FIDI closes Annual World Dental Congress in Singapore

World Dental Federation appoints new president and invites to Brazil

Daniel Zimmermann

SINGAPORE/LEIPZIG, Germany: Singapore has a long and successful relationship with the dental profession. The city-state hosts the oldest running dental school in Asia; the first implants were placed here by Dr Henry Lee almost 20 years ago. Nowadays, the island boosts a workforce of over 1,000 dentists that are educated internationally and make use of state-of-the-art equipment.

Large international manufacturers, such as 3M ESPE and Straumann, have taken advantage of Singapore’s position as a trading hub and serve most of their customers in the Asia Pacific region from here. With IDEM Singapore, the city also hosts a dental trade show every two years that attracts dental professionals not only from Singapore, but also from other countries in Southeast Asia.

It was no surprise that the FDI World Dental Federation, which represents the interests of dentists globally, decided to organise yet another one of their Annual World Dental Congresses (AWDC) in Singapore. An AWDC was held here in 1990 and the FDI has been cooperating with the Singapore Dental Association (SDA) in organising IDEM Singapore’s scientific programme for almost four years.

This year’s congress was held in conjunction with Singapore’s Oral Health Month, an annual campaign that aims to improve oral health by offering free dental screenings to every Singaporean. According to the latest Adult Oral Health Survey conducted island-wide in 2003, almost half (46 per cent) of the respondents indicated that they visit the dentist at least once a year; the average mean DMFT was 8.1 and about 10 per cent of the respondents were carry-free. An SDA spokesperson said that more than 200 private dentists would be participating in the screenings that would take place on weekends over the course of September.

Laser dentistry gets boost in India

The local government of Gujarat, a federal state in Western India, has announced a new initiative to incorporate laser dentistry into the dental curriculum of all governmental dental colleges. The move comes after a clinical guide for oral laser applications was released at the 5th National Conference on Oral Laser Applications held in Ahmedabad earlier this month.

According to Gujarat Health Minister Jaynarayan Vyas, the project will be supported by the International Society for Oral Laser Applications, an affiliate organisation of the International Society for Oral Laser Applications in Vienna (Austria). If the initiative succeeds, government authorities expect to appoint dental laser specialists in each of the state’s districts soon.

Chinese say no to swine flu pandemic

China has recently begun a national swine flu vaccination campaign, as Beijing authorities gave shots to thousands of students planning to take part in National Day celebrations on 1 October. The Health Ministry hopes to vaccinate 65 million people by year’s end.
In the past six years, saliva has risen to centre stage for disease detection, monitoring and even health surveillance. Dental Tribune Asia Pacific in cooperation with FDI World Dental Congress in Singapore about salivary diagnostic toolboxes and how they could be utilised for detecting systematic diseases.

WDD: In recent years, the role of saliva for the detection and monitoring of diseases has risen to centre stage. Can you summarise the latest findings for us?

Dr David Wong: Seven years ago, the National Institute of Dental and Craniofacial Research (NIDCR), one of the 27 institutes at the US National Institute of Health (NIH), made a visionary investment to turn salivary diagnostics into a clinical reality. The outcomes of this scientific investment are what constitute the recent excitement and clinical potential for salivary diagnostics. We now know there are multiple diagnostic alphabets in saliva to define the diagnostic coordinates of oral and systemic diseases. Point-of-care diagnostic technologies are soon to be in place to permit a drop of saliva to detect and monitor diseases at the dental practice.

How exactly does saliva work as a biomarker?

Biomarkers are defined as cellular, biochemical, and molecular characteristics by which normal and/or abnormal processes can be recognised and/or monitored. The salivary glands (major and minor) secrete approximately 1.5 litres of saliva into the oral cavity daily, carrying with it health/disease information (biomarker information). The sources of these biomarkers can be disease sites or the salivary glands themselves can produce disease informative surrogate biomarkers. The salivary gland system can be viewed as a local anatomical organ that is poised to monitor local and systemic diseases. The good news is that the biofluid secreted (saliva) can be obtained non-invasively, painlessly and without embarrassment to the patient—no needles and no rigging.

Which salivary diagnostic toolboxes are at hand or currently in development and how could these be incorporated into the clinical practice?

The dental practice is poised to monitor local and systemic diseases. Current salivary diagnostic toolboxes include the diagnostic alphabets (proteome, transcriptome, micro-RNA and microbial) and point-of-care diagnostic technologies. Integration into clinical practice requires identification of effective clinical application and approval by the Federal Drug Administration in the U.S.

With the exception of the salivary HIV antibody test, no other salivary biomarker test has reached the FDA-level evaluation. We anticipate that our point-of-care device and biomarkers for oral cancer detection will be evaluated by the FDA in the next two years.

Do oral diseases have any impact on the diagnostic value of saliva?

A number of oral diseases have been evaluated for salivary diagnostic applications, including caries assessment, oral cancer and periodontal disease. Proper control of oral diseases in the study population to control the effect of periodontal disease and inflammation in particular is important.

Thank you very much for the interview.

(This interview is published with permission of the FDI World Dental Federation, Switzerland.)
Visitors were spoilt by this year’s scientific programme, which not only featured popular topics like dental implants, aesthetic dentistry, and periodontics, but also gave insight into new challenges and developments in dentistry. Among others, the prevalence of oral cancer, salivary biomarkers, and the therapeutic potential of dental stem cells and tissue engineering were discussed. Limited attendance courses were extended to give visitors the chance to learn in a more intensive and intimate environment. Auxiliaries and office personnel had the chance to get their hands on the New Patent Experience in a special full-day programme. As one participant put it: “What strikes me about this congress is how it brings together so many different specialist areas in dentistry, all under the same roof.”

Although official numbers have not yet been released, exhibitors speaking to Dental Tribune Asia Pacific said that visitors’ numbers did not meet their expectations. In spite of this, most exhibitors reported increased numbers in sales and business deals. Plenty of new products and processes were introduced, for example surgical instruments and handpieces that now come with built-in and long-lasting LED lights. Nobel Biocare introduced their newest product NobelProcera to Singaporean dentists at an official launch dinner held at the Charlton Hotel. The system aims to combine industrialised production processes with versatile and individualised aesthetics for dental restorations.

In addition, continuing education was offered to trade show visitors through Dental Tribune in collaboration with the DT Study Club, who held their first online symposium outside the US.

Members of the 2010 Local Organising Committee invited participants to next year’s congress in Salvador da Bahia in Brazil, home country of the newly appointed FDI President Dr Roberto Vianna. Dr Vianna, who took over the presidency from Dr Burton Conrad from Canada, received his DDS from the Federal University of Rio de Janeiro in 1985. Since then, he has served in many national and international health organisations, including the World Health Organization and the Latin America Association of Dental Schools.

“I am very happy to lead the FDI as president over the next two years. The organisation is, of course, the voice of dentistry, but more so, it is a means of empowering dentists to think about oral health on another level, for the benefit of the greater population,” Dr Vianna said. “I would like to contribute and help spread the FDI message; to accomplish the objectives expressed in our mission. The FDI is a strong organisation that continues to improve.”
Dear reader,

How is your practice doing? If the answer to this question is ‘fine’, chances are high that you are living in a part of the world where people still visit their dentist on a regular basis. Unfortunately, the same cannot be said for all members of the profession. Latest reports suggest that more and more patients around the world are postponing their dental visits due to recession-related financial problems. In the UK, for example, almost one million less people have had their teeth checked since 2008. More than 60 per cent of 1,000 adults in the US have also cut back on dental visits and similar reports are now coming from Australia.

These numbers are of significant proportions. They not only indicate a considerable loss of income for dentists and perhaps even the closing of some dental offices, they are also a setback for those who are constantly fighting to bring the oral health message into the minds and attitudes of people. Whether these reports are drawing a realistic picture or not, they certainly demonstrate that many people do not consider their oral health as something to watch over at the moment.

Organisations like the World Dental Federation or the WHO have tried to raise awareness for the need of dental care to be an essential part of primary health care services in the last few years. Unfortunately, their achievements could be in vain since governments are changing their priorities and leaving health behind in order to balance national budgets. Therefore, joint efforts of politicians, health care professionals and, up and foremost, dentists are necessary to convince people to invest in their oral health again.

Free dental missions may be a good tool to help a few people but they are like giving lessons to a child that doesn’t want to learn. Out of sight is out of mind.

Yours sincerely,
Daniel Zimmermann
Group Editor
Dental Tribune International

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**Stem-cell based dental implants for tooth replacement**

Andrea Mantesso
Brazil

Understanding the properties of mesenchymal stem cells is a fundamental goal in stem cell biology and a growing number of studies demonstrate the presence of stem cells in various tooth areas. Dental stem cells have been isolated from the dental pulp of deciduous and permanent teeth, the periodontal ligament, the dental follicle, and the root apical papilla. These cell populations reside in low numbers in the teeth and have differing capacity to form tissues. They are not only diverse in terms of origin, but may also behave differently depending on the techniques used for their isolation and on the culture conditions. Thus, the analysis of their properties is very complex and they are not yet fully understood.

These cells are undoubtedly potential sources of cells for tissue engineering and dentistry. For this, two main goals could be achieved: the repair of partially lost dental structure and the creation of a new, complete biological tooth.

Tooth loss is a common consequence of many dental diseases, especially amongst the ageing population. The current replacement methods for tooth loss include artificial dentures and metal implants. This replacement of a naturally occurring physiological tissue with an artificial material has been used in dentistry since antiquity without significant changes to the implantation procedure, only changing the synthetic materials used.

Diverse techniques for creating a biological tooth have been described in the literature. For this, some have used a combination of scaffolds built in the shape of a tooth seeded with stem cells. Others have used different combinations of cell types, including non-dental stem cells with the capacity to form bio-teeth. The process of forming bio-teeth can be complex, as various materials can be used as scaffolds, cell numbers can be varied and alternative methodologies can be used to aggregate these cells.

The use of dental stem cells indicates a new paradigm in dentistry and will revolutionise the way we practise dentistry. In the future, dentists may be able to isolate and manipulate live cells and the entire environment of a dental surgery will be adapted to fit these procedures. Patients will be accorded the opportunity to have fully functional and longer-lasting teeth that perfectly match their existing teeth. Bio-teeth will provide a less invasive and thus better alternative to artificial implants, as the procedure for implanting a small aggregate of cells is simple and will generate an organ with all the necessary tissues, such as the periodontal ligament and the dental pulp.

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**“The use of dental stem cells indicates a new paradigm in dentistry”**

(Dr Andrea Mantesso is currently working as a lecturer in the School of Dentistry at the University of São Paulo in Brazil. She can be contacted at mantesso@usp.br.)

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**Dental Tribune Asia Pacific Edition**

Opinion

**On dentine hypersensitivity in Malaysia**

Dr Lee Soon Boon
Malaysia

The Malaysian Dental Association (MDA) views the high prevalence of dentine hypersensitivity, reaching 35 per cent of the adult population, in Malaysia with great concern. Atwo-pronged approach was planned in collaboration with GlaxoSmithKline (GSK) Malaysia earlier this month to address the concern: firstly, by educating the Malaysian electronic and media on the relevant facts regarding dentine hypersensitivity, in order to encourage dissemination of accurate information about the problem to the Malaysian public for improved preventive and treatment care; and secondly, by inviting international experts on dentine hypersensitivity to speak to Malaysian dental professionals, in order to inform them of the latest preventive measures and effective clinical management of dentine hypersensitivity.

The MDA and GSK Malaysia & Singapore lectured intensively on aetiological factors, such as endogenous and dietary acids, traumatic tooth-brushing, habits and other predisposing factors. Effective combinations of home use of desensitising dentifrices and an array of in-clinic treatment modalities were highlighted to help patients suffering from dentine hypersensitivity. Measures for the early detection of dentine hypersensitivity and preventive measures to avoid exposure of the dentine layer of the teeth were also advocated to the general public.

It was generally acknowledged that dentine hypersensitivity is not fully appreciated by many dental practitioners in Malaysia, resulting in cases of early or minimal sensitivity not receiving appropriate treatment until they worsen. Thus, it was determined that the MDA, in working towards providing optimal oral health care to the nation, must partner dental professionals with the most up-to-date knowledge and skills regarding the clinical management of dentine hypersensitivity. This will be done in the form of a two-day scientific meeting from 16 to 17 January 2010, at which eminent international experts on dentine hypersensitivity will share their expertise with Malaysian dental professionals.

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**Contact Info**

Dr Lee Soon Boon is currently serving as the President of the Malaysian Dental Association. He can be contacted at info@streamyx.com.
MIAMI, FL, USA: A 60-year-old patient from the US has recovered her sight after surgeons in Miami implanted one of her teeth in her eye. This surgical procedure was a first in the US and undertaken at the Bascom Palmer Eye Institute at the University of Miami’s Miller School of Medicine, where the patient’s eye tooth was implanted as a base to hold a prosthetic lens. The patient was blinded in 2000 by the effects of Stevens-Johnson syndrome, a severe adverse reaction to common drugs, causing burning, blistering and sloughing of skin and involved tissue. It also frequently causes blindness, and results in 100,000 deaths per year worldwide.

Dr Victor L. Perez, Associate Professor of Ophthalmology at the Bascom Palmer Eye Institute, and his interdisciplinary team performed a modified osteo-odonto-keratoprosthesis (MOOKP) procedure, a complex surgery that had until now been available only in a limited number of eye centres in Europe and Asia. Developed by the Italian ophthalmologist Prof. Benedetto Strampelli in the 1960s, MOOKP has proven effective as a solution to end-stage corneal disease, in which severe corneal scarring blocks vision and corneal transplants are no longer an option but the eye’s internal structures and optic nerve remain healthy.

“For certain patients whose bodies reject a transplanted or artificial cornea, this procedure ‘of last resort’ implants the patient’s tooth in the eye to anchor a prosthetic lens and restore vision,” explained Dr Perez.

In MOOKP, an extracted tooth and surrounding bone are shaved and sculpted, and a hole is drilled to insert an optical cylinder lens. In order to bond the tooth and lens as a bio-integrated unit, they are implanted under the patient’s skin in the cheek or shoulder. The eye specialist then prepares the surface of the eye for implantation of the prosthesis, by removing scar tissue surrounding the damaged cornea.

About one month later, mucous material is collected from the inside of the patient’s cheek and used to cover and rehabilitate the surface of the damaged eye. In the final phase, the prosthesis is removed from the cheek or shoulder and implanted in the eye. The prosthesis is aligned with the centre of the eye, and a hole is made in the mucosa for the prosthetic lens, which protrudes slightly from the eye and enables light to enter the eye, allowing the patient to see again.

“The procedure will help countless of people in the US to regain sight,” said Dr Eduardo C. Alfonso, chairperson of the Bascom Palmer Eye Institute. “Thanks to the work of Dr Perez’s team, patients in the US now have access to this complex surgical technique.”

To the Editor

Re: ‘FDA says mercury dental fillings not harmful’ (Dental Tribune Asia Pacific No. 7+8, Vol. 7, page 5)

Pennsylvania is the second most polluted state in the US, especially in the eastern part of the state. This is due to the large amount of coal burned by power plants, factories, private homes, and the Centralia coal-mine fires. The residents are exposed to more mercury from breathing the air and drinking the water than from the silver fillings. And if all that mercury is leaking out of the fillings, why are they not falling apart? I have some 40-year-old fillings still intact. I’ve been around mercury for at least 42 years, counting dental school, the Naval Dental Corps and private practice, and do not have any of the symptoms ‘the chicken littles of the mercury sky is falling’ talk about. I would guess that dentists and dental assistants would have the greatest exposure, why aren’t we dropping like flies? Dale C. Resue, USA, 13 Sep., 2009
Head and neck cancer may aggravate periodontitis

Claudia Salwiczek

HONG KONG/LEIPZIG, Germany: New findings from the US have shown that chronic periodontitis might represent a clinical high-risk profile for head and neck squamous cell carcinoma. The strength of the association was greatest in the oral cavity, followed by the oropharynx and larynx, suggesting the need for increased efforts to prevent and treat periodontitis as a possible means of reducing the risk of this form of cancer.

Head and neck cancer figures have increased, especially in regions like Southern Asia. Each year there are approximately 400,000 cases of cancer of the oral cavity and pharynx, with another 160,000 cases of cancer of the larynx worldwide, resulting in approximately 500,000 deaths. The main risk factors for these cancers are tobacco and alcohol use.

The researchers from the University of Buffalo assessed the role of chronic periodontitis on head and neck squamous cell carcinoma, as well as the individual roles on the oral cavity and oropharyngeal and laryngeal sub-sites. They used radiographic measurement of bone loss to measure periodontitis among 463 patients, of whom 207 were controls. When they stratified the relationship by tobacco use, they found that the association persisted in those patients who had never used tobacco.

“Confirmatory studies with more comprehensive assessment of smoking, such as duration, quantity and patterns of use, as well as smokeless tobacco history are needed,” said Dr Mine Tural, Assistant Professor in the Department of Oral Diagnostic Sciences in the School of Dental Medicine at the University at Buffalo. “Our study also suggests that chronic periodontitis may be associated with poorly differentiated tumour status in the oral cavity. Continuous stimulation may be responsible for this histological type.”

UK releases guideline on child neglect

Claudia Salwiczek

COVENTRY, UK/HONG KONG/LEIPZIG, Germany: A new policy urging dentists to check for tell-tale signs of neglect when treating children with severe oral disease has recently been published for the British Society of Paediatric Dentistry. The document, thought to be the first of its kind in Europe, is the result of a collaboration between the University of Warwick, University of Sheffield, and Leeds Dental Institute. It details the numerous factors that need to be taken into account when assessing a child with suspected dental neglect and given guidance on how the dental team should respond.

According to Dr Peter Sidebotham, co-author of the document, there is evidence which indicates that abused children have higher levels of untreated dental disease than their non-abused peers. Many dentists have taken part in child protection training, but still find it difficult to identify the tell-tale signs of neglect when encounters with children. Dental neglect can be indicative of a wider welfare picture, and, if necessary, to make child protection referrals,” Dr Sidebotham added.

“I am impressed by how much dentists already do to educate and support parents. But when concerned that a child is suffering, perhaps as a result of missed appointments, I would always encourage them to seek advice from other health professionals experience in child protection and, if necessary, to make a child protection referral,” Dr Sidebotham added.

Dental neglect, which is defined as the persistent failure to meet a child’s basic oral health needs, can have a significant impact on the health of a child with consequences including severe pain, loss of sleep, and even reductions in body weight and growth. Additionally, dental neglect can be indicative of a wider welfare picture of child neglect and abuse and the policy states that dentists should refer cases to child protection services if they have concerns.
EDINBURGH, UK: Delegates at the General Assembly of the 14th Biennial Congress of the European Society of Endodontology (ESE) in Edinburgh have elected former ESE secretary Prof. Claus Löst from Germany as their new president. He will succeed incumbent president Prof. Gunnar Bergenholtz from Sweden at the beginning of 2010. Prof. Löst is currently Clinical Director of the Center of Dentistry, Oral Medicine and Maxillofacial Surgery at the Tübingen University Hospital in Germany.

Delegates were also asked to select a site for the 2013 ESE congress, which has received bids from member societies in France, Portugal and Spain. Furthermore, the Executive Board has proposed the co-funding of a symposium in July 2010 with the Pulp Biology and Regeneration Group of the International Association for Dental Research, which will address the topics of inflammation and regeneration.

ESE, founded in April 1982, is a federal organisation representing national endodontic and dental societies in 27 European countries. This year’s congress, which was the second held in the UK (the first was the London congress in 1993), saw a record attendance of over 1,400 endodontic specialists from Europe.

New organisation makes dentists ‘cone-beam-ready’

The International Cone Beam Institute (ICBI) is a new independent organisation of cone-beam computed tomography (CBCT) experts that aims to provide the highest level of education, training and product information for 3-D technology to dental professionals worldwide.

As a vendor-neutral organisation, it is an industry first for a company to provide information to dental professionals, future imaging centres and vendors at an international level. General information, such as the various cone-beam scanners available in the US and international markets, as well as general information on available third-party software, will be available to everyone without charge. ICBI also provides in-depth and customised vendor analysis to help practitioners understand this comprehensive technology.

Members of ICBI’s website (www.exploreconebeam.com) are able to review case studies and gain advice from CBCT experts. They also have access to special consulting services, online training and training seminars. In addition, ICBI offers a connection to oral maxillofacial radiologists who can provide reading services to aid in the interpretation of CBCT scans. The organisation also has a blog where users can exchange case studies, ideas and techniques regarding capturing the highest quality images.

The International Congress of Oral Implantologists, the world’s largest implant education organisation, fully endorses the ICBI. Partners of ICBI include Dental Tribune International and the Dental Tribune Study Club.

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– Dr. James R. Harold

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The congress provided an ideal forum to further strengthen FDI’s relationships with member associations, corporate partners and contributing specialists. During the National Liaison Officer (NLO) Lunch on 2 September, three of four contributing authors to "The Oral Health Atlas" made a brief presentation about the research involved in compiling this new FDI advocacy tool, which was officially released later that day. I was delighted to learn about all the University announcement: Unilever has renewed its partnership with FDI on the Live Learn Laugh programme for another three years, to continue developing oral health projects for communities in need.

The Welcome Ceremony was a special evening for me, Singapore's Health Minister, Mr Khaw Boon Wan, delivered an inspiring account of the positive impact to the continuing education initiatives. I would like to express my heartfelt thanks to the many individuals and organisations involved in creating this FDI advocacy tool.

The annual WOHD is an opportunity for diverse segments of the population to reflect upon their own situations when it comes to managing oral health and 'The Oral Health Atlas' is designed to illustrate oral health globally. Using short texts, colourful maps, graphics and images, along with statistics and facts, the atlas presents a global picture of oral health in a visually intuitive and easy-to-understand format.

Following the official release at congress, the Singapore Dental Association announced it would purchase copies of 'The Oral Health Atlas' for distribution to public libraries across the city state. Other member associations have demonstrated interest in translating the atlas for readers within their regions.

The FDI General Assembly adopted three new and nine revised FDI Policy Statements at the 2009 Annual World Dental Congress.

New Policy Statements
- Dentin Hypersensitivity
- Endodontal and General Health Problems of the Elderly
- The Use of Academic, Professional and Honorary Titles

Revised Policy Statements
- The Association between Oral Health and General Health
- Dental Bleaching Materials

FDI launches new Oral Health sourcebook

Participants and delegates of the 2009 congress joined incoming FDI President, Dr Roberto Vianna, FDI Executive Director, Dr James Alexander, and authors Roby Beaglehole, Habib Benzian and Jon Crail, at the FDI Pavilion for the official release of FDI’s new ‘Oral Health Atlas’, in commemoration of World Oral Health Day (WOHD) on 12 September, 2009.

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FDI Policy Statements

- Effect of Masticatory Efficiency on General Health
- Fluoride in Restorative Materials
- Infection Control in Dental Practice
- Post-Exposure Prophylaxis for HBV, HCV and HIV
- Research

The FDI Policy Statements on Dental Unit Water Lines and Tuberculosis and the Practice of Dentistry were withdrawn at General Assembly B and Open Forum 1, respectively.

2009 FDI elections

There were two seats open for election on the FDI Council, including President-Elect, and ten seats open for election on the Committees at the 2009 FDI Annual World Dental Congress. In total, 26 nominations were received for the available positions, with four nominations for Council positions and 22 nominations for Committee positions.

Congratulations and welcome to the following FDI Council and Committee members who were elected in Singapore.

FDI Policy Statements

- Effect of Masticatory Efficiency on General Health
- Fluoride in Restorative Materials
- Infection Control in Dental Practice
- Post-Exposure Prophylaxis for HBV, HCV and HIV
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FDI head office relocates to Switzerland

The FDI has relocated its global headquarters to Geneva, Switzerland, completing the final stage of a plan that has been several years in the making. The driving forces for the move were logistical and financial: the FDI sought to be in a country where it could conduct business as a single entity—versus the current structure of 10 distinct companies—which could also offer favourable taxation and simplified management accounting on commercial activities.

What makes dental professionals smile

The winners of the 2009 FDI Wrigley Jr. Company Photographic Award were announced at a reception hosted by the two organizing associations in Singapore on 5 September.

They are:
- Sagar Abichandani (India) — “Evaluation of the Quality of Root Canal Fillings in Mumbai, India”
- Myat Nyan (Japan)—“Effects of simvastatin and alpha-tricalcium phosphate combination on the early healing of bone defects”
- Yun-Ching Chang (Chinese Taipei) — “Study of invasion patterns of oral squamous cell carcinoma with a new device of modified grading system”
- Victor T.W. Fan—“Abnormal Bone Preservation and Augmentation with scaffold for implant therapy”
- Manisha Kukreja—“Comparative evaluation of hand wrist radiographs with cervical vertebrae for skeletal maturation in 10–12 year old children”
- Mohammad Al-Sabbagh—“Genetic variations in periodically involved smokers”

More than 120 submissions were received by the FDI for the competition this year. The best posters were selected as finalists prior to the congress and were then invited to present their posters and research to a panel of judges, followed by a question and answer session at the congress. All winners received a free registration to a future FDI Annual World Dental Congress and $1,000 US for photographic equipment, a one-year subscription to the International Dental Journal, and a year’s supply of Wrigley’s sugarfree chewing gum.

Meeting of the Section Defence Forces Dental Services (SDF(S)) in Singapore

On 31 August, Brigadier General (Dr) Benjamin Seet, Chief of the Singapore Armed Forces Medical Corps, officiated at the Opening Ceremony of the Military Programme for the 2009 FDI Annual World Dental Congress. The meeting, which attracted more than 50 military dentists from 18 countries, provided a forum for military dental officers to discuss scientific and military dental issues.

In his opening address, Brig. Gen. (Dr) Benjamin Seeit emphasised the relevance of this year’s theme: Dental Healthcare for the Next Generation of Armed Forces. With healthcare services of many armed forces transforming to meet a wider spectrum of geographical and military challenges, this meeting offered participants an opportunity to network and share knowledge about advancing military dentistry and providing better oral care for soldiers and servicemen.

Among the speakers presenting at the congress were Colonel (Dr) Tan Peng Hui, Commander of the Singapore Armed Forces Medicine Institute; Major General Zhao Yimin, Vice-Dean of the School of Stomatology, China Fourth Military Medical University; Colonel Robert Halle of the US Army Institute of Surgical Research, and Police Colonel Peter Sahelangi. A wide range of topics were discussed during the two-day Military Programme, including oral trauma care, forensic remains identification, field dentistry and dental fitness of soldiers.
Dental companies use digital dentistry to bolster recession-bruised revenues

PS. Newswire

WALTHAM, MA, USA: According to Millennium Research Group (MRG), many top competitors in the global dental implant market are leading the growing movement toward the use of digital dentistry. MRG’s Global Competitor Insights for Dental Implants 2009 report finds although 2008 was tumultuous year in the dental implant market, many leading dental implant companies continued to invest in digital dentistry, entering into a series of partnerships and acquisitions, with the goal of emerging from the economic crisis as innovative market leaders in the burgeoning field.

The recent partnerships and acquisitions involve firms that have an established competency and reputation for quality digital imaging and computer-assisted manufacturing. Also garnering attention are product developments in guided surgery planning software, custom-milled abutments, and prosthetics using CAD/CAM technology, which provide additional revenue streams, particularly because they work to improve the turnaround time for dentists.

“One of the many collaborations that took shape over the course of 2008 was CAMLOG Biotechnologies’ work with Sirona Dental Systems and their joint release of custom-milled zirconium abutments for CAMLOG dental implants,” says Kevin Frewelling, Manager of MRG’s Orthopedics and Dental divisions. “Meanwhile, companies like Nobel Biocare are already making improvements to previously-released CAM/CAM Procera software; it will be interesting to see which competitors will be at the forefront of digital dentistry once economic conditions improve.”

MRG’s Global Competitor Insights for Dental Implants 2009 report serves as a tool for evaluating the performance of the top ten companies in the global dental implant market. Each chapter focuses on a leading competitor, and includes an examination of global dental implant and final abutment sales segmented by device and region. Each chapter also contains a detailed account of company history, recent events and strategies, as well as a critical discussion of each competitor’s strengths, weaknesses, opportunities, and threats (SWOT analysis).

(Edited by Daniel Zimmermann)

Oemus Media acquires German operations from Dental Tribune International

Daniel Zimmermann

LEIPZIG, Germany: Oemus Media, one of the leading dental publishers in Germany, has announced to take over all existing German operations from Dental Tribune International beginning January 2010. The agreement includes the print and online editions of Dental Tribune Germany including all supplements, the trade showcase publication today IDS as well as two international speciality titles for endodontists and aesthetic dentistry. Financial terms of the agreement were not disclosed.

Oemus Media will also launch the German version of Dental Tribune’s online education platform DT Study Club, which offers interactive continuing education and live webcasts to 10,000 members worldwide.

The acquisition is expected to strengthen Oemus’ position as market leader in Germany. Founded in 1992, the publisher based in Leipzig has a portfolio of 30 dental titles for specialists and GPs. Oemus also organises over 25 dental congresses, symposia, and dental exhibitions throughout Germany. ☛

New orthodontic education programmes in Asia

Daniel Zimmermann

HONG KONG/LEIPZIG, Germany: Progressive Orthodontics is expanding its course offerings in Asia. The US-based provider of orthodontic education programmes has announced that within the next six months it will extend its core two-year programme, Comprehensive Orthodontic Training, to Beijing, China, and Kuala Lumpur, Malaysia. Free one-day introductory classes will also be held this year in Bangkok, Thailand, Ho Chi Minh City, Vietnam, Shanghai, China, Beijing, Hong Kong, and Kuala Lumpur. Interested dentists from these countries are invited to register for the free class on Progressive’s web site.

“Asia’s dentists use cutting-edge technology and strive to become leaders in the quality of dental care,” a company official told Dental Tribune Asia Pacific. “Now they can use Progressive’s world-class system to take their practices to the next level by working with leading instructors from around the globe and with the latest technology and diagnostic systems.”

Progressive Orthodontics is a complete dental continuing education centre based in Alto Viejo in the US, and claims to have educated over 5,000 dentists from 23 locations worldwide on modern, predictable and high quality orthodontic care. Their core live programme consists of twelve, four-day seminars and an Internet-assisted training programme with 300 hours of self-study and live modules (three seminars totalling ten days).

An exciting and prestigious role with an international education team

Dental Protection Limited

Dental Protection Limited (DPL) is the world’s leading indemnifier of dental professionals, covering more than 55,000 members worldwide. As part of our commitment to improved professionalism, quality and safety, DPL is embarking on a new phase of expansion in order to meet the increasing needs of dental professionals in the coming decades. There is an opportunity for dentists in Hong Kong, Malaysia and Singapore with an interest and expertise in communications and risk management to join our world-class dental facility to become a team member. Presenting risk management and communication programs to your clinical colleagues as a DPL faculty member is an exciting and prestigious role that can enhance your reputation as a professional expert.

DPL is a not-for-profit organisation and provides full-time, free of charge risk management and education programs to all DPL members. Presenters position would suit either full time or part time dentists looking for regular weekend or mid-week work.

Applicants must:• Be a dental graduate with significant post graduate experience• Have experience in training, education and/or presenting• Have extensive experience in one or more of the following areas: dental educators, communication skills training, formal post graduate psychological counseling training and risk management or dental-legal experience linked with a dental protection organisation or dental facility• Be based in Hong Kong, Malaysia or Singapore.

Both local (overnight) and international travel may be required.

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“We are committed to improving dentistry worldwide”

A short interview with Dr Noriyuki Negoro, the new president of SHOFU, Inc.

Dr Noriyuki Negoro, who was appointed president of SHOFU on 25 June, has worked at the company for more than 25 years. As a researcher, he developed such successful products as Solidex and Ceramage. Dental Tribune Asia Pacific in cooperation with FDI World Dental Daily spoke to him as the first dental publication about how he and his company are planning to contribute to better oral health worldwide.

DTW: Dr Negoro, you worked as a researcher before your appointment as president of SHOFU. How has oral health care and thus demands for oral care products changed in recent years?

Dr Noriyuki Negoro: Recent media coverage on cosmetic dentistry has highlighted the importance of maintaining good oral hygiene. It has demonstrated that a healthy beautiful smile has a positive psychological impact and influences the overall well-being of an individual. For this reason, it is essential that innovative oral care products are developed that cater to the trends and demands of dentistry today.

How does this knowledge influence your work as president of SHOFU?

With the well-equipped research facilities at SHOFU, we constantly strive to develop products that cater to the global trends in dentistry and dental technology. SHOFU recognizes the introduction of new clinical techniques such as MiCD, which is a holistic approach that integrates minimally invasive treatment techniques with aesthetic dentistry, and supports such techniques by developing new aesthetic bio-compatible materials to help clinicians achieve their goals.

As the new president of SHOFU, how do you intend to contribute to the improvement of oral health worldwide?

In particular, we plan to expand the range of Girion products, which were developed in my R&D days based on the patented PRG (pre-reacted glass-ionomer) technology, with the ability to release and recharge fluoride, as well as a unique anti-plaque effect. I believe that with this novel technology, we will be able to further develop our range of aesthetic bio-compatible products and to venture into a range of preventive products. We plan to introduce in vitro diagnostic and testing equipment for periodontology in the very near future.

In your opinion, what is the general role of the dental industry in the promotion of oral health care?

In this era, in which dentistry is evolving at a great pace, caries management and cosmetic dentistry are gaining prominence. We are committed to improving dentistry worldwide through our enhanced R & D work, creative corporate activities and continuous education programmes.

Thank you very much for this interview.

(DTAW) Dr Negoro, has worked at the company for almost 50 years. In 1960, he joined the Japanese dental manufacturer to establish an export operation overseas and became the first manager of J. Morita’s US Liaison Office in Los Angeles. From 1988 to 1998, he served as Executive Director for the International Division and the Consumables Division in Japan.

# Selling Brand

Masuda receives idm lifetime achievement award

Daniel Zimmermann

DTI

SINGAPORE/BENSHEIM, Germany: International dental manufacturer (idm) has awarded Jiro Masuda from J. Morita Corporation with a lifetime achievement award.

According to company officials, NobelProcer is supported by 15 years of clinical experience and research, with the production of more than 8 million single NobelProcer copings. NobelProcer will continue this legacy with extended material and prosthetic options, they added.

A broad range of new custom or standard design overdenture and screw-retained bar solutions, as well as new materials such as cobalt chrome for crowns and bridges, are also available.

DTI

Nobel launches new digital scanner and software in Asia

DENTAL TRIBUNE Asia Pacific Edition

Participants at the NobelProcera launch in Singapore watching a presentation by Hans Geiselhöringer, Global Head of NobelProcera and Digital Dentistry. "With NobelProcera we are reinforcing our commitment to dental laboratories and dental professionals, by being a full-solutions provider who is exclusively science-based, going beyond clinical and aesthetic patient requirements," said Hans Geiselhöringer, Global Head of NobelProcera and Digital Dentistry.

"This is an important development for general and restorative dentists, who aim to provide their patients with better fitting, stronger and more natural-looking, beautiful aesthetics," said Hans Geiselhöringer. NobelProcera can design and fabricate prosthetics for every clinical indication and treatment option, from single tooth to full mouth.

"NobelProcera is offering clear benefits for dental laboratories through outsourcing of the manufacturing process," he explained further.

The new NobelProcera scanner utilises conspecific holography, a technology formerly used in the aerospace and automotive industries. Supporting the scanner is a cutting-edge 3-D prosthetic design software developed by Canadian company BioCad, which NobelProcera has acquired in 2008, as well as an assortment of shaded zirconia, including abutments, copings, bridges and implant bridges.

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Smile Design Wheel™: A practical approach to smile design

Dr. Sushil Kotecha

Modern trends in cosmetic dentistry and media coverage of smile makeovers have increased public awareness of dental aesthetics. People now know that smile aesthetics plays a key role in their sense of well-being, social acceptance, success at work, and in relationships, and self-confidence. The aesthetic expectations and demands of dental patients have increased substantially. Now, a glowing, healthy and vibrant smile is no longer available only to millionaires and movie stars. Therefore, many dentists are incorporating various smile design protocols in their practices, with the increasing aesthetic demands of their patients.

Smile aesthetics

A smile is a facial expression that is closely related to the emotions and psychological state of a person. A smile is exhibited when a person expresses happiness, pleasure or amusement. It is evident that each individual has a different expression and is essential in expressing friendliness, agreeability, and appreciation. A smile requires the coordination of facial, gingival and dental components that are stimulated voluntarily or involuntarily by various emotions. It is evident that each smile is different and particular to each individual. An impaired smile on the other hand, has been associated with high incidences of depressions.

Aesthetics deals with objective and subjective beauty. Objective beauty is based on the appreciable properties possessed by the object itself. However, subjective beauty is relative to the perception and emotion of the observer person. Perception, however, in smile aesthetics is based on personal beliefs, cultural influences, aesthetic trends and fashion, and input from the media. Hence, smile aesthetics is a multifactorial issue, which needs to be adequately addressed for any aesthetic treatment. The objective beauty of a smile can be established with the application of various principles of smile design, and the creation of subjective beauty may enhance cosmetic value.

Smile design

Smile design has been defined in various ways in the literature; I would like to summarise it as follows: “Smile design is a systematic process governed by the psychology, health, function and rules of natural aesthetics to bring about some changes in soft- and hard-oral tissue within anatomical, physiological and psychological limitations, thereby creating a positive influence on the aesthetics of a person’s face and personality as a whole.”

We all appreciate a beautiful smile when we see it, but it is difficult to explain exactly what makes a smile beautiful. It is evident that a pleasing smile depends on the following features: the quality of the dental and gingival components, their conformity to the rules of structural beauty, the relationship between teeth and lips, and their harmonious integration with the facial components. Overall facial beauty and smile aesthetics are normally judged by psychological aspects—perception, personality, desire—the state of health, the mathematical ratio of the facial, dento-facial and dento-gingival components. The psychological aspects are highly subjective and fluctuate constantly because of identity, peer and media pressure. Hence, the only objective method of aesthetic analysis is mathematical.

Indeed, mathematics has been considered the only frame of reference for comprehending nature. Therefore, the cosmetic dentist needs to be familiar with various mathematical and geometric concepts for achieving smile aesthetics and their clinical protocols.

The Smile Design Wheel

For any smile design procedure, the clinician needs to consider the elements of the smile design—pyramids—psychology, health, function and aesthetics (PHFH), listed here according to order of importance. It is necessary to determine the patient’s psychological status, establish a healthy oral environment, restore function and then give attention to enhancing the aesthetic aspect. All four pyramids should be accorded equal importance to achieve a desirable clinical result.

By integrating these PHFH pyramids, I developed the Smile Design Wheel (Fig. 1), in which each pyramid is subdivided into three related zones. The Smile Design Wheel was devised as a simple guide to the most important components of smile design, their clinical significance and sequence to be maintained during the smile design procedure. I believe that the Smile Design Wheel will help clinicians to easily comprehend the ‘complete’ smile design procedures of aesthetic dentistry. In the next section, I briefly explain the Smile Design Wheel protocols with PHFH pyramid assessment and their basic objectives.

Step 1: Understanding the pyramid of psychology

According to Prof. Robert A. Baron, psychology is best defined as the science of behaviour and cognitive processes. Behaviour deals with any action or reaction of a living organism that can be observed or measured. Cognitive processes deal with every aspect of our mental life—the thoughts, memories, mental images, reasoning, decision-making, and so on, in short, with all aspects of the human mind.

In smile design, we normally try to understand the second part of psychology, i.e. the human mind or rather the minds of our patients. There are three fundamental mental zones we consider in detail for the psychological pyramid assessment: perception, personality and desirability.
tient satisfaction is closely related to these aspects. Hence, understanding the pyramid of psychology is an integral aspect in smile design.

Step IV: Enhance —

The pyramid of aesthetics

The pyramid of aesthetics is the last but most sensitive pyramid of the Smile Design Wheel, as aesthetics has both subjective and objective aspects. The assessment of the subjective aspects — perception, personality, desire — is carried out during the pyramid of psychology assessment. However, the assessment of the objective aspects depends on the distance (focal length) used to visualise the aesthetic component. Hence, the aesthetics pyramid can broadly be divided into three major zones: macro, micro, and mini.

Macro-aesthetics

Macro-aesthetics deals with the overall structure of the face and its relation to the smile (Fig. 2). To appreciate the macro-aesthetic components of any smile, the visual macro-aesthetics distance should be more than five feet. However, in clinical practice the assessment of the macro-aesthetic components is done using various facial photographs with geometric and mathematical appraisals, using reference points and their inter-relation. Various facial reference points and guidelines are used for aesthetic assessment for orthognathic and facial cosmetic surgery; however, in smile design the following macro-aesthetic guidelines are considered fundamental:

- facial midline;
- facial thirds;
- interpropillary line; and
- skeletal E-plane.

Mini-aesthetics

Mini-aesthetics deal with the aesthetic correlation of the lips, teeth and gums at rest and in smile position (Fig. 5). The aesthetic correlation can be appreciated properly when viewed at a closer distance than the visual macro-aesthetics distance.

The visual mini-aesthetics distance is similar to the across-the-table distance, which is normally within two to five feet. There are various guidelines in aesthetics based on the relationship and ratio between lips, teeth, and gingival tissue. These can be assessed during mini-aesthetic assessment using frontal, vertical, and transverse characteristics of the smile. Clinical photographs are the basic tools for mini-aesthetic analysis. The smile can be analysed at rest (M-position) or smile (E-position).

In the M-position, the following references are measured and analysed:

- commissure height;
- philtrum height; and
- visibility of the maxillary incisors.

In E-position the following references should be analysed:

- smile arc (line);
- dental midline;
- smile symmetry;
- upper centrals (tooth size ratio);
- display zone and teeth visibility;
- smile index; and
- lip line.

Micro-aesthetics

Micro-aesthetics deal with the fine structure of dental and gingival aesthetics (Fig. 4). Mini-aesthetics can be appreciated at a visual micro-aesthetic distance of less than two feet or within normal make-up distance. For the clinical assessment of micro-aesthetic components of the teeth and gingival tissue, appropriate illumination and magnification tools are required for intra-oral examination. Necessary clinical intra-oral photographs should be taken for documentation and future reference.

For micro-aesthetics, the detail of the individual tooth structure and its relation to the surrounding gingiva and the adjacent teeth should be analysed. The following are the major points to be considered:

- upper centrals (tooth size ratio);
- principle of golden ratio;
- axial inclination;
- incisal embrasures;
- contact point progression;
- connector progression; and
- shade progression; and
- surface micro-texture.

In smile design, the aesthetic conditions related to gingival health and appearance are an essential component. The gingival shape, position, embrasure, and contour in relation to the teeth are interdependent. The following are major aspects that should be addressed during smile design to achieve gingival or pink aesthetics:

- gingival shape;
- gingival contour;
- gingival embrasure;
“Most people are worried it is often something worse.”

Dr Nick Rote. East Finchley, UK

1 in 3 people suffer from dentine hypersensitivity and over 50% of sufferers don’t mention it to their dental professional.\(^1\) Research shows that this may be because they fear it requires major dental work, the pain may be variable so they don’t report it or because they may be using techniques to try and avoid the pain.\(^2\)

These findings highlight the important role that dental professionals play in actively diagnosing dentine hypersensitivity.

Recommended daily brushing with Sensodyne is a simple, effective solution which is clinically proven to reduce the symptoms of dentine hypersensitivity.

“When they come back to see me next time, they’re very pleased that the solution was given to them so easily.”


\(^2\) Canadian Advisory Board on Dentin Hypersensitivity, Consensus-Based Recommendations for the Diagnosis and Management of Dentin Hypersensitivity, J Can Dent Assoc 2003; 69A: 221 - 226

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DAILY PROTECTION FROM THE SYMPTOMS OF SENSITIVE TEETH
Reconstruction and rehabilitation of a compromised single-tooth gap in the anterior maxilla with a moderately high smile line

Straumann’s SLActive, launched in 2005, is an innovative dental implant surface technology, that has clinically been proven to reduce healing times by half to just three to four weeks. The technology is said to minimise the stability dip in the critical early stage of healing and increase implant stability. The following reconstruction and rehabilitation of a compromised single-tooth gap in the anterior maxilla (moderately highly smile line) with the help of SLActive implants was performed by Dr Ken Tan and Dr Alvin Yeo from Singapore.

A 42-year-old male patient, who is a non-smoker with good general health, was referred to us for management of a localised, recurrent periodontitis on his upper right canine (tooth #13).

Pocket depths of 11 to 12 mm were recorded for the distal aspects of tooth #13 with initial signs of pulpal involvement. In addition, the tooth presented with a mobility of Class II. The tooth was deemed unsalvageable and indicated for extraction (Fig. 1). Radiographic examination revealed a localised, severe vertical (through-and-through) defect on the distal of the tooth (Fig. 2).

Three months after extraction, the missing gap site healed uneventfully but demonstrated a severe horizontal ridge defect (Figs. 3–4). A staged guided bone regeneration (GBR) approach utilising an autogenous block graft was indicated to augment the loss of horizontal alveolar ridge prior to the placement of a dental implant.

Radiographic examination of tooth #13 three months after extraction revealed relatively intact adjacent proximal bone with a slight loss detected at the mesial aspect of tooth #15 (Fig. 5).

Once anaesthesia was achieved, a mid-crestal incision was performed with vertical relieving incisions made at the mesial and distal line angles of teeth #12 and #15, respectively. A full thickness micro-periosteal flap was raised with all granulation tissue carefully removed. As expected, a distinct concavity was noted on the facial aspect of tooth #13 (Fig. 6).

An autogenous block graft (12 x 6 x 5 mm) was harvested from the patient’s lower right ramus region, and subsequently positioned and secured using a fixation mini-screw at the tooth #15 recipient site (Fig. 7).

This was followed by placement of additional autogenous bone chips and a demineralised bovine bone substitute for appropriate contour bone adaptation around the secured block graft (Fig. 8). Thereafter, a resorbable collagen membrane was placed over the newly augmented site (Fig. 9).

Prior to flap closure, a periosteal incision was made to ensure a tension-free flap. Wound margins were then re-approximated and closed with interrupted resorbable 5-0 and 6-0 Vicryl sutures (Fig. 10).

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Six months after the GBR procedure, healing was without incident. The missing gap site at tooth #13 demonstrated favourable buccolingual ridge widths with good plaque control and healthy soft tissue (Fig. 11). Once anaesthesia was achieved, a mid-crestal incision was performed with only a vertical relieving incision made at the distal line angle of tooth #15. The newly augmented site at tooth #15 displayed excellent alveolar ridge form and integration with the surrounding host bone (Fig. 12).
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Upon the removal of the fixation miniscrew, the implant site preparation was performed with the aid of a surgical stent (Fig. 13). The implant bed was appropriately scalloped and subsequent drills were utilised (Fig. 14).

A Straumann Bone Level implant (Ø: 4.1 mm, L: 12 mm, SLActive) was selected and placed in the prepared implant osteotomy site. Correct 3-D position and primary stability were achieved (Figs. 15–17).

Primary closure of flaps was achieved using interrupted resorbable 5-0 Vicryl sutures (Fig. 17).

Following eight weeks of healing, a Stage II re-entry procedure was performed and a healing abutment replaced (Ø: 6 mm, H: 4 mm; Figs. 19–20). A provisional screw-retained crown was placed to allow appropriate healing of the peri-implant soft tissue for a period of three months (Figs. 21–22).

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Stable and healthy peri-implant tissues were observed following peri-implant soft tissue conditioning using a provisional crown restoration over the course of three months (Fig. 23). Thereafter, connection of the cast-gold customised abutment was performed (Fig. 24).

The final restoration, consisting of a customised cast-metal screw-retained abutment and a metal ceramic crown, was cemented. Favourable peri-implant soft tissue contours of the implant and the adjacent teeth were observed six months post-restoration (Figs. 25–26).

The periapical radiographs at six months post-restoration demonstrated stable bone levels around the bone level implant (Fig. 27). Despite the challenging, moderately high smile line, we were able to achieve a pleasing aesthetic result. Overall, the patient was most satisfied with the outcome (Fig. 28).
Nature knows best.

Millions of years of evolution went into refining the protein systems that stabilise and transport calcium and phosphate essential for the growth and health of our teeth and bones. Whether it is the protein carrier systems for bone growth or enamel formation, or statherin in saliva or casein in milk, they all share a common ancestry; evolution and natural selection have refined and perfected these systems. Cows’ milk remains the most efficient carrier of calcium and phosphate, and the specific peptide which so elegantly and efficiently transports these essential minerals is called RECALDENT™ CPP-ACP (casein phosphopeptide amorphous calcium phosphate).

No other system comes close to matching what nature has developed.
“Digital dentistry is finally becoming a reality”

An interview with Hans Geiselhöringer, Global Head of NobelProcera and Digital Dentistry, Nobel Biocare

Dental Tribune Asia Pacific: The new NobelProcera scanner has been available since June 2009. How is it intended to influence the workflow between dentists, technicians and patients?

Hans Geiselhöringer: The new NobelProcera system has to be considered as a single unit. By combining high-precision scanning technology, intuitive design software and industrial manufacturing processes, excellent product quality is guaranteed for almost every clinical indication whether it be on natural teeth or dental implants.

Our years of experience with NobelProcera are helping users not only to begin using digital dentistry but also to achieve immediate success in mastering the new technology. Of course, CAD/CAM-supported work processes contribute to the improvement of efficiency and precision, but the quick exchange of data and information among all partners involved in the treatment process is an important criterion for success. In this way, NobelProcera is breaking ground in dentistry.

These are challenging economic times. Why should dentists and dental laboratories change to NobelProcera?

Dentistry will see significant changes through these new technologies in the years to come. We have indeed reached the moment at which ‘digital dentistry’ is finally becoming a reality and I am convinced that this is the time to change from conventional CAD/CAM technologies. NobelProcera was designed to grow with the rising demands of the user through regular updates of the system and the software.

With the new generation of CAD software, the construction of frameworks is no longer necessary, which is another important element. Automated processes no longer provide only a recommendation for the later framework production after scanning the master model or the impression. Moreover, ideal dimensioning can be achieved through only an additional scan of the setup with the help of lateral scans. Working processes that once took hours to complete can now be achieved in a few minutes.

I know that it is difficult to introduce new systems into the daily work routine of a laboratory and to keep technicians up-to-date with new developments, but from my point of view, it is better and more efficient to have one system for all indications. In addition, a system like NobelProcera gives users the opportunity to outsource production, which saves time and the need for continued special training of technicians. NobelProcera also helps to reduce costs for each step in production.

Our systems, products and concepts are certainly validated by scientific research, as we want to be a reliable partner for our clients.

NobelProcera utilises conoscopic holography technology. What are the advantages of this technique over comparable systems?

There is no truly comparable system available on the market yet. NobelProcera is the only scanner that exclusively utilises conoscopic holography technology. Most other systems are based on triangulation, which does not offer the same amount of applications offered by NobelProcera. These disadvantages have already been discussed in several publications and, therefore, I won’t discuss them here.

The conoscopic holography technology of NobelProcera is based on a particular type of polarised light interference process that has been proven in several long-term trials and in other fields of industry. The main advantage over conventional CAD/CAM systems is that the conoscopic system is based on collinear measurement, which means that the light source and the detector are not arranged at the same angle. The collinearity offers not only higher accuracy of measurement and sensitivity robustness against optical defects, but also the ability to scan a wide range of geometric figures and shapes, including cavities. Impressions can be easily scanned with this technology because shadow effects, as occur with triangulation, do not occur and surfaces do not have to be modified. Besides high accuracy, productivity in dental laboratories can be further increased by batch scanning.

However, it is the precision of NobelProcera that gives the ability to scan several implants or whole implants systems in a patient in order to realise supra-construction like the NobelProcera Implant Bridge or the new NobelProcera Overdenture solutions. I think the sheer amount of applications cannot be achieved by any other system on the market right now, with the exception of high-precision industrial scanners.

Although a wide range of materials is available for almost all applications, the use of NobelProcera is finally becoming a reality and I am convinced that this is the time to change from conventional CAD/CAM technologies to a system like NobelProcera.
Clarity on a grand scale

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indicators, the focus is often only on zirconium oxide. What other materials are available, and what are the main differences between them?

You are talking about something that has been on my mind for quite some time and it is something I see everyday in my own laboratories here in Munich. Zirconium oxide is an excellent material for many clinical indications but not for all. Long-term stability is not the only decisive factor; the requirements and preferred treatment methods of the practitioner involved, and the financial costs to the patient have to be considered as well.

Besides zirconium oxide in four different colours for restorations on natural teeth, implant abutments and screw-retained prosthetic solutions, aluminium oxide is available as the material of choice in aesthetically demanding areas, for example in the anterior dentition. Titanium can be used in all cases in which zirconium oxide is not clinically acceptable.

We are also going to extend the material offering in the upcoming weeks with cobalt-chrome alloys and acrylics. I expect our laboratory clients will appreciate this offering, as they can pass this on to their clinical partners for support of all clinical indications.

How do these developments benefit the long-term success rates of conventional and implant-supported restorations?

For Nobel Biocare, long-term success is primarily connected to the safety and quality standards we offer our patients and customers. Owing to our many years of experience in the CAD/CAM field and our high requirements of material and product quality, we are able to offer a five-year warranty on all our products, based on the harmonised working processes and the support we give the user regarding optimal construction design. For example, the software takes material-related specifications during the virtual framework design into account and warns users if requirements for dimensional stability are not met.

Critics say that the automated fabrication of dental restorations may be the death of dental technicians as we know it. What is your response?

Definitely not. In a tough market environment like the one we are operating in now, large-capacity laboratories, as well as small- and medium-sized companies gain significant advantages from using CAD/CAM. Improved efficiency and rationalisation do not automatically result in a reduced workforce. In fact, there are new opportunities for specialisation. Human resources, for example, can be used more economically, as unconomical and time-consuming production steps, such as cast fabrication and moulding, are eliminated.

The answer to whether it would be profitable to run an own milling system in the laboratory is also no. Only large-capacity milling centres can do this. Ongoing observation of all production processes, constant surrounding conditions and freedom of choice of materials and their complementary milling systems are only a few reasons that speak for a centralised fabrication of frameworks. In addition, time-consuming maintenance, updating and the need to change milling heads are eliminated, which can only be economical under full capacity.

However, we do not only talk about shortening and simplifying the production processes but also about minimising risks that could result from CAD/CAM-produced restorations. Remaking incorrectly fitting restorations may be a financial burden of laboratories because if these systems are utilised correctly, free remakes are usually included in the warranty.

What consequences will arise from these developments for dental technicians?

In the near future, we will see further specialisations and the rise of new professional categories, for example dental designers and dental engineers. These new professionals will play a pivotal role in dentist-patient communication. By eliminating inefficient and error-prone working processes, more resources will be available for such important aspects as treatment planning and communication with practitioners, as well as the functional and aesthetic finish of the restoration.

Needless to say, this new CAD/CAM technology won’t be able to replace the individual experience and expertise of dental staff. However, it is a useful addition to ensuring our patients the best quality and safety.

Thank you very much for this interview.
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Replacement of defective metal-ceramic restorations with composites

Over the years, the placement of composite restorations has developed into a routine clinical procedure that produces outstanding aesthetic and functional results. The composition and structure of dental composites has been consistently refined in an effort to optimise them for these applications. As a result of patients’ growing demand for aesthetic solutions, amalgam fillings are often replaced with composite restorations. Patients feel that tooth-coloured restorations improve their well-being and make them look healthy.

The replacement of amalgam fillings, however, is a challenging task for the dentist. In most cases, the cavity shape is unsuitable for placing the composite material. Furthermore, contraction stress is more likely to build up when a restorative material is applied in increments as is the case with composites. In the placement of amalgam, dentists prepare the teeth in such a way that the fillings are retained mechanically. Consequently, an excessive amount of healthy tooth structure usually has to be removed and accurate planimetry is requisite. In many cases, corrosion products are found in the tooth substance after the amalgam has been removed. These stains are very difficult to mask and therefore compromise the final aesthetic appearance of the new restoration.

The following case study demonstrates the outstanding results that can be achieved by replacing old amalgam fillings with Tetric N-Ceram and Tetric Color.

Clinical case

Marginal defects, secondary caries and increased sensitivity to temperature changes constituted the main reasons that this patient wished to have the amalgam restoration in tooth 16 replaced (Fig. 1). At the second appointment, the restoration and the various dental tissue were removed once the clinical and radiographic diagnosis had been made. In order to save as much healthy tooth structure as possible, the cavity was not enlarged. The working field was isolated.

Next, the tooth was conditioned with a clinically proven etchant, which was subsequently rinsed off before the adhesive was applied: total etch technique in conjunction with Tetric N-Bond. Selective acid etching is currently the most effective technique available for conditioning tooth structure. For this technique, dental enamel is conditioned for 20 to 30 seconds and dentine for 5 to 10 seconds (Figs. 2 & 5).

After the etching process, the adhesive is applied and allowed to infiltrate the moist dentine substrate and then polymerised. It is essential that the adhesive cover the entire preparation in order to ensure hermetic sealing of the dentine tubules and the formation of an even and sound hybrid layer. Once the tooth structure is properly sealed, the risk of post-operative sensitivity can be excluded (Fig. 4).

In the case at hand, a stabilised metal matrix was used to create a tight proximal contact. The matrix was adapted to the tooth with rubber wedges. Subsequently, Tetric N-Ceram was placed in the proximal box (Fig. 5) and then on the occlusal surface. A pyramishaped build-up scheme was implemented in order to ensure the proper morphology and reduce the subsequent finishing and polishing work. Furthermore, this technique enables the adequate management of the unfavourable configuration factor (C-factor), which usually presents a problem in posterior cavities and those that were previously restored with amalgam in particular.

It is important to observe an increment thickness of a maximum of 2 mm. Polymerisation must be conducted properly to ensure a high conversion rate in the composite and to optimise the physio-mechanical properties. The different materials and levels of opacity selected for this case are shown in Figure 6. It was important to use a material that exhibits a high level of opacity and colour intensity for the first layer (Tetric N-Ceram, A5.5 Dentin). Subsequently, the restoration was characterised with Tetric Color ochre and white (Figs. 7 & 8). Next, an enamel layer was applied with which a high level of brightness was attained (Tetric N-Ceram Bleach L; Figs. 9 & 10).
The aesthetic result produced using this technique ensures the predictable and precise placement of the restoration. In addition, the composite features a ‘chameleon effect’, which enables it to blend in with its surroundings to enhance the overall aesthetics. Once the morphology of the tooth has been reconstructed, it is advisable to coat the entire restoration surface with a water-soluble gel and to polymerise the restoration for 60 seconds (Fig. 11). This step removes the oxygen inhibition layer and minimises the finishing and polishing work. The objective is to keep adjustments and corrective measures to a minimum and to maintain the obtained shape if possible. Astropol and Astrobrush are suitable for finishing the margins. These auxiliary aids help to achieve a high gloss surface finish (Figs. 12 & 15). The quality of the finish, however, is not only based on the use of a suitable polishing system, such as the one employed in the present case. The size, distribution, amount and type of composite particles also play an important role. These factors need to be in perfect equilibrium to achieve an ideal combination of mechanics, aesthetics and minimal contraction.

Conclusion

Today, the direct restoration of posterior teeth with composites is considered a clinically proven restorative option that produces highly predictable results. Adhesive dentistry offers numerous benefits, which not only concern the aesthetics of teeth, but also the management of healthy teeth and optimal marginal seal. Nevertheless, we must work precisely and observe the clinical protocols to achieve the desired results. An important step in this process is the use of a composite that fulfils all the prerequisites related to optimal clinical behaviour. We chose to use Tetric N-Ceram to solve the present clinical case because it demonstrates all the properties necessary for producing a highly aesthetic and functional restoration.

Acknowledgements

I would like to thank Dr. Manuel Gajardo G and Dr. Ramón Schlieper C, who were instrumental in compiling the pictures and preparing the layering scheme for this clinical case. I would like to take this opportunity to express my appreciation for their continuous support of our academic work.

Fig. 12: Occlusal view of the completed restoration one week later. The aesthetic integration of the composite in the tooth structure has been achieved.—Fig. 13: Lingual view of the completed restoration made of Tetric N-Ceram.
Oral health education through mass media campaigns in rural Thailand

An interview with Dr Duangjai Lexomboon

Delivering oral health information to the public is difficult, especially in underdeveloped countries. In Thailand, a group of researchers recently tried to assess whether a public educational programme with radio broadcast as the main educational media can increase knowledge about oral health as well as self-care behaviour among people living in remote rural area. DT Group Editor Daniel Zimmermann spoke with Dr Duangjai Lexomboon, Associate Professor at the Department of Community Dentistry, Mahidol University, Bangkok, about the outcome of the project and how it was implemented.

Daniel Zimmermann: Dr Lexomboon, you are involved in a community oral health project run by Mahidol University. What can you tell us about the current state of oral health in rural communities in Thailand?

Dr Duangjai Lexomboon: The oral health status of people in rural areas is one of the prevailing problems in Thai dental public health. The problem is more evident in the young and the old living in remote rural areas, such as border regions. Most of the children of preschool age have dental caries. For example, in a Child Development Centre at which our project has been implemented, the caries prevalence in three-year-olds is as high as 70 per cent, with a mean DMFT of about five teeth per child; and the problem is increasing rapidly. Nearly 100 per cent of five-year-olds have dental caries, with a mean DMFT of eleven teeth per child. Amongst the elderly, most have lost the majority of their teeth to periodontal disease and only a small percentage of them wear prostheses.

How does this situation differ from that of the cities?

People living in urban areas also have comparatively high levels of dental caries and periodontal disease; however, a much higher percentage of these people have restored teeth or protheses, which is mainly because of better access to care and health information.

In Thailand, there is a major disparity in the distribution of dentists in rural and urban areas. Our government has been trying to solve this problem through various strategies, such as compulsory contracts for all dental graduates to serve in rural areas, incorporating community dentistry into dental curricula, and financial incentives. The situation has improved in the past twenty years, but the most remote rural areas, which our project has targeted, are still greatly underserved. There are neither dental clinics nor hospitals within close proximity. In the majority of health centres in these areas, there is only one dental nurse who has take care of not only oral health problems, but also general health problems. Therefore, little time can be allocated to prevention.

The schools in these areas are mainly border patrol police schools with police officers functioning as teachers and providing oral health education. Other than this, there are hardly any other sources of information on oral health and general health. At the same time, the lifestyle of those living in these areas has shifted towards increased risk behaviours, such as cariogenic snacking, creating a larger gap between the need for care and services provided.

When was the community health project set up, and what are its main goals and measures?

In 1995, the Faculty of Dentistry at Mahidol University initiated a mobile dental service for schoolchildren and people living in remote rural areas. Six years later, Rural Highness (HRH) conferred the service as the HRH Princess Sirindhorn Development of Oral Health Promotion Model in Remote Rural Areas Project. This project is one of the HRH’s child developmental programmes in border patrol police schools throughout the country.

These activities were extended later to include fabricating removable acrylic dentures, presenting oral health education, and conducting research projects. In 2005, the Faculty in collaboration with the Faculty of Public Health launched oral health promotion activities under the programme the Development of Oral Health Promotion Model in Remote Rural Areas in two villages.

The main goal of this programme is to develop an oral health-care model that is effective, relatively low-cost, accessible by local people through community participation, and thus intended to enhance their general health. The objectives are to increase dental literacy, prevent dental caries and periodontal disease, and foster a self-care approach within the community. The main activities include participative prevention and education.

Initially, most of the activities were within schools and child-care centres. These were the application of fluoride varnish and sealant by local dental personnel; tooth brushing after lunch, accompanied by songs; restriction of cariogenic snacking; a surveillance system by pupils by means of self-examination of their oral health; educational programmes, such as scientific games and educational games; and pupil group meetings. After focus group discussions and meetings with teachers, health volunteers and community key persons, mass media education programmes, such as the distribution of posters and calendars with the pictures of the children in the village, and radio broadcasting were proposed as means by which to increase knowledge of and foster positive attitudes towards oral health, as well as to improve self-care behaviour at home.

“In Thailand, there is a major disparity in the distribution of dentists in rural and urban areas.”

Did the recent political unrest in Thailand have any impact on the programmes?

Most people in remote rural areas are marginalised from central politics. Therefore, no great impact was noted in the past three years, not even over the last two years. If there is any change of government policy on budgeting for sub-district organisation, there may be some impact but our programme has aimed to be mainly sustainable by the community itself. There is still need for further technical support though.

“Amonst other measures, you have utilised radio broadcasting and posters to educate people in Ban Narao, a village in the Samach Khet district of the Chachoengsao province. Why did you choose radio, and how was the programme implemented?”

In this particular village, several of the community key persons came to us and suggested this channel. Most of the local people work on the farms all day and they like to listen to folk music. Only three to four radio frequencies reach the village, and the frequency we used is broadcast from a station within the village; therefore,
the signal strength is very good. Upon meeting with the station owner, a Catholic priest, we learned that he also wished to have messages about health broadcast on his station. He had some prior message clips received from other organisations, but these were lost when his computer was infected with a virus.

We had dental students produce 57 messages with varying content on oral health for audiences of all ages. Each message was two to four minutes long and was broadcast hourly between 8:00 and 19:00. The operator came to the station in the morning and selected and arranged the message clips into the schedule to be broadcast throughout the day.

We also used posters to support the campaign. Fifty posters were placed in community assembly areas, such as markets, community rice mills, churches, shops and restaurants. They were replaced with new ones after two months on display. The campaign was also promoted by the church.

What was the outcome, and did you identify any significant change in oral health-care behaviour?

We evaluated the campaign after four months. No increase in knowledge was identifiable from adolescents and government officers, who already had good knowledge on oral health care prior to the campaign. All other age and occupation groups, except shop owners and those not working, had increased knowledge. These two groups remained in the village during broadcasting time and might have been watching TV rather than listening to the radio.

The campaign was not able to improve people’s attitude towards the importance of primary teeth and self-care, but it increased awareness of the importance of a dental visit every six months. The percentage of those who brush their teeth before bedtime and after every meal increased significantly. Unfortunately, improvement in self-care behaviour was not observed in denture wearers.

What conclusions did you draw from these results?

For remote rural areas with limited access to health information, the public educational campaign with simple and repeated messages through the radio programme showed an initial increase in dental knowledge but no improvement in the attitude towards self-care. There was increased self-care amongst dentate persons but not amongst denture wearers.

What recommendations would you give to communities who wish to implement similar measures?

In order to implement similar public educational campaigns, the media that is consistent with what local people already view or listen to in their daily lives has to be identified. In order to change self-care behaviour amongst denture wearers, a clearer message, longer intervention time, and additional motivation methods may be indicated.

For the sustainability of the programme, we suggest radio programme operators produce their own message clips. This could be incorporated into school pupil activities by having them download content from web sites such as the Faculty of Dentistry or the Ministry of Public Health.

It is important to note that for public oral health programmes for people living in rural areas to succeed these have to be in-line with their interests.

Thank you very much for this interview.
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