From 17 to 21 May, the 37th Australian Dental Congress (ADC) 2017 is bringing together over 4,000 dental practitioners at the Melbourne Convention and Exhibition Centre. Established in 1957 and organised by the Australian Dental Association (ADA), the event is set to be the biggest ever this year. Held under the theme “Educating for dental excellence”, ADC 2017 has attracted an impressive line-up of four keynote speakers: acclaimed UK prostodontist Dr John Besford, UK periodontics and prosthetics specialist Dr Andrew Dawson, endodontist Prof. Axel Kision from the University of Toronto in Canada and prostodontist Dr Ken Malmqvist from the US.

With an additional 100 speakers from all over the world and a range of topics in all fields of dentistry, including oral cancer screening, root canal irrigation, ergonomics and infection control, ADC 2017 is the largest continuing professional development (CPD) event for dental practitioners in Australia and an ideal way to fulfil CPD requirements. According to the ADA, the main scientific programme and associated workshops, forums and “lunch and learn” sessions offer over 32 hours of CPD for dentists, 12 hours for dental hygienists, oral health therapists and dental therapists, and 11.5 hours for dental practitioners.

Another key part of the congress programme is the ADA/ADA National Emerging Young Lecturer Competition. Sponsored by the ADA and Pierre Fauchard Academy (PFA), the competition gives ADA branch-nominated young clinicians the opportunity to present their clinical, research and lecture skills, providing insight into the latest work being undertaken in dental schools across Australia. Candidates hold 15-minute presentations with a short Q&A session and are judged by a panel of four experts from both sponsoring organisations.

The presentations will be held on Friday from 10:30 to 14:30. The winners will be announced at 15:00. The National Emerging Young Lecturer is granted a sponsorship from the PFA of A$5,000. A second prize, the Encouragement Award, is worth A$1,000.

Free industry exhibition
For the first time, the accompanying industry exhibition—the largest of its kind in Australia—is free, not just for congress attendees, but also for all those in dental practice. Hosting over 100 major companies, the exhibition is showcasing a wide selection of products and services available to the dental profession. It runs from 18 to 20 May in a building adjacent to the venues where the main congress programme will be presented. The exhibition is open to the public, and includes the largest marketplace of dentistry’s suppliers, baristas, food and beverages.

Melbourne is your home town. Could you give attendees some tips on making the most of the host city after hours?

Walk the streets and be spontaneous. Melbourne is one of those cities that really need to be explored. Within a few metres from the convention site, there are arts venues, live music, clubs, bars, restaurants, laneways and graffiti-and-coffee. In my opinion, it is the best in the world. One of Melbourne’s most successful international exports seems to be the barista. There are plenty of online publications that will tell attendees what is on (apart from the ADA events). Do not worry about the weather; there will be some—a coat and umbrella may be necessary.

Thank you very much for the interview.
The link between lifestyle, the oral microbiome, health and well-being

An interview with ADC speaker Prof. Philip Marsh, UK

Philip Marsh is Professor of Oral Microbiology at the University of Leeds in the UK. He has received both national and international awards for his research in the field and is a regular conference speaker. In Melbourne, he will be addressing the topics of dental biofilms and oral microbial ecology in three lectures. Ahead of the event, today international had the opportunity to speak with him about the relationship between lifestyle factors and the oral microbial composition and how to best maintain a healthy bacterial balance in the mouth.

The microbial balance of the oral cavity is essential for dental (and overall) health. Could you briefly explain this relationship?

Humans and microorganisms have evolved to have a close and important symbiotic relationship; to the extent that we are 50 per cent microbial. These microorganisms [the human microbiome] are natural and deliver essential health benefits. In the mouth, the normal oral microbiome prevents colonisation by external microbes—some of which would be potentially pathogenic—and contributes to the development of our host defences and cardiovascular system. The normal oral microbiome is closely linked to oral health and is not associated with oral disease.

The oral microbiota is vulnerable to disruption by lifestyle and environmental changes. What exactly can cause a shift and what are potential consequences?

The symbiotic relationship between the oral microbiota and the host is dynamic and can alter if the oral environment undergoes a substantial change, often as a consequence of an altered lifestyle. A clear example is when salivary flow is reduced or when an individual more regularly consumes sugar-containing foods and beverages. In this situation, the dental biofilm spends more time at an acidic pH. This leads to an enrichment of acid-producing and tolerating bacteria at the expense of beneficial organisms and increases the risk of dental caries. Similarly, the host accounts an inflammatory response if biofilm accumulates around the gingival margin. If this fails to reduce the microbial load, then the protein-rich gingival exudate that delivers the host defences inadvertently acts as a novel supply of nutrients for the proteolytic and obligately anaerobic bacteria in subgingival biofilms. These bacteria subvert the host response and continue to drive inflammation; this exaggerated response is responsible for host tissue damage and promotion of disease.

Is the composition of the oral microbiota mainly based on heredity or can it be managed through external factors?

Some elements of the make-up of the oral microbiota are linked to heredity, but the general composition and activity of these microbes can be managed by effective oral hygiene and an appropriate lifestyle. For example, reducing the amount and frequency of intake of fermentable sugars in the diet, avoidance of tobacco-smoking, etc. An unintended side-effect of some medications can be a reduction of salivary flow; this would disturb the natural balance of the oral microbiota and increase the risk of dental caries.

Dental care products aim to reduce harmful bacteria while maintaining the good ones. Is there a danger of using too much product and thereby destroying the oral flora?

The oral microbiota is natural and beneficial and therefore needs to be managed and maintained at levels compatible with oral health. Oral care products are designed and evaluated to support the patient in maintaining an appropriate level of oral microorganisms, so if they are used as intended, there is little danger of negatively disrupting the oral microbiota. In contrast, the long-term use of broad-spectrum antibiotics can lead to the suppression of significant numbers and types of beneficial oral bacteria, and this can result in overgrowth by yeasts or environmental microbes.

Bacteria play an important role in the development of diseases such as periodontitis or caries. Are there ways to manage this condition other than with dental hygiene measures, for example with vaccines, or will there be in the future?

New strategies to promote beneficial oral bacteria and/or to suppress the likelihood of diseases are being developed. These strategies include the development of oral probiotics. Certain bacteria can prevent dental disease and use the prebiotics which are supplements designed to boost the growth of beneficial bacteria. Novel anti-inflammatory agents are being evaluated that would promote wound healing and reduce the tissue damage caused by a subverted host response to subgingival dental biofilms. Molecules that reduce biofilm formation or inhibit species implicated in dental disease are under active investigation. Some mouthrinses and toothpastes contain agents that cannot be metabolised into acid by oral bacteria.

Is dentistry experiencing greater challenges with regard to biofilms and bacterial shifts today than in the past, and if so, why?

The main differences today compared with the past probably surround the increased amounts of sugar in snack foods and drinks. Also, people are living longer and are retaining their teeth into later life, so the dentinum is vulnerable to dental disease for longer and this is coupled with the fact that a side-effect of many medications taken by the elderly is a reduction in salivary flow.

What strategies for keeping a healthy balance in the mouth can dentists teach patients?

The main strategies are for patients to practise effective oral hygiene and thereby reduce biofilm accumulation and to appreciate the impact of sugar in their diet on their risk of dental caries. It may be helpful if patients realise the relationship and direct link between their lifestyle, their oral microbiome, and their oral and general health and well-being.

Thank you very much for the interview.

At ADC 2017, Marsh will be holding the following lectures:

- Friday, 19 May: “Are dental diseases examples of epigenetic ca-
tumpheteries?” (14:30-15:20) and “Oral biofilms in sickness and in health” (16:00-16:45)
- Saturday, 20 May: “The oral microbiome: The good, the bad, and the ugly” (10:30-11:15)
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Welcome reception

Giving the opportunity to reconnect with close friends and colleagues in celebration and anticipation of the event to come, the welcome reception kicks off at 18:30 on Wednesday and runs until 20:30. The reception event is included in the registration fee regardless of the category you fall in.

For those still looking to party after the official event has ended, the nearby South Wharf Promenade offers many opportunities, including wonderful waterside dining options—likely boasting the most beautiful waterside views in Melbourne.

A ride along the Yarra River will add to the holiday feeling. Melbourne Water Taxis offer a pick-up and drop-off service for passengers at the Melbourne Convention and Exhibition Centre landing point. The water taxis operate day and night all week. More information can be found at www.melbournewatertaxis.com.au.

Accompanying persons programme

Not to be forgotten at ADC 2017 are the partners of dental professionals attending the congress. This year’s programme for accompanying persons has undergone some changes to make the event even more memorable. Instead of the traditional lunch, held on the Friday in the past, a Thursday meet-and-greet event will give accompanying persons the opportunity to become acquainted with one another in a relaxed and convivial setting.

Another addition is a tourism desk operated by Best of Victoria, which will be open for the duration of the event, allowing visitors to plan their own experience of the beautiful host city of Melbourne.

One thing that remains unchanged is the Accompanying Persons’ Lounge, where visitors will be able to help themselves to a range of hot and cold beverages while catching up with friends and colleagues from Australia and around the world.

Congress Late Night

What could be better than wrapping up a stimulating three days of learning from the best dental minds with Congress Late Night on Saturday? Under the theme “Dia de los Muertos” (Day of the Dead), attendees will witness calacas and calaveras—skeletons and skulls—adorning every vantage point, and brightly decorated altars covered in candles, fruit and toys, all of which are part of rituals to welcome the dead back into the land of the living.

Providing musical entertainment will be Los Románticos, a 22-piece Mariachi band whose music embodies the essence of Mexico and who play a vibrant mix of traditional folk and modern pop. Attendees can while away the evening strolling through the festively decorated space filled with Mexican dancers and food and drink stands serving tequila and churros. Visitors can even have their faces painted in the vividly coloured sugar skull tradition that is the literal face of this iconic Mexican festival.

More information on the social events is made available after registration.
In addition to the vast number of educational and scientific opportunities on offer at the 37th Australian Dental Congress (ADC), there is a rich tapestry of social events, commencing with a welcome reception on opening night and ending with Congress Late Night on the final evening.

More information on the social events is made available after registration. Join friends and colleagues in celebration and anticipation kicks off at 18:30 on Wednesday and runs until registration fee regardless of the category you fall in. Social events have ended, the nearby South Wharf Promenade offers a wonderful waterside dining option—likely boasting the most beautiful waterside views in Melbourne.

Not to be forgotten at ADC 2017 are the partners of dental professionals attending the congress. The congress has undergone some changes to make the event at lunch, held on the Friday in the past, a Thursday tradition of dental professionals attending the congress. It has undergone some changes to make the event more enjoyable and relaxing. Visitors will be able to help themselves to a range of hot and cold beverages while catching up with friends and colleagues of the opportunity to become acquainted with new friends and colleagues. Attendees can while away the evening strolling through the festively decorated space filled with Mexican dancers and food and drink stands serving tequila and churros. Visitors can even have their faces painted in the vividly coloured sugar skull tradition that is the literal face of this iconic Mexican tradition. What could be better than wrapping up a stimulating three days of learning from the best dentists in澳大利亚？

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One-week diary of the use of the X-Mind trium CBCT unit in practice

By Dr Diyari Abdah, UK

There is mounting evidence in the literature of the diagnostic superiority of 3-D imaging versus 2-D. As a result, many clinicians today are using 3-D imaging either by referring their patients to a CBCT scanning centre or having mobile units visit them—the only benefit of this is that there is no initial capital outlay to buy the machine. In contrast, the benefits of an in-house CBCT device are many, including the convenience of an on-demand service at any time (pre, peri or postoperatively if needed), learning one software programme and utilising it fully, rather than having to learn different ones for different machines from various manufacturers and thus not employing it to its full potential. Additionally, patients appreciate the convenience of not having to travel to another location.

Our X-Mind trium CBCT unit from AETON is rather new to our practice, and we have yet to fully utilise it. Every day we find new uses and ways to benefit our patients by using 3-D imaging where applicable. Following the latest evidence from experts in the utilisation of 3-D imaging can help a great deal in deciding where and when to use it, consequently minimising radiation dosage and improving diagnostics and planning.

We owe our patients the lowest possible dose with the correspondingly acceptable diagnostic value, and sometimes, a 2-D image does not provide satisfactory diagnostic value. A great deal of guesswork is often involved with 2-D imaging and exposing the patient to extra radiation. In many cases, a small FOV that is enough for one to several teeth could be equal to the radiation dose of several periapical radiographs, but with a much higher diagnostic value.

When a 3-D image is necessary, patients appreciate the information and education they obtain by the case being discussed with them while pointing out vital structures and proposed solutions in 3-D compared with a 2-D image that generally does not make sense to the untrained eye.

In order to show how a CBCT unit can affect day-to-day dentistry in a small family practice, it would be beneficial to share a week’s diary of its use. This article provides a small selection from a week’s diary regarding the use of the X-Mind trium CBCT unit in the clinic. More CBCT scans were often obtained on any one day depending on the cases on that day; however, owing to space limitations in this article, only one to two cases per day are described. It must be borne in mind that each patient’s needs are different, but one thing should be common above all and that is to assess every case individually and never take 3-D scans routinely, despite their clear diagnostic benefits.

Day 1

The patient had had all of his mandibular teeth extracted many months before, owing to mobility and infections, and preferred to have a fixed solution through implant therapy. At that point, the patient was wearing a well-fitted temporary mandibular denture. Initially, the idea was to take a scan of the existing denture with radiopaque markers (gutta-percha in six to eight holes made in the denture) to plan for the placement stage. However, a decision was made to duplicate the existing denture using a duplication flask (Lang...
Dental) in order to fabricate a clear acrylic radiographic guide (Figs. 1 & 2).

A 3D scan was obtained using the X-Mind trium CBCT scanner to be utilised in the treatment plan ning of the case, and we found it to be an invaluable resource. Through the scan, the type and position of the implants in relation to the den sity of the surrounding bone were checked. The ACTEON Imaging Suite software that comes with the device includes a library of the most current implants on the mar ket, allowing placement of the right implant with the right angulation, plus abutments and crowns, in or der to maximise the predictability of positioning the implants, thus improving the treatment suc cess. For clinicians who use more than one implant system, in order to change the implant model that was inserted from the library, one sim ply clicks in the middle of the im plant and the implant library is opened again, allowing the selec tion of another implant model. The software will retain the same implant inser tion point and direction of the pre vious one.

In addition, the software eval uates the bone density around the implant. The aim is to show, both through colour maps and numerically (Figs. 3 & 4), the values before commencing surgery (green if the values are acceptable or high and red if the values are low; Fig. 5), allowing the clinician to make the right decision. This can also be a very good educational tool to show the patient the bone density around any potential implant. In our expe rience, patients like this feature once shown what it means.

**Day 2**

An implant was planned to re place a missing mandibular molar, and the position of the mandibular canal was not very clear on a 2D image but the position was still a little confusing. For this case, we decided to use the ACTEON Imaging Suite’s FlyMode option, which is like a virtual endo scope that follows the mandibular canal tract from within and gives the path to confirm that our nerve tracking is correct (Fig. 6).

This is one of the unique features of the software.

**Day 3**

Obtaining the correct position and trajectory of a retained maxil lary canine has conventionally been dealt with by taking 2D ima ges (periapical radiography) at dif ferent angles and possibly an occu sal film to determine the correct po sition in the buccal-lingual aspect, together with some guesswork. 3D imaging can be an invaluable tool for this indication. The patient re fused orthodontic extraction of the maxillary left canine and wanted both the primary and permanent canines extracted and replaced.

**Day 4**

**Case 1**

A mandibular molar case was in the planning stage, and the posi tion of the mandibular canal was located. At this stage, different im plant sizes were tested to check for best fit and the prognosis for maxi mum integration in the future. The ACTEON Imaging Suite indicated that the first implant considered was too long and there was a risk of nerve damage (Fig. 9); thus, another implant size was chosen to allow sufficient clearance above the nerve, and the density of the bone was checked at the same time, indi cating good values in green, which the patient too could understand (Fig. 10). These tools, as mentioned above, can be quite a revelation for patients, and their use can affect the outcome positively.

**Case 2**

A broken and loose bridge was planned to be removed. The man ning, and it clearly showed that this may have proved difficult. In addition, on the 3D image, we noted that the tip of the implant on the left side may have been anatomy and bone sur rounding these teeth. After this im age was taken, both teeth were ex tracted and the socket was opened fully to prepare the site for a later implant placement (Figs. 7 & 8).

**Day 5**

This case was performed by an other clinician, who was hoping to achieve good integration after plac ing two anterior implants with grafting material. According to the clinician, primary stability was good at the time of placement and the implants inserted angles were placed in bone with some buccal fenestrations, hence the grafting. It thus ap peared that the patient’s treatment was indicated. After the patient complained about some threads showing through the soft tissue, the clinician suggested further grafting to secure the im plants. A CBCT scan was obtained (Fig. 14) as part of the case plan ning them their clinical conditions and perhaps the limitations (ana tomical, structural, etc.), together with other factors that may affect treatment planning and outcome, hopefully for the better. We hope to use our CBCT scanner for more indications, especially in endodontics, as we have seen amaz ingly positive results from using a CBCT scan in some difficult endodontic cases we have acquired in the past. It is the way forward, and we wish we had had the X-Mind trium sooner.

**Conclusion**

These cases and many more ev ery week pass through any dental centre with patients hoping too much understand. With the best available treatment under the circumstances (clinical, timescale, financial, etc.), we know that 3-D imaging is here to stay, and in order to make treatments safer and more predictable for our patients, we have to engage these technologies and involve patients more in show-"We know that 3-D imaging is here to stay."
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