Interview: Maximum intervention with minimal invasion

by Robert Selleck, DTA

Take less and achieve more. That could sum up the dentistry philosophy, both professional and financial, advocated by Graeme Milicich, BDS. The Hamilton, New Zealand, dentist has earned a global reputation for protecting and restoring smiles while doing as little damage as possible to otherwise healthy tooth structure. Milicich had his “epiphany moment” with minimally invasive dentistry 16 years ago, and said, “It changed the way I practice dentistry forever.”

Today, he travels the world sharing that moment and others with dental professionals — with the hope that he triggers the same epiphany in his audience.

The educator, who also works full-time in a private group practice, spoke with Cosmetic Tribune U.S. Edition shortly before the 2012 American Academy of Cosmetic Dentistry (AACD) 28th Annual Scientific Session, where he was scheduled to present two sessions.

Do you consider yourself a “cosmetic dentist?” How much of the work that you do would you label as cosmetic?

If providing the most attractive, cosmetic solutions that a patient can afford qualifies you as a cosmetic dentist, then yes. However, I am very careful to ensure that what the patient wants — and their expectations — are realistic in relation to their attitude to their oral health and their current oral health status. My practice philosophy is total oral care, not just a pretty smile, though that is something everyone wants. To ensure patient expectations are met and longevity of the work is ensured, the disease processes have to be managed effectively.

Why are you such a strong advocate of minimally invasive dentistry?

I am a recipient of conventional G. V. Black amalgam dentistry and carry the consequences with me forever. If possible, I would like to avoid that for my patients. Even before I graduated 36 years ago, I had a minimal-intervention philosophy, though it was only in its formative stages at that point. The destruction we were being taught to inflict on teeth with a high speed drill just didn’t make sense to me, and even then, it was obvious to me that we were setting up teeth to fail in the long term.

I have been in the same practice since the day I graduated; so I get to see the results of the conservative approach I started out with, and nothing has evolved in my practice to persuade
me to change my philosophy. As science, technologies and materials have evolved, anything
that has enhanced my ability to provide a less invasive option has been adopted into my
practice.

**Should minimally invasive dentistry be the standard model for all dentistry?**
Absolutely. There is the old adage, the less you do today, the less you will have to do
tomorrow. The philosophy extends across all aspects of dentistry and medicine. It requires
staying current on the advances in dental science, materials that give you the opportunity to
be less invasive and accepting new technologies and learning how to use them, rather than
just dismissing them all as ineffective or cost ineffective. The reality is that a minimally
invasive focus has been grasped more readily by our patients than it has been by the overall
profession.

**Are the concepts of minimally invasive and preventative dentistry inseparable?**
Absolutely! The ultimate in minimal intervention is to avoid any destructive damage to the
teeth. This means we have to have an in-depth understanding of the disease processes we
work with.

The reality is, as a profession, we basically deal with one disease that has two manifestations.
Caries and periodontitis are both diseases of naturally occurring biofilms. Periodontitis is a
relatively simple disease model of the crevicular biofilm. Caries, however, is a very complex
biofilm disease and over my practicing life, we have seen a resurgence in childhood caries
rates around the world. It has worried me that as a profession we have struggled to master this
disease when you consider we are supposed to be the world’s specialists on this subject. The
Catch-22 in dentistry is we have to have an oral biofilm. Mother-nature insists. The two
options are: Do you want a healthy biofilm, or a diseased one? The big question is: How to
we heal a diseased biofilm considering it is resistant to change?

Until a patient’s biofilm is healthy, you can’t really offer advanced dental cosmetic
procedures. Patients tend to become very upset when they get decay around expensive
restorative work after a few years.

It is essential that dentists understand, what has been so effectively advocated by Bob
Berkley: Most patients don’t start buying dentistry (the optional cosmetic treatments rather
than just repairing the damage from a diseased biofilm) until they stop growing cavities.

**What are the most meaningful recent technological advancements serving minimally
invasive and preventative philosophies?**
First, from the disease management perspective, advances in the understanding of a diseased
biofilm has been the greatest practice changer in my career. Biofilms are inherently resistant
to change, which is why we and our patients often struggle to make a change in decay rates.
The pH is the only factor that has been shown to realistically affect biofilm behaviour. A 15-
second biofilm activity assessment using ATP bioluminescence and a pH management
strategy and product system from Carifree has been a huge practice builder for me.

Sixteen years ago, air-abrasion was the technological breakthrough for me. Combining that
with an operating microscope, and, a bit later, laser fluorescence caries diagnosis with the
Kavo DIAGNODent, completely changed the way I dealt with early fissure demineralization
and surface protection. New technology has emerged in the form of the CarieScan, by 3D
Diagnostic Imaging, using AC impedance spectroscopy for assessing the state of
demineralizing tooth structure. This is more accurate than laser fluorescence and equally cost effective. Combining laser diagnostics, air-abrasion and magnification with the use of glass ionomer cements has proven the most effective solution for managing the dental fissure complex.

Another effective technology for me has been the Waterlase MD. It opened up a multitude of minimally invasive treatment options that enhance overall outcomes in cosmetic and implant dentistry

Same-day adhesive ceramic dentistry using the E4D by D4D Technologies in conjunction with lithium disilicate porcelain, has provided me with the solution to the final part of the minimal-intervention puzzle. Biomechanics and how teeth function have been an integral part of understanding why we need to embrace minimally invasive restorative techniques. When you grasp how a tooth really functions, placing a crown should really be the last-resort option for most of the damaged teeth we see on a daily basis. Adhesive onlay ceramics come very close to replicating how Mother Nature designed our teeth — and they enable teeth to function correctly.

**Who is going to be most interested in your two sessions at the AACD conference?**
The morning session [Preventistry — Minimal Invasion, Maximum Intervention] will be of equal interest to everyone. Dentists, hygienists and therapists. The afternoon [Minimal Intervention Restorative Treatment Options] is more focused on dentists because it is more focused on minimal intervention from a restorative perspective; but it builds on the morning discussions, particularly on biomechanics, which directly carries over to the afternoon's restorative options, techniques and minimally invasive aesthetic tissue management.

**If you were to envision practitioners leaving your AACD sessions thinking about something a bit differently than when they arrived — what would that thinking be?**
From the morning session, attendees will have a new perspective on the disease we are the world’s experts in treating and understand why we are struggling. Caries management has been made so complicated, when in reality we have only five simple options that are scientifically proven to work. New concepts in remineralization will also be an eye-opener for most. New dental structures and how they relate to the biomechanical functioning of teeth will completely change the way dentists look at teeth, and more important, change the way they prepare and restore them. A combination of animation, morphing and video will make these difficult concepts simple to grasp. Concepts like, “cut an occlusal and you can cause interproximal decay” can be difficult to describe; but it's easy to understand with morphing. At no point in the morning is there the mention of, or opportunity to, justify a dentist using a drill. The primary thought process is: “I am a doctor of dentistry, not a dental surgeon; and now I understand why and how.”

The afternoon session allows us to wear our dental surgeon’s hat. There comes a point in the disease process where damage has been done and we must deal with it. Restorative options based on good understanding of biomechanics will open concepts that change the way attendees treat teeth. This is combined with materials and technologies, such as CAD/CAM and hard/soft tissue lasers, to provide a logical set of treatment concepts. If you like to have total control of treatment, this lecture will provide some insights on how everything can be done while being as minimally invasive as the situation allows. In this financial climate, keeping all phases of treatment “in house” is good business. Know what works and how to use it.
About the interviewee
Graeme Milicich, BDS, Hamilton, New Zealand, speaks and gives training on minimally invasive dentistry, caries risk assessment/management, air abrasion, hard/soft tissue lasers and CAD/CAM dentistry. He holds diplomate status with the World Congress of Minimally Invasive Dentistry and mastership with the World Clinical Laser Institute. He is a founding board member and honorary lifetime member of the New Zealand Institute of Minimal Intervention Dentistry and is the New Zealand E4D CAD/CAM trainer for D4D Technologies. He was instrumental in refining the posterior composite restorative technique and developed an educational program on its science that includes operating-microscope video.

At the AACD 2012 scientific session

- Preventistry — Minimal Invasion, Maximum Intervention, Friday, May 4, 9:15 a.m.–12:15 p.m.
- Minimal Intervention Restorative Treatment Options, Friday, May 4, 2:30–5:30 p.m.