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DENTAL SCRAP RECYCLING

Recent published article by the Australian Dental Association, has discussed the best practices for recycling dental scrap to generate additional income for dental practice. ▸ Page 03

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Survey indicates great concern over high dental care costs in Singapore

By DTI

A recent survey revealed that nine out of ten people in Singapore are concerned about high dental care costs. (Photograph: TORWAISTUDIO/Shutterstock)

SINGAPORE: A recent survey commissioned by a standing committee appointed by the Singapore Dental Association (SDA) has inquired into the public's confidence in dentists and assessed the overall level of concern about dental care costs in Singapore. The data revealed that the majority of the study participants struggle to meet rising dental care costs in the country.

The survey interviewed a total of 1,438 members of the public aged between 25 and 60 years. All the respondents were Singaporeans, except for 26 permanent residents. More than two-thirds of the respondents (71%) visited private dental practitioners and 29% visited public healthcare institutions.

The findings indicated that a staggering 89% of the study participants were unhappy about current dental care costs, and a third of the participants said that they would seek treatment overseas or turn to public healthcare institutions in the event of a further dental care cost increase. Nearly a fifth of the respondents stated that they had not visited a dentist in the last three years. However, those who had visited a dentist at least once in the last year were happy about the service they had received and had not filed any complaints against their dentist.

"The public survey gave us an opportunity to get a glimpse into the thoughts of Singaporeans and permanent residents. We are glad to find out that, despite the media reports on dentists recently, the survey reveals a very high confidence level in our dentists with regard to safety and competency in the delivery of dental care," said chairman of the standing committee Dr Tang Kok Weng. "We share the public concern about the rising dental treatment fees. We hope that there are no external factors in the near future that may potentially increase the cost of delivery of dental care in Singapore," he concluded.

Besides the rising dental care costs, 76% of the respondents were concerned about the rising cost of living in Singapore.

Deadline for CPD requirements fast approaching

By DTI

SYDNEY, Australia: Further education is not only important for dentists to remain up to date in their profession but also a prerequisite in order to remain a registered practitioner. The Dental Board of Australia requires every registered dentist to complete 60 hours of continuing professional development (CPD) over a three-year cycle, and the current cycle finishes on 30 November this year.

There are a number of ways to meet this industry-set standard, from online webinars, such as those offered by the Dental Tribune Study Club, to seminars held by Australian Dental Association (ADA) branches and other healthcare and clinical organisations. However, owing to the number of options, which include peer-to-peer study and discussion groups, it is important to understand what, exactly, is classed as CPD accreditation.

The ADA and the Dental Board of Australia have laid out several key points, including the requirement that there is open disclosure about monetary or special interest a course provider may have with any company whose products are discussed in the course. Content of CPD courses must be evidence-based. If the CPD activity includes an assessment or feedback activity, this should be designed to go beyond the simple recall of facts and should seek to demonstrate learning with an emphasis on the integration and use of the knowledge in professional practice.

The three-year cycle in which Australian dentists are required to complete their 60 hours of continuing education is due to end on 30 November. (Photograph: FS Stock/Shutterstock)

Many different CPD options are available, and sometimes, in seeking to make the right choice, the practitioner might find that the information provided is confusing or unhelpful. The ADA has always made itself available for questions should practitioners need any assistance. The Dental Board of Australia too provides guidance in this area.

Study identifies cells in gingivae that protect against periodontitis

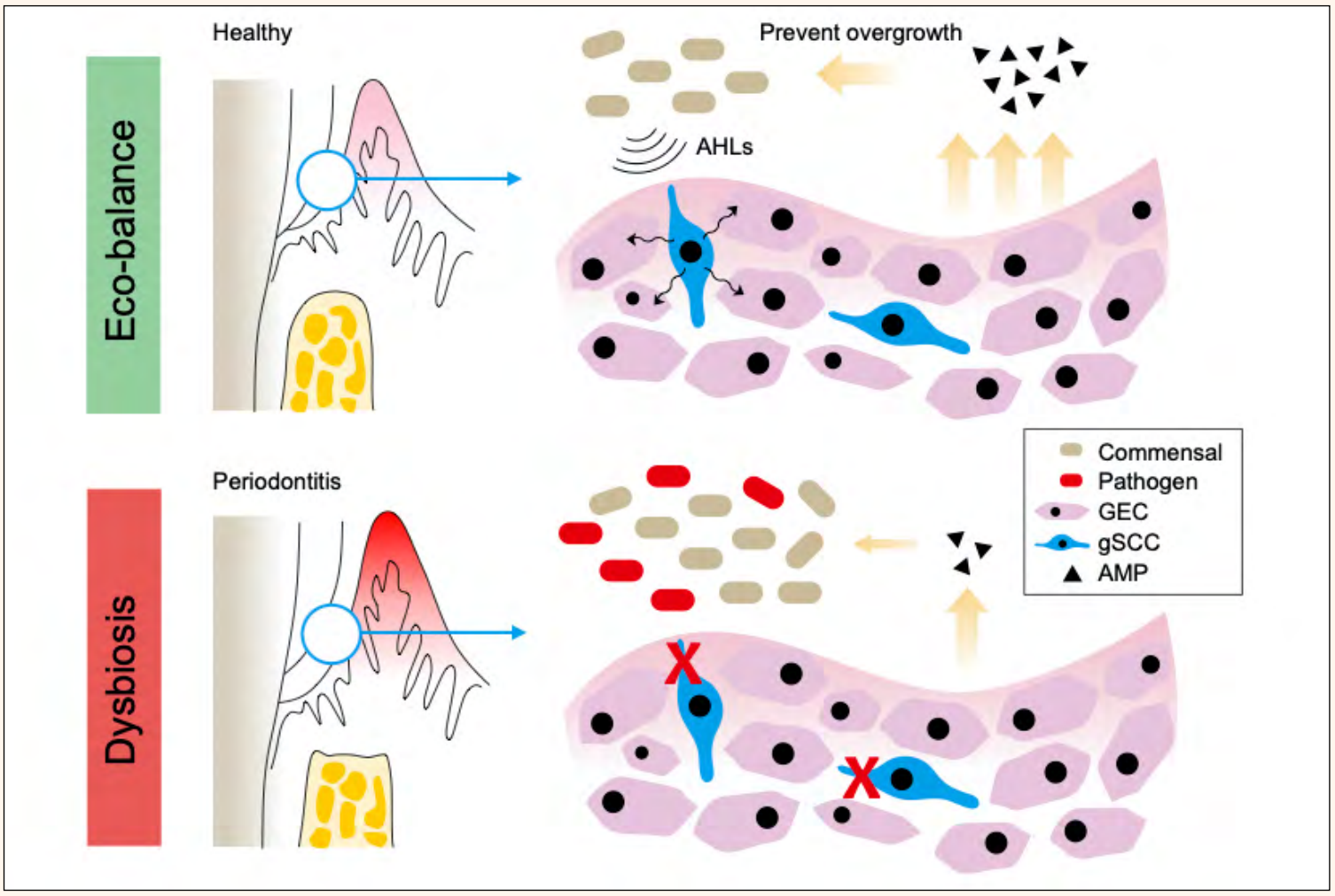
By DTI

PHILADELPHIA, U.S./CHENGDU, China: Despite significant advancements in oral health care, periodontitis remains the most common cause of tooth loss, as well as the sixth most prevalent infectious disease worldwide. The discovery of a new type of cell in the epithelial tissue of the periodontium that helps protect against harmful bacteria has thus renewed interest in the notion that our immune systems may be key to this disease.

The study was conducted by researchers at the Monell Chemical Senses Center, a nonprofit independent scientific institute, working alongside scientists from Sichuan University in Chengdu in China. Examining the gingivae of mice, they found that solitary chemosensory cells (SCCs) were present and that they expressed several kinds of taste receptors as well as the protein gustducin. The role of SCCs is to sense any irritants and bacteria that are present, and they have previously been found in the urinary tract, the gut and the nasal cavities.

The researchers showed that, when gustducin and/or SCCs were genetically removed from the mice's gingivae, pathogenic oral bacteria often quickly grew in numbers, leading to periodontitis. In contrast, the stimulation of the bitter taste receptors in SCCs was found to promote the production of antimicrobial molecules.

In general, mice without gustducin in their SCCs were found to have a more potentially harmful oral microbiome than those with gustducin present. Crucially, these differences in oral flora compositions were identified prior to the loss of any periodontal bone, implying that they could be regarded as a forerunner to periodontitis and could be helpful in identifying it early.



A new study has indicated that molecular pathways in periodontal solitary chemosensory cells are involved in the regulation of oral microbiota. (Image: Monell Chemical Senses Center (CC BY 4.0) creativecommons.org)

"Our study adds to a growing list of tissues we now know contain SCCs and indicates that the common molecular pathways in gum SCCs are involved in the regulation of oral microbiota," said Dr. Marco Tizzano, a researcher at Monell Chemical Senses Center and co-author of the study. "In the absence of taste signaling in the gums, the oral microbiome changed in mice without gustducin."

Based on this study and other unpublished work relating to humans, the research team has suggested that periodontal SCCs in humans may play a similar regulatory role in regard to our own oral microbiomes.

The study, titled "Gingival solitary chemosensory cells are immune sentinels for periodontitis," was published online on Oct. 3, 2019, in *Nature Communications*.

ADA offers advice on how to handle dental scrap

By DTI

SYDNEY, Australia: The Australian Dental Association (ADA) has recently published an article in which it discusses the best practices for recycling dental scrap. Although many dentists treat it as waste, dental scrap can be recycled by an experienced refiner. This is an environmentally friendly solution that will generate additional income for the dental practice.

A recent article published by the Australian Dental Association has urged dentists to separate and sell the valuable precious metals found within the dental scrap to benefit their employees, patients and practice, and the environment. (Photograph: PHOTO FUN/ Shutterstock)

Dental offices often discard dental scrap without considering the value of recycling it, the potential revenue this could produce or its impact on the environment. It is true that materials such as silver and mercury can negatively affect the environment and should, therefore, be responsibly recycled. Moreover, since dental scrap such as bridges, inlays and different types of crowns, including porcelain-fused-to-metal crowns, typically contain a mixture of gold, platinum, palladium or silver, recycling can be profitable. With the help of an experienced refiner, the precious metals in the dental scrap can be easily isolated and later sold instead of ending up in landfills.

According to the article, amalgam waste and dental scrap are two completely different materials that should not be treated in the same way by dentists. Instead, valuable dental material should be separated from amalgam.

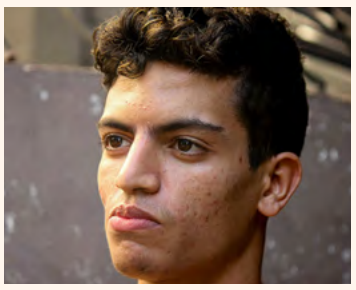
Every dental alloy is unique and requires an assay to determine its composition. Similarly, the combination of materials of which dental implants and other restorations are composed differs. According to the article, one bridge could contain 17% gold, while another one could contain up to 50% gold, which is why recycling all dental scrap through a metal refinery is the only way to ensure fair compensation.Besides gold, recycled palladium could bring profit to the dental office. The article cautions that dentists who only collect scrap material with a golden-yellow colour could be wasting up to 50% of the value in their dental scrap.

Researchers develop oral splint to help patients with Tourette's syndrome

By DTI

OSAKA, Japan: In the dental clinic, practitioners come across any number of issues facing their patients that may exist outside of the mouth but in one way or another impact oral health. Tourette's syndrome can cause anxiety, depression and low self-esteem, and can even cause destructive oral lesions. Aiming to help patients who suffer from the syndrome, researchers in Japan have developed a removable dental appliance that can reduce tics in both children and adults.

Tourette's syndrome is characterised by repetitive movements or vocalisations known as tics. The negative impact that these can have on a person's life is significant. Although there is no cure for the syndrome, there are several treatment options. However, results can take some time.



Aiming to help patients who suffer from Tourette's syndrome, researchers have developed a removable dental appliance for both children and adults. (Photograph: othmane Sahnoun/Shutterstock)

Speaking about the mouthpiece, one of the first authors of the study, Dr Jumpei Murakami from Osaka University, said, "Biting down on the device immediately improved both motor and vocal tics in ten of the 14 children and six of the eight adults that participated in the study. What's more, these effects were long lasting. Long-term improvements in motor tics after more than 100 days were especially evident in patients who were younger when their tics first started."

The researchers developed a custom-made oral splint similar to that used in the treatment of temporomandibular disorders. They applied it to the study participants' molars, and this then realigned the nose, lips and chin. In the study, the team reported that the positive results from biting down on the splint may be due to something known as sensory tricks. Sensory tricks are voluntary manoeuvres that usually involve touching parts of the face and head, and which can alleviate involuntary movements. "Considering previous findings on sensory tricks in patients with cervical dystonia, it seems possible that the oral splint modulates proprioceptive, or 'touch' signals," explained the other first author of the study, Dr Yoshihisa Tachibana from Kobe University.

Recognising that larger-scale studies are required to test the effectiveness of the oral device, the researchers noted that it has clear therapeutic potential that could improve the quality of life for those suffering from Tourette's syndrome.

The study, titled "Oral splint ameliorates tic symptoms in patients with Tourette syndrome", was published online on 23 August 2019 in Movement Disorders, ahead of inclusion in an issue.

Straumann Group and Modern Dental Group join forces to serve customers in Hong Kong and Macau

By Straumann

BASEL, Switzerland/HONG KONG, China: The Straumann Group, a global leader in implant and aesthetic dentistry, and Modern Dental Group, a leading global provider of dental prosthetic devices, have entered a joint venture to create Peak Dental Solutions Hong Kong. This distribution company will serve the dental communities in Hong Kong and Macau in China from the fourth quarter of this year. Straumann and Modern Dental Group will invest substantially in the joint venture and will own respective stakes of 40% and 60%. Financial details were not disclosed.

The Straumann Group and Modern Dental Group have created their own distribution company to serve dental communities in Hong Kong and Macau. (Photograph: Rawpixel.com/Shutterstock)

Straumann's dental implant products have been available for many years in Hong Kong through its long-standing local distribution partner, Advance Dental Consulting, which has made an important contribution to the establishment of Straumann as a local market leader. However, further investment in the distribution channel is necessary in order to cater for the group's rapidly expanding business portfolio and forthcoming launches. Straumann has therefore reached an agreement with Advance Dental Consulting that enables Peak Dental Solutions to take over the distribution of its products.

The Straumann Group's portfolio of dental solutions has increased significantly in the past year alone, for example with the addition of its next-generation fully tapered implant, BLX, and its fully ceramic two-piece implant system. To offer further levels of affordability, the group has added Anthogyr to its implant portfolio alongside Neodent and MEDENTiKA, which are complemented by attractively priced implant options from T-Plus and Warantec.

One of the most exciting areas of expansion is the digital segment, where Straumann's most recent additions include the TRIOS, CS 3600 and Virtuo Vivo intra-oral scanners, as well as Medit laboratory scanners, not forgetting its range of milling machines and 3D printers. Furthermore, the group is preparing to enter the Asian clear aligner market with ClearCorrect and Smyletec. Its goal is to make all of these solutions available to more customers in Hong Kong and Macau from a single service partner.

Peak Dental Solutions will have at its disposal the broadest range of replacement, restorative, corrective and digital dental solutions, and it will have access to the combined customer base of both companies, enabling it to capitalise on cross-selling opportunities. It will collaborate with Modern Dental Laboratory to develop and provide educational programmes via the Center of Dental Education in Hong Kong. Beyond this, customers will have access to the education and support networks of Straumann and the International Team for Implantology.

Poor water quality may be factor in high consumption of sugary drinks

By DTI

CANBERRA, Australia: The poor state of Australians' oral health has received much needed attention over recent years. For some Aboriginal and Torres Strait Islander people, particularly those living in remote communities, their oral health is being severely compromised owing to the consumption of sugary drinks, according to a recent study by researchers from the Australian National University (ANU).

According to Rethink Sugary Drink, some male Australians aged between 12 and 24 consume 1.5 litres of soft drinks, sports drinks or energy drinks a day. High consumption of such beverages has had a huge impact on the oral health of many people, and calls for better labelling and sugar tax have been made to help mitigate the situation. However, for Aboriginal and Torres Strait Islander people in remote communities, it is not only that they are consuming these drinks, but also, according to this recent study, many of them feel that they have no healthier option, owing to the poor quality of drinking water. "Families living in regional and remote settings have expressed concern about the safety and quality of drinking water," said lead author Dr Katherine Thurber.

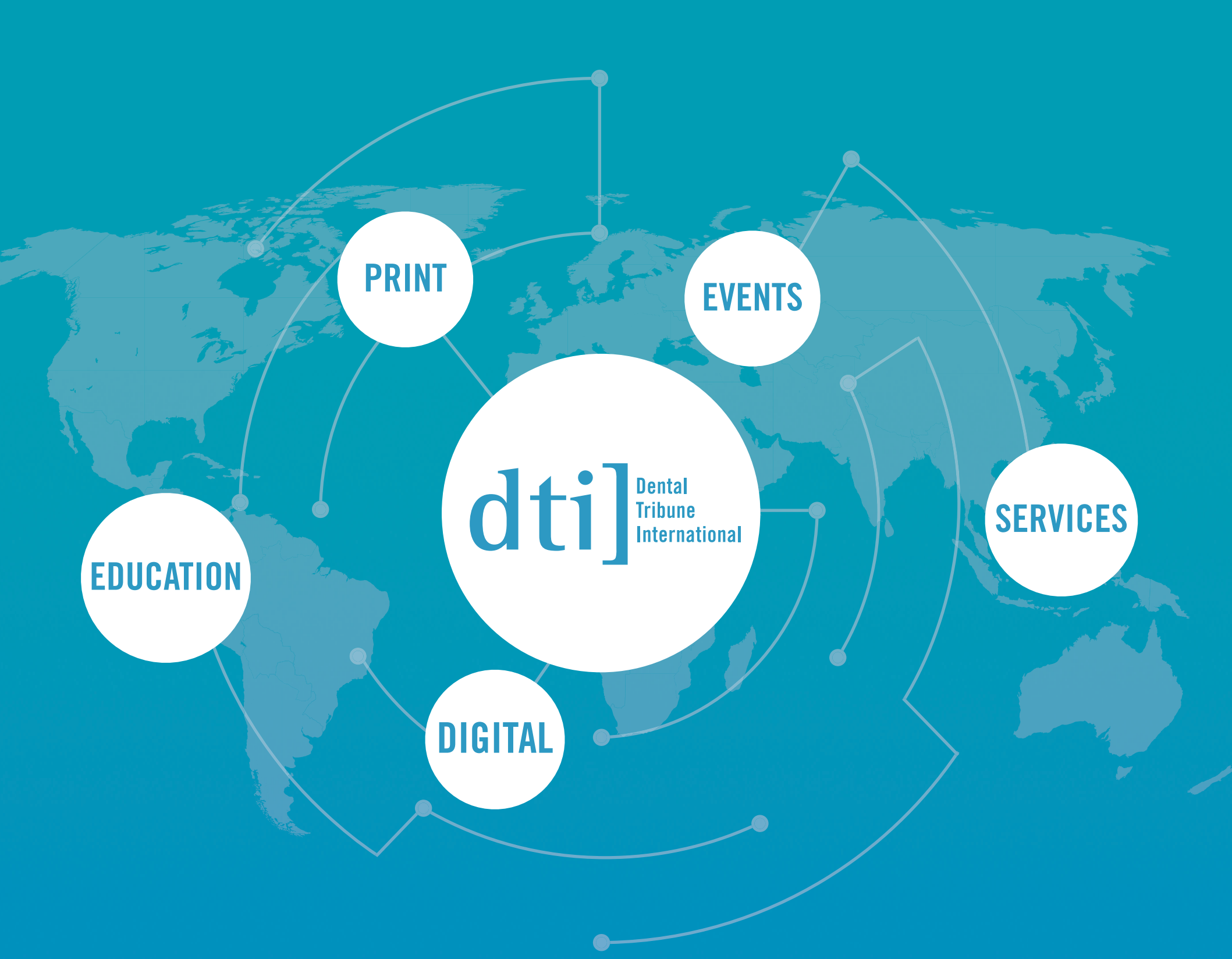
Study finds poor-quality drinking water in remote parts of Australia may be one reason for high consumption of sugary drinks from a young age. (Photograph: Elizaveta Galitckaia/Shutterstock)

What is perhaps more concerning is that the habit of high consumption of sugary drinks is introduced at a very young age. In the study, researchers focused their attention on infants and toddlers aged 0–3 years. Data was gathered from 900 participants, and the results showed that 50% had consumed some form of sugary drink. Cordial was the beverage most commonly consumed at 47%, followed by soft drinks at 19% and sweetened tea and coffee at 13%. The remaining 50% of the participants had not consumed any form of sugary drink in their first three years of life, which researchers noted as a positive in the otherwise concerning results.

Speaking about what could be done to make improvements, Thurber said, "Families need relevant advice from health professionals, but improving information and knowledge is only one part of the solution. We also need programmes and policies to improve the social determinants of health if we want to improve nutrition."

The gap between the oral health of Aboriginal and non-Aboriginal Australians is closing, which indicates that the national focus on the issue may be having an impact. As reported by the researchers at ANU, babies and toddlers living in cities and regional centres were significantly less likely to consume sugary drinks than were children in remote areas. However, as reported recently by Dental Tribune International, 90% of Australian adults experience caries in their permanent teeth, and therefore, there is still plenty of work to be done.

The study, titled "Sugar-sweetened beverage consumption among Indigenous Australian children aged 0–3 years and association with sociodemographic, life circumstances and health factors", was published on 28 August 2019 in *Public Health Nutrition*, ahead of inclusion in an issue.



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New data paints a clearer picture about Australian dental practitioners

By DTI

SYDNEY, Australia: Understanding the dental industry is a key function of the Dental Board of Australia, and the board plays an important role in the regulation of dental practitioners. Recently, the board released data on the state of the profession with regard to new registrations. The data gathered informs the board's decisions on standards, codes and guidelines for the dental profession.

Statistics released by the Dental Board of Australia show that there were 101 new registrations of dental practitioners across Australia during the period of 1 April to 30 June 2019. (Photograph: wavebreakmedia/ Shutterstock)

According to the latest data, during the period of 1 April to 30 June 2019, an additional 101 dental practitioners registered across Australia, pushing the number of registrants overall to 23,730, of which 17,727 were dentists. Breaking down the numbers by sex, the report stated that 51.8% were female (12,304) and 48.2% male (11,426) and that 494 women and 1,274 men held specialist registration.

In addition to the data on new registrations and sex, the data from the Dental Board of Australia painted a clearer picture on where dental professionals are working. It shows that the majority of registrants are based in either New South Wales or Victoria (29.20% and 23.33%, respectively). The next largest groups practise in Queensland (20.21%), Western Australia (11.54%) and South Australia (8.26%).

The Dental Board of Australia noted that its functions include:

- registering dentists, students, dental specialists, dental therapists, dental hygienists, oral health therapists and dental prosthetists;
- developing standards, codes and guidelines for the dental profession;
- handling notifications, complaints, investigations and disciplinary hearings;
- overseeing the assessment of overseas-trained practitioners who wish to practise in Australia; and
- approving accreditation standards and accredited courses of study.

Scientists to develop novel dental restorative material

By DTI

TORONTO, Canada: Researchers from the University of Toronto (U of T) have recently been awarded a grant to develop a new restorative material for treating dental caries. The goal is to create a tooth-colored material that will not degrade when it comes into contact with saliva or when it encounters the body's immune response. The grant will help address the failure of dental restorations and consequently reduce treatment costs.

The grant, awarded by the Canadian Institutes of Health Research (CIHR) and worth C$939,040 (€648,000), is aimed at reducing root and recurrent dental caries. According to the researchers, the aforementioned oral health diseases are especially prevalent in disadvantaged populations. In populations where oral health and hygiene is difficult or compromised, tooth-colored fillings often fail prematurely and may require continual replacement.

The polymer material will be tested in different oral conditions. "We are able to replicate the interactions of restorative materials with saliva, bacteria and the immune system for the development of a novel restorative system for cervical lesions with enhanced performance using much more rigorous testing than ever before," said Prof. Yoav Finer, George Zarb/Nobel Biocare Chair in Prosthodontics in the Faculty of Dentistry at the U of T.

"This funding further exemplifies the deep and comprehensive programs in applied biomaterials research that exist in the Faculty of Dentistry at the University of Toronto, with CIHR grants such as this one led by an internationally recognized clinician scientist and supported by outstanding research engineers and scientists," said Prof. Paul Santerre, also from the U of T Faculty of Dentistry.

"This is an important clinical problem with especially negative effects on the health of vulnerable populations," said Prof. Bernhard Ganss, Vice Dean of Research in the faculty. "But with this kind of deeply collaborative, multidisciplinary approach, we can fundamentally change long-term outcomes for people and alter the landscape of oral health care."

The researchers hope to commercialize the material through a health technology startup company called Mesosil, headed by Dr. Cameron Stewart. More information about Mesosil can be obtained here.

A multidisciplinary research team at the University of Toronto has been awarded a five-year grant to develop a better dental restorative system. (Photograph: Olga Yudina/ Shutterstock)

Interview: "Education remains a priority for the company"

By Brendan Day, DTI

Jo Massoels, Vice President of Global Marketing and Solutions at Dentsply Sirona Implants. (Photograph: Dentsply Sirona)

At the recent European Association for Osseointegration (EAO) annual congress in Lisbon in Portugal, Dental Tribune International had the opportunity to speak with Jo Massoels, Vice President of Global Marketing and Solutions at Dentsply Sirona Implants, about some of the company's recently launched products and its focus for the future.

> With the launch of Primescan, we enabled users to take a digital impression easily and with great accuracy at an outstanding speed.

Mr Massoels, the theme of this year's EAO congress is "The bridge to the future". How is Dentsply Sirona living up to this theme, both here and looking beyond Lisbon?

Well, here in Lisbon, we are mostly focused on our implant solutions, given that this is the main specialty of the EAO. How Dentsply Sirona lives up to this theme, both at this congress and in general, is through our scientific approach to research and development. This knowledge remains our foundation, but at the same time, our digital portfolio continues to expand, and so what Dentsply Sirona is doing is developing a bridge between this scientific knowledge and a digitally based future.

Of course, this is not to say that we are not focused on implantology as a path forward—here at EAO, we have been showcasing our new Astra Tech Implant System EV, for example. Implant dentistry, as a whole, is moving towards being able to provide patients with immediate loading, and this is definitely an area of focus for Dentsply Sirona. Another focus of ours is digital workflows—making sure that these workflows are open and customisable. And, of course, education remains a priority for the company, as it's not always easy to optimise your clinical digital workflows without sufficient training.

Will there be specific training courses offered by Dentsply Sirona for the Astra Tech Implant System EV as it is rolled out across North America and Europe?

Yes, absolutely. That's where Dentsply Sirona will really be able to leverage its dedication to training. We have built and are building many training facilities around the world to educate dental professionals in general, where they are able and will be able to engage in training sessions for the Astra Tech Implant System EV, Azento and other Dentsply Sirona solutions.

Dentsply Sirona took the opportunity at the 2019 International Dental Show to launch the Primescan intra-oral scanner, among other products. What has the feedback been to this point?

It's been tremendously positive, to be honest. We knew it was a great product, but I did not expect it to be such a tremendous success—there are quite a few intra-oral scanners on the market already, but with the launch of Primescan, we enabled users to take a digital impression easily and with great accuracy at an outstanding speed. That's also the feedback that we've received from clinicians—that the speed and accuracy are extremely useful, particularly for something like implant dentistry where you want to be able to capture the implant position with precision.

Can Primescan be connected to, and used in conjunction with, other software?

Primescan has a seamless connection with the rest of the CEREC system, which is ideal when a clinician wants to work chairside. The big difference, however, is that we've really opened up the connectivity of Primescan so that it can be used not only chairside but also when you're working with a dental lab or other partners. I think it's safe to say that our customers have expressed their appreciation of this feature.

To return to the Astra Tech Implant System EV: are there any specific areas of implant dentistry that Dentsply Sirona aims to address with this upgrade?

Definitely. The main trend that this implant is designed to address is immediate restorative temporisation. In general, there is a growing demand for immediate temporisation, and it's something that many clinicians want to be able to offer their patients. However, a crucial factor for clinicians is achieving primary stability in the implant—this is a requirement for successful immediate temporisation.

As patients are requesting faster dental care, there are a growing number of clinicians conducting immediate temporisation. This is what the Astra Tech Implant System EV seeks to address, with its deeper apical threads designed to allow for ideal primary stability. What we've done is improve an already very versatile implant system, allowing it to be used for an even greater set of indications, without compromising the guiding principles of the Astra Tech Implant System EV, and providing outstanding marginal bone maintenance. I am confident that this will be appreciated by our customers. They'll be able to treat more cases than ever before using the same implant system with the same drilling protocol.

We've built on what we already have—not just the products but also the science that serves as our foundation.

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