Dental Tribune

The World's Dental Newspaper · Asia Pacific Edition

Published in Hong Kong | www.dental-tribune.asia | Vol. 18, No. 03

NOT GENETIC MAKE-UP

Results of the first twin study found that environmental factors, such as lack of fluoride in water, seem to be the prime cause of cavities not genetic make-up.

▸ Page 03

FREE DENTAL CARE

Child Poverty Action Group in New Zealand recommended to achieve free universal healthcare, including dentistry, prescriptions and specialist hearing and vision care, for all youth.

▸ Page 06

USE OF ANTIBIOTIC

Recent study has found that the prophylactic use of antibiotic has no influence on the prevalence of post-surgical dental implant complications in overall healthy patients.

▸ Page 09

Simple exercise found to improve oral function in the elderly

By DTI

Researchers have developed a 2-minute-long simple oral exercise that improved mastication, salivation and swallowing function in the elderly people in their study. (Photograph: Photographee.eu/Shutterstock)

SEOUL, South Korea: Older adults frequently experience decreased salivation and xerostomia, which may lead to oral soft-tissue disease, dental caries, periodontal disease and oral candidiasis. Although masticatory and swallowing functions are closely linked to overall health, nutritional status and quality of life, chemical agents used to treat dry mouth may cause side effects and often require a prescription. In a new study, researchers have improved oral function in the elderly by performing a simple oral stretching and exercise technique.

According to the researchers, conventional oral exercises performed in previous studies were impractical for continuous use in the elderly owing to the extended duration needed for positive treatment outcomes. The present study used a simple oral exercise (SOE), which included lip stretching, tongue stretching, cheek stretching, masticatory muscle exercise and swallowing movements to reduce performance time and to determine the short-term effects of the SOE.

In the course of the study, 84 participants aged 65 years and older performed the SOE twice a day for one week after receiving instructions from a trained dental hygienist. The researchers evaluated the participants' masticatory performance by using the mixing ability index (MAI). Additionally, they assessed the unstimulated saliva and the moisture levels of the tongue and buccal mucosa and performed the repetitive saliva swallowing test. On the basis of each of these four measurements, participants were dichotomised into two groups with good and poor oral health conditions.

The data showed that the mean MAI increased by 6 per cent immediately after the intervention and by 16 per cent in the poor-chewing group. Similarly, the amount of unstimulated saliva increased by 0.1 ml/min immediately after the SOE and by 29 per cent in the poor-salivation group. The degree of tongue moisture increased by 3 per cent and was maintained, according to the researchers. In the poor-swallowing group, 25 per cent and 40 per cent of the participants were upgraded to the good-swallowing group immediately after the intervention, as well as after one week of intervention, respectively. Finally, the participants experienced less discomfort as their oral function improved.

The study, titled "Improvements in oral functions of elderly after simple oral exercise", was published online on 16 May 2019 in *Clinical Interventions in Aging*.

Food additive used in toothpaste and chewing gum may have negative impact on health

By DTI

SYDNEY, Australia: Nanoparticles of the common food additive titanium dioxide (E171), which is found in more than 900 food products, including chewing gum, as well as in some medicines and toothpastes, may have a negative impact on human health, according to a recent study. The results of the study have prompted experts to call for better regulations and more discussion around the topic of food additives.

Conducted by researchers from the University of Sydney, the study showed that E171 has an impact on gut microbiota and impairs some of its functions. This could cause inflammatory bowel diseases or colorectal cancer. Co-lead author Dr Wojciech Chrzanowski, an associate professor at the University of Sydney Nano Institute, said: "There is increasing evidence that continuous exposure to nanoparticles has an impact on gut microbiota composition, and since gut microbiota is a gatekeeper of our health, any changes to its function have an influence on overall health."

In 2017, French environmental association Agir pour l'Environnement studied the composition of 408 toothpastes and found E171 in 271 dental pastes, 25 bio-toothpastes and 29 toothpastes for children. Now, after ANSES, the French agency for food, environmental and occupational health and safety, released an analysis of 25 new studies on E171's toxicity, concluding there was a lack of scientific data on its harmfulness but recommending the use of known alternatives, the French government plans to ban the use of the additive altogether from 2020.

According to the authors of the Australian study, increasing rates of dementia, autoimmune diseases, cancer metastasis, eczema, asthma and autism are among a growing list of diseases that have been linked to soaring exposure to E171 nanoparticles. Speaking about the results and what it means for the Australian government, the researchers said that E171 consumption should be better regulated by food authorities.

The study, titled "Impact of the food additive titanium dioxide (E171) on gut microbiota–host interaction", was published on 14 May 2019 in *Frontiers in Nutrition*.

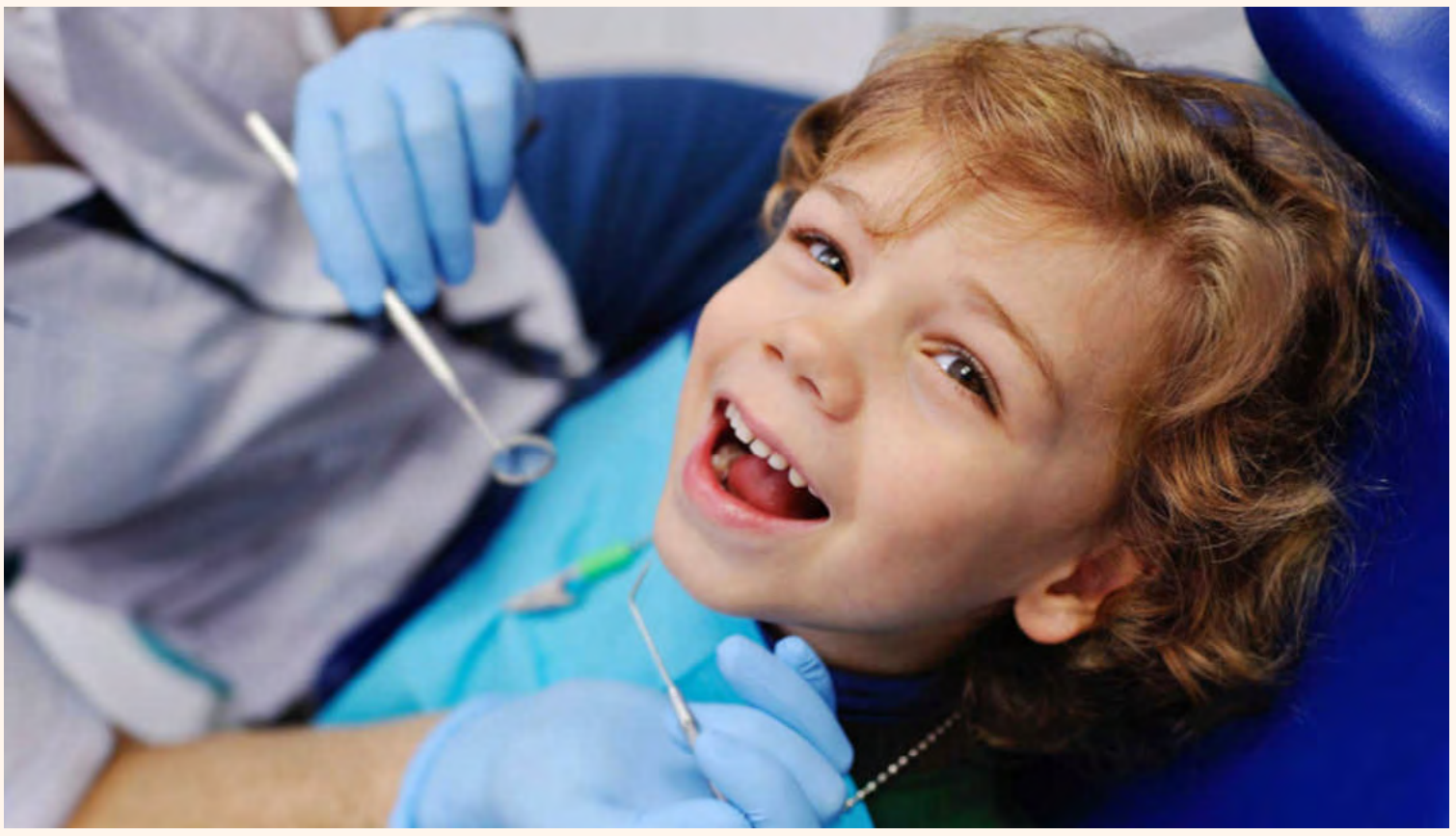
A new Australian study has found that nanoparticles of the food additive titanium dioxide, which is found in products such as toothpaste and chewing gum, may have a negative impact on human health. (Photograph: DUSAN ZIDAR/ Shutterstock)

AD

Review links protruding teeth to long-term oral health risks

By DTI

ADELAIDE, Australia: A new systematic review has reported that children with protruding primary or early permanent teeth have an increased chance of damaging them. However, the researchers affirmed that the oral health risks linked to protruding teeth can be significantly reduced without entailing prohibitive costs.



Researchers have recently established in a systematic review that children with teeth that protrude more than 3 mm have more than double the chance of dental trauma. (Photograph: Evgeniy Kalinovskiy/Shutterstock)

The review, undertaken at the University of Adelaide, included 41 studies and more than 50,000 children aged under 19 years and confirmed a direct link between the degree to which a young patient's teeth protrude and the probability of damaging them. "Traumatic dental injuries have been identified as the fifth most prevalent disease or injury globally and their subsequent management is costly," said Dr Esma Doğramacı, lecturer in orthodontics in the Faculty of Health and Medical Sciences at the University of Adelaide Dental School. "While the number of traumatic dental injuries have fallen over recent decades, they have significant physical, psychological and economic consequences," she added. "Young children up to the age of 6 years with teeth that stick out more than 3 mm have over three times higher chance of trauma than children without protruding teeth. Children over 6 years with teeth that protrude more than 5 mm have over double the chance of trauma."

According to Doğramacı, corrective orthodontic treatment of children's teeth is not usually undertaken until all permanent teeth have erupted, usually after the age of 12 years. However, an expensive visit to an orthodontist is not essential to protect protruding teeth, she said. "A dentist can easily measure how far a child's teeth stick out and recommend whether they should be fitted with a brace. They can apply simple braces which can reduce the prominence of protruding teeth and significantly reduce the chance of them being damaged," explained Doğramacı.

In order to protect protruding teeth from damage, Doğramacı recommends discouraging children from sucking their thumb and suggests they wear a mouth guard. "Early identification and protection of protruding teeth through regular dental check-ups reduces the chance of early problems becoming long-term dental issues," she commented. "If young teeth are broken or knocked out, long-term issues may occur, like the need for root canal treatment or even tooth loss, requiring a lifetime commitment for general dental treatment."

"Also, if orthodontic treatment is carried out on teeth that have previously suffered from trauma, further complications can occur during orthodontics that could lead to the loss of those teeth," she added.

"The results of this study confirm that regular check-ups, particularly for children, are a must for good long-term dental health."

The study, titled "The association of overjet size and traumatic dental injuries—A systematic review and meta-analysis", was published online on 6 May 2019 in *Dental Traumatology*, ahead of inclusion in an issue.

AD

Study finds genetic make-up has little impact on oral health

By DTI

MELBOURNE, Australia: The idea that oral health comes down to genetics can be a damaging one. According to authors of a recent study, which followed the oral health of twins from birth to age 6, there is no link, and the idea that there is can prevent people from changing their damaging oral health habits.

Led by Dr Mihiri Silva from the Murdoch Children's Research Institute, the study followed 173 sets of twins, identical and non-identical. "How genetics impacts on dental health has not often been studied. This is the first twin study that looks at both genetics and early life risk factors, such as illness and lifestyle."

A new study has shown child oral health to be related to lack of fluoride, the mother's health during pregnancy and other factors, but not genetics. (Photograph: Fab_1/ Shutterstock)

According to Silva, the study's results found that identical twins—with identical genomes—had varying degrees of dental caries. "This means that environmental factors, like a lack of fluoride in water, seem to be the prime cause of cavities not genetic make-up," she explained.

Despite genetics not playing a role in oral health, the study did reveal a link between the mother's health and lifestyle during pregnancy and the child's future dental health, with obesity in pregnancy a definite marker for increased risk of childhood caries. "Perhaps the mother's weight has a biological influence on the developing foetus or perhaps the risk of decay rises because of increased sugar consumption in that household," hypothesised Silva.

Another concerning result to come out of the study was the estimation that one in three Australian children have caries by the time they start school. With the 2011 Victorian Department of Health and Human Services statistics showing that more than 26,000 Australians under the age of 15 are admitted to hospital to treat caries every year, the estimation may not be too far off.

"Our findings also reinforce how important it is for paediatricians and other health professionals to educate children to start preventive measures early in life, prior to the onset of damage to dental tissues," concluded Silva.

The study, titled "Genetic and early-life environmental influences on dental caries risk: A twin study", was published in the May 2019 issue of *Pediatrics*.

AD

Tetric® N-Line

High-quality composites for esthetic anterior and posterior restorations

One efficient solution for all cavity classes

MORE THAN 90 MIO RESTORATIONS PLACED*

* Based on sales figures.

www.ivoclarvivadent.com
Ivoclar Vivadent AG
Bendererstr. 2 | 9494 Schaan | Liechtenstein | Tel. +423 235 35 35 | Fax +423 235 33 60

ivoclar vivadent®
passion vision innovation

Fluoride reduces dental risk from minimal and extended breastfeeding, study says

By DTI

ADELAIDE, Australia: A recent study has examined the interaction between fluoridated water consumption and breastfeeding duration in relation to dental caries experience. The findings suggest that exposing children to fluoridated water may reduce the risk of dental caries.

According to a report published in the Oral health and dental care in Australia: key facts and figures, in 2010, 55 per cent of 6-year-olds had experienced dental caries in their primary teeth. The new research looked at dental caries in 5- and 6-year-olds in Australia and examined whether they had been exposed to fluoridated water or breastfed as infants and for what duration. The study used data collected in one of the largest and most comprehensive population-based studies of child oral health in Australia, the National Child Oral Health Study 2012–14.

A new study has reported dental and general health benefits of breastfeeding and water fluoridation. (Photograph: Evgeny Atamanenko/Shutterstock)

The findings indicated that breastfeeding for over a month and up to 24 months was associated with good oral health. Minimal breastfeeding, which includes no breastfeeding or breastfeeding for less than one month, however, and extended breastfeeding beyond 24 months were both linked to increased dental cavities. However, these effects were lessened if children were exposed to fluoridated water.

"Breastfeeding is important not only for general health but also for the dental health of young children," said senior author Dr Loc Giang Do, a professor in the Faculty of Health and Medical Science at the University of Adelaide's Australian Research Centre for Population Oral Health. "Minimal breastfeeding can increase risk for having dental decay in children, as can sustained breastfeeding beyond 24 months," he added. "However, potential risk can be reduced by drinking fluoridated water in formula or ensuring that breastfed children are given fluoridated water to drink after the age of 6 months."

According to Do, in fluoridated areas, breastfeeding can be recommended beyond the age of 24 months, while in non-fluoridated areas, breastfeeding for up to 24 months is recommended not only for child general health and development but also for child dental health. "The use of fluoridated tap water should be recommended for young children," Do commented and added that the dental profession should support and even encourage mothers of infants to breastfeed.

AD

SIGN UP NOW!
The world's dental e-newsletter
DENTAL TRIBUNE

Stay informed on the latest news in dentistry!

www.dental-tribune.com

dti Dental Tribune International

Planmeca Creo™ C5

BUILT FOR SPEED

The ultimate 3D printer

PLANMECA

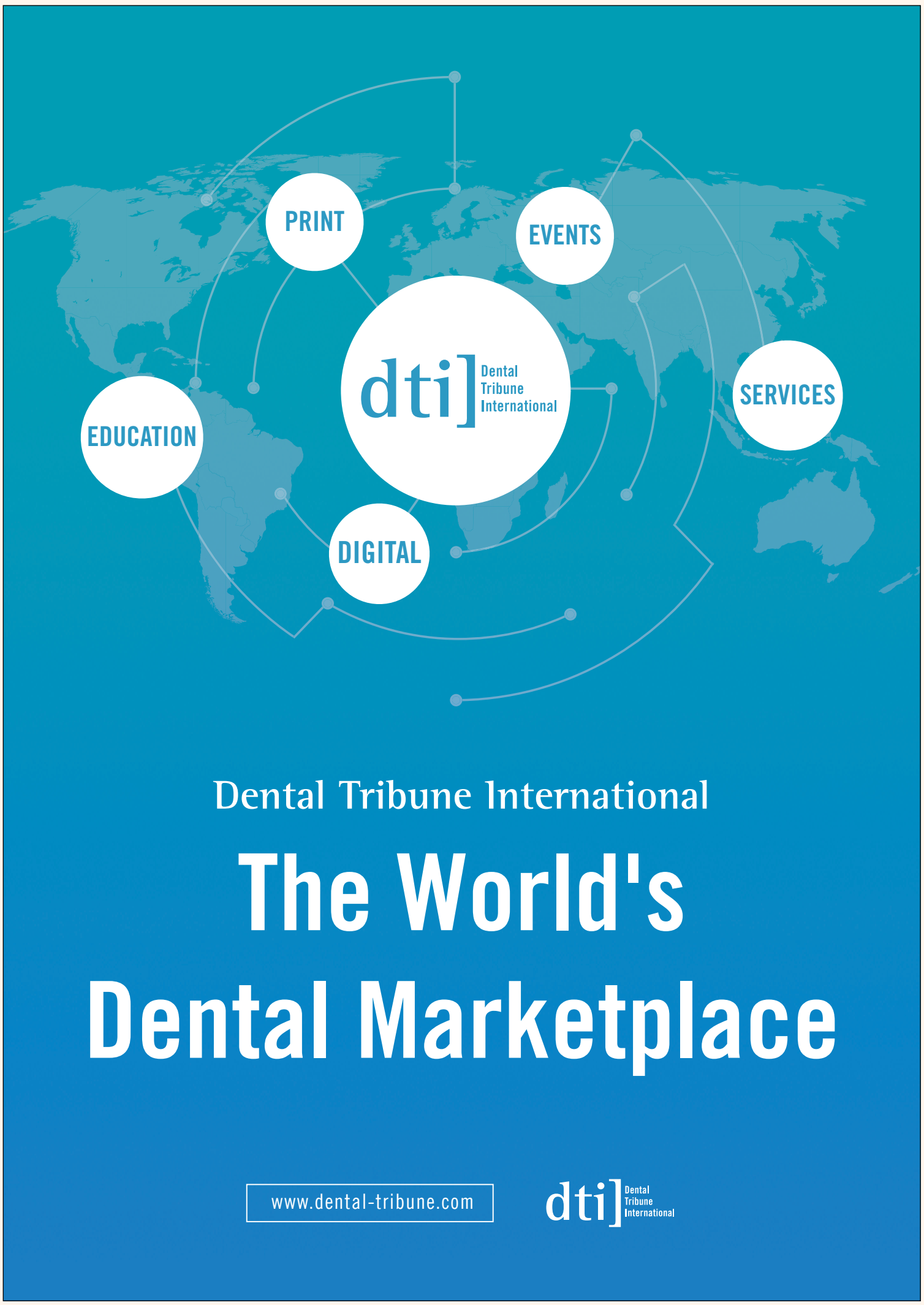
Planmeca Oy Asentajankatu 6, 00880 Helsinki, Finland. Tel. +358 20 7795 500, fax +358 20 7795 555, sales@planmeca.com

CPAG calls for free dental care and healthcare for all youth

By DTI

AUCKLAND, New Zealand: Early childhood dental caries is the most common chronic disease seen in children and a leading cause of hospital admissions for New Zealand children. The Child Poverty Action Group (CPAG) is attempting to tackle the issue by calling for free universal healthcare, including dentistry, prescriptions and specialist hearing and vision care, for all children and adolescents younger than 18 years of age.

AD



In the group's submission to the New Zealand Health and Disability System Review, CPAG stated that universal healthcare for children should begin before they are born and should include free general practitioner (GP) visits and pregnancy-related dental care for expectant mothers. The group is also asking for more school-based initiatives and has urged the government to expand health and mental health services, to appoint more school social workers, to provide school lunches and to tax sugar-sweetened beverages.

In a recent submission, the Child Poverty Action Group has recommended taking immediate steps to achieve free dental care and healthcare for all young people under 18 years. (Photograph: pikselstock/Shutterstock)

"Research shows that adolescence is one of two periods that are critically important for social and physical development, the other being preconception to 3 years of age," said paediatrician and CPAG children's health spokesperson Prof. Innes Asher. "It is vital that all our teenagers can easily access appropriate and timely primary healthcare. Their health and futures should not have to rely on their families' ability to afford healthcare, as is currently the case."

According to the group, children living in poverty are at a higher risk of falling ill and dying compared with other children. That is why CPAG's recommendations are designed to help achieve not only healthcare access equity but also health equity for all young people. "Primary care and public health is where our focus needs to start. Significant long-standing underfunding in these areas is one reason that too many of our children are ending up hospitalised unnecessarily," said CPAG public health spokesperson Dr Nikki Turner, an associate professor and Director of the Immunisation Advisory Centre at the University of Auckland.

Currently, free GP visits in New Zealand are available to children aged 13 and under. Pregnant women are entitled to free maternity services but not to free GP visits or pregnancy-related dental care.

Eating disorders—Oral health professionals have role in early identification

By DTI

SYDNEY, Australia: Eating disorders and disordered eating together are estimated to affect over 16 per cent of the Australian population, according to the National Eating Disorders Collaboration (NEDC). The Australian Dental Association (ADA) and the NEDC have collaborated in order to spread awareness about eating disorders and their identification and assessment and to encourage referral among oral health professionals.

Early intervention is critical for a patient with an eating disorder. The sooner treatment occurs, the better chance the individual has of recovery. Consequently, the oral health practitioner is uniquely positioned as one of the first healthcare providers consulted by an individual demonstrating disordered eating behaviour.

According to the National Practice Standards for Eating Disorders, a document drawn up by the NEDC, dental professionals fall into the group of early identifiers and initial responders. They are defined as follows: "Early identifiers have a duty of care for the well-being of people in high-risk groups for eating disorders and who are most likely to act as the first point of contact for people with eating disorders and their families. The role of early identifiers is to proactively engage people at risk to promote prevention and early help seeking."

Intra-oral manifestations of nutritional deficiency present early in the clinical course of an eating disorder, and general tooth erosion can take approximately two years to appear. Swelling around the cheeks or jaw or bad breath can be physical warning signs of frequent vomiting. The ability of the oral health practitioner to recognise the subtle changes in the mouth of a patient is central to identifying early indicators of an eating disorder as early as possible.

Eating disorders are serious mental health conditions which have a significant and underestimated impact on Australian society. (Photograph: NEDC and ADA/Shutterstock)

The NEDC first partnered with the ADA New South Wales (NSW), as part of a combined project, where ADA NSW undertook a focus group of some of their members to understand their perspective on eating disorders, including how to approach a patient living with an eating disorder.

The feedback of this focus group resulted in the development of e-learning resources and provided significant progress in identifying the gaps that exist in the knowledge and identification of eating disorders and practices for a standard approach to care for patients with an eating disorder.

When contacted by Dental Tribune International, the NEDC explained that working with the ADA in some way to create awareness of the oral health practitioner's position in the identification, treatment and management of an eating disorder was important and was the perfect partner to promote this cause.

The NEDC believes that as an organisation the ADA shares similar values to that of the NEDC. With a focus on collaboration, professionalism, integrity and respect, the NEDC felt that these values aligned with their own.

It is the goal of the NEDC to work collaboratively across the sector to provide better outcomes for all Australians living with an eating disorder, through the sharing and development of evidence-based, nationally consistent information and standards.

Researchers recruit Pasifika adolescents for oral health study

By DTI

DUNEDIN, New Zealand: The multicultural element of New Zealand society is something that brings with it many positives, but it can also create certain barriers for some groups. Among these many cultures, the Pacific Islanders make up a large proportion of the society, and in a new study, researchers from the University of Otago in Dunedin recruited Pasifika adolescents to interview groups of their peers about their understanding and experiences of oral healthcare and their attitudes towards it.

Despite dental care being free for all New Zealanders under 18, research shows that Pasifika adolescents living in New Zealand are less likely than their peers of other ethnicities to access it. In the first study of its kind, the researchers decided to source information directly from the group of interest in order to understand more accurately why this might be and what some of the most significant issues are.

In a new study, researchers have gone straight to the source to find out why adolescents from the Pacific Islands living in New Zealand are less likely to visit the dentist than their peers of other ethnicities. (Photograph: AsiaTravel/Shutterstock)

According to the study, 17 Pasifika adolescents from four cities in various parts of New Zealand facilitated focus groups with 59 of their Pasifika peers. From the data collected, the researchers then conducted an inductive thematic analysis, and the paper focused on one central theme that emerged: the participants' suggestions for increasing access to oral healthcare. Suggestions included reducing the cost of oral healthcare and oral health products; making access to clinics easier, including having transport arranged or having dentists visit schools; making the clinical environment more welcoming and youth-friendly; and having more approachable, younger and Pasifika or Maori oral health professionals working in the dental profession.

"Policymakers should look at implementing at least some of these suggestions for change, or at least treating them as a conversation starter on how to address the inequities in Pasifika adolescents' oral healthcare access," said lead author Dr Lee Smith, a research fellow in the Faculty of Dentistry at the University of Otago.

Other recommendations dealt with increasing the emphasis placed on oral health in Pasifika families and communities through education, for example, by means of pamphlet drops in churches and advertising on visual and social media. It was suggested that this may be more effective in Pasifika languages.

The study, titled "Pasifika adolescents' recommendations for increasing access to oral health care", was published in the March 2019 issue of the New Zealand Dental Journal.

Mandible helps to uncover history of civilisations in Tibet

By DTI

Virtual reconstruction of the Xiahe mandible, after digital removal of the adhering carbonate crust. The mandible is so well preserved that it allows for a virtual reconstruction of the two sides of the mandible. (Photograph: Jean-Jacques Hublin)

LANZHOU, China: The journey that Homo sapiens has embarked on is something that has enthralled modern scientists for many centuries. Now, as technology continually improves, more understanding is being gained and new discoveries are coming to the surface. Recently, researchers revealed that a sister group of Neanderthals, the Denisovans, occupied the Tibetan Plateau long before Homo sapiens arrived in the region. This discovery was made through the analysis of a 160,000-year-old hominin mandible.

"Traces of Denisovan DNA are found in present-day Asian, Australian, and Melanesian populations, suggesting that these ancient hominins may have once been widespread," said Prof. Jean-Jacques Hublin, Director of the Department of Human Evolution at the Max Planck Institute for Evolutionary Anthropology (MPI-EVA) in Leipzig in Germany and one of the paper's co-authors. "Yet, so far, the only fossils representing this ancient hominin group were identified at Denisova Cave."

In their study, the researchers examined a mandible that was found on the Tibetan Plateau in Baishiya Karst Cave in Xiahe County in China. The fossil, originally discovered in 1980 by a local monk, was eventually passed on to Lanzhou University, and in 2010, researchers Prof. Fahu Chen and Dr Dongju Zhang began studying the cave site where the fossil had been found

In 2016, Lanzhou University initiated a collaboration with the Department of Human Evolution at the MPI-EVA and since then they have been jointly analysing the fossil. According to the researchers, DNA was not able to be recovered from the mandible itself but rather from one of the molars, which they examined by means of ancient protein analysis. From that analysis, the team found that the mandible came from a member of a Denisovan group from Siberia—something that confirms Denisovans had already been living in the high-altitude setting significantly prior to the appearance of Homo sapiens.

With continued research and analysis planned for the future, the team now hope that the lower jaw can aid in piecing together the puzzle of what Denisovans looked like.

The study, titled "A late Middle Pleistocene Denisovan mandible from the Tibetan Plateau", was published on 1 May 2019 in *Nature*..

ADA will continue its push for affordable dental care after Australian election

By DTI

SYDNEY, Australia: A few days after the Australian elections, the Australian Dental Association (ADA) has reaffirmed its commitment to collaborating with the re-elected coalition government to improve Australia's dental health and to implement the ADA's Australian Dental Health Plan (ADHP).

The election result follows a campaign in which the Australian Labor Party pledged A$2.4 billion to a pensioner dental plan, which would have invested up to A$2 million in older Australians' improved access to dental care. The Australian Greens were planning to invest A$5.8 billion in Medicare-funded dental care. The Labor policy was welcomed with particular enthusiasm, as it fulfilled key elements of the ADHP, which provides a comprehensive framework through which the federal government can provide services to groups with unmet dental health needs. These groups include children, adults and seniors from lower socio-economic backgrounds, Aboriginal and Torres Strait Islander people from rural and remote areas, and those with special needs.

Despite Labor's loss, the emphasis on fulfilling the ADHP will continue with a coalition government, noted ADA President Dr Carmelo Bonanno. "During the election, the ADA was overwhelmed by feedback from both ADA branches around Australia and the public about the desperate need to provide oral healthcare to disadvantaged groups."

"This is a critical area for the coalition government to address the needs of the disadvantaged for whom public waiting lists mean their oral health declines while they wait to be treated," he explained. "Everyone in Australia, regardless of their ability to pay, should be able to receive dental care. Our goal is a robust model of a mix of affordable public and private dentistry which accommodates the dental needs of the whole community."

The ADA has long lobbied successive federal governments to address the urgent and growing need for additional, targeted and sustainable funding to meet the requirements of disadvantaged Australians, and it will continue its push for affordable oral healthcare with the re-elected coalition government.

The Australian Dental Association has expressed its commitment to its continued work with the newly re-elected coalition to achieve affordable dental healthcare. (Photograph: Robert Kneschke/Shutterstock)

"We look forward to continue working with Minister [Gregory Andrew] Hunt to improve the dental health of the Australian public and will be lobbying for implementation of the ADA's Australian Dental Health Plan," Bonanno said. "As a non-partisan organisation, the ADA has long-standing relationships with both sides of the political divide. We will work productively with both the coalition government and the Labor opposition to bring about good policy for dentists and the Australians they treat."

Study disproves need for antibiotic prophylaxis for prevention of dental implant infections

By DTI

NEW YORK, U.S.: The question of whether antibiotics positively influence the survival of dental implants in overall healthy patients is still highly discussed. Thus, in a recent study, researchers from the New York University College of Dentistry sought to determine the efficacy of antibiotic prophylaxis and specific antibiotic regimens for the prevention of postoperative infection (POI) in dental implant placement.

A recent study has found that the prophylactic use of antibiotics has no influence on the prevalence of post-surgical dental implant complications in overall healthy patients. (Photograph: megaflop/Shutterstock)

Randomized controlled trials (RCTs) comparing antibiotics with no antibiotics or placebo for dental implant placement were considered. The primary outcome was early, late or total POI, and wound dehiscence, pain and adverse events of antibiotic treatment were secondary outcomes.

The researchers screened 1,022 abstracts and ten RCTs, involving a total of 1,934 patients. All ten individual studies reported no statistically significant difference for POI. Meta-analysis found no statistically significant differences in early, late or total POI, wound dehiscence or adverse effects between antibiotic and no-antibiotic groups.

The researchers concluded: "The results of this systematic review suggest that antibiotic prophylaxis may not be indicated for prevention of POIs following dental implant placement in overall healthy patients. These findings and in light of antibiotic-associated risks for individual and public health demand revaluation of routine prescription of antibiotic prophylaxis in dental implant placement procedures." The study, titled "Antibiotic prophylaxis may not be indicated for prevention of dental implant infections in healthy patients. A systematic review and meta-analysis," was published in the April 2019 issue of *Clinical Oral Investigations*.

AD