

# Providing more with less

The minimally invasive way of thinking and practicing is better for patients and practices alike.

By Stan Goff

To hear longtime dentist Dr. Stewart Rosenberg explain that “minimally invasive” dentistry is much better than “maximally invasive” might sound a little silly at first. But there is nothing silly about the passion this Laurel, Md. general practitioner has when it comes to providing the best, most comfortable and least invasive care to his patients.



Photo: Getty Images

Dr. Rosenberg, who co-founded the World Congress of Microdentistry—which has since been renamed the World Congress of Minimally Invasive Dentistry (WCMID) ([wcmid.com](http://wcmid.com))—is both thrilled and proud to be a pioneer in minimally invasive dentistry (MID), yet struggles with the fact that not all dentists today are aware of its benefits and how to deliver this type of care to their patients.

One of the key protocols of MID is caries risk assessment, and its popularity is beginning to grow nationwide among dental schools, a trend that Dr. Rosenberg enthusiastically supports.

“This is the best thing to happen to dental education in all the years I’ve been in dental practice. Yet, it’s amazing how many dentists aren’t aware of this and don’t realize its importance,” he said.

CAMBRA (caries management by risk assessment) is one way the profession can play a more preventive role in oral health. It is characterized as a set of recommendations and guidelines for practical caries intervention and prevention, and it essentially involves a more detailed patient history form specifically geared to help determine a patient’s risk of caries, a test to measure the level of cariogenic bacteria in the patient’s mouth, and a set of recommendations for caries control and management.

But CAMBRA is just one of many aspects of MID and therefore only a portion of DPR’s latest exclusive survey. Our first-ever Minimally Invasive Survey report covers the early years of MID, product and technology advances that have helped deliver this less invasive care to patients, and steps and advice on how you and your staff can get more involved in delivering this approach to clinical care.

The entire MID way of thinking is gaining steam, as evidenced by the fact that 77% of survey respondents have either taken some classes and have implemented small steps of the protocol into their practice, or are interested in learning more.

## Early days

Many dentists—not just the pioneers featured in this article—believed early on that there

### Changing your Protocol

Have you changed your treatment protocol in the last three years to include more MID procedures?

<b>Yes</b>	<b>52%</b>
<b>No</b>	<b>48%</b>

### Reader interest in MID

How would you categorize your interest and practice of MID?\*

Taken some classes, integrating in small steps	<b>45%</b>
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Interested in learning more, not practicing	<b>32%</b>
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Expert, committed to MID	
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might just be a better way to treat teeth than to stick with the “wait and see” protocol and the “extension for prevention” methods taught more than a century ago by G.V. Black.

Dr. Rosenberg was ready to shift gears the moment adhesive dentistry enabled clinicians to depart from G.V. Black’s preparation designs by no longer making it necessary to cut a specific preparation to compensate for the physical properties of amalgam and gold.

“I really started thinking about minimally invasive dentistry even before air-abrasion,” Dr. Rosenberg said. “I recognized very early on in my career that what we were being taught with regard to restoring teeth and to diagnosing and restoring carious lesions just didn’t make logical sense. We were taking away way too much tooth structure than necessary to get rid of whatever pathology was there. And in doing so, we were weakening teeth and ultimately over time seeing the results of these weakened teeth— fractured cusps and broken teeth.”

Breakthroughs in bonding systems and materials more than two decades ago opened the door for the minimally invasive way of treating decay, and practitioners like Dr. Rosenberg eagerly ran with the opportunity to do away with amalgam. “As soon as composites came, that’s the year I stopped doing amalgams,” he said. “To do amalgam restorations, we had to remove more than just decay; we had to remove healthy tooth structure to support the amalgam. Whereas with the advent of adhesive dentistry, we could remove just the pathology and still restore a tooth properly. That’s where I started thinking minimally invasive dentistry.”

### Using technology for MID

Air-abrasion enables the creation of small preparations when cavitated lesions are in their infancy. This technology is credited by many to have taken off thanks in large part to Texas dentist Dr. J. Tim Rainey. But Drs. Rosenberg and Kim Kutsch, a Past President of both the Academy of Laser Dentistry ([laserdentistry.org](http://laserdentistry.org)) and the WCMID, each jumped on board with air-abrasion about 20 years ago, getting a big head start on MID.

Air-abrasion has since been replaced in many procedures by dental lasers, but it remains helpful when customizing the preparation for composite application and also enhances the bond. The technology is popular when placing sealants. With the advent of air-abrasion came the need for early diagnosis, now a critical element of care.

“When we first brought air-abrasion into that (MID thinking) it carried things to another level. That’s when we coined the word ‘microdentistry,’ which then became minimally invasive dentistry,” Dr. Rosenberg said. “Too many people thought we were talking about microscopes rather than minimally invasive dentistry, so we changed the semantics to better reflect the philosophy that we were trying to teach.”

Air-abrasion was adopted by many doctors, but many other clinicians shunned it because of the mess, said Dr. Rosenberg, who lectures internationally, often on behalf of Biolase Technologies ([biolase.com](http://biolase.com)), maker of the Waterlase MD all-tissue laser that he uses in his practice.

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“We were able to overcome that negativity with the advent of all-tissue lasers,” Dr. Rosenberg said. “Now we can do minimally invasive dentistry with lasers as precisely as we could with air-abrasion without the mess of the powder and without breathing in the powder. This made minimally invasive dentistry more palatable to a greater percentage of dentists.”

in as many  
cases/procedures as  
possible

22%

Not interested, not  
practicing

2%

\*Totals do not equal  
100% due to rounding



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According to the survey, 62% of our readers associate air-abrasion with MID. The top response was magnification (84%), while laser/LED decay detection (72%) and digital radiography (69%) also are considered keys to delivering minimally invasive care.

"I find with the Waterlase I really don't have a need for air-abrasion from a restorative standpoint, but I'll still use it to clean out the inside of a crown or a veneer, for rebonding or re-cementation," Dr. Rosenberg said. "Not only can we do things very minimally invasively with the laser, we can do a lot more than we ever could with air-abrasion, and also without anesthesia.

"Of course, another tremendous boost to minimally invasive dentistry is a device like DIAGNOdent from KaVo Dental Corp. ([kavo.com](http://kavo.com)) Because checking for occlusal caries with an explorer is only at best 25% accurate. Using laser scanners such as DIAGNOdent helps us be 90% or more accurate. With that we are able to more accurately diagnose carious lesions earlier, and as a result, treat them obviously more minimally invasively."

Dentsply Professional ([dentsply.com](http://dentsply.com)) came out with the Midwest Caries I.D. detection handpiece earlier this year to give dentists one more strong option for discovering interproximal and occlusal caries that might otherwise go undetected.

Implants and CAD/CAM restorations are also a growing part of the expanding MID protocol, and were noted as such by 36% and 25% of our survey respondents, respectively.

Dr. Mark S. Wolff, PhD, professor and chair associate dean for Pre-doctoral clinical Education Department of Cariology and Comprehensive Care at New York University College of Dentistry, said in addition to technological advances, MID has been helped greatly by some newer products and materials. "Fluoride varnish, dental sealants, glass ionomer lining cements, resin modified glass ionomer cement restorative, composite resins with dentin bonding agents and calcium remineralizing products, such as MI Paste from GC America ([gcamerica.com](http://gcamerica.com)) and ProClude/DenClude from Ortek Therapeutics Inc. ([ortekinc.com](http://ortekinc.com))," he said, naming key offerings.

## CAMBRA

While lasers, early caries detection devices and products such as less-invasive burs and less-prep veneers are becoming more and more popular, CAMBRA is helping MID practitioners change their way of thinking in terms of prevention.

Dr. Kutsch is all about treating the bacteria that cause caries to prevent the disease, as well as detecting it as early as possible when it does occur.

"Minimally invasive dentistry really has a core philosophy of preserving healthy tissue. We've seen the age of overpreparation of teeth to meet the requirements of restorative materials, and now we're progressing to designing restorations that provide the greatest structural integrity to the teeth and the best long-term predictability," he said. "This approach applies to all areas of dentistry. As a profession, we should be questioning, examining and studying the scientific evidence for every procedure we perform."

Using CAMBRA in your practice is the best way to do so, he added. "Caries risk assessment is a powerful new standard of care. Rather than just treating cavities, we are now identifying the underlying caries risks for individual patients and then directly treating the biofilm disease responsible for their cavities," said Dr. Kutsch, whose company, Oral Biotech ([carifree.com](http://carifree.com)), offers a variety of mouthrinses, gums and caries assessment products. "Patients quickly grasp this new approach and appreciate our efforts at eliminating their disease. This has a huge positive impact on dental practices."

Dr. Rosenberg agrees patients pick up on the benefits quickly.

### Keeping patients up to date

How often do you provide patients with educational materials to inform them about many of the newer MID treatments available?

Frequently	21%
Occasionally	36%
Rarely	24%
Never	19%

"Totals do not equal 100% due to rounding

### What's the deal with CAMBRA?

Can you define CAMBRA?

Yes	21%
No	79%

Do you have an established CAMBRA protocol in your practice?

Yes	10%
No	90%

"I've found it more of a learning curve and philosophy curve for the dentist than the patient," he said. "The patient certainly would rather have less than more tooth structure removed, spend less than more money on a restoration, and have less rather than more discomfort."

Dr. Rosenberg expects MID dentists who incorporate CAMBRA ideas in their practices to take the less invasive care even further. "Those who embrace minimally invasive dentistry recognize that caries is a bacterial/biofilm disease and that unless we determine and then treat the cause of the disease, our work is destined to fail. That's where we're headed in the 21st century," he said. "So now with caries risk assessments, the CariFree products, and techniques to monitor homecare properly to make sure *Lactobacilli* and *Strep Mutans* are kept below pathological levels, the next generation hopefully will have dramatically reduced restorative dentistry.

"A key factor (and I applaud CariFree and the WCMID for this) is making us realize the fact that an acid environment in the oral cavity is what allows the bad biofilm to take over from the good biofilm and makes us prone to carious lesions as well as periodontal disease. If we can keep the oral environment neutral or basic, caries can't exist."

Not many dentists, however, seem to know enough about CAMBRA. Just 21% indicate they can define CAMBRA, while 10% said they have established a CAMBRA protocol in their practice.

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## Other survey highlights

- Fifty-two percent of the respondents indicated they had changed their treatment protocol in the last three years to incorporate more MID procedures.
- Sixty-five percent either frequently or occasionally work with their staffs to provide new information on MID treatments and preventive care, while 21% frequently provide patients with MID educational materials.
- Forty-six percent of you told us that you had participated in a CE course on MID in the last two years, and that in-person CE events/courses were the top places to receive such education.

## A win for all

Because patients and practices alike benefit from the minimally invasive philosophy, we should expect the shift in care to continue toward the MID protocols.

"Of course, the most minimally invasive dentistry is preventive dentistry," Dr. Rosenberg said. "With caries risk assessments now becoming popular, determining a patient's susceptibility to decay by caries risk assessments with CAMBRA is taking minimally invasive dentistry to a new level."

Keeping the whole change of thinking in mind is important, Dr. Wolff said. "Minimally Invasive (Intervention) Dentistry refers to a philosophy that centers on the fact that dental caries is a disease that is not defined by 'cavitation,' but rather by the earliest stages of demineralization. It's a philosophy of preserving tooth structure, preventing and reversing the effects of dental caries."

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