In Practice

WITH DR. RONALD E. GOLDSTEIN

The Declining Use of Amalgam...Are Dentists Taking Advantage of the Public's Fears?

Ronald E. Goldstein, DDS
Clinical Professor
Oral Rehabilitation
Medical College of Georgia
School of Dentistry

Dr. Goldstein also serves as adjunct professor of restorative dentistry at the University of Texas Health Science Center, adjunct clinical professor of prosthodontics at the Henry M. Goldman School of Dental Medicine, Boston University, and visiting professor of oral and maxillofacial imaging and continuing education at the University of Southern California School of Dentistry. Dr. Goldstein is the author of Change Your Smile *and* Esthetics in Dentistry.

I can remember more than 25 years ago when my good friend and one of Brazil's most outstanding dentists, Dr. Olympio Pinto, told me that he had not performed an amalgam restoration for a few decades and that he was only doing gold. I thought at the time that it might be a trend that could become worldwide. Here it is 25 years later, and amalgam is still being used heavily in the world of dentistry. This is despite the fact that for the most part, patients concerned with looking better and having the most esthetically pleasing smile possible, simply will not permit dentists to put amalgam back in their mouths—regardless of whether it can be seen or not. I have even had patients say they will refuse to have amalgam be put in their molars, when certainly no one could see it. So, there is an esthetic side to this issue.

On the other side there has been a continuous controversy, but as always, the American Dental Association and its research component have always supported the safety and efficacy, as well as the advantages of dental amalgam. So I felt it appropriate to ask some leading practitioners their opinions, as well as their patients' attitudes toward use of dental amalgam in this new century. We received some interesting answers, and I appreciate the hard work that both the editors and the clinicians did to participate in this survey.

Q What do you like best and least about amalgam?

J. Terry Green, DDS—What I like best about amalgam is that it is easy to place, you get good contacts, it provides antimicrobial activity, and you are able to see the occlusion in the teeth. What I like least is the color.

Brian Beaudreau, DMD—Amalgams have a proven track record. They are easy to place and have served patients well for many years. But amalgams cause fractures in teeth, they are not tooth colored, and, regardless of your opinion about their safety, mercury has become a significant public issue.

Richard D. Trushkowsky, DDS—Amalgam restorations are unesthetic and do not strengthen surrounding tooth structure. To obtain sufficient strength, a bulk of material is needed. This will result in increased tooth structure removal. However, amalgam is relatively technique insensitive. Its mechanical and physical properties contribute to its good clinical performance over time.

Michael Sonick, DMD—The best thing about amalgam is the ease of placement. It is said that they can be used in a moist environment. They are not very technique sensitive and relatively inexpensive, at least initially. The low initial cost may be a fallacy, for many amalgams "grow" into crowns. On the downside, amalgams have the ability to cause microcracks in teeth and split teeth by their wedge effect and the undermining of cusps. What I like least is their unesthetic appearance. They are not tooth colored and stand out. Over time, they corrode and look awful. The gingival appearance is also frequently tarnished by amalgams placed in teeth. Amalgam tattoos caused by the removal and replacement of amalgams are unsightly and detract from the appearance of the most esthetic of restorations. They are difficult to remove and require surgical intervention. A common problem I see in my implant practice is the damage caused to the gingiva by failed apicoectomies "sealed" with amalgam. Gingival grafting is frequently necessary to cosmetically repair the tissue, leading to added expense, time, and surgical discomfort for the patient.

Q Do patients reject amalgam?

J. Terry Green, DDS—No, because I think the patients in my practice decide what kind of restoration they want to have. We give them the choice. I have patients who come into my practice wanting amalgam and also patients who do not want amalgam. We let the patient decide the restoration they like. In this day and age when you can decide if you want chemotherapy or not, I think the color of your fillings is an insignificant problem.

Brian Beaudreau, DMD—Yes, while I have not placed an amalgam in several years, I have had many patients reject them mainly for two reasons: its color and mercury content.

Richard D. Trushkowsky, DDS—I have had few patients reject amalgam restorations after I have recommended them. I recommend the best material for the clinical situation. However, the insurance coverage and final cost to the patient may influence his or her decision (although this does not affect the recommendation process). If amalgam restorations are offered at the same price as composites, the cost to some patients may be prohibitive and not allow them to get adequate dental care. If the patient were under my care, I would rather not refer them elsewhere for treatment, as I hope at a future date more comprehensive care may be accomplished.

Michael Sonick, DMD—I am a periodontist and do not place amalgam in my practice. However, I have an esthetically oriented practice. Most of the patients who are interested in esthetic dentistry reject the idea of nontooth-colored restorations in their mouths. Let's face it, we are an esthetic-oriented society and people want to look good. Society's idea of esthetics does not embrace silver-colored teeth.

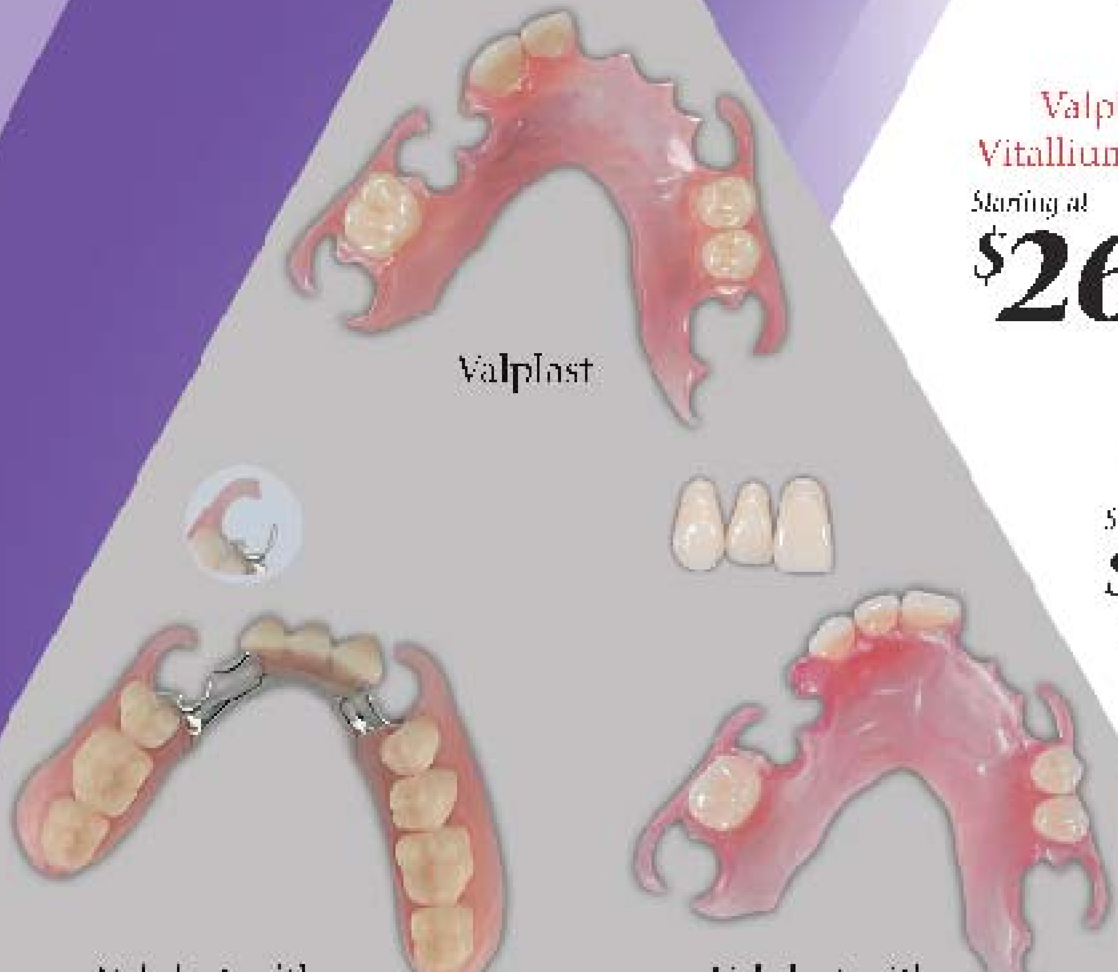
Q Do new amalgam alloy formulas solve past amalgam problems?

J. Terry Green, DDS—Certainly, amalgam today is less moisture sensitive and there is less expansion. The physical properties have

Triple Your Options With

Valplast®

...Which Would Your Patients Prefer?



Valplast

Valplast with Vitallium Subframe

Valplast with Portrait IPN Teeth

Valplast
Starting at
$174.00

Valplast with Vitallium® Subframe
Starting at
$266.00

Valplast with Portrait® IPN® Teeth
Starting at
$219.00

- Offer our standard Valplast when you want to upgrade your patients from a cast-metal to a metal-free removable partial denture.
- Offer Valplast with a Vitallium subframe when you need that extra strength in extended edentulous areas; especially in the lower arch.
- Offer Valplast with IPN Teeth when your patients want to *"Choose Their Smile"* for the most esthetic option.

Trident Dental Laboratories

Call Today For Your Case Pickup Or For More Information

800-221-4831

"Just As Easy As A Local Lab"™

Expect Quality • Depend On Our Service • Receive Value

Circle 9 on Reader Service Card

never really been the problem. The problem has been the color.

Brian Beaudreau, DMD—For myself, that is not the issue. I would prefer to place esthetically pleasing restorations. Why place a restoration that is not tooth colored when, with the proper training and expertise, I can place a tooth-colored restoration?

Richard D. Trushkowsky, DDS—The newer high-copper alloys have definitely improved the clinical performance of amalgam. The use of adhesives has also minimized problems with microleakage.

Michael Sonick, DMD—Current amalgam formulations might be an improvement, but still do not overcome the inherent problems nor make them a first choice for any restoration. They are still silver and will always be silver regardless of the improvement in properties.

Q: Do you have amalgam in your own mouth? Would you or do you place amalgam restorations in your own family?

J. Terry Green, DDS—I have a couple of amalgam fillings that I have had for probably 30 some years.

Brian Beaudreau, DMD—Yes, two—one placed more than 20 years ago, and the other is about 15 years old. I have not and would not place amalgam in a member of my family.

Richard D. Trushkowsky, DDS—I have amalgam restorations in my own mouth. Most of them were placed more than 30 to 40 years ago. As they become defective, I have had them replaced with direct composites or composite inlays or onlays, depending on the size and position of the restoration required. I would place an amalgam restoration in my own family, if I felt it would provide the best service and composite (or other restorative material) was not appropriate. If esthetics was of paramount importance, additional preparation such as crown lengthening may be required so that proper isolation can be achieved. A combination of glass ionomer and composite may also be considered.

Michael Sonick, DMD—I did until about 6 months ago. Unfortunately, I grew up without the benefit of fluoridated water and had interproximal caries on all of my posterior teeth. They were all filled with amalgam in my early and mid-teens. Despite amalgam's so-called longevity and ease of placement by even the least skilled of practitioners, all of my restorations required replacement in dental school. In 1977, amalgam was the restoration of choice. Within the past 2 years, 4 of my posterior teeth fractured cusps at the amalgam–tooth interface. All of my posterior teeth necessitated crowns. In my case, my initial amalgam grew to larger amalgams and finally grew to crowns. More conservative caries removal would have decreased the chances of this happening. As a periodontist, I do not place amalgam. However, if a family member, or a patient for that matter, required a restoration, I would recommend a direct composite or an indirect inlay or onlay. I surveyed 10 of the best dentists that I work with, and with the exception of 1, all were no longer using amalgam. The one dentist still using amalgam places less than one restoration a month.

Q: How would you compare longevity between amalgam and resin in posteriors?

J. Terry Green, DDS—Amalgam is a superior lasting material. Composite restorations certainly have a shorter life span than amalgam. On the other hand, composites can be well placed, and I have seen them have excellent longevity. I think it depends on what kind of function the patient has. On some people, amalgam may do better than composite depending on the size of the isthmus. A patient with a large isthmus that should have been a crown is probably going to do better with amalgam in the long run.

Brian Beaudreau, DMD—That is a great question, and one I think dentistry has struggled with. Amalgam restorations have excellent longevity, but again, a properly placed composite restoration placed by a skilled dentist can be of great service to the patient for many years.

Richard D. Trushkowsky, DDS—I feel a properly placed amalgam or composite (using some of the newer materials) could possibly provide a similar length of service. However, composites such as we use today have only been used for a relatively short period of time. Clinical research is very limited. Laboratory results have varied on the best method of bonding and placement. However, we have overcome some of the initial problems with composites, such as wear and inadequate contacts.

Michael Sonick, DMD—The longevity of the materials appears similar. Composite wears faster but has fewer failures because of fewer cuspal fractures. Composite is much more technique sensitive, so it may be more prone to caries in less experienced hands.

Q: Are microcracks in amalgam because of old age or physical properties of the material?

J. Terry Green, DDS—I think this is because of the physical properties of the material. But, you also get cracks in composites—they are just much harder to see. I think it is harder to diagnose when a composite is failing because the material blends so well into the tooth.

Brian Beaudreau, DMD—Large amalgam restorations consistently have microcracks, and given enough time I believe those teeth will fracture. I also consistently see decay in those same teeth when removing the old amalgam. I do believe that these situations occur because of the corrosive nature of the amalgam and the inevitable expansion as the amalgam corrodes.

Chair. CEREC® 3. Just add patients.

- Inlays
- Onlays
- Crowns
- Veneers
- *All Ceramic*
- *All Chairside*

Please contact our exclusive distributor in North America:

PATTERSON DENTAL SUPPLY, INC.

www.pattersondental.com

1-800-873-7683

Come see us at Patterson Booth #1233-1243 at The Chicago Midwinter Show

Circle 11 on Reader Service Card

The Dental Company

CEREC by sirona

So, yes, patients many times leave them in too long.

Richard D. Trushkowsky, DDS—I do not see microcracks on a consistent basis. The cracks that are present are usually in patients who clench and brux. Many of the amalgam restorations I have placed or were present before the patients entered my practice have been there for 25 years. This includes many pin amalgams that were placed because the patient couldn't afford cast gold restorations. Currently, composite or ceramic onlays are recommended.

Michael Sonick, DMD—Any material that simply fills a hole does not strengthen the tooth, amalgam and direct composites included. With that said, the expansion and shrinkage properties of amalgam may result in the propagation of microcracks and eventual cuspal failure. The preparation design for amalgam restorations results in undermining cusps for retention. This not only immediately weakens the cusps, but also creates a wedge effect of the amalgam restoration, which can eventually split the tooth over time.

What place do you think amalgam has in the new world of esthetic dentistry?

J. Terry Green, DDS—Not a very big one. The word amalgam and esthetics are at opposite ends of the spectrum. I think amalgam is still a very good restoration and certainly we place it in the posterior portion of the mouth and in people with a high caries index.

Brian Beaudreau, DMD—For myself and the style of dentistry that I choose to practice, there is no place for amalgam restorations.

Richard D. Trushkowsky, DDS—Amalgam should still be used where it will provide the best longevity and composites are contraindicated. As composite and adhesive materials continue to improve, the need for amalgam will be eliminated. Eventually we may be able to have a material that can be placed as readily as amalgam, be self-adhesive, with minimal shrinkage, and restore normal anatomy, esthetics, and function of the natural tooth. Until then, amalgam can still serve a useful function, especially in areas where limited dental treatment is available.

Michael Sonick, DMD—Amalgam has no place in the world of esthetic dentistry, primarily because it is not esthetic. There are far better materials available today for us to choose from. They are on the increase. In fact, some dental schools are no longer teaching the placement of amalgam restorations. Lastly, there is the mercury issue. Whether or not there is a mercury issue is moot. The public perceives that there is and that is all that matters. Many people today are avoiding tuna and swordfish because they contain mercury. In fact, in California, a Superior Court judge approved a landmark warning on the use of mercury in dentistry (Proposition 65), which requires dentists to post a warning to patients that amalgam may cause exposure to mercury, a chemical known to cause birth defects or other reproductive harm. Lawsuits have also been filed in Georgia, Texas, Ohio, and Los Angeles, California. The writing is on the wall. Amalgam will soon be a dinosaur.

PROVEN ROI

KaVo DIAGNOdent® Laser Caries Detector

100% KaVo.

THE DENTAL ADVISOR

REALITY 2001

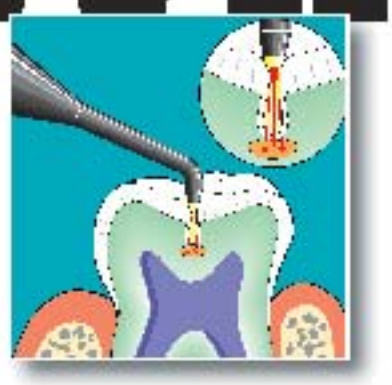
Win,win,win!

Patient wins

- Early caries detection over 90% accurate
- Promotes minimally invasive treatment
- Provides objective data to increase confidence in treatment decisions
- Interactively engages patient in examination process
- Safe, no x-ray exposure
- Painless

Hygienist wins

- Empowers hygienist to educate patients
- Provides quantifiable data to objectively monitor lesions over time
- Enables placement of sealants with confidence
- Identifies areas of high risk to ensure doctor's involvement during hygiene appointment



The DIAGNOdent is a small, portable, high-tech caries detection device. It is easy to use and provides precise, reliable diagnosis of subsurface and incipient lesions.

Dentist wins

- Over 90% accurate in detecting lesions not detectable with x-rays or explorer
- High patient acceptance, great marketing tool
- Increases confidence in treatment decisions
- Prevents over or under treatment of suspect teeth
- Perfect adjunct for microdentistry such as air abrasion with the new KaVo RONDOflex handpiece
- Practice Management Consultants and thousands of U.S. dentists agree that the DIAGNOdent provides the best ROI (return on investment) in dentistry today

Bottom line, with DIAGNOdent everybody wins.
You can't lose–what are you waiting for?

KaVo America Corporation
[illegible]
200.323.0623 • fax [illegible]
www.kavo.com

KaVo. Dental Excellence.