious metals have made headlines, more labs are realizing that they can convert their scraps into dollars.

Do not overlook the smallest amount because you will be overlooking additional revenue.

In order to maintain a successful business, everyone in the laboratory must conserve as many resources as possible and understand that any unused material represents lost profit. Precious metal scrap is a valuable by-product of high-quality restorative dental treatments. Unfortunately, many employees do not recognize the potential value of their waste.

The Collection

Today's dental professionals generate profits from every available resource. This includes recycling of scrap metals containing gold, silver, palladium and platinum.

You will find scrap in many different shapes and forms, such as old or replaced crowns, sprues and buttons. Metal residue often comes from spillage of flashings during the casting process. The finishing process leaves pieces of metal and abrasive materials from the grindings and polishing steps. Low-grade scrap collects in shop dust, on floors and in rugs and air filters.

Your scrap collection system and laboratory work area probably have plenty of retrievable gold,

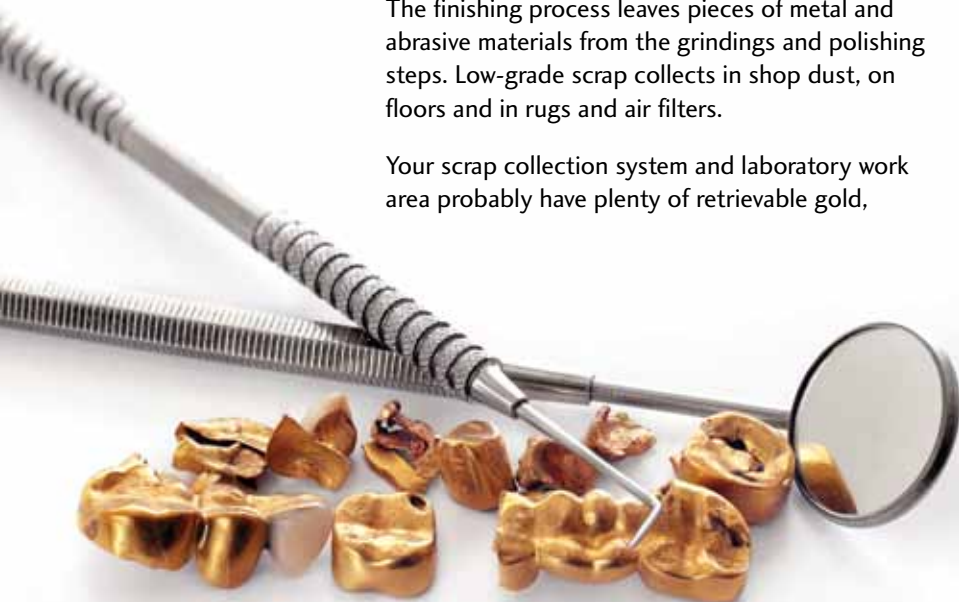
platinum, palladium and silver. With a few simple steps, you can recycle your scrap materials into a profit instead of a waste.

Transforming unusable scrap metal into cash assets makes good business sense. Instead of allowing raw scrap to just accumulate more dust, or tossing it into the garbage, you can use the reimbursement from your scrap for other investment opportunities.

Strictly followed and monitored scrap collection schedules in the laboratory are very important. Do not overlook the smallest amount because you will be overlooking additional revenue.

You can transform your scrap into an asset by following a few simple steps:

- Assign a key person who is responsible for the daily or weekly collection of grinds, casting spills and the general upkeep on all scrap-vacuum collections.
- Send in your scrap regularly, instead of holding it for long periods of time. Keep track of metal purchased, as this will enable you to track the income from your scrap.
- Take a long hard look at how you collect and save your scrap:
 - o How is your suction system working?
 - o How often are you changing your vacuum bags?
 - o Are you wiping down countertops and vacuuming bench draws?
- Keep all carpeting, even if you are cleaning it regularly, as this carpet can be processed and sent in for scrap.



Choosing a Refiner

With all the scrap metal refiners in the United States, how do you choose the right one? Dental scrap is truly a precious commodity. With the high prices of dental alloy these days, the lab owner should find an experienced, reliable and reputable company to send their scrap to—a company that does all the processing, assaying and refining, like Heraeus Kulzer Refining does.

The Process

Most refiners handle the processing of your scrap in a similar manner. Material will be received, logged into the system, weighed and put out for burning. The burning process will eliminate any combustible material. This material will be tumbled and sifted, and any solid material that does not sift after burning, will be melted.

After processing, a net weight will be recorded and a representative sample will be drawn from the material. A pin sample or drill sample goes to the laboratory for assaying.

The Assay

Make sure you get a detailed assay report that clearly shows metal recovery weights, prices and value of each metal. By definition, assay is a quantitative determination in which a metal or metals are separated from impurities by fusion processes and weighed in order to determine the amount present in the original sample.

The following are the two assaying methods that are used industry wide:

- **Fire assay:** A sample is drawn from a homogenous lot and is weighed. The sample is added to lead along with pure silver weighted and added in a crucible. This is heated in a furnace until melted into a button. This button is dissolved with nitric acid, leaving a pure gold residue which is weighted and calculated, divided with the original weight of the sample gives you the gold percentage. Fire assay technique is the most accurate method for gold assay and is the standard reference technique against which other instrumental techniques are compared. This method of assay is centuries old, but is still the most reliable method for

performing gold assays. With the advent of more and more PGM in the dental industry, refiners found it necessary to determine methods of assay that are reliable to detect palladium in a sample, such as gravimetric and spectral means. These methods are also used to determine all metals contained in a sample.

- **ICP and ICE-AES (Inductive Coupled Plasma and Atomic Emission Spectroscopy):** All chemical elements, including precious metals, emit a characteristic spectrum when ionized. This spectrum, defined by wavelength and intensity, can serve as an unvarying fingerprint for the elements of interest. To generate a characteristic spectrum of your scrap, first a sample is dissolved; in nitric and hydrochloric acid. The resulting solution is then pumped into the ICP where the high temperatures argon plasma ionizes the sample and produces the emission spectrum. Fiber optic cables carry this spectral information to the spectrometer, where the wavelength and intensity data are processed by the computer and printed out as concentration percent.

With the fluctuations in market prices, every scrap refiner and its customers are concerned about the speed of settlement. This, with the higher consumption of PGM alloys, having an ICP is a must.

After receiving, processing, assaying and settlement, the processed scrap is then refined to 99.99 percent pure, washed, dried and supplied as shot or melted into bars. These pure metals are now ready for alloying.

Identifying a reputable company to provide fair value for your scrap may be a challenging and time-consuming task. These days you owe it to yourself to do just that. ①

About the Author:

Tony Circelli started in the dental industry in 1976. He has written many articles about refining and is closing in on 39 years in the precious metal scrap refining industry. Heraeus Kulzer has been tested and trusted by many dental labs to return a fast and accurate assay and to pay fair market value for their scrap.

Make sure you get a detailed assay report that clearly shows metal recovery weights, prices and value of each metal.

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Technology Is A Tool, Not a Replacement

This past August, Alexander Wuensche, CDT, and his wife, Danielle Wuensche, celebrated their first year in business as Zahntechnik, Inc., in Miami. The couple worked for more than five years with former owner Klaus Lampmann before taking over the laboratory when he retired.

The laboratory is full service, but specializes in implants and all-ceramic restorations, with implants being nearly 75 percent of the restorations they produce. Zahntechnik prides itself on being a strong digital laboratory with four scanning systems and three milling machines on the premises, which means almost every part of every restoration is produced in-house.

"The lab has been here for 45 years, but now Danielle and I are trying to take it to the next level," he said.

Recently, *focus* talked with Wuensche about where he sees the industry going, his FDLA membership and why technology should be seen as a tool to be used by technicians not something to replace them.

What does being an FDLA member mean to you and how has it helped your laboratory?

I enjoy the consulting and information service of the FDLA. Same with the FDLA education programs. The FDLA Symposium, for example, is an important meeting for me and my lab. We use the opportunity in Orlando to further my employees' education as well as engage in team building activities. I am happy to say that most of our team members look forward to coming to the meeting every year.

What are the biggest issues facing dental laboratory technology in Florida and how can FDLA help its members find success in today's professional climate?

The laboratories have to be better educated in our new technologies. It is always interesting for me when I'm speaking at conferences to see how many laboratories are out there and still not attached to new developments. New technologies are the



opportunity even for small labs to compete with the big players in the industry.

That doesn't mean necessarily to invest in big machines, more it means to get educated about them and take advantage of professional networks to fulfill dentist client requests.

What can the FDLA do about these challenges?

The FDLA can help find these networks, educate members in new technologies and explain how to use them smartly.


What is the best advice you could give about how to be a successful dental laboratory owner?

1. Be smart in choosing the right team. No company, small or large, can succeed if the team is not working well together. The industry is moving more and more towards team building, internally as well as externally, with our customers, partners etc.

2. Invest in new technologies.

3. Find the right niche.

What is the one thing you think every dental laboratory owners should be doing right now?

Even with all nice, new technologies, it is important to still be a dental technician who uses these new devices as tools just like we do a ceramic brush or wax knife. I see the problem of labs that are replacing technicians with machines. That's not how it should be. I have more employees now than before the machines. We are busier and have more cases, so we need highly-qualified technicians to work on the machines. We don't need just waxers, we need technicians who are highly educated and skilled in dental technology. Technology is a tool, not a replacement for technicians. And the most important thing: Don't follow the race to the bottom! 

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