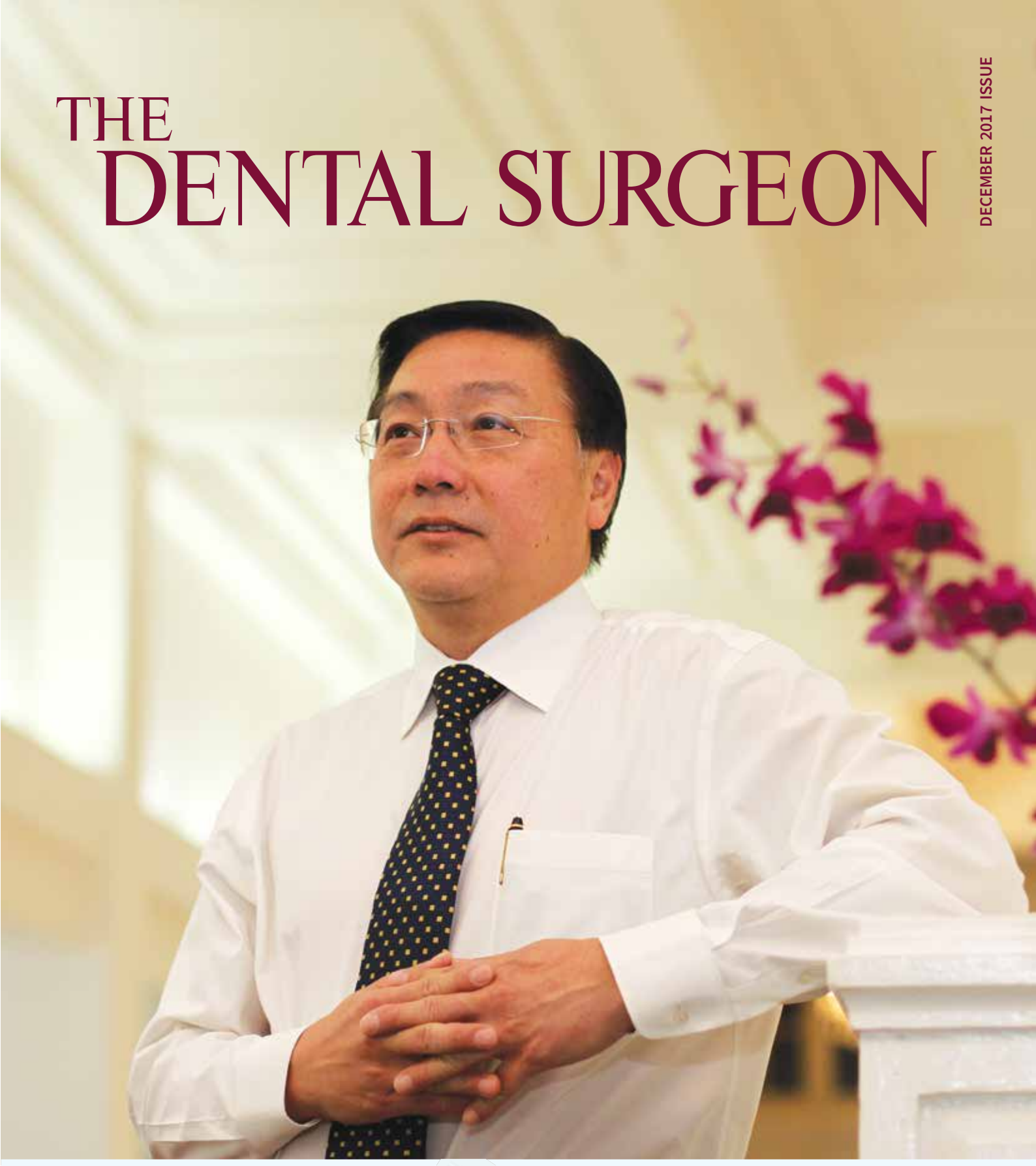
THE DENTAL SURGEON

DECEMBER 2017 ISSUE



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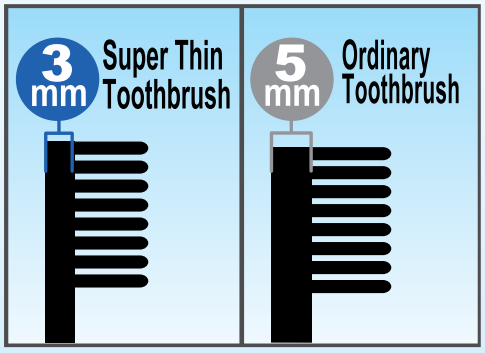

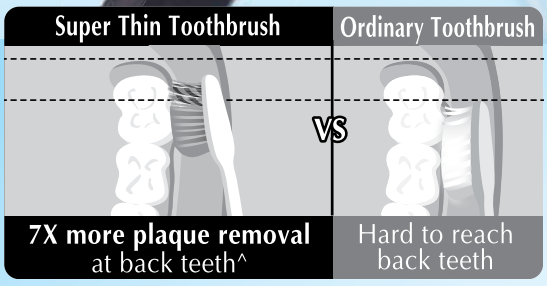

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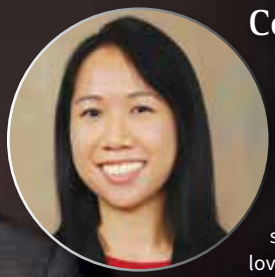
EDITORIAL TEAM

Editorial Team

Editor-in-Chief

Dr. Terry Teo is a paediatric dentist at Q&M Dental Group, and a part-time tutor at the Faculty of Dentistry at NUS. When he was young he loved reading and writing, until life and dentistry got in the way. He thus relishes this opportunity to have his cake and to eat it at the same time.



Convener and Editor

Dr. Dephne Leong is an endodontist at JurongHealth. Dephne is a Singapore Dental Association Council Member and has recently joined ***The Dental Surgeon*** team. With her eye for detail, she hopes to contribute to maintaining the high quality of the publication so that readers will continue enjoying it. Dephne loves travelling and playing squash in her free time.

Layout Editor

Dr. Tan Keng Wee is a general practitioner in private practice and has recently joined the editorial team of ***The Dental Surgeon***. He hopes to be able to contribute to the publication and help maintain its high quality. Keng Wee also volunteers with the SDA Ethics Committee as a mediator, and spends his free time practising yoga and searching for the perfect waffle.

Editor

Dr. Zachary Lee Kwang Yueh is currently the Dental Officer in charge at Queenstown Polyclinic. To his friends and family, he is affectionately known as "Kwang". However, on New Year's Eve 2013 he accepted a dare by a close friend to change his name to "Zachary". The name change has received a rather lukewarm response and people rarely call him Zachary. However, he is still persevering, hoping one day it will be well accepted by his friends.

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Editors

Dr. Tong Huei Jinn is currently teaching at the Faculty of Dentistry in NUS, and works as a Paediatric Dentist in NUH and School Dental Services, HPB. Huei Jinn is delighted to return to ***The Dental Surgeon*** after her stint as its Editor before leaving for post-graduate studies in 2007, and hopes to continue to do the magazine and our profession proud. When time permits, Huei Jinn loves travelling.

Dr. Ivan Koh is an endodontist at NUH, and a part-time tutor at the Faculty of Dentistry in NUS. Ivan has been with ***The Dental Surgeon*** since 2005, starting off by contributing an article or two per issue. He then took on the role of layout editor for 3 years before taking a hiatus for his MDS studies and he is now back as Assistant Editor. Ivan likes to read in his free time and that has been one of the driving forces for him to rejoin ***The Dental Surgeon*** team. He hopes readers find joy in this publication, not looking at it merely as a "dental newsletter", but perhaps, as a magazine worth its weight to leave on the coffee table at the reception area of their clinics!

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Faithful Stewardship

Associate Professor Patrick Tseng, Chief Dental Officer of Singapore since 2006, has been pivotal in spearheading developments in the national dental healthcare scene for over a decade. ***The Dental Surgeon*** is privileged to share insights about his personal life and how it shaped his role as the country's highest steward of the dental profession.

BY **DR. TONG HUEI JINN**

What role has your family played in your life and career, especially in your long journey as Chief Dental Officer (CDO) of Singapore?

My wife Frances, who was an accountant and now a full-time homemaker, runs and manages my life. We met when we were in Junior College and after ten years of getting to know each other, we decided it was time to get married. We had our first son Nicholas a year later, shortly before I was offered a National University Hospital Overseas Scholarship to pursue an MSc in Endodontics at the Eastman Dental Hospital in London. Nicholas is now an engineer with ST Kinetics. We had our second son Douglas three years later. He graduated with a degree in business

administration from RMIT and has worked with Philips Capital for the past year. My wife and sons have provided me much joy, companionship, guidance, sanity and focus in life. Frances and I celebrated thirty years of marriage last year.

Which schools did you attend? What are your best memories from your school days?

I come from a traditional Catholic family and I studied at St. Michael's Primary School, then went on to St. Joseph's Institution and did pre-University in Catholic Junior College. Looking back, I was 'overly' active in CCA (it was then called ECA) in school. I played soccer at the national level with the combined schools team, in addition to representing the school in tennis, badminton and athletics. I was also very active in the scout group. I guess scouting took up most of my weekends and school holidays and it was then that I discovered nature, resourcefulness, perseverance, camaraderie, team work and to quote the scout's motto, to 'always be prepared'.

Were you in a leadership position during your school days? How did your experiences shape you to be the top regulator for the dental profession?

I personally think that there are no born leaders. It is what and how you make the most of what you have that counts, but I suppose being in the right place at the right time does make a difference and of course, you need to enjoy what you do. For myself I was a class monitor, a school prefect, a drum major in my primary school band and a patrol leader in my scout group, as well as captain of my secondary school soccer team. Through all these I enjoyed meeting and interacting with people, understanding them and of course, trying to help where and when I could. My religion however has always played a key role in my life. All religions teach us to 'do good', and mine has guided many of my important decisions. Whenever I am faced with difficult decisions, I try to draw on the teachings of my faith in the face of challenges and adversities. My philosophy has always been to do unto others (or not do) what you want (or do not want) others to do unto you.

When you actually do manage to get time for yourself, what are your hobbies or favourite pastimes?

I still enjoy playing soccer and try to get in a game every Sunday when I am not travelling. I enjoy the tranquillity of scuba diving and quiet time just lazing by the beach and reading car magazines. And I do try to travel for leisure when I can, immersing myself in different cultures, especially enjoying the myriad variety of cuisines in different countries.

What made you choose dentistry as a profession?

I am actually the youngest of four boys, in addition to having a younger sister. My older brothers all pursued medicine but when it came to my turn, they discouraged me from taking up medicine and so the only natural choice was dentistry. I also loved to do things with my hands and my favourite hobby as a child was building, painting and detailing model aeroplanes and miniature plastic figurines. I have never looked back and must thank my parents for having unfailingly encouraged us in all our life choices.

Your BDS class produced many prominent dentists. How do you think as a class you have helped shaped the profession?

I think although competition in the BDS class of ’85 was very keen, we all had lots of fun. The class spirit was very strong and we tried to resolve issues like patient scheduling and interpersonal conflict collectively and democratically. Many of us still gather regularly for dinner to reminisce and share good memories. I believe we had the first (and still only) President Scholar in Dentistry in our class, and perhaps that spurred all of us to do better.

You were very active in Singapore Dental Association (SDA) prior to becoming CDO, and was once the Acting President. What do you feel is SDA’s role in the dental healthcare ecosystem?

The SDA has always played a critical role in helping dentists and the dental profession. Whilst the Singapore Dental Council (SDC) protects the public’s and patient’s interests, the SDA works for the interest of the dentist and the dental community. I have always believed that the SDA is also the link between industry and the profession and that whilst we engage industry to help us for sponsorships, we should also give back to industry and try to

ensure that they also benefit when they collaborate with our Association. The Association also plays a key role in linking and coordinating with other related Associations and larger organisations worldwide to continue to showcase Singapore Dentistry, and demonstrate that we are a responsible and responsive partner in the world dental community.

How long have you been a CDO? What would you consider as some of your most gratifying experiences during your term?

I am into my eleventh year as CDO and that is a long time! From this experience I have gained a greater appreciation of how complex policy work is especially when you need to balance finite budgets with wanting to provide more affordable public services. On top of that, one has to learn how to manage the expectations of various parties and personalities. This is crucial when government finances and tax payers' monies have to be carefully managed and spent, with policies drafted to benefit the majority. One of my most gratifying achievements is seeing our only Faculty of Dentistry get its own building. The next challenge is to ensure its successful operation.

Were there any difficult experiences and could you share how you manoeuvred around them?

Introducing unpopular policies has always been difficult. Such policies included compulsory Basic Cardiac Life Support (BCLS) for all dentists, reviewing temporary registration, requiring secondary supervisors for our Conditional Registered dentists, and recently revising the limits for CHAS claims. I try to meet as many dentists as I can, sometimes holding public forums, as well as work with the SDA to explain the rationale for these policies to the dental community. Where possible I try to cite real life examples of why these changes are necessary for fairness and transparency, as well as for public and patient safety. It is important through all these to understand the various roles of our organisations: SDC is the regulatory and registration body of our profession that also protects the interest of the public and patients; CDO's office provides input on all dentistry-related matters to the Ministry of Health (MOH) for formulation of policies, and MOH implements and funds these policies after reviewing this input.

Do you have any advice for younger generations of dentists in Singapore and how they can contribute to the growing and changing dental landscape here?

We are moving rapidly into an ageing population. From a clinical policy standpoint, prevention remains key. Whether it is periodontal disease, caries, or tooth loss, these are all preventable. There may be less money in it but it will change our overall quality of life if we all encourage our patients to maintain their teeth for as long as they can. The public sector cannot cope with the increasing number of patients which will need aged type dental care, and the hope is that more dentists will be trained to take on and care for these patients so that this impending burden of care can be shared. Another hope is that with more and more specialists being trained, we hope that they will give back and contribute to teaching both in the undergraduate and postgraduate programmes to ensure a steady stream of high quality and competent clinicians to manage our population. The future is now in the hands of our next generation of healthcare leaders and professionals. But it has been a humbling experience and certainly a privilege to be able to work with the profession to help shape our way forward.

Social Media and Your Dental Practice

BY **DR. ASHA KARUNAKARAN** AND **DR. SURINDER ARORA**

Social media has exploded over the last fifteen years. Facebook, Twitter, Instagram, LinkedIn, WeChat, Weibo (the "Twitter of China") – the list goes on.

It is a part of everyday life. From family dinners to friend gatherings to school lectures, we can become too pre-occupied with 'liking' and 'hashtagging' that we often miss the moment.

In today's world, an informative article, a cute photograph or a cheeky joke can be posted and shared instantaneously, forming "relationships" with total strangers.

Young people are no longer turning to institutions for their opinions, but instead are "following" social media celebrities and influencers.

Definition of
Social Media
(from Oxford Dictionary):

Websites and applications that enable users to create and share content or to participate in social networking

Social media terminology

Term	What is it?
Like/Love	This icon can be clicked to express approval of a post.
Tag	Tagging is used to include someone in a post. On many platforms the recipient will receive a notification that he/she has been 'tagged' in a post. The post will link to the individual's page.
Hashtag #	This tags an item to your post. If #cake is hashtagged, then when 'cake' is searched, your post may appear.
Follow	There is an option to 'follow' individuals or businesses. You will receive notifications and updates from anyone you follow.

In an era where respected politicians feel compelled to use social media or risk losing out, where individuals think their "network is their nett-worth", how can dentists properly use social media to promote their practices?

Compiled here are tips based on current guidelines to help you utilize social media – without getting into trouble.

10 Tips for Using Social Media

1. **Be professional**

   Your online profiles are an extension of you. Think of them as surgeries or offices. If you were a patient what would you want to see? More importantly, what would you not want to see?

2. **Be polite**

   What you post carries an energy and tone. Recipients can feel how you interact. Responding to comments in an equally professional manner is important, even in the face of negative or rude comments. Imagine this to be an extension of your real-life clinical interaction.

3. **Follow rather than friend**

   Social media is a wonderful way to engage with other professionals. Use your discretion when adding a professional as a friend. Following them is a less personal way for you to receive updates and notifications.

4. **Post content that you will be comfortable for everyone to see**

   Think of your posts as permanent. They can be shared in an instant. Even if they are posted for a restricted audience or are deleted after posting, they may still be easily traceable to you.

5. **Maintain confidentiality**

   Sensitive data must be protected. Ensure patients cannot be identified when sharing cases. Confidentiality of patients must be maintained and the profession must not be brought into disrepute with social media posts. **Dental Protection Limited (DPL)** states that 'the same standards of professionalism and confidentiality apply no matter what the medium of communication. Posting inappropriate comments, photographs or describing a patient's care on a social media site, such as Facebook or Twitter, can damage your reputation and lead to disciplinary action, as well as unwanted media attention.'

   If patients post damaging and negative comments, do not respond immediately. Talk to your employer, supervisor, dental school or DPL to discuss the situation and the best way forward. For more information, refer to page 11 of https://www.dentalprotection.org/docs/librariesprovider4/dentaadvice-booklets/media-guide-uk.pdf.

Think before you snap

Taking photographs particularly in clinical scenarios can breach confidentiality when they are uploaded online. Think before posting images publicly.

It is not unusual for dentists around a dinner table to show photographs of their cases on their personal devices. In all such situations, particulars of patients that could identify them should be erased.

If using photographs of patient's faces (e.g. for aesthetic cases) always obtain explicit, written permission to use their photographs.

6. **Join online study groups or pages**

   This is a great way to network in your field and to gain second opinions from other professionals.

7. **Education**

   Forums, study groups and YouTube videos can be educational. Professionals may also host live Facebook or Instagram event opportunities.

8. **Use your privacy settings on your accounts**

   Not everybody needs to see your life history on Facebook. Change your privacy settings to gain more control over what your audience can see.

   Expressing a controversial view in what you think is a private page on Facebook can still get you into trouble because there is nothing stopping anyone who has seen the post from reproducing it elsewhere. There have been several instances of people losing their jobs because a moment's unrestrained post went viral.

9. **Keep your personal and professional accounts separate**

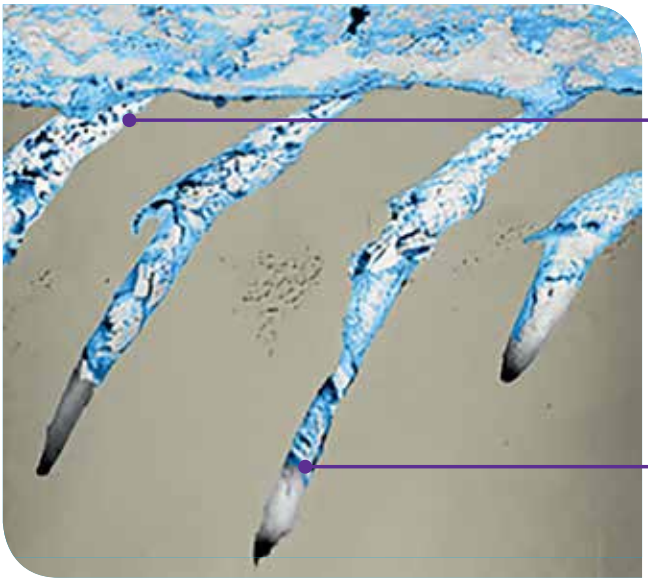
   This is to avoid any overlap particularly if you have had your social media accounts for a long time. It is easy for professionals, patients and regulatory bodies

Help your patients
BEAT SENSITIVITY PAIN FAST

New Sensodyne Rapid Relief
ENGINEERED FOR SPEED

Its unique formulation contains a balance of active stannous fluoride and bio-adhesive polymer that **accelerates occlusion** of dentine tubules[1] by:

- Providing improved bio-adhesion*[2]
- Forming a gel-like scaffold to hold the stannous in place



Stannous fluoride embeds into peritubular dentine on the edge of the tubule wall[3]

Stannous fluoride extends up to 80 µm inside the tubule network[4]

Representative FIB-SEM image, combining multiple imaging techniques (STEM-EDS, DSIMS, FIB-SEM/EDS).

Proven 60 second relief and long-lasting protection†[5-7]

10 CLINICAL STUDIES[5-13]

- Starts working from the first brush[5]
- Brushing sensitive areas delivers clinically proven relief in just **60 seconds**[5,6]
- After 8 weeks, Sensodyne Rapid Relief provided a 64% reduction in dentine hypersensitivity[7]

As many as **1 in 3** people suffer from dentine hypersensitivity[14]

Long-term management with sensitivity toothpastes can lead to **improvements in oral health-related quality of life[15]**

Recommend new Sensodyne Rapid Relief for fast relief and long-lasting protection from sensitivity†[7]

STEM-EDS = Scanning Transmission Electron Microscope-Energy-Dispersive Spectroscopy. DSIMS = Dynamic Secondary Ion Mass Spectrometry. FIB-SEM = Focussed Ion Beam-Scanning Electron Microscope. FIB-SEM/EDS = Focussed Ion Beam-Scanning Electron Microscope/ Energy Dispersive Spectroscopy.
***vs. toothpaste containing 0.454% stannous fluoride and lower polymer level.**
†with twice-daily brushing.

References: 1. Accepted for presentation at IADR 2017, Abstract no: 2631820. **2.** GSK Data on File Report NPD/EU/049/16, December 2016. **3.** Accepted for presentation at IADR 2017, Abstract no: 2634604. **4.** GSK Data on File 161075. **5.** GSK Data on File 207211. January 2017. **6.** Accepted for presentation at IADR 2017, Abstract no: 2635085. **7.** Parkinson CR *et al.* Am J Dent. 2015 Aug;28(4):190-196. **8.** Accepted for presentation at IADR 2017, Abstract no: 2635168. **9.** Parkinson CR *et al.* Am J Dent. 2013;26(Spec Issue):25a-31a. **10.** Parkinson CR *et al.* Am J Dent. 2016;29:25-32. **11.** Accepted for presentation at IADR 2017, Abstract no: 2639966. **12.** GSK Data on File Z7871336. **13.** GSK Data on File Z7871337. **14.** Addy M. Int J Dent. 2002; 52: 367–375. **15.** GSK Data on File RH01897.

CHSG/CHSENO/0029/17

to search online. If access to a personal account is granted, ensure you are happy for everyone to see your profile and its contents.

10. Have a clinic policy statement on the use of social media

This is a recommendation from DPL. Members of staff may be appointed to manage your clinic's social media accounts. These staff must have a clear understanding of regulations and how posts may impact the professional reputations of their doctors. For more information on this, please refer to https://www.dentalprotection.org/docs/librariesprovider4/dental-advice-booklets/media-guide-uk.pdf.

What you should NOT do

Singapore's Private Hospitals and Medical Clinics (Publicity) Regulations and the recently revised Medical Code of Ethics state that doctors should NOT

- Post "before and after" photographs of treatment
- Invite patients to 'like' their pages or them
- Mention high profile patients they have treated
- Publish testimonials or engage bloggers to write reviews of their practices

Social media is a new medium of communication that is both instantaneous and far-reaching. It is incumbent on the dentist to be familiar with the national regulations and the basic etiquette of this new medium, so as to not contravene our Medical Code of Ethics.

References

1. *Singapore Medical Council 2016, Ethical Code & Ethical Guidelines P.46 and 57, accessed 21 September 2017, <http://www.healthprofessionals.gov.sg/content/dam/hprof/smc/docs/guidelines/2016%20SMC%20Ethical%20Code%20and%20Ethical%20Guidelines%20-%20(13Sep16).pdf>*
2. *Singapore Dental Council 2006, Ethical Code & Guidelines P.17-20, accessed 21 September 2017, <http://www.healthprofessionals.gov.sg/content/dam/hprof/sdc/docs/publication/Singapore%20Dental%20Council%20Ethical%20Code%20Aug%202006.pdf>*
3. *Personal Data Protection Commission Singapore 2014, Proposed Advisory Guidelines On The Personal Data Protection Act For Selected Topics – Photography, accessed 21 September 2017, <https://www.pdpc.gov.sg/docs/default-source/public-consultation-4---education-healthcare-social-services-photography-submissions/proposed-advisory-guidelines-on-the-pdpa-for-selected-topics---photography.pdf?sfvrsn=0>*
4. *Bhola S, Hellyer P. The risks and benefits of social media in dental foundation training. Br Dent J 2016;221:609-613.*
5. *von Muhlen M, Ohno-Machado L. Reviewing social media use by clinicians. J Am Med Inform Assoc 2012;19:777-781.*
6. *General Dental Council 2016, Guidance on using social media, accessed 21 September 2017, <https://www.gdc-uk.org/api/files/Guidance%20on%20using%20social%20media.pdf>*
7. *General Dental Council 2013, Standards for the Dental Team, accessed 21 September 2017, <https://standards.gdc-uk.org/Assets/pdf/Standards%20for%20the%20Dental%20Team.pdf>*

Dr. Asha Karunakaran *is a long-time volunteer of the SDA currently serving as Chair of the Ethics & Practice Management Committee. She is a general dentist in her own practice in Novena Medical Center.*

Dr. Surinder Arora *qualified as a Dentist in the UK and is also an Integrative Health Coach. She is now based in Singapore and has a keen interest in public health, nutrition and well being. Out of working hours she enjoys boxing, travelling, healthy eating and yoga.*

5 YEARS AND BEYOND:

Towards better **CHAS** administration

by Agency for Integrated Care

First introduced in 2012, CHAS started with 296 dental clinics, and this has increased significantly to more than 730 clinics. Thanks to your continued support, more than 265,000 eligible Singaporeans have benefitted from subsidised dental care in 2016.

As we strive to provide subsidised dental care to the population, audits of CHAS dental claims are conducted periodically in a year by MOH Holdings (the appointed auditor). Since 2012 to now, more than 50% of the total CHAS dental clinics have been audited, in order to encourage clinics to improve their CHAS claims submissions, and prevent errors in submissions of claims.

Here are some pointers to help you better administer CHAS.

The CHAS Dental Audit comprises two aspects: clinical audit and financial audit. If your clinic is under audit, you are required to submit photocopies of the following documents (3 years' worth of treatment history, from most recent visit), for the patients selected for audit by post:

- Dentist's notes with updated base charting and periodontal charting
- Laboratory forms/invoice/copies of all radiographic records (scanned images are accepted) taken for the patient
- Itemised invoices for patient's visits (with clinic name, letterhead, patient's name and NRIC, consultation date, breakdown of dental procedure(s), corresponding price(s), and the CHAS dental subsidies[1] given)
- Clinic's charges

[1] All CHAS dental clinics are required to issued itemised billing since 1 Jan 2017.

TOP 3 COMMON AUDIT ERRORS AND HOW TO AVOID THEM

From the 2016 CHAS Dental Audit findings, the 3 most common types of errors were:

Type of Audit Error	How to avoid this error?
'Consultation' claim commonly misused	'Consultation' can be claimed only for routine dental check-up/screening, which requires a full oral examination, and update of the patient's dental chart. It should not be claimed for recent post treatment review, when treatment is on-going, or follow up/reassessment visits. ⛔ Should not claim 'Consultation' if patient returns for second visit to clarify doubts from the first visit.
Wrong coding of dental procedures	Fillings should be claimed based on complexity classified according to Black's classification. For example: a) Occlusal-buccal/Occlusal-palatal fillings are GV Black Class I fillings and should be claimed as simple fillings. b) The restored surfaces mesial-palatal/distal-buccal may be a Class II tunnel preparation or Class V cavity, hence the GV Black classification should be clearly documented if claiming for complex fillings.
Insufficient documentation of procedures to support the CHAS claims	Dentures and Crowns should have supporting invoice for laboratory fees and documentation in clinical notes to indicate procedure was done. For Root Canal Treatment (RCT), do ensure that these documents are provided/available to support your claim: ■ Pre RCT and/or working, length determination x-ray ■ Post obturation x-ray, and ■ Relevant treatment notes.

ADDITIONAL TIPS TO HELP YOU WITH BETTER AUDIT COMPLIANCE!

- ✓ Always check the patient's available claims before proceeding with treatment. Make the appropriate claims within the allowable claim limits for the patient.
- ✓ Maintain accurate and complete clinical and financial records for all treated CHAS and PG patients as support for claims e.g. x-rays, lab documents.
- ✓ Refer to the latest MOH circulars on CHAS Administrative Guidelines from the "Download" tab on CHAS Online.

Let's work towards better CHAS administration. To arrange for a CHAS refresher training session at your clinic, contact AIC at **dental@chas.sg** or **6632 1199** today.

Our Silver Tsunami

BY **DR. ANG KOK YANG**

SPECIAL CARE DENTISTRY ASSOCIATION SINGAPORE

Every day, when I get to work, the first thing I do is to make myself a strong cup of coffee. Following which, I will without fail launch the National Electronic Health Records (NEHR) and thoroughly go through my appointment list for the day. I usually do not see as many patients a day as some of my fellow colleagues. A typical patient list for me consists of between eight to twelve patients, as I probably would not be able to handle more patients even if I wanted to. For example, just last Friday, my appointment list read like this: dementia, 87 years old; dementia, 60 years old; dementia, 74 years old; Parkinson's disease, 75 years old; dementia, 80 years old… you get the drift.

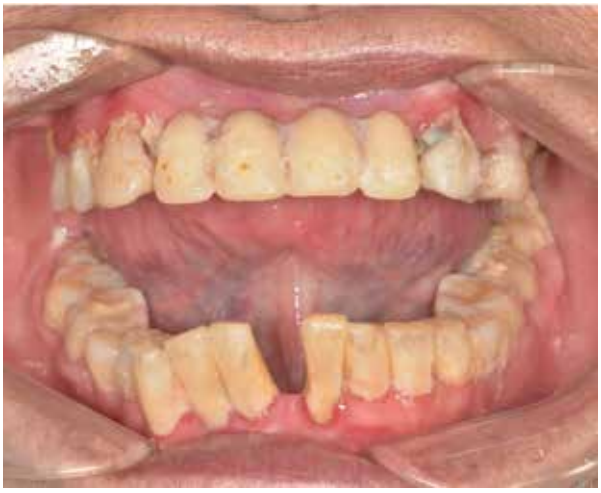
Many dentists would cringe just looking at my daily list. I have to admit, on bad days, it can feel like Groundhog Day – never ending. However, this is the path I chose: to train in special needs dentistry, which is a branch of dentistry that provides oral health care for people with physical, medical, developmental or cognitive conditions that may affect their ability to receive appropriate dental care. In Singapore, it has yet to be recognised as a new dental specialty. Not that it matters in the daily work that I do. Patients' families are largely appreciative, and that more than makes up for the lack of official recognition.

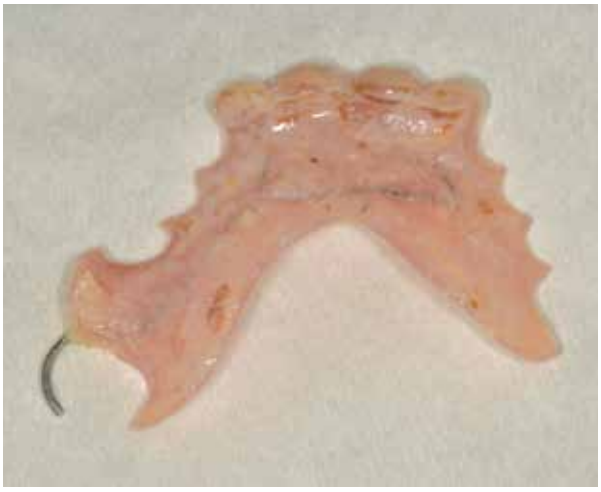
I would now like to share a bit more about my work with you. Let me introduce Madam A. She is a 68-year old female with a background medical history of Alzheimer's and vascular dementia, hypertension, hyperlipidaemia, and stroke. She is taking clopidogrel, fluvoxamine, atorvastatin, famotidine, atenolol, and calcium carbonate and vitamin D supplements. She was referred by her geriatrician to see a dentist prior to starting her on bisphosphonates for her osteoporosis.

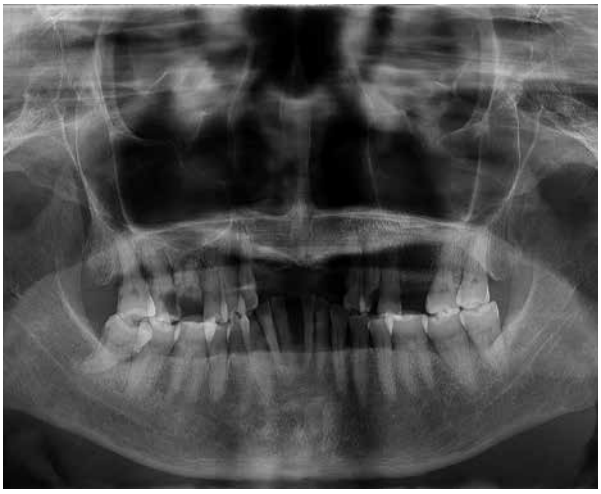
By the time she saw me, she had already progressed into the moderate stage of dementia. She is currently able to talk and converse, but can not remember what you told her 5 minutes ago. She feels that she is well since she is able bathe, go to the toilet, and cook for herself. However, she is no longer able to count money, and when she ventures out into the neighbourhood on her own, she will inevitably lose her way triggering a frantic search from her family.

When she first saw me, she could not understand why she was at my clinic as she was feeling well. She had zero comprehension of the risks of oral osteonecrosis with bisphosphonate use. And to make things worse, she hated dentists, refusing to allow any dental work to be done. After much coaxing, she finally conceded a quick oral examination, barely coping for an orthopantomogram to be taken. The oral examination showed the typical presentation of dementia patients: wall to wall plaque coating all teeth, with the presence of retained roots and caries, with many teeth in various stages of mobility. Since she did not allow any work to be performed, all I could do was to prescribe toothpaste containing chlorhexidine, beseeching the family to supervise her brushing (something which she refused at home too).

On the second visit, her oral hygiene had not improved, and I had to resort to other methods. Lots of "lying"







was involved i.e “Aunty, I’m doing this to make you look prettier”, and I thus managed to coax her into allowing me to scale and polish her teeth and clean her denture. However, she could not be convinced to remove the unrestorable teeth. The same happened at the third visit, with her only allowing scaling and polishing of teeth and nothing else. It was beginning to seem like a losing battle.

All the visits thus far were monthly visits, which was deliberately scheduled in hope that we could build up some form of regularity and familiarity. And so we persevered on towards the 4th visit. During this session, something seemed different. Madam A started saying that I looked familiar, like a friend’s son from the market. Sensing a possible breakthrough, I managed to somehow coax her to remove some mobile teeth with more promises of making her look good. This was how I finally obtained her willing consent.

The fifth visit would prove similar, where Madam A again expressed that she felt that she had seen me before. We managed to coax her into removing another tooth. We then managed to get her started on her denosumab injections, and placed her on a three-monthly oral hygiene care plan. At this stage, together with her family, we jointly decided that the subsequent treatment plan for her would focus squarely on maintenance of her oral health instead of restorative function.

Even though I only managed to achieve such basic treatment aims after a good 5 months from the first consultation visit, this example is probably one of my more successful cases of being able to get through to a patient with dementia. I usually spend about close to an hour for each session, with most of the time spent trying to coax and cajole, rather than the actual treatment itself. But what is certain is that every single encounter is different, and it is always time and effort consuming. More often than not, I have cases with unsuccessful outcomes despite my best effort.

However, as demonstrated by this case example, there will be more dementia patients requiring anti-bone resorptive medication in future. And looking at the current local climate, I anticipate an epidemic of such patients in future, with many likely to have failing implants, uncontrolled caries, and severe periodontitis. In view of this concerning situation, in the next 10 to 20 years I foresee that special needs dentistry is going to be a necessity and not a luxury.

Numbers do not lie. The Department of Statistics, Singapore, recently reported that as of September 2017, the total number of residents in Singapore stands at 3,965,800, of which 516,700 are 65 years and older (i.e. representing roughly 13% of the resident population). This number has been projected to rise to 900,000 by the year 2030, equivalent to roughly 25% of the population. In a local study published in 2014, it was reported that in people aged 60 and above, the local incidence of dementia was estimated at 4.6%. That translates to 41,400 elderly with dementia by 2030!

As we all know, people with dementia inevitably have higher risk of caries and periodontal disease, and dentists often face greater difficulties in providing dental treatment. To make things worse, elderly people are more prone to developing osteoporosis. The World Health Organization (WHO) estimates the worldwide prevalence of osteoporosis in women between age 60 to 69 to be 8%, and this prevalence increases to 25% between ages 70 to 79. It is inevitable that these two conditions will eventually occur concurrently and affect many people in future.

Hence, the reality is that in the near future, it will not just be people who have undergone additional training in special needs dentistry that will end up seeing such patients. There are currently just too few of us to deal with the huge number of people with special needs, in particular, the aging population. Therefore, there is a real need to mobilise more of us to be better trained in the management of such patients. In short, please do join the club. That, in addition to doing more for improving oral health promotion in general, which we often take for granted. But that is a story for another day. I now have to excuse myself and get back to mentally preparing myself for the challenges of my day.

Special Care Dentistry Association of Singapore (SCDAS)

On 16th August 2017, a group of like-minded people gathered for the inaugural annual general meeting of the newly formed Special Care Dentistry Association of Singapore (SCDAS). With the formation of the Association, we hope to promote the oral health and well-being of people with special needs, promote this field of

dentistry throughout Singapore, provide education and training for all oral care professionals interested in this field, and increase public awareness in the availability of dental care for people with special care needs.

There is no restriction as to who can join the association as a member. We highly encourage dentists and oral health therapists who have similar interests to join the Association and lend a helping hand. As special care dentistry itself involves a combined approach to care, members are not restricted to the oral health profession, and we welcome friends from allied health groups such as speech therapists, dietitians, occupational therapists and so on to join as members. We are currently in the process of growing our society, which comprises of dentists and oral health therapists, with the bulk of our members being dentists in general practice.

The current office bearers are:

- President: Dr. Ang Kok-Yang
- Vice-President: Dr. Tan Meina
- Secretary: Dr. Lim Guang Xu David
- Treasurer: Dr. Guay Peiru Melissa

Please visit us on our website: www.scdas.org OR our Facebook page @specialcaredentistryassociationofsingapore

Dr. Ang Kok-Yang *works at Tan Tock Seng Hospital Dental Clinic. He received a scholarship from the Ministry of Health in 2011 and underwent post-graduate training in Special Needs Dentistry at the University of Melbourne, Australia between 2012 to 2014. Since his return, he was been heavily involved in clinical practice restricted to special needs dentistry at both Tan Tock Seng Hospital and the Institute of Mental Health.*

Mastering the Smile with Dr. Galip Gurel

The Dental Surgeon chats with Dr. Galip Gurel, IDEM 2018 Master class speaker and author of *"The Science and Art of Porcelain Laminate Veneers"*, the best-selling textbook published by Quintessence in 2003 that has now been translated into 12 different languages.

BY **DR. LIM LII**

Dr. Gurel graduated from the University of Istanbul, Dental School in 1981. He continued his education at the University of Kentucky, Department of Prosthodontics and received his MSc degree from Yeditepe University, Istanbul.

Dr. Galip Gurel

He is also the editor-in-chief of the Quintessence Magazine in Turkey and serves on the editorial board of the AACD journal, PPAD (Practical Procedure & Aesthetic Dentistry), and EJED (European Journal of Esthetic Dentistry). He is a visiting professor at the New York University (USA), Marseille Dental University (France) and Istanbul Yeditepe University (Turkey) and has been lecturing on dental aesthetics all over the world and giving post graduate lectures on aesthetics dentistry. Dr. Gurel is the founder and the honorary president of the EDAD (Turkish Academy of Aesthetic Dentistry). He was also the President of the European Academy of Esthetic Dentistry (EAED) for 2011 and 2012. He is currently a member of the American Society for Dental Aesthetics (ASDA) and American Academy of Restorative Dentistry (AARD), and the honorary diplomate of the American Board of Aesthetic Dentistry (ABAD).

Dr. Gurel received "The Smigel" award in October 2014 which is granted biennially by New York University College of Dentistry to honor the best aesthetic dentists in the world for the social contribution and education they provide, their support for the improvement of aesthetic dentistry, their vision and determination and their ability to present innovative ideas globally.

Apart from that, he runs his own private practice in Istanbul, which specializes in Aesthetic Dentistry. A renowned sportsman, Dr. Gurel was the Captain of the Turkish National Water Polo Team, a World Champion of the Camel Trophy and a participant of the Paris-Dakar Rally.

Could you share a little about yourself and what motivated you to pursue dentistry and, in particular, a specialisation in Prosthodontics?

My parents are both dentists and I am the eldest son. I belong to a generation when there was no internet, and there was nothing like what you have now that will help give you a global perspective of things during my school days. Thus it was common practice to join the family business or trade. Therefore, after finishing my high school I just went into dentistry as that was the only thing I knew and wanted to be. After becoming a dentist, I realised what I am doing now is completely different from what my parents were doing. Dentists during my parents era were used to everything (such as extractions, endodontics,

prosthodontics). However, I am more accustomed to working with a team of specialists and managing the patient through a multidisciplinary approach.

During my second and third year of dental school, I wanted to be an Oral Surgeon. However towards the end of my final year, I met a visiting professor from the United States who was a graduate of our university. After seeing some of my work he invited me to pursue prosthodontics at the University of Kentucky. At the University of Kentucky, the dental technician training centre was just next to our Prosthodontic department. Therefore, every day I would be at school from 8am to 4pm, and from 4pm to 10pm I would spend time at the dental lab studying with the dental technician students, which was how I learnt to do my own laboratory work. After I came back to Turkey, for the first couple of years, I was both the dentist and the technician.

Describe your clinic in Istanbul.

My clinic in Istanbul is right in the centre of the city. It is equiped with six chairs: one is fully dedicated to dental hygiene, two for part-time specialist work like implants, orthodontics, and periodontics, And the remaining three chairs are rotated every day for doing all kinds of prosthodontic work, which is usually on our own patients who have have orthodontics or implants carried out in our practice. We also have two in-house labs to support our practice – one of which is the original in-house lab team I have been working together with for the past 30 years, and the other lab is a team of technicians from Brazil. As for manpower, we are a group of 39 people - including 5 full-time associates, hygienists, dental assistants, receptionists, and of course our laboratory techicians. Our patients get very individualised treatment, and we spend a lot of time with every patient, taking care of every single detail. Our patient base is very varied, and we treat everyone from very very important people to the common person. But we do not believe in treating anyone differently. Once the patient is in the chair, each patient receives the same standard of care.

Tell us briefly about your practice philosophy.

Our practice philosophy is that every member of our team is like our family. The associates that I have been working with, including the dental assistants

and the front desk staff – have all been working for many many years, some 10 to 15 years and some even for 30 years. Therefore, we all know what we want, and all have common aims. Nobody is allowed to speak negatively about anyone else in the presence of a patient. This includes commenting about previous work done by another dentist. We only concentrate on how we can make things better for the patient.

What type of clinical cases is the most rewarding for you?

The simplest answer would be – the patient who leaves your office happy! I would be tempted to say that the most rewarding cases for me are those who need straight forward veneers treatment that only require 2 to 3 appointments, and they leave as happy patients 99.9% of the time. Unfortunately, this consitutes only 10% of the patients we see. Most of the patients who come to our office are here as a last resort, and we need to try to salvage everything – sometimes they need to go through the whole process of re-treating root canals, periodontal disease, and some even require placement of implants as new abutments. These are the type of cases which we have had to spend months to rehabilitate, which we would have spent much less time if the patients had been to our office from the beginning.

You wrote a textbook, 'The Science and Art of Porcelain Laminate Veneers' in 2003, how has your veneering protocol changed since then?

The basics in veneering has not changed much since we wrote it in 2003, except for the fact that now there are way more 'gadgets' available in the dental world – such as microscopes, digital impressions, digital cad-cam systems, 3-D printing and so on. But the basics are almost the same, and the book is still the best-seller list of Quistessence, and is one of the most commonly used reference books for porcelain laminate veneers.

What do you think are the key parameters for a successful smile design?

I think the most important thing is to understand the patient – their needs and expectations – and then try to relate this to their personality, and to their facial outline. Because all people are different, therefore there is a need to customize and deliver different type of smile designs for each individual patient.

The Visagism concept has been much talked about in dentistry, could you tell us more about it? How did you come up with Visagism concept? What is unique about REBEL, as compared to other 3D smile design software in the market?

The Visagism concept will be a major part of the lecture which I will be sharing with you during my visit to Singapore.

After working with Dr. Braulio Paolucci and Adriano Shayder (our ceramist) for the past 14 years, we have realised that there are huge differences amongst the designs of the smiles that we constructed. However, we realised that not all smile designs were the same for each patient. So among the hundreds of full-mouth cases that we have done throughout the years, we picked up the ones in which the patients were most positively affected, and loved what we have done for them, and tried to analyse how the parts of their smile matched their face and personality. To put things in a nutshell, we use the method of using the visual language combined with the personality of the patient, and see how this relates to the incisal silhouettes, tooth axis, centres, dominance, and the individual tooth shapes. And that is what creates the huge difference, which is the basis of the V concept.

However, what we also realised is that the majority of dentists all around the world, do not do any smile mock-ups. So even though the V concept was very valuable for people who routinely do mock-ups, I realised that it did not mean much to the rest of those who did not.

And this is how the REBEL came into the scene. With the specific software we developed, we succeeded in converting the 2-D V design into the 3-D REBEL design. In other words, the software uses hundreds of algorithms to convert the design into an STL file, which is an intra-oral digitally scanned mouth impression that gives you the ideal sort of first mock-up or better than the final 3-D wax-up in the STL file. And all that you have to do is to extract it, put it into the 3-D printer, and then you will have an ideal 3-D model of the wax-up that REBEL provides you. The rest is just about following the classic style of doing the APT – which is

taking a silicon impression of this 3-D model and filling it with a flowable material like Luxatemp, and placing it into the patient's mouth. Next you prep through this, then choose a way you want to finalise your porcelain veneers. Either you can use the same the STL file to use a cad-cam system or the lab technician will copy and mimic the same design out of pressable or feldspathic porcelain.

How do you see the future of dentistry?

The future of dentistry is progressing steadily towards digitalisation of cases. The advantage of digitalising dentistry will be the repeatability of your mock-up towards the end of your final designs. In other words, if you succeed in getting a wax-up, preferably a 3-D digital wax up like what REBEL is offering you, and if you're happy with this design, you will be able to use exactly the same STL files for the cad-cam milling of your final veneers or crowns.

Bringing this a step further (which is what I will be sharing with you in Singapore) is the advent and future of robotic devices that will be used to automatically prep teeth. This will be a huge game changer, because with this even the average dentist will be able to prep teeth exactly the way a very experienced dentist would, with precision to almost 30 to 40 microns. This will be something completely different because prepping teeth through a software, and through a robot would also mean that you will not need to make the final impression, and as the robot is prepping the teeth, the veneers are already being cad-cam milled chair-side and ready for issue.

When you reflect on your career, what advice do you have for young dentists starting on their smile design journey?

I would definitely suggest that they have broad knowledge in all aspects of dentistry. So when you talk about smile design, it is not only about just the prep alone, or just about making the margins perfect. It is a bit like being the captain of a team, who has the knowledge of everything and understands the strengths of each person of his team. Apart from having an understanding of the personality of the patient, you also need to have adequate knowledge of all the specialities of dentistry. So you should know how much orthodontics the patient requires, you should have knowledge of the consequences of implant placement in certain zones, control of soft tissue, selection of abutments and so on. You should also know which member of your team is trained to carry out the treatment required. If you do not have control over all these aspects then the foundation of your smile design will be very weak.

What do you look forward to when you are here in Singapore?

I hope to enjoy the city of Singapore again, just like I have always done so during my previous visits to your country. Hopefully I will be able to find some time to play some golf. And the rest of my time, I will try to share all my knowledge with you, and hope the audience will bring home a lot of information back to their private practices. I look forward to seeing all of you in Singapore!

Dr. Lim Lii *is a Singaporean who graduated from the University of Western Australia. She came back home in 1997, after a two-year working stint with Australian Dental Services, to be closer to her family. She has been in private practice since and now maintains a part-time position, allowing her to contribute wholly to SDA. She has thus served SDA since 2003 in almost every subcommittee. She is married to Desmond, and they are blessed with two teenage sons, as well as two adopted fur-kids.*

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Asia-Pacific Oral Health Therapy Congress 2017

The making of a profession; a dream to reality.

BY **MS. SREE GAITHIRI D/O KUNNASEGARAN**

Panel discussion led by Mr. Amdy Ong and AOHT Vice-president Ms. Shanmin

A year's preparation by the Association for Oral Health Therapists Singapore (AOHT) came to fruition on 7th October 2017. The inaugural Asia-Pacific Oral Health Therapy Congress 2017 was a two-day event supported by Ng Teng Fong General Hospital and Nanyang Polytechnic. The congress theme was "Dimensions in Oral Health", where it served to remind us that our profession is dynamic and everchanging – new technology, research, and developments occur at breakneck speed, greatly enhancing patient care.

The congress was a resounding success with over 300 local and international delegates. Prof. Chew Chong Lin, President of the Singapore Dental Council, officiated the event and the opening ceremony culminated in a video montage prepared by fellow OHT Wen Xuan as a tribute to the profession. Throughout the two days, participants were captivated by engaging talks by experienced speakers. Six oversubscribed workshops, a poster competition and a trade exhibition were also held.

The keynote speaker for day one was Prof. Patrick Finbarr Allen who spoke about the challenges faced by an ageing population. He also provided valuable insights into new techniques for the predictable management of caries. He ended his speech by sharing the management of edentulism in the elderly and comparing the effectiveness of conventional tooth replacement techniques to the use of implants.

A/Prof. Adrian Yap was the keynote speaker for day two. He talked about the importance of being knowledgeable in Temporomandibular Disorder (TMD) as it is the most common cause of non-dental orofacial pain and the second most widespread musculoskeletal pain after chronic lower back pain. His lecture was an enthralling overview of TMD management.

Prof. Chew Chong Lin with AOHT President Mr. Amdy Ong

Prof. Patrick Finbarr Allen delivering his keynote lecture on silver explosion

A/Prof. Adrian Yap with Mr. Amdy Ong

Dr. Isaac Chong, Composite workshop

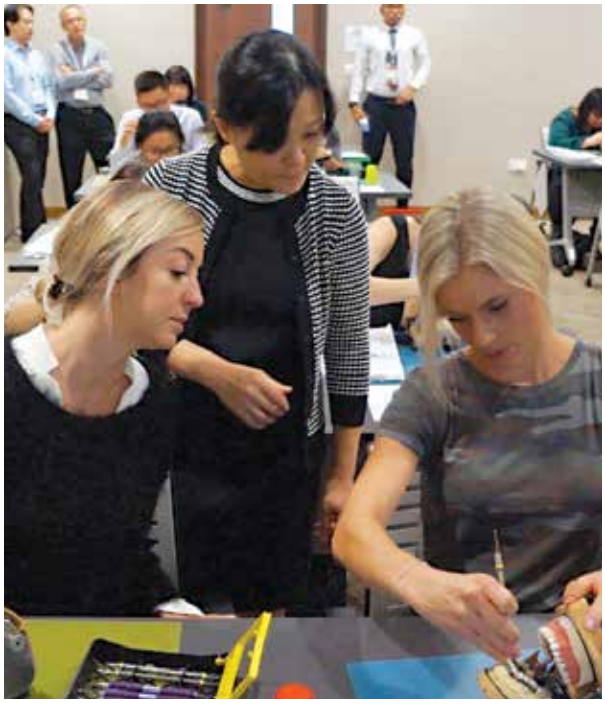
The hands-on workshops were very well-received by the participants. These workshops were intended to impart both clinical and management skills. We were honoured to have Dr. Isaac Chong conduct a composite workshop, while Ms. Soon Lay Yong and Ms. Orratai Tucker ran the dental hygiene hand instrumentation workshop. Dr. David Lim's workshop on special needs dentistry was highly sought-after by the delegates due to the growing demand of the geriatric and special needs patients in Singapore. The infection control workshop held by Raydent garnered overwhelming participation and support from private dental practices who registered their dental assistants for the workshop. The procedures demonstration by Raydent was most intriguing. The piezo ultrasonic and airflow technology workshop by Dr. Wong Li Beng exemplified the use of technology that would benefit patient care. Dr. Anshad Ansari's amazing workshop aimed to empower the newly graduated OHTs. The OHTs walked out of the workshop with a surge of confidence, having learned that they are valuable and essential members of the dental team.

Dr. David Lim, Special needs dentistry workshop

Raydent, Infection control workshop

Dr. Wong Li Beng, Piezo ultrasonic and airflow technology workshop

Dr. Anshad Ansari, Being an OHT workshop



Ms. Soon Lay Yong, Dental hygiene hand instrumentation workshop

The poster competition showcased the research abilities of all the contestants. Attractive cash prizes were given to the winners:

1st prize - Ms. Kay Franks from The University of Newcastle, Australia

2nd prize - Ms. Syahirah Alim from Nanyang Polytechnic, Singapore

3rd prize - Ms. Park Ye Jin from Nanyang Polytechnic, Singapore

The competition was extremely stiff and the judges had a hard time deciding on the winners.

This inaugural convention created a platform for representatives from the Asia-Pacific region, namely Australia, Indonesia, Malaysia and Singapore, to meet, mingle and share expertise with one another. A closed-door panel discussion on the second day highlighted plans for the integration of the Oral Health Therapy profession. We look forward to exciting times ahead with the partnerships formed with the associations in this region.

The AOHT is most humbled by the participation and support of our premium sponsors, Sunstar Global and EMS Dental, as well as Standard Dental and Raydent Supplies for this event. The congress would not have been possible without them. We are also proud of our own OHTs turned entrepreneurs, Ms. Melissa and Ms. Regina from 4Hands DA and Mr. Darren Lim from Smilesmith Dental, who occupied the booths in our trade fair.

Ms. Kay Franks, 1st prize winner of the poster competition

It had been an interesting and enlightening year-long journey of preparation for this congress. Seeing the successful unfolding of the event was like a dream turning into reality. We anticipate a very promising future for the Oral Health Therapy profession.

***Ms. Sree Gaithiri K (BOH)**, a University of Melbourne graduate, is a Lecturer at Nanyang Polytechnic, Department of Oral Health Therapy. She is also the publicity manager and Continual Education program lead for the Association for Oral Health Therapists, Singapore. She is currently pursuing her Masters (MPH-NUS).*

Breaking that Unbreakable Myth

BY **DR. WONG LI BENG**

Dentists deal with a myriad of dental instruments everyday. Being a Periodontist, I rely heavily on the usage of periodontal probes, ultrasonic scaler tips and hand curettes to perform my dental procedures. While these instruments are made of stainless steel alloy, and are highly durable and reliable, subjecting them to inappropriate usage or merely instrument fatigue due to long term use will eventually wear them down. For example, the prolonged usage of periodontal curettes for root debridement may exceed their fatigue limit, resulting in breakage occurring at the working ends. Periodontal probes, on the other hand, are not designed for digging root tips and removing subgingival cement. Hence subjecting them to exceedingly high lateral forces beyond their tensile strength may result in breakages at the instrument tips.

The use of dental implants is a well-established treatment option for replacing missing teeth with high level of predictability and long term survival rate documented. In terms of complications, while porcelain fracture and abutment screw loosening are more common occurrences, implant fracture may sometimes happen due to iatrogenic factors or if the implant restoration is subjected to excessive occlusal forces. In this write-up, I hope to share with you some of my experiences and highlight some of the incidents that I have encountered and managed during my career as a periodontist.

Good practice tip #1: Know your Periodontal probe

There are different types of periodontal probes available in the market (Figure 1). The Marquis probe is calibrated and colour-coded in 3mm sections, while the University of Michigan “O” probe with Williams markings includes all 1mm increment except 4mm and 6mm. The UNC-15 probe has markings on all 1mm increments, with colour coding at the 5th, 10th and 15th mm.

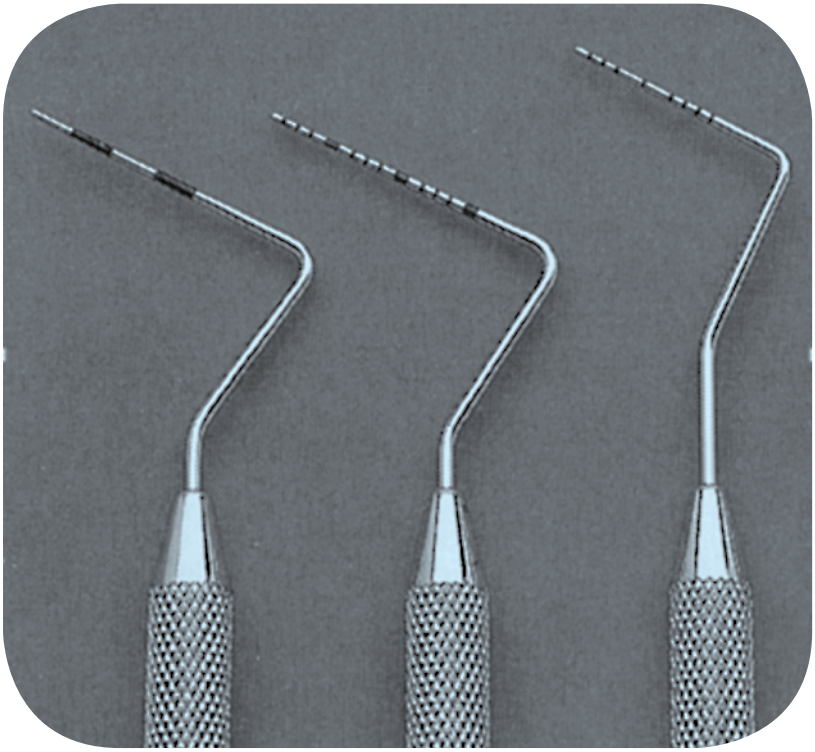


Figure 1: From left: Marquis probe, UNC-15 probe, Michigan “O” probe with Williams markings

There have been instances whereby I came across periodontal probes with broken tips packaged

for clinical use, without the knowledge of our dental assistants or dental sterilization personnel. A good knowledge of design (i.e. the markings and lengths) of your periodontal probe is important as you can immediately identify a broken instrument if any one of the measurement markings is missing. At the end of the treatment, it is also a good practice to check the periodontal probe markings again as any dental instrument part which is broken and left unidentified or unaccounted for in the patient's mouth, is considered as the practitioner's negligence from a medico-legal perspective.

Good practice tip #2: Check your Periodontal curettes regularly during and after procedures

Case 1:

I remember an incident a few years ago where a vigilant post-graduate student noticed that the working end of the curette she was using had fractured and separated from the shank while she was carrying out non-surgical scaling and root planing for a patient. Despite efforts to retrieve the separated working end from within the sub-gingival periodontal pocket, she was unsuccessful and the patient had to be referred to a more senior periodontist for surgical removal. I happened to be scheduled for operating theatre duties that day and therefore took over the management of the case.

A peri-apical radiograph was taken and it revealed that the separated fragment was lodged within the buccal furcation between the mesio-buccal and disto-buccal roots of tooth #27 (Figure 2). An open flap exploratory surgery was performed and the separated working end was retrieved, following which flap closure and suturing were done. The patient was then reviewed one week later, and the healing was uneventful.

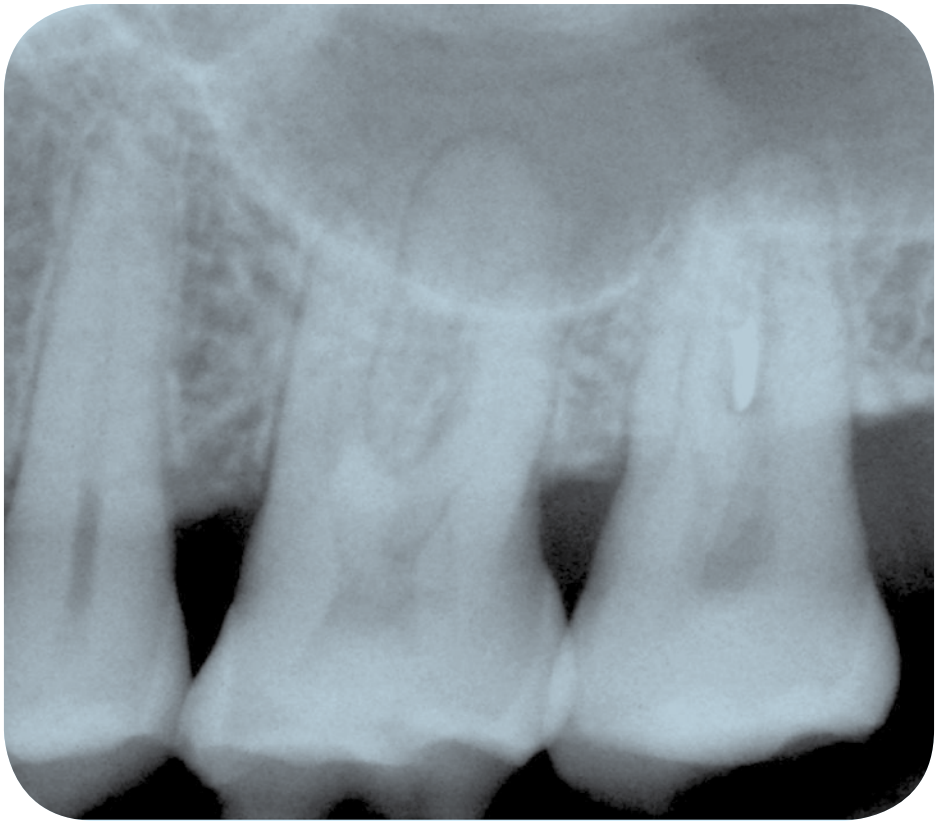


Figure 2: Radiopaque body present at the buccal furcation of tooth #27

Case 2:

In another case, an Oral Health Therapist under my supervision was performing non-surgical scaling and root planing for a patient when she encountered the fracturing and separation of the working end of the curette. The peri-apical radiograph taken revealed the presence of the separated fragment lodged within the mesial furcation between the mesio-buccal and palatal roots of tooth #27 (Figure 3). Similarly, an open flap exploratory surgery was performed to retrieve the separated working end, and the patient had an uneventful healing when he was reviewed one week later.

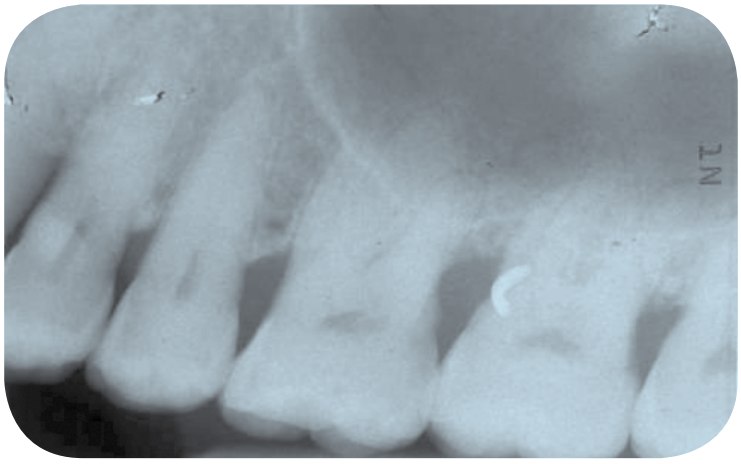


Figure 3: Radiopaque body present at the mesial furcation of tooth #27

Good practice tip #3: Maintain your Implants regularly, and check for implant breakage during routine preventive visits

Fractured implant

Case 1:

The patient was referred to me for management in December 2015. His chief complaint was a "loose implant crown" of his tooth #26. On clinical examination, the screw-retained crown was mobile bucco-palatally. The previous peri-apical radiograph taken in April 2014 revealed crestal bone loss to the first implant thread, with some reduction in the bone radiodensity up to the mid fixture level (Figure 4).

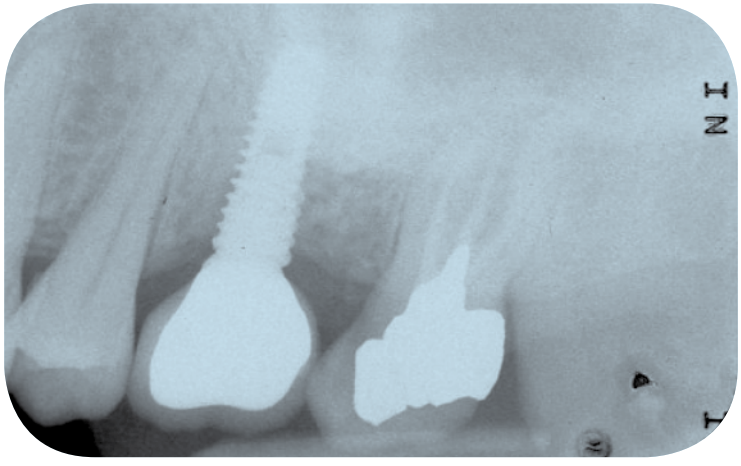


Figure 4: Peri-apical radiograph taken in April 2014

An updated peri-apical radiograph was taken, which revealed a fractured fixture at the mesial internal hex wall and circumferential bone loss (Figure 5). The fractured implant was deemed to have a poor prognosis.

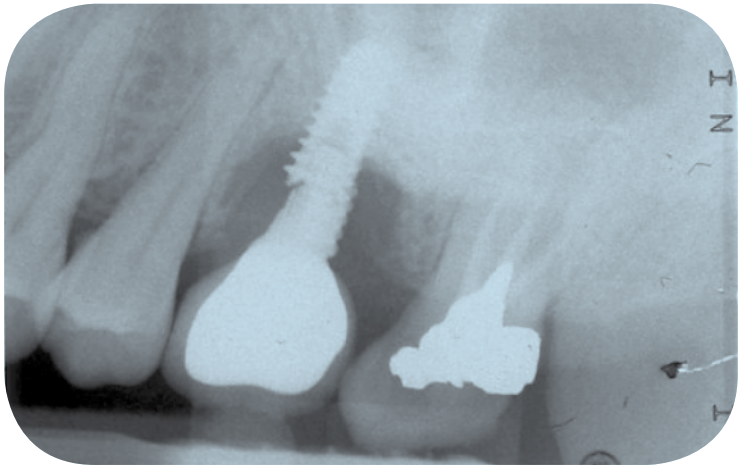


Figure 5: Peri-apical radiograph taken in December 2015

A surgery was performed to remove the implant. Due to the extent of the fracture, the fixture was removed in 4 fragments (Figure 6). The implant site was grafted in preparation for replacement of a new implant 6 months later.

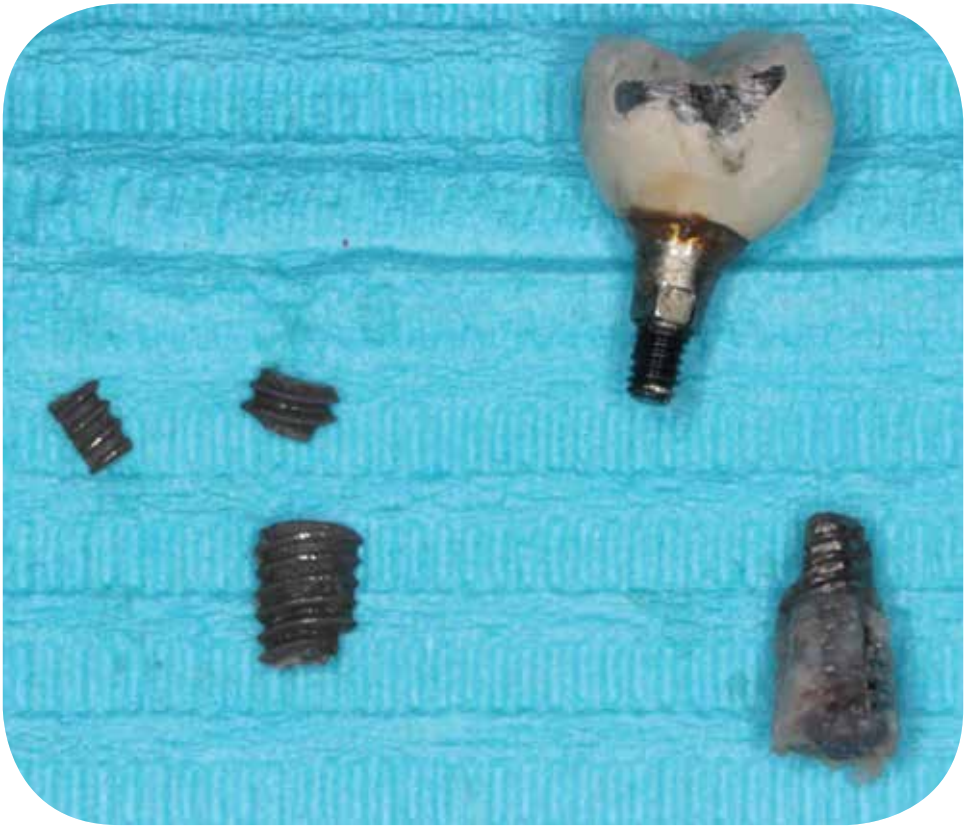


Figure 6: Implant fixture removed in fragments

Case 2:

The patient was referred to me for management of persistent gum swelling around tooth #45 implant-supported crown. After restoration about 2 years ago, there were several episodes of screw loosening and the previous operator who placed and restored the implant had attempted to retighten the abutment screw to secure the crown. A peri-apical radiograph taken a few weeks before the patient's appointment with me revealed circumferential bone loss (Figure 7). Clinically, the implant-supported crown was firm and the peri-implant mucosa was inflamed, with deep periodontal probing depths and suppuration. After an initial hygiene phase of subgingival debridement, inflammation around the implant persisted, so surgical phase of open flap debridement was indicated.

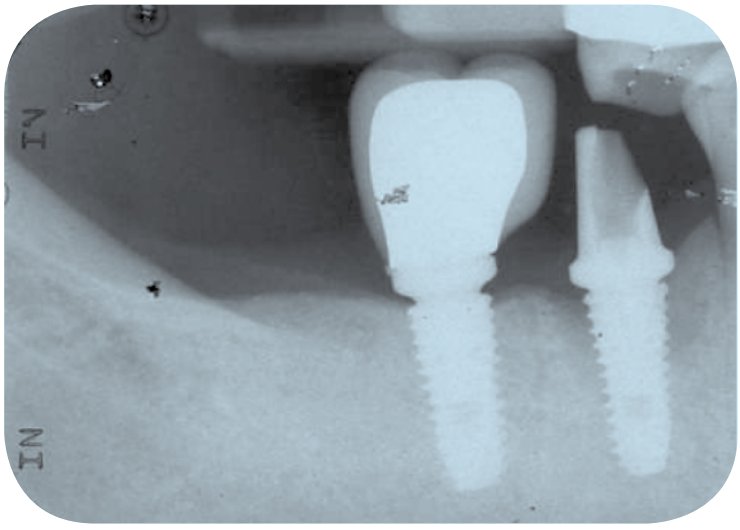


Figure 7: Peri-apical radiograph of implant #45

Following flap raising and degranulation procedures, it was discovered that mesial and distal fracture lines were present and the buccal wall of the internal hex fixture was mobile (Figure 8).

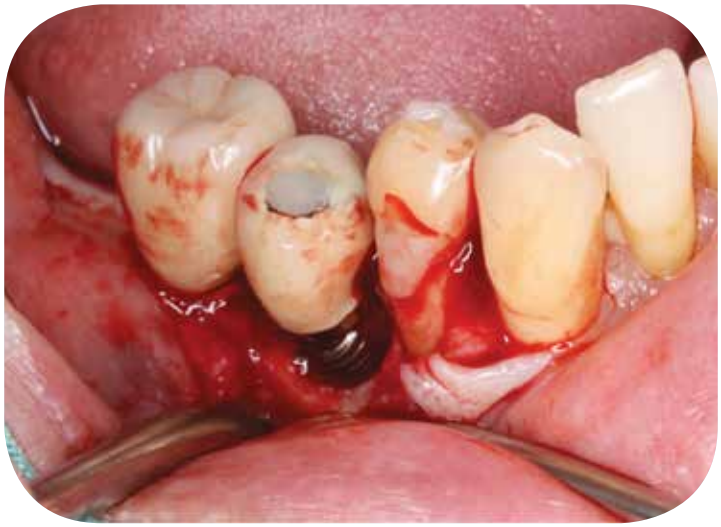


Figure 8: Surgical picture showing a mobile buccal implant wall

The implant was deemed to have a poor prognosis and was surgically removed (Figure 9). The site was grafted in preparation for replacement of a new implant 6 months later.

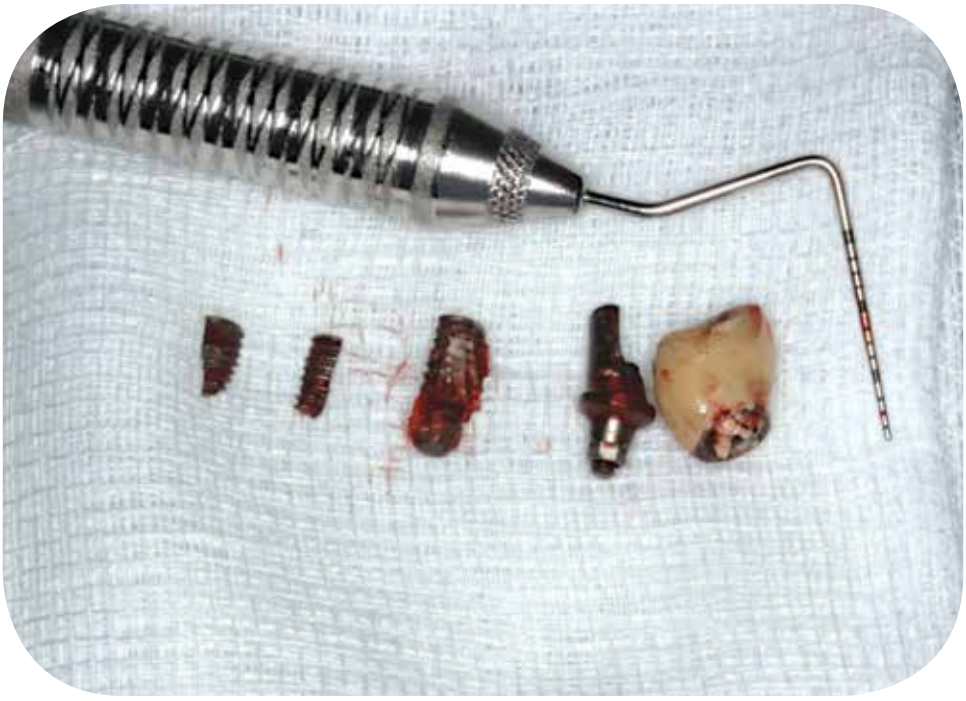


Figure 9: Fractured fixture removed in 3 fragments

In summary, all instruments and materials used in dentistry are at risk of breakage for a variety of reasons. We should exercise due diligence to ensure all instruments are in good working condition for the safety of our patients. In the case of implant fracture, thorough clinical and radiographic examinations are essential to derive at the correct diagnosis. In these instances, the importance of open disclosure in an empathetic and professional manner cannot be over-emphasized, which include careful explanation of the findings to the patients and thorough discussion of a possible treatment plan so that timely and appropriate treatments can be rendered. This can also help to reduce the unhappiness the patient may harbour towards the dentist.

Dr. Wong Li Beng *graduated from NUS in 2005 and went on to obtain his MDS in Periodontics in 2010. In 2012, he received the certificate of Specialist Registration with Singapore Dental Council as a Periodontist. Besides Dentistry, he also obtained his Graduate Diploma in Acupuncture in 2011 from the Singapore College of Traditional Chinese Medicine. He is currently working in Ng Teng Fong General Hospital and Jurong Medical Centre, serving as a Consultant and Director of Service for Preventive Dentistry.*

Soccertron 2017

BY **DR. LEE KWANG YUEH**

Congratulations to all the winners and a big thank you to all the participants. Who knows, you might be in the champion's team next year!

"Who scored?" Ranjan shouted, hoping to quickly pen down the scorers for each match. The tall and rugged looking man seemed almost bemused as a sharp and cheerful voice enthused, "Eric did!". From the corner of his eye, he noticed eight-year-old Jade. This was hardly a place for the young girl; while most girls her age would be spending Saturday nights at home, she was down at Kallang cage with a mission.

The 3rd edition of Singapore Dental Association's annual Soccertron was already in full swing. The participants had already converted the Kallang Cage into a battle arena. Supporters cheered on as their teams battled it out on the cage pitch. This year's competition featured a record high attendance, with a total of nine teams competing for the most coveted (and only) soccer trophy in the dental fraternity.

Traditional powerhouses Q&M and YNWA, a team from the Singapore Armed Forces, were among the participants. They were joined by last year's participants Magikarp. The aptly named old timers, Team Lao Jiao, were also present, hoping to teach the young ones a thing or two. Flamboyant undergraduate team Benteke Suarez this time changed their name to Pogkaku, in hopes of also altering their success rate.

There were four new teams this year, the youngest of which was the undergraduate Finbar's Footballers, Reminiscent of Dumbledore's Army from Harry Potter. Team GC, comprising mostly of dental suppliers from GC dental was incidentally the team Jade was here to watch. From the National Dental Centre, the creatively-named Team NDC also joined the fray this year, and finally a team from Dental Star Alliance completed the roster to this year's competition.

"Are you sure?" Ranjan asked, looking puzzled. "It was Eric!" Jade threw her hands in the air. Her mother Caroline however, was not as certain. "Let me check with them," she mumbled worryingly, hoping her little girl would not mislead Ranjan as Eric was on the team they were rooting for.

Due to the overwhelming response, teams were split into two qualifying groups this year. Past the halfway point of the competition, it was clear that Q&M, Pogkaku and YNWA were tearing apart teams in Group A to blaze through the points lead. Group B was a much more even contest, with all four teams seemingly still able to qualify for the semi-finals despite Magikarp and Dental Star Alliance opening their accounts with comprehensive wins.

The raging competition seemed to also galvanise the supporters who were getting increasingly audible. The adrenaline rush from the competitors seemed to spread with the speed of cellulitis to the viewing audience.

Champion team Q&M

Runners Up YNWA

3rd placed Magikarp doing their impression of a Gyarados rising out of the water

Jade, her mother Caroline and the Team GC supporters cheering their heroes on with pong-pongs and signboards

A Pogkaku player leaping like a salmon to clear the ball against Lao Jiao

Supporters cheering their teams on

David VS Goliath affair as YNWA takes on Q&M in the finals

Supporters engrossed in the game

A random Magikarp player controlling the ball against Finbar's Footballers

Team GC was playing valiantly, energised by their enthusiastic supporters who brought signboards and pong-pongs to root for their heroes. However, it was quickly becoming apparent that they could not sustain their high tempo game as fatigue began to take its toll.

The final Group Stage matches resulted in thrilling deciders for the semi-finals spot. In Group A, Q&M had secured their spot in the semis early on, while YNWA needed a victory over Pogkaku to secure theirs. Conversely, Pogkaku only needed a draw to ensure that they were through to the next round. However, they suffered a devastating loss, disqualifying them from the next round. In Group B, Magikarp held off a strong assault from Finbar's Footballers to ensure that they secured the draw they needed to qualify as Group Runners Up, while Dental Star Alliance razed the competition to ensure they ended as group champions.

Even Pikachu wants to get his hands on the challenge trophy

In the Semi-Finals, Q&M dispatched Magikarp in a thrilling encounter. The other semi-final bout saw YNWA edge out Dental Star Alliance 3 to 2 in a nail biting death match.

The 3rd and 4th place match saw Group B semi-finalists pit against one another. Magikarp sought revenge for a group stage defeat, while DSA played for honour and glory. An early goal from Magikarp's Ranjan calmed the nerves of their supporters while a superb long range shot from Jeremy took the collective breath away and drew the loudest cheer from the crowd. The goal sank DSA, allowing Magikarp to splash to a 2 - 0 victory.

The finals saw the defending champions Q&M against tournament underdogs YNWA, the representative from Singapore Armed Forces. It was clear early in the tournament matches that SAF meant business as they carried out tactical military strikes that crippled their previous opponents. They started this match in similar fashion, drawing first blood with a smartly worked move. YNWA threatened to steam-roll the opposition, but lost early opportunities to add to their lead. Q&M played patiently, buying themselves time and space, finally striking with a crucial equaliser. As the match progressed it became increasing clear that even the full firepower of the Singapore Armed Forces was unable to outmuscle the strength of Q&M. A quick succession of goals saw them lead YNWA 4 to 1. A late goal from YNWA gave them a glimmer of hope but Q&M sealed the deal with yet another goal as the match ended on a decisive 5 - 2 score.

Soccertron is an annual soccer competition organised by the Singapore Dental Association. Do drop us an email at sda.soccertron@gmail.com if you would like to join us for next year's event!

When all the dust had settled, Jade wasn't able to see Team GC lift the Soccertron trophy. However, she probably had a ball of a time as she managed to see her idol score! "Indeed, it was Eric that scored" Caroline confirmed confidently.

Dentistry in the Killing Fields

Cambodia Mission Trip 3rd - 8th September 2017

BY **DR. AU EONG KAH CHUAN**

Our team of wonderful volunteers with big hearts

Immediately upon landing in Siem Reap from a long morning flight, we loaded up a bus with our luggage and boxes of dental equipment. We were headed towards the northern Cambodian border. The three-hour long bus journey was monotonous with endless green rice fields flanking both sides of a dusty road that was punctuated occasionally with small rudimentary towns. Many of us took the opportunity to recuperate from a lack of sleep as we had gathered at Changi Airport at 6am that morning.

Our destination was Anlong Veng, a provincial town near the Thai border. The town is known for two historical reasons.

Firstly, this was the last stronghold of the Khmer Rouge. The civil war had just ended twenty years ago in 1998. The densely forested mountains were used by the Khmer Rouge as their base. They fought against the Cambodian army using guerrilla tactics. Due to the fear of stepping on live land mines, we were told not to venture into any forested or unmarked areas.

Secondly, Anlong Veng is the hometown and final resting place of the Khmer Rouge's leader Pol Pot and other equally notorious leaders like Nuon Chea, Kheiu Samphan and Ta Mok. They had committed genocide, killing more than two million Cambodians over a short period of time from 1975 to1979. This was one of the first of many "killing fields" present as the country endured broad state-funded killings following one of the bloodiest civil wars in recent history. As these events had only happened in the recent past, many mass graves in the region had not even been discovered.

The current population in the town was around 18,000, many of whom were former Khmer Rouge descendants

Opening ceremony by the MP of the province with our team standing at the back of the tent

Donations of dried goods and rice for the orphanage

MP touring our treatment area guided by Dr. Lee

Panoramic view of our cons and exo stations

Dr. Vijayan adjusting his immediate denture

Dentists busy at our exo station

Dr. Lee Bingwen, leading by example, at the cons station

Screening of patients at the triage area by Dr. Priscilla Chao and student Chung

Dr. Noeline busy at work

Our table-top dental practice for restorative dentistry!

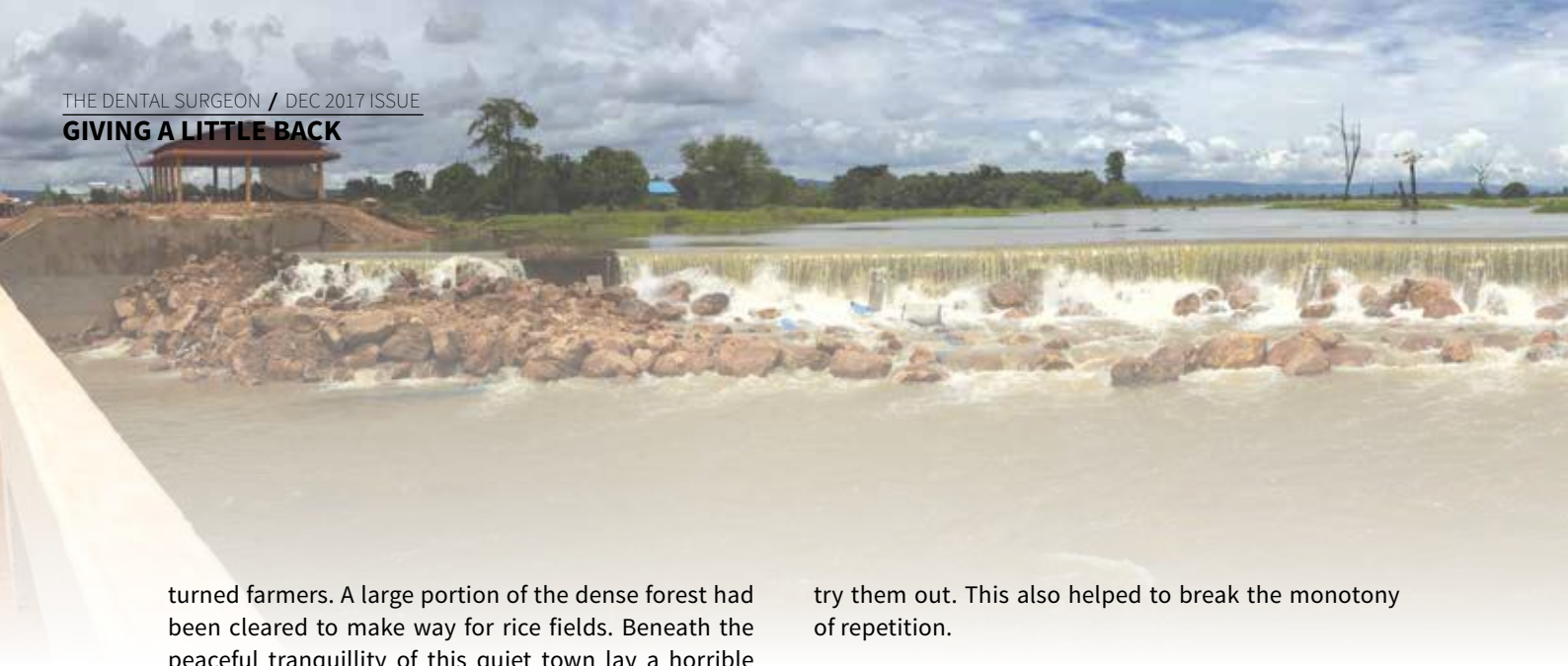
OHT Wai Leong with his gas-powered autoclaves

Our high and low speed handpieces unit mounted on a camera tripod, with inflatable pillow rest and red spit bag

Our perpetually filled waiting area for patients

Disinfection and cleaning before going to the autoclave

The number of patient's disposable trays used for one day!



turned farmers. A large portion of the dense forest had been cleared to make way for rice fields. Beneath the peaceful tranquillity of this quiet town lay a horrible and gruesome past. The current threat of land mines combined with malaria being an endemic had caused much suffering for the villagers.

This dental mission trip was led by our team leader, Dr. Lee Bingwen, who had already completed a few successful trips here in the past. Our team comprised of two oral surgeons, eight dentists, seven oral health therapists, a dental assistant, two pharmacy technicians and five final year dental students. Many were veterans of such trips while others were first timers. Three Cambodian dental student volunteers, who had helped us tremendously in many of our past trips, played a critical role as interpreters. Without them, communication with our patients would have been seriously restricted.

The Anlong Veng Referral Hospital, a large hospital with separated blocks, was our designated place of work. The main building which we were using was a three-storey block where the intensive care, operating theatres, general wards, tuberculosis wards and administrative office were located. There was no dental facility in this government hospital and the only available dental services were from the nearby private dental clinics. Some of the local dentists here were qualified and while others had not received formal training. Located at the third floor of this hospital were the administration offices and meeting rooms for the staff and medical director. We converted the entire floor into our clinical work area, dividing the area into stations for extractions and filling, paedodontic extractions, sterilisation and pharmacy.

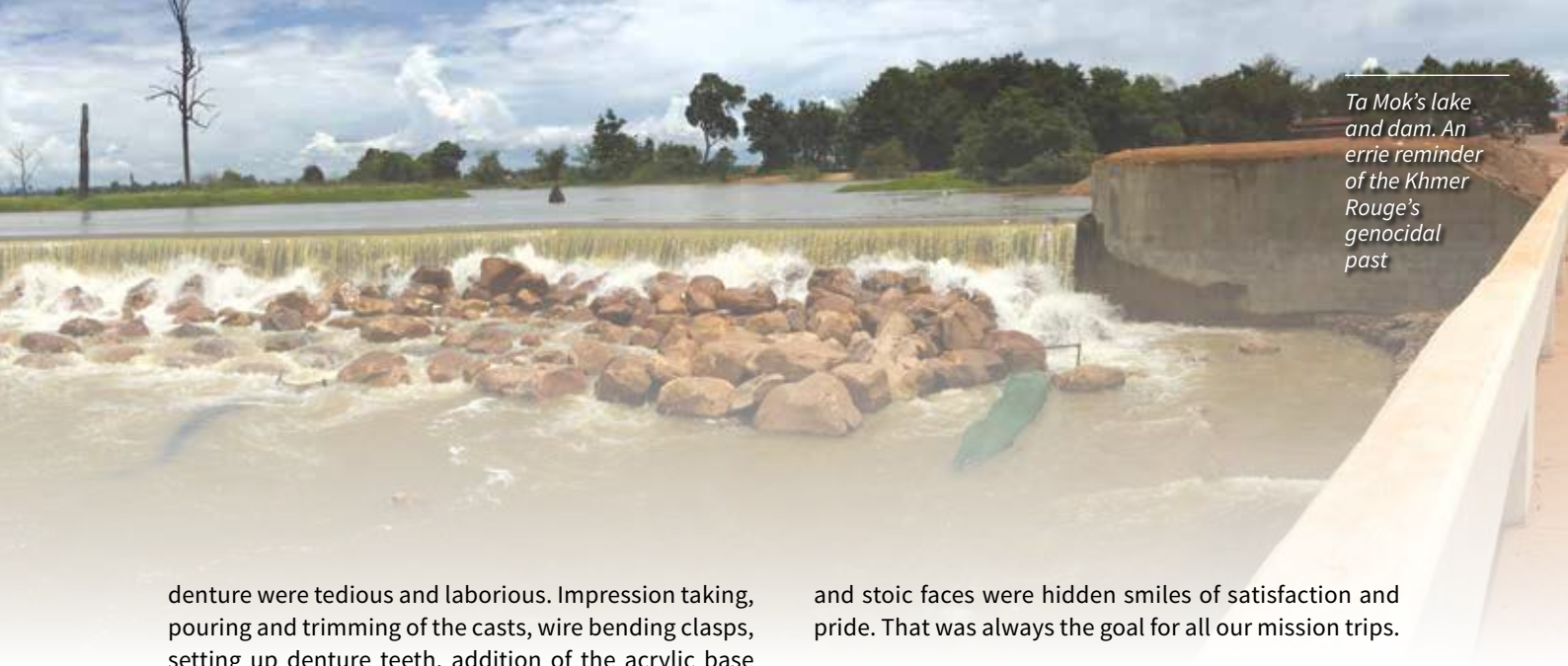
Our patient registration and triage area was located at the ground floor, under a tent, in front of the hospital entrance. Our team members were rotated on half-day shifts. Each of us had to go through the different treatment stations so that everyone would have a chance to try them out. This also helped to break the monotony of repetition.

Behind the hospital lay a peaceful but eerie man-made lake with a dam. It was created by one of the notorious leaders, Ta Mok. The flooded forest killed all the trees. Their bare skeletal trunks, protruding above the calm water, were a grim reminder to the devastation that the Khmer Rouge left behind.

As usual, the official opening ceremony on the first day was graced by the Member of Parliament of the district. He thanked us for coming to help their people. Our team leaders then brought him on a tour of our different treatment stations.

Within the first two days, we saw 120 patients for fillings and one 140 patients for extractions. Many came back on the second day to continue their extractions as they had too many teeth and roots to be removed in a single day. There were a few patients that fainted under intense heat, lack of a proper breakfast and discomfort from sitting in an upright position for extractions. The problem was accentuated by their fear of extractions. Fortunately, all of them recovered uneventfully. Many of the patients came from distant places, travelling a few hours on any form of transportation they could get their hands on. This included hitching a ride from their friends and neighbours who owned motorcycles, cars, pick-up trucks and tractors. This was one of the reasons why we tried to accede to their requests to solve all their dental problems on the same day.

Dr. Vijayan, one of our veteran volunteers, brought along five final year dental students who bravely volunteered to experience dentistry beyond the normal clinical setting. The immediate denture station manned by him catered to young adults who had their anterior teeth removed. They could get a new set of partial dentures within two days. At times, Dr. Vijayan's team could even fabricate and issue the dentures on the same day! The technical procedures for an immediate



Ta Mok's lake and dam. An errie reminder of the Khmer Rouge's genocidal past

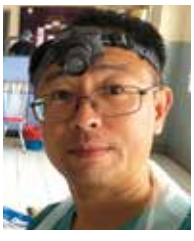
denture were tedious and laborious. Impression taking, pouring and trimming of the casts, wire bending clasps, setting up denture teeth, addition of the acrylic base and heat-curing in a pressure cooker were all accomplished by our portable set up. This was an impressive feat. Those lucky few who got their immediate dentures were thankful beyond words. Their smiles said it all after they looked at their new pearly whites in the mirror. Those grateful smiles were enough to justify our hours of hard work and sweat.

On our final day, with the help of word of mouth recommendations about our free dental treatment, the crowd came in full force. Information about our services were transmitted via the humble Nokia handphones which most of the villagers owned.

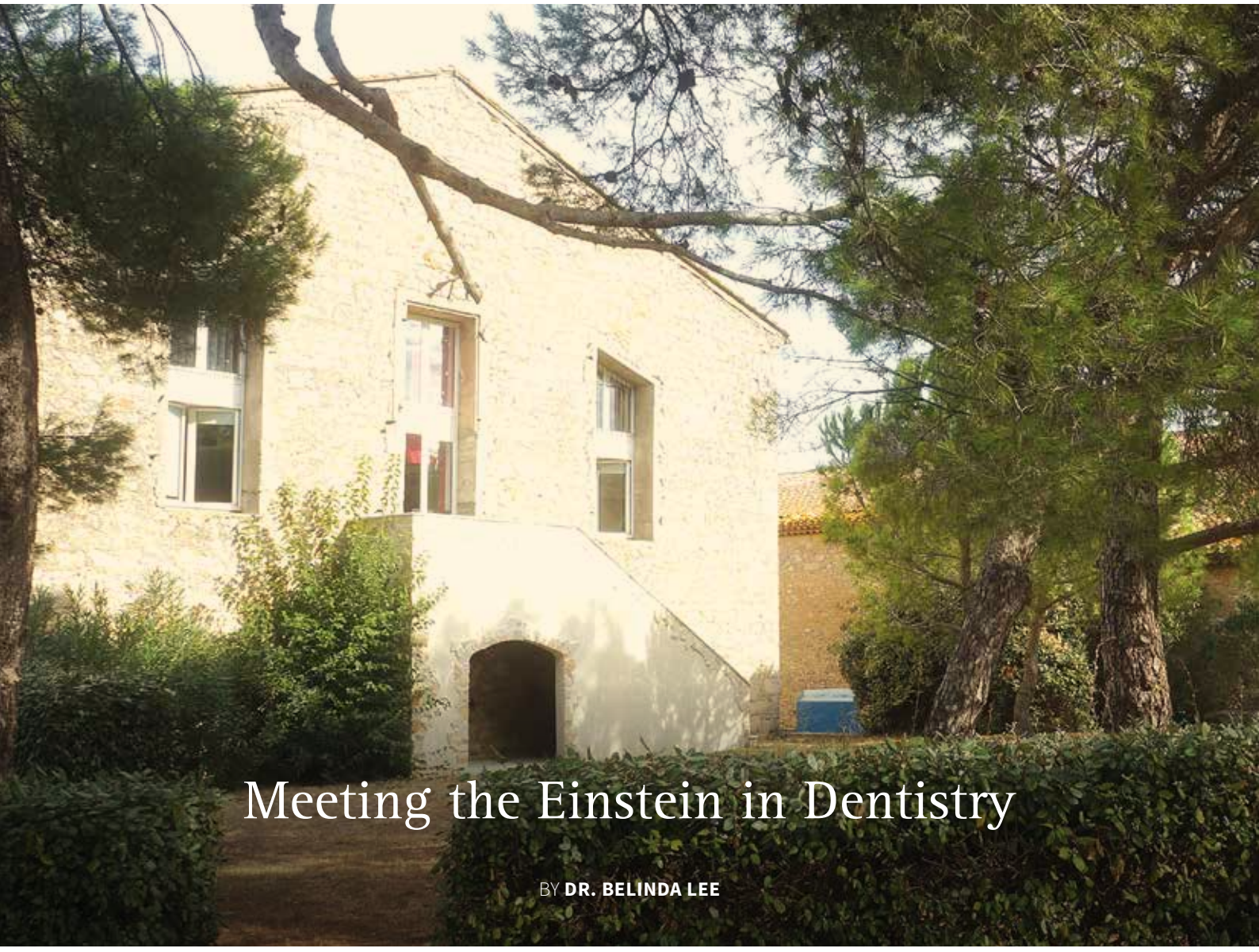
Most of the dental treatment procedures were conducted under non-ideal situations without adequate lighting or suction. Large wooden meeting tables were used as dental chairs for patients to lie on for fillings. Patients who were here for extractions had to sit upright on chairs without any backrests. All of us worked tirelessly and frantically in the sweltering heat to clear the seemingly endless patient load. At the end of the busy last day, we had seen over 230 patients. In total, we treated over 500 patients in three hectic days of intense work. All the team members were physically and mentally drained by the ordeal. However, we were emotionally fulfilled as we had reached out to as many people as we possibly could. Written all over our tired and stoic faces were hidden smiles of satisfaction and pride. That was always the goal for all our mission trips.

That night, the reward for all our hard work was to have a "good" dinner at a "posh" casino located about 10km from the town, a mere 200 meters from the Thai border. This casino was located on Cambodian soil but was opened by a Thai investor for the Thai people as casinos are prohibited in Thailand. The hotel buffet dinner we had reminded us of the economy rice stall in Kopitiam, but we were glad to have been able to finish our meal in the comfort of air-conditioning. The meal was very satisfying as we had been deprived of "good food" for the past three days. It was clear that being devoid of the luxuries in life for a few days made us appreciate the simple and inexpensive pleasures a lot better! The key lesson was to be contented and to appreciate the simple things life has to offer. Whenever you are unhappy with your life in Singapore, be mindful of the Cambodians living in such austere and harsh conditions and you will feel much better!

We headed back to Siam Reap the next morning for our rest and recreation. Each member had their own holiday plan in mind. Some of us visited the famous World heritage site of Angkor Wat, while others had massages and went shopping. Some visited run-down schools and donated to the orphanages while the young at heart headed to Pub Street to paint the town red. That concluded yet another successful mission trip in Cambodia, leaving many of us longing for the next one.



Dr. Au Eong Kah Chuan *is the founder of Greenlife Dental Clinic. His main passion is to bring dentistry to serve the underprivileged locally and around the world.*



Meeting the Einstein in Dentistry

BY **DR. BELINDA LEE**

France has always been a dream destination of mine. A country of romance, architecture, culture, picturesque villages and exquisite gastronomy. When offered the opportunity to visit Prof. Francois Duret and his wife, Dr. Elizabeth Duret in France, both of whom are held in high regard in the field of dentistry, I gladly took it up.

Our journey began with a series of flights from Singapore to Munich, Paris and Montpellier. We finally arrived at Languedoc-Roussillon following a car ride from Montpellier. Located in the south of France, the weather here was contrary to expectation. It was surprisingly hot. The hot summer's heat which extends to autumn, has led many pastures to dry up. We finally arrived at our place of stay - the Chateau L' Hospitalet.

Chateau L'Hospitalet is a renowned wine estate and a top destination for wine connoisseurs throughout the world. This 3-star hotel was surrounded by a picturesque vineyard. Away from the hustle and bustle of the city, the small quiescent town has shops that

close at 6pm. It is a perfect spot for a vacation, allowing one to sip wine and unwind from all the stress of the big city. The Languedoc-Roussillon region is off the coast of the Balearic Sea and is the single biggest wine- producing region in the world, supplying more than a third of the wine that France produces. The Chateau L'Hospitalet is managed by Gerard Bertrand, whose name is no stranger to the wine industry. Being the recipient of the European Winery of the Year, the quality of Rosé, White, and Red wines that were served to us exceeded our expectations.

The Cerec 2 of the Siemens Company

Prof. Duret's CAD CAM and milling system with Henneson Company

After a good night's rest, we proceeded to visit Prof. Duret and his lovely wife at the Chateau de Tarailhan where many inventions were built. Prof. François Duret is a dentist by profession, holds a Masters in Periodontology and two PhDs in Gastroenterology and Odontologic Sciences. He is a visionary. During his undergraduate days, while struggling to take the perfect impression for his laboratory work, he thought to himself that there had to be a better way. In 1973, he wrote his undergraduate thesis on "The Optical Impression" which lead to the invention of the buzzword that is used so often today - CAD CAM technology. He envisioned the need for digital impressions to be made directly in the mouth, omitting the need for gooey impression materials that make patients gag at their taste and texture. The digital information captured will then be sent for design and milling of the restoration. As he explained his thesis to us, we could see in his eyes the glow of enthusiasm, excitement and fondness for his research.

He was also very excited to show us his innovation, the Condorscan, an intra-oral scanner which facilitates the process of taking impression data for CAD CAM restorative crowns and bridges. Using GPS satellite

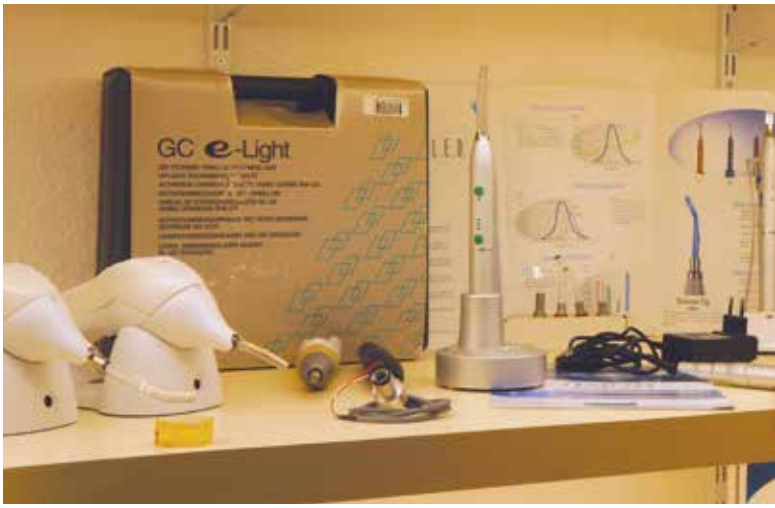
The original intra-oral scanner prototypes as developed by Prof. Duret

Prof. Duret's showcases of his CAD CAM work and publications

Intra-oral scanner prototypes as developed by Prof. Duret

technology, Prof. Duret and his team have successfully refined scanning technology so that measurement of distance is more accurate. Digital data of the oral mucosa and dentition can be uploaded to a monitor. This allows the image to be used for diagnostic purposes. It was really amusing to see the various prototypes of intra-oral scanner design that were on display and how they have evolved throughout these 30 years. Many companies have developed their current models based on the initial design of Prof. Duret. Dr. Elisabeth Duret was very kind to show us her work place in which she runs trials for the intra-oral scanner. She has always been the great pillar of support in all of Prof. Duret's work. Indeed, behind every successful man is a woman!

Being the man that constantly looks to innovate and improve the workflow in dentistry, Prof. Duret has more than 50 patents and has published research in various fields such as polymerisation, composite post, articulators, and bleaching techniques. His work on polymerisation started with the invention of the Apollo plasma lamp, which later evolved to become the Mini LED. This is the same LED that is inbuilt in our light curing machines today.



The design of Apollo 95 and Mini L.E.D which revolutionise light cure polymerisation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After a morning of discussions, he proceeded to show us his collection of great cars. When he is not at work, he indulges in his collections of antiques, philosophical books and racing. Not only does he own an F1 race car, his oldest car was from 1905 and it is still functioning very well. It was indeed very amusing for us as he carefully explained how one should get in and out of these sports cars!

The visit to his work cabin was definitely a nostalgic one. It was like walking down memory lane. Televisions used to be enormous with black and white visuals, before they were refined to the flat screen, high definition coloured Smart TVs that we have today. Many principles and concepts in dentistry have not changed since the 1970s. Yet there has been so much refinement and innovation for each item. We have taken them for granted, not knowing the history and the trials and tribulations behind every innovation.

Having spoken to him on a personal capacity, I find that Prof. Duret is a multi-talented, brilliant yet humble man who is very willing to share and discuss his theories and knowledge with everyone who is interested. His last visit to Singapore was for the FDI conference in 1990. We shall look forward to welcoming him should he lecture in Singapore again!

Dr. Belinda Lee *graduated from King's College London in 2013 and is a general dental practitioner in White Cloud Dental by FDC. Besides scouting out places to eat in Singapore during her free time, she enjoys swimming, going to the gym and playing golf.*

Food for Teeth

BY **DR. SURINDER ARORA**

Weston A Price was a dentist and explorer. Born in Cleveland in 1870, he made it his mission to uncover the causes of dental decay and malformation of craniofacial structures. He travelled the world, visiting indigenous communities, comparing primitive tribes on their native diets with those from the same community but had been exposed to modern day processed foods. The conclusions he drew were startling and controversial for his era — evidence-based medicine is now supporting many of his findings.

Weston published 'Nutrition and Physical Degeneration' in 1939, discussing in great detail his observations on his voyage of discovery. The initial thought behind this research was the need for controls in clinical studies. A vast number of the population in America at that time had been introduced to the modern day diet (now known as the standard American diet) and thus no comparison could be drawn in the area of traditional versus processed nutrient sources and their effects. A pertinent question was asked – can modern society study and adopt programs developed through centuries of experience from the primitives in order to restore optimum health? Could these practices be the saviour for future generations?[1]

It appears that the industrial revolution in the 19th century sparked a shift of living conditions from rural to urban and possibly contributing to a 'progressive decline' in the health of modern civilisation since the 1930s. With this came convenience and packaged foods to meet the demands of the population shift and industrialized mass production changed the face of eating at that time. During World War II, further developments were made to feed soldiers and civilians.

Reference

[1] *Weston A Price, Nutrition and Physical Degeneration, 1939*

Diet and caries

A summary of Weston Price's findings are shown below:

The percentage of teeth affected by dental caries (with dental cavities) in Traditional and Modernized Groups

Group	Traditional Diet (%)	Modernised Diet (%)	Traditional Diet
Swiss	4.6	29.8	Local, natural foods including whole rye bread, summer-made cheese, fresh milk of goats or cows and plant foods Foods had a high content of vitamins and minerals not found in modern civilizations Meat was eaten only once a week with occasional greens and potatoes
Gaelics	1.2	30	Fish and sea food Oat products with barley were available with limited vegetables
Eskimo	0.09	13	Fish, fish eggs, salmon, whale, greens, berries, sea plants, organs of sea animals, caribou and ground nuts Occasionally cranberries, flowers and sorrel grass preserved in seal oil were available (high in Vitamin A)
Northern Indians	0.16	21.5	Game buffalo, deer, sheep, goat, antelope, moose elk, bear and smaller animals like beavers and rabbits, snakes, lizards, turtles, alligators, fish, shellfish and wild birds The whole of the animal was eaten, including the heart, kidneys and liver, which provided Vitamin C
Melanesians	0.38	29	Seafood, native plants and fruits, coconuts
Polynesians	0.32	21.9	Soft and hard shelled seafood, raw or cooked underground Native plants e.g. taro
Africans	0.2	6.8	Land animals such as cattle and goats Fish, insects, corn millet, kefir, corn, sweet potato, beans, bananas
Australian Aborigines	0	70.9	Kangaroo, wallaby, birds and bird eggs, rodents, insects, roots, stems, seeds of grasses, leaves and berries
Coastal Peruvians	0.04	40+	Llama, alpaca, guinea pigs and grains
Amazon Jungle Indians	0	40+	Fish, birds, fowl and eggs Native plants e.g. yucca

While Weston's methodology may not hold up to the rigour of modern day evidence-based studies, there does appear to be a correlation between dental caries and an influx of modernized refined foods.

This is certainly not to say that these foods are required for health today but it does suggest that moving back to basics and whole real foods diet with the consideration of lifestyle factors may shift us back to optimum health. Some of the key similarities in all of these groups were:

- Diet high in whole foods
- High in minerals including calcium, magnesium, and zinc
- Limited refined or processed products
- Plenty of fat soluble vitamins A, D, E and K2 (vital for mineral absorption and protein use)
- Active lifestyles and factors such as an essence of community spirit

Cordaine et al 2005 found that it is apparent that 'novel foods (processed dairy products, cereals, refined cereals, refined sugars, refined vegetable oils, fatty meats, salt, and combinations of these foods) introduced as staples during the Neolithic and Industrial Eras fundamentally altered several key nutritional characteristics of ancestral diets and ultimately had far-reaching effects on health and well-being.'[5]. The full article fully explains each area and there is no doubt that nutrient deficiencies lead to poor development and disease.

These foods have gradually displaced the minimally processed wild plant and animal foods in hunter-gatherer diets and have adversely affected the following dietary indicators:

- Glycemic load
- Fatty acid composition
- Macronutrient composition
- Micronutrient density
- Acid-base balance
- Sodium-potassium ratio
- Fiber content

Food affects formation

A common finding amongst the native tribes were that they had well formed facial structures and jaw bones with little malfunction. Their bodies were strong and lean. Toothbrushing was often uncommon and their mouths had a very low incidence of dental disease. Straight, well-formed teeth prevailed with enough space for eruption in the oral cavity.

On the contrary when a modernised diet was introduced, there was a significant increase in dental caries, crooked teeth, deformed, narrow arches and facial bones as well as narrow nostrils. Rampant caries was reported in several communities. Disease was generally higher with observation in the Gaelic community of an increased incidence of tuberculosis.

The modernised diet reported consisted of white bread, cereal flours, sweetened milk, chocolate, canned goods, sweetened fruits, vegetable fats, jams, marmalades, syrups, confectionary, canned juices and coffee with a reduction in dairy product

Reference

[5] *Cordaine et al Origins and evolution of the Western diet: health implications for the 21st century Am J Clin Nutr February 2005 vol. 81 no. 2 341-35 http://ajcn.nutrition.org/content/81/2/341.full Accessed August 2017*

consumption. The infiltration of modernised foods made their way to these communities as trade and transport links developed. When children left the environment and went away to work or study, they were often exposed to a modernised diet. This exposure had immediate consequences that could be noted between siblings. As trade such as sugar plantations and pearl exchange progressed, the infiltration of processed foods heightened.

It was evident that the quality of foods was of importance with dairy and butter having a much higher mineral and vitamin content than their modern day equivalents.

Weston A Price clearly indicates that nutrition has a key role in deformity and dental disease. Although sugar plus bacteria sitting on tooth structure leads to dental plaque and all sorts of oral disease, it has not been drilled into us (mind the pun) that dietary choices and nutrition are important elements to discuss with patients. This is not just relating to dental disease, but also to formation of the craniofacial structures.

Prevention

Today, the Diabetic Society in Singapore states that one out of 9 people aged 18 to 69 has diabetes. That's about 11.3% of the population - more than 400,000 people![2]

The National Health Survey of Singapore 2010 released by the ministry of health states that more than 10% of adults are now classed as obese. 'The proportion of obese adults aged 18-69 years was 6.9% in 2004 and 10.8% in 2010.[3]

Dr. Margaret Chan, Director General of the World Health Organization (WHO), describes these diseases as a 'slow motion disaster'. Chronic diseases such as heart disease, cancer, diabetes and chronic respiratory diseases are increasing in incidence globally. The risk factors for these diseases include tobacco use, alcohol abuse, diet and physical activity. It is estimated that 40 million people die from these diseases every year (this equates to 70% of all deaths world wide).[4]

Dr. Chan reports that prevention has two main barriers:

- Doctors are taught to diagnose, treat and cure disease rather than prevent them
- Economic operators strongly influence lifestyle factors that lie in non-health care sectors including: tobacco usage, alcohol consumption, unhealthy dietary products and physical exercise.

The issue is vast. With so many factors at play, where do we even start? We are globally in a healthcare system where prevention simply does not pay. Perhaps educating ourselves as professionals and our patients to a healthier sustainable smile could be a start?

Dr. Surinder Arora *qualified as a Dentist in the UK and is also an Integrative Health Coach. She is now based in Singapore and has a keen interest in public health, nutrition and well being. Out of working hours she enjoys boxing, travelling, healthy eating and yoga.*

References

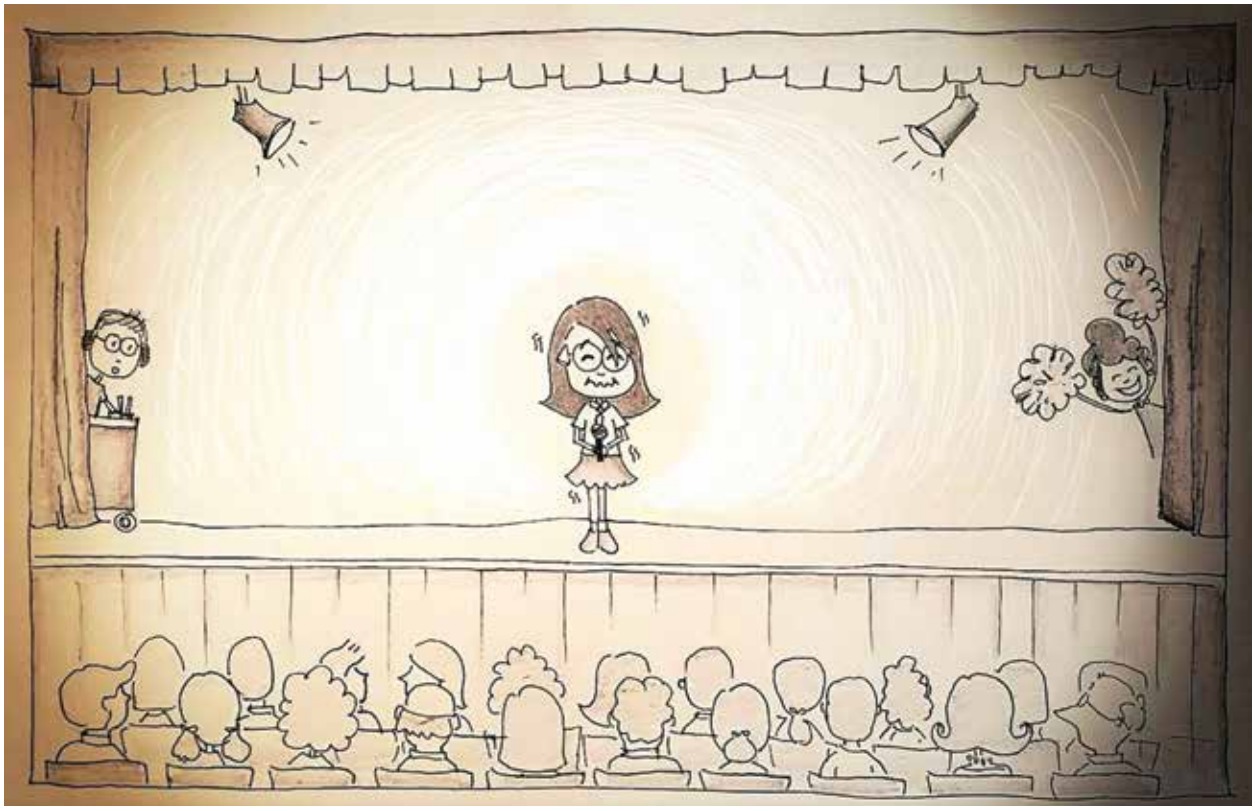
[2] *The Diabetes Society http://www.diabetes.org.sg Accessed August 2017*

[3] *Ministry of Health, National Health Survey 2010 https://www.moh.gov.sg/content/moh_web/home/Publications/Reports/2011/national_health_survey2010.html Accessed August 2017*

[4] *World Health Organization Non-communicable diseases: the slow motion disaster. Ten years in public health 2007-2017 http://www.who.int/publications/10-year-review/ncd/en/index2.html Accessed August 2017*

The Perils of Public Speaking

BY **DR. TAN WEE KIAT** AND DRAWING BY **DR. SABRINA ONG**



I did not speak until I was three years old. I communicated by guttural sounds and gestures, mostly by pointing. I was what parents feared most: a potential village idiot.

Mother decided that no child of hers was going to be an idiot without her knowing first, so she brought me to Dr. Ping, the gynaecologist who delivered me. Dr. Ping set me in a corner, with my back towards him and threw a book next to me. It landed with a thump and I jumped. "She's not deaf," he concluded, "she'll speak in her own time". That was my first medically-conducted auditory test.

My "own time" was a couple of months later. Out walking with my father, I asked in perfect English "why is the sky blue?". Well you could have knocked my dad down with a feather, which would not be difficult as he was a scrawny man. The questions and conversation never stopped, so off we went to Dr. Ping again; this time with the complaint, "doctor, she cannot stop talking!"

Mother decided I needed an education. She sent me to the Convent School. A little moral education can do no harm, she figured. The nuns noticed my propensity for verbosity and in my ten years of schooling, sharpened my prowess for the cut and thrust of debate and oratory sparring. I won every oratorical contest in the district, and then state. This was not difficult because Johore then was like Smallville. That, in a nutshell was how public speaking came me.

The word "Public Speaking" strikes terror in many hearts. Some people are perfectly sane when you speak to them one on one, then suddenly transform into a blathering mess on the podium. I myself have sat through many tortured lectures by professors who were top in their field, but useless in public lecturing. What causes this phenomenon? I shall postulate.

Everyone is looking at me

90% of the fear of public speaking is psychological. The thought that you are the centre of attention can be rattling. This is compounded by the niggling thought that for sure, you will make a fool of yourself. Various coping strategies have been proposed to quell the rising panic. None of them work. Take this one: "look above the audience". Doing this at best will give you a case of nystagmus or at worst will get you blinded by the auditorium lights.

Then there is my favourite: "imagine your audience naked." The perverted guru who suggested this did not think that sometimes your parents or kids could be in the audience. And is not the sight of a single naked person in an auditorium disturbing enough; what more a room full of nudity, and your parents to boot!

I will forget what I have to say

Imagine a sea of faces waiting to hear you. You open your mouth, nothing comes out. You are dumbstruck and can't remember what to say to save your life. This is the recurring nightmare of the newbie speaker. Whatever you do, resist the temptation of reading from reams of script. Nothing lulls your audience into slumber more than being read to.

Singaporean audiences do not expect eloquence but they do expect coherence. Prepare your lecture so that one thought flows to the next, as if telling a story, or a joke. You build up the story but you must remember the punchline. Of course it is helpful if you can think in the same language you are speaking in. You will be surprised in this bilingual age, how many people do not.

All the elocution training, mental and tongue exercises aside, the nuns taught me that the best speakers are those who give of themselves. It is not about you, or your ego. It is about sharing an idea. It is about being genuine and in doing so, you allow yourself to be vulnerable. This is really what scares us on the most subconscious level.

Everyone eventually develops a speaking style he is comfortable with. Listen to the great oratories of Winston Churchill, John F. Kennedy or Gandhi. If you like a more contemporary styles, listen to the Ted Talks. Fake it till you make it. Practise, practise, practise. Most importantly, be authentic, be yourself. Audiences can spot a fake a mile away. That means fake accents especially! What credentials do I have for backing up these tips? Absolutely zero. Except to say I have been there and done it. And done it well.

Dr. Tan Wee Kiat *is Senior Consultant of Paediatric Dentistry at NDCS. Known for her unique lecturing style, she is a popular speaker in the local circuit, having recently lectured at the Asia-Pacific Oral Health Therapy Congress. Dr. Tan is also multi-talented as artist, writer and drummer.*

Dr. Sabrina Ong*, a Queensland graduate, is practising at Dental Werks. She would love to contribute her artistic talents to future issues of* ***The Dental Surgeon****.*

Not Too Much Of A Stretch

BY **DR. AMY CHANG**

Yoga might seem like a daunting experience for many, but for twenty-five eager *yogis* who turned up for the inaugural yoga class by Singapore Dental Association, their thoughts were quite the opposite. Led by Dr. Marlene Teo, the aim was to set out to break the perception of yoga being inaccessible to busy dentists, and to prove that the exercise really had something for everyone.

On 10th June 2017, the second-storey yoga studio on Boon Tat Road shed its quaintness and was buzzing with energy in the afternoon. Participants sat cross-legged in anticipation on black yoga mats that were arrayed on the wooden floor in rows. With the rays of the sun pouring through the window, the setting transforemed into a warm idyllic oasis to practice mind over matter.

The serenity was punctuated only by Dr. Teo's soft-spoken directions while she demonstrated the poses adeptly. The afternoon heat did not seem to waver the participants' focus, as they dived effortlessly into the rhythm of breathing whilst performing a myriad of *asanas*. The peaceful yoga session ended in a chorus of laughter and clapping, with Dr. Teo's light-hearted closing remarks after receiving the

Certificate of Appreciation from Chairman of SDA Welfare Committee, Dr. Gabriel Lee.

For those in attendance, the reasons for coming ranged from a desire to unwind from dentistry to a chance to try out yoga for the first time. Many of the first-timers were pleasantly surprised to find the class easy to follow, without having to get into too many compromising positions.

For seasoned yoga enthusiast Dr. Lee Yun Hui, she walked away feeling it was a good session, though even she found some poses to be 'challenging'. Dr. Loh Kai Woh, who last did yoga during his university days, expressed that it was interesting to try a different style of yoga.

Nerves were slightly high for Dr. Marlene Teo as it was her first yoga class that she had ever taught. Dr. Teo, who is a certified Hatha Yoga RYT-200 instructor, had specially tailored her class to cater to people of all levels of yoga experience. She was also insistent about holding the class in a proper yoga studio, in view that participants could utilise the mirrors and yoga blocks for better alignment in poses.

'I don't wish to turn anyone off from yoga', Dr. Teo said with an emphasis on her goal to host an enjoyable, carefree and inclusive class – which she did. Indeed, this resonated well with participants as most thought the class was definitely not too much of a 'stretch'. *Namaste*!

Dr. Amy Chang *graduated from University of Melbourne in 2013 and is a general dentist at Q & M Dental Group. Her best yoga pose is Savasana. She is currently serving Welfare Committee of Singapore Dental Association and Executive Committee of College of General Dental Practitioners Singapore.*

Ballooning and Bristol

The adventurous and audacious Travelling Gourmet™ goes up and away to 2000 feet above sea level in n hot air balloon. It was cold; spring in England is cold.

STORY AND PHOTOS BY **DR. MICHAEL LIM**, The Travelling Gourmet™

I was waiting to rendezvous with my hot air balloon company in Long Ashton, Bristol. Royal Victoria Park is a ravishing expanse of greenery dating back to 1829. Many colourful balloons were also being readied for the flight, the ballooning crew unpacking their balloons and gear reminded me of my parachuting days except on a smaller scale and in reverse. A large power fan partly inflates the balloon, next comes the loud LPG burners, and after about 30 to 40 minutes, the hot air fills the balloon bringing it to life. That is when the pilot called us onboard the basket. This huge rattan basket was divided into 5 sections – pilot in the middle, with 4 separate compartments holding 4 passengers in each. As the balloon rose straight up, it was interesting to see the pilot spit out quite a fair bit to check the wind direction. It was rather disgusting, but he assured us that it was standard operating procedure.

Being airborne is fantastic, calm and peaceful, very much alike floating on a magic carpet, except when the pilot turned the propane gas burner handle to increase the flame for more lift. Soon we reached our cruising height of 2000 ft. The north-westerly wind floated us slowly towards Bristol and I inhaled the cool refreshing air, thanking the blazing hot flame of the burner for keeping the rest of me warm. The spring sun and baby blue skies with white cotton candy clouds made the flight memorable and exhilarating.

Almost too soon, we neared Bristol and we passed over Lake Chew at 600 ft. One must really go up in a hot air balloon to truly appreciate the beauty of it all -

the scenery, the feeling of freedom and unbridled joy, the adrenaline rush. Finally skimming over the large shimmering Chew Valley Lake near Bristol, we came in to land. A bump and some scraping along and we were down in one piece, not at all the hard landing I was preparing myself for.

It was night when we landed in a remote farmer's field in the middle of nowhere. I spent it at the Angel Inn which is a nice pub with good food and where one can also stay in-house. The building dates back to 1495 when it became the Church House, a parish hall for social events. This ancient building in Long Ashton later gained the name "The Angel Inn" in 1912; it is now a traditional pub with traditional fare like steak and kidney pudding, roast beef and Yorkshire pudding to die for - an all round fabulous bed and breakfast.

I also happened to discover a hidden gem in the suburbs helmed by Chef James Wilkins and his charming French wife Christine Vayssade. James trained with top chefs like 3 Michelin Star Michel Bras in Languoile and so the cuisine here is understated yet very good. I had a salad of succulent lobster tail and claw with pungent fresh English horseradish, lovingly caressed with vinaigrette and lemon marigold. I adored the 28 days aged Hereford sirloin of beef paired with organic red chard, celeriac fondant and aromatic truffle crust.

If you like seafood, do taste the delightful wild fillet of turbot. I was spoilt for choice for dessert but the panna cotta made with black-currant leaf and spiked with sweet-sour-tangy compote of apricot was what stole me away immediately.

WILKS

1 Michelin Star
1-3 Chandos Road
Redland
Bristol BS6 6PG
United Kingdom
Tel: +44 117 973 7999

Longing to taste the Colston Bun of Bristol I went to the oldest coffee house in Bristol. I strolled into Café Revival and sat at the corner table with the wall behind. Built in the 1780s, Café Revival has three floors. The third floor called Snug has an excellent view of Corn Street. On the ground floor I checked out the pastries on display but could not see anything resembling the Colston Bun. So I asked the friendly proprietor, "Have you got the Colston Bun?". Mark Rind replied with a bemused smile, "What's that?" and I had to explain about the Colston Bun, named after Bristol's benefactor, Edward Colston. Mark still had no idea. I found that the only way nowadays to eat the Colston Bun is to bake it yourself. And since there was no Colston Bun, I decided to have a frothy cappuccino to revive myself. After all, I was in Café Revival!

Café Revival

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Dr. Michael Lim *is* ***The Travelling Gourmet™*** *Travel, Food & Wine Writer/Editor/Educator extraordinaire.*

Terrific Torres!

The dashing and debonair Travelling Gourmet™ goes to the land of flamenco and jamón Ibérico to taste the wines of Miguel Torres in Andalusia.

STORY AND PHOTOS BY **DR. MICHAEL LIM**, The Travelling Gourmet™

41°20'42.2"N 1°42'17.2"E

Arguably Spain's most renowned winery, Torres is like the famous E. & J. Gallo winery of California. A little over two hours from the Mandarin Oriental, Barcelona, Vilafranca del Penedès is in the heart of Catalonia.

It all began in 1870 when the visionary Jaime Torres Vendrell founded Torres. As Torres grew in fame and importance, His Majesty King Alphonse XIII visited the winery in 1904 whereupon a grand lunch was served to the king and V.I.P. guests in a 500,000 litre wooden cask!

Among their notable innovations was a white wine fermentation technique under controlled temperatures, improved fermentation processes and reduced and controlled yield of grapes per hectare. Oak ageing was also perfected, emphasizing the quality of the grapes' organic tannins above those from the toasted wood. These innovations won her wines many international awards, as the "Gran Corona Etiqueta Negra 1970" did at the Gault et Millau Wine Olympics in Paris in 1979.

I was privileged to have taken a tour of the winery and its high tech environment-friendly facilities, and was duly impressed. The Torres winery is cleverly designed to be gravity fed and no expense had been spared on equipment like the pneumatic membrane pressoirs and top quality stainless steel fermentation tanks. The spartan yet elegant and chic winery is a masterpiece of Spanish architecture in a minimalist Zen style.

Viña Esmeralda Rosé is made with red grenache. it has an appealing, delicate, seductive pale salmon-pink colour, perfumed with lemon marmalade and boasting hints of a rose flavoured Arabian dessert, finishing off with a dry and fine palate. It is wonderful on a warm summer's day or in the tropics, paired with a Thai pomelo salad, salmon and tuna sushi or the classic mesclun salad drizzled with light vinaigrette!

Coronas is the king of tempranillo, that iconic Spanish grape variety. Juan Torres Casals registered it as a trademark on 7 February 1907; having celebrated its 110th anniversary, it holds one of the oldest trademarks in the Spanish wine making world. It has a hypnotic deep ruby red colour. This is a mesmerising wine of great intensity and concentration with alluring aromas of ripe black cherry among mixed spices and Sarawak pepper, also nuanced with charred oak. The fine palate of pleasing tannins nicely structured by meticulous oak aging delight the connois-

seur's palate. Dark fruits of the forest on the palate make this wine splendid with meats like Iberico ham, Kurobuta pork and tenderloin steak in black pepper sauce.

Gran Coronas Mas La Plana 2012 has won numerous prestigious awards including the Gold Medal, International Wine Challenge 2017. Crafted from the iconic Burgundian cabernet sauvignon grape, the journey to a great wine starts with meticulous fermentation in stainless steel under controlled temperatures of 25°C to 28°C for 7 days. Aging in French oak, of which 85% are new barrels is the next step to create this dry red which has only 1.2g/l of residual sugar. Aging potential is up to 18 years and this complex and robust red with cassis and red and black berry flavours is simply divine with game and other roast meats like steak, lamb, venison, wild boar, Canard à l'orange and Peking duck!

Torres Secret de Priorat is a perfect wine for dessert. The name pays homage to the Carthusian monks who came to Priorat in 1095. This small D.O.Q. Priorat in Tarragona is unique with black hills and Llicorella soil that produces Cariñena and red grenache grapes of amazing depth and quality. This intense and concentrated red wine has been manufactured for eight centuries. Red wine poached pears, Confit de Canard and creamy cheeses like Manchego Queso fromSpain, Camembert de Normandie, as well as classic Crema Catalana go hand in glove with this outstanding wine. Ripe figs, apricots and raisins abound; plum marmalade with hints of aromatic thyme entice on the first and third nose. Complex layers of liquorice and aromatic cinnamon bark flavours appear boldly on the third palate. A pleasing, opulent mouth-feel excites while the dessert wine's refreshing acidity cuts through the sweetness.

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Audi RS3 Sedan

BY **DR. KEVIN CO**

Introduction

It is a very bold statement for a family sedan to make, calling itself the most powerful series-production five-cylinder in the world. Does it live up to its name?

The RS3 is based on the A3 sedan - Audi's smallest four-door offering. The 'RS' moniker implies that this is no ordinary A3. It is the high-performance version of the A3 and offers spine-tingling performance in a compact and practical package.

Appearance

Like other RS models, the RS3 sedan features more aggressive bodywork with flared wheel arches, a focused front end and sharp character lines. The single frame 3D honeycomb grille is finished in a dark shade to add to the sporty appeal. The front bumper has been tweaked to incorporate additional cooling vents and ducts that channel air around the wheel arches. Compared to the standard A3 sedan, the RS3 is 20mm wider in the front while rear track width has been increased by 14mm.

The RS3 uses LED headlights with signature DRLs as standard, with the option of Matrix LED headlights available. Round the rear, the RS3 can be easily differentiated from a standard A3 by its fixed rear spoiler and the rear bumper, which has an aggressive diffuser. It also sports an RS exhaust system with large oval exhaust tips.

Interior and features

The Audi RS3 has a cabin that is as sporty as its exterior. The interior is finished in black Nappa leather upholstery with red stitching. The circular air-conditioning vents on the dashboard also get red highlights. While the standard seats give good support, Audi does offer diamond quilted RS sport seats with integrated headrests as an option.

The RS3 gets a flat-bottom steering wheel wrapped in leather and aluminum pedals. The conventional analogue gauge cluster has been replaced with the Audi Virtual Cockpit that uses a configurable 12.3-inch TFT screen. Our favourite feature is the option to display the sat-nav in full-screen. Additional features include being able to moving the tachometer to the centre of the screen, while tyre pressure, G-force and torque output can be displayed on either side.

This centre console also houses the climate control module, while the rest of systems can be accessed via the Audi MMI infotainment system. This infotainment system can be operated using either a touchpad positioned on the centre console or through voice commands. The car comes with a 705 watt, 14 speaker Bang & Olufsen sound system.

Performance & drive

The Audi RS3 sedan is powered by a 2.5-litre, 5-cylinder turbocharged petrol engine that produces 406hp and 480Nm of torque from 1,700-5,850rpm. The engine is paired with a 7-speed S-tronic dual-clutch automatic transmission that sends power to all four wheels via a Quattro all-wheel drive system. This sedan can sprint from 0-100 km/h in 4.1 sec and will reach a top speed of 250 km/h (electronically limited); this can be raised to 280 km/h.

Compared to the standard A3, the RS3 sits 25mm lower to ground and is available with optional RS sport suspension with adaptive dampers. The driver can choose between three driving modes - comfort, auto and dynamic - which alter the suspension stiffness, steering, gearbox and engine maps. Flaps in the exhaust open in dynamic mode; the sound is nothing short of bonkers!

Braking duties are handled by 370mm discs with 8-piston calipers in the front and 310mm discs in the rear. Carbon ceramic discs are available as an option. The sporty sedan rides on 19-inch wheels shod with 235/35 section tyres.

Final say

The Audi RS3 sedan is a practical four-door vehicle with four seats and a large boot, but it rivals the likes of the Mercedes-AMG A45 and the BMW M2. When it comes to practicality though, it is the clear winner. And with over 400hp under its hood, the RS3 also out-performs its rivals. Of course, it might not be as "tossable" as the M2 but having all-wheel drive gives it that advantage over the BMW.

No doubt the RS3 is one ultimate sleeper car.

Dr. Kevin Co *is a full-time private practitioner at his clinic TLC Dental Centre. Cars remain his lifelong passion.*

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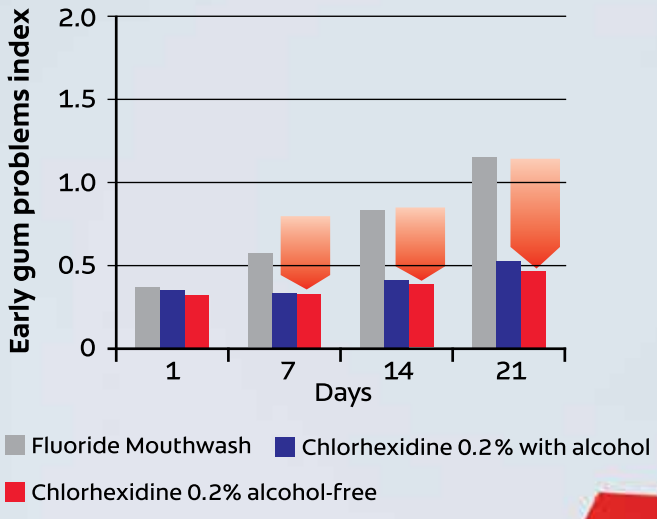

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References: 1. Jamison et al; Disease control priorities in developing countries. New York: World Bank Health and Oxford University Press, 2006: 723–736 **2.** Lorenz K et al. (2006) J Clin Periodontol; 33: 561-67

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