India to get stand-alone dental insurance
New oral health care scheme expected to be launched in June

Daniel Zimmermann
DT

NEW DELHI, India/HONG KONG/ LEIPZIG, Germany: The Insurance Regulatory and Development Authority in India has approved a stand-alone insurance scheme that could help millions of patients throughout the country gain access to much-needed dental care. Indian newspapers have reported. The scheme, which is said to be implemented in June, will cover basic dental procedures, such as check-ups, fillings and extractions, as well as treatment for oral cancer.

Proposed by the Indian Dental Association in 2005, the plan has been under review since then. It has been announced that the General Insurance Corporation, an insurance company owned by the government, and three other public insurance companies will form part of the scheme. Two insurance options will be offered for a premium of Rs 1,000 (US$22) and Rs 2,000 (US$44) per year.

Currently, most dental fees in India are paid out of pocket and in- increase the strength of impaired facial muscle regions.

Unilever to expand China business
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Bank report predicts new “Asian Century”
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Under these assumptions, more than 5 million people could enjoy living standards comparable with those enjoyed by most Western countries today. Prospects are high for countries such as Vietnam, Thailand and Malaysia, according to the report.

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According to a Geistlich representative, the Jungsan acquisition is one of the most recent steps in the company’s long-term strategy for international expansion. It is also intended to strengthen the market presence in one of the most dynamic and competitive dental markets in Asia. The company will retain the staff and facilities of Jungsan Biomed in Seoul, the representative said.

GeistlichPharma is part of the larger Geistlich Group conglomerate, which includes activities in the production of adhesives, fat for animal feeds and real estate. Besides South Korea, the company also has a subsidiary in Beijing in China.

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HONG KONG/LEIPZIG, Germany: In a last minute effort to commit to dental health care reform, the Australian government has decided to provide additional funding of AU$55 (US$56 million) to public dental services over the next four years. The funding will be used to establish more dental internship programmes in order to reduce waiting times for dental treatment, government officials said in May. They also announced to set up a National Advisory Council on Dental Health to plan further steps to reform the inadequate public dental system.

The Greens have welcomed the commitment, which they see as a first step in long-term dental care reform. They reminded Labor that dental care also has to remain top priority in next year’s budget. The coalition between both parties has struggled politically over the last two months regarding how much money should be spent to improve the country’s poor public dental health care system. The Greens’ promotion of a universal dental care scheme for all Australians was a key factor for forming a coalition with Labor in last year’s federal elections.

In March, Labor Minister of Health Nicole Roxon announced that dental care funding would be scrapped altogether from this year’s budget. Dentistry representatives said that although the funding will help patients nationwide to access delayed dental treatment, it will probably not be enough to cut down waiting times, particularly in rural areas. In addition, the government should be focusing on ways to entice dentists to work in underserved areas like the South.

“Things like scholarships for dental graduates so that they’re paid during dentistry and when they graduate they commit themselves to rural areas or relocation payments like the government has done for general practitioners,” Dr. Angela Pierce, President of the South Australian Branch of the Australian Dental Association told the ABC News network.

Waiting times for public dental services in Australia have remained high over the last few years owing to the shortage of dental staff. According to a 2008 report by the Australian Institute of Health and Welfare, patients relying on public dental services are three times more likely to suffer from dental diseases such as caries or periodontal disease.
Nepalese teeth to uncover origins of birth defects

Daniel Zimmermann
DTI

HONG KONG/LEIPZIG, Germany: The remote village of Jiri in Nepal is just a regular stop-over for trekkers on their way to Mount Everest. For Prof. Richard J. Sherwood from Dayton in the US, however, the small group of natives living there could hold the key to understanding the origin of common birth defects such as cleft lip or palate. In a field study, the anthropologist and biomedical expert is currently examining the teeth of hundreds of villagers, which, according to him, could explain why the early development of facial features can go seriously wrong.

The reason Prof. Sherwood chose such a remote place for his study was pragmatic. The population of Jiri has been part of several biomedical studies since the 1980s and, therefore, much of the groundwork, including genotyping by blood sampling, has already been done. In addition, the local ethnic group in Jiri, the Jirels, have a homogeneous diet and have never received orthodontic care, which are two factors important for studying natural variations in the craniofacial apparatus, Prof. Sherwood says.

In order to obtain data quickly, he set up a small dental clinic in the village in January last year, where local staff takes traditional dental casts and sends them to the US regularly. At Wright State University in Dayton, they are digitally scanned and examined further. Prof. Sherwood visits the site himself two or three times a year. According to him, there are over 15 people working on the project including a dentist, dental assistant and physician in Nepal. "Before we established the dental clinic, there was no local dentist and most people had never seen a dentist in their life," he says. "Participants are given a tooth cleaning and general oral exam as part of our study. We also provide some services, such as fillings, free of charge."

A pilot study back in 2005 produced 200 impressions, however, Prof. Sherwood told Dental Tribune Asia Pacific he is aiming to take samples from at least one-fifth of Jiri’s current population—a little over 1,500 people—until funding runs out in 2012. His study has received more than $1.5 million from the National Institute of Dental and Craniofacial Research, a US federal agency based near Washington, DC, and part of the National Institutes of Health, which supports research with the potential to improve oral, dental or cranio-facial health.

In the study, the research team will analyze the teeth of hundreds of villagers to understand why cleft palates develop differently, as well as gain new insights into other dental conditions, such as crowding.

According to the American Speech-Language-Hearing Association, one out of every 700 newborns (more than 6,000) in the US is affected by cleft lip and/or palate each year. In less developed countries like China, reports suggest that tens of thousands are affected, most of which are left untreated, leading to death or, in the majority of cases, lifelong impairments. Besides genetics, the condition has also been linked to the mother’s poor health habits, such as smoking, or environmental factors, including exposure of the fetus to drugs, pesticides or radioactivity.

“Abnormalities can be thought of as the extreme ends of the normal distribution in a trait but even relatively minor conditions, for example malocclusions, may have a significant impact on the psychological well-being of individuals if they feel self-conscious about how they look,” Prof. Sherwood concludes. "If we are able to identify the genetic influences on normal variation it will, of course, have implications on the study of facial abnormalities."
Dear reader,

In contrast to their medical colleagues, dental stem cell researchers have been working ‘under the radar’ for quite some time. The recent conference on dental and craniofacial stem cells in New York could be the first sign that experts in this field have become fully aware of the potential regenerative technologies that can hold for the future of dentistry and oral health.

With the current state of research, however, it will still take years, probably decades, before even first human trials will receive approval by regulatory agencies but help could come from the fact that dental stem cells hardly raise any ethical outrage, a discussion that commonly restricts research with stem cells derived from other sources like human embryos. So ironically, we might be able to see clinical applications in dentistry before they are even introduced to the medical and dental field, as non-dental agencies but help could come from the fact that dental stem cells hardly raise any ethical outrage, a discussion that commonly restricts research with stem cells derived from other sources like human embryos. So ironically, we might be able to see clinical applications in dentistry before they are even introduced to the medical and dental field, as non-dental.

Much will depend on the cooperation between the medical and dental field, as non-dental cells have been proven to be able to re-build tooth cells and vice versa. With the recent conference and another already on the horizon, dentists have definitely become fully aware of the urgent need for such a scheme. Over three-quarters (78%) said that they would make use of dental insurance if offered, if the plan was suited to their needs. None of the respondents knew of a dental insurance company.

A dental insurance for India

Considering the growth of the Indian economy, prospects for dental insurance remain unexplored. Unlike most Western countries, specific dental insurance plans are not common and oral health insurance is usually integrated within general health insurance schemes. This type is provided by insurance companies as part of their own general health insurance schemes, such as a health advantage policy or student medical policy.

In a comprehensive survey of 5,120 people from all parts of Indian society, our department found that none of those surveyed had any kind of dental insurance. This indicates the urgent need for such a scheme. Over three-quarters (78%) said that they would make use of dental insurance if offered, if the plan was suited to their needs. None of the respondents knew of a dental insurance company.

The Indian Dental Association has been trying to establish an all-inclusive dental health-care insurance scheme since 2005. Until now, however, the organisation had been unable to achieve anything substantial in this regard. Once introduced in June, the policy may not be well received, as there has been no advertisement whatsoever. If the government creates awareness of the benefits of dentistry for longevity of teeth across society, insurance policymakers should support it by offering beneficial dental insurance schemes for the masses.

Yours sincerely,
Daniel Zimmermann
Group Editor
Dental Tribune International
Blood vessel cells aid tissue repair in teeth

Daniel Zimmermann

NEW YORK, USA/LEIPZIG, Germany: New research presented at the recently held first International Conference on Dental and Craniofacial Stem Cells in New York in the US could mean a breakthrough in future tissue and organ repair.

In an experiment involving incisors from rodents, a mammal species that includes mice and squirrels, researchers from the UK, Brazil and the US found that connective tissue cells can transform into specialised cells to repair damaged tissue in teeth.

Their results have been published in the latest issue of Proceedings of the National Academy of Sciences of the USA.

Previous research suggested that so-called pericytes, usually found in small blood vessels, have the potential to transform into different cells. This new study is the first claiming to have found genetic evidence that they can also act as stem cells to regenerate lost or damaged tissue. In the experiment, they were transplanted into the tooth, where they transformed into dental pulp cells.

“This is the first time perivascular cells have been shown to differentiate into specialised cells during a natural repair process,” says Prof. Paul Sharpe from the Department of Craniofacial Development at the Dental Institute at King’s College London, who led the study. “In addition to the obvious significance for understanding the cellular mechanisms of tissue repair, it also has wider implications for areas of regenerative medicine/dentistry directed towards stimulating natural repair following tissue damage or disease.”

US public dental care in poor state

From news reports

PENNSYLVANIA & CHICAGO, USA: US dentists are more likely to offer emergency dental care to children enrolled in private insurance schemes than those with Medicaid, the country’s health programme for the poor. These alarming findings are the result of an undercover study of 85 dental practices in the state of Illinois. Researchers at the University of Pennsylvania posed as mother of a fictional 10-year-old boy with an acute oral injury.

According to the study, only six dentists offered an appointment to children with public health insurance. All dentists offered an appointment to privately insured children. However, chances increased significantly when dentists were enrolled in Medicaid.

The findings confirm earlier studies that have painted a sad picture of the country’s dental health-care system for disadvantaged children. According to a 2010 study by the Pew Research Center, one in five children in the US lack access to dental care owing to low income and poor resources.

“Lack of funding is among the greatest barriers to better oral health in America. But funding alone will not fix Medicaid. Patients need help navigating an often complicated bureaucracy and overcoming other barriers,” said Raymond F. Gist, President of the American Dental Association (ADA), commenting on the results of the study. “These programs cannot reach their potential without significant reforms. These include reducing unnecessary red tape for dentists and patients, and helping patients overcome such related barriers as the need for transportation, child care or permission to take time off from school or work to receive treatment.”

The ADA has been lobbying for increased Medicare funding for years. The association recently launched a pilot programme to train health workers to provide treatment to people experiencing barriers to access of oral health-care services.
Ortho-specialist appoints former J&J exec as CEO

HONG KONG/LEIPZIG, Germany: Former Johnson & Johnson executive David N. Edwards will replace Dr Mervyn Fathianathan as CEO of BioMers, a Singapore-based company specialising in orthodontic appliances. Edwards, who has also worked for Bausch & Lomb and Nestlé, will take over the responsibilities for the company’s global business, starting immediately. Dr Fathianathan will remain Chief Technical Officer and oversee future development and research activities, the company said.

Founded in 2005, BioMers is a National University of Singapore spin-off focusing on products based on polymer composite for bio-medical applications. Their core products include the recently launched SimpliClear, a highly translucent customisable braces system, and an orthodontic retention solution called ASTICS.

According to Dr Fathianathan, Edwards is expected to help the company expand into new markets. In his previous position as President of Bausch & Lomb’s Asia-Pacific division, he managed several successful product launches in the ophthalmic market, Dr Fathianathan said.

BioMers currently distributes its products in Singapore and the US only. The company is partially owned by Nanostart, a German-based venture fund with representation in Singapore.

New standard launched by ISO

GENEVA, Switzerland: Around 1.5 million different medical devices are available worldwide. Every year, thousands of new products are launched. The International Organization for Standardization (ISO) has introduced a new International Standard that aims to assess the safety and performance of such devices and to improve patient safety.

ISO is a global network that identifies international standards that are required by businesses, governments and society. The non-governmental organisation develops these standards in partnership with the sectors that will put them to use, adopts them by transparent procedures based on national input and delivers them to be implemented worldwide.

According to ISO, the new standard ISO 14155:2011 will provide a technical basis for regulation and minimise technical barriers to trade. It was developed to encourage medical manufacturers to guarantee that their products do not compromise patient safety.

In 2007, the World Health Organization reported that more than one million accidents attributable to medical devices occur annually in the US. Furthermore, in some developing countries, half of the medical equipment was found to be unusable or only partly usable.

The new standard addresses good clinical practice for the design, conduct, recording and reporting of clinical investigations carried out on humans to assess the safety or performance of medical devices for regulatory and other purposes. This International Standard specifies general requirements intended to ensure the scientific conduct of the clinical investigation and the credibility of the clinical investigation results.

The requirements are also intended to define the responsibilities of the sponsor and principal investigator, as well as assist sponsors, investigators, ethics committees, regulatory authorities and other bodies involved in the conformity assessment of medical devices.

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More flexibility and treatment options with Roxolid®

Straumann’s small-diameter implants in clinical use

Narrow implants are very beneficial in reduced width crests, as they may avoid systematic horizontal bone augmentation if the remaining bone is in the correct prosthetic axis. Roxolid® small-diameter implants from Straumann also offer more flexibility and can provide dentists with new treatment options. Depending on the specific case, they can be placed more lingually or buccally than a regular implant which helps to adjust possible eccentricity of the remaining bone (see Case 2).

Originally, I did not use small-diameter implants frequently because I did not feel confident doing so, owing to the higher risk of fracture reported for narrow implants in the literature. Another concern was the reduced surface for osseointegration compared with regular-diameter implants.

The combination of higher strength and excellent osseointegration properties of Roxolid compared with the features of commercially available pure titanium implants gave me new confidence. Roxolid implants allow me to benefit from all the specific advantages of small-diameter implants but with the necessary degree of predictability. In non-aesthetic regions, it may allow avoidance of GBR procedures and less time-consuming treatment.

Another reason was Straumann’s approach in launching the product. I saw a slow and safe product introduction, based on extensive testing and clinical data. The strength of the material was proven by laboratory tests. Various clinical and preclinical studies ultimately convinced me. It will be interesting to observe the long-term behaviour of this new material and the clinical data it generates. We have to remain cautious, however, even if the results of the mechanical testing are very promising.

Case 1: Partially edentulous patient with a narrow bone ridge in a non-aesthetic zone (premolar)

Two implants had to be placed in positions #44 and #45. In the region of #45 there was sufficient bone height over the VIII canal. By contrast, the ridge width was very narrow (Fig. 1). An augmentation procedure was needed as a prerequisite for the placement of a regular-diameter implant (e.g. Ø 4.1 mm). In this case, the Ø 5.5 mm Roxolid® implants were a valuable alternative in order to use the existing bone substance better—particularly as the remaining bone was in the right prosthetic axis. As there was not much space, the drilling had to be precise. The bone walls were very thin and the implant shimmied through slightly. A small delin- cence of 1 mm was visible at the buccal plate of #45 and #44, but it did not need any augmentation (Figs. 2a & b), as there was no aesthetic issue (Fig. 4).

The polished implant neck was intentionally placed above the crest in order to avoid bone loss around the neck. A two-element bridge was placed on the implants (Figs. 3a & b). The implant neck was slightly visible clinically on the vestibular side. The inter-implant papilla was absent. Even when the patient smiled broadly (Fig. 4), the border of the implant neck was not visible, as this region was hidden. It is very important to analyse the smile line of the patient before placing implants in this way.

In this case, Roxolid® allowed less complicated surgery to be performed by avoiding a larger augmentation in a non-aesthetic zone. The patient benefited from a shorter treatment time.

Case 2: Partially edentulous patient with eccentric bone

The X-ray measurement in region #44 showed a crestal width of over 7 mm. Therefore, there was sufficient bone to place a Ø 4.1 mm implant. However, the bony substance was ece- tric in relation to the prosthetic axis and the emergence profile. The gutta-percha spot on the DentaScan was in a more buccal position than the available bone (Figs. 1a–19). The root of the adjacent #43 was also placed very buccally (Figs. 1a–21). A vestibular bone concavity was clinically visible on #44 (Fig. 1b). After preparing the implant bed for a Ø 5.5 mm implant, the buccal bone wall thickness was up to 1 mm and the lingual wall thickness was over 2 mm.

The choice of a Straumann Standard Plus Ø 5.5 mm Roxolid® implant instead of a regular-diameter implant allowed place-
Lisa and Lina, two type-B sterilizers with one single aim:
to meet your needs and adapt to your practice requirements through
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and the essentials of sterilization with Lina.
ment of the implant in an ideal position, particularly when anticipating the future prosthetic restoration and avoiding vestibular bone augmentation (Fig. 6). The small dehiscence of 2 mm was not compensated for. Thanks to an initial lingually displaced incision, a large and thick band of keratinised gingiva was preserved buccally (Fig. 7) at the end of the surgery to prevent further buccal recession of the gingiva. Prior buccal gingival recession on #45 could be observed. The preoperative scan (Figs. 5a–21) offered an explanation in form of a large bony dehiscence of the buccal plate on this tooth. The patient did not want any mucogingival surgery for root coverage. Eight weeks after surgery, a three-unit premolar bridge was seated on implants at teeth #44 and #46.

A Roxolid® Ø 3.3 mm implant, in this case, made it possible to place an implant in an ideal position without performing an augmentation procedure, allowing for a less complicated surgical procedure. The patient received an aesthetic solution that would not have been recommended in the anterior aesthetic zone (teeth #13 to #23), where a bone augmentation procedure would have been a prerequisite.

Case 5: A bone-preserving solution for an elderly, fully edentulous patient

A fully edentulous 83-year-old patient was to be given an implant-retained removable denture. Two implants were to be placed inter-foraminally in the #43/42 and #33/32 regions. There was sufficient bone height, but the crest was very thin, which would have required a larger augmentation (bone block) or major grinding of the ridge (Figs. 9a & b).

The placement of Ø 3.5 mm implants allowed the vestibular dehiscence defect in region #33 to be limited to 3 mm (Fig. 10a) and to 1 mm in region #43 (Fig. 10b). Two small flaps were elevated in order to minimise the surgical trauma. Two Straumann Standard Plus Roxolid® implants (12 mm) were placed.

The initial lingually displaced incision preserved a nice amount of keratinised gingiva that was repositioned buccally around the polished implant necks and the healing screws (Fig. 11). After a six-week healing period, two LOCATOR® abutments were placed. The clinical check at three months showed good healing of the soft tissues, with a thick and wide band of keratinised gingiva around the implants. The panoramic X-ray (Fig. 13a) demonstrated that there was enough bony substance around the implants to prevent the risk of a mandibular fracture.

Even though there was sufficient bone height, the ridge was very thin in this case. Therefore, Roxolid® small-diameter implants were a valuable solution in order to avoid a more traumatic and more invasive solution.

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Ivoclar Vivadent AG Clinical Benderstrasse 2 CH-8403 Schaan/Liechtenstein Tel: +423/2353535 Fax: +423/2353330
Ivoclar Vivadent Marketing (India) Pvt. Ltd. 503/504 Raheja Plaza | 15 B Shah Industrial Estate | Veera Desai Road, Andheri (West) | Mumbai 400 053 | India Tel: +91(22)26730302 Fax: +91(22)26730301 E-mail: india@ivoclarvivadent.com
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passion vision innovation
Improved longevity and aesthetics in Class IV restorations
A clinical case involving Tetric N-Ceram and FRC Postec Plus from Ivoclar Vivadent

Dr Arun Bajrangi
India

Traumas and injuries in anterior teeth are common in young people and those active in sports and other physical activities. Treating such injuries with predictable, conservative and natural looking restorations is of primary concern for aesthetically conscious dentists. A new generation of nano-composite restorative materials and adhesives is helping clinicians to place composite restorations in Class IV fractures conservatively. These materials provide restorations that closely resemble the form, function and aesthetic properties of natural teeth.

Many factors contribute to the appropriate design and material choice for the restoration of an anterior tooth, such as the patient’s age, occlusion, habits and aesthetic preferences.1,2 Laboratory-fabricated restorations and chairside direct restorations offer unique advantages, which should be considered by both the patient and dentist.1,3

This article presents a clinical case in which Tetric N-Ceram (Ivoclar Vivadent), a modern nano-composite resin restorative, was used in conjunction with FRC Postec Plus (also Ivoclar Vivadent), a glass-fibre-reinforced composite post, to achieve enhanced longevity, composite retention and super aesthetics in an extensive Class IV restoration in a 15-year-old male patient. The young man presented with a large fracture of the right and left maxillary central incisors after a sports injury (Fig. 1). Intra-oral, peri-apical radiographic findings revealed pulp exposure. Immediate endodontic treatment was planned and completed in the same visit to relieve the patient of pain. In addition, impressions of both arches were taken to restore the patient’s smile line.

As the patient was young, the practitioner considered the patient’s aesthetic appearance to be of particular concern. Consequently, different treatment options such as direct and indirect restorations were discussed.

After the models had been prepared, a diagnostic wax-up was created (Fig. 2) and a high viscosity, silicone putty matrix was prepared. The putty matrix, once placed in the patient’s mouth, was used for spatial reference as a volumetric, 3-D guide for the placement of the composite restoration and to preserve the facial/lingual line angles.1,3

Treatment procedure
The patient opted for a restoration involving a direct composite layering technique and glass-fibre post placement for better composite retention. The composite shade was selected and a shade map for the natural dentin mamelons and the incisal area determined using post-operative, intra-oral radiographs.

The putty matrix was tried in the patient’s mouth for lingual and incisal fit. A bevel was prepared along the fracture line in the dentine using high-speed diamond burs and extended as a chamfer preparation on the palatal surface. A short bevel was prepared along the fracture line in the enamel on the labial and incisal areas. In order to achieve an additional blending of margins and increase the micromechanical bonding, the bevel was extended further to roughen the enamel. Under local anaesthesia, a size 2 FRC Postec Plus post was placed after completing the drill protocol to remove the gutta-percha material and widen the root canal to allow proper fit of the post. The silicon putty matrix was removed, as the scaffolding had been prepared on the palatal shelf. A further thick layer, 1 to 1.5 mm of the same shade T was placed on the entire incisal edge to create a halo effect in the incisal area of the final restoration.

The silicone putty matrix was removed, as the scaffolding had been prepared on the palatal and incisal morphology (Fig. 3). Tetric N-Ceram in dentine shade A.5.5 was placed on the entire incisal fracture line. This opaque dentine layer helped to hide the demarcation line between the tooth surface and artificial composite resin restoration. After light curing this layer, another sub-layer of dentine shade A.5.5 was applied in the shape of the natural dentine mamelons using OptraSculpt instruments (Ivoclar Vivadent) to replace the lost dentine structure in this area and light-cured using a bluephase C8 curing light (Ivoclar Vivadent) using the low start programme.

The silicone putty matrix was placed on the teeth and a first increment of a flowable composite resin, Tetric N-Flow in shade A1, was applied to the palatal chamfer area in order to achieve a tight seal (Fig. 7). Then, the material was polymerised. A thin layer of Tetric N-Ceram composite resin in shade T was placed on the putty matrix and polymerised using the Soft Start Mode of the bluephase C8 light in order to reconstruct the missing palatal and incisal shelf. A further thick layer, 1 to 1.5 mm of the same shade T was placed on the entire incisal edge to create a halo effect in the incisal area of the final restoration.

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This material was polymerised for 20 seconds using the SOF mode of the bluephase to achieve incisal edge characterisation and natural translucency in the enamel area (Fig. 10). Tetric N-Ceram in enamel shade A1 was prepared in the shape of a ball and placed over the middle third area, spread evenly with OptimaSculpt and blended smoothly again using a single-use brush (Fig. 11). After light-curing the last layer, Tetric N-Ceram in shade T was prepared, placed at the centre of the labial surface and evenly and smoothened with the single-use brush (Fig. 12).

While contouring the last two layers, the mesial and distal line angles, as well as incisal margin were reconstructed. Furthermore, the practitioner took care of the contact points and embrasures. Final light-curing was performed on both the labial and palatal surfaces using the intensity programme of the bluephase C8 light for 20 seconds each time. Excess composite was removed with a #12 scalpel blade. The labial and palatal surfaces were contoured with medium-grit discs, diamond finishing burs and interproximal finishing strips. At this stage, special care was taken to preserve the contours and surface characteristics. Proper occlusion was verified in centric occlusion and excursive movements. Final finishing and polishing were achieved with the Astropol three-step finishing system (Ivoclar Vivadent). The pink Astropol finishing cup was used at slow speed without water-cooling to impart a shiny lustre to the final restoration (Fig. 15). The final ultimate gloss on the restoration was achieved using Astrobrush (Ivoclar Vivadent) at slow speed (Fig. 16).

Conclusion

Traumatically damaged teeth can be restored effectively with beautiful and natural-looking restorations. In this case, good results were achieved by combining the excellent physical and aesthetic properties of the latest-generation nano-composite, Tetric N-Ceram, with an FRC Postec Plus glass-fibre post (Fig. 17). Proper planning by the clinician in selecting compatible materials and meticulous execution of the treatment plan yielded highly aesthetic results. The patient was amazed to see his beautiful smile restored in just a few hours.

A list of references is available from the publisher.
Caries (the pH disease) management

Dental caries is caused by a number of interrelated factors which includes acid producing plaque and acidic saliva.

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EVIDENCE

GC Tooth Mousse has been shown to reduce plaque acid production and increase plaque pH


GC Tooth Mousse helped improve saliva pH

An interview with Dr Jeremy Mao, Columbia University, New York, about dental stem cell research

Research has proven that dental stem cells hold potential for the successful regeneration of dental and other body tissues. In May, experts from around the globe gathered in New York for the first time to discuss the latest concepts and scientific breakthroughs at the International Conference on Dental and Craniofacial Stem Cells. Dental Tribune spoke with Columbia University professor and co-organiser Dr Jeremy Mao about the conference and when the first clinical applications might be available for dentists.

Daniel Zimmermann: Dr Mao, re-growing teeth or parts of them could mean an end to dentistry as we know it. When will this concept become reality?

Dr Jeremy Mao: Research in the area of dental tissue regeneration and engineering is developing rapidly. Different parts of the tooth like the dental pulp, dentine and cementum have been already successfully regenerated in animal models. These techniques are not ready for clinical use yet but they will be available in a few years from now, depending on approval by regulatory agencies like the Food and Drug Administration in the US. Science is only one part of this process.

In contrast with embryonic stem cells, which can only be obtained by destroying the fertilised embryo, dental stem cells are harvested from what clinicians refer to as “dental waste” such as extracted teeth or teeth that have fallen out. These cells have the ability to differentiate and form into different tissues.

Is there collaboration between scientists that work with dental and medical stem cells?

Theoretically, there seems to be no limit to what tissue we can regenerate, so you can expect the whole range of dentistry fields to benefit from these techniques. It is only a matter of time until dental stem cells can be used to treat not only dental diseases, but also other medical conditions. There is little controversy regarding dental stem cells. Why is that?

This is true. There is not much ethical discussion because unlike embryonic stem cells, which can only be obtained by destroying the fertilised embryo, these cells to be able to use them to regenerate all kinds of tissues.

Can dental stem cells be used for medical applications as well?

Very likely. Earlier this year, for example, we published an article that demonstrated that clones of mononuclear stem cells of dental pulp can transform into myoblasts and help with the formation of muscle tissue. This, and other research, suggests that dental stem cells can be used to treat not only dental diseases, but also other medical conditions. In acknowledging that regeneration of dental stem cells for tissue regeneration and engineering is only one part of the ultimate solution to this problem, we have not yet decided on a location yet.

Looking back, it was quite an intense conference. We had over 200 attenders and 50 presentations over the course of three days. The feedback was extremely positive and there were already plans for a second conference. However, we have not decided on a location yet.

How did the congress in New York turn out, in general?

Looking back, it was quite an intense conference. We had over 200 attenders and 50 presentations over the course of three days. The feedback was extremely positive and there were already plans for a second conference. However, we have not decided on a location yet.

Is there a collaboration between scientists that work with dental and medical stem cells?

To some degree, but not to the extent that we would like. Let me give you an example. Two years ago, I attended a conference on dental stem cells in Europe and Asia working on dental and craniofacial stem cells. Realising that this was an understudied area, the idea of an international conference on dental and craniofacial stem cell research was born. With it, we also hope to promote collaboration between scientists working in these areas.

In contrast with embryonic stem cell research, three major problems in countries with mass populations such as India or China is dental stem cell research offer the ultimate solution to this problem?

It would certainly not be right for any scientist or company working in this field to ignore these regions because there is such a strong clinical need. I am certain that as the technology develops, it will also be available to some of the populous regions in the world such as India, China or Africa. Of course, there is the problem of affordability, which was also discussed at the conference in New York. Stem cell therapies will be priced at the beginning but with a larger variety of products I am sure the price will come down. Considering the high costs of current restorative procedures, such as dental implants, I am sure stem cell regenerative therapy will be a strong contender.

Thank you for this interview.
For the last 50 years Sensodyne has been at the forefront of scientific innovation into the aetiology, treatment and prevention of dentine hypersensitivity and tooth wear issue. In January 2011, GlaxoSmithKline celebrated 50 years of Sensodyne innovation by hosting a 50th anniversary symposium in Madrid in Spain. Experts in the field of sensory and dental research discussed the past, present and most importantly the future of oral health, each presenting a prospective from their own field of specialism.

The principal speakers at the symposia included Prof. Francis Hughes, Prof. J.M.(Bob) ten Cate, Prof. David Bartlett and Prof. Martin Adly.

All speakers agreed that dentistry had come a long way in 50 years, however, good oral health for all is a challenge and can only be achieved by linking treatment to patient needs. “Research into genetic profiling holds many possibilities,” Prof. Francis Hughes stated.

Oral health prevention, a relatively neglected area of global health, is now key and cost-mitigation is needed by policy makers to prevent chronic diseases. “The effectiveness and contribution of fluoride toothpastes are undisputed, however in the future priority should include better or smarter products that improve compliance, availability and affordability. Every one can learn to brush whatever a paradigm shift in prevention needs to occur, as caries prevention is very dependent on fluoride,” Prof. J.M. (Bob) ten Cate.

“In the future, there will be reduced government funding for dentistry practice and research, therefore, there is a need for industry and university collaboration with research focused on critical needs and realistic outcomes. Research needs changes to formulation of toothpastes which actively protect enamel and dentine from acids,” Prof. David Bartlett stated.

include Objective Evaluation Criteria, better controls and evidence of stimulus response and therapeutic action. There is a need to be able to really make and visualise dentine either as a replica or in-situ.

The speakers all agreed that industry has a key role to play in continuing research and development of preventative dental care.

Through collaboration with the dental health care professional and by researching patient’s needs, truly significant advances have been made. Sensodyne was first made available in 1961 by Black Drug. Since GlaxoSmithKline’s acquisition of the brand, it has rapidly grown globally and become the dentists’ sensitivity toothpaste of choice in many markets.

GlaxoSmithKline’s significant investment in Sensodyne measure for pain using fMRI (functional Magnetic Resonance Imaging) to map brain activity was presented by Dr Ashley Barlow. GSK Principal Clinical Scientist, in collaboration with the University of Zurich using a multi-discipline team including experts in medical, clinical, engineering, psychology, statistics and data management. Future GSK investment into pain measurement will bring advances into understanding dentine hypersensitivity and hence more targeted modes of treatment and prevention.

In early 2011, GlaxoSmithKline will be launching the world’s first daily fluoride toothpaste with Sensodyne Repair and Protect, a development that clearly illustrates why Sensodyne has become synonymous with dentine hypersensitivity.

Novamin, advanced calcium phosphate technology, employs dietary acid challenges.15,16,17 With regular use two times a day,18,19,20 it helps maintain lasting protection to deliver clinically proven relief from the pain of dentine hypersensitivity.16,18,21

GlaxoSmithKline are working with DENTSPLY, a global leader in professional dental products, to develop the new Sensodyne NP/PRO Professional Range also utilising Novamin® technology. The in-office Prophecy Paste is only the prophylaxis product containing the unique patented ingredient, Novamin®, Dr Teresa Layer, Vice President Oral Healthcare R&D, is hugely excited about forming a relationship with DENTSPLY’s work on taking the brand forward.

Sensodyne’s strengths lie in its dental and clinical heritage. GlaxoSmithKline acknowledges it covers a lot to all the people who have worked on Sensodyne in the past 50 years both internally and externally. “The next 50 years will be even more exciting for GSK Sensodyne with continued investment into leadership in oral care through science. We are living in exponential times,” Teresa Layer.

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