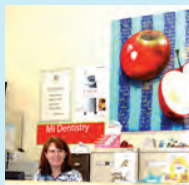


# mid

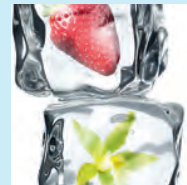
## MID symposium inspires dentists to put down their drills



Walking the talk:  
a fully integrated MID  
practice that is  
profitable



Materials: the  
building blocks  
for MID



Multiple  
solutions with  
Tooth Mousse



# Tooth Mousse and MI Paste Plus from GC.

Remineralising protective crèmes  
with triple the benefit:  
Strengthen. Protect. Replenish.

A healthy balance in the mouth, inhibit demineralisation  
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Part of GC's Minimum  
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# GC



## 4. MID Worldwide

Thanks to the cooperation of academia, the profession and industry leadership by GC, Minimum Intervention Dentistry principles are adopted and promoted around the world, to the ultimate benefit of the patient community.



## 6. MID symposium

MID symposium encourages dentists to put down their drills



## 10. Practice perspectives

- Running a practice on MI principles
- Beyond the explorer: Caries detection in the 21st century
- Walking the talk: a fully integrated MID practice that is profitable



## 18. Team talk

- Multiple solutions for patients with Tooth Mousse



## 22. Clinical corner

- Materials: the building blocks for MID



## 28. Evidence

- Online database puts latest MID evidence into the hands of researchers and clinicians



## 34. MI toolkit

- GC Saliva Check Buffer
- GC Plaque Indicator Kit
- GC Saliva Check Mutans



# MID Worldwide

Thanks to the cooperation of academia, the profession and industry leadership by GC, Minimum Intervention Dentistry principles are adopted and promoted around the world, to the ultimate benefit of the patient community.

## United Kingdom



**Dr Avijit Banerjee, Senior Lecturer / Hon Consultant, Restorative Dentistry at King's College London Dental Institute at Guy's Hospital, London and member of GC Europe's MI Advisory Board**

"MID is not a new concept and I do not believe it is a separate subject in Restorative Dentistry. It is the foundation for good clinical practice in the modern era of knowledge of disease and developments in material science.

The biggest challenge is convincing sceptics and politicians but there is a distinct lack of evidence-based research in this area – more needs to be invested in researching the long term clinical effects/benefits and financial models for different countries and how MI can be implemented within different fiscal plans."

## Spain



**Dr Jose Zalba, dentist in private practice and member of GC's Europe MI Advisory Board**

"As practitioner and speaker I really know the barriers that we find everyday and I have experience how to overcome difficulties, also I know how to communicate this concept to dental team to help them to integrate it daily. It is a team approach, where everybody has their own function. I believe that without a group of people pushing forward in the same direction, MID is impossible. The MID philosophy expands the role not only of the hygienist, but the receptionist is an essential link when it comes to recall."





### Makoto Nakao, President and Chief Executive Officer of GC Corporation

"Japan has been identified as one of the fastest ageing societies in the world. This creates a unique opportunity for dentistry, as the ideal is to retain as many teeth as possible to improve oral function and extend life expectancy. Initiatives like the 80-20 movement advocate that by the age of 80 people should strive to have 20 teeth. A seemingly small objective can make a big difference in the quality of life of the elderly members of the population. Our company philosophy is captured in the concept of 'Semui' which means treating people as you would like to be treated yourself. This is directly aligned with MI dentistry.

The MI product line will be a certain amount of profit to GC, of course. But besides that, our mission is for the people and we will continue to invest in research and development. We have opened the door for diagnostic dentistry. And as CEO of the company, Semui means doing the best thing for our people - that's what I love about my job."



### Tony MacLaughlan, President of GC Asia

"GC's goal for MI in the next 10 years is for each dentist to see MI as an important and integral part of everyday clinical practice and that MI is the gold standard. The obstacles that dentists in this region face in implementing MID into their practices are not having enough time, not having enough training, being too busy with routine dentistry and not seeing MI as providing an immediate financial benefit. In 2000, the FDI published a statement on MI and highlighted the importance of remineralisation as one of the core areas of MID. In taking a holistic approach, we aim to develop products and solutions that help with the identification, prevention and control of the disease."



# MID symposium encourages dentists to put down their drills

## Singapore

As part of the 2009 FDI World Dental Congress scientific programme, the GC-sponsored symposium on minimum intervention dentistry, dubbed MI on Monday, took place on Saturday 5 September. Presenters of this day-long symposium include renowned researchers and clinicians: Professor Hien Ngo, Professor Ian Meyers, Dr David Manton, Dr Andrew Brostek and Professor Laurence Walsh.

Described as a philosophy of lifelong management of the oral environment and a comprehensive, personalised approach to the diagnosis and management of oral diseases, MI dentistry is fast becoming recognised as a sustainable and ethical way to treat patients. Although many dentists are interested in MI as a concept, few know how to change their daily practice to adopt these principles. The symposium was aimed at showing dentists how to take the first steps to implement MI successfully.

"The symposium is an opportunity to demonstrate our commitment as a company to dentistry and in particular, MI," said Tony MacLaughlan, President of GC Asia. "We have world class speakers and they are all enthusiastic about MID. The question we want participants to ask themselves is 'what can I do this Monday that I wasn't

doing last week?'" Each participant received a toolkit which will allow them to go into their practices on Monday and carry out some simple diagnostic steps, hence the title 'MI on Monday'.

Attendees were given an update on the latest in caries understanding and management of the disease and will learn about all the MI products available and how to maximize their utility for diagnosis, monitoring treatment success and as a communication tool. Dentists were shown how to expand services to patients amid challenging economic times by offering new MI clinical treatment and heard from those who have successfully implemented MI in their practice; how they overcame obstacles and benefits gained by practicing MI.



## Symposium presenters



**Hien Ngo** BDS MDS PhD FADI FICD FPFA

*Associate Professor at the National University of Singapore Faculty of Dentistry*

### Presentation title: MI Re-defined

- Understand caries and management of the disease
- Appreciate communication techniques to successfully implement MI

"The best case scenario is for the participants who have never done MID to walk out of the symposium excited to learn more. And for the dentists who are already doing it to pick up a few new tips and think of ways to do it even better. One of my key messages is that MI dentistry can be profitable. I would like dentists who walk out of the symposium to feel guilty or think twice the next time they reach for the drill. They should be asking themselves 'can I do this in a different way?'"





**David Manton** BDSc MDCc FRACDS

*Convener of the undergraduate and postgraduate Paediatric Dentistry programmes at the University of Melbourne, Australia*

**Lecture Title: Early Caries – You Have to See It to Save It**

- Understand the remineralisation / demineralisation balance
- Be able to identify early stage caries (WSL)
- Be able to quantify early stage caries (WSL)
- Be able to implement appropriate individualized remineralization strategies

"The group of speakers at the symposium provides participants with a great mix of clinical and academic experience – both in the private and public sectors. This will give participants information and ideas to take back to their practices and implement an MID programme straight away. In the past, a lot of resistance to MID practice has stemmed from the dentist not believing that this style of dentistry will allow them to run a profitable and satisfying practice – we believe that you can."



**Andrew Brostek** BSc BDSc FICD FPFA

*25 years in general practice and a Senior Clinical Lecturer in Operative Dentistry at his Dental School in Perth, Western Australia*

**Title: Successfully Implement MI into General Dental Practice – The Nuts and Bolts Approach**

- Recognise the signs of disease
- Develop practice protocols to carry out MI
- Train staff to do disease testing
- Learn to reorganise your practice around MI to improve profitability and improve patient satisfaction and care

"The key things that need to be in place for a practice to make the transition to MID are:

- A clear understanding of your goals and objectives
- Creating and working with a skilled oral health team
- Access to materials, tests, documents and patient education brochures needed, and development of necessary skills in their use
- A mechanism of review to assess your implementation results"



**Ian Meyers** BDSc FICD FADI FPFA

*Chief Dental Officer of Queensland Health and Adjunct Professor at the University of Queensland Dental School, he also maintains a private dental practice in Brisbane*

**Lecture Title: My MI Journey**

- Realize the benefits of implementing the MI treatment philosophy
- Recognize potential obstacles and how to overcome and manage

"The symposium is an opportunity to display the concept of MI treatment in the changing world of oral healthcare. The symposium was a good opportunity to have key opinion leaders and researchers to present information and data on the long-term benefits of MI approaches at a global level. Going forward, I hope new ideas and concepts may emerge which may further enhance our ability to reduce the global burden of oral health disease."



**Laurence Walsh** BDSc PhD DDSc GCed FFOP(RCPA) FICD FPFA

*Professor of Dental Science and Head of the School of Dentistry at the University of Queensland*

**Lecture Title: MI Approach Made Simple**

- Appreciate how parameters of the oral environment influence oral health
- Understand how to use simple assessment tools
- Be able to implement protocols for monitoring of patients
- Be able to interpret trends in the data from this monitoring

"Some of the outcomes I would expect to see from the symposium is people actually looking to apply this in their practices in the week after the symposium. I think it is important that dentists get their 'fingers wet', because if you leave this for six weeks then you start to lose the knowledge and enthusiasm and it gets put in the 'too hard' basket. You need commitment to do this and once you have done it and taken some additional steps your base grows. Dentists are often very perfectionistic by nature and they hate failing. The symposium will give people the tools and knowledge to help them be more likely to succeed. Deliberately we have chosen presenters who work with older patients, younger patients and patients from lower socio-economic areas. This demonstrates that MID is not just done by specialists working with high income patients."

# MID Symposium Q&As

At the beginning and end of the symposium, participants were asked to answer multiple choice questions about their understanding and attitudes towards MID. Here are four of the questions that demonstrate a shift in thinking by the participants.

## Q1

### Minimal Intervention (MI) Dentistry means?

- A Charging lower fees
- B A biological approach to controlling dental caries
- C Drilling smaller cavities
- D Drilling, filling & billing all early carious lesions

Question	Start of day	End of day
A	2%	2.8%
B	83%	85.2%
C	9%	9.3%
D	7%	2.8%

## Q2

### What do you think is needed to implement MI into dental practice?

- A A big flashing sign in front of the practice
- B Very small diamond burs
- C More training / seminars
- D A dedicated and enthusiastic dental team

Question	Start of day	End of day
A	4%	4.2%
B	4%	2.5%
C	26%	5%
D	66%	88.2%

## Q3

### Which members of the dental team should be involved in MI Dentistry?

- A Reception staff
- B Just the dentists
- C Dental assistants and hygienists
- D Everyone in the practice

Question	Start of day	End of day
A	3%	3.2%
B	5%	2.4%
C	4%	0.8%
D	88%	93.6%

## Q4

### The main potential benefits of MI to my practice are?

- A More patients
- B Less stress
- C Increased patient satisfaction
- D More satisfying dentistry

Question	Start of day	End of day
A	4%	3.4%
B	4%	1.7%
C	72%	24.7%
D	21%	70.1%

## Achieving big change by taking small steps

MI Symposium participants each received material to help them implement the principles and strategies they learnt during the day. Called GC MI Baby Steps, the electronic toolkit contains a simplified approach to adopting MI in practice, with concrete actions that can be taken and an array of additional resources such as patient brochures, risk assessment form templates and more.



Enquiries







## Event preview

### 2nd meeting of the Minimum Intervention Dentistry International Network (MIDIN)

**Date:** 14-15 December 2009

**Location:** Bangkok, Thailand

**Venue:** Faculty of Dentistry,  
Chulalongkorn University

**Theme:** Minimum Intervention  
Dentistry: Roadmap towards 2020

The meeting will look at the historical development of MID and its future development, evaluate the current and future tools for managing patients with caries and the status and future perspective on MID in dental schools, public health services and clinical practices.

Presenters in the programme will include Associate Professor Hien Ngo (Singapore), Professor Junji Tagami (Thailand), Assistant Professor Chalermopol Leevailoj (Thailand) and Professor Martin Tyas (Australia). The meeting is sponsored by GC, Johnson and Johnson and Kavo.

**For more information visit**  
**[www.mid-in.com](http://www.mid-in.com)**

# Practice perspectives

- Running a practice on MI principles
- Beyond the explorer: Caries detection in the 21st century
- Walking the talk: a fully integrated MID practice that is profitable





# Running a practice on MI principles

Dr Elmar Reich serves on the FDI Education Committee, has a dental practice in Biberach, Germany, and is the scientific coordinator of the GC MI Advisory Board. He opened his dental practice in 2004 with a clear goal of practising according to the Minimum Intervention philosophy.

**Briefly explain why you chose to adopt the MI principles in your practice.**

**Elmar Reich:** My practice is not limited to MI dentistry but prevention forms the basis of everything we do here because I want to help my patients in the long run. I don't only want to do restorations on their teeth, I want to give them advice and support, by myself and my team, in order to maintain their teeth and prevent caries from progressing.

**How are dentists reimbursed for work in Germany?**

**Elmar Reich:** Unfortunately in Germany we are still based on a 'fee per service' system. This means the government health service will pay, for example, for a basic restoration. For a ceramo-metal restoration, the patient will have to pay an amount towards the cost. Preventive care is only paid for with children up to the age of 18. They will receive individual preventive treatment in the practice, such as advice on diet, tooth cleaning, plaque removal and brushing, as well as having fissure sealants on permanent molars. The government feels that adults should have learnt all they need to know about prevention by the time they are 18. This is wrong in my understanding. This is why I have managed my practice in such a way in that we do not only treat the disease but also prevent it and do that in a way which is helping my patients. But adults have to pay for preventive treatments.



**What feedback do you get from patients when you introduce MI treatment concepts to them?**

**Elmar Reich:** Most patients are very glad to be informed about the causes of the disease. Most people think that as children they will get fillings, as adults they will need crowns or bridgework and removable dentures as seniors. And most of them are quite happy and grateful when they hear from me or anyone on my team that this does not have to be the case and that they do not have to follow that route. We can stop caries progression at any age. This is why my patients come back when I give them individually tailored recall programmes. They are really grateful for the information beyond the treatment.

**How did you introduce the MI concept to your team?**

**Elmar Reich:** When I started my practice I had a very young dental team and they had not experienced the problems of caries lesions, pulpal pain and periodontal diseases themselves. So I made sure they all received information and training, so they became qualified in this area. After their training they are very enthusiastic about how good it is and they received positive patient feedback. I could not do preventive dentistry without my assistants. I always talk to my patients in a way they can understand the new concepts, but many still have questions and they find it easier to ask my assistants or my receptionist on the phone. So my team has to be on an equally trained level and they have to be well informed. It is also a great motivational factor for the dental team as well.

**What needs to happen for the MI concept to be used more widely by dentists in Germany?**

**Elmar Reich:** I would say that the 'fee for service' system will continue in Germany but I think we will see, because of the evidence that is accumulating, that patients directly benefit from this kind of preventive approach (oral and general health). In the long term they have less dental problems and this is a convincing factor. Change of the system could happen if we can prove to the government that it is also cost effective, but this is not easily done. I think there will be increased patient demand for this kind of preventive treatment. This will be pushed by patients, which could in turn influence the government. Patients asking for change may have more power than a group of dentists. So we hope the population will soon begin see the benefits of this type of approach.

Visit Dr Reich's practice website at [www.zahnprofi.laxe.de](http://www.zahnprofi.laxe.de)



**Queries**



# Beyond the explorer: Caries detection in the 21st century

By Martin Jablow

"A sharp explorer should be used with some pressure and if a very slight pull is required to remove it, the pit should be marked for restoration even if there are no signs of decay." This is a quote from GV Black in 1924. Caries is not as simple to diagnose today as it was decades ago when there were large, bombed out teeth. With the increased use of fluoride the detection of caries is not as simple as it used to be. Yet in 2009 many of us are still diagnosing caries the same way as GV Black did in the early 1900's. The goal is now to be minimally invasive. Catch caries at its earliest stages and attempt to remineralize incipient caries in teeth.

Decay is difficult to detect in radiographs unless larger than 2mm to 3mm deep into dentin, or 1/3 the bucco-lingual distance. An explorer has high specificity for caries but low sensitivity for the caries. This means a lot of incipient caries can be missed through the reliance on an explorer and radiographs alone.

There is a call in the literature for the discontinuance of the use of the dental explorer for caries detection. Some dental schools are now teaching reduced reliance on the explorer. An explorer may actually cause more harm by breaking the enamel rods when forced into an incipient carious lesion. At this early stage of caries remineralization should be considered. The problem is detecting the initial stage of caries. So what improved ways exist for the detection of caries?

There are a number of different modalities for detecting caries. The most popular devices detect caries through the use of fluorescence. Normal healthy tooth structure produces little or no fluorescence. Carious tooth structure will fluoresce proportionate to the degree of caries. These devices are highly sensitive to caries but have a low specificity. This low specificity means that these devices will measure the fluorescence of anything. Caries detection devices are another tool aiding in the diagnosing of caries along with conventional diagnostic tools and good professional judgment. They can be used to monitor the progression of caries and aid in the decision to prevent, remineralize or restore.

The most popular device is the Kavo Diagnodent.



The Diagnodent is a 655nm laser that detects fluorescence of decay in teeth. The Diagnodent will produce a value that can assist in the diagnosis of caries.

A similar device is the Midwest Caries I.D. instead of a laser it uses a light emitting diode (LED) to measure the caries reflection signature. The major difference is instead of a numerical readout; the Caries I.D. has a red and green indicator for caries. This makes monitoring any

progression of caries or remineralization more difficult.

Another device using florescence is Air Techniques Spectra. Spectra uses a 405nm LED which causes porphyrins from caries producing bacteria to fluoresce. Caries will produce a red colour and healthy tooth will fluoresce green.

Spectra, then produces a graphic and numerical display. The benefit of this device is that the graphic can be saved to imaging software enhancing the ability to monitor caries.

The Canary Dental Caries Detection System uses a low power laser to scan the tooth for decay. The tooth absorbs the laser light and two phenomena are observed: the laser light is converted into luminescence and there is a release of heat (less than 1 degree Celsius). This heat will not harm the tooth but gives important information on the tooth up to a depth of 5 mm below the surface. Simultaneous measurement of the reflected heat and light provides us with information on the presence and extent of tooth decay below the tooth surface.

Another caries detection device on the horizon is Lantis Laser's Optical Coherence Tomography (OCT) Dental Imaging System. OCT devices are capable of imaging both the teeth and periodontium. Using the hand-held scanner, the operator captures cross-sectional images, or tomographic slices, at up to 3 mm deep into dental tissue. These cross-sectional images are then displayed individually in real-time on a chairside monitor and can be saved to the patient digital file.

The OCT device is capable of detecting recurrent decay around restorations along with examining the marginal integrity of restorations bonded to tooth structure.

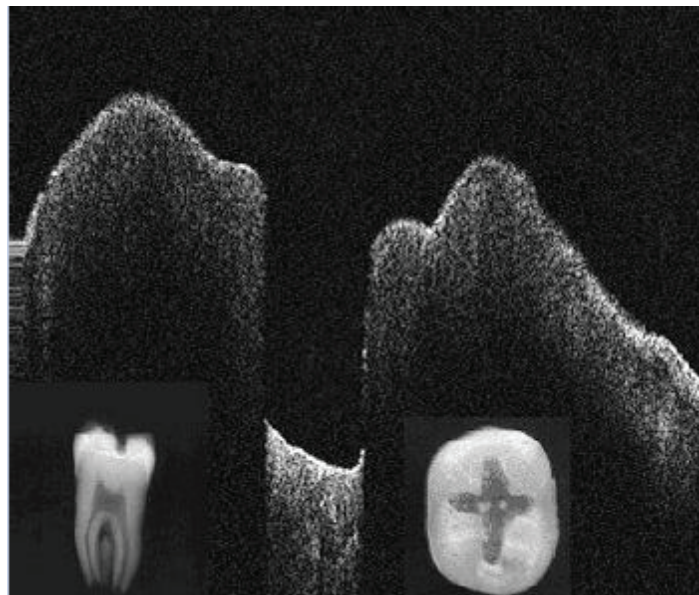
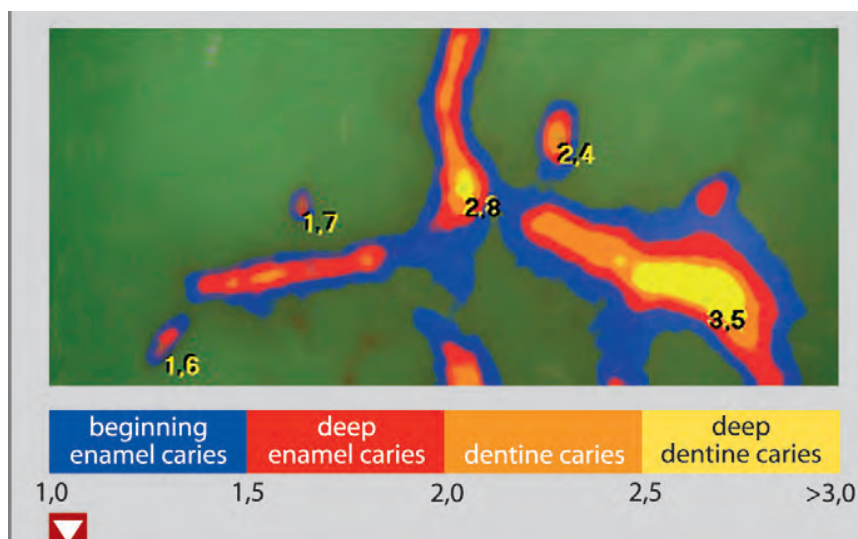
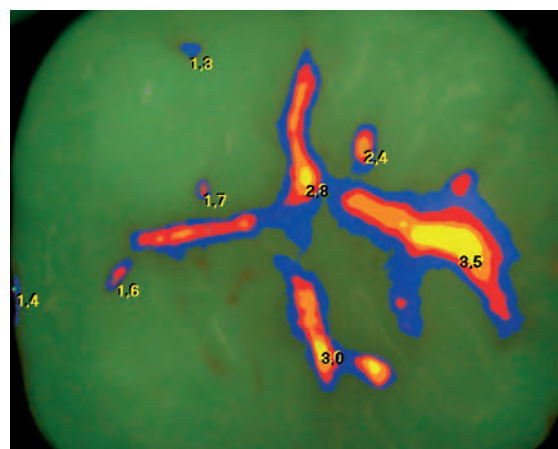
As you can see there are adjuncts to the current methods of caries detection. New methods will be appearing shortly that will improve the dentists ability to detect caries earlier then ever before. With this enhanced knowledge we will be able to establish better protocols for caries intervention and treatment.



## Queries



Martin Jablow DMD, practices general dentistry in a group setting in Woodbridge, NJ, USA. He enjoys promoting the use of technology in the dental office to improve efficiency and patient care. As a partner in Dental Technology Solutions, he lectures and writes articles on the use of technology to enhance the practice of dentistry. Visit his blog at [www.dentechblog.blogspot.com](http://www.dentechblog.blogspot.com)



Patient compliance  
 Dental team  
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 Caries detection  
**Xylitol** Saliva **Treatment plan**  
**Remineralization**  
**Restore**  
**Intervention**  
 Glass ionomer cement EQUIA  
**Oral flora** Holistic  
 White spot lesion  
**Dentistry** **Identify**  
 Gradia Direct  
**Recall** Tooth mousse  
 Fluoride  
 CPP-ACP  
**Prevent**  
 Individual risk assessment  
 Diagnostic  
 Recaldent



## Highlights from the MI Compendium

### QUESTION:

From restorations of comparable size, does RMGIC release more fluoride than compomers?

### ANSWER:

The results of laboratory studies indicate that resin-modified glass ionomer cements (RMGIC) have a higher fluoride-releasing effect than compomers.



# Walking the talk: a fully integrated MID practice that is profitable

Dr Andrew Brostek [BSC BDS FICD FPFA] has spent over 25 years in general practice, as well as being a Senior Clinical Lecturer in Operative Dentistry at his Dental School in Perth, Western Australia. He recently presented at the GC MI Symposium held at the FDI World Dental Congress in Singapore about his personal journey in MI dentistry, focusing on how to successfully implement MI into general dental practice – the nuts and bolts approach.



**“Developing consistent verbal messages to use with patients allows uniformity across the practice, for hygienists, dental assistants and receptionists.”**

**What inspires you to continue your work in Minimum Intervention Dentistry?**

**Andrew Brostek:** My satisfaction when the patient realizes I have been successful and professional in helping them to be healthy and solve a disease-based problem.

**In your opinion, what are the most important developments in MID in the past 5 years?**

**Andrew Brostek:** A better understanding of the causes of disease, earlier recognition of the disease and most importantly, the ability to reverse early enamel carious lesions with GC Tooth Mousse (CPP-ACP).

**Your presentation at the GC MI symposium looked at how to successfully implement MID in a practice. What key things need to be in place for a practice to make this transition?**

**Andrew Brostek:**

- A clear understanding of your goals and objectives
- Creating and working with a skilled oral health team
- Access to materials, tests, documents and patient education brochures needed, and development of necessary skills in their use
- A mechanism of review to assess your implementation results

**You also presented on how to train staff to do disease testing. What does this entail and how important is the team approach in MID for you?**

**Andrew Brostek:** The key element is to transfer your enthusiasm for the importance of MID to your staff, also providing them with the information and skills needed to

change your practice protocols. Their feedback on the best ways of incorporating successful changes and appointments is critical, as well as empowering them and increasing their job satisfaction. Developing consistent verbal messages to use with patients allows uniformity across the practice, for hygienists, dental assistants and receptionists.

**If there are five things you could convey to practising dentists today about MID, what would these be?**

**Andrew Brostek:**

1. Create a motivated and informed oral health team.
2. Utilize repetition and discipline to embed changes in your procedures and practice.
3. Be aware that caries risk in patients can change rapidly due to diet and lifestyle changes.
4. Use initiative and flexibility to target your patients and improve their compliance with detailed assessments, plaque and saliva tests. Empower them by giving them pH paper samples to allow home testing.
5. The dentist must be ‘the champion’ to drive and assess change within the dental practice.

**What advances in MID do you hope will take place over the next 5-10 years?**

**Andrew Brostek:** New products to improve remineralization of enamel and dentine lesions, new restorative materials with local anti-cariogenic effects. The development of ‘instant’ caries disease assessment tests for the monitoring of disease progress would be a very important advance.

# MID case study

'James' is a patient of Dr Andrew Brostek: a 21-year-old male who presents with multiple tooth sensitivity recently graduated from trade school.

**Medical History:** No diseases or medications

**Past dental history:** No previous restorations

**Diet History:** One fruit juice and one energy drink / day, was snacking constantly all day during Trade school training in the past year.

**Lifestyle:** Active social life, with night-clubbing, with high alcohol consumption on weekends, is a smoker

**Attitude:** Well motivated

**Fluoride exposure:** Fluoridated water and dentrifice twice daily.

## Initial oral examination

Dentist (Half hour) Radiographs and pictures taken as needed (Figures 1-2).

**Examination:** Presented with multiple labial white spot lesions (WSL), two cavitated anterior lesions, multiple deep posterior carious lesions, and buccal tooth sensitivity. Impacted 28 and 38.

WSL's baseline appearance documented with intraoral photographs.

## Mi Implementation

### Appointment 1

Hygienist (3/4 hour) – Dentist only called in at result stage.

- 5 day diet analysis check
- Saliva tests (GC Saliva Check kit)
- Plaque Tests (GC Plaque Check and pH)

### Test Results

Diet analysis shows high daily consumption of sweets, > 2 sugar exposures/day, > 3 acid exposures /day, but previous year had even higher exposures = high caries risk

Hydration was poor, viscosity moderate.

Saliva tests show low resting pH 6.2 (Figure 3), but stimulated saliva was boosted to pH 7.2 .

Stimulated saliva quantity moderate and buffering was poor. (Figure 4)

Plaque test staining showed moderate plaque on apical one third of teeth, plaque fermentation test was moderate pH 6.0 -6.5. (He noted that he was now brushing his teeth more regularly)

Figure 1

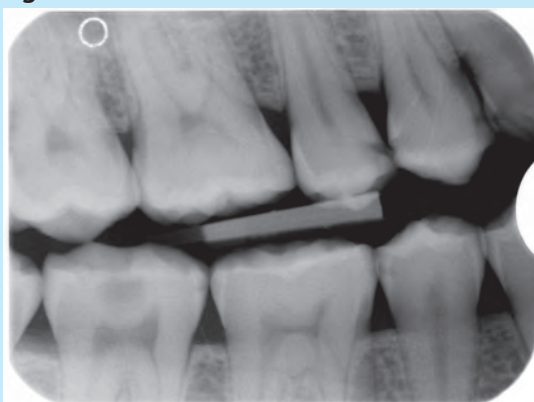
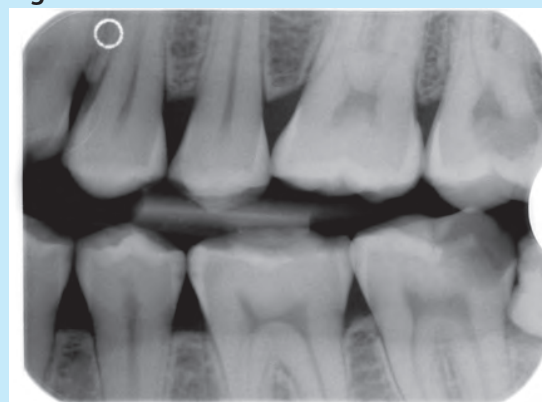


Figure 2



### Appointment 2

Dentist (One hour)

Discussion of results and clinical diagnosis

Clinical diagnosis: Early WSL's show active caries disease (high frequency of sucrose/ acid exposures in diet) with partial xerostomia as a result of smoking, excessive alcohol intake and dehydration due to low water intake.

## Treatment

- Acid etched all WSL teeth with orthophosphoric acid for 20 seconds to open lesion surfaces, applied GC Tooth Mousse Plus, patient given the tube.
- Prescribed GC Tooth Mousse Plus (finger) application twice per day (after tooth brushing) on all labial/buccal lesions for a period of 3 months
- Due to increase in pH on chewing (stimulated saliva result) must use GC Recaldent gum daily (only chew for 10 minutes/ 3 x day).
- Use of a normal Fluoride toothpaste rather than a high fluoride concentration to allow WSL internal remineralisation
- Emphasised role of diet and lifestyle – reduction in juices/ soft drinks or use a straw to reduce acid exposure. Must increase daily water intake.
- Given pH paper samples to test own resting saliva to increase compliance
- Several emergency temporary restorations were placed in this appointment, further multiple dentist appointments were made to restore the carious teeth.

Figure 3

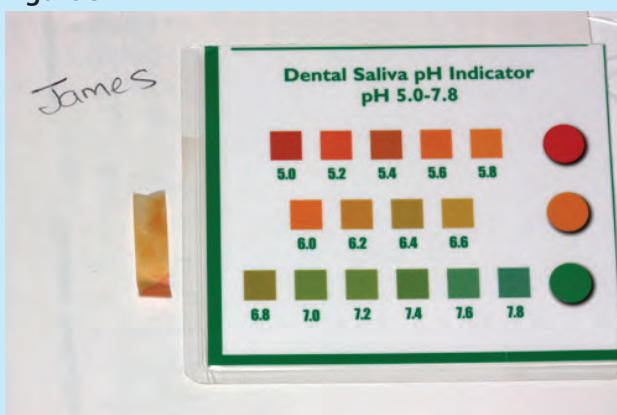
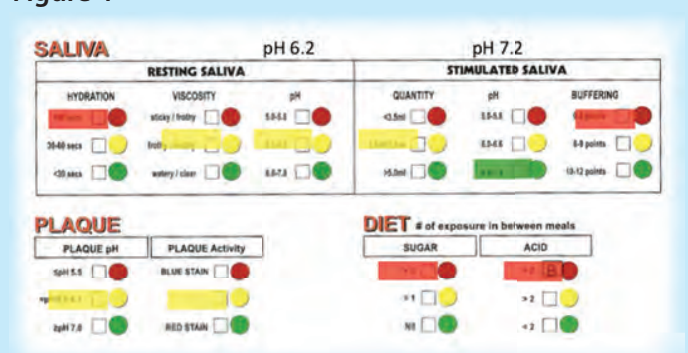


Figure 4



## Appointment 3

### Hygienist (One hour)

Scale and clean with oral hygiene instruction, checked patient compliance to diet and lifestyle changes. Patient demonstrated lower plaque scores at this appointment. OPG taken for Specialist referral for impacted 8's.

## Appointment 4 - At one month after testing

### Hygienist (15 minutes)

One month recall for WSL regression assessment and compliance check

- New intraoral pictures taken of WSL's.
- Teeth with WSL's were re-etched and GC Tooth Mousse Plus reapplied.

## Appointment 5 - At 3 months (only with WSL cases)

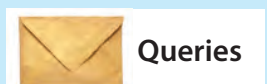
### Hygienist (15 minutes)

WSL intraoral photos and re-assessment of remineralisation result.

## Recall at one year

### Dentist

- Re-examination, reassess disease and WSL status and compliance.
- Several teeth are crown candidates only if disease is under control.



'James' says:

***"I never had trouble with my teeth before, and didn't understand why my teeth are so bad now. I like this way of not just fixing the holes in my teeth, but also explaining to me how to stop the disease I didn't know about. This minimal dentistry rocks!"***

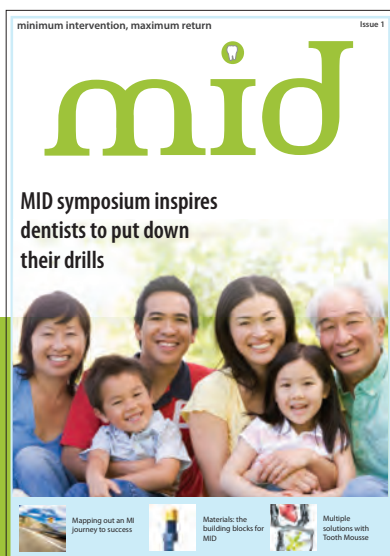


# Team talk

Multiple solutions for patients with Tooth Mousse



minimum intervention, maximum return



# mid

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# Multiple solutions for patients with Tooth Mousse

By John Stanfield, RDH

I run a forum for dental hygienists and a number of years ago one of our members, who qualified in the UK and then moved to Australia (re-qualifying there) brought a product to our attention. She described a product, which in her opinion, would revolutionize the way in which we looked at the prevention and treatment of caries. The product was 'Tooth Mousse' and it was just becoming available in the UK. The great thing was that it came in a selection of flavours to suit all tastes and the only contra-indication to its use was for those with an intolerance to milk proteins or milk-based products.

Once we looked into the product and got some stock into the practice we found that it had more uses than just remineralisation of early carious lesions. We learnt that it could be used to treat tooth sensitivity, by applying it before scaling we found that those who suffered most from sensitivity during scaling could find the procedure tolerable, whereas before they would be squirming in the chair. One of the other areas of treatment that caused patients to complain from sensitivity is tooth bleaching. We instruct patients with this particular problem to alternate the nights of bleaching gel and tooth mousse in their bleaching trays, with great success.

## Application with bleaching trays

We know from the literature that the longer you could keep the Tooth Mousse in contact with the surface of the tooth, the greater the benefits. So having used it in the bleaching trays for sensitivity, the next logical step was to do the same for patients considered at high risk for root caries.

This eliminates the 'hit and miss' approach of just applying the product with your finger. Even if it is taken up by the saliva, it still keeps the material in contact with the tooth or root surface for longer. The literature has also shown that the CPP-ACP helps in the uptake of fluoride on the tooth surface.



GC has produced some great literature to go with the product, which can be downloaded from their website. You can get brochures for both the patient and the clinician along with videos and data on all the ways tooth mousse may be used. I found this very useful material and made me think about MI Dentistry and how we have been dealing with caries in the past. I was glad to see that they had taken the next step and produced MI Paste Plus, which is Tooth Mousse but incorporating fluoride (900 ppm) for those high risk patients. I particularly like to use this for those patients who have endured head and neck radiotherapy.

I have been impressed with the products, the patients seem to like it and because of my patient profile (mainly perio) I am able to help prevent a number of my biggest problems on exposed root surfaces, that of root caries and root sensitivity, which tend to go hand-in-hand.

I am sure that you have noticed with your own patients, if they experience sensitivity they avoid cleaning the area and before you know it they have root caries and end up losing the tooth. When we do any tooth bleaching now, either in surgery or with home kits, we supply the patients with Tooth Mousse to use either before or during treatment. This has reduced problems of patients returning with hyper-sensitivity, thus taking away valuable surgery time. I think whatever you are using Tooth Mousse for, if you can use it in a bleaching tray, you will improve your results by keeping it on the tooth surface for longer.



John Stanfield (MSc RDH) is a dental hygienist working in private practice in Cheshire, UK. He is involved in many aspects of dental care professional (DCP) education and lectures at local and national meetings and writing for the dental press. John also serves on a number of boards concerned with education for DCPs. He also runs an e-learning consultancy and a web design and hosting business. In addition he runs a successful online forum for hygienists at [www.hygienist.co.uk](http://www.hygienist.co.uk)





**“I am sure that you have noticed with your own patients, if they experience sensitivity then they avoid cleaning the area and before you know it they have root caries and end up losing the tooth.”**



#### Queries



### Highlights from the MI Compendium

#### QUESTION:

In patients with comparable caries risk, do fissure sealants with RMGIC protect better against caries than resin-based sealants?

#### ANSWER:

The evidence suggests that resin-modified glass ionomer cement (RMGIC) based fissure sealants are as caries preventive as resin-based sealants

# Clinical corner

**Materials: the building blocks for MID**







# Materials: the building blocks for MID

Professor Martin Tyas from the University of Melbourne in Australia, discusses the limitations and opportunities of advances in dental materials and the role they play in minimum intervention dentistry. Martin Tyas has dedicated his career to investigating, testing and developing dental materials. For him, one of the most exciting and promising developments in dental materials today are in adhesive materials, specifically glass-ionomer cements and dentine bonding agents. "Resin-modified glass-ionomer cements were introduced to the market a few years ago and they have been a big improvement on conventional glass ionomer cements," he says. In recent years, with the advances in materials science, the fluoride-releasing properties of glass-ionomer cements have been thought to play a role in preventing secondary caries. "I think we do need a lot more research into this area, because we don't have good clinical evidence to show that glass-ionomer cements prevent secondary caries, although anecdotally most dentists seem to find that they do," he adds.

Another exciting development in glass-ionomer cements is effect they have on affected dentine. "We are now seeing growing laboratory and clinical evidence that affected dentine can remineralise under the influence of glass-ionomer cements, and that's a really key positioning of this material in minimum intervention dentistry," he says.

Martin is also impressed with the improvement of dentine bonding systems in recent years. "We still need long-term clinical trials on these new materials, such as the 'all-in-one' bonding agents. The market life of many products is quite short because they keep being improved by manufacturers, so we never really catch up in terms of determining their long-term clinical performance. At the laboratory level there are concerns about whether the bond will degrade over time. Although there have been important developments in dentine bonding, we have not yet convincingly solved the clinical issues of whether they do maintain a seal over a long period," he explains.

The developments in resin composite materials with new polymers which show very low polymerisation shrinkage is another area that Martin believes to be significant. "What we still need to know is how little does shrinkage have to be to make any clinical difference, and it is encouraging that several manufacturers are pursuing this concept. It sounds like a really good idea, but we don't yet know what maximum percentage of shrinkage is acceptable, or even if they need to expand slightly," he elaborates. As with all dental materials, Martin sees translating the laboratory to the clinic as being a continuous challenge.

## Minimum dentistry in the future

Martin hopes that minimum intervention dentistry will continue to gain much greater recognition globally in the years to come, particularly in developing countries where the use of amalgam is popular, mainly due to cost and





Cusp fracture in association with 'Black-style' amalgam restoration

training implications. "The Atraumatic Restorative Treatment (ART) technique of restoration has a role to play here, as it is one of the elements of minimum intervention. We also need to introduce an alternative classification system to that of GV Black," he says. He also looks forward to the development of new materials that are tougher, offering a solution to the brittleness of glass-ionomer cements. "Brittleness is inherent in water-based cements, but different types of resins are being tested in resin-modified glass-ionomers which may confer higher toughness properties. Being able to use a resin-modified glass-ionomer cement as a final restorative material, rather than having to be covered by resin composite in stress-bearing areas, would simplify the entire restorative technique and that would also help to promote the concept of minimum intervention," he adds.

#### Spotting and treating white spot lesions

"The most important thing that dentists should understand about white spot lesions is that they can be treated medically and rather than surgically. You don't have to pick up a handpiece and prepare a cavity," he explains. Based on mounting evidence, there is very good potential for remineralisation as an approach to managing a white spot lesion. "Another way that has recently come to market is infiltration with resin. Currently there are clinical trials taking place to test resin infiltration as an alternative," he says.

For Martin, a more difficult scenario and more important in some ways is the bitewing radiolucency in enamel. "After all, this is a white spot lesion even though you often can't see it clinically. This is a big management issue because we can't assess whether or not there is

cavitation. Even with quite extensive radiographic demineralisation, there may not necessarily be cavitation," he elaborates. This is where an individualised caries risk assessment for that particular patient and that particular lesion is the key, Martin believes.

"We are much more aware now of the ionic basis of demineralisation and

remineralisation. What we do need to know more about is the regimen for remineralisation – it is somewhat ad hoc at the moment, although we are seeing good results particularly with the calcium phosphopeptide-

amorphous calcium phosphate (CPP-ACP) preparations. We need to have a more effective and efficient protocol for remineralisation with a remineralising agent.

#### All-in-one bonding agents

Martin's main interest in the clinical domain is adhesive materials in minimum intervention. "My colleague, Professor Michael Burrow and I have been looking at two or three of the most recent all-in-one dentine bonding agents and finding very good retention rates in non-carious cervical lesions. Dentine bonding has come a long way," he says. Despite this progress, technique sensitivity is still a challenge. "It's important that the dentist really understands the material and knows what is trying to be achieved with a particular product," he says.

He also investigates the interaction that exists between enamel, the bleaching of enamel and conventional etching of enamel, prior to composite placement. "Some patients might want to have bleaching done if they have mild discolouration. We've look at bleaching

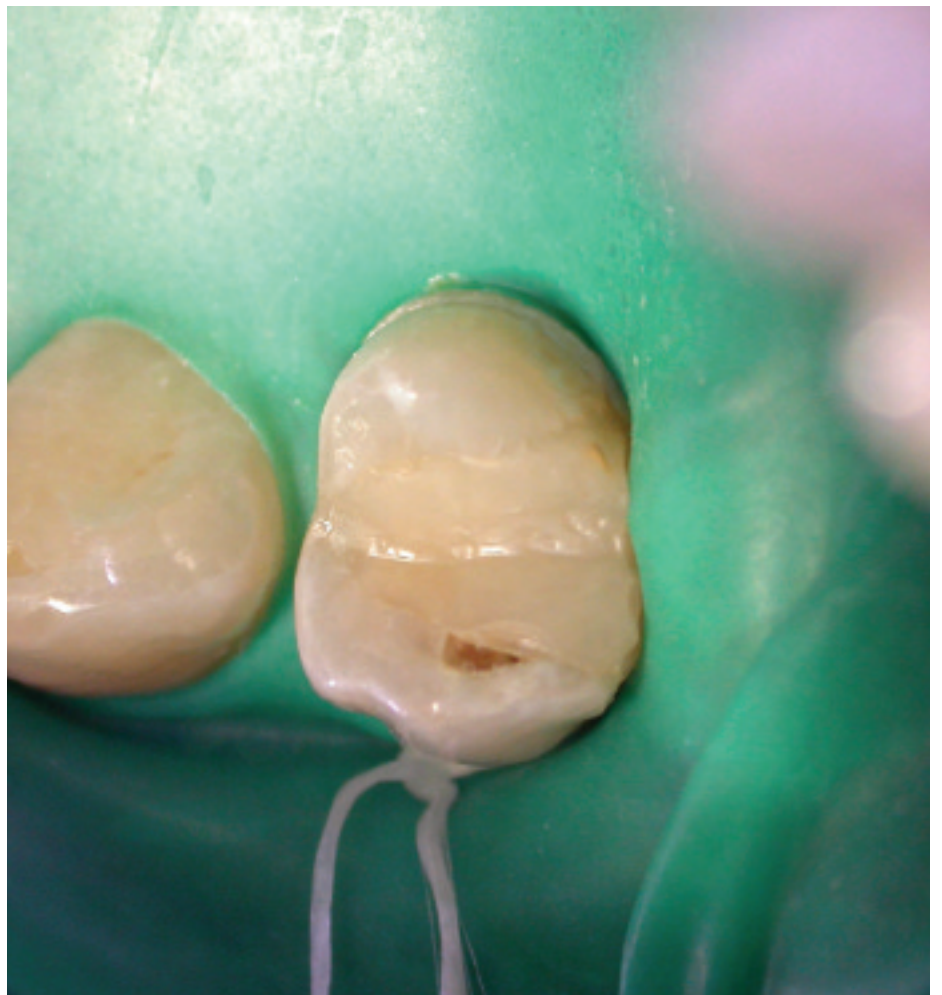
**"The most important thing that dentists should understand about white spot lesions is that they can be treated medically rather than surgically."**

## Key points

- Glass-ionomer cement CAN be aesthetic if used correctly
- White spot lesions can be treated medically as opposed to surgically
- There is potential for any general dental practice to adopt minimum intervention dentistry
- Dental training needs to move away from the surgically-focused GV Black classification of cavities to a more evidence-based system
- It is yet to be proven that dentine bonding agents maintain a seal over a long period of time
- The use of resin-based materials will become more widespread with the possible global banning of mercury-based products
- A resin-modified glass-ionomer cement as a 'total' restorative material would simplify many restorative techniques
- There is a need to develop a more accurate protocol for remineralisation regimens
- It is important to follow the manufacturer's directions for use for glass-ionomer cements, and to use the correct cavity pre-treatment ('conditioner') for optimal adhesion



Carious margin repaired



Secondary caries at the buccal margin of a D0 resin composite restoration



and enamel etching and how they interact with bonding agents, and found that bleaching material and CPP-ACP don't seem to be a problem with respect to etching, which is reassuring," he says.

### Any dentist can practice minimum intervention dentistry

"We have to move away from GV Black's classification of lesions. I don't see why all dentists should not be practising minimum intervention dentistry. If a patient's caries risk is high, there is the total spectrum of minimum intervention available. Dentists should be managing the larger lesions along the lines of the work by Professor Edwina Kidd, which is becoming pretty well established. Whatever kind of operative dentistry practice a dentist might have, there is the potential to practice the principles of minimum intervention.

**"Everywhere there is the potential to practice the principles of minimum intervention."**

### Transferring skills and philosophy to students

For Martin, there is no doubt that minimum intervention should be taught at undergraduate level at dental schools worldwide. He is impressed by the new emerging ways of teaching that include moving away from the traditional GV Black classification system. "At the University of Melbourne's Dental School, when we teach our preclinical laboratory modules, we try to instil into students the terminology of, for example, 'anterior approximal', 'posterior approximal', 'non-carious cervical', 'carious cervical', etc, instead of talking about Black 'Class I' and 'Class II'. Clearly we have to mention the traditional system as it is embedded in the academic literature over the past 100 years, but we do try to encourage them not to use these terms," he says.

He explains it is a challenge to teach minimum

intervention dentistry after a long of history of mechanical and invasively-focused dentistry. "It will take a long time to move into a truly minimum intervention situation," he says. He believes the answer to this lies in the recent work by the FDI World Dental Federation, Drs Graham Mount and Rory Hume, Dr Nigel Pitts and the American Dental Association to establish an alternative cavity classification system. "This is a long term project. It always has to be underpinned by good evidence so this means it will take a long time to get there," he concludes.



### Queries



#### About Martin Tyas

Professor Martin Tyas AM [BDS, PhD (Birm), DDSc (Melb), GradDipHlthSc (WAIT), FADM, FICD, FRACDS, FPFA, FADI] is currently based at the Melbourne Dental School at University of Melbourne in Australia, where he is Head of the Restorative

Dentistry Section and Director of the Biomaterials Evaluation Unit. He is a Consultant in Dental Material to the Director-General of Defence Health Services (Group Captain, Royal Australian Air Force Specialist Reserve).

He currently serves on the editorial boards of the Australian Dental Journal, Dental Materials, Journal of Dentistry, Evidence Based-Dentistry and the International Dental Journal. Among the various committees he serves on in Australia and internationally, he is the immediate past Chairman of the Science Committee of the FDI World Dental Federation and leads the Australian Delegation to ISO/TC106 (Dentistry). He is also a member of the International Association for Dental Research, an Honorary Life Member of the Australian Dental Association and Censor-in-Chief of the Royal Australasian College of Dental Surgeons. Most recently, he was awarded the prestigious Member of the Order of Australia (AM) in June 2009.

## minimum intervention, maximum return



# mid

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# Evidence

Online database puts latest MID evidence into the hands of researchers and clinicians





## Highlights from the MI Compendium

### QUESTION:

In patients with comparable caries risk, does resin-modified glass ionomer cement (RMGIC) have a better cariostatic effect than composite?

### ANSWER:

The evidence suggests that in the absence of fluoride exposure from other sources, the chance to remain caries free is higher with RMGIC than with composite resin.











## Online database puts latest MID evidence into the hands of researchers and clinicians

The emerging evidence-base on questions related to Minimum Intervention (MI) in dentistry is available online an online resource called the MI Compendium. Available in English, Spanish and Chinese, the MI Compendium has been developed as comprehensive systematic literature review and includes the results of META analyses on topics such as the caries preventive effect of glass ionomer cement as fissure sealants in comparison to resin-based materials and caries incidence on teeth restored with glass ionomers as compared to teeth restored with amalgam.

The Compendium aims to assist in the development of evidence based undergraduate MI courses and to be source of information for the general dental practitioner. It has been developed and is continuously updated by dental academics and practitioners from four dental schools in Brasilia, Johannesburg and Sao Paulo. Its underlying systematic review of scientific publications according to evidence-based standards comprises the search of 11 main databases (including Cochrane Library, PubMed, Lilacs) and the review of identified articles published in English, German, Portuguese and Spanish.

Dr Steffen Mickenautsch from the Division of Public Oral Health at the University of the Witwatersrand in South Africa talks about the Compendium and its value to the dentistry community.

### When was the Compendium established?

**Steffen Mickenautsch:** The first edition of the MI Compendium was published as eBook in 2005. Our idea was to apply the scrutiny of Evidence-based Dentistry (EBD) to the new philosophy of Minimum Intervention (MI) in dentistry and in that way to develop a 'MI evidence-base' with specific focus on the topics of risk assessment, early detection and minimally invasive treatment of oral disease.

### What are the most important features of the Compendium?

**Steffen Mickenautsch:** The 'Answers' to the clinical 'Questions' is a vital section. These clinical 'Questions' are compiled in the form of MI related 'Topic clusters' and are identified through a systematic mapping process of articles listed in PubMed. This mapping process includes the review of title and abstracts of ALL articles currently listed in PubMed on a MI topic such as 'Glass ionomer cement', 'Saliva' or 'CPP-ACP'.

The articles are then grouped according to their research objectives and for each research objective, a clinical 'Questions' was formulated.

These 'Questions' in turn are answered on the basis of the Cochrane style systematic literature reviews with meta-analysis.

### **Apart from being a valuable tool for researchers, how does the Compendium help practising dentists?**

**Steffen Mickenautsch:** While researchers will find the data from the systematic reviews interesting, practising dentists will value the 'Answers' to the clinical 'Questions' as these are based on the best evidence currently available in support or disapproval of MI related concepts and procedures, thus telling facts apart from the fiction.

### **How many subscribers does the compendium have?**

**Steffen Mickenautsch:** Our MI Compendium has about 1 000 new individual subscribers per year. In addition, the Compendium has been licensed for multi-users at national libraries and academic institutions such as the National German Library; libraries of Griffith University, Australia; University of Dundee, UK; National University of Singapore; University of the Witwatersrand, South Africa.

### **The compendium is available in Spanish and Chinese as well. Explain the thinking behind this multi-language platform?**

**Steffen Mickenautsch:** Today the Spanish and Chinese speaking regions constitute an emerging and upcoming sector in dentistry. For that reason we like to make the content of our MI evidence-base available to dental academics and practitioners, who are located in these regions but do not speak English.

### **What is the most rewarding aspect of working on the compendium for you?**

**Steffen Mickenautsch:** By applying evidence-based scrutiny and meta-analysis (as recommended by the Cochrane initiative) it is exciting to be able to answer clinical questions relevant to MI and to do so largely independent from systematic error and bias.

### **What are the aims for the Compendium for the coming year and next five years?**

**Steffen Mickenautsch:** We aim to complete the answering of all clinical questions related to the MI topics of glass ionomer cement, Saliva and CPP-ACP; keep these compendium sections constantly updated and then move on to MI topics related to:

- Dental hard-tissue laser
- Xylitol (in dental chewing gum)
- DiagnoDent
- Essential oils (in mouthwash)
- Triclosan (in tooth paste)



**Queries**

### **Launch of MI Compendium-PLUS+**

= New database of published systematic review articles in peer-reviewed journals related to Minimum Intervention (MI) dentistry in 2 parts:

(a) Handbook - free downloadable 1st edition in PDF (3.2 Mb) - includes updated full versions of original systematic review articles [www.midentistry.com/micomp-plus-book.pdf](http://www.midentistry.com/micomp-plus-book.pdf)

(b) Online website - for continued updates of the published systematic review/meta-analyses results: [www.midentistry.com/plus.asp](http://www.midentistry.com/plus.asp)

Subscribed users can access the compendium directly online at: [www.midentistry.com/compendium.html](http://www.midentistry.com/compendium.html)

### **Journal of Minimum Intervention Dentistry**

The Journal of Minimum Intervention in Dentistry (JMID) is an international online publication that aims to promote the electronic publication and indexing of clinical case reports in the field of Minimum Intervention (MI) in dentistry. Full articles are freely accessible online without any need for subscription or registration and can be downloaded in PDF or HTML. JMID publishes articles in English, Portuguese, Spanish and Chinese on the MI topics of oral disease risk assessment, early diagnosis and minimally-invasive treatment. The journal encourages manuscript submissions by first-time authors, aspiring young academics as well as the submission of to-date unpublished clinical observations, especially by general dental practitioners.

Access the journal at [www.midentistry.com/journal.html](http://www.midentistry.com/journal.html)





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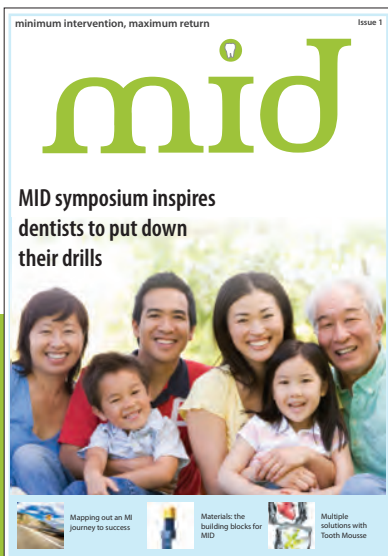


# MI Toolkit

- Multipurpose remineralizing agent
- Plaque indicator kit
- High-viscosity, light-cured flowable hybrid composite



minimum intervention, maximum return



# mid

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# Multipurpose remineralizing agent



Tooth Mousse from GC is a water-based, sugar free topical cream that contains RECALDENT™ CPP-ACP (Caesin Phosphopeptide – Amorphous Calcium Phosphate). This topical paste provides extra protection for patients' teeth. It has been shown that the twice daily use of 1% CPP-ACP solution produced a 19% reduction in enamel demineralisation (Reynolds, 1988).

When CPP-ACP is applied to the tooth surfaces, it binds to biofilm, hydroxyapatite and surrounding soft tissue localising bio-available calcium and phosphate. Saliva also enhances the effectiveness of CPP-ACP and the flavour of the tooth mousse helps to stimulate saliva flow. The longer CPP-ACP is maintained in the mouth, the more effective the result.

There is a wide range of benefits for GC Tooth Mousse. It can be used to provide protection for teeth and to help neutralise an acidic oral environment. For in-office application, Tooth Mousse complements treatment such as bleaching, ultrasonic scaling, hand scaling or root planing, after removal of orthodontic brackets, following professional tooth cleaning, after application of topical fluoride and also to provide a topical coating for patients suffering from erosion, caries and conditions arising from xerostomia.

To provide a variety of choice for individual patients, Tooth Mousse is available in 5 delicious flavours namely, Strawberry, Melon, Vanilla, Mint and Tutti Frutti!



Part of GC's Minimum Intervention program.

CPP-ACP was developed at the School of Dental Science at the University of Melbourne Victoria/ Australia. RECALDENT™ is used under licence from RECALDENT™ Pty. Limited. RECALDENT™ CPP-ACP is derived from milk casein, and should not be used on patients with milk protein and/or hydroxybenzoates allergy.

## Clinical cases

The following three cases demonstrate the various ways in which Tooth Mousse can be applied.

### In office - mechanical application



Figure 1: Initial situation



Figure 2: Mechanical cleaning with Tooth Mousse



Figure 3: End result

Dr. I. Miletic, Croatia

### In office or at home - tray application



Figure 4: Initial situation



Figure 5: Application of Tooth Mousse with customized tray



Figure 6: End result after 1 month

Dr. M. Basso, Italy

### At home - hand application



Figure 7: Initial situation



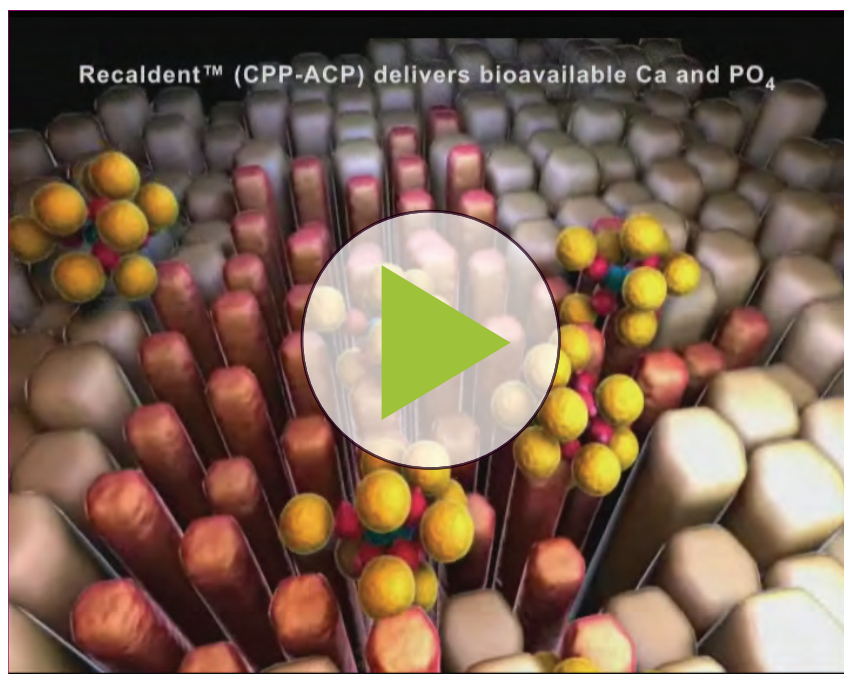
Figure 8: After one month's use of Tooth Mousse



Picture 9: End result after 2 month use of Tooth Mousse

Dr. M. Basso, Italy

## Watch the video to learn more:



With courtesy of GC America.  
Tooth Mousse is sold in America as MI Paste.

Dr. M. Basso, Italy

# Identify plaque cariogenicity and age in 5 minutes



Part of GC's Minimum Intervention program.

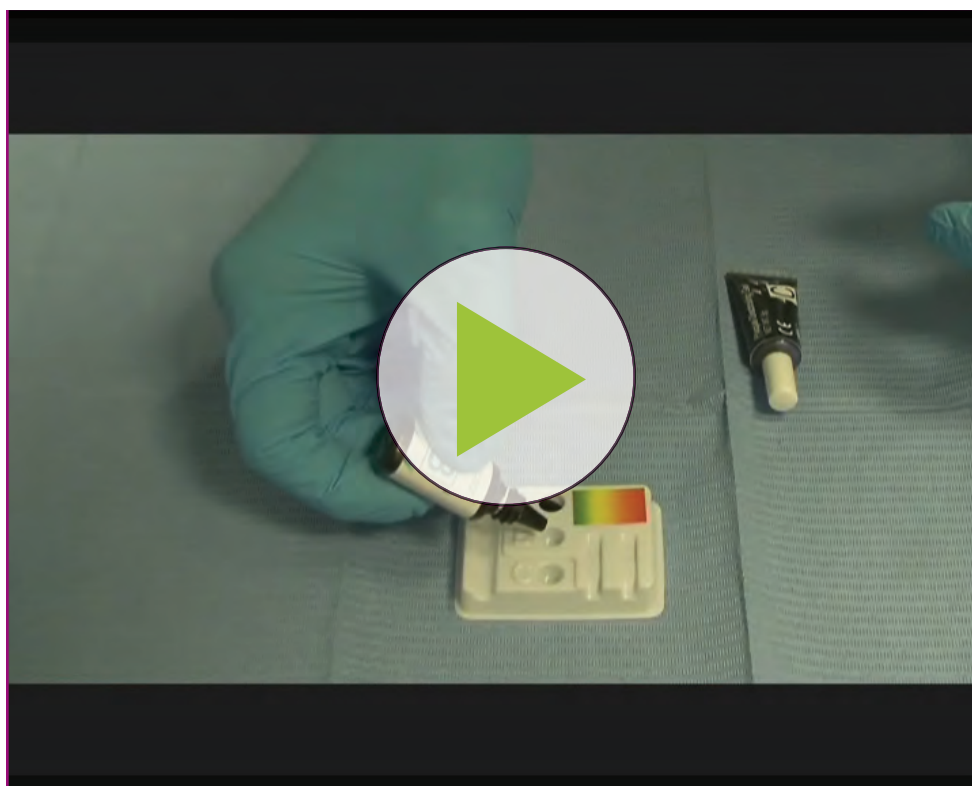
Plaque formation is a normal occurrence for most of the population. To determine the potential damage plaque can cause and discover exactly which plaque sites are more problematic than others can be difficult to identify. GC's Plaque Indicator Kit is a simple and inexpensive test that quickly identifies and visually communicates the problem to motivate and educate patients.

Why determine acid producing ability of plaque and its cariogenic potential? There is a causal association between the production of strong acids from plaque, in response to sucrose and caries activity. Non-cariogenic samples turn green or yellow. Cariogenic plaque samples turn red or orange after sucrose challenge from the solution. When red coloration of the plaque sample is observed, preventive action is recommended. The neutralizing solution can be used to educate the patient regarding the protective actions of saliva.

## Why identify plaque accumulation sites at highest risk of developing future lesions?

Plaque composition changes in time, which allows undisturbed pathogenic bacteria to be active at the tooth surface. Mature plaque (more than 48 hours old) and fresh plaque appear in two different colours, showing patient's tooth surfaces that need more careful attention during oral hygiene to help avoid future caries. Patients with blue plaque coloration need proper brushing instructions and professional tooth cleaning to improve their oral balance.

Watch the video to learn more:



Dr. M. Basso, Italy



## Highlights from the MI Compendium

### QUESTION:

Does CPP-ACP have a remineralizing effect on hard tooth tissue?

### ANSWER:

The evidence from the available data suggests that CPP-ACP has a remineralizing effect on hard tooth tissue.



# High- viscosity, light-cured flowable hybrid composite

Gradia Direct LoFlo from GC is one of the first flowables that can be considered as a real restorative. With a wear resistance and fracture toughness at the level of posterior composites, it is not only indicated for class V or liner applications, but also for class I, class II and class III restorations. Gradia Direct LoFlo offers up to 55% less shrinkage than the leading flowable composite on the market. Besides the high wear-resistance, its unique HDR filler with Nano-silica filler technology offers at the same time an increased polishability and radiopacity. Handling is made easy with a perfect wettability that allows for perfect adaptability without slumping and the seven available shades blend invisibly into the surrounding tooth structure. The addition of fluoro-alumino-silicate glass also brings you protection against secondary decay. Gradia Direct LoFlo is the material of choice when it comes to restorations in deciduous teeth and tunnel-shaped or minimal intervention cavities. On top it can also be used for sealing hypersensitive areas, to fix mobile teeth or simply to repair defective composite restorations.



Queries

## Clinical case with Gradia Direct LoFlo



Figure 1: Before restoration



Figure 2: After removal of old restoration



Figure 3: Cavity preparation - a small bevel is created for perfect shade adaptation



Figure 4: Application of G-Bond, self etching light-cured bonding agent



Figure 5: Finished restoration

Dr. Andersen







# Prevention starts with risks identification and personal motivation **Plaque Indicator Kit** from **GC.**

Identify plaque cariogenicity and age within 5 minutes



Plaque formation is a normal occurrence for most of the population. To determine the potential damage plaque can cause and discover exactly which plaque sites are more problematic than others can be difficult to identify.

Plaque Indicator Kit is a simple and inexpensive test that quickly identifies and visually communicates the problem to motivate and educate patients.

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