# DENTAL TRIBUNE

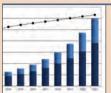
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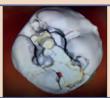
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## Physicists shed light on geographic tongue

### Research provides new insights into dynamics of inexplicable condition

REHOVOT, Israel: Physicists at the Weizmann Institute of Science in Israel have clarified the intricate dynamics underpinning a tongue condition that has puzzled the medical community for decades. Known as benign migratory glossitis or geographic tongue (GT), the condition affects around 2 per cent of the global population and is characterised by evolving red patches on the surface of the tongue that may resemble a map.

The red patches appear due to loss of one of the four types of lingual papillae, tiny hair-like protrusions that cover the surface of the tongue. The affected type, called filiform papillae, is mainly distributed in the anterior two-thirds of the tongue. Despite extensive research, the exact cause of GT, a benign and mostly painless condition, remains unknown.

In their study, the researchers performed a number of numerical simulations to



Benign migratory glossitis affects around 2 per cent of the global population. (Photo Angel Simon / shutterstock.com)

closely examine and visualise the development of GT, and devised a new way of identifying the severity of individual cases. "We hope these results can be used by physicians as a practical way of assessing the severity of the condition based on the characteristic patterns observed," said lead author of the study Dr

Gabriel Seiden, a researcher at the Weizmann Institute of Science in Rehovot in Israel.

 $\rightarrow$  DT page 2

# **Graphene slows** dental diseases

Chinese researchers have found that graphene oxide, a compound of carbon, oxygen and hydrogen, is effective against a number of pathogens that cause dental caries and periodontitis. As previous studies have demonstrated that graphene oxide can inhibit the growth of some bacterial strains without harming mammalian cells, they investigated the material's antimicrobial properties for three specific oral bacteria that are associated with tooth decay and certain forms of periodontal disease.

For the study, the researchers used graphene oxide nano-sheets and observed that they significantly slowed the growth of dental pathogens. Tests using electron microscopy showed that the cell walls and membranes of the bacteria had lost their integrity. They thus concluded that graphene oxide nano-sheets could have potential application in dental care and therapy.

Given the rise in antibiotic resistance over the past decade, they also believe that their findings could help address the need for a new approach to treating bacterial diseases. DI



 $DTI staff presenting {\it the new DTUK edition at the Dentistry Show in Birming ham}.$ Previously published by a partner in London, the new edition is produced under a new editorial team and boasts a modern, more reader-friendly layout.

### **Fluoridation** linked to ADHD

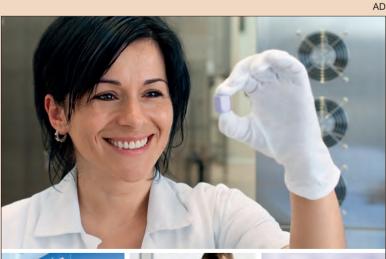
Fluoridated water could be an environmental risk factor for attention deficit hyperactivity disorder (ADHD), one of the most common neurodevelopmental disorders of children today. In a study, researchers from Canada found that the prevalence of ADHD increased with wider exposure to fluoridated water in the US.

### HIV test close to completion

Dental researchers in New York have received a US\$1.5 million grant from the US National Institutes of Health to complete the development of a rapid blood and saliva test for HIV/AIDS. They believe that the device will benefit people in remote areas with only limited access to advanced diag-

## AP slow in adoption of CAD/CAM

The latest report by international market research and consulting group iData Research shows that the penetration rate of CAD/CAM prostheses in the Asia Pacific region has been limited by difficult economic circumstances in countries like Japan, South Korea, Australia and China. In particular, the economic recession has slowed unit sales growth as dental laboratories facing budget constraints. Growth is expected from stand-alone scanners that laboratories increasingly prefer over high-priced milling systems in order to expand their networks of scanners to support their full in-lab CAD/CAM system, the report states. The Asia-Pacific market for dental prostheses and CAD/CAM devices is currently valued at over US\$10





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#### ←DT page 1

The scientists approached the problem of GT as if it were an excitable medium-a spatially distributed, dynamic system with the ability to propagate signals without damping. A forest fire is a classic example of an excitable medium: it travels as a wave from its initiation point and regenerates with every tree it ignites.

This is in contrast to passive wave propagation, which is characterised by a gradual damping of the signal amplitude due to friction. However, after a wave has passed through, excitable media have to reconstitute before they can support the passing of another wave. In this way, a fire can spread through a forest, but it cannot return to a burnt spot until the vegetation has regrown.

The study found that GT can spread across the tongue in two different ways, each of which has distinguishing characteristics that could be used to diagnose severity. The researchers discovered that the condition, which typically starts as small spots on the tongue, can continue to gradually expand in circular patterns until the whole tongue becomes affected. Once affected, the tongue then heals itself. Alternatively, the condition can develop through the formation of spiral patterns. The simulations showed that these spirals evolve in regions of the tongue that are still recovering, causing re-excitation of that particular region.

"While the propagation of small circular lesions results in the whole tongue being gradually affected and subsequently healed, the propagation of spiral patterns involves a continuous, self-sustaining excitation of recovering regions, implying a more acute condition that will linger for a relatively long period of time," Seiden explained.

Just as the development of forest fires can be strongly affected by external conditions, such as the strength of the wind, conditions surrounding the tongue may have important consequences for the dynamics of GT, according to the researchers.

In their study, they give the example of GT observed in a 1-year-old boy who developed the characteristic lesions on multiple occasions along the tongue's edge adjacent to the growing teeth, implying that the continuous rubbing of the tongue against the gingiva may trigger the condition.

"Going forward, we intend to collaborate with physicians and dentists who treat GT patients to obtain valuable-and often scarce-empirical data regarding the dynamic evolution of the condition," Seiden concluded. "This will allow for further, more quantitative explorations of GT, and may eventually lead to a firmer understanding of what causes the condition."

Dental Tribune welcomes comments, suggestions and complaints at newsroom@dental-tribune.com.



For quick access to our contact form, you may also scan the following QR code.

# Wine wears down teeth quicker than previously thought

DT Asia Pacific

ADELAIDE, Australia: Wine lovers may seriously harm their teeth if they do not take preventative measures against erosion, new research from the University of Adelaide suggests.According to an article published in the latest edition of the Australian Dental Journal, demineralisation occurs as early as 10 minutes after enamel has been exposed to the organic acids of the beverage.

This places wine-tasters, for example, at increased risk of tooth wear, the researchers said. Previous research only found a softening effect in teeth exposed to wine after 1 hour.

Professional tasters usually test up to 150 wines per day, and wine judges even more. With wine-tasting, the beverage is retained in the mouth for up to 60 seconds before it is spat out.

In order to assess the demineralisation during wine-tasting, the team simulated the conditions of the process in a laboratory, exposing extracted third molars repeatedly to white wine and artificial saliva. After 1 and 10 minutes, a nano-scratch test was conducted and the result was an increasing scratch depth.

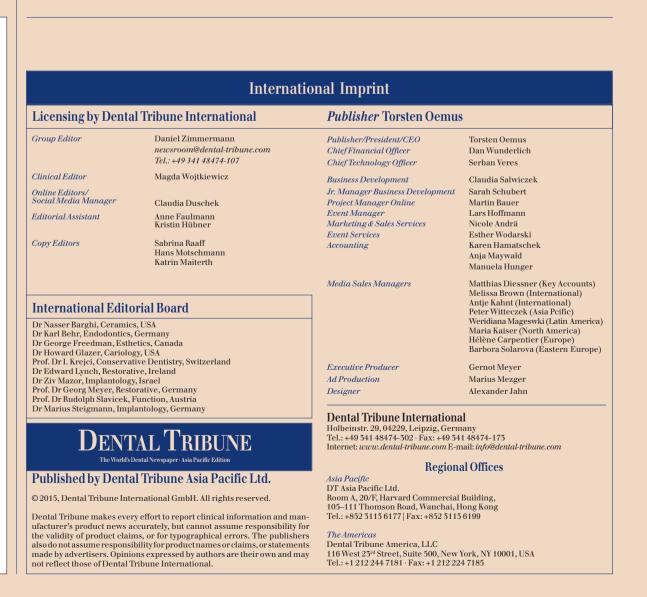
Surface roughness of the enamel also increased by almost 200 per cent. Reflecting on the findings, the researchers recommended that professionals take

early preventative measures, including the application of remineralisation agents, such as calcium, phosphate and fluoride, to minimise the risks of erosion. Chewing gum and skipping toothbrushing the morning before the wine-tasting are additional measures that could lessen the occupational hazard, they said in the report.

"After a wine tasting, the teeth are likely to be much softer, so we recommend rinsing with water, and when it comes time to clean the teeth, just putting some toothpaste on your finger and cleaning with that," remarked Associate Professor Sue Bastian from the university's School of Agriculture, Food and Wine, which also teaches wine-making, about the results. "Cleaning with a brush when teeth are soft runs the risk of damaging the enamel."

With pH values of 3 and 4, the acidity of wine is comparable to most soft drinks, which, owing to their high concentration of organic acids, are reported to be the main cause of the increase in tooth wear around the globe, particularly among children. Most professional wine organisations, however, currently do not recommend any special precautions for their members.

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# One system for better restoration

## DENTSPLY exhibits premium material collection at APDC congress in Singapore

DT

SINGAPORE: At the sixth International Congress on Adhesive Dentistry (IAD), held recently in Bangkok in Thailand, dental consumables manufacturer DENTSPLY launched "one", its collection of premium, high-performance restorative materials that were designed not only to be easy to use, but also to allow dentists to achieve outstanding clinical results.

It is difficult to achieve an optimum level of dentine moisture prior to the application of an adhesive. Overwet or overdry dentine can lead to insufficient sealing, resulting in microleakage and postoperative sensitivity. Prime&bond one ETCH & RINSE offers a tech-

nique-tolerant solution, providing high bond strength and reliable performance even on overwet or overdry dentine, according to DENTSPLY.

The literature often recommends using a self-etch adhesive

in cavities with a large proportion of exposed dentine in order to minimise the risk of post-operative sensitivity. However, etchand-rinse adhesives have shown superior long-term results on enamel. Prime&bond one SELECT combines the advantages of both techniques. It provides high bond strength with all etching techniques (self-etch, etch and rinse, and selective enamel etch) and delivers reliable performance even on overdry dentine, resulting in virtually no post-operative sensitivity.

AD





According to the company, the "one" collection consists of ceram.x one, a composite available in different translucencies for everyday aesthetics (ceram.x one UNIVERSAL) and highly aesthetic restorations (ceram.x one DENTIN & ENAMEL). It also contains two bonding systems, one for total-etch applications (prime&bond one ETCH & RINSE) and one for self-etch, selective enamel etch and totaletch applications (prime&bond one SELECT).

Covering the full VITA (VITA Zahnfabrik) shade range with just seven shades, ceram.x one UNIVERSAL is extremely simple and easy to use, the company said. With intermediate translucency ranging between natural enamel and dentine, ceram.x one UNIVERSAL offers a powerful chameleon effect to facilitate natural, lifelike restorations and is ideal for everyday use. While many composite systems offer a myriad of shades and translucencies, making it difficult to match the colour of the natural teeth, ceram.x one DENTIN & ENAMEL replicates the structure of natural teeth utilizing just two translucencies: dentine shades that mimic natural dentine and enamel shades that mimic natural enamel. Also covering the full VITA shade range, it enables highly aesthetic, natural restorations with only four dentine and three enamel shades.





# Difficulties mastered are opportunities won



These words from one of Britain's most famous statesman Winston Churchill aptly describe the recent relaunch of *Dental Tribune* UK. The new edition is the result of months of reorientation and repositioning that will see the return of an active participant in the British dental publishing scene. At this opportunity, we

would like to thank our former partners for their years of commitment and wish them best of luck for their future endeavours.

Our publishing group has come a long way since the first edition of *Dental Tribune* UK was launched in 2007. From a few publishers operating in key markets only, it has grown into a large-scale global operation with offices and representatives in almost every corner of the globe; to borrow a famous historical phrase, the sun never sets on the *Dental Tribune* International (DTI) network, as somewhere in

the world a Dental Tribune publisher or partner is always working. And our expansion is still far from over: coinciding with the relaunch of the UK edition, Dental Tribune has introduced its first-ever Nordic edition at the SCANDEFA show in Copenhagen in Denmark to serve all markets in Scandinavia and Finland. Developed as a pan-regional title, the new edition will cover and analyse everything dentistry in the region, as well as internationally. With four editions per year and published in English only, it builds on the substantial knowledge and publishing expertise that has distinguished *Dental Tribune* partners in almost every corner of the world for the last two decades.

While remaining a print publisher at heart, DTI is constantly venturing forward in other areas, most notably continuing professional education and events. While the *Dental Tribune* Study Club has been providing free online education at an international and local level for the last seven years, the new Clinical Masters series will offer high-quality CE in selected areas, including implantology, endodontics and aesthetic dentistry.

Moreover, last year saw the successful première of the Digital Dentistry Show, a show within a show expo format that will see further geographical and topical expansion in 2015.

For information and updates on all our exciting new projects, I invite you to visit our website at www.dental-tribune.com.

Sincerely,

Daniel Zimmermann Group Editor Dental Tribune International



# Increasing number of European adolescents brush teeth twice a day

DT

GHENT, Belgium/JYVÄSKYLÄ, Finland/COPENHAGEN, Denmark: An international team of researchers has studied the daily frequency of toothbrushing in adolescents from 20 different countries and regions in Europe between 1994 and 2010. The researchers found that the prevalence of brushing more than once a day has increased in most of the surveyed countries and regions over time, with the highest increase observed in Estonia, Latvia, Russia, Finland and Flemish Belgium.

"From a public health perspective, improvement of toothbrushing habits is important in preventing the most common dental diseases, but even more so in reducing common risk factors for the main noncommunicable diseases," the researchers stated in the study. According to them, brushing twice a day is one the most important selfcare methods and has become a universal recommendation worldwide in order to maintain good oral health. In light of recent findings regarding the association between oral disease and the four main noncommunicable diseases-diabetes, cancer, cardiovascular disease and respiratory disease—the importance of regular toothbrushing has increased even more.

For their study, the researchers from the University of Jyväskylä in Finland, Ghent University in Belgium and the National Institute of Public Health in Denmark used data from five consecutive Health Behaviour in School-aged Children (HBSC) surveys conducted between 1994 and 2010.

The HBSC research network is an international alliance of researchers that collaborate on the survey of schoolchildren. The HBSC collects data on 11-, 13- and 15-year-old boys' and girls' health and well-being, social environments and health behaviours. The researchers chose these age groups because they mark a period of increased autonomy that can influence how a person's health and health-related behaviours develop. The cross-national survey, initiated in 1982, is conducted every four years in 44 countries and regions across Europe and North America in collaboration with the World Health Organization's Regional Office for Europe.

The scientists determined the frequency of toothbrushing by analysing the adolescents' answers to the mandatory HBSC question in this regard, including study year, country, sex and age as variables. The 20 countries considered in the study included various central, eastern and northern European countries, as well as Russia and Canada.

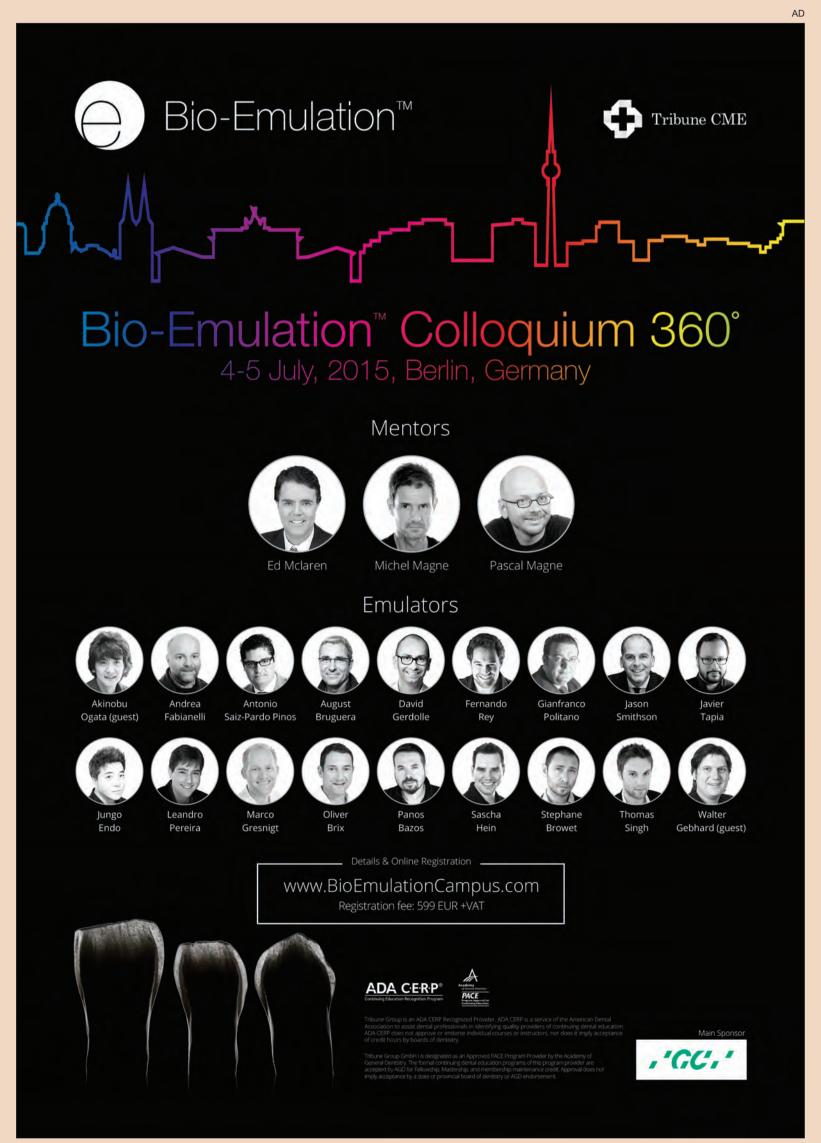
In most of these countries, the prevalence of brushing twice a day

has increased significantly, while the cross-national differences have diminished. In 1994, the rate of adolescents brushing their teeth twice a day ranged from 30 to 86 per cent. In 2010, between 50 and 81 per cent of the surveyed children said that they brushed twice every day.

In 1994, the countries with the lowest prevalence of brushing twice a day included Lithuania (30 per cent), Latvia (34 per cent), Russia (38 per cent), Finland (38 per cent), Estonia (42 per cent) and Flemish Belgium (43 per cent). By

2010, between 50 and 60 per cent of the children in all of these countries brushed twice a day.

The countries with the highest rate of adolescents brushing their teeth twice a day in 1994 were Sweden (86 per cent), Denmark (80 per cent), Norway (75 per cent) and Germany (75 per cent). By 2010, Sweden's rate had decreased to 81 per cent and Denmark's to 76 per cent. Norway's rate remained at 75 per cent, while Germany's increased to 80 per cent.



# European dental markets trend towards group practices and consolidation

DΊ

COLOGNE, Germany: Latest market figures released by the Federation of the European Dental Industry (FIDE), in cooperation with the Association of European Dental Dealers (ADDE), last month at the International Dental Show in Cologne, indicate rapid changes toward a digital dentistry manifesting in overall trends to a more global approach with

group practices and consolidations throughout dental markets in Europe. The organisation's 2015 market survey also revealed that the number of European dentists has slightly increased to a total of 276,090 in

2014 compared to 270,045 the year before.

A contrary trend showed in the number of dental offices and dental laboratories. While the numbers of the former remained flat on average, the total figures of labs in Europe has decreased in almost every surveyed country. According to ADDE President Dominique Deschietere, given the growing numbers of practicing dentists this development either indicates a trend to group practices or consolidation.

While the number of dental technicians has remained steady or slightly decreased in all countries except Hungary, the number of dental hygienists increased in all countries of the survey. This development is especially prominent in the UK, with the number of dental hygienists growing distinctively compared to 2013. As Deschietere has put it, this seems to be a result of the evermore "bending of the laws" in this area.

On the supply channels side, the percentage of direct sales from manufacturers remained steady in most countries, and the share of products purchased via



Dominique Deschietere (Photo Kristine Hübner, DTI)

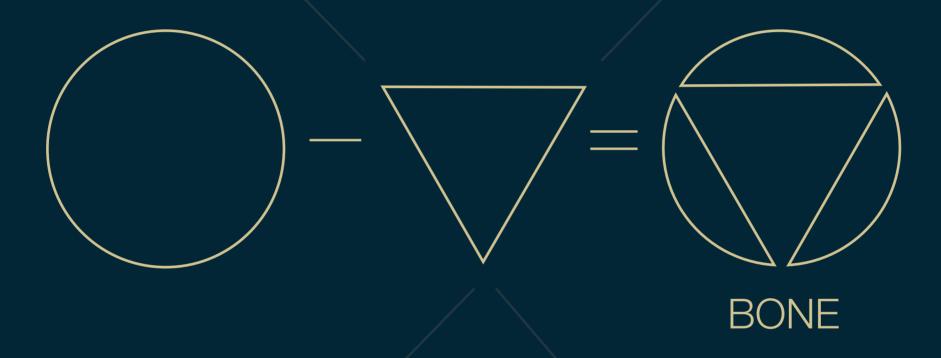
e-mail or internet is constantly if only slightly, increasing compared to the previous year. Further, the figures indicate that the sales volume of equipment has dropped in 2014, while sales of sundries and consumables remained stable on average.

"Dentists continue to treat patients," Deschietere pointed out. "Consumables and sundries, not new equipment like CAD/CAM units or intra-oral X-ray units, kept the figures up during the last years."

To this date the gathering of information on new technologies seems to be the weak point of the survey. Although Germany shows a jump in the numbers of intra-oral scanners installed, most countries are not collecting data on the subject so far, explained Deschietere.

The annual ADDE/FIDE survey, which is conducted through its national associations since 1998 and represents the interests of more than 960 dental dealer organisations, covers the most relevant topics and trends for the European Dental Industry, such as the number of customers and end users, sales values for the main product categories, the use of computer and e-commerce, sales segments, distribution channels as well as VAT charges and their impact on the market.





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## Google Mobile Armageddon and what it means

Naz Haque

Google has just released an update that will prioritise mobilefriendly websites. It is indeed widely known that online audiences are moving to smart phone and tablet computers. At Dental Focus, we have seen massive shifts in the online audience over the last few years to the point now where most clients see a minimum of 55 per cent of their organic audience visits from mobile devices.

Websites and marketing campaigns achieve higher conversions when they are mobile optimised. The diagram below shows a marketing campaign we are running at the moment. In this, we achieved 10,835 sessions over 30 days. The blue bar indicates the total sessions and the orange bar segments the mobile and tablet audience. In all traffic sources, mobile has the lion's share of the market. In this project, we invested heavily in Google pay per click and 95 per cent of conversions were via mo-

To qualify this trend further, consider that desktop sales have started to decline significantly since 2005. After 2013, the growth in purchases of mobile devices (mobiles, tablets and phablets) has continued to outgrow desktop sales. Google focuses on its users and anyone who wants to have a presence on black space in a mobile screen

Acquisition			
	Sessions	New Sessions in %	New Users
All Sessions	10,835	72.70 %	7,877
Mobile and Tablets	7,782	70.25 %	5,467
1 – Paid Search	6,474		
	4,728		
2 – Organic Search	2,750		
	1,872		
5-Direct	801		
	560		
4-Social	10,835		
	610		
5 Defensel	73		

Google is directed to follow its guidelines to serve these users. In this instance, such users are dentists' existing and prospective patients. Therefore, it is really important that your website deliver to their online expectations or Google will not present your website to them.

For your website to be mobilefriendly, there are specific factors to which it must adhere. The website must not make use of any mobile-incompatible animations created with software like Adobe Flash. This appears as a

and serves no purpose. The text

on your website should be read-

able on mobile devices without

zoom. Responsive websites will automatically adjust to serve readability factors.

User experience has always been a core area from Google's perspective, and mobile-friendly websites have links separated sufficiently to allow a user to make a selection with ease. Google provides a platform to check whether websites are mobile-friendly. Just type in your website address at the following link: https://www.google.com/ webmasters/tools/mobilefriendly/.

There is no reason to panic if your website is not ready by 21 April; however, expect to lose more customers to businesses with mobile-friendly websites, as they will be favoured by Google. The company has such a massive job to do reading the entire Internet, it is unlikely you will start suffering from 12.01 a.m., but you can expect to see your rankings diminish over time, especially on a mobile device search.

Your presence on Google is directly affected by your competition, so if your practice is in the middle of nowhere with limited competition you will live another day, but surely it is time that you start to think how to best serve your audience before it is too late.



#### **Contact Info**

Naz Haque, aka the Scientist, is Operations Manager at Dental Focus. He has a background in mobile and network computing,

and has experience supporting a wide range of blue-chip brands, from Apple to Xerox. As an expert in search engine optimisation, Naz is passionate about helping clients develop strategies to enhance their brand and increase the return on investment from their dental practice websites.

## Colgate introduces new toothpaste for cavity prevention

SINGAPORE: Colgate has introduced a new toothpaste at the **Asia Pacific Dental Conference** in Singapore that contains Sugar Acid Neutralizer, which the company developed to combat sugar acids that arise when common oral bacteria react with food residue in the mouth. This reaction can cause the tooth enamel to weaken and leads to an increasing risk of cav-

The latest addition to the company's oral care line promises to fight tooth decay in two clinically proven ways. Firstly, the patented Sugar Acid Neutralizer deactivates harmful sugar acids in the mouth. Secondly, fluoride and calcium additives, which have proven to prevent cavity formation by reducing demineralisation, are aimed at strengthening and restoring the tooth enamel.



Dr Kuan Chee Keong, President of the Singapore Dental Association, acclaimed the new toothpaste: "Sugar acids are the number one cause of cavities and we now have the ability to protect our teeth with this new technology. The landscape of dental technology is always changing for the better and it is always exciting to witness new breakthrough technologiesthat will help us reduce the advent of caries. With these discoveries, our goal of a cavityfree future is within reach."

Despite continuing education on the importance of good oral care habits to prevent cavities, caries affects 60-90 per cent of schoolchildren and the majority of adults worldwide, according to data from the National Children's Oral Health Foundation. One of the main factors promoting tooth decay and cavities is a high intake of sugary drinks and foods, and this appears to be a major problem in Singapore. According to the country's Health Promotion Board, the sugar consumption in Singapore is more than twice that of the World Health Organization's recommended annual intake of approximately 9 kg a year. Overall, the average sugar consumption in the country increased by 10 per cent from 2009 to 2012.

