

DENTAL TRIBUNE

The World's Dental Newspaper · Asia Pacific Edition



PUBLISHED IN HONG KONG

www.dental-tribune.asia

VOL. 15, No. 6



DENTAL EARPLUGS

Dr Sam Shamardi, developer of noise reduction earplugs for the dental office, about the dangers of hearing loss in the profession.

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IDEC 2017

Premiering in September, the Indonesia Dental Exhibition and Conference is anticipated with much excitement from the dental industry.

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SALIVA SCREENING

To facilitate oral prophylaxis in clinical practice, a new saliva testing device measures seven oral health parameters in a matter of minutes.

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Smoking linked to hypodontia

By DTI

OTAGO, New Zealand: A study conducted by researchers at the University of Otago has found that women who smoke more than ten cigarettes a day while pregnant may negatively impact the development of their children's teeth. The study looked at 83 children with hypodontia—defined in the study as the developmental absence of up to five permanent teeth—and compared them with 253 children without the condition. The children's mothers reported their levels of exposure to active and passive smoking during pregnancy, along with their caffeine and alcohol intake.

Prof. Mauro Farella, who led the research, said that hypodontia was positively linked to cigarette smoking. The study found no association between the condition and drinking alcohol or caffeinated drinks however.

"There was a suggestion of a 'biological gradient' effect with to-



bacco," said Farella, who is head of orthodontics at the University of Otago's Faculty of Dentistry. "The more cigarettes a mother reported smoking during pregnancy, the greater the likelihood was of her child having hypodontia."

"Though more research is needed to confirm the association

we found between maternal smoking and the condition, a plausible explanation is that smoking causes direct damage to neural crest cells in developing embryos," he explained.

The findings are in line with a growing body of evidence that demonstrates the negative impact

smoking while pregnant can have on an unborn baby. Various studies have shown that smoking during pregnancy increases the risk of premature birth, a low birth weight or a stillbirth. The study, titled "Maternal smoking during pregnancy is associated with offspring hypodontia", was published online on 23 May in the *Journal of Dental Research*.

Australasia symposium

MELBOURNE, Australia: For the first time in the Osteology Foundation's history, Melbourne played host to one of the three Asia-Pacific symposiums in 2017. Themed "Strategies for predictable regeneration—Today and tomorrow", the scientific programme delved intensively into the current status of knowledge and research in oral tissue regeneration, discussing new trends and techniques in the field.

Held on 2 and 3 June at the Arthur Streeton Auditorium in Melbourne, the two-day event was one of four symposiums taking place over the next 12 months. Other host countries are Japan, China and Russia. In addition to such national events, the non-profit organisation holds its international symposium in the Côte d'Azur in Monaco every three years.

More information can be found at www.osteology.org.



Representatives of W&H and Planmeca during the celebratory opening of the two dental companies' joint office in Bangalore in India. ► BUSINESS Page 06

ADX Sydney: New manager

Linda Gaunt, former CEO of Meetings & Events Australia, has been appointed as the Exhibitions Strategy Manager of the Australian Dental Industry Association. She will first be tasked with making the upcoming ADX18 Sydney, Australia's largest dental exhibition, an event that captures the interest of the entire dental community.

Aesthetics meeting

The Aesthetic Dentistry Society Singapore has announced the launch of a new event focused on the discipline for the Asia-Pacific region. Making its debut in autumn 2018, the Dental Aesthetics Meeting in Asia will be held on 28 and 29 September and feature a conference with papers by leading international practitioners and researchers, as well as an industry exhibition.

Facial features

Researchers in the US have found that genetics that shape dental and thus facial features might also increase the likelihood of specific handedness. In a recently published study, people with slender faces were found to be predominantly left- rather than right-handed. The findings of the study were based on three national health surveys, with a total of 13,536 participants, that were conducted in the US in the 1960s and 1970s. In a review of these, researchers at the University of Washington School of Dentistry found that bilateral retrognathism—the dental marker for a convex facial profile, slender jaws and overbite—was associated with 25 per cent increased odds for left-handedness in the study population. They further stated that prevalence of bilateral retrognathism in all three surveys was significantly higher among European Americans than African Americans.



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Unique root canal anatomy patterns in Indian population

By DTI

NAVI MUMBAI, India: Provisional findings of an Indian study have suggested that the root canal anatomy of Indians might differ from those of other ethnicities, and hence, they may require adapted care during root canal therapy. The study, which began two years ago, is being jointly conducted by researchers at two local dental colleges, Terna Dental College and the Government Dental College in Mumbai.

Under the supervision of college deans Drs Shishir Singh and Mansingh Pawar, about 20 students involved in the research project have been investigating 5,000 teeth that were provided by dental colleges and hospitals in the region.

The results showed that the anatomy of the mandibular ca-



nines and second premolars was more complex than that of teeth from other ethnicities. For example, the investigators found that the extra mesiobuccal canal often seen in European, Thai

and Japanese populations was rare in the Indian maxillary molars examined. In addition, Indian teeth showed root canal anatomy patterns that were different from those seen in Amer-

ican and African teeth. Consequently, the researchers concluded that Indians might require special care during dental treatment in order to ensure treatment success.

Explaining the tooth preparation process, Singh said that the teeth are cleaned and disinfected before the root canals are accessed and dye is injected into them. After drying and decalcification, the specimens are dehydrated in ascending concentrations of methanol, Singh told *The Times of India*. "The students study the specimens under special halogen lighting and the root canal anatomy is classified using internationally accepted classifications," Singh explained regarding the research method.

The study is ongoing and the researchers hope to make further findings, Singh said.

Neanderthal used natural analgesics, calculus shows

By DTI

ADELAIDE, Australia/LIVERPOOL, UK: Ancient DNA in the calcified dental plaque of Neanderthals—the nearest extinct relative to humans—has provided new insights into their behaviour, diet and evolutionary history. An international team of researchers has analysed 42,000- to 50,000-year-old dental plaque DNA samples from four Neanderthals found at cave sites in Belgium and Spain. The findings revealed the complexity of Neanderthal behaviour, including knowledge of plant-based medication and dietary differences.

According to the researchers, DNA preserved in the dental plaque of Neanderthals is a notable source of information about the behaviour and health of ancient hominin specimens. From analysing the dental plaque DNA samples, the researchers learnt that the Neanderthals from the cave sites of Spy in Belgium consumed woolly rhinoceros, European wild sheep and wild mushrooms. In contrast, those from El Sidrón cave in Spain appeared to have a vegetarian diet, including moss, mushrooms, pine nuts and tree bark, but no evidence of meat was found. These findings demonstrate that these two groups had very different diets.

"Dental plaque traps microorganisms that lived in the mouth and pathogens found in the respiratory and gastrointestinal tract, as well as bits of food stuck in the teeth—preserving the DNA for thousands of years," said lead author Dr Laura Weyrich, Australian Research Council Discovery Early Career Research Fellow at the Australian Centre for Ancient DNA (ACAD) of the University of Adelaide.

She added, "One of the most surprising finds, however, was in a Neanderthal from El Sidrón, who suffered from a dental abscess visible on the jawbone. The plaque

showed that he also had an intestinal parasite that causes acute diarrhoea, so clearly he was quite sick. He was eating poplar, which contains the pain killer salicylic acid (the active ingredient of aspirin), and we could also detect a natural antibiotic mould (Penicillium) not seen in the other specimens."

Furthermore, dietary differences were associated with a general shift in the oral microbiota, suggesting that meat consumption contributed to substantial variation in this regard. "Not only can we now access direct evidence of what our ancestors were eating, but differences in diet and lifestyle also seem to be reflected in the commensal bacteria that lived in the mouths of both Neanderthals and modern humans," said co-author Prof. Keith Dobney, from the University of Liverpool. "Major changes in what we eat have, however, significantly altered the balance of these microbial communities over thousands of years, which in turn continue to have fundamental consequences for our own health and well-being."

The study, titled "Neanderthal behaviour, diet, and disease inferred from ancient DNA in dental calculus", was published on 20 April in the *Nature* journal. It was conducted by ACAD in collaboration with the University of Liverpool in the UK.



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Published by DT Asia Pacific Ltd.

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The World's Dental Newspaper - Asia Pacific Edition

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Australia: Royal Flying Doctor Service receives funding boost

By DTI

CAIRNS, Australia: The Royal Flying Doctor Service of Australia (RFDS) has long provided much-needed medical assistance to many of the expansive country's most remote communities. Dr David Gillespie, Assistant Minister for Health, has announced that the Australian federal government will commit A\$11 million in funding to the not-for-profit organisation so that it can continue to offer dental services to these regions.

Established in 1928 by Rev. John Flynn, the RFDS utilises its fleet of 66 aircraft to offer both emergency and essential health care to Australian residents who are unable to access these services via more common modes of transport. It is funded through a combination of donations and financial support from the Australian government's RFDS programme. It holds an important place in Australia's medical services sector and was described by former Prime Minister Sir Robert Menzies as "perhaps the single greatest contribution to the effective settlement of the far distant country that we have witnessed in our time".

"The Royal Flying Doctor Service is well-placed to provide these essential mobile outreach dental services in rural and remote Australia," said Gillespie in a statement. "Today we deliver on our election commitment to ensure people outside our major cities have better access to high-quality dental services."

Martin Laverty, CEO of RFDS, welcomed the funding and took the opportunity to highlight the disparity in dentist numbers between urban and remote areas.

"There are only one-third the dentists in remote areas, with 72 dentists per 100,000 people in major cities, and less than 23 per 100,000 people in remote areas," said Laverty. "When people from remote areas visit the dentist, they are more likely to require acute intervention—1 in 3 had a tooth extraction in a year, compared with less than 1 in 10 in metropolitan areas."

"This funding from the Federal Government will enable the Flying Doctor to expand its dental outreach programme to start tackling the disparity that exists between city and the bush—and for that we are very, very thankful," he added.



The Royal Flying Doctor Service provides emergency and essential health care to many of Australia's remote communities.

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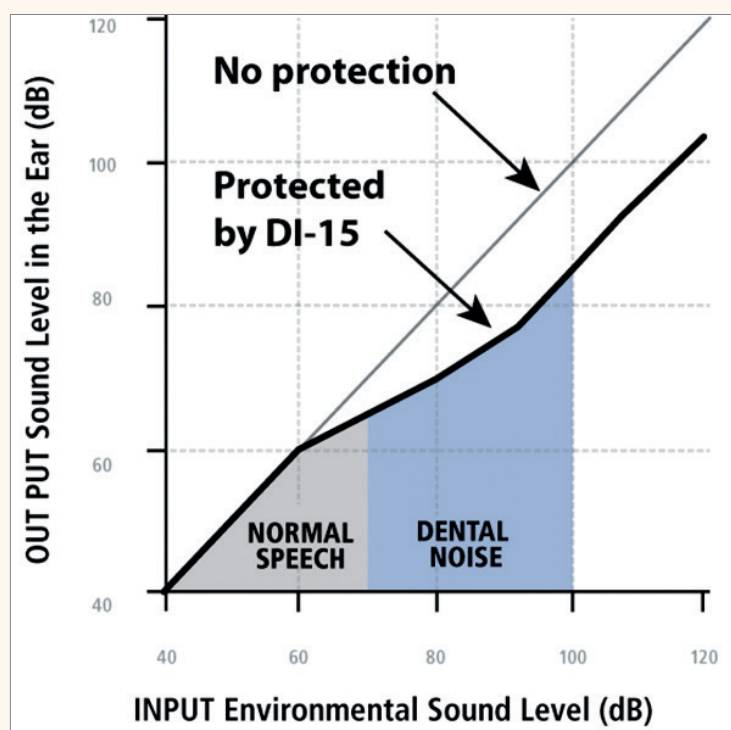
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“The world is becoming a noisier place, so protection and prevention are essential”

An interview with Dr Sam Shamardi, developer of noise reduction dental earplugs

By Kristin Hübner, DTI

Although noise exposure in dentistry may appear to be minimal, the potential for noise-induced hearing loss is an issue in the field. Various studies have shown that a significant number of dental professionals are affected each year. Aiming to address this matter is US dentist Dr Sam Shamardi, who developed noise reduction earplugs especially designed for use in the dental office. He recently introduced the product, first launched in 2014, at Dental Expo South in Christchurch in New Zealand, where the company signed a new distribution deal. *Dental Tribune* had the opportunity to talk with Shamardi about noise pollution in the dental practice and the unique technology used in the DI-15 earplugs.



Think of them almost as smart earplugs: damaging sounds are instantaneously identified, isolated and compressed to safer levels, while normal sounds pass through naturally, as if nothing is in one's ears. Imagine the sound of a blasting radio in the car: now picture turning the volume down to a comfortable setting; one still hears everything but without the strain!

What gave you the idea to develop them?

It was not long after starting to practise that I recognised the irritation and additional stress I experienced from the shrill of the handpiece and, even more, the high-pitched shrieks from the suction; it can truly drive one nuts. I also noticed how many of my colleagues complained of tinnitus symptoms and hearing difficulties, and I knew there was a serious problem that was not being recognised.

Once I started looking for solutions, I realised that nothing existed, and the only options, such as foam earplugs, were not practical because sounds were muffled and I could not speak with my patients or staff. Thus, I started looking into technologies that could address this issue and wanted to tailor a product that would focus on the sounds and frequency exposures in dentistry. Fortunately, after much research and testing, I was able to team up with the pioneers of in-ear technology to create the DI-15.

Should dentists and their assistants start wearing the earplugs from early on?

Dentistry is known as the field of prevention, yet when it comes to protecting our hearing, we have completely ignored our motto. With iPods and other technologies, studies have conclusively shown that hearing loss is now starting at earlier ages than in previous generations, and even children are starting to experience permanent damage as well.

Dental professionals are bombarded from the first day of university when sitting with 35-150 of their classmates in a room practising for hours, not including regular noisy daily activities outside of the dental setting. Thus, the earlier one starts, the more of one's hearing can be preserved. The world is becoming a noisier place each year, so protection and prevention are essential.

What do users report about the comfort of the earplugs—does one have to get used to them?

Our users have had no issues wearing them, and the comfort and function of the DI-15 earned top marks in an extensive two-year American Dental Association Professional Product Review paper.

DI-15 earplugs are extremely comfortable because they come standard with six different pairs of tips and thus can accommodate any ear. In addition, for those with unique canals or who prefer a custom fit, our product can be customised via an ear mould from an audiologist and a custom sleeve made by a laboratory. All requirements are covered!

Getting used to wearing earplugs reminds me of the initial adjustment to wearing loupes; at first, I noticed them and had a brief period of adaptation, but now I do not notice they are there, yet can instantly feel the difference when I am not wearing them. The earplugs are small and fit comfortably within one's ears, so even my patients do not notice I am wearing anything unless I show them.

Thank you very much for the interview.



Dr Sam Shamardi is a periodontic specialist at Boston Center for Oral Health and a part-time clinical instructor at the Harvard School of Dental Medicine, both in the US.

Editorial note: The DI-15 high-fidelity electronic earplugs can be ordered worldwide at a cost of US\$625, including a hard travelling case, all tips and accessories and a pack of ten batteries. More information can be found at www.dentalinnovationsllc.net.

“Dentistry is known as the field of prevention, yet when it comes to protecting our hearing, we have completely ignored our motto.”

Dr Shamardi, what sounds in the dental office are damaging to hearing?

All of them! We as dental professionals are exposed to constant dangerous levels of noise that have a long-term, permanent effect on our hearing. Most usually identify with the high-speed handpiece, but high-speed suction, ultrasonic instruments and cleaners, laboratory machines and model trimmers all cause damage.

Sounds that are 85 dB and above result in hearing damage and are directly related to the duration and frequency of exposure, among other factors. Thus, extreme noise exposure for short

periods can be as damaging as mild exposure for prolonged periods. Considering that as dental professionals our average careers are 35 years long and typically 40 hours a week, our exposure time spent in this chronic noise environment is substantial.

The dental literature shows values for dental equipment that clearly exceed 85 dB and in many cases even 100 dB. Noise standards further illustrate that, at these ranges, as little as 15 minutes per 2 hours of exposure daily can lead to permanent damage; thus, it is no surprise that we all know colleagues with hearing issues as a result.

Is it important to protect one's ears at all times or just during noisy procedures?

It is always best to protect oneself at all times; do we wear gloves, masks, gowns and loupes during major procedures only or for all examinations and routine treatments?

Certainly, some procedures will have a greater noise output and exposure than others, but a dental office is in a constant state of action and there is always something noisy going on in another room even if one is not involved in a noisy procedure oneself.

You developed the DI-15 earplugs. How do they work?

The DI-15 high-fidelity electronic earplugs are revolutionary and the first of their kind in dentistry. They utilise patented advanced circuitry in a tiny microchip that provides protection against all damaging sounds in the dental environment, as needed, while still allowing for 100 per cent clear hearing. Thus, one's ability to communicate clearly with patients and staff is not compromised, and hearing damage is prevented.

It really is not a question of will our ability to hear be affected through occupational exposure to sound, but more a question of when and to what extent, and the best way of preventing this from occurring is by using hearing protection.





simple

First Indonesia Dental Exhibition a major platform for dental industry

By DTI

JAKARTA, Indonesia: Being held for the first time this September, the Indonesia Dental Exhibition and Conference (IDEC) is anticipated with great interest from international dental companies and local distributors alike. Featuring regional pavilions from China, Germany, Italy, South Korea and Switzerland, the organisers expect the event to be an important business-to-business platform for the dental industry.



Left: Dr Hananto Seno, President of the Indonesian Dental Association and Chairperson of the organising committee for IDEC 2017, at the IDEC Traders' Meeting in January.



To be held from 15 to 17 September in Jakarta, the dental event is being jointly organised by the Indonesian dental association and trade show organisers Koelnmesse and PT.Traya Eksibisi Internasional. "Local support for IDEC 2017 is strong with key distributors and partners coming in early at the IDEC Traders' Meeting that was held in Jan-

uary. Dental professionals from across Indonesia can look forward to a comprehensive three-day exhibition with numerous products being showcased by 200 manufacturers, distributors and traders," said Bambang Setiawan, President Director of PT.Traya Eksibisi Internasional, giving a preview of the industry exhibition.

In anticipation of the event, representatives of attending dental companies expressed their high expectations for IDEC. "Indonesia, being a leading emerging market economy amongst south-east Asian countries, is valued as an important market to GC Asia. Given the expected growth, as well as the number of new graduates per year, GC foresees a huge poten-

tial for this blooming market," said Caroline Smessaert, Marketing Manager for GC South East Asia.

Through its participation in the event, GC South East Asia aims to address the demand and awareness for dental care by supplying high-quality and innovative products to meet everyday challenges, Smessaert further stated.

Equally enthusiastic about the event was Verena Schuetter, Junior Marketing Manager for South East Asia at Dentsply Sirona. "IDEC 2017 gives us the opportunity to not only showcase our latest innovations shortly after IDS [International Dental Show], but enables us to also provide continuing education within the congress programme in Indonesia," she remarked.

Complementing the industry exhibition will be a conference, with the theme "Modern science and technology for the future of dentistry". Regarding the scientific programme, Dr Hananto Seno, President of the Indonesian Dental Association and Chairperson of the organising committee for IDEC 2017, remarked that growing competition in the era of the ASEAN economic community is driving demand for better dental care and devices that facilitate more efficient treatment. "Thus, dental professionals need to constantly upgrade, update and familiarise themselves with technological advances in dentistry," Dr Seno emphasised.

More information about IDEC 2017, including registration, is available on the event website.

W&H and Planmeca joint branch office opens officially



Planmeca President Heikki Kyöstiä (left) and W&H Managing Director Peter Malata during the inauguration of the Bangalore office. —Space for product presentation, live demonstration and training—the new showroom.



By DTI

BANGALORE, India: After having announced their joining forces to expand in the Indian dental market last autumn, W&H Managing Director Peter Malata and Planmeca President Heikki Kyöstiä officially opened the new branch office in Bangalore with a celebratory ceremony in April. A highlight of

the event, which was attended by 125 invited guests, was the unveiling of the new showroom for live demonstrations and individual customer training.

With the local office in the country, both companies seek to create a direct link to Indian customers to foster good relationships with this client group. "Our aim is

to work for the good of the Indian dental community, bringing good quality dental and patient care to the people of the country," Kyöstiä said. "We strive for a synergistic product offering dedicated to the Indian market demands. By sharing not only facilities but also other practical activities with our partner Planmeca we want to establish professional technical support,

professional application support and education," Malata added.

Addressing the need for safer and high-quality dental services for India's vast population, the new office includes a 2,800 m² showroom that is equipped with state-of-the-art technology and offers the ideal space for product presentation, live demonstration and training. Ac-

cording to the companies, the facility places special emphasis on oral surgery and implantology, restoration and prosthetics, sterilisation, hygiene and maintenance, and CAD/CAM and radiology.

In the future, comprehensive product training for customers will be an essential part of the joint market activities, the companies' representatives pointed out. "The new office was especially designed to provide basic product courses for Indian customers followed by advanced courses at respective facilities at the company headquarters in Austria and Finland," explained Raghavan Radhakrishnan, General Manager of Planmeca India and W&H India.

After the official opening of the new premises, representatives of W&H and Planmeca, as well as the Indian team, further discussed the synergistic product portfolio and future activities of the two companies in a get-together at the Taj Bangalore hotel.

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Glidewell expands partnership with Structo



GLIDEWELL DENTAL

By DTI

SINGAPORE/NEWPORT BEACH, USA: After testing three of Structo's OrthoForm printers for its laboratory services over the last year, Glidewell Dental has announced the expansion of its partnership with the Singapore-based 3-D printing solutions provider with an investment in two of the company's newly launched DentaForm 3-D printers.

"Having one of the leading dental labs in the world place its

trust in our technology shows that our solution is addressing a very critical need in digital dentistry," commented Huub van Esbroeck, co-founder of Structo, on the announcement.

The Structo printers are equipped with MSLA (mask stereolithography) technology. Owing to the proprietary technology, the 3-D printers are able to achieve speeds much higher than conventional SLA printers, resulting in higher production throughput and lower costs.

"Structo's unique MSLA technology is just the type of innovation the industry needs," said David Leeson, Director of Engineering at Glidewell Dental. "We are very excited to continue this partnership with Structo and improve our production efficiency by adopting the newly launched DentaForm 3D printer." He remarked that the company foresees further expansion, with the acquisition of additional DentaForm printers in the second half of this year. "Operating two of Structo's new printers is not only sufficient to replace a number of our existing printers, but also allows us to increase capacity overall," he added.

Despite being halfway across the world, the partnership has been beneficial for both companies, according to van Esbroeck. "David and his team have been providing us with a lot of feedback that has contributed to new features and design elements of the DentaForm printer."

More information about the DentaForm printer and Structo's portfolio can be found at www.structo3d.com. In addition to its line of dental 3-D printers, Structo manufactures control systems and software and formulates its own photopolymer materials tailored to each use in a range of dental 3-D printing applications.

Handpiece-deployed caries detection

COLOGNE, Germany/CHICO, USA: Lares Research, a global leader in handpiece manufacturing, introduced Fluoresce HD, its revolutionary new handpiece-deployed caries detection technology at the 2017 International Dental Show in Cologne in Germany. It is available for both high- and low-speed handpieces. The light emitted from the handpiece causes caries to fluoresce orange-red, while healthy dental tissue appears green, enabling the dentist to visualise the margins and easily remove the carious tissue.

Conventionally, dentists decide whether dentine is diseased and should be excavated based on the colour and hardness of the tis-

sue. Determining whether all the decayed tissue has been removed is still clinically difficult with current techniques.¹⁻³ In addition, recurrent caries remains one of the major reasons for restoration replacement. Thus, Fluoresce HD was developed for effective, yet minimally invasive, removal of diseased dentine.

A ground-breaking advancement in the removal of caries, Fluoresce HD utilises the patented Fluorescence-Aided Caries Excavation (FACE) restorative technique. A study conducted at the University of Zurich in Switzerland in 2006 showed that FACE achieves a better combination of excavation time and successful

removal of infected dentin compared with conventional excavation, caries detector dye, and chemomechanical caries removal.⁴

For deep caries excavation, Lares offers a 0-25,000 rpm Fluoresce HD low-speed handpiece with a 405 nm LED light integrated into the motor. The emitted light accentuates the margins between healthy tooth structure and restorative materials, and thus helps preserve healthy tissue and maximise the remaining strength of the tooth, leaving it less prone to breakage. Fluoresce HD provides the dentist with visual confirmation that all carious tissue has been removed, thereby minimising the risk of reinfection.

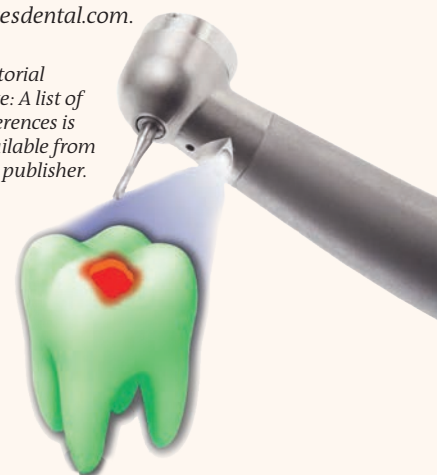
Simple and cost-effective to use, Fluoresce HD can be deployed with Lares's turbines or with any KaVo MULTIflex-compatible turbines (KaVo Dental) by the addition of a Lares Fluoresce HD LED swivel coupler. For low-speed caries excavation, Fluoresce HD may be deployed with the addition of the Fluoresce LED-lit low-speed motor and a 1:1 fibre-optic contra-angle handpiece. Adoption of Fluoresce HD in the dental practice is easy.

In comparison with current methods, Fluoresce HD saves significant chair time because the dentist does not need to repeatedly interrupt the decay removal process by putting the handpiece down and picking up an explorer or applying

and waiting for dye to detect unrecovered caries during preparation.

More information about Fluoresce HD, relevant studies and articles can be found at www.laresdental.com.

Editorial note: A list of references is available from the publisher.



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Ivoclar varnish Cervitec F well-liked, survey indicates

By DTI

SCHAAN, Liechtenstein: In a survey recently conducted by Ivoclar Vivadent on its new protective varnish, Cervitec F, respondents commented favourably on its aesthetics, range of applications, delivery form, fluoride and chlorhexidine concentrations, and taste. Overall, the dentists reported that the significant advantage of the combination product is that it saves time.

The survey invited dental professionals to rate the properties of the varnish, which was launched in all European markets in September 2016 and is now available in Australia and New Zealand. "Their opinion is important to us," a representative of Ivoclar told *Dental Tribune*. A total of 279 dentists tested and commented on Cervitec F.

According to Ivoclar, more than 80 per cent of the survey participants were generally satisfied or very satisfied with the results of the varnish system, reporting that they would recommend using the product after professional teeth cleaning. Over half of the surveyed dentists also said that they would recommend using the product during orthodontic treatment for high-risk patients or patients with motor impairments. In addition, respondents indicated that they use Cervitec F for patients with root caries, implants or erupting teeth.

Cervitec F differs owing to its innovative formulation, merging 1,400 ppm fluoride, chlorhexidine and cetylpyridinium chloride, according to the com-

pany. This means that fluoride application and bacterial control can now be achieved in one working step, the representative explained.



Cervitec F: The significant advantage of the combination product is that it saves time in the practice, a survey among 279 dentists found.

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DGSHAPE 3-D printer

HAMAMATSU, Japan: Roland DG Corporation has announced the release of its first dental 3-D printer, the DWP-8oS, to assist in the production of dentures. Launched at the same time, the DWX-52DC is the newest addition to the popular DWX series dental mills and includes several new automated functions for the unattended production of precision dental restorations. With the announcement, the company now offers the dental industry both additive (3-D printing) and subtractive (milling) manufacturing processes to improve the workflow of dental technicians, representatives said.

"The DWP-8oS 3-D printer expands the field of digital dentistry with advanced 3-D printing technology, while the DWX-52DC mill introduces a new level of automation for the production of dental restorations," Kohei Tanabe, Roland DG's general manager of medical market development, explained.

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