A growing concept in veneers—the no-prep—offers labs, practices, and patients a fast, easy, and non-invasive method for a dramatic smile makeover.

WHAT

In spring of 2008, the U.S. and world economies were shaky, but hadn’t shown many signs of their eventual crumbling, just yet. Then in the fall, the official word came that we had, in fact, been experiencing a recession for nearly a full year. But the worst was still to come with failing banks, falling stock prices, soaring unemployment, and growing anxiety of an uncertain future in spite of a new administration.

Back then, the dental profession was still riding high on the economic boom that had been rolling along during the previous few years and had stirred demand for cosmetic procedures of all sorts from patients—from chairside bleaching to full-mouth revamps. Lab owners responding to a direct-mail survey in April 2008 indicated the majority (55.8%) had experienced increased demand for restorations for strictly cosmetic purposes over the past year, while more than two-thirds (70.5%) reported an increase in cosmetic work stretching back over the previous five-year span.

In both of these categories in the 2008 survey, less than 4% said the demand from dentists for strictly cosmetic restoration had decreased in the designated time period (3.4% over one year, 2.9% over five years). Overall, the business of creating cosmetic restorations was healthy and robust for the dental lab industry.

WEB EXTRA

WHAT GOES UP

Though dentistry is often thought of as fairly “recession proof,” the turmoil that has affected the global economy was bound to have a trickle-down effect. “Since October, we’ve seen a little bit of a drop, and it hasn’t picked up yet,” said Keevin Shigenaka, CDT, General Manager of All-Ceramics at Glidewell Laboratories. “That’s across the board. Last month, we were up just barely 0.5%, and we were ecstatic about that.”

In talking with others in the lab industry, he has heard that many laboratories are not breaking even so far this year.

Without the benefit of insurance reimbursement paying for elective restorative work, cosmetic-based dental procedures, both in-office and indirect, are paid for by patients directly out of pocket and driven primarily by emotion for wants-based rather than needs-based reasons. In an economic downturn such as now, consumers and patients tend to reign in discretionary expenditures in anticipation of potentially worsening finances.

“Right now, people are holding on to their money,” said Shigenaka. “But that doesn’t mean they don’t plan to use it. Everyone’s concerned, but at the same time, how much is everyone really altering things?”

Veneer placement is one such cosmetic treatment that the recessionary economic situation appears to have affected already. The latest DLP exclusive survey* shows veneer work has tapered compared to previous years. Less than one-third (31.8%) of survey respondents indicated an increase in veneer cases in the past two years, with the remaining percentage of labs reporting either a flatline (46.4%) or decrease (21.9%).

CAN STILL GO UP

Even though most survey participants* believe demand for veneer cases will stay the same (51.0%) or even decrease (20.8%) this year, the design behind cosmetic materials and fabrication techniques continues to evolve. In addition, the professional marketing campaigns by laboratories like Glidewell with its proprietary Vivaneers brand or Den-Mat’s well-known Lumineers brand (which it also markets directly to patients) has brought the option of veneers as an easy smile makeover within the financial grasp of patients and provided laboratories and practices with the means to increase elective treatment acceptance.

Veneer fabrication has transformed from the time-consuming, labor-intensive, and technique-sensitive process of refractory or foil techniques to the less-technique-sensitive wax-and-press processes performed by a technician with skills that can be aided by preformed or custom printed/milled wax forms, to the dental technologist working at a CAD/CAM workstation and designing veneers to be milled from ceramic and lithium disilicate blocks.

“A lot of people can do a good job with refractory or foil,” said Shigenaka. “But for us in our particular situation for consistency, and because we have so many people at varying levels of talent, being able to wax and press became the default way of guaranteeing that we get a certain level of quality and consistency. Pressing is the most accurate way to get a margin. Whatever you wax up, if you press right, it goes right to the margin and there is no gap.”

For many laboratories, pressing is overwhelmingly the preferred method for producing veneers, partially due to multiple benefits afforded over other ceramic materials.

“It’s much easier to train someone to carve a tooth in wax than it is to build and shape it in porcelain,” said Keith Miolein, Technical Director at Craftsman Dental Lab of Beacon, N.Y.

In addition to traditional hand carving of...
waxes for pressing veneers, newer materials have been introduced to the market that eliminate much of the manual labor and skill necessary to form the tooth. Preformed wax patterns can greatly speed up and regulate the process, while polymer blocks can be custom designed and milled via applicable CAD/CAM systems. Laboratories also can utilize the services of outsourcing services to generate 3D printed wax patterns or purchase the software and hardware for in-house printing if working with a high volume of pressing cases.

“What used to be in the hands of a ceramist now is in the hands of a good waxer,” said Miolen. “It’s changing the way lab owners hire and the way they structure their labs.” He added that technicians who can be trained to wax also are easier to employ than ceramists, who have years of training and experience, but who also are retiring and leaving lab owners with a difficult time finding replacements.

In addition to veneers, pressable materials can be used to create all-ceramic single-unit inlays, onlays, and anterior crowns as well as multi-unit bridges or posterior crowns with a metal or zirconia substructure (depending on the particular material). This versatility facilitates shade matching of adjacent and opposing restorations. Pressing also affords finishing options as bonding the veneers in place. Around five years ago, Den-Mat Corp. introduced Lumineers ultra-thin (0.3-mm) pressed feldspathic veneers that require minimal or no prep by the dentist, which at first caused some concern in the dental profession.

“General dentistry frowned on the procedure, and so did Glidewell,” recalled Shigenaka. “If you don’t reduce any tooth structure, you’re adding on. It’s going to be bulky, it’s not healthy, and you’re creating a speed bump down at the gingiva.”

However, after numerous cases were placed by Glidewell’s in-house clinician Dr. Michael DiTolla and the endorsement by Dr. Gordon Christensen of Den-mat’s Lumineers, “That became our entry into the market,” he said.

According to Shigenaka, Glidewell ceramic engineers set out to develop their own pressable ceramic capable of pressing to 0.3 mm for no-prep veneers and eventually came up with a leucite-reinforced feldspathic porcelain that is a variation of a layering ceramic and available in a range of opacities. “That became our entry into the market,” he said.

Like Den-Mat (as do several other labs), Glidewell markets its own Vivaneers brand direct to dentists as a no-prep, non-invasive
Using CAD/CAM technology, Bill Atkission (www.billslab.com) can create four anterior maxillary veneers in just over an hour from scanning to etching, an invaluable advantage for his one-man lab operation.

The stone models of both the tooth prep and the temporaries are scanned using the Sirona inEos digital scanner. The inLab software combines the two scans and superimposes the transparent image of the temporaries over that of the model (Fig. 1). The veneer for tooth #7 is designed using various software tools (Fig. 2), including built-in margin outline, proximal contact, and path of insertion. While the #7 veneer is being milled, the #8 veneer can be designed. The Replication Mode proposes a mirror design of tooth #8 for tooth #9, which can then be customized for shape and position (Fig. 3). The four veneers are milled in succession from VITA Mark II blocs (Fig. 4). After the sprues are removed, the veneers are tried on the stone model (Fig. 5). VITA Akzent stains and glaze are applied (Fig. 6), the veneers are fired, re-tried on the model, and minimally adjusted with a finishing wheel. The patient was especially pleased with the final results, which transformed the shape and length of her teeth (Fig. 7).

Smile makeover option. However, Glidewell also developed the material for labs to use for in-house veneers known as Prismatik ThinPress (see “Press for less” facing page), and just recently Ivoclar Vivadent launched IPS e.max Press lithium disilicate material in both low (LT) and high (HT) translucencies for ultra-thin veneers. In addition, Pentron Ceramics now offers Press.tige pressable material for ultra-thins, which Miolen has been using for several months.

“A material that can be pressed this thin makes my lab more productive because now I can incorporate more waxups into my rings as well as press the thin cases,” said Miolen.

According to the DLP veneer survey, 40% of lab owners have added ultra-thin minimum-prep veneers to their services. Miolen added that because it also can be used to press full-contour units, he has been able to up-sell cases where the dentist has prescribed a single restoration but where adjacent teeth are asymmetrical or out of arch form and could benefit from a thin veneer with no preparation.

“I’m actually calling doctors up promoting more veneers on cases where they do not prescribe a veneer. All I have to do is press it and send it,” he said. “It idealizes their smile, and the doctor doesn’t have to prep. I now aid the doctor in treatment-planning a better smile for the patient.” Eddie Corrales, Owner of Downtown Dental Designs in San Diego, confirms the add-on benefits of pressing ultra-thin veneers as an adjunct to non-veneer cases. “That’s something that I, and a lot of good technicians, have a good eye for—the improvement of the case,” he said. However, he does recommend that such case...
ECONOMIC IMPACT

The global financial crisis is more than likely a key factor in how lab owners see the demand on their veneer business.

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<thead>
<tr>
<th>Top 3</th>
<th>Pack 2 Years</th>
<th>Anticipated for 2009</th>
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</thead>
<tbody>
<tr>
<td>Increased</td>
<td>31.8%</td>
<td>28.1%</td>
</tr>
<tr>
<td>Decreased</td>
<td>21.9%</td>
<td>20.8%</td>
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<tr>
<td>Stay the same</td>
<td>46.4%</td>
<td>51.0%</td>
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</table>

Source: DLP April 2009 Veneer survey.

TOP 3

Which communication media do you receive from your dentists with a veneer case?*

- Stump shade: 77.8%
- Photos: 77.3%
- Diagnostic/provisional cast: 73.5%

What information would help improve veneer results?*

- Better prep: 72.8%
- Photos: 62.0%
- Diagnostic cast: 59.2%

* Multiple responses accepted. Source: DLP April 2009 Veneer survey.

CAD/CAM VENEERS

More commonly used to mill substrates for zirconia-based crowns and bridges, CAD/CAM technology also has applications in the production of veneers, beyond the milling or printing of wax/resin patterns for pressing. Although pressables command the heft of use for veneer fabrication, a healthy 34.7% of lab owners responded to the DLP survey that they use CAD/CAM to mill their veneers.

Bill Atkinson, Owner of Bill Atkinson Dental Ceramics in Oceanside, Calif., has been using Vident’s Mark II feldspathic blanks on the Sirona inLab system to mill anterior veneers since 2006, prior to which he was pressing (see “Milled smiles” on page 19). “I prefer to do these and talk my doctors into doing them,” he said, though he adds that the milled veneers aren’t suitable for all cases, such as patients with heavy bruxism.

In addition to Vident, Ivoclar also offers millable blocks for use in the inLab CAD/CAM machine in the form of IPS Empress CAD leucite-reinforced glass-ceramic and the IPS e.max CAD, though they are indicated only for standard (not ultra-thin) veneers. Atkinson indicated he hasn’t had the opportunity to mill the newer IPS e.max CAD HT blocks (which were just launched this year), but said he would likely use them in cases that require the additional strength of the lithium disilicate material.

One minor downside to milling veneers is there are no blocks specifically shaped and sized for the thin restorations. Using a standard block results in wasted material and extended milling time because only one veneer can be milled at a time.

Shigenaka says that Glidewell does a certain percentage of its veneers through CAD/CAM with consistent results that require minimal hand finishing. “As the materials become more usable and more practical, that’s really going to increase,” he said. He added that for single veneers, he’s more likely to press.

Den-Mat produces the Lumineers with Cerinate through pressing, though Den-Mat Director of Marketing Kim Ferrari said another lumineers veneer option is a milled lithium disilicate. In addition to using CAD/CAM to produce the veneers themselves, Den-Mat also incorporates the technology to generate an innovative tray delivery and placement system called LUMITray (see “Special delivery” above) as well as a tooth-preparation guide called LUMIKey. “It’s actually better for the dentist getting into thin veneers,” said Ferrari. “We take the technique sensitivity out of it. It’s a hard material that won’t let you overprep.”

While clinicians have the option of milling veneers at chairside on Sirona’s CEREC machine or the E4D chairside CAD/CAM system distributed by Henry Schein, the technology has limited appeal for the majority of practitioners due to the hands-on processing steps involved—such as the detailed staining, glazing, and polishing—to create natural-looking single-visit restorations. However, the CEREC system starts with a digital impression that can be electronically sent to a laboratory for veneer design, milling, and finishing. Other intraoral capture devices, like Cadent’s iTero or 3M ESPE’s Lava C.O.S., as well as extraoral scanners, like Zahn’s Dental Wings or Nobel Biocare’s brand-new Nobel-Procora, that can scan the internal aspects of a poured impression tray and generate a digital model, offer labs and practices a model-less option for veneer cases, which shortens turnaround time.

“Everyone’s fascinated with this kind of technology, but I think the vast majority of labs are still doing it the traditional way,” said Shigenaka, though he cautions that laboratory owners “should know that CAD/CAM or pressing maximizes their efficiency.”

SPECIAL DELIVERY

The LUMITray® system from Den-Mat Corp. (www.lumineersdds.com) utilizes different CAD/CAM technologies to streamline the design, production, tooth preparation, and placement of Lumineers brand veneers.

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**References**

1. The DLP April 2008 Cosmetic Survey was direct mailed to a random sampling of 1,000 lab owners in the United States in February 2008. Statistics were tabulated from 159 returned surveys, for a response rate of 15.9%.

2. The DLP April 2009 Veneer Survey was direct mailed to a random sampling of 2,730 lab owners in the United States in February 2009. Statistics were tabulated from 195 returned surveys, for a response rate of 7.1%.