India extends public dental health care with 2014 budget

Daniel Zimmermann
DT Asia Pacific

NEW DELHI, India: In his 2014 budget speech presented to the parliament in New Delhi, India’s Minister of Finance Arun Jaitley has proposed multimillion-rupee funding for the establishment of a number of new government-run hospitals. The 12 institutions that he has said will be established in cities throughout the country will include treatment facilities for oral health care.

In addition to increased funding for public dental services, a new research and referral institute for higher dental studies is to be set up in one of the existing dental schools. The minister did not provide details, however, on where or when the institute will be established.

The measures are just two of a number of initiatives intended to improve access to health care for a large part of the Indian population. The additional investment in this sector for the next fiscal year will amount to 500 million rupees (US$8.5 million), according to Jaitley.

Commenting on the budget, which will also see tax reductions for low-income households and seniors, Prime Minister Narendra Modi said that the new budget will be a ray of hope for the Indian population. The addi-

New caries initiative in the Philippines

MH17 records delivered

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Mukherjee joins FDI AWDC

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Carious lesions

How to treat them with help of dental sealants

Photo showing Ashik Gavai, an Indian teenager who recently had over 20 tiny teeth extracted from his mouth owing to abnormal growth affecting his right mandibular second molar. (DTI/Photo courtesy of IANS, India)

Photo showing Union Minister for Finance, Corporate Affairs and Defence, Arun Jaitley (left) on his way to present the General Budget 2014/2015. (DTI/Photo: Press Information Bureau, India)

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Stable implant integration and functionality, along with aesthetic treatment outcome, specific principles for the augmentation of keratinized gingiva as well as change the gingiva typology.

The researchers reviewed randomised clinic trials conducted around the world from the group’s own database. From this, the only statistically significant difference observed was in relation to surface preparations, with smoother (turned) surfaces being found to be less prone to bone loss associated with peri-implantitis than were rougher surfaces.

Smother surfaces, however, appeared to fail early more often, according to the analysis.

Similar results were reported by the group in a series of earlier reviews, of which the latest was published in 2002. In the most recent update, two of the review authors independently compared 58 different implant types, which had been placed in 27 trials involving more than 1,500 patients, ranging from the early 1980s to early 2014. They said that, while their report provided no evidence that one specific type of implant proved superior in terms of long-term success to other types of implants with different characteristics, the results would have to be evaluated carefully owing to the low number of participants and short follow-up periods, which ranged from one to ten years.

Overall, more than half of the reviewed trials proved to be at high risk of bias, they said.

“One well known weakness of such a meta-analysis of several small studies is that it cannot predict the results of a larger study,” remarked Prof. Stefan Holst, Global Head of Research and Science at Nobel Biocare, one of the global market leaders in dental implantology, on the report’s findings. “With 58 different implant types with highly diverse geometries, surfaces, prosthetic superstructures and clinical protocols applied—several of which are no longer in use—there are many variables. The meta-analysis dilutes any potential effect of a single relevant implant surface or implant characteristic in clinical practice today.”

A representative of Straumann also cautioned against the results, saying that the review reflects the fact that there is very little or no published clinical data on the majority of commercially available dental implants, since they have not been clinically tested.

He emphasised that all of the implants available today only 58 tested in randomised controlled clinical trials were considered worthy of review.

“When regard to our own implants, the review excluded studies that we and others feel are important. Furthermore, it did not consider the large body of bench tests and preclinical trials that demonstrate significant differences in some cases,” the representative told Dental Tribune Asia Pacific.

According to the Cochrane Collaboration, there are more than 1,500 different dental implants available on the market today. The total value of fixed tooth replacements was estimated to be US$5.4 billion in 2011, a figure that some analysts expect to almost double in the next five years owing to the increasing demand of an ageing population and more dentists starting to place dental implants.

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**Asia News**

**Dental Tribune reports no evidence for superior long-term success of dental implants**

IT Asia Pacific:

**Melbourne, Australia/Manchester, UK:** Promising superior clinical outcomes, plenty of new dental implants are launched to markets each year. A report by researchers from the Cochrane Oral Health Group in Melbourne and Manchester has recently suggested that there may be no differences in terms of long-term success, regardless of the shape of the implant or the material used.

The researchers reviewed randomised clinical trials conducted around the world from the group’s own database. From this, the only statistically significant difference observed was in relation to surface preparations, with smoother (turned) surfaces being found to be less prone to bone loss associated with peri-implantitis than were rougher surfaces.

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Patients in Australia favour receiving rapid HIV testing

SYDNEY, Australia: Despite the necessary technology having been available for a number of years already, rapid HIV testing is not yet widely offered in dental settings around the world. A study, which included 521 dental patients from Sydney in Australia, now found that more than 80 per cent of oral health patients are willing to undergo such tests during dental appointments. Seventy-six per cent of those willing to receive rapid HIV testing at the dentist’s office preferred an oral swab, 15 per cent a pin prick test, and 8 per cent a traditional blood test, it also showed.

“Dentists are well placed to offer rapid HIV testing because they are located throughout the community, have ongoing relationships with their patients, and have the necessary training and expertise to recognise systemic diseases that have oral manifestations, such as HIV/AIDS,” said Dr Anthony Santella, a public health scientist who led the study. He added that about 45 per cent of dentists are currently willing to conduct rapid HIV testing.

The new findings of the study were presented at the HIV Testing Symposium, which was held on 16 July at the university’s Western Sydney Sexual Health centre.

According to the 2014 Annual Surveillance Report, a comprehensive analysis of HIV, viral hepatitis and sexually transmissible infections in Australia provided by the Kirby Institute, approximately 14 per cent of all HIV cases in Australia are undiagnosed. The institute estimates that 24,500–30,900 people are living with HIV in Australia.

Moreover, patients in Australia will soon be able to buy rapid oral HIV tests over the counter. At the beginning of the month, the government removed restrictions preventing the manufacture and sale of HIV home self-tests. Now, companies can sell such tests directly to consumers.

Honorary General Secretary of the Indian Dental Association Dr Ashok Dhoble commented: “IDA has been championing the cause and has undertaken several initiatives to improve oral health and with it the quality of life of people in the country. Setting up a research and referral institute for higher dental studies on a national level as proposed in the budget is the need of the hour, if we are to usher in a new dawn in oral health care.”

The measures would be welcome in the country, where the majority of the population is still unable to access even basic dental treatment. According to a report published last year by researchers from the Gian Sagar Dental College in Rajpura near Delhi in northern India, the current dentist-to-patient ratio ranges from an already low 1:10,000 to a devastating 1:150,000 in some rural areas, despite the ten thousands of students graduating from the country’s approximately 300 dental schools each year. Lead author Dr Ramandeep Singh Gambhir therefore doubts that the proposed budget concessions will have any long-term effect.

“The budget means no reform for the existing problems, as it only concentrates on dental research which is already being conducted in postgraduate dental institutions,” he explained. “Setting up dental clinics in medical hospitals won’t solve the problem either, unless there are programmes which can raise the awareness level of the Indian population.”

According to reports, most Indians are still unaware of the benefits of oral health measures that are common in other parts of the world. In a 2011 study conducted in public schools in Mumbai, for example, it was found that 40 per cent of students still used their finger instead of a toothbrush to clean their teeth. Even worse results were found with regard to flossing and the use of mouthwash.

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Dear reader,

Implants are probably a topic in dentistry that has the potential to spark vigorous debate among clinicians. Whenever I talk to dentists in interviews or casually at congresses, I almost certainly encounter two opposing viewpoints: those who are passionate advocates of the devices or those who believe implants signal the doom of dentistry.

The truth, as always, lies somewhere in the middle, but there is certainly a corporate influence in dental implantology nowadays that cannot be ignored. Or to quote a well-known implantologist I recently interviewed: “I am afraid these companies own us.”

With an increasing number of dentists expected to start placing implants, this issue will become ever more important. I wonder what your viewpoint on the debate is.

Yours sincerely,
Daniel Zimmermann
Group Editor
Dental Tribune International

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

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

China Dental Show

Dr Sebastian Saba
Canada

During the past few years, there appears to have been an increase in the continuing education courses being offered. Many of the courses cover implant dentistry, but the conventional courses that form the basis of learning the skills to save teeth have been fewer in number. Apparently, everybody wants to learn how to place a dental implant surgically.

In the past, dentists spent four to five years in dental school learning many of the skills needed to save teeth. These skills involve different forms of dentistry, not limited to periodontics, operative dentistry or endodontics. They spent countless hours learning to negotiate root surfaces in debridement and root canal curvatures in endodontics, as well as multiple techniques in operative dentistry to preserve teeth. But all that has changed overnight. Why spend so much time saving teeth when you can remove them and place a dental implant in half the time? Is this really better for the patient? Why burden the patient with multiple periodontal procedures to save teeth when the alternative is here?

This approach appears to be widespread in the thinking of clinicians today. Many are concerned that dentists are not promoting the correct approach to preserving the integrity of the natural dentition. The attitude is so contagious that even some endodontists are learning to place dental implants. Is this not a clear conflict of interest? What is their motivation? Are we doing enough to teach dentists to diagnose and prognose the ailing dentition? When does an ailing dentition become a failing dentition? When is it appropriate to choose implant dentistry over conventional, time-proven and predictable conventional dentistry?

The removal of key aspects of dental training creates dentists who are not confident to diagnose or render the necessary procedures to save teeth adequately. Their clinical skills in recognising and managing ailing dentitions are limited. Their ability to recognise when and where dental implants may be used may be influencing their ability or motivation to save teeth. Are we not creating a conflict of interest for our patients? The true need should be to return to the basics and learn to save teeth first, so patients are able to keep the most natural dental implant of them all.

Yours sincerely,
Daniel Zimmermann
Group Editor
Dental Tribune International

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Dr Sebastian Saba is Editor-in-Chief of Dental Tribune Canada. He can be contacted at sabpros@sympatico.ca.

The Ebola virus epidemic: A concern for dentistry?

Prof. Lakshman Samarasinghe
Australia

Twenty-two years ago, a seminal report from the Institute of Medicine (IOM) in the US titled Emerging Infections: Microbial Threats to Health in the United States warned of the dangers of so-called newly emerging and re-emerging diseases. The concept of “emerging infectious diseases”, introduced then by the IOM is now well entrenched, and to our chagrin we have witnessed many such diseases over the last two decades. These include vari- ant Creutzfeldt-Jakob disease/bovine spongiform encephalopathy, severe acute respiratory syndrome, and Middle East respiratory syndrome, and above all the pandemic of acquired immune deficiency syndrome (Aids), which has claimed millions of lives worldwide. The re-emerging diseases we have seen include diseases caused by meticillin-resistant Staphylococcus aureus, and multidrug-resistant and extensively drug-resistant tuberculosis.

Interestingly, the concept of “emerging infectious diseases” is not new. Indeed ancient Greek, Roman and Persian writers document the emergence of many new epidemics. In more recent times, the scientist Robert Boyle presciently observed in 1865 that...
“...we cannot afford to let our guard down...”

In dentistry, we are constantly exposed to these emerging and re-emerging infectious threats and we cannot afford to let our guard down. Vigilance, awareness and good clinical practice with standard infection control at all times are fundamental to prevention, as yet-unimagined new diseases surely lie in wait.

Although we have made spectacular technical and scientific advances since the release of the original IOM report some two decades ago, it appears that humans are still defenceless in the face of the relentless march of our microbe foes.

Contact Info
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BEFORE Icon treatment

AFTER Icon treatment
During the last two months, 52 football teams from around the globe were competing for the World Cup trophy in Brazil. Dental Tribune Group Editor Daniel Zimmermann had the opportunity to speak with Dr Dietrich Fischer-Brooks from Germany, a former FIFA-appointed dentist who also provides dental care for German Bundesliga club Eintracht Frankfurt, about the oral health of players and why the infamous bite inflicted by Uruguay superstar Luis Suárez during his team’s match against Italy could have rather serious implications for his opponent.

Daniel Zimmermann: Dr Fischer-Brooks, the biting incident involving Luis Suárez has made headlines during this year’s World Cup tournament. In addition to a long-term ban, could this incident have any implications for his oral health?

Dr Dietrich Fischer-Brooks: Only for his Italian opponent, Giorgio Chiellini. A wide variety of harmful bacteria live in the oral cavity and a bite inflicted by a human can have serious health implications. I know of some severe infections that have resulted from such bites.

Suárez appeared to have suffered from pain directly after the incident. Was this real or just an act?

I believe that this was just an act. Upon realising that he had been bitten, the Italian would likely have struck out at Suárez, but whether he really hit Suárez is subject to speculation.

Would you have recommended that Suárez visit a dentist after the game?

Only if he had really been struck on the mouth. Shortly afterwards, I saw him giving an interview, however, which indicates that it could not have been that bad.

A bite inflicted by a human can have serious health implications. I know of some severe infections that have resulted from such bites.

How important are good teeth in football?

Definitely. Many of the players I treat here in Frankfurt on a regular basis have sustained injuries to their anterior teeth at some time in their career. Therefore, many players wear mouth guards while playing. One often sees them during post-match interviews.

Do players have to undergo dental check-ups during a tournament like the World Cup or is oral health considered their personal responsibility?

This really depends on the professionalism of the staff. As a principle, players should be checked in advance of the tournament for any signs of infections in the mouth, or in the jaw and face area.

Cases of players suffering sudden cardiac death on the pitch are not uncommon. In many of these cases, the cause was a serious infection, which may have resulted from dental problems, including infected third molars, severe periodontitis or infections in endodontically treated teeth, to name a few.

What impact can these problems have on the health or the performance of players?

Bacteria migration from anywhere in the human body can affect the heart valves. Moreover, it can lead to inflammation in joints like the knee. I remember a case here in Frankfurt in which a player, who also played for the Czech national team, was unable to wear football shoes for months owing to a fistula on his small toe. We were finally able to attribute this to an infected third molar. When we removed the molar, the fistula disappeared within days, allowing the player to resume training.

Football players have celebrity status and pay significant attention to their body image. How important are good teeth in this regard?

Straight and attractive teeth have become a symbol of success. I have to say, however, that some players have developed a downright tooth fetish, as they visit me every two or three months to have their teeth checked. In many foreign players, particularly those from Eastern Europe, it is evident that they did not receive adequate dental care while they were children. Consequently, I usually have to perform extensive dental treatment on them.

During the 2006 tournament in Germany, players were responsible for dental treatment for the team from England and Saudi Arabia. Did you observe any differences with regard to their oral health?

There are significant inequalities internationally. Dental care (similar to general health care) in Germany, for example, is not the best. This is evident in the poor state of dentition, including defective fillings and other signs of second-rate dentistry. High-quality oral health care as practised in Germany or Switzerland, for example, is not common.

Owing to your work, do you pay more attention to the teeth of footballers, and are there any players whose teeth have impressed you lately?

I am really fascinated by James Rodríguez from Columbia. This young player has very attractive teeth. At the moment, I have also been paying attention to the teeth of Rodríguez, as one commonly sees them in players during interviews. Aesthetics is one thing, but there are also medical aspects to this.

Thank you very much for the interview.
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Ivoclar Vivadent discusses monolithic restorations in London

LONDON, UK: For over 150 years, the Westminster Hospital in London took care of the sick and disabled until making way for the Queen Elizabeth II Convention Centre in 1991. One of the most high-profile convention venues in the British capital today, this modern flat-roofed building opposite Westminster Abbey now stages over 550 events each year.

Recently, dental manufacturer Ivoclar Vivadent from Liechtenstein hosted hundreds of professionals from all over the globe at the prestigious venue to discuss the latest in monolithic restorations. Following the principal that dental restorations should always mimic the natural dentition, prominent clinicians from Europe and the Americas presented a number of clinical cases that demonstrated what can be achieved with dental ceramics. Impressive restorative work was shown by German dentist Dr George Eliades (second from right) in discussions with other experts.

The use of CAD/CAM technology, was further shown by Italian technician Michele Temperani to achieve higher aesthetic outcomes when combined with all-ceramic materials. Issues in the field were also addressed, including the correct bonding technique, which, according to Belgian presenter Bart van Meerbeek, depends on functional monomers. While research has shown that self-etching is often the most effective approach, theetch andrinse technique is still required in many cases, he explained.

During a round-table discussion held on the first day, all experts agreed that a thorough diagnosis and a good working relationship between the clinician and dental technician are still among the most important criteria for achieving the best results.

Overall, Ivoclar's latest expert event drew over 750 delegates to London. Organised in collaboration with King's College London Dental Institute, one of the most prestigious dental institutions in the UK, it was the second edition of a series that started in Berlin in Germany two years ago. A follow-up event has already been scheduled for 2016 and will be held in Madrid in Spain, with the Sales Officer at Ivoclar Vivadent Josef Richter saying:

Delegates can look forward to a number of new products to be launched by Ivoclar Vivadent during the year, including the much-anticipated IPS e.max Press multi, which will allow horizontal pressing for longstanding clinical success.

Also announced were new furnaces in Ivoclar Vivadent's Programat line with a new design that will offer guided pressing, among other features, to make restorations easier and faster.

In response to increasing demand, Wieland Dental, part of Ivoclar Vivadent since 2012, will be launching a new version of its compact CNC milling system Zenote that will allow wet pressing. The company's offering of Zenostar zirconia, as well as all-ceramic solutions, will also be extended.

Improved zirconia announced by Kuraray Noritake

TOKYO, Japan: Kuraray Noritake Dental has said it has developed a new kind of zirconia that, according to the Japanese company, features higher flexural strength and fracture toughness than any other material of its kind. The material demonstrated significantly improved flexibility in a three-point flexural strength test when compared with results from a test conducted with a conventional zirconia.

Fracture toughness was even found to be twice as high in the new material, the company reports. More importantly, unlike in most conventional zirconia, the crystal structure of the new material does not appear to change to a monoclinic phase under high pressure and temperatures. This process usually makes materials prone to damage by inducing stress.

According to Kuraray Noritake Dental, the material also does not need to be subjected to hot isostatic pressing, an industrial process for improving physical or chemical characteristics of ceramics and metals.

The yet unnamed material is intended to be used in the production of a new generation of durable and more resistant dental materials. In addition, it will offer benefits for the development of prosthetic joints and other industrial applications.

In the next step, the company said it will ready the material for launch to dental markets and other commercial industries.

The material is the first joint development announced by the company, which was formed from a merger of dental material manufacturers Kuraray Medical and Noritake Dental Supply two years ago.
Challenging but poised for growth

An introduction to the dental market in the People’s Republic of China

Chiang-Hoa Whitney
USA

With its long history, rich culture and large population, China has been the focus of attention for centuries. Particularly, its rapid economic growth in the last two decades has triggered increasing interest from Western businesses, who have sought to participate in this vast market. After having experienced all the highs in the initial days, as well as the disappointing lows as China’s realities set in, many have found themselves wondering whether the Chinese market is still as attractive as it appeared at first, and how to ultimately succeed in the market. There are many successful foreign companies in the market now.

Whitney Consulting is a regulatory consulting company exclusively focusing on Chinese regulatory affairs, including product registration, regulatory strategies and regulatory compliance. Its sister company, Whitney Research, is a market research company specializing in Chinese market research, competitive analysis, reimbursement research, business strategies and investment advice. Both companies also work closely with international trade groups to bring international suppliers and their advanced medical products into the Chinese market.

In 20 years of operating in China, we at Whitney Consulting and Whitney Research have seen the ups and downs of this exciting market, and weathered the economic and political storms. This feature article is an attempt to share our knowledge, experiences and observations on market trends with readers of Dental Tribune Asia Pacific.

It is necessary to consider background information to the Chinese dental market. Currently, it is estimated that China has a population of 1.3 billion people, of whom more than two-thirds are under 54 years of age, and the number of men slightly exceeding the number of women. In contrast to many developing countries, the elderly demographic is relatively small, with less than 10 per cent over the age of 65. The country is the largest economy in Asia and the second largest in the world after the US. According to the National Bureau of Statistics of China, the national average disposable income of urban residents in 2015 was ¥26,955 ($US4,383), which at the current (11 August) exchange rate (US$1 = ¥6.15) equals a net growth of 7 per cent compared with the year before. The top five municipalities and provinces ranked by disposable income level in 2012 were the Shanghai Municipality, Beijing Municipality, Jiangsu Province, Tianjin Municipality and Shan-dong Province.

An underdeveloped market

Dental diseases are traditionally considered non-acute illnesses (i.e. not life/death situations). Therefore, knowledge of dental care and treatment is generally lacking. According to the Third National Oral Health Epidemiological Survey, published in 2008, 94 per cent of the population had some form of dental problem, of which the most prevalent were calculus (97 per cent), caries (88 per cent) and periodontal disease (85 per cent). Dental sensitivity, plaque and malocclusion were also highly prevalent. The report also found that 66 per cent of children aged five had cavities. Almost one third of children aged 12 also had cavities in the permanent teeth. In the adult population, it was found that adults between the ages of 35 and 44 had cavities, and only 8.4 per cent of the teeth with cavities had been treated. Periodontal disease was rather rare and only affected 14 per cent of the population. Tooth loss affected more than every third person between the ages of 35 and 44 and almost one in ten people between the ages of 65 and 74. Between 10 and 42.6 per cent of adults wore dentures.

Despite the obvious demand for dental care services in the population, the Chinese market remains under-developed. For every one million people, there are only 100 dentists, compared with 500-1,000 dentists in the US or EU countries. Even Brazil, another developing nation, has a better dentist-patient ratio.

Chinese dental schools produce 15,000 new dentists each year, a number that is expected to accelerate through newly established dental hospitals and clinics. There are approximately 500 dental specialty hospitals in the country. The major providers of dental care to the public, however, are still the thousands of state-run dental hospitals, which offer the full range of dental services and rely on their long history, reputation, experience and large number of patients. In recent years, small private clinics have sprung up in large numbers, taking advantage of the relaxed government regulations for private health care centres. Over 50,000 of these are estimated to be in operation to date. As the private health care market is still largely in its infancy and relatively unorganised, these clinics will face difficulties and probably losses in the near future.

The medical device market in China is dominated by international high-end suppliers. Lately, the annual imports of dental X-ray systems have been growing in double digits each year, as have the imports of dental materials and equipment, such as chairs. While Chinese manufacturers have traditionally served the medium and lower end of the market, they are now gaining ground owing to improvements in technology, higher product quality, and financial and policy support from the government, among other factors.

International companies looking to enter the Chinese dental market typically use trade shows as avenues to showcase their products, meet with prospective dealers and customers, as well as obtain an overview of the competitive landscape. One of the most shows in China, the China Dental Show, which is co-sponsored by the Chinese Stomatological Association and will be held in Shanghai from 25 to 28 September this year, will focus on dental implants and feature the best products, suppliers and customers in this field around the world.

The information provided above offers only a very brief synopsis of this challenging market. Other important subjects, such as the changing public view on dental care, the regulatory environment, regulations, policies, reimbursement and medical treatment, which many companies find difficult to understand and to navigate, will be explored in future articles.

It is evident that China is poised for high growth in the dental industry because it has the health needs, number of patients, financial availability and increased awareness of the benefits of good oral health. In order to be successful and survive in China, businesses must have the tenacity to undertake prolonged research and develop the ability to adapt and the determination to overcome obstacles, while fulfilling the expectations of the public concerning health benefits.

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Clinical guidelines for the use of ProTaper Next instruments (Part I)

According to Bird, Chambers and Peters, rotary nickel-titanium (NiTi) instruments have become a standard tool for shaping root canal systems. Compared with conventional stainless-steel instruments, these instruments offer several advantages. For instance, they are more flexible and have increased cutting efficiency. They can also create centred preparations more rapidly as well as produce tapered root canal preparations that tend to have less canal transportation. However, NiTi instruments appear to have a high risk of fracture mainly because of flexural and torsional stresses during rotation in the root canal system.

When there is a wide area of contact between the cutting edge of the instrument and the canal wall during rotation, the instrument will be subjected to an increase in torsional stress. The preparation of a reproducible glide path, a smooth passage that extends from the canal orifice in the pulp chamber to its opening at the apex of the root, can reduce the torsional stress on root canal instruments. This way, a continuous and uninterrupted pathway for the rotary NiTi instrument to enter and to move freely to the root canal terminus is provided. The main purpose of a glide path is to create a root canal diameter the same size of the first rotary instrument used or ideally a size larger than that.

Another way to reduce torsional stress is to incorporate multiple progressive tapers into the instrument design, as the ProTaper Universal system (DENTSPLY Maillefer) does, for example. According to West, the progressive tapering allows for only small areas of dentine to be compromised. This design concept also contributes to maintaining the original canal curvature.

The ProTaper Next system was recently launched on the dental market. Although it comprises five instruments, most canals can be prepared by using only the first two. Each file comes with an increasing and decreasing percentage tapered design on a single file. This multiple progressive taper concept helps to reduce contact between the cutting flutes of the instrument and the dentine wall, thus reducing the possibility of taper lock (screw-in effect). It also increases flexibility and cutting efficiency.

The first instrument in the system is the ProTaper Next X1 (Fig. 1) with a tip size of 0.17 mm and a 12% taper. This instrument is used after a reproducible glide path has been created by means of hand instruments or rotary PathFiles (DENTSPLY Maillefer). The ProTaper Next X2 (0.25 mm tip with 6% taper; Fig. 2) can be regarded as the first finishing file in the system, as it leaves the prepared root canal with adequate shape and taper for optimal irrigation and root canal obturation. Both the X1 and X2 have an increasing and decreasing percentage tapered design over the active portion of the instruments.

The last three finishing instruments are the ProTaper Next X3 (0.5 mm tip with 7% taper; Fig. 3), ProTaper Next X4 (0.4 mm tip with 8% taper, Fig. 4) and ProTaper Next X5 (0.5 mm tip with 9% taper; Fig. 5). All three have a decreasing percentage taper from the tip to the shank. They can be used to either create more taper in a root canal or prepare larger root canal systems.

Another benefit of the system is that the instruments are manufactured from M-Wire and not from a traditional NiTi alloy. Johnson et al demonstrated that the M-Wire alloy can reduce cyclic fatigue by 400% compared with similar instruments manufactured from conventional NiTi alloys. This allows for instruments that are more flexible, increased safety, and protection against fracture of the instruments.

The last major advantage of root canal preparation with the ProTaper Next system is that most of the instruments have a bilateral symmetrical rectangular cross-section that is offset from the central axis of rotation (except in the last 3 mm of the instrument, D6-D5). The exception is the ProTaper Next X1, which has a square cross-section in the last 5 mm segment to give the instrument a bit more core strength in the narrow apical part.

This design feature results in a rotational phenomenon known as precession or swagger, which further minimises the engagement between the instrument and the dentine walls for reduced taper lock, screw-in effects and stress on the file. The removal of debris occurs in a coronal direction because the off-centre cross-section allows for more space around the flutes of the instrument. This leads to improved cutting efficiency, as the blades remain in contact with the surrounding dentine walls. This way, root canal preparation is faster and requires less effort.

The swaggering motion of the instrument initiates the activation of the irrigation solution during canal preparation, further improving debris removal. Every instrument is capable of cutting a larger volume of motion (larger canal preparation size; Fig. 6) compared with an instrument of similar size with a symmetrical

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**Fig. 1**: ProTaper Next X1
**Fig. 2**: ProTaper Next X2
**Fig. 3**: ProTaper Next X3
**Fig. 4**: ProTaper Next X4
**Fig. 5**: ProTaper Next X5

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**Fig. 6**: Cross-section view of ProTaper Next instruments.
mass and axis of rotation. This allows the clinician to use fewer instruments in preparing a root canal, as well as adequate shape and taper for optimal irrigation and obturation. Moreover, there is a smooth transition between the different sizes of instruments as the instrument sequence itself expands exponentially.

Clinical guidelines for ProTaper Next instruments

The clinical technique for ProTaper Next will be discussed in the following case reports. The first example will outline the basic guidelines for the use of ProTaper Next instruments.

Case report 1

The patient, a 64-year-old male, presented with a previously conducted emergency root canal treatment on his maxillary left first premolar. A periapical radiograph showed evidence of three separate roots and a large periapical lesion (Fig. 8). According to the patient, the tooth was left open to allow for drainage by his dentist who had performed the emergency root canal treatment.

Guideline 1: Create straight-line access and remove triangles of dentine

It is very important to prepare an adequate access cavity that will allow straight-line access into each root canal system. However, in this clinical case, there was still a dentine triangle obscuring direct access to the distobuccal root canal system (Figs. 9a & b). The #5 Start-X tip (DENTSPLY Maillefer) was used to remove some of this dentine on the pulp floor (Fig. 10) for more direct access to the distobuccal root canal orifice.

A micro-opener (10.06) was used to locate and enlarge the distobuccal and mesiobuccal canal orifices (Fig. 11). For improved radicular access, the SX instrument from the ProTaper Universal system was employed (Fig. 12a). Introducing the file into the coronal portion of the root canal is recommended to ensure that the file can rotate freely. Restrictive dentine is then removed by using a back stroke outward brushing motion. This step will also relocate the canal orifices more mesially or distally (away from furcal danger) and pre-flare the canal orifices to provide complete straight-line access to the root canal system (Fig. 12b).

Guideline 2: Negotiate the canal to patency and remove triangles of dentine

The authors of the article prefer to negotiate the root canal with size 08 or 10 K-files until apical patency is established (Fig. 13a). This is the ability to pass small k-files (0.5–1.0 mm) passively through the apical constriction and beyond the minor diameter without having to widen it.15 Length determination should be performed with a Propex Pixi apex locator (DENTSPLY Maillefer). Predictable readings can be achieved by using two size 10 K-files in the mesiobuccal and distobuccal root canals, and a size 20 K-file in the larger palatal root canal. The results have to be confirmed radiographically (Fig. 11b).

After working length determination, a reproducible glide path should be established. It is recommended that the stainless-steel k-files be used in an in-and-out motion vertically with an amplitude of 1 mm, gradually increasing the amplitude as the dentine-wall wears away and the file advances apically.16 West also recommends a super-loose size 10 K-file as the minimum requirement. In order to confirm that a reproducible glide path has been established, the size 10 file should be taken to full working length (Fig. 14a). The file is then withdrawn 1 mm and should be able to slide back to working length by applying light pressure with the finger. Then, the file is withdrawn 2 mm and should be able to slide back to working length using the same protocol. Once the file can be withdrawn 4–5 mm and slides back to working length (Fig. 14b), a reproducible glide path has been established.16

The reproducible glide path should then be enlarged by using rotary PathFiles. The #1 PathFile (0.15 mm tip size) should be taken to full working length while operating at 500 rpm and 5 Ncm torque (Fig. 15a). Once the file has reached working length, the authors recommend brushing lightly outwards against one side of the canal wall. The file should then be pushed back to working length and brushed outwards against another part of the canal wall. This procedure should be repeated four times (touching the canal wall in a mesial, distal, buccal and lingual direction). Then, the #2 PathFile (0.16 mm tip size) should be used in accordance with the same protocol (Fig. 15b). In most cases, it is only necessary to enlarge the glide path to the second PathFile (0.16 mm), as the X1 has a tip size of ISO 17. However, using the 43 PathFile (0.19 mm tip size) for more challenging root canal systems is recommended.

Guideline 3: ProTaper Next preparation sequence

Sodium hypochlorite (NaOCl) and the ProTaper Next X1 instrument should be introduced into the root canal. The authors found that there are five scenarios with the X1: easy root canals, more difficult and longer root canals, very long and severely curved root canals, as well as large-diameter root canals and root canals for retreatment for which the use of the X1 is not necessary and canal preparation can be initiated with the ProTaper Next X2, X3, X4 or X5. The last two scenarios will be discussed later in the article.

In the case of easy canals (a mesiobuccal root canal in this case report), the X1 (operating at 500 rpm and torque of 2.8 Ncm) should slide down the glide path up to working length (Fig. 16a). If this is possible, the instrument should be pushed back to approximately 2–3 mm short of working length, followed by a deliberate back stroke outward brushing motion, away from any external root concavities, to create more space in the coronal aspect of the root canal (Fig. 16b). Finally, the file should be taken to full working length and touch the apex. Brushing outwards (coronally) with the file in the apical third of the root canal is recommended. This touch-and-brush sequence can be repeated up to three or four times (Fig. 16c). For more difficult and longer canals (a distobuccal root canal in this case report), the X1 should
A deliberate back stroke outward brushing motion removes restrictive dentine at this level, away from any external root concavities. This motion will create more lateral space, enabling the file to slide a few more millimetres down the root canal towards working length (Fig. 17b). If the file ceases to progress apically, the file should be removed. After cleaning the flutes, the canal should be irrigated, recapitulated and re-irrigated before continuing with the shaping. This procedure should be repeated until the file reaches full working length. In order to complete the canal preparation, the file should be taken to full working length (Fig. 17c), followed by the touch-and-brush sequence, which should be performed up to three to four times.

After the use of the X1, it is recommended that the canal be irrigated with NaClO, recapitulated with a small patency file to dislodge cutting debris and re-irrigated to flush out all of the dislodged debris from the root canal (Figs. 18a–c).

**ProTaper Next X2**

The instrument (25.06) should be taken to full working length using the same protocol discussed above. However, using the touch-and-brush sequence in the apical part of the root canal only two to three times is recommended as a final step (Fig. 19), as excessive use can lead to transportation of the root canal. The instrument (25.06) should again be irrigated, recapitulated and re-irrigated.

Gauging of the apical foramen to determine whether the preparation is complete

A 25.02 NiTi hand file (DENTSPLY Maillefer) should be introduced to full working length (Fig. 20). If the file is snug at working length, it indicates that the apical foramen has been prepared to ISO 25 and the canal is adequately shaped.

If the 30.02 instrument fits tightly but is short of full working length (Fig. 22a), continuing with canal preparation with the X3 (50.07, Fig. 22b) and gauging again with the 50.02 NiTi hand instrument (Fig. 22c) is recommended.

**Guideline 4:**

**Shaping recommendations for the ProTaper Next X1, X3 and X4**

The X5, as well as X4 and X5, if necessary, is used in the same manner as the X1 or X2, with the exception that the apical preparation is performed using the touch-and-brush sequence only once or twice in the apical third of the root canal. Apical gauging is performed according to the protocol using a 50.02, 40.02 or 30.02 NiTi instrument. The 50.02 instrument fitted snugly at working length in the palatal root canal in the present case report. The canals were obturated with X2 gutta-percha points in the mesiobuccal and distobuccal root canals and an X3 gutta-percha point in the palatal root canal as master cones using the Calamus Dual obturation unit (DENTSPLY Maillefer). Figure 23 demonstrates the result after canal obturation.

**Preparation sequence for very long and curved root canals**

In selected clinical cases, the clinician might find that the ProTaper Next X1 does not progress to full working length even after several coronal circumferential brushing motions. The authors then recommend creating more coronal shaping using the X1, followed by the X2 up to two-thirds of the canal length. This preparation sequence will create enough lateral space in the coronal two-thirds of the root canal to ensure that the X1 can be taken to full working length without any difficulty.

**Case report 2**

The patient, a 56-year-old female, presented with pain in...
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The defective temporary restoration and caries were removed before the tooth was restored with composite and a new access cavity was prepared. The dentine triangles on the mesial aspect of the canal orifices (Fig. 23) were removed with the ProTaper Universal SX instrument. Figure 26 shows the radiographic view of the length determination, confirming straight-line access to the root canals.

As mentioned before, the clinical protocol in cases with very long and curved root canals would be to allow the X1 to progress to about two-thirds of the canal length (Fig. 27a). This is followed by the irrigation, recapitulation and re-irrigation sequence with NaOCl. The X2 is used in the same manner (with circumferential outstroke brushing motions) to the same length (Fig. 27b). The canal preparation is then continued with the X1 to full working length (Fig. 27c) using the previously mentioned touch-and-brush sequence. Finally, the X2 is taken to full working length (Fig. 27d) after irrigation, recapitulation and re-irrigation of the root canal.

The canals were gauged according to the technique described before and final preparation was performed up to the X2 in the mesial root canals and up to the X3 in the distal root canal. GuttaCore verifiers (DENTSPLY Tulsa Dental Specialties) were fitted (Fig. 28a) in working length to confirm the size of the obturators for each canal before the canals were obturated with the corresponding GuttaCore obturators. Figure 28b shows the result after obturation.

Shaping recommendations for large-diameter root canals or retreatment of root canals

If the first file to working length is a size 20 K-file and it is loose up to working length, the shaping procedure can be initiated using the X2 (25.06). If the first file to length is a 25/30, 30/35 or 40/45 file and it is loose in the canal up to working length, the shaping procedure can be initiated with the X3 (30.07), X4 (40.06) or X5 (50.06), respectively.

Case report 3

The patient, a 44-year-old female, presented with pain and discomfort in her maxillary right central incisor. The radiographic examination revealed that previous root canal treatment had been conducted poorly. There was also evidence of a large periapical area (Fig. 29a).

After removing the gutta-percha, it was possible to take a size 55 K-file to working length (Fig. 29b). Root canal preparation was initiated by preparing the root canal to working length with the X1 (40.06; Fig. 30a). Apical gauging with a 40.02 NiTi hand file established that the tip of the file was loose at length and able to travel past the predetermined working length (Fig. 30b) and that a 50.02 NiTi hand file was unable to reach full working length, penetrating to about 2 mm short of working length (Fig. 30c). This indicated that the apical foramen size was between 0.8 and 1.5 mm. The root canal was enlarged with the X3 (50.06; Fig. 31a) and gauged again with a 50.02 hand NiTi file. It was found that the 50.02 instrument fitted snugly at working length (Fig. 31b), indicating that the shape was complete. The prepared canal was obturated with a ProTaper Next X5 gutta-percha point using the Galamus Dual. Figures 31c and d show the result after obturation.

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Infiltration with a resin material
A micro-invasive approach to the treatment of white fluorosis spots

De Marie Clement
France

Owing to the increasing demand for cosmetic treatment in dentistry, it has become essential to provide patients with the best possible therapies. Fluorosis-related colour changes on the anterior teeth are a reason that many patients visit their dentist for aesthetic treatment. In the worst-case scenario, these fluorosis spots may result in severe psychological complications for patients.

For the treatment of lesions that appear as white spots, the infiltration method is recommended. This very mild approach was originally developed to treat early cavities. As a side effect, it has been found to transform the tooth’s optical properties, making it suitable for masking white spots. The original principle is based on the use of an infiltrating substance, which penetrates the carious lesion after it has been conditioned with an acid and dried.1-3

White fluorosis spots form owing to fluorosis-related hypomineralisation that produces a refractive index that differs from that of healthy tooth enamel. As the lesions do not absorb any wavelength of light, they appear to be white. By infiltrating a porous lesion with a highly fluid resin material with a refractive index comparable to healthy enamel, however, it is possible to restore the enamel’s transparency.4 The following case report demonstrates how this treatment can be carried out with maximum protection of tissue.5-7

A young female patient presented at our practice with the requirement for anterior tooth veneers to mask her fluorosis spots (Fig. 1). It was also noted that her fluoride consumption had exceeded the prophylactic dose for many years, as no other prior exposure to fluoride was determined. While the patient’s fluorosis was confirmed and classified as Class II, the clinical examination showed no carious lesions. According to Hattab’s classification,8 a Class II fluorosis is characterised by symmetrical opaque discoloration.

External whitening was performed by means of a vacuum-powered unit, which was worn overnight, and a 10 % carbamide peroxide gel. The treatment took 21 days, during which the results were examined once a week. By increasing the overall brightness of the teeth, whitening masks the smaller white flaws in the enamel. Although the visual results after whitening may be satisfactory, they are often insufficient. In this case, the opaque fluorosis spots were not sufficiently masked by brightening the rest of the teeth (Fig. 2). For this reason, it was decided to perform infiltration one month after the end of the whitening treatment. In order to remove the biofilm and salivary proteins, an initial prophylactic cleaning was carried out using a brush and prophylactic paste (Fig. 3). A dry operating area was established with the help of a rubber dam. This way, moisture can be avoided. Furthermore, the soft tissue is protected from hydrochloric acid.

The next step was to gain access to the hypo-mineralised fluorosis lesions through the removal of heavily mineralised apatitic enamel on the surface. This was achieved by etching the surface with a 15 % hydrogen chloride gel (Icon-Etch, DMG) for 120 seconds using an applicator tip (Fig. 4). In order to prevent uneven etching results caused by bubbles forming in the gel, the surface was mechanically activated with a micro-brush. The gel was then suctioned off. The surface was then rinsed with a water spray for 30 seconds and blow-dried with oil-free and water-free air.

After the etching had been completed, it was important to remove the water in the microporous parts of the fluorosis lesions before starting the infiltration with the resin material. The lesions therefore were dried thoroughly using a 95 % ethanol solution (Icon-Dry, DMG), which was applied to the surface of the lesion with a blunt cannula for 30 seconds.

At this stage, it was possible to monitor whether the white spots had disappeared or been significantly reduced and to draw conclusions about the potential outcome of the treatment (Fig. 5). If the brightness of the lesions has not regressed sufficiently, this indicates that the lesions’ micropores, covered with a highly-mineralised layer, are not yet completely accessible. Should this be the case, the etching process should be repeated over a period of 120 seconds (Fig. 6).

Etching a third time should be considered if the white lesions are still recognisable after the second application of Icon-Dry, followed by the final drying process with oil-free and water-free air to allow the ethanol to evaporate. After drying, the lesions will appear more pronounced (white-opaque, bright), which can be explained by the refractive index of air.

After rinsing, drying and reaplication of the ethanol solution, the lesions appeared less bright this time to the extent that they seemed to have almost disappeared (Fig. 7). At this stage, the infiltration was carried out, after the interdental matrices had been fitted. The resin material (Icon-Infiltrant, DMG) was applied with the applicator tip supplied (Fig. 8).

Owing to capillary forces, the highly liquid hydrophobic resin penetrates the porous parts of the lesion. This process usually takes about three minutes. Since the resin is light curable, this step has to be carried out away from light.

The solvents were removed with air spray. Excess material on the vestibular surface was removed with dental floss and fine-grit polishing strips. The vestibular areas were polished with silicone tips. The final polish was performed with silicone carbide brushes, diamond pastes used with a goat’s hair brush (Fig. 9) and aluminium oxide paste used with a felt wheel.

As a result, an immediate improvement in the aesthetic appearance of the patient was achieved (Fig. 10), which has led to significant changes in her personal and social life. Checks were carried out every six months to evaluate the ageing of the resin material over time.1-3

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REFLECT celebrates its 10-year anniversary

An interview with Josef Richter, Chief Sales Officer, Ivoclar Vivadent

Ten years ago, REFLECT magazine was published for the first time. Today, it ranks among the highest-circulation dental publications. The magazine’s concept is straightforward. It offers dental professionals a platform to present in detail their treatment solutions using Ivoclar Vivadent products. On the occasion of its 10-year anniversary, Mr Josef Richter, Chief Sales Officer at Ivoclar Vivadent and intellectual father of REFLECT, talked about the magazine’s beginnings, development and future.

Mr Richter, you brought REFLECT magazine into being. How did it all start?

It all started with customers asking for a medium which would allow a professional and interdisciplinary exchange of ideas. They suggested that Ivoclar Vivadent provides a platform to promote the professional exchange of clinical and technical day-to-day experiences. Then, and as I believe even today, customers were particularly interested in treatment solutions of individual patient cases, especially when complications had to be overcome. Furthermore, readers continue to be interested in learning more about the potential of materials in successfully mastering the various restorative and prosthetic challenges— all for the benefit of the patient.

How was the first edition received by its readers?

At that time, it was rather unusual for a manufacturer of dental materials and equipment to publish a primarily scientific and factual magazine on its own initiative, because this would prevent the publication from being impartial. As a result, the first edition was received very critically and cautiously.

Since then, approximately 200 user reports from authors throughout the world have been published. How is the magazine positioned today?

In my opinion, REFLECT has evolved into something more than just a prestigious dental magazine. It has established itself as a reference medium for dentists and dental technicians who would like to call attention to their work in order to discuss their approach with their colleagues and enter into critical debate. When visiting the different markets, I am often asked to assess the work of dentists or dental technicians who believe that their work might represent a “best practice” example of a successful restoration or prostheses, which would be worth publishing in REFLECT. Unfortunately, I have no or only limited influence on the articles which will be published in the magazine. It has established itself as a reference medium for dentists and dental technicians who would like to call attention to their work in order to discuss their approach with their colleagues and enter into critical debate. When visiting the different markets, I am often asked to assess the work of dentists or dental technicians who believe that their work might represent a “best practice” example of a successful restoration or prostheses, which would be worth publishing in REFLECT. Unfortunately, I have no or only limited influence on the articles which will be published in the magazine.

The name “REFLECT” has a double meaning: “to think about” and “to mirror”. Has the name been deliberately chosen based on this double meaning?

Yes, exactly. Even the best result can motivate someone to further improve certain things next time. Nature is so fascinating because it can be imitated in so many different ways. Dental professionals who look at their completed work, who examine it and who reflect on it will surely ask themselves this one question: How can I succeed in better imitating nature next time? This question can be debated with colleagues in the field—and the publication of a patient case provides the basis for such intensive discussions.

An anniversary not only presents the perfect occasion for a review of the past but also for a look into the future. Which trends will leave a mark on the dental market and which types of user reports will dominate REFLECT magazine in the future?

The ongoing boom in the area of digital technologies, i.e. the “digital workflow”, is currently the centre of attraction on the dental market. Most likely, we will see an increasing number of articles on the processes and the materials used in digital workflows. Furthermore, I expect that the subject of a monolithic approach, i.e. the fabrication of prosthetics or restorations made of one piece, will increasingly be presented in the publication. Articles focusing on the clinical use of individually fabricated abutments will also be given special attention.

You have been involved in the dental sector for more than 20 years. What attracts you personally to this industry?

Actually, the dental sector has been home to me for even a little longer. However, I try to make light of this as I do not want to be counted among the industry’s old dinosaurs yet! I feel privileged to be pursuing an occupation which serves the health and well-being of people. Firstly, dentistry is able to help human beings to solve dental-related problems and secondly, to regain their sense of well-being and natural vibrancy to a large degree. It makes me feel very good to be able to provide the high-quality materials and equipment required to achieve all of this.

Thank you very much for the interview, Mr Richter.

Josef Richter came up with the idea for a scientific magazine.

The name “REFLECT” has a double meaning: “to think about” and “to mirror”.

REFLECT is generally not a commercial medium, which might be the reason for its popularity among dental professionals.”

Yes, exactly. Even the best result can motivate someone to further improve certain things next time. Nature is so fascinating because it can be imitated in so many different ways. Dental professionals who look at their completed work, who examine it and who reflect on it will surely ask themselves this one question: How can I succeed in better imitating nature next time? This question can be debated with colleagues in the field—and the publication of a patient case provides the basis for such intensive discussions.
Preventing carious lesions
A clinical case describing the use of a dental sealant

Shannon Pace Brinker
USA

Dental caries has long represented a significant oral health issue for children and adults. In the 1980s, however, the prevalence of coronal caries in children steadily declined in segments of the population after the implementation of fluoride supplements and toothpastes, increased public oral health education, and the application of dental sealants.1

Since they were first utilised in dental offices in the 1970s, dental sealants (resin based or glass ionomer cement) have been effective in caries prevention. Acting as a barrier, they are typically applied to the premolars and molars where decay is most likely to develop. They have been proven effective in preventing pit and fissure caries,2 as well as caries on the occlusal surfaces of permanent molars and in high-risk cases.3

Over the years, sealants have been implemented in public programmes as a way to reach children of low socio-economic status, who are more susceptible to and often have a high prevalence of caries. Studies regarding the retention rates and clinical benefits of community sealant programmes conducted by county health departments determined that children who received sealants had a 71 per cent successful retention rate and considerable protection from occlusal decay up to fifth grade.4

Other studies indicated that sealants are more effective when placed in patients with established risk factors for occlusal caries,5 while others have suggested that knowledge gaps remain regarding the costs and benefits of scaling low versus high-risk populations.6,7 This may partly explain why research regarding caries risk assessment and the use of preventive techniques in children aged 6 to 18 years found that dental sealants and toothbrushing were the most frequently used caries preventive regimens.8

Currently, new and improved dental sealants that are beneficial and cost effective are available for use. They reflect an evolution in which sealants have advanced to become more cost effective, and research shows that properly placed and retained sealants can decrease the occurrence of carious lesions and avoid restorative costs.9

Characteristics of dental sealants
The earliest generations of sealants were vulnerable to fissures, bubbles and failure to adapt to dentition, which contributed to earlier wear. As a result, they required replacement over time, which is an essential component of care prevention to avoid bacterial infiltration that can lead to carious lesions. Early sealants typically lasted six months to a year.10

First- and second-generation sealants demonstrated a high resistance to flow and low viscosity, causing the material to run over the margins of the tooth and other surfaces. These sealants were usually clear and resembled caries in subsequent radiographs. Additionally, early generations of sealants were incompatible with moisture and required application in a dry environment to prevent contamination and sealant failure caused by a weakened sealant bond.

Although third-generation sealants showed improvements, they still had some shortcomings. These sealants were more viscous and easier to handle, and as a result the sealant remained on the tooth surface until it was light cured. However, research showed that light-emitting diodes or halogen lights were insufficient for curing 2 mm-thick opaque sealants or sealants with a high filler content, potentially causing microleakage and insufficient microhardness.11

Adhesion is one of the most important features of a dental sealant. Studies have shown that self-adhesive sealants do not have as defined an etching pattern as do etch-and-rinse adhesives.12 A pre-treatment conditioning protocol with an appropriate acid is necessary to obtain adequate penetration of a sealing material.13

Newer generations of sealants can be cured in a moist environment and do not require complete drying of the tooth surface after etching. This is possible owing to the hydrophilic agents in today’s sealants. Nowadays, dental profes-
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THE NEW LUTING FAMILY

Cases 

A 9-year-old patient presented with deep pits and fissures upon examination. It was determined that applying UltraSeal XT hydro to deep pits and fissures would be the best course of preventive treatment. The tooth was cleaned with pumice and a prophylaxis angle to remove any debris prior to sealant placement. A Black Light lens (Ultradent) was attached to the Ultra-Etch etchant syringe (Ultradent) containing a 55% phosphoric acid solution. The Inspiral Brush tip was attached to the UltraSeal XT hydro syringe for later application of the sealant.

The fissures of the teeth were cleaned using a micro-etcher from Ultradent. The selected teeth were isolated with cotton rolls to avoid saliva contamination. Etchant was applied to the fissures of the teeth for 20 seconds. The teeth were thoroughly rinsed with a water spray and dried with an air abrasion unit. It was necessary to repeat etching and rinsing in cases in which sodium bicarbonate was used.

Prior to applying the sealant, a small drop of UltraSeal XT hydro was expressed on to the Inspiral Brush tip. In order to prevent premature polymerisation of the dental sealant, the overhead light was redirected, and the sealant was applied using a painting action, followed by light agitation. The sealant was light cured using the VALO LED curing light (Ultradent) for 10 seconds. It is recommended that clinicians and patients wear UV protective eyewear when the sealant is cured to prevent injuries. The sealant margins were examined with a Black Light lens (Ultradent) to verify marginal retention visually. The occlusion was examined and appropriately adjusted.

Conclusion
Sealant placement remains an integral component of preventive dentistry. UltraSeal XT hydro is an innovative dental sealant that is easy to use, cost effective, and clinically proven to help prevent the formation of cavities in pit and fissure areas.

Contact Info
Shannon Pace Brinker is a dentist assistant in a private practice in Virginia Beach in Virginia in the US. She can be contacted at shannonpace@aol.com.
On behalf of the Hong Kong Dental Association and the organising committee, we warmly invite you to the Hong Kong International Dental Expo and Symposium (HKIDEAS) 2014, which will be held on 22 to 24 August 2014.

We strongly believe that HKIDEAS 2014 will once again provide an opportunity to foster advancement, and exchange knowledge and skills in the field of dentistry.

It is the fourth time that we are hosting HKIDEAS since it was first launched in 2010. Under the theme “Commitment to excellence”, this year’s congress will offer a platform for learning and exchanging ideas with internationally distinguished speakers in a cutting-edge scientific programme.

Held concurrently with the symposium, the trade exhibition offers a perfect opportunity for exhibitors to showcase their up-to-date, sophisticated products and devices to all HKIDEAS participants.

We believe that the great diversity of sightseeing attractions in Hong Kong will impress, and offer participants a memorable and interesting experience.

I sincerely look forward to seeing you at HKIDEAS 2014. Your participation will certainly help make this event another success.
Overview of scientific session and workshops

Friday, 22 August, 2014

9:00–10:30
Treatment Planning in Periodontics and its Relevance to implant Patients, Hall 3F
Speaker: Prof. Greg Seymor

11:15–12:45
Patient-Centred Approach in Management of Dental Hypersensitivity, Hall 3F
Speaker: Prof. Stephen Wei

Surgical complication: Prevention and Management, Hall 3G
Speaker: Dr Surakit Visuttiwattanakorn

14:15–15:45
Modern Management of Caries as a Dynamic Disease Process, Hall 3F
Speaker: Prof. Domenick Zero

16:30–18:00
Modern Management of Caries as a Dynamic Disease Process, Hall 3F
Speaker: Prof. Domenick Zero

Saturday, 23 August, 2014

9:00–10:30
Endodontic Solutions: Strategies for Performing Endodontic Treatment Predictably, Profitably and Painlessly, Hall 3F
Speaker: Dr Gary Glassman

CBCT Imaging-Application Beyond Implantology, Hall 3G
Speaker: Dr Sharad Sahai

11:15–12:45
Endodontic Solutions: Strategies for Performing Endodontic Treatment Predictably, Profitably and Painlessly, Hall 3F
Speaker: Dr Gary Glassman

CBCT Imaging-Application Beyond Implantology, Hall 3G
Speaker: Dr Sharad Sahai

14:15–15:45
Etiology, Diagnosis and Treatment of Peri-Implant Diseases, Hall 3F
Speaker: Dr Jörg Meyle

Orthodontics is Beyond Just Braces, Hall 3G
Speaker: Prof. Gang Shen

Workshop on Endodontic Solutions, Meeting Room S428
Leader: Dr Gary Glassman

16:30–18:00
Etiology, Diagnosis and Treatment of Peri-Implant Diseases, Hall 3F
Speaker: Dr Jörg Meyle

The Management of Adults with Intellectual Disability Who Had Previous Bad Dental Experience, Hall 3G
Speaker: Prof. Shun-Te Huang

Workshop on Endodontic Solutions, Meeting Room S428
Leader: Dr Gary Glassman

Sunday, 24 August, 2014

9:00–10:30
Creating a Five-star Dental Practice, Hall 3F
Speaker: Dr William Cheung

Workshop on CBCT, Meeting Room S428
Leader: Dr Sharad Sahai

9:30–12:45
1st Cross-Strait Elderly Dental Forum
11:15–12:45
Teeth with Periodontitis: Treat or Extract?, Hall 3F
Speaker: Prof. Thomas Flemming

14:45–18:00
Chinese Dentist Forum in Oral and Maxillofacial Surgery, Hall 3F
Speaker: Prof. Wei Lin

Winning from Detail—Application of Damon System in the Clinic, Hall 3G
Speaker: Prof. Wei Lin

Integration of D-Gainer Passive Self Ligation Appliance (PSL) in Interceptive Orthodontics, Hall 3G
Speaker: Dr John Ling
HKIDEAS 2014—Floor plan

Registration: Hall 3F&G Concourse, Level 3, Old Wing, HKCEC
Exhibition: Hall 3G, Level 3, Old Wing, HKCEC

HKIDEAS 2014—Exhibitors list

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<th>Company</th>
<th>Confirmed Booth No.</th>
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<tr>
<td>Advance Dental Consulting Ltd.</td>
<td>D08, D10, D12</td>
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<tr>
<td>Bauhinia Dental Limited</td>
<td>C05, C07</td>
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<tr>
<td>Biomate Medical Device Technology Co., Ltd.</td>
<td>G05–G06</td>
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<td>Carestream Health</td>
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<tr>
<td>Hong Kong Limited</td>
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<tr>
<td>Carl Zeiss Far East Co., Ltd.</td>
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<tr>
<td>Colgate-Palmolive (H.K.) Ltd.</td>
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<tr>
<td>Dental Asia</td>
<td>A02</td>
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<tr>
<td>Dental Clinic Management System</td>
<td>J08–J10, J19–J20</td>
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<tr>
<td>Dental News Philippines</td>
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<td>Dental Tribune International GmbH</td>
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<tr>
<td>DENTSPILY International Inc.</td>
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<td>Dentz HK Ltd. &amp; Vanguard</td>
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<td>Computer Assisted Laboratory</td>
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<td>BIO Asia Pacific Limited</td>
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<td>Faculty of Dentistry, The University of Hong Kong</td>
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<td>Green Paradise International Ltd.</td>
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<td>Healthcare Dental Limited</td>
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<td>Hong Kong Dental Association</td>
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<td>Interdental Limited</td>
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<td>Johnson &amp; Johnson (Hong Kong) Limited</td>
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<td>Limited</td>
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<td>KaVo Kerr Group</td>
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<td>Keenworld Technology Limited</td>
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<td>Medi-dent International Ltd.</td>
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<td>Pioneer of Dentistry Column</td>
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<td>Procter &amp; Gamble HK Ltd.</td>
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<td>Dental Systems (HK) Ltd.</td>
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<td>Truly</td>
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<tr>
<td>Dental Material Co., Ltd.</td>
<td>B02, B04</td>
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<tr>
<td>TWL Limited</td>
<td>J07, J17</td>
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Floor plan and exhibitors' list are subject to change. Last update was 7 August, 2014.
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TRAINING

Training 1: 2D Digital Radiography in Dentistry (1 day course)
09/08/2014

Course Fee: $1100
Early Bird Registration before 24th August: $550

Training 2: Considerations and Advanced Treatment Options for the Use of CBCT (2 day course)
09/09/ - 09/10/2014

Course Fee: $2200
Early Bird Registration before 24th August: $1100

Dr. Joerg Neugebauer graduated from the University of Heidelberg in 1989 and received the certification as a dentist by the local government in Germany by 1990. Up to then he worked for several years in the dental device industry, and had his final position as the director of R&D department of implantology with the specialization of oral surgery. After that he turned into a consultant Interdisciplinary Outpatient Dep. for Oral Surgery and Implantology at Cologne University. Since August 2010 he is working as a dentist in the private dental clinic Dres. Bayer, Kistler Elbertzhagen and colleagues, Landsberg am Lech, Germany and is teaching at the University Cologne.

FOR REGISTRATION PLEASE GO TO SIRONA.SG OR SEND AN EMAIL TO JOEY.LOW@sirona.com

DAY 1 - TRAINING 1

TIME TOPIC
9:00 – 10:30 AM Understanding modern 2D digital imaging technology
   - Necessary equipment
   - Digital 2D imaging
   - Detectors, acquisitions
   - Enhancement and clinical imaging diagnosis

11:00 – 12:30 PM Intraoral Digital Radiography
   - Principles, Techniques and Error Correction
   - Identifying Diseases of the Teeth and Oral Cavity through Intraoral Radiography

01:30 – 05:00 PM Panoramic Radiography Technique
   - Indications for Panoramic Imaging
   - Clinical Diseases Identification
   - Image evaluation: features of an ideal Panoramic Radiograph (exposure settings and anatomically representative)
   - Identifying Panoramic Errors

DAY 2 - TRAINING 2

TIME TOPIC
9:00 – 10:30 AM Understanding the technology behind 3D imaging for Dental Applications and how it differs from 2D Imaging

11:00 – 12:30 PM Indications for Cone Beam Computer Tomography in Dentistry

01:30 – 02:30 PM Identifying Pathology of the Maxillofacial Region with CBCT scans

03:00 – 05:30 PM Hands-On Training 3D Scan Reading

DAY 3 - TRAINING 2

TIME TOPIC
9:00 – 10:30 AM 3D visualization and CAD/CAM Integration for Implant Treatment and Surgical Guides

11:00 – 12:30 PM Clinical Cases: Bone Graft, Complex Rehabilitation, Immediate Loading

01:30 – 02:30 PM Hands-On Training

03:00 – 05:30 PM Outlook

VENUE: Sirona Dental Academy Singapore
6 Battery Road #15-06
Singapore 049909

CDE: 6 per day