India targets fluorosis problem with new identification system

NEW DELHI, India: The Indian Council of Medical Research (ICMR) in New Delhi has said that it has tested a new and simpler system that could help to identify dental fluorosis in the population. The tool is based on photographic information from patients with the conditions gathered from several districts in India, and can be used by health workers without prior knowledge in dentistry.

First tests conducted with the new system by an ICMR Task Force among schoolchildren in the South Delhi and Hesar districts turned out successful, with little difference found in regard to detection rates of dental specialists and field workers unfamiliar with fluorosis, the Council said. With this tool, the organisation hopes not only to help health workers nationwide to detect the condition its early stages but also to gather reliable national data on the prevalence of fluorosis, which is considered to be a major public health problem owing to the excessive intake of fluoride through drinking water in most parts of India.

Although representative data in the country is lacking, results from different studies suggest a high prevalence in areas with high water fluoridation. If the condition is not detected, it can lead to skeletal fluorosis, a condition that causes bone to lose its flexibility through the accumulation of oesophageal tissue. It has also been associated with renal failure, atherosclerosis and other diseases.

Fluorosis is commonly identified through Dean’s Index, a five-stage classification system developed in the 1950s by H. Trendley Dean, one of the most prominent advocates for water fluoridation in the United States. Authorities include the Thylstrup-Frejerskov Index, developed in Denmark in the 1970s, and the US National Institutes for Dental Research’s Total Surface Index of Fluorosis.

Worldental Daily, the daily newspaper of the Annual World Dental Congress (AWDC) of the FDI World Dental Federation which will be published by the organisation in partnership with the Dental Tribune International Publishing Group (DTI) for the tenth time in 2014. The anniversary edition will be available at the FDI’s 102nd AWDC in Greater Noida near New Delhi, India, in September.

DTI produced the first edition of Worldental Daily for the AWDC in Montreal, Canada, in 2005. Since then, the newspaper has been available to congress attendees at every AWDC including those in Dubai, Hong Kong and Istanbul. Every edition of the newspaper is made with support of local partners and printed overnight, so that visitors can keep constantly up-to-date with what is happening during the event.

In addition to Worldental Daily, DTI publishes daily newspapers under its today international brand at almost every major dental event around the globe, including the IDS in Cologne or the IDEM in Singapore.
Sinus lifting procedures are an established therapy to gain bone height in the posterior maxilla. Depending on the remaining bone height, they can be performed with simultaneous or two-stage implant placement using osteotomies, a trans-alveolar or lateral-window approach.

Numerous studies have shown predictable results using autogenous bone but also bone substitute materials. However, within the last decade, the role of autogenous bone as the “golden standard” for sinus grafting procedures has been increasingly discussed, since same results can be obtained using bone substitute materials without additional donor-site morbidity and additional stress for the patient.

In the webinar, different approaches of sinus grafting procedures, the selection of different bone substitute materials, clinical and historical results and a sufficient complication management will be discussed.

According to the scientists, the findings are the first evidence of the habit ever recorded in Eastern China. Along with other Pliocene fossils from the country, it also confirms the hypothesis that the earliest use of tools was by the Homo genus, they said. To date, it remains unclear, however, whether the grooves found in the enamel and root surfaces of the teeth indicate a therapeutic purpose.

“It has been suggested that the use of toothpicks was unique to the genus Homo, and tooth-picking could have accompanied the dietary shift to heavier reliance on animal protein. Thus, in Yiyuan teeth, the proposal that tooth-picking with a hard needle-like stick was used to remove food particles caught between teeth to relieve gum pressure is likely to be very plausible,” the authors commented in the article.

In total, the researchers examined seven teeth from three individuals under a binocular microscope and scanning electron microscope. Two of the teeth exhibited interproximal grooves of different depths, which are characteristic signs of tooth-picking. Similar markings on the teeth of other Homo species found in different sites around the world have previously been reported.

The remains from the Yiyuan site, which included cranium fragments and was excavated by archaeologists in 1981, have been assigned to the Homo erectus species, which is widely considered to be a direct ancestor of modern humans and other human species, such as Neanderthals. Archaeological findings indicate that the species inhabited large parts of Asia, Africa and Europe between 1.8 million and 40,000 years ago.

The dental team has been and continues to be an important part of HIV primary care since the early days of the epidemic when up to 80% of all HIV+ patients would present with an oral manifestation related to disease progression. Recognizing the oral manifestations of HIV infection are important tools in accessing a patient’s overall well-being as they are indicators of disease progression related to disease progression. Recognition of the oral manifestations of HIV infection are important tools in accessing a patient’s overall well-being as they are important indicators of disease progression for those known to be HIV positive. For those with unknown HIV status, the presence of these lesions may signify HIV infection or other systemic conditions.

This presentation will enable the participants to accurately diagnose and manage the most common oral opportunistic infections seen in association with HIV disease. Topics to be covered will also include proper dental management for people living with HIV disease including a discussion of important lab values and when, if ever, premedication prior to invasive dental procedures is required.

Dental routine practised among early inhabitants of China

Photo shows an artistic depiction of an early human using eating plants.
Probiotic bacteria found helpful in orthodontic patients

SONGKHLA, Thailand: A new study has provided additional evidence that probiotics are beneficial against a number of oral conditions. Researchers in Thailand recently found that lactobacilli in particular could help reduce levels of mutans streptococci, which can cause dental caries, especially in cleft lip and palate patients with fixed orthodontic appliances.

The study included 50 cleft lip and palate patients who had been undergoing treatment between June and August 2011 with fixed orthodontic appliances for at least three months with attachments on at least 20 permanent teeth. For a period of four consecutive weeks, half of the patients consumed milk powder with probiotic Lactobacillus paracasei SD1 in 50 ml of water once a day, while the remainder received the same amount of milk powder in water but without probiotic bacteria.

From an analysis of participants’ saliva samples, the researchers observed a significant reduction in salivary mutans streptococci after the four-week period in the first group. In addition, a significant increase in salivary lactobacilli was noted in this group.

The results suggest that especially orthodontic patients, who usually need treatment owing to irregularities in tooth size and misalignment of teeth, could benefit significantly from probiotic intervention because fixed appliances facilitate the colonisation of bacteria such as mutans streptococci and render this group more susceptible to dental diseases. However, further long-term studies with a larger sample size are needed to clarify the mechanisms of probiotic bacteria in reducing oral microbial counts, the researchers concluded.

Australia to cut dental spending

CANBERRA, Australia: The Australian government intends to scrap over half a billion Australian dollars worth of subsidies for dental health care from its next federal budget. Among other cut-backs, the proposed plans will see the end of the Dental Flexible Grants Programme, which was originally introduced to help dentists set up in outer metropolitan areas. This way, the government aims to save almost A$229 million (US$211.5 million) over the next four years.

Another A$90 million (US$87 million) is to be put aside by delaying a federal-state partnership programme that was intended to support local governments in providing public dental health care services. Dental and oral health clinic developments at Charles Sturt University in Sydney will also be halted.

In return, the government said it will put A$2.7 billion (US$2.49 billion) into new programmes, such as the Child Dental Benefits Schedule.

The measures are part of a larger cut-back of federal medical subsidies that will require patients to pay more out of pocket for visiting a doctor or basic medical services, such as having an X-ray taken. According to the government, the savings from these measures will go into a A$2 billion (US$1.85 billion) medical research fund to advance therapies for systemic conditions, such as cancer.

Overall, the government expects to accumulate A$80 billion (US$75.9 billion) in combined savings from the health and education sectors over the next ten years.

Representatives from dentist and patient organisations have already criticised the plans, which they think will further burden the already extensive waiting list for public dental treatment. President of the Australian Dental Association Dr Karin Alexander told ABC News that she expects that the waiting list could double or treble owing to the cut-backs.

It is estimated that up to half a million people are currently on a public waiting list for dental treatment.
Dear reader,

As you might already have noticed, this issue of Dental Tribune Asia Pacific is dedicated to the topics of practice hygiene and infection control. In compiling the material, we have aimed to provide not only an overview of all the current issues in this field but also recommendations on updating your hygiene routine to prevent cross-infections in your own practice.

With more patients seeing their dentist than their regular GP, the dental profession is and will remain at the forefront of every new major outbreak. Although a cliché, it is the little things that really make a difference. Most preventative measures do not require the investment of much extra effort or money if they are practised on a daily basis.

I wish you an enjoyable and insightful read.

Yours sincerely,

Daniel Zimmermann
Group Editor
Dental Tribune International

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

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The world is very small

Dr Raghu Puttaiah
USA

The Middle East Respiratory Syndrome (MERS) is a respiratory condition associated with a specific strain of coronavirus called MERS-CoV. The clinical scenario includes severe respiratory illness, fever, cough and shortness of breath, leading to death in about a third of those infected. While MERS was first reported in 2012 on the Arabian Peninsula, cases have now been reported in over three dozen countries, spanning Asia, Europe and North America. While this disease has been noted to spread from those infected to their caregivers or those living in close contact, it has not yet been found to spread in community settings as seen during the severe acute respiratory syndrome (SARS) outbreak in Asia that saw over 8,000 people infected, resulting in about 1 per cent mortality. Only two cases have been detected in the US, both of whom had a recent history of travel to Saudi Arabia.

The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) are concerned about the potential of MERS to spread globally and therefore are providing information and control measures similar to those provided during the SARS and influenza A (H1N1) outbreaks. With respect to dentistry, if there is a vaccine available for any infectious disease of public health concern, we must take it before it affects us. With regard to infection control, if we as dental care providers feel ill or feel that we are about to fall ill, we must not go to work but stay away from people, including co-workers and patients, until the symptoms resolve. We should also inform patients prior to their appointment that, if they are not feeling well, they should reschedule the appointment.

Basic infection control measures, such as frequent handwashing, wearing a mask, and following standard and additional precautions, the last being specific to MERS, must be adhered to strictly.

The world is very small with respect to travel and the spread of diseases such as MERS from reliable sources, such as the CDC, WHO, Association for Professionals in Infection Control and Epidemiology, and Organization for Safety and Medicine.

Keeping abreast with rapidly changing information on diseases is the easiest way to identify excess fluoride ingestion. In the mild, moderate and severe forms, the accompanying discoloration extends away from the gingivae, is bilaterally symmetrical and horizontally aligned.

Often, however, discolouration on the enamel surface is still misdiagnosed as dirty teeth. While the Dean and Thylstrup–Fejerskov indices are available to differentiate tooth brushing, the disease may be overlooked. Determining such criteria could also form a good academic exercise for students of dentistry and medicine.

Dr Raghu Puttaiah is the owner of OSHA Dental, a dental safety and education company based in Plano in the US. He can be contacted at puttaiah@oha.com.

The world is very small with respect to transmission and infection control. In compiling the material, we have aimed to provide not only an overview of all the current issues in this field but also recommendations on updating your hygiene routine to prevent cross-infections in your own practice.

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It is not dirty teeth

Prof. A.K. Susheela
India

India is currently facing a serious health crisis due to fluoride toxicity, particularly in children. Besides the major forms of fluorosis that affect teeth, bones and soft tissue, the disease has several other ramifications, such as interfering with thyroid hormone production. It has also been found to contribute extensively to mental retardation and bone deformities. Moreover, it can hamper oral iron absorption and haemoglobin production in pregnant women, resulting in low birth weight in babies.

Overtly visible dental fluorosis is the easiest way to identify excess fluoride ingestion. In the mild, moderate and severe forms, the accompanying discoloration extends away from the gingivae, is bilaterally symmetrical and horizontally aligned. Often, however, discolouration on the enamel surface is still misdiagnosed as dirty teeth. While the Dean and Thylstrup–Fejerskov indices are available for fluorosis classification, simpler criteria that are easy to understand could help address misdiagnosis.

Determining such criteria could also form a good academic exercise for students of dentistry and medicine.

Dr Susheela is Executive Director of the Fluorosis Research and Rural Development Foundation in New Delhi in India. She can be contacted at frnd@gmail.com.

Dental desensitising varnish
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desensitisation
• fluoride release
fast and easy application

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• universal range of application
• high filler content
• excellent physical properties
• fast and easy application

Glass ionomer filling cement
• perfectly packable consistency
• excellent durable aesthetics
• also available as application capsules

China Dental Show
25.–28.09.2014

Dental Tribune Asia Pacific Edition No. 6/2014
THE MERS situation in the US represents a very low risk to the general public at this time. However, dental clinicians are an important part of the health care system and should be knowledgeable of MERS and other transmissible disease,” Executive Director Therese Long commented. “OSAP will keep its online MERS toolkit updated and continue to offer it as a free downloadable tool for dental health care workers.”

She added that the disease and its impact on dentistry will be the focus of the organization’s upcoming annual symposium, which will be held next week in Minneapolis in the US.

To date, more than 600 cases of infection with the MERS coronavirus have been confirmed by the WHO, of which the overall majority was reported to have occurred in the Middle East, particularly in Saudi Arabia. It also announced that it has tested an individual from the US as positive, which still needs to be confirmed by laboratory tests.

Owing to the sharp increase in infections during the last two months, the organisation has advised health care professionals worldwide to heighten infection control measures. A strain of the coronavirus related to the bird flu bug that wreaked havoc in Asia a couple of years ago, the new disease was first identified in 2012. Similar to severe acute respiratory syndrome, it is thought to have been transmitted from animals to humans, with the main source of infection suspected to be camels.

Association for infection control updates dentists on new infectious disease

Digital toolkit on MERS Coronavirus available from OSAP
Rimini show confirms that the future of dentistry is digital

DTI

RIMINI, Italy: The use of digital technology seems to be changing dentistry forever and nowhere has this been more obvious than in Italy last month, where numerous manufacturers from Italy and abroad showcased their latest devices and materials to thousands of dental professionals at this year’s Amici di Brug dental show.

Besides Henry Schein’s ConnectDental pavilion, a booth dedicated entirely to the company’s combined portfolio for an all-out digital workflow and other services such as Sirona’s Digital Dental Academy, a new application designed for Google Glass draw special attention from visitors. Specifically designed to work on the head-mounted device, Dental Glass is intended to improve workflow in dental practices by projecting information directly in the clinician’s field of view, similar to a pilot’s head-up display. This way, clinicians can remotely access patient records, among other data, display radiographic images, or manage appointments through voice recognition software or a touchscreen located at the chairpiece, according to the Italian developer Gerbo, a subsidiary of the Breitshmid group. The manufacturer said that the app will also allow the capture of photos and video in high-definition format through its built-in camera.

Google Glass is currently only available in the US. When the device will be released to European markets is still unclear owing to some technical limitations and the lack of distributors, according to reports. The technology, however, is currently being experimented on for its future use in general and dental medicine. Last year, for example, Dental Tribune reported on the first maxillofacial surgery broadcast with the device, which took place at Hospital de Molina in Murcia in Spain.

Completely digital solutions however are already available in dental offices. BIOLASE, for example, offers such solutions and has expended great effort on its Total Technology Solution in recent years. In addition to its complete range of dental lasers, the US dental technology company now offers sophisticated imaging equipment and CAD/CAM solutions, such as the GALAXY BioMill System, which allows digital fabrication of restorations chairside.

“The adoption cycle of new technologies is growing increasingly shorter and more advanced technologies like the Waterlase will rapidly find their way into dental practices. Dentists that do not upgrade their equipment will likely begin to lose patients, become uncompetitive and lag behind,” CEO Federico Pignatelli explained to Dental Tribune International (DTI) at the show.

DTI CEO and publisher Torsten R. Oemus confirmed this forward-looking corporate strategy by emphasising the strong points of the digital revolution: “Turning dental offices into high-tech playgrounds is indeed becoming a global trend, which reaps rewards for patients and dentists alike. Technology is what differentiates a modern dental office from a conventional one, increases patient flow, and advances diagnostic and treatment outcomes, which ultimately leads to increased revenues.”

He invited dentists who are unsure about how digital technologies could benefit their practice to attend the Digital Dentistry Show, the first edition of which will be held in autumn 2014 at the International Expo-dental show in Milan in Italy. Focusing entirely on digital products and applications for dentistry, the unique expo format will not only showcase the latest products and solutions by leading providers in the field, but also offer education in the form of lectures and webinars from 16 to 18 October. Information about what to expect from the event and how to register is available on the events website.
Infection control has never been more essential
An update on practice hygiene measures and protocols

Dr Safura Baharin
Malaysia

Demand for dental treatment has been increasing in recent years as people have become more aware of their oral health and the benefits of good dental aesthetics. Maintaining and practising stringent cross-infection control procedures therefore have never been more essential to ensure the health and safety of dentists, dental hygienists and assistants, as well as other supporting staff who may be indirectly involved in the treatment process.

Dental professionals are at high risk of cross-infection. A report published in 1999 has shown that in developing countries, for example, the number of dental staff contaminated during treatment is increasing by almost 6 per cent each year.\(^1\) Research has shown that infectious microorganisms can be transmitted by blood or saliva via direct or indirect contact, aerosols, or contaminated instruments and equipment.\(^2\) As stated by the US Centers for Disease Control and Prevention (CDC) in their 2003 guidelines, the transmission of infectious disease can occur in four ways: direct contact with blood or body fluids, indirect contact with contaminated objects or surfaces, contact with bacterial droplets or aerosols, and inhalation of airborne microorganisms.\(^3\)

The most likely mode of transmission in dentistry is through inhalation of bacterial aerosols or splatters. Their potential health hazards are well documented and acknowledged.\(^4\) Both can be host to a large variety of microorganisms and viruses, which can be infectious to susceptible individuals. During treatment, the dentist's face and patient's chest are most affected by splatter, as the majority of the splatters are radiated towards them.\(^5,6\) According to studies, the most contaminated area on the dentist's face during treatment is around the nose and inner corner of the eyes.\(^1\)

Splatter consists of large particles of greater than 100 µm generated during the use of dental equipment, such as turbines, ultrasonic scalers, or water and air syringes. Owing to this, splatter tends to travel in a trajectory, thereby contacting objects in its path. Aerosol consists of smaller particles that can remain in the air for a long time and travel with air currents. Most dental aerosols are less than 5 µm in diameter; therefore, they are able to penetrate and stay within the lung, causing respiratory or other health problems. Among dental procedures that produce high aerosol concentration are ultrasonic scaling, tooth preparation using high-speed handpieces, and dental extraction involving bone removal via a dental handpiece.\(^7\)

The World Health Organization (WHO) has reported a rise in airborne infections worldwide. Tuberculosis in particular has increased in the developing world (Table 1).\(^8\) It has been stipulated that the risk of exposure to tuberculosis in susceptible DHCP is greater than in healthy individuals. Bennett et al. concluded that when airborne isolation precautions are not used and when airborne transmission control measures are not strictly followed, microorganisms can be transmitted to the DHCP and infect the lungs. A special mask may therefore be needed (N95 and FFP3 respirators).

During treatment the most contaminated areas are around the dentist’s nose and his or her inner corner of the eyes.

### Table 1: Tuberculosis in Asia.\(^\text{9,12}\)

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated # of cases</th>
<th>Estimated rate (per 100,000 population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>410,000</td>
<td>234</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>350,000</td>
<td>225</td>
</tr>
<tr>
<td>Indonesia</td>
<td>65,000</td>
<td>185</td>
</tr>
<tr>
<td>India</td>
<td>2,200,000</td>
<td>176</td>
</tr>
<tr>
<td>Myanmar</td>
<td>200,000</td>
<td>177</td>
</tr>
<tr>
<td>Malaysia</td>
<td>24,000</td>
<td>80</td>
</tr>
<tr>
<td>Thailand</td>
<td>80,000</td>
<td>118</td>
</tr>
</tbody>
</table>

### PPE

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surgical mask</strong></td>
<td>• Splatters and aerosols may contain bacteria and viruses that can infect a susceptible person in the dental clinic.</td>
</tr>
<tr>
<td>• Should cover both nose and mouth</td>
<td>• To protect the mucosa of the eyes from splatters.</td>
</tr>
<tr>
<td>• Change when wet (from sweating, sneezing, breathing or other contamination)</td>
<td></td>
</tr>
<tr>
<td>• Use particulate filter respirators (N95) when airborne isolation precautions are necessary (transmission-based precautions for patients with tuberculosis)</td>
<td></td>
</tr>
<tr>
<td><strong>Protective eyewear</strong></td>
<td>• Splatters from dental procedures may come into contact with the conjunctiva and cause irritation or infection.</td>
</tr>
<tr>
<td>• Should be worn all the time</td>
<td>• Some materials used during dental treatment, such as sodium hypochlorite, may cause severe irritation and damage if accidentally splashed into the DHCP’s eyes or face.</td>
</tr>
<tr>
<td>• Preferably with lateral protection that is wide enough to cover the eye</td>
<td>• To protect the face from splatters and aerosols during dental procedures</td>
</tr>
<tr>
<td>• Must be rinsed and disinfected when contaminated between patients</td>
<td>• To prevent the contact of blood and saliva with the dentist’s hands</td>
</tr>
<tr>
<td><strong>Face shield/visor</strong></td>
<td>• Splash or splatters generated during dental treatment, especially when using an ultrasonic scaler or high-speed handpiece, are concentrated towards the dentist’s face.</td>
</tr>
<tr>
<td>• Select a face visor with acceptable visual quality (clear, no reflection or refraction) and no fogging</td>
<td>• Wearing a face shield also reduces the amount of splatter contaminating the face area.</td>
</tr>
<tr>
<td><strong>Gloves</strong></td>
<td>• To prevent transmission of infection from the patient to the DHCP and vice versa.</td>
</tr>
<tr>
<td>• Worn when in contact with blood or body fluids</td>
<td>• To protect the contact of blood and saliva with the dentist’s hands.</td>
</tr>
<tr>
<td>• Double gloving may reduce the risk of exposure to high-risk patients (HIV, hepatitis B or C virus)</td>
<td></td>
</tr>
<tr>
<td>• Should be worn for the duration of the dental treatment and changed between patients</td>
<td></td>
</tr>
<tr>
<td>• Hands must be washed before wearing gloves</td>
<td></td>
</tr>
<tr>
<td><strong>Protective clothing, such as gowns or jackets</strong></td>
<td>• To protect daily clothing from contamination from splatter or aerosols.</td>
</tr>
<tr>
<td>• Change daily or when visibly contaminated with blood or oral fluids</td>
<td></td>
</tr>
<tr>
<td>• Wash separately from domestic and non-medical clothing</td>
<td>• High occurrence of blood-contaminated splashing in the direction of the dentist during surgical procedures.</td>
</tr>
<tr>
<td>• Preferably long sleeves with a tight cuff</td>
<td>• Areas commonly contaminated are the right forearm, abdomen and thorax.</td>
</tr>
</tbody>
</table>

With all of this in mind, it is the responsibility of DHCP to adhere strictly to recommended infection control guidelines and policies. Several measures should be taken to reduce and control airborne contamination in the dental clinic. For example, it has been demonstrated that the use of a mouthrinse, high-volume evacuation or a combination of both methods significantly reduces the number of colony-forming units in aerosols emitted during ultrasonic scaling.\(^13\) Routine use of rubber dam isolation provides a clean and dry area for placement of dental restorations.
prevents salivary and blood splatter, and protects the patient’s mouth and airway.

Using personal protective equipment (PPE), such as surgical masks (with at least 95 percent efficiency against particles 3 to 5 µm in diameter; changed for every patient or every 20 minutes in an aerosol environment) or 60 minutes in a non-aerosol environment), safety glasses with lateral protection to prevent contact with eyes, as well as disposable gowns and gloves to reduce the penetration of or contact with bacterial aerosols and splatters, is vital (Tab. 2).

Regular maintenance of the air-conditioning system is recommended too, as good ventilation has a diluting effect on the airborne microbial load, especially at night when the clinic is closed.12 Air samples taken at different times at a multi-chair dental clinic showed that bacterial aerosols are more concentrated during treatment and that there is higher concentration of circulating bacterial aerosols at the beginning of the day, which may be related to reduced ventilation.13 Residual bacterial aerosols can be removed through air filters or ultraviolet light.

The clinic floor should be disinfected and cleaned with an antimicrobial disinfectant solution at least twice per day to eradicate any bacterial residue from splatter or aerosol. The clinic should be scrutinised and assessed at least once a week.12, 13 Blood cells, as well as bacterial and viral particles, can survive inside handpieces even after disinfection. They must therefore be sterilised between patients.14, 15

Using personal protective equipment such as surgical masks, safety glasses as well as disposable gowns and gloves is vital.

As splatters can travel as far as the door or supply counter in the middle of a multi-chair dental clinic,14 all clean, unused instruments and equipment should be kept in closed cabinets or drawers to prevent contamination.

Other important measures that must be taken to prevent cross-infection include adequate sterilisation of dental instruments, disinfection of work surfaces before and after each dental procedure, disinfection of all dental materials and work sent out to the laboratory, and regular maintenance of the dental water lines and equipment, which has the potential to harbour bacteria. All dental water lines should be purged at the beginning of each day for between 5 and 10 minutes and flushed thoroughly with water, as residual water may become contaminated overnight and biofilm may develop along the inner side of the tube. Purging will result in a significant decrease in bacterial counts.18, 19, 20

The clinic floor should be disinfected and cleaned with an antimicrobial disinfectant solution at least twice per day to eradicate any bacterial residue from splatter or aerosol.

The Canadian Dental Association recommends running high-speed handpieces for 20–30 seconds after each treatment to purge all potentially contaminated air and water. This procedure has been proven to reduce the bacterial load in the water line significantly.15 Blood cells, as well as bacterial and viral particles, can survive inside handpieces even after disinfection. They must therefore be sterilised between patients.14, 15

Other important measures that must be taken to prevent cross-infection include adequate sterilisation of dental instruments, disinfection of work surfaces before and after each dental procedure, disinfection of all dental materials and work sent out to the laboratory, and regular maintenance of the dental water lines and equipment, which has the potential to harbour bacteria. All dental water lines should be purged at the beginning of each day for between 5 and 10 minutes and flushed thoroughly with water, as residual water may become contaminated overnight and biofilm may develop along the inner side of the tube. Purging will result in a significant decrease in bacterial counts.18, 19, 20

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It remains a difficult task to eliminate the risk of exposure to dental aerosols. The best way to reduce the risks, however, is to employ routine cross-infection protocols recommended by the health authorities, such as the CDC, WHO and ministries of health. To date, various infection control reports and procedures have been published to inform and educate dental health care personnel (DHCP) about the importance of practising adequate infection control.10

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Dentistry is not immune to threats posed by antibiotic resistance

Dr Sharon Liberali

The administrative aspects of dentistry continue to become more demanding with increasing amounts of time spent in fulfilling mandatory accreditation requirements. It can often feel overwhelming, taking us away from the clinical practice of dentistry, and there is a risk that, owing to high clinical demand, short-cuts may be taken.

However, infection control must be considered to be a central part of quality dental care. A purported commitment to high standards and the pursuit of clinical excellence is meaningless when low priority is given to quality issues in the field. Failure to address all infection control requirements increases the risk of disease transmission, ultimately compromising patient safety.

The importance of infection control in clinical dental practice simply cannot be understated. While the tasks associated with the decontamination and sterilisation processes of reusable instruments are now routine, consideration must be given to the less obvious components of the infection control process that can unwittingly compromise the health of our patients. Identifying when patients may potentially be infected with bacteria or viruses, how these bacteria or viruses may be transmitted in the health care setting, and when we need to consider must be given to quality issues in the field.

The medical threats facing us today pose significant health risks, and the situation is unlikely to improve. The WHO’s first global report on antibiotic resistance1 was released on 30 April 2014. It has identified that highly resistant organisms are now commonplace and that antibiotic resistance is a serious worldwide threat to public health. Dentistry is not immune to this.

Multi-resistant bacteria are primarily transmitted either by direct contact or indirectly via contaminated surfaces. Currently, the most problematic health care-associated multi-resistant organisms include those highlighted in the WHO report: methicillin-resistant Staphylococcus aureus (MRSA), Escherichia coli and carbapenemase-producing Gram-negative bacteria (e.g. Klebsiella pneumoniae).

Almost everything in a dental clinical setting can serve as a reservoir and/or a vector for opportunistic pathogenic organisms.

"Almost everything in a dental clinical setting can serve as a reservoir and/or a vector for opportunistic pathogenic organisms."

Apply transmission-based precautions are increasingly gaining significance.

The WHO’s report highlighted that health care workers and/or a vector for opportunistic pathogenic organisms.

This includes, but is not limited to, work surfaces, computer keyboards, the hands of health care workers, and dental equipment and/or devices. Surfaces in particular play a significant and/or devices. Surfaces in particular play a significant role in the acquisition, persistence and spread of infections.

Clinically important microorganisms that can cause health care–acquired infections have been shown to persist in every health care environment for considerable periods. This facilitates the spread of the organism throughout a health care facility, including the dental setting, especially when patients with multi-resistant organisms are not identified, and compliance with hand hygiene and surface-cleaning or disinfection is poor.

The WHO’s report highlighted that health care workers can help tackle antibiotic resistance by enhancing infection prevention and control. Every member of the dental team must follow the standard procedures required to prevent the transmission of microorganisms, including hand hygiene, personal hygiene, personal barrier protection, instrumentation disinfection and sterilisation protocols, as well as surface decontamination strategies. Work surfaces in the dental operatory that are in the contaminated zone must be cleaned after every patient by wiping the surface with a neutral detergent, while work surfaces outside the contaminated zone must be cleaned after each session or when they become visibly soiled. The dental team should be fully aware of the risk of dissemination of potentially hazardous microorganisms and ensure that efficient cross-infection control procedures are properly maintained.

Contact Info

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Non-disposable syringe tips resist sterilisation

Dental Tribune Asia Pacific Edition No. 6/2014

10 Special: Practice Hygiene

Non-disposable syringe tips resist sterilisation

DT Asia Pacific

ST LEONARDS, Australia/ DUNEDIN, New Zealand: Owing to their internal construction, air or water syringes commonly used in dentistry are generally prone to bacterial contamination. Using disposable rather than non-disposable syringe tips however could potentially decrease the risk of cross-infection between dental procedures, even when the latter kind have been thoroughly sterilised several consecutive times, researchers from New Zealand have reported in the latest issue of the Australian Dental Journal. Of 68 used non-disposable syringe tips tested for microbiological growth, almost 40 per cent were found to be harbouring different kinds of bacteria after having been sterilised with a Class B autoclave. According to the researchers, the level of contamination did not decrease significantly regardless of the number of additional sterilisation cycles the tips were run through. Flushing the instruments simultaneously with air and water before the cleaning and sterilisation processes also resulted in no difference to the level of contamination, they said.

While control tips of the disposable kind also showed contamination, the level was significantly lower. The researchers suggested that one of the main reasons for the build-up of bacteria or contaminants in non-disposable tips could be corrosion facilitated by continuous exposure of the instruments to humidity during treatment, which increases the roughness of the surface, allowing potentially harmful micro-organisms to accumulate over time. While such micro-organisms might be harmless, they recommend the use of disposable tips over non-disposable tips to reduce the risk of cross-infection.

For the study, new and used non-disposable syringe tips from the urgent care unit at the School of Dentistry of the University of Otago in Dunedin were investigated. The researchers conducted the survey involving 2,100 dentists, which found that only 15 per cent of dentists were willing to treat patients with the disease. It also found that respondents with a level of infection control practices that exceeded standard precautions, such as wearing a mask or gloves during treatment, were more likely to treat HIV/AIDS patients.

It was reported in an earlier survey in 1996, which found that only 15 per cent of dentists were willing to treat patients with the disease.

The researchers conducted the survey involving 2,100 dentists in 2011, of which the majority were male, older than 50 years and worked in general practice. The results, while lacking compared with other developed countries, are a step-up from those reported in an earlier survey in 1996, which found that only 15 per cent of dentists were willing to treat patients with the disease.

The total number of HIV/AIDS cases in Japan exceeded 20,000 in 2012, with the number of new infections per year remaining steady, according to figures from the National Institute of Infectious Diseases in Tokyo. In a report published last year, however, the institution reported that a significant number of new infections appear to go undetected, labelling the national surveillance system as insufficient. The Department of Global Health Policy at the University of Tokyo has predicted HIV/AIDS prevalence to quintuple by 2040, particularly in high-risk groups, unless new measures are introduced to the country’s public health intervention framework.

HIV/AIDS patients refused

DT Asia Pacific:

KOBE, Japan: While compliance with infection control practice in Japanese dental offices has improved lately, most dentists still seem to be hesitant to treat patients with HIV/AIDS. A survey conducted by researchers from the Department of Health Science at the University of Hyogo among practitioners in the Aichi Prefecture has found that only one in three would be willing to see patients with the disease.

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The importance of clean water lines

Jane Armitage
UK

The cleansing of water lines is something I would not normally write about but this is going to be a personal article that I would like to raise awareness to. Last year I received a telephone call from a chest consultant who told me that he thought he knew why I was being ill. He explained that this form of infection can be caught from any form of sprayed water, so please ensure these means of testing contamination by removing any suck-back of oral fluids that have bypassed the anti-retraction valve. It is recommended to use biocides to control the biofilm by daily draining down and cleaning of the waterlines to reduce biofilm build up. The bioicide (disinfectant) can be introduced with a pressurised pump or via an independent reservoir bottle.

I didn’t catch my illness from our water lines but since I have been ill the people around me have looked not only at their water lines but at their cleaning methods at home. Many have

...some dental units may harbour opportunistic respiratory pathogens.

till I come off. I have since had negative results and my X-ray is clear but I will have to remain on the drug regime as if there are any stray MAC bugs they will multiply and I will become very ill again.

The consultant was impressed with how I had tolerated the treatment as many throw the towel in before completion. Several times that thought had crossed my mind, but I wanted rid; I wanted to be me again. My reasons for sharing this information is to ask you all to be aware that this can come from sprayed water, so please ensure your water lines are cleaned with one of the many waterline cleanser/disinfectants manufactured. Biofilms form rapidly on dental unit waterlines. The majority of the organisms in the biofilm are harmless environmental species, but some dental units may harbour opportunistic respiratory pathogens.

Effective infection control is one of the cornerstones of good practice and clinical governance. Due to a combination of negative publicity and an increased scientific knowledge of dental unit waterlines (DUWL) biofilms and their associated risks, contamination of dental unit waterlines has become a prominent infection control issue. Flushing the waterlines for two minutes at the start of the day and for 20–30 seconds between patients reduces the bacterial count but in DUWL where this method is used as the sole means of water quality management flushing is unlikely to provide water of drinking water standard i.e., with a total bacterial count of 100 CFU/ml, nor will flushing remove the biofilm.

However, in dental units, which are not drained down at night, flushing at the start of the day will help to reduce the bacterial load caused by overnight water stagnation. Flushing between patients helps to prevent cross contamination by removing any suck-back of oral fluids that have bypassed the anti-retraction valve. It is recommended to use biocides to control the biofilm by daily draining down and cleaning of the waterlines to reduce biofilm build up. The bioicide (disinfectant) can be introduced with a pressurised pump or via an independent reservoir bottle.

I didn’t catch my illness from our water lines but since I have been ill the people around me have looked not only at their water lines but at their cleaning methods at home. Many have

"...some dental units may harbour opportunistic respiratory pathogens."
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Enamel Pro Prophy Paste available in VanillaMint flavour

PLYMOUTH MEETING, Pa., USA: Premier Dental has recently added the VanillaMint flavour to its Enamel Pro line. The new prophy paste flavour offers a subtle splash of vanilla blended with mild mint, according to the US company.

The only prophy paste formulated to deliver amorphous calcium phosphate, Enamel Pro uses innovative technology to prevent the loss of enamel through remineralisation. It removes stains and polishes quickly without splatter, is gluten free and rinses off easily.

Available in fine, medium and coarse grits, and in a box of 200 single-dose cups, new VanillaMint is a welcome addition to the current flavours, RaspberryMint, mint, strawberry, cinnamon, grape and bubblegum, the company said.

Premier stated that scientific data supports that Enamel Pro provides greater lustre for whiter, brighter teeth. It said that patients and dental professionals will appreciate the unique presentation, as well as pleasant aroma, flavour and taste of the product.

New product generation from Unident

GENEVA, Switzerland: Correct processing of instruments before and after treatment of dental patients is of utmost importance, according to Swiss company Unident. Developed over a period of two years, its new generation of disinfection and cleaning concentrated solutions for the treatment of dental instruments and burs is claimed to offer superior cleaning power and disinfection properties to ensure instruments are safe to handle prior to sterilisation.

According to Unident, Micro 10 Excel reliably deactivates adenovirus, HIV-1, bovine viral diarrhoea virus (surrogate for hepatitis C virus), pseudorabies virus (surrogate for hepatitis B virus), herpes virus, norovirus, vaccinia virus and rotavirus. The formula displays bactericidal, yeasticidal, fungicidal and myco-bactericidal activity after just 10 minutes of soaking.

While most instrument cycles have to be renewed every 24 hours, diluted solutions of Micro 10 Excel remain stable for up to seven days, the company said. It can be used as a holding solution and in an ultrasonic cleaner to further enhance the instrument’s cleaning power.

Unident stated that it had given special attention to instrument care and developed Micro 10 Excel in such a way that it keeps instruments in perfect condition and inhibits corrosion. Therefore, the formula was rigorously tested to ensure compatibility with a wide range of materials.

Owing to its fresh mint fragrance, Micro 10 Excel does not come with the unpleasant odours associated with many other products, both diluted and undiluted. It is available in containers of 1 l and 2.5 l with a 20 ml dosing cap.
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Minimally invasive treatment of stained anterior teeth

The art of mimicking nature with the use of pressed ceramic veneers

Dr Stefan Koubi & Gérald Ubassy
France

Today’s patients expect attractive, flawless teeth as a matter of course rather than merely functional teeth. The appearance of teeth has become an integral component of a person’s well-being. As a result, dentistry no longer comes an integral component of the outcome and to select the suitable luting composite shade (Variolink Veneer).—

The treatment plan was based on a diagnostic wax-up. Morphological criteria were of minor importance, as the treatment focused on masking the stains. Only very small adjustments were made, for example, with regard to the position of tooth 12. The patient also requested that the narrow diastema between tooth 11 and tooth 21 be closed.

In our practice, we follow biomimetic principles whenever we can and aim to cause minimal harm to healthy tooth structure. We also try to consider the natural teeth in the treatment plan. Modern materials provide the tools we need to meet this challenge. The properties of many all-ceramic products are almost identical to those of dental enamel; the materials even mimic the colour of the natural tooth structure. With the appropriate techniques, a natural appearance can be imparted to ultrathin restorations.

In this case, we decided to make the most out of the excellent optical properties of lithium disilicate. The low opacity of pressed ceramic, which is often considered to be a disadvantage for veneers, was actually useful in this case. The conventional solution would have been to treat the patient with highly opaque veneers fabricated on refractory dies, which is a rather complex procedure.

Our approach was to diffuse the stains rather than completely mask them, with the pressed lithium disilicate veneers working like an optical filter. This way, they would allow light to pass through but would scatter it similar to natural dental tissue.
The main challenge was to remove only a minimal amount of tooth structure and then mask the teeth to create the illusion of natural enamel. We selected a suitable IPS e.max Press ingot before preparing the teeth, coating the optical potential of the material. In cases where stains have to be completely covered up, a highly opaque ingot is recommended.

A considerable amount of space, however, is required to interplay of colour when veneers are used in this type of restoration. Therefore, we selected a press ingot with low translucency (LT), which may seem unusual. The decision was based on a careful analysis of the particular situation and the optical properties of the material. The idea was to have the veneers act like optical filters that would change the colour of the dentine tissue. Dental enamel is not transparent but translucent. It scatters light and therefore modifies the colour of the tooth. We also planned to characterise the framework with a subsequent layer.

A silicone matrix (wax-up) was used as a reference in tooth preparation. A small but adequate amount of tooth structure was removed in the visible aesthetic part of the tooth. In order to define the preparation depth in the enamel, we placed horizontal reference grooves (ball-ended groove bar; Fig. 2). The optimum situation was established with the help of the wax-up (Fig. 3).

In the next step, the veneers were fabricated according to the customary technique using IPS e.max Press LT ingots (Fig. 4). In the subsequent characterisation procedure, the translucent properties of the framework structure were maintained and the brightness of the teeth was increased with a layered ceramic (IPS e.max Ceram, Ivoclar Vivadent). We aimed to achieve a masking (saturated) effect by using bright and opaque enamel materials. The greatest challenge in the layering process was to imitate the structure of the dentine, the absorption areas, the opalescent translucency and the halo effect in the incisal third of the teeth. When ultra-thin restorations are produced, it is advisable to verify the shade achieved with IPS e.max Ceram Essence materials in the stains firing process.

The pressed frameworks were approximately 0.3 mm thick. The cervical areas and the middle third of the restorations were coated with only a thin layer of dentine material (Deep Dentin B1). In order to achieve an illusion of depth, we applied an effect material (Opal Effect 1) to vertical segments of the proximal areas. We then incorporated a translucent dentine layer of unsaturated Dentin B1 and neutral Dentin in a ratio of 1:1 between the proximal areas. We selectively layered a mixture of Mamelon material (MM light and MM yellow-orange) in the upper third of the restoration. Below the mamelons, we placed what we refer to as an absorption material. We used Opal Effect violet, a purple powder, which was mixed and coloured with 50% Impulse Transpa brown-grey. The difficult part of this procedure was placing the individual materials on the veneers without increasing their thickness. Finally, the layers were coated with an opalescent ceramic material (Opal Effect 4) to achieve the desired aesthetic effect. A successful outcome depended on the ratio in which the different materials were used. The layers consisted of a third of the above-mentioned materials and two thirds of the opalescent ceramic (Opal Effect 4; Fig. 5).

The teeth were air abraded to remove the bonding agent used for the provisional restorations (Fig. 10). The teeth were then etched with 37% phosphoric acid. The primer and the bonding agent were cured within 40 seconds and the surface was dried (Fig. 11). The materials were light cured for 1 minute. The restorations were etched with hydrofluoric acid for 20 seconds. They were also carefully rinsed, conditioned with silane and coated with a light-curing bonding agent. The veneers were placed, excess cement was removed and the restorations were light cured for 40 seconds at a high intensity (1,200 mW/cm²; Bluephase 2h, Ivoclar Vivadent). Finally, the rubber dam was removed and the cervical areas were carefully finished. We used a #12 scalpel blade to prevent harm to the ceramic surface. Finally, the static and dynamic occlusion was checked.

The results were highly attractive. The stains had been hidden, but the restorations had a lifelike shade, translucency and brightness. This combination of veneer, cementation material and tooth produced a highly resistant structure similar to that of natural dentition (Figs. 12 & 13). In this case, pressed lithium disilicate veneers offered an efficient means of achieving a natural balance between opacity (coverage) and translucency (vitality). The restored teeth exhibited a life-like interplay of fluorescence and brightness (Fig. 14).

With the appropriate techniques, a natural appearance can be imparted...
Endodontic restorations in one single step
DENTSPLY DeTrey’s Endo-Resto System in clinical practice

Prof. Jörg Schirrmeister
Germany

The Endo-Resto System by DENTSPLY DeTrey is a practical and comprehensive solution for endodontic restorative treatment. With the exception of gutta-percha and a conventional capping composite, the system includes everything necessary for placing a root canal filling and achieving a tight coronal seal. In addition to AH Plus Root Canal Sealing Material for the placement of the root filling and AH Plus Cleaner to remove excess from the sealer from the access cavity, it comes with a 36% phosphoric acid for conditioning the enamel and dentine, as well as the adhesive XP BOND and the flowable bulk-filling composite Smart Dentin Replacement (SDR).

With the Endo-Resto System, the endodontic filling and the definitive adhesive cap can be placed in a single session. Temporary closure is no longer required. Once the endodontic restoration has been placed, dentists can reconstruct the occlusal enamel layer with their composite of choice. In our case, we use Ceram-X (DENTSPLY), a nano-ceramic composite, which achieved excellent clinical results in our own studies conducted at the University of Freiburg.

Available since 2010, SDR is the first posterior composite for dentine replacement that combines the easy handling of a flowable composite with minimal shrinkage stress. This allows the material to be placed and processed in increments of up to 4 mm in Class I and II cavities after the application of a conventional dentine or enamel adhesive. SDR is compatible with all methacrylate-based universal or posterior composites, which are used for the capping layer. All this translates into practical benefits, allowing high-quality aesthetic restorations to be delivered at a very reasonable cost.

SDR is characterised by reduced polymerisation shrinkage stress. A polymerisation modulator changes the viscoelastic behaviour of the material as stress starts to build up during polymerisation. Polymerisation stress is therefore reduced without any adverse effects on either polymerisation speed or conversion rates, which gives SDR the necessary physical and mechanical properties for it to be used as a flowable posterior base material in the bulk-filling technique. These modifications to the methacrylate chemistry ensure compatibility with the existing methacrylate-based adhesives and composites with which dentists are familiar and whose clinical performance is scientifically documented.

The existing indications for Class I and II cavities are augmented by further indications in endodontics. A study by Dr Johannes Ebert of the University of Erlangen-Nuremberg in Germany has shown that SDR is highly suitable and safe for direct adhesive coronal restorations after root canal obturation. Particularly in endodontics, the possibility of using 4 mm increments offers significant work-flow benefits, given the depth of the access cavity. SDR is self-levelling, making it easy to introduce and less technique-sensitive.

A study on Class I cavities has shown that SDR works very well even in cavities with an unfavourably high configuration factor. In this study, SDR was the only one of the investigated materials suitable for bulk filling. In Class I and II cavities, SDR has been used successfully as well, which was documented by a prospective 24-month study.

In our case, a 24-year-old female patient presented with pulpal symptoms that had developed several months after a Class II composite restoration had been placed. At her first visit, she reported spontaneous nocturnal pain and a strong sensitivity to cold. No other clinical symptoms were found besides those reported. The results of percussion and bite testing were negative. There was no apical tenderness on palpation. No periradicular lesion could be detected on the radiograph. Irreversible pulpalitis was diagnosed based on the clinical findings.

We discussed the planned procedure with the patient and obtained her consent. She was anaesthetised, and the access cavity was prepared under the dental microscope. AH Plus (Fig. 4) was introduced into the root cavity and AH Plus residue was left in the access cavity. The access cavity was conditioned with 36% phosphoric acid. The dentine was conditioned more briefly. After conditioning with phosphoric acid, the XP BOND adhesive was applied to the enamel and dentine, as well as AH Plus Cleaner to remove excess from the sealer from the access cavity, SDR is self-levelling, and thus leaves a smooth surface.

We then proceeded to build a Class II cavity. The master point was placed, and the isthmus was conditioned with 36% phosphoric acid. A pronounced isthmus between the mesial and distal canals was evident. After conditioning with phosphoric acid, the XP BOND adhesive was applied to the enamel and dentine, as well as AH Plus Cleaner to remove excess from the sealer from the access cavity, SDR is self-levelling, and thus leaves a smooth surface.

We then placed four increments of SDR using PathFiles and ProTaper Universal files (both DENTSPLY). The gutta-percha master point was adjusted to a tight fit in the apical segment of the root canal and then checked radiographically for proper length and fit (Fig. 3). AH Plus residue (Fig. 4) from the access cavity was removed with AH Plus Cleaner (Fig. 5). After conditioning the tissue with 36% phosphoric acid (DeTrey Conditioner 36; Fig. 6-8), the orange filter was activated on the dental microscope, and XP Bond was applied (Figs. 9-10) and light cured. SDR was then placed in 4 mm increments (Figs. 11 & 12) and light cured. Finally, the cavity was restored with Ceram-X monomer M2 as an enamel cap (Fig. 13). The endodontic filling was controlled radiographically (Fig. 14).

Conclusion
DENTSPLY DeTrey’s Endo-Resto System offers dentists a practical and time-saving system that includes all the materials, from the sealer to the bulk-filling composite. The major innovation in this system is clearly SDR. For the first time, low polymerisation stress combined with a high curing depth facilitate the use of a flowable composite base in the bulk-filling technique with up to 4 mm increments in Class I and II cavities.

The excellent sealing properties of the material are crucial in preventing reinfection, specifically in endodontic access cavities. The advantages over conventional composites concern handling and time. The self-levelising consistency of SDR ensures ideal adaptation to the cavity walls. Compatibility with existing methacrylate adhesives and composites, and delivery in one universal shade in Compula Tips simplify the workflow for economical high-quality aesthetic posterior restorations. As far as post-endodontic applications are concerned, the system could only benefit from a slightly longer metal cusp.
A state-of-the-art device for 3-D scanning

Terry Whitty reports on AGE Solution’s Maestro Scanner system

The concept of digital study models has often been talked about, particularly in orthodontic circles, as a solution to the considerable physical space required to store physical models. If a model could be scanned in three dimensions to a high degree of accuracy, stored electronically and then reconstituted should the need arise some time in the future, then the need for physical storage of models could potentially be eliminated.

While there has been talk of this, little in the way of real solutions have been available. Study model scanning services exist but often if you look at the fine print in their terms and conditions, you may not even own the scans of your own models!

A more practical alternative is to be able to scan study models in your own laboratory rather than sending them out to be scanned by a third party.

Digital models have many advantages; they are easy to make, inexpensive, very accurate, cost very little to store and transportation is a breeze. Amazingly, you can store over 800 sets of models on one DVD-R disc or an average 500 GB hard drive could hold a staggering 100,000 sets of models! Much better than rooms and rooms full of study models.

I have been working with digital models for some time and have examined several systems on the market today. I have recently found a great new digital study model system with a host of very “useable” features and the best news of all is that it is very affordable.

The Maestro Scanner system consists of a digital 3-D scanner and various software programs so you can easily scan dental models, manipulate the data in various ways and then easily share this data so anyone anywhere with the viewing software can visualise the digital models.

The Maestro Scanner is a smartly designed state-of-the-art structured light 3-D scanner. It uses patterns of light and two digital cameras to measure the surface of the model in three dimensions. Projecting a narrow band of light onto a three-dimensional, irregularly shaped surface produces a line of illumination that is distorted from other perspectives than that of the projector, and can be used for an exact geometric reconstruction of the surface shape. This is the basis of structured light scanning and in this case, uses no lasers so it’s completely safe for anyone to use. It also has great accuracy and is quite speedy in operation.

This type of scanning is used by many dental CAD/CAM manufacturers so the technology is well proven for our market.

The Maestro System comes with the Maestro Easy Dental Scan program and I have to say, the name says it all. Put your model into the scanner, click a button or two and you are on your way to a scanned model. However, diving deeper into the program allows you to uncover more complex features if you wish. It even allows you to scan crown and bridge models and acquire multiple dies (up to 8) in one scan. Some of the more advanced CAD/CAM scanners are not able to do this.

Remember, digital study models are not just for orthodontic purposes but can be used for all dental models. It’s a great way to diagnose, discuss and store models.

The quality of the scans is more than impressive with a great amount of detail once the scans are processed. Once you scan the upper and lower models and do a quick occlusal scan, the registering of the scanned models into the correct bite relationship is completely automatic. This is a feature I really like. You can also register the models in various relationships—centric relation; centric occlusion; protrusive or construction bite to name a few. There are also various editing and measuring tools provided and you can do adjustments to the scans if needed. You can save the finished files in industry standard STL or a proprietary ORTHO and ORTHO iPAD file format. File sizes are quite small and easily emailed to clients.

One of the additional notable features of Easy Dental Scan is the option to batch scan. In many systems, immediately after the scan is completed, it is processed and can take quite a bit of time. With the batch scan, you can quickly scan several models and then complete the processing of the scans at a later time. You simply walk away and the computer does all the work while you get on with something else.

There is also an Ortho Studio program. This starts with a powerful and cleverly thought out database section. Sets of models are sorted by Dental Practice–Dentist–Patient and this is great because it’s very easy to find what you are looking for. It only takes a few minutes to master this section. It is just so easy to use.

When a set of models are loaded, all the information from the database accompanies it so you know exactly what you are looking at. In this section of the program, you will find tools for creating virtual orthodontic bases using various popular angles including ABO 2015, measuring tooth and arch width, occlusal mapping, multiple views, snapshot, printing and more. Of course it’s very easy to use so people will actually use it! This is a great program to give away to people you want to share your digital files with. For example, you may be a lab scanning models for various clients. You can distribute the free viewer to these clients so they can view and diagnose direct from the scans.

A real bonus of the package has to be the free Ortho Studio Viewer. This program is in a down version of Ortho Studio but is still feature rich enough for using digital models for diagnosis on an everyday basis. The viewer includes tools for measuring tooth and arch width, occlusal mapping, multiple views, snapshot, printing and more. Of course it’s very easy to use so people will actually use it! This is a great program to give away to people you want to share your digital files with. For example, you may be a lab scanning models for various clients. You can distribute the free viewer to these clients so they can view and diagnose direct from the scans.
Minimally invasive, maximally effective

The new Piezomed offers extremely high performance, yet is gentle on soft tissue. In addition, it includes automatic instrument recognition and LED handpiece illumination. The handpiece with the cable is thermo washer disinfectable and sterilizable!
The emirate of Dubai will become the centre of the Asia Pacific dental community again this month, when the Dubai International Convention & Exhibition Centre opens its doors to professionals from Asia and the Middle East for the next edition of the Asia Pacific Dental Conference. Held in Dubai for the first time, the event is not only the largest get-together of dental players in the region but also the most prominent showcase of the latest in science, technology and products for dentistry.

The show is held for the 36th time this year. According to latest estimates, up to 50 dealers and manufacturers from the region and abroad have registered for the dental exhibition. Among innovations such as new and improved dental materials or equipment, a huge number of advanced digital solutions will be on display, that were developed to improve the workflow and communication between dental practices and laboratories for the benefit of patients.

Current issues and methods in dentistry will be discussed at the scientific programme, which will see clinical presentations by more than 50 local and internationally renowned speakers. A number of specialised courses also took place again this year prior to the congress. In addition, a symposium on regenerative dentistry will be held this years with presentations focusing on topics such as stem cells or regenerative endodontics. Special events focusing on the use of botox in dentistry and implants will also be held.

“This is the first time since its inception in 1955 that the Asia Pacific Dental Federation is holding its annual congress in the Middle East, and Dubai is all geared up to make the event a memorable one,” said APDC 2014 Chairperson Dr Aisha Sultan Alsuwaidi. “Key note speakers have been invited to share their knowledge and expertise in the various fields of dentistry. In addition to the scientific program, an international trade exhibition will showcase the latest trends and technologies in the dental sciences.”

The Asia Pacific Dental Conference is held from 17 to 19 February. It is organised by the Asia Pacific Dental Federation in partnership with the United Arab Emirates Ministry of Health, as well as the Emirates Medical Association and Emirates Dental Society. Last year’s edition in Kuala Lumpur, Malaysia attracted more than 3,000 dental professionals from the Asia Pacific region and abroad, according to figures of the APDF.
Scientific Schedule

Tuesday, 17 June

09:00–09:45 Challenges in Pediatric Dentistry, Maktoum A
Speaker: Dr. Dina Debaybo

09:00–10:30 From Smile Design to Composite Veneer, Maktoum B & C
Speaker: Dr. Bart Brandmans

09:00–10:00 Cone beam and Orthodontic treatment, Maktoum D
Speaker: Dr. Noël K. Abu Hassan

9:45–10:30 TMA- Anatomy to Dental Morphology—Clinical Application, Maktoum A
Speaker: Prof. William L. J. Fuh

10:00–11:00 Bone Ring Technique, Maktoum D
Speaker: Dr. Bernd Giesenhagen

11:00–11:45 Temporo-Mandibular Dysfunction and Occlusion, Maktoum B & C
Speaker: Dr. Asimkard

11:00–12:00 Root Canal Irrigation Dynamics—what's new and what's really true!
Speaker: Dr. Gopi Krishna

11:30–12:30 New Horizons in Implant Prosthodontics: Analogue vs. CAD/CAM-generated Superstructures, Maktoum D
Speaker: Dr. Peter Uwe Geiringer

11:45–12:45 Introduction to Computerized Occusial Analysis, Maltoum B & C
Speaker: Dr. Robert Kersztin

12:00–12:45 Computer Guided Implantology at your fingertips, Maktoum A
Speaker: Dr. Philippe Tardieu

13:30–14:15 Comprehensive Esthetic Considerations for Implant Surgery, Maktoum B & C
Speaker: Dr. Michael Chen

Medical Emergencies in Dental Office, Maktoum A
Speaker: Dr. Janne Rautiainen

13:30–15:30 Implant Esthetics: From Expectations to Reality, Maktoum D
Speaker: Dr. Uwe Belzer

14:15–15:00 Periodontal Inflammation: from gingivitis to systemic diseases, Maktoum B & C
Speaker: Dr. Roy Abou Fadel

Regenerative Endodontics, a State of the Art, Maktoum A
Speaker: Dr. Zaki Malallah

15:30–16:15 Bone tissue engineering, Maktoum B & C
Speaker: Prof. Saso Ivanovski

Customer Service in the Dental Practice, Maktoum A
Speaker: Dr. William Chong

16:15–17:00 Must a removable reconstruction be anasthetic?, Maktoum B & C
Speaker: Prof. Sandro Palla

16:00–17:00 Simple Aesthetic Orthodontics for the General Dentist, Maktoum D
Speaker: Dr. Tof Quadri

17:30 Welcome Ceremony

Wednesday, 18 June

09:00–17:00 Regenerative Dentistry Symposium, Abu Dhabi B

09:00–09:45 The pulp therapy in primary teeth, Maktoum B & C
Speaker: Dr. Massoud Kowsari

Soft tissue management around implants, Maktoum A
Speaker: Dr. Zafar Al Rasani

09:45–10:30 Dental Ergonomics: Evidence-based guidelines for equipment selection, adjustment and positioning, Maktoum D
Speaker: Bethany Oto

Tiny Teeth: Baby’s First Dental Visit, Maktoum A
Speaker: Dr. Andrea Menoni

09:45–10:30 Complications and Malpractice in minor oral surgery, Maktoum B & C
Speaker: Dr. Anubha Sacheti

11:00–11:45 Application of radiology in Forensic odontological investigations, Maktoum B & C
Speaker: Prof. Prabhatkumar Nandakar

The Endodontic Gildeppaz: “The road to NiTi Rotory Safety and efficiency”, Maktoum D
Speaker: Dr. Rashid Elbas

11:00–12:30 Full-Mouth Adhesive Rehabilitation of Severely Eroded Dentitions: a Novel Treatment Concept, Maktoum A
Speaker: Dr. Uwe Belzer

11:45–12:30 Resorption of hard dental tissues, Maktoum B & C
Speaker: Dr. Prasad Anantunga

11:45–12:45 Autism and Paediatric Dentistry, Maktoum D
Speaker: Dr. Meeta Chandwani

13:30–14:15 Interdisciplinary Management of Complex Dental Problems, Maktoum B & C
Speaker: Dr. Mithran Gunasekaran

Conservative, conventional and unconventional endodontics, Maktoum A
Speaker: Assoc. Prof. Patrick E.K. Tong

13:30–14:30 New perspectives in sinus floor elevation techniques, Maktoum D
Speaker: Dr. Christian Makary

14:15–15:00 Systemic diseases, oral mucosal lesions and the dental practitioner, Maktoum B & C
Speaker: Dr. Abraham Thomas

14:15–15:15 Long term clinical results of ceramic abutments, Maktoum A
Speaker: Prof. Young Hak Han

14:30–15:30 Bruxism and Temporomandibular disorders: Is there a causal relationship?, Maktoum D
Speaker: Prof. Sandro Palla

15:30–16:20 Mini Dental Implants, Maktoum B & C
Speaker: Dr. Todd Stathin

15:45–16:30 Digital Prosthodontics: The future is now, Maktoum A
Speaker: Prof. Shuv Shankar

16:00–17:00 Remineralization therapy in Contemporary Esthetic Dentistry, Maktoum D
Speaker: Dr. Andrey Akhovitch

16:30–17:00 Hard and soft tissue grafting, Maktoum A
Speaker: Terry Oto

Thursday, 19 June

09:00–10:30 Techniques To Restore Patients To Normal Contour, Comfort, Function, Esthetics and Health, Maktoum B & C
Speaker: Dr. Hisa Tohru

Clinical impact of new materials and techniques on fixed restorative dentistry, Maktoum A
Speaker: Dr. Arun Nayar

09:00–10:00 Regenerative Strategies in Implant Dentistry—Peri-Implantitis And Current Trends, Maktoum D
Speaker: Stavros Matsumanikas

10:00–11:00 The Box Technique: Aesthetically Guided Bone Regeneration, Maktoum D
Speaker: Dr. Andrea Moutzias

11:00–11:45 The selection of biomaterials and surgical techniques in Peridental plastic surgery, Maktoum A
Speaker: Prof. Guilio Rasperini

11:00–12:30 Occlusion in Restorative Dentistry, Maktoum B & C
Speaker: Dr. Shashuke Iyer

11:30–12:30 Maintaining patients with dental implants: Strategies for sustainable success, Maktoum D
Speaker: Dr. Nikos Mattheos

11:45–12:45 Controversies in dental implantology, Maktoum A
Speaker: Dr. Emad Al Subahi

Speaker: Dr. Asimkard

14:00–14:45 Ergonomics for dental personnel, Maktoum A
Speaker: Marie Jalkanen

Diversity of Dental Implant Therapies, Maktoum D
Speaker: Dr. Naweed Al Dousari

14:15–15:00 How to tame a dragon, Maktoum B & C
Speaker: Dr. Mohammed Mounzur

14:45–15:30 Dental plaque associated with self-lying brackets during orthodontic treatment, Maktoum A
Speaker: Dr. Shuai Ali Amert

15:15–17:15 No pain, less stress—vision or reality for dental patients? Local anaesthesia and pain pharmacotherapy in dentistry, Maktoum A
Speaker: Krzysztof Ganczorz

15:30–16:15 My experiments and experiences with Inhalation Sedation, Maktoum B & C
Speaker: Dr. Srivatsan Namini

16:00–17:00 Horizontal and Vertical Grafting Techniques, Maktoum D
Speaker: Terry Oto

16:15–17:00 Porcelain Laminate Veneers: Prep & No-Prep, Maktoum B & C
Speaker: Lamberto Vilani

17:30 Closing Ceremony
APDC Dubai 2014—Floor plan

APDC Dubai 2014—Exhibitors list

Floor plan and exhibitors list are subject to change.

Last update was 28 May, 2014.
In addition to its elegant and stylish design, its ease-of-use, its high image resolution and its reliability, the I-Max Touch 3D offers the ideal field of view (FOV) for use in dental imaging. With SimPlant® software pre-loaded, the I-Max Touch 3D is a MUST-HAVE for your implant planning procedure.