Dental market blues in Australia

SYDNEY, Australia: Asia-Pacific’s second largest dental market has weakened further. Figures from the Australian Dental Industry Intelligence Report released at a recent industry meeting show that sales of dental equipment and supplies in the country have declined for the second consecutive year.

In total, the industry recorded revenues of AU$671 million (US$695 million), which was three per cent less compared with 2010/2011. Prior to that, the market had already seen a drop of three per cent.

The largest decrease in the 2011/2012 fiscal year was reported in the equipment sector, including imaging hard- and software, where sales fell by 12 per cent. In the same period, sales of orthodontic and restorative products, however, rose by nine per cent and now account for one third of the total sector, the report states.

The CEO of the Australian Dental Industry Association (ADIA), Troy Williams, commented that the worrying numbers reflect feedback from the dental industry’s front-line sales staff and are a departure from the last decade, during which the industry had been growing at a steady rate of an average of 6 per cent each year.

He said that the recent decline in the market can be largely attributed to strong growth in 2009/2010 owing to tax breaks provided by the Australian government in response to the global financial crisis.

“The overall decline in sales, although modest, reflects a moderation in the demand for dental services over the short term,” Williams said.

Several companies that Dental Tribune ONLINE spoke to declined to comment on the matter.

Launched at the recent national conference in October for the first time, the ADIA report is commissioned in order to provide reliable market data for the industry. It is only available to members of the association.

NZ dentists gnash over quake effects

According to the New Zealand Dental Association, symptoms like fractured cusps, believed to result from bruxism owing to stress, are increasingly being reported by dentists in Canterbury, an area on the South Island that was heavily affected by the country’s second-largest earthquake last year. Clinicians are now closely working with family counsellors and physicians to support those patients even after having received dental treatment, the organisation said.

The area around Christchurch, the country’s second-most populous city, was severely affected in February 2011 by a 6.3 magnitude earthquake that killed more than 185 people and left thousands homeless. It was followed by a series of after-shocks in June and December that same year.

Owing to the destruction, many dentists are still working from temporary premises or sharing offices with other practitioners.
Study links bisphosphonates to osteonecrosis of the jaw

Cumulative incidence of ONJ significantly higher among patients who had received BP

KYOTO, Japan: A new study has shown that bisphosphonates (BP), a class of drugs commonly used to treat bone disorders such as osteoporosis, is associated with an increased risk of developing severe bone disease of the maxilla and the mandible. The researchers found that especially elderly patients who had received intravenous BP had an increased risk of osteonecrosis of the jaw (ONJ).

The study was conducted among 5,216 male and female patients aged 20 or older mostly diagnosed with osteoporosis and various types of cancer. They had undergone tooth extraction at the Kyoto University Hospital’s Department of Oral and Maxillofacial Surgery between April 2006 and June 2009. About 4 per cent (126) had received either oral BP (99) or intravenous BP (27), while 96 per cent (5,090) had not received such treatment.

Researchers from the institute found that at 42 months following tooth extraction the cumulative incidence of ONJ was significantly higher among patients who had received BP. According to the study, five patients to whom BP had been administered developed ONJ, compared with only one patient in the control group.

They observed a significant difference with regard to age and prevalence of cancer or osteoporosis between the two groups. The risk ratio for ONJ was particularly elevated in patients aged over 65 who had received intravenous BP, according to the researchers.

In addition, they found that aversal bone loss could be a risk factor for BP-induced ONJ after tooth extraction, thus, they suggested that inflammation of the periodontal tissue might predispose people to the condition, and preventive treatment of oral bacteria might be essential for a favourable outcome of tooth extraction.

BP is usually administered to prevent further bone loss, reduce pain and increase bone mineral density in patients with bone disorders. A study published in the September 2005 issue of the International Journal of Oral and Maxillofacial Surgery was the first to suggest osteonecrosis as a side-effect of bisphosphonate treatment. In the current literature, the estimated incidence of BP-induced ONJ ranges from 8.5 per cent to 40 per cent.

Osteonecrosis of the jaw is associated with bisphosphonate therapy, required in some cancer and bone disorder treatments. (DTI/Photo courtesy of Masashi Yamori, Department of Oral and Maxillofacial Surgery, Kyoto University, Japan)
Patients mass tested after blunder in Hong Kong’s largest dental clinic

DT Asia Pacific

HONG KONG: The Centre for Health Protection has informed the University of Hong Kong Health Service’s Dental Unit that it treated hundreds of patients with improperly sterilised instrument. Over 250 people, including staff and students, are reported to have received dental treatment under these conditions between 30 October and 2 November.

Meanwhile, the university has issued an apology and called for affected patients for blood tests to rule out infection with bacteria or viruses like Hepatitis B and C and HIV. In addition, follow-up tests will be conducted six months after the incident, it said.

The kind of dental instruments used for the procedures and the reasons for the negligence were not disclosed; however, university officials said that the possibility of infection is likely to be low since the instruments had passed through some steps of the sterilisation protocol. They have set up a task force to look into the incident and review the unit’s procedures on infection control.

The serious blunder came to light last after a nurse enrolled in the unit found that instruments were not marked as having completed the full sterilisation protocol. Generally, instruments in the unit are rinsed with water, sterilised in a thermal disinfector and finally autoclaved at 120 °C. This last step in the cycle, which destroys all remaining micro-organisms, was not performed, according to reports.

More than 38,000 treatments are performed annually at the clinic, a university spokesperson told Dental Tribune Asia Pacific.

Triumvirate to lead medical tourism

NOIDA, India & ROSWELL, Ga., USA: The increase in medical tourism in Asia will apparently only benefit certain countries in the region. According to a report released by India–US market research provider Renub Research, over two thirds of the market for foreign medical and dental services will be controlled by India, Thailand and Singapore in the near future.

Overall, Renub estimates that the number of arrivals for medical and dental tourists will exceed ten million by 2015, which would be a 50 per cent increase from the present volume. Thailand, which currently sees the largest number of foreign medical tourists per year, is predicted to double its market volume within the next three years. The country currently holds the largest market share with 40 per cent.

It will be followed by Singapore, with an estimated one million arrivals per year and India with an expected half a million arrivals. Together, all three markets will hold a total share of 80 per cent while countries like South Korea, the Philippines, Malaysia and Taiwan will compete for the remaining 20 per cent. Taiwan in particular is expected to be frequented by members of the Chinese middle class who can increasingly afford high-cost medical and dental treatment. Other countries were not included in the report.

With rates of up to 50 per cent, medical tourism has been one of the fastest growing business sectors in the region owing primarily to the rising affluence of the middle class and a boom in the private health care sector. Recognising the potential, several countries have recently started initiatives to improve medical facilities and the workforce, as well as to attract more patients from abroad.

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Dear reader,

The recent failure by a dental unit run by the University of Hong Kong to implement a sterilisation protocol for a couple of days is worrisome, even though the damage to the health of the more than 250 patients and staff affected can be considered to be low at this point. Such an incident in an advanced clinical setting leaves one wondering about the occurrence of similar blunders elsewhere.

In fact, comprehensive data on the implementation of infection control and occupational safety measures in medical and dental practices throughout the APAC region is lacking but recent reports from countries like India do not bode well. A 2011 data analysis of more than 200 studies conducted all over the globe, for example, found that the incidence of hospital-acquired infections is three times higher in developing countries than in Europe and the US.

With millions of people expected to seek medical and dental treatment outside of their home country by 2015 (see page 3 of this edition), this issue is now one that goes beyond national borders. Effective programmes in infection control and patient safety will have to be implemented immediately, not only by national governments but also throughout the South and South-East Asian region, or the new boom in medical tourism could collapse soon.

In addition, training in infection control and occupational safety at dental schools and through postgraduate training needs to be stepped up in order to keep the risk of patient infection to a minimum.

What is most important, however, is that clinicians appreciate that infection control measures are not just a nuisance but an integral part of daily practice.

Yours sincerely,

Daniel Zimmermann
Group Editor
Dental Tribune International

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Surgical factors that influence the aesthetic treatment outcome

Dr Stephen Chen, Sydney

Dental implants provide a predictable means for replacing missing teeth. Increasingly, the demand for implant treatment involves not only the restoration of function, but also achievement of an aesthetically pleasing prosthesis that blends imperceptibly with the rest of the natural dentition.

Both surgical and restorative factors contribute to and interact with achieving an aesthetic treatment outcome. Surgically, the clinician is mainly able to influence the hard and soft-tissue architecture of the edentulous space, which in turn provides the soft-tissue frame for the prosthetic reconstruction.

A detailed evaluation of the site is required as a first step. Sites that are compromised by loss of bone and soft-tissue height may be difficult or impossible to reconstruct to the original pristine form. Limitations of treatment and the risk of adverse aesthetic outcomes need to be recognised, and communicated to the patient before the commencement of treatment.

A number of surgical factors are under the control of the clinician. Positioning the implant in the correct restorative position is a critical determinant of aesthetic outcome. Malpositioned implants may be associated with adverse soft-tissue outcomes, including loss of papillae and recession of the midfacial mucosa.

Facial malposition can be a risk with immediate implants placed into extraction sockets. When multiple adjacent teeth need replacement with implants, the relative position, dimensions and number of implants are important surgical considerations.

Adjunct implants if placed too close together risk loss of the bone between the implants, which in turn may cause flattening or a crater between the papilla. This can have very negative aesthetic implications.

As a general rule, adjacent implants should be avoided. Clinicians should also be aware of the dimensional changes that take place when multiple adjacent teeth are removed. It is often necessary to replace the missing soft tissue by addition of pink porcelain to the cervical regions of the prosthesis.

Ongoing modelling of the alveolar bone may cause flattening of the ridge and thinning of the mucosa over time. Clinicians should attempt to reconstruct the natural morphology of the ridge and mimic the appearance of a root emergence by grafting the external surface of the bone with bone substitutes that have a slow turnover rate.

When adverse aesthetic outcomes occur, options for treatment depend upon the aetiology of the recession. Recession caused by inflammation or thin mucosa in an otherwise properly placed implant can usually be corrected with soft tissue (connective tissue) grafts.

With mucosal recession caused by facial malposition of implants, soft tissue grafting methods have limited success. In severe malposition cases, the only practical solution is to remove the implant, reconstruct the ridge and insert a replacement implant in an optimal axial position.

In summary, achieving acceptable aesthetic outcomes with implants depends upon proper evaluation of the site and technologically proficient placement of the implant with adjunctive augmentation procedures. When adverse outcomes occur, treatment options are limited. The adage that “prevention is better than cure” holds true for implants and adverse aesthetic outcomes.

Contact Info
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Freting the industry

Troy Williams, Australia

The decline in the Australian market for dental equipment can largely be attributed to the strong growth over FY2008-09 (Australian financial years run ning 1 July through to the following 30 June), the year in which product sales peaked.

The boost in that year was mostly due to two reasons. Firstly, tax breaks provided by the Australian Government in response to the global financial crisis led to a significant increase in expenditure on capital goods by dental practices. The thirty per cent small business and general business tax break, announced in the FY2008-09 Mid Year Economic and Financial Outlook (MYEFO), provided an additional thirty per cent tax benefit for businesses that committed to new capital investment between December 2008 and June 2009.

The scope of the small business and general business tax break was extended to FY2008-10 Australian Government budget. The tax benefit on capital goods was increased from thirty per cent to fifty per cent and the time frame was increased from June 2009 to December 2010.

The impact of the Australian Government's stimulus measures was to bring-forward capital expenditure which, combined with a relatively softening in overall economic conditions, resulted in the subsequent decline in sales of equipment.

The overall decline in sales, although modest, reflects a moderating in the demand for dental services over the short-term.

With respect to a regulatory response to increase sales, the Australian Dental Industry Association (ADIA) does not believe that one is appropriate. The regulatory standards for dental product in Australia are based on a risk management framework designed to ensure public health and safety, while at the same time freeing industry from any unnecessary regulatory burden. Although there is the opportunity to streamline the process and accelerate the move towards international harmonisation and adoption, these are medium to long-term policy priorities.

Contact Info
Troy Williams is the Chief Executive Director of the Australian Dental Industry Association. He can be contacted at troy.williams@adia.org.au.
EU medical device laws to undergo revision

BRUSSELS, Belgium: The European Commission has announced a revision of the legislation governing medical devices in the EU dating from the 1990s. According to the European consumer organisation BEUC, the plans will affect a wide range of products, including dental filling materials, X-ray machines and various implants.

To date, medical devices in the EU have not been subject to any premarket approval by a regulatory authority but to a conformity assessment that involves an independent third party known as a notified body. The 80 notified bodies are monitored by the 27 member states. Once certified, devices bear the CE marking.

Recently, the existing directives have seen harsh criticism owing to the worldwide breast implants scandal caused by French manufacturer Poly Implant Prothese. Earlier this year, it was found that the company had used industrial silicone instead of medical grade silicone for its breast implants, contrary to the approval issued by the notified body, according to the European Commission.

With the revision, the authorities aim to eradicate the flaws and gaps in the EU legislation, increase consumer protection, reduce risk and avoid costly recalls, said Monique Goyens, Director-General of BEUC.

The proposal includes stricter control of manufacturers and extends the definition of medical devices to include more products within the scope of the legislation. Moreover, it recommends closer monitoring of the notified bodies. A scrutiny panel is to be established for this purpose in order to assess medical devices according to certain risk-based criteria. Overall, the proposal is aimed at better product traceability.

“High-risk devices, such as implants, need much more thorough controls before being put on the market. Consumers must be given more and better information on medical devices while having the back-up of redress if things go wrong,” Goyens added.

Eucomed, a medical technology industry association that represents 22,500 European designers, manufacturers and suppliers of medical technology, however, has raised some concerns about the proposal. Although the organisation welcomes stricter control and monitoring, it believes that the measures would ultimately lead to a move towards a centralised premarket authorisation system, similar to the system found in the US, which would affect European small and medium-sized companies negatively, Eucomed stated. With a centralised premarket system, patients would have to wait three to five years longer on average for the release of a device, according to the association.

Before the new regulations can be introduced, the proposal has to be approved jointly by the European Parliament and the Council of the European Union, which represents the governments of the member states.
Contact allergies owing to gloves: A growing problem in dentistry

Experts believe that nitrile gloves cause contact allergies.

HOUTEN, Netherlands: In recent years, researchers have noted a significant increase in contact allergies to rubber additives among health care professionals, although the cause of this cannot be stated with certainty, experts believe that nitrile gloves cause contact allergies.

In the 1980s, the use of medical gloves made of natural rubber latex was introduced into dentistry. Owing to an alarming number of allergic reactions caused by certain proteins contained in latex, synthetic alternatives like nitrile and vinyl gloves emerged shortly afterwards. While they, like other alternatives, score significantly lower in comfort and elasticity, nitrile gloves are most commonly used by dentists.

According to Michiel Paping, director of Budev, a Dutch research and development company focused on natural rubber latex allergens, type IV allergic reactions, which are immediate reactions to allergens in a product, are very rare nowadays owing to improved quality standards and production processes. Type IV reactions, however, are delayed reactions to the chemicals used in the production process and are more common and can arise in response to nitrile or vinyl. “In fact, I think that synthetic rubber gloves cause more contact allergies than natural rubber latex,” he told Dental Tribune Netherlands.

In 2010, a soft nitrile glove weighing only 2.5 to 3.5 g was introduced that weighed less than 2.5 g. The production lines were shortened and the vulcanisation was performed at lower temperatures to save costs and energy. However, concerns have been raised about the thinner gloves.

“Producing thinner gloves and thereby being able to fit more gloves in a shipment, saves costs for raw materials and transport. However, the production of such a thin product and vulcanisation at lower temperatures inevitably requires extra and new chemicals. In addition, it is unavoidably that thinner gloves will score worse in strength and permeability,” said Paping after his company had tested various gloves with regard to these properties.

Alongside the growing number of contact allergies in recent years that are likely caused by added chemicals or antimicrobial agents, Paping and his team have observed an increase in allergic reactions in daily practice. “Recently, we have seen that the professional body is becoming alarmed. Despite this, I am concerned that the average dentist is not aware of this matter,” he said.

“When health care professionals start working in practice, they use the same glove out of habit. When gloves are ordered, the responsible person mostly looks for the cheapest product, not for the best quality.”

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US study suggests dentists cause implant failure

LOMA LINDA, Calif., USA: The indications and versatility of dental implants have increased, and so have complications. Researchers from the Loma Linda University School of Dentistry in the US have suggested that, regardless of patient risk factors like bruxism, successful long-term outcomes significantly depend on the experience of the clinician performing the procedure.

By reviewing the records of edentulous patients who had received full-arch maxillary and/or mandibular supported fixed complete dentures over a period of ten years, the researchers found that 12 per cent of implants failed when clinicians had less than five years of experience in the field. Implants were also twice as likely to fail if the surgeon had performed less than 50 implantations in his career, they report.

Other contributors to implant failure were identified as being related to the patient rather than the implant. Almost every third patient with diabetes or a history of bruxism had experienced implant failure.

Other risk factors commonly associated with implant failure like the type of prosthesis used, smoking or implant location were found to have less impact on long-term success, according to the researchers. They stated that the absolute rate of success was found to be 90 per cent.

Overall, the records of 50 patients treated with 297 implants at the school were reviewed.

Dentists with little experience contribute to failures of the device.

Contact allergies caused by gloves are a growing problem and should not be underestimated, the experts concluded. “With an annual global use of more than 150 billion pieces, the medical glove is something that requires serious attention,” said Paping. “It is a condition that can threaten your career and you can develop it suddenly,” he warned.

According to studies conducted in Finland and the Netherlands, the quality of latex gloves today is evolving and most manufacturers have eradicated the proteins that can cause allergies from their production. However, currently there is insufficient data on the new generation of latex gloves but initial studies have shown promising results.

According to the experts, a change of thinking and a policy on rubber gloves based on neutral information is urgently needed. Currently, a number of inferior products on the market owing to the fact that CE markings can be awarded based on self-assessment in Europe, Paping said. He recommended the implementation of new standards to replace the CE marking in order to promote high-quality products that are flexible, cause as little sensitisation as possible and keep permeability as low as possible.

Contact allergies caused by gloves are a growing problem and should not be underestimated, the experts concluded. “With an annual global use of more than 150 billion pieces, the medical glove is something that requires serious attention,” said Paping. “It is a condition that can threaten your career and you can develop it suddenly,” he warned.

(Edited by Claudia Duschek, DTI)
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Ultradent expands in the Oceania region, appoints industry vet

MELBOURNE, Australia: Gunz Dental and Henry Schein are the new distributors of Ultradent products in the Australian and New Zealand dental markets, DT Asia Pacific has learned. In a statement, the US manufacturer said that the expanded operations will be managed by Peter Mackley, who has been appointed by the company as new Pacific, Sub-Sahara Country Manager.

Ultradent has been partnering with Gunz Dental in the region since 1986. Henry Schein, one of the largest distributors of medical and dental products worldwide, currently maintains two divisions in Australia and New Zealand that market and sell a wide range of dental products from different manufacturers including 3M ESPE, Coltgate and GC Corporation.

Mackley, who has worked as managing director for Essology and DMT International, commented that the new partnership will allow Ultradent to establish a greater local presence in both countries, which, according to the latest figures, boast the second largest market for dental materials and equipment in the whole APAC region.

“Ultradent has a number of new products that it intends to introduce in the region,” he said. “The new distribution arrangements are consistent with Ultradent’s global strategic plan.”

The company will also continue to offer continuing education programmes for dentists in the market, according to Mackley.

Toothbrush maker takes leap in Asia

OSLO, Norway: Jordan has announced that it will soon be expanding its business operations in the Asia Pacific region. Two new lines of oral hygiene products will be added to its production plant in Malaysia next year, the Norwegian manufacturer of toothbrushes said.

According to the Asia Pacific Marketing Manager for Jordan, Saik Eng Joo, who recently spoke to the Malaysian newspaper The Star, the investment will only affect the company’s plant in Seri Kembangan near Kuala Lumpur and is hoped to expand the company’s reach in new markets like China and the Philippines.

Jordan currently runs another facility in Niall south of the capital. Since 2008, the company has been exporting its products to several markets in Asia, including Thailand, Korea and Japan, from Malaysia. The market there alone contributes 40 per cent of Jordan’s revenue in the region.

Joo said that the company will also be launching new products soon that will include a special toothbrush for tongue cleaning, among others.

Last year, the Jordan Group, which comprises dental floss maker Peri-dent from the UK and Swedish painting equipment manufacturer Anza, reported worldwide revenues of €124 million (US$157 million). The family-owned company is one of the oldest makers of brushes and toothbrushes in Europe as well as a market leader in Scandinavia.
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Beautiful, strong and fast: The next level of posterior composite restorations

In direct restorative dentistry, there is a strong trend towards faster, more efficient placement techniques for resin composite restorations. Additionally, dentists are demanding composite materials that allow simple, yet predictable application in the daily practice. The question is, however, whether an increase in efficiency and simplicity will compromise the quality and aesthetics of the restoration.

The new Tetric N-Ceram Bulk Fill (Ivoclar Vivadent) offers an ideal combination of efficiency, quality and aesthetics. Increments of up to 4 mm can be placed that require a curing time of only 10 seconds (at a light intensity of >1,000 mW/cm²).

How is this possible? Tetric N-Ceram Bulk Fill features the patented Ivocerin photoinitiator to boost polymerisation and to ensure complete curing of the entire composite increment. In contrast to conventional initiators, Ivocerin is much more reactive. This means that it is also activated in deep cavities and thus the material can be reliably cured within a very short time. Clinically, this is significantly time-saving and makes direct posterior restoration significantly more efficient (Illustrations 1–3).

Given its smooth consistency and proven Tetric N-Ceram quality, Tetric N-Ceram Bulk Fill can be adapted to the cavity walls easily. In order to avoid excessive shrinkage stresses at the cavity margins upon polymerisation, Tetric N-Ceram Bulk Fill contains a special shrinkage stress reliever. This is a more elastic filler with a specific surface treatment that can absorb the shrinkage stress within the material—similar to a microscopic spring. As a result, less shrinkage stress is transferred to the cavity walls yielding superior marginal quality—one of the prerequisites for a long-lasting restoration.

With Tetric N-Ceram Bulk Fill, it is not necessary to place a separate flowable composite as a base liner. The entire restoration can be completed with the same material, resulting in a uniform restoration with homogeneous strength.

Restorations with Tetric N-Ceram Bulk Fill blend well with the surrounding dental tissue because the translucency level of the material is ideally adjusted to natural enamel. Thus, aesthetic restorations with a natural appearance can be created within a shorter treatment time.

Clinical case
An old composite restoration of a mandibular second premolar in a 28-year-old male patient needed replacement because of marginal staining and an open cervical margin with caries (Fig. 1).

Prior to the removal of the defective restoration, Tetric N-Ceram Bulk Fill shade IVA is selected.
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and verified by applying and curing a small non-bonded composite sample on the tooth (Fig. 2).

Upon removal of the old composite restoration and the decay, all enamel margins were finished with an oscillating ultrasonically driven preparation tip (Fig. 3). The occlusal floor was approximately 5 mm deep (Fig. 4) and the proximal box of the cavity was approximately 6 mm deep (Fig. 4). In order to optimise the bond quality, all enamel margins were covered with a phosphoric acid gel and left to react for 20 seconds (Fig. 6). Then the etching gel was spread over the entire dentinal surface and left to react for another 10 seconds (Fig. 7). The etchant was rinsed off with water spray for 10 seconds and the surface was then air dried briefly, leaving it with a glossy, wet appearance.

Tetric N-Bond was applied using the convenient VivaPen (Fig. 8). An exact amount of bonding agent was applied directly to all the etched tooth surfaces and agitated for 10 seconds with the brush cannula (Fig. 9).

A circular stainless-steel matrix was placed on the tooth and Tetric N-Ceram Bulk Fill was injected into the proximal box using the Cavifil Injector (Fig. 10). The material was adapted to the cavity floor easily (Fig. 11) with OptraSculpt (cylinder shape) and polymerised with an LED high-power curing light (Bluephase Style; Fig. 12).

Depth measurement of the cavity with a periodontal probe revealed a remaining depth of 3 mm (Fig. 13). Hence, the remaining cavity was filled with just one layer of Tetric N-Ceram Bulk Fill in shade IVA using the Cavifil (Fig. 14). This final layer was quickly adapted and sculpted with OptraSculpt (chisel shape) to create anatomical tooth contours (Figs. 15 & 16).

A final polymerisation of 10 seconds was performed using Bluephase Style. The 10 mm light guide facilitates one full curing cycle because it covers the entire cavity (Fig. 17). The anatomical tooth contours were refined and finished with a football-shaped fine diamond bur (Fig. 18). In order to adapt the colour of the occlusal fissure system to the adjacent tooth, a small amount of a light-curing ochre staining material (Tetric Color) was applied and polymerised (Fig. 19).

The entire restoration was polished in one step to a glossy lustre using OptraPol Next Generation (Fig. 20). The final restoration directly after high-gloss polishing is shown in Figure 21.

Conclusion

With Tetric N-Ceram Bulk Fill, it is now possible for the clinician to restore posterior teeth in a much more efficient, yet aesthetically pleasing way. Owing to bulk application of up to 4 mm and light polymerisation of 10 seconds, the total treatment time can be significantly reduced without compromising the overall quality of the final restoration.

Contact Info

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Children usually don’t like brushing their teeth. However, a new oral hygiene set, called the Tooth Hero, will encourage children to do so in a playful and interactive way. Shirin Fani, the inventor of the device hopes that the brush set will render the process of toothbrushing more entertaining for children and thereby more effective. The designer was born in Teheran, Iran, and studied industrial design in Austria. DT International editor Claudia Duschek spoke with her about the unusual device, for which she received this year’s national James Dyson Award, an international student design competition run in 18 countries.

Claudia Duschek: What was your intention behind developing a dental tool for children?

Shirin Fani: I graduated in June this year from the University of Applied Arts in Vienna. For my diploma project, I wanted to design something for children in order to make their lives healthier in a smart way. I started to spend a lot of time with them and found out that children don’t like brushing their teeth and when they do, they don’t do it correctly. Parents usually have to do a follow-up brushing to ensure that their children’s teeth have been cleaned properly.

The device gives children the opportunity to be the heroes of their teeth...

How has your project been received so far?

The brush set was tested by children from the start of the project. I received feedback from children throughout, from the very first idea of the product until the finished prototype. Forthemselves, using the Tooth Hero meant winning a game, which they loved. The device gives children the opportunity to be the heroes of their teeth by fighting the bacteria that live in their mouth. In this manner, brushing rules can be taught; for instance, high brushing pressure can result in losing points in the game.

What are your plans now? Are you going to develop more dental design products and market your idea?

I found it fun to design for children. Winning the award was a step towards converting my concept into a real product. I haven’t introduced the project to any company yet because I only finished the project at the end of June but I’m planning to approach some companies because I absolutely believe in this project and its potential to be a real product and new trend in oral care for children.

How can this be achieved with the Tooth Hero?

There are some common methods for encouraging children to brush their teeth, like toothpaste with different flavours, toothbrushes with images of comic heroes, and brushing timers, etc. With my project, however, I wanted to create a whole new experience of toothbrushing. Instead of them buying Batman, Spiderman or Hello Kitty toothbrushes, I wanted them to learn more about the micro-organisms that cause cavities and tried to make those bacteria visible for the children to identify them as enemies they can fight. This is why I came up with the idea of a brushing game in the form of an interactive brushing guide.

Could you please explain the design and function of your innovative device?

The Tooth Hero consists of a multifunctional brush set with three parts, including a pH meter, an ultrasonic toothbrush and an ultrasonic tongue cleaner, and comes with a projector. As acidic pH levels caused by some foods make one’s tooth enamel vulnerable, the pH meter measures whether it’s the right time to brush. When it turns green, the pH value in the child’s mouth indicates that he or she should brush but when it turns red, then he or she still has to wait. Furthermore, always having an acidic pH level can be a sign of caries and a visit to the dentist is recommended.

An interview with designer Shirin Fani, Iran, about the Tooth Hero
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