Study investigates wear of different ceramics for primary tooth restoration

By DTI

YANGSAN, South Korea: While all-ceramic crowns are commonly used as aesthetic restorative materials for permanent teeth, little research has been conducted on its use and wear in primary teeth. Based on considerations of occlusal force in paediatric patients, a Korean study has now investigated the applicability of different ceramic restorative materials for use in primary tooth restoration.

In the study, the researchers compared zirconia, lithium disilicate, leucite and stainless-steel crowns to establish their wear. Ten flat crown specimens—primary teeth lost naturally during transition to permanent teeth—were prepared for each of the four study groups and tested for antagonist wear using a CS-4.8 chewing simulator (SD Mechatronik). Tooth wear was simulated with 100,000 chewing cycles at a mastication force of 50 N. To measure the volume of wear, teeth were scanned using a 3-D scanner before and after testing.

The final analyses showed that the leucite group had the greatest amount of antagonist tooth wear, followed by the lithium, zirconia and stainless-steel groups. Mean volume losses in the leucite and lithium groups were significantly greater than in the stainless-steel group. However, no significant difference was observed between the stainless-steel group and the zirconia group.

In terms of weight loss of restorative materials after testing, the lithium group showed the most, followed by the leucite group and the stainless-steel and zirconia groups. Weight loss in the lithium group was significantly greater than in the stainless-steel and zirconia groups, but no significant difference was observed between the stainless-steel, leucite and zirconia groups.

According to the researchers, the wear of restorative materials and of antagonistic primary teeth tended to be positively related. Moreover, the flexural strength and fracture toughness of the ceramic materials seemed to be correlated with primary tooth wear.

Acknowledging the high abrasion levels associated with leucite and lithium crowns, the researchers suggested that both materials should be used with caution in paediatric dentistry; however, the results of their study should be corroborated in in vivo studies. The study, titled "Wear of primary teeth caused by opposed all-ceramic or stainless steel crowns", was published online on 23 February in the Journal of Advanced Prosthodontics.
Future of children’s free dental care scheme under review

By DTI

CANBERRA, Australia: Debate has begun over the future of Australia’s Child Dental Benefits Schedule after Health Minister Sussan Ley expressed criticism about the outcomes of the scheme earlier this year. After Ley’s statement that the well-funded programme was not achieving its aim, the Australian Dental Association urged families to take their children to the dentist lest the programme be axed.

At a meeting of health and dental groups, Ley said that she did not think the dental programme was an effective use of funds and foreshadowed further changes. Lending support to Ley’s concerns was Australian Prime Minister Malcolm Turnbull, who said the programme’s effectiveness has to be examined regularly and we have a responsibility to ensure that every dollar we invest in dental services delivers the best health outcomes possible.

Since its introduction in 2014, the A$27 billion Child Dental Benefits Schedule has provided one million Australian children from low- to middle-income families with free dental care. However, auditors discovered that only around 30 per cent of children have used the programme and this contributed to an underspend of around A$300 million in the first 18-month period, the Sydney Morning Herald reported.

In response to widespread concern regarding the future of the scheme, Dr Rick Oliver, President of the Australian Dental Association, has encouraged families to support the programme by utilising their children’s treatment quota. “What I have to say to people who are eligible, and if they haven’t been to the dentist, they better go and make an appointment with their dentist because likely from 1 July, the scheme won’t exist,” he said.

As part of the Child Dental Benefits Schedule, each eligible child aged 2 to 17 may receive up to A$1,000 worth of dental treatment over a two-year period. As reported by the Sydney Morning Herald, the out-of-pocket cost for dental care in Australia is four times higher than it is for average health care, and waiting lists for public dental clinics had been starting to grow.

According to a recently published report, the global invisible braces market is expected to grow at a 12.16 per cent compound annual growth rate from 2016 to 2021. The report analyses the development of the ceramic, lingual and clear aligners segment in ten major countries and further shows that the process will be mainly driven by technological innovations and increasing demand for invisible braces among the adult population with aesthetic concerns about fixed orthodontic appliances.

Over the past decade, improved technological advancements, particularly digital technologies, and increasing awareness of aesthetic alternatives to conventional braces have led to growing demand for orthodontic treatment with aligners.

In addition, rising disposable income has resulted in increasing per capita health care expenditure, which has further led to a growing focus on health care, thereby increasing the demand for invisible braces specifically among the adult population.

While the market has witnessed a strong foothold in North America and Europe, rapid growth in demand for invisible braces is expected to be fuelled by the emerging markets in Asia Pacific and Latin America through India and Brazil, whereas rising dental tourism in Mexico and Thailand will continue to contribute towards the invisible braces market.

Among the leading companies operating in the market are Align Technology,Ormco, DENTSPLY International, 3M and ClearCorrect.

A 152-page report, titled “Global invisible braces market: Trends, opportunities and forecasts 2016–2021”, was published on February 10 can be purchased at www.rnrmarketresearch.com.

Invisible braces market to grow rapidly over next five years

By DTI

PUNE, India: According to a recently published report, the global invisible braces market is expected to grow at a 12.16 per cent compound annual growth rate from 2016 to 2021. The report analyses the development of the ceramic, lingual and clear aligners segment in ten major countries and further shows that the process will be mainly driven by technological innovations and increasing demand for invisible braces among the adult population with aesthetic concerns about fixed orthodontic appliances.

Over the past decade, improved technological advancements, particularly digital technologies, and increasing awareness of aesthetic alternatives to conventional braces have led to growing demand for orthodontic treatment with aligners.

In addition, rising disposable income has resulted in increasing per capita health care expenditure, which has further led to a growing focus on health care, thereby increasing the demand for invisible braces specifically among the adult population.

While the market has witnessed a strong foothold in North America and Europe, rapid growth in demand for invisible braces is expected to be fuelled by the emerging markets in Asia Pacific and Latin America through India and Brazil, whereas rising dental tourism in Mexico and Thailand will continue to contribute towards the invisible braces market.

Among the leading companies operating in the market are Align Technology, Ormco, DENTSPLY International, 3M and ClearCorrect.
ADX16 Sydney breaks attendance records

By DTI

SYDNEY, Australia: With a record number of dentists and allied oral health care professionals attending ADX16 Sydney, the dental exhibition reaffirmed its status as Australia’s premier dental event. Introducing the latest products from Australia and overseas, the show included over 140 exhibitors, more than 400 booths, and a seminar programme with leading international speakers.

Convened biennially by the Australian Dental Industry Association (ADIA), the event was held from 18 to 20 March in the Sydney Exhibition Centre @ Glebe Island. According to the organiser, factors contributing to the record attendance on the opening and closing days were initiatives such as free shuttle busses and ferries to the venue, free face painting and creche for children and the free ADX16 Sydney welcome reception which was sponsored by CMA Eco-cycle and held last Friday night.

“Feedback from exhibitors has been exceptional and reports concerning sales exceeding targets continue to roll into the ADIA office. It’s clear that, from the perspective of businesses supplying products and services to dental professionals, the ADX Sydney series of events is without equal,” ADIA CEO Troy Williams remarked on the all-time high.

In addition to the variety of dental exhibitors, more than a dozen associations representing dentists and allied oral health care professionals participated in the event, making it the largest gathering of dental community stakeholders in Australia, the organiser said.

Introducing two firsts

Aiming to give attendees an in-depth understanding of innovations that will enhance daily practice, this year’s event introduced the Product Showcase as a novel way to experience the latest dental products from Australia and overseas. In two purpose-built theatres, visitors were able to sit down and learn how novel technology is changing the instruments, equipment and materials that leading dentists use. During interactive 45-minute sessions, this innovative component of ADX16 gave dental professionals the unique opportunity to talk to suppliers to obtain comprehensive knowledge of their new products and insights into the field of dentistry.

Complementing this novel hands-on approach was the ADIA–OHPA Dental Laboratory Pavilion. Designed to maximise participation by dental technicians, the free pavilion offered information on the commercial framework and changes to regulations, as well as working demonstrations of the latest CAD/CAM technology from Australia and overseas.

As a collaborative effort between ADIA and the Oral Health Professionals Association (OHPA), the initiative recognised the unique challenges that the country’s laboratories face from international competition and technological changes and reflected both organisations’ advocacy efforts to secure a future for Australia’s dental laboratories.

The next instalment of ADX Sydney will take place from 23 to 25 March 2018 in the new International Convention Centre Sydney.

More and more dentists and dental lab technicians rely on IPS e.max, the clinically proven all-ceramic system that offers high esthetics and dependable strength. 100 million restorations placed attest to this. From crowns, inlays, onlays, thin veneers and abutments to bridges – make the choice more dental professionals make... MAKE IT e.max!
It is interesting to note the trends in cosmetic dentistry training these days. Cosmetic dentists are spending time and money learning various smile design techniques and protocols. In recent years, the use of computer-guided digital devices (hardware and software) in smile design has become quite popular and many clinicians are already trained in different kinds of digital smile design protocols.

If we carefully analyze digital smile design techniques or protocols, it can be established that they generally follow three steps: photography, digital analysis (calculation) and digital wax-up (drawing, cut and paste). After these clinical steps, dentists have two choices for achieving the final trial smile.

The first and most popular one is a laboratory-fabricated acrylic or composite restoration and the other one is CAD/CAM fabricated. For the manual approach, the laboratory technician has to manually wax up the digital design. Even though digital smile design uses computer-guided techniques and protocols, the entire design process is not as fast as many clinicians may think. This is because the dentist needs to develop specific computer graphic skills, be involved in digital communication with the laboratory, as well as pursue emotional counselling and marketing tactics.

Several months ago, I asked some of my close Asian, American and European friends who have completed various digital smile design courses about the use of digital smile design protocols in their daily practice. It was surprising to learn that none of these popular cosmetic dentists regularly use digital smile design in their practice. They frankly informed me that such techniques are time-consuming and computer design is not as easy as the day-to-day restorations that they do. I was also told that they use digital smile design protocols only when they need to present clinical cases for conferences or seminars.

I was quite pleased with their candid comments, as I rarely use digital smile design myself, because I do not want to give stock smiles to my patients based on universal design formulas. I apply art more than science when designing new smiles for my patients. I respect my patients’ personal desires and needs and guide them in achieving natural and realistic smiles with low biological cost. I have never sold cosmetic dentistry using the emotional counselling tactics of digital smile design, because I firmly believe that exploiting emotions to sell cosmetic dentistry actually constitutes emotional blackmailing of patients.

Keeping all of the above in mind, I have recently developed a simple “Quick Smile Design” concept, which is not new but a logical modification of the age-old direct composite mock-up technique.

The beauty of this simple technique is that it is fast, realistic and predictable. You do not need to open your computer and spend time using Photoshop. Your patients will instantly be able to give their comments about the aesthetics and level of comfort of your smile design. You do not need to acquire computer graphic skills. Moreover, this technique indirectly enhances the dentist’s direct cosmetic restoration skills. I hope you will have the opportunity to learn about it in the upcoming issue of the cosmetic dentistry magazine.

Dr Sushil Koirala
is Chairman of the Vedic Institute of Smile Aesthetics. He is also Editor-in-Chief of Dental Tribune’s sister publication cosmeticdentistry.net.

Dr Koirala can be contacted at drsushikoirala@gmail.com.
Introducing Innovative and High-Quality Restorative Solutions

Industry-standard Internal Hex Connection

NEW!

Inclusive®
Tapered Implant System

Industry-standard Conical Connection

NEW!

Hahn™
Tapered Implant

Industry-compatible Prosthetics

BruxZir®
Anterior
Solid Zirconia

Glidewell Direct is actively seeking distribution channels throughout the Asia-Pacific region

www.glidewelldirect.com • mail@glidewelldirect.com
Periodontitis linked to faster cognitive decline in people with Alzheimer’s

By DTI

A number of studies have demonstrated that poor oral hygiene, a common problem among elderly patients, is a risk factor for developing Alzheimer’s disease. Now, a joint research project led by scientists at King’s College London has provided further evidence that periodontitis could be associated with increased dementia severity and a more rapid cognitive decline in Alzheimer’s patients.

Fifty-nine non-smoking patients with an average age of 77.7, mild to moderate dementia and a minimum of ten teeth who had not received treatment for periodontitis in the past six months participated in the study. The patients underwent dental examinations by a dental hygienist at baseline and at the six-month follow-up. In addition, blood samples were taken to measure inflammatory markers in their blood.

The presence of periodontal disease at baseline was associated with a sixfold increase in the rate of cognitive decline in participants over the study period. Periodontitis at baseline was also associated with a relative increase in the pro-inflammatory state over the follow-up period. The researchers concluded that periodontal disease is associated with an increase in cognitive decline in Alzheimer’s disease, possibly via mechanisms linked to the body’s inflammatory response.

As the study only included a limited number of participants, the authors stated that the findings should be validated in a larger-cohort study. In addition, they highlighted that the precise mechanisms by which periodontitis may be linked to cognitive decline are not fully understood and other factors might also play a part in the decline seen in participants’ cognition alongside their oral health. However, the current evidence is sufficient to explore whether periodontal treatment might benefit the treatment of dementia and Alzheimer’s disease, they said.

Periodontitis is a common disease in the elderly. The World Health Organization estimates that 15 to 20 per cent of adults aged 35 to 44 worldwide have severe periodontal disease. The condition may become more common in Alzheimer’s disease because of a reduced ability to take care of oral hygiene as the disease progresses. Higher levels of antibodies to periodontal bacteria are associated with an increase in levels of inflammatory molecules elsewhere in the body, which in turn has been linked to greater rates of cognitive decline in Alzheimer’s disease in previous studies.

Dr Mark Ide, from King’s College London Dental Institute and first author on the paper, said: “Gum disease is widespread in the UK and US, and in older age groups it is thought to be a major cause of tooth loss. In the UK in 2009, around 86 per cent of adults over 55 had evidence of periodontal disease, while 90 per cent of adults aged 65 to 74 and 60 per cent of those older than 75 had less than 21 of their original 32 teeth, with half of them reporting periodontitis before they lost teeth.”

The study, titled Periodontitis and cognitive decline in Alzheimer’s disease, was published online on 10 March in the journal PLOS ONE.
BARCELONA DREAM TEAM
MAKE IT SIMPLE

MIS is proud to introduce the Global Conference Speakers Team:
- Alexander Declerck
- Anas Aloum
- Andrea Pilla
- Arndt Happe
- Björn-Owe Aronsson
- Carlo P. Mannelli
- Christian Coachman
- David García Baeza
- Edouard Femtis,padig
- El Machle
- Eric Van Dooren
- Federico Hernández Allaro
- Florian Schöber
- Franco Lambert
- Gabi Chashu
- Galip Gürel
- Giulio Rasperini
- Guillermo J. Pradíes Ramiro
- Gustavo Gordon
- Hal Kurdy
- Ignacio Sanc Martín
- José E. Malé-sánchez De Val
- José Nart
- Juan Arias Romero
- Korkud Demirel
- Lior Shapira
- Marco Gonzalez
- Mariano Sanz Alonzo
- Miguel Tricio
- Mika Feraru Bichacho
- Mitroodat Davarpanah
- Moshe Goldstein
- Nardi Csics
- Nelson Carranza
- Nitzan Bichacho
- Nuno Sousa Dias
- Pablo Galindo-Moreno
- Stavros Pelekasis
- Stefan Koubi
- Tommie Van de Velde
- Victor Clavijo
- Vincent Felmer
- Yuval Jacoby.

To learn more about the conference visit: www.mis-implants.com/barcelona
“do not think we are doing a good enough job”

An interview with Henry Schein Chairman and CEO Stanley M. Bergman

Henry Schein has been supporting the Senior Dental Leadership Programme (SDL) since its launch in 2007. Last month, the company’s long-term Chairman and CEO Stanley M. Bergman delivered the keynote address for SDL’s tenth anniversary meeting in London in the UK. Dental Tribune had the opportunity to sit down with him during the event to discuss the motivation behind the initiative, as well as public-private partnerships in dentistry in general and their importance for the improvement of oral health worldwide.

Dental Tribune: Mr Bergman, in your keynote at this year’s SDL Meeting, you talked about some of the key aspects that have made your company one of the leaders in oral health care worldwide. Could you summarise these for our readers?

Stanley M. Bergman: Henry Schein has been a very successful company by focusing on doing well by doing good. This requires balancing the five constituents that comprise our mosaic of success: customers, suppliers, investors, Team Schein, and society. One part of the mosaic is our commitment to society, which makes us different from others in the industry. With our public-private partnerships, we work with government as well as non-governmental organisations, customers and suppliers to make a difference in society. This enables trust, and with trust you can move things forward—like advancing oral health, for example, by bringing together academia, professionals, public health officials and businesspeople from around the globe.

The SDL Programme tries to do exactly that. Is this why your company has supported this initiative for such a long time?

The SDL is clearly the epitome of a public-private partnership. So far, it has been pretty successful in bringing together all members of the dental community, including representatives of dental schools, like Harvard and King’s College here in London, as well as public health officials from around the world and the private sector.

There has been very good research in the last decade with regard to oral health. What we learnt from that is that we have to focus not just on the teeth but on the whole body. Good oral care results in good general health, which then results in a good quality of life. We use SDL to get that message out to all constituents of the dental community around the world.

With dental diseases still occurring in epidemic proportions around the world, according to reports, is there a general lack of leadership in the profession?

I would not exactly call it a lack of leadership. As you mentioned, however—and the latest statistics show this—it is a sad fact that there are over three million people in the world suffering from dental caries alone. Unfortunately, oral diseases—in addition to psychological diseases—are still not recognised as non-communicable diseases (NCD) by the World Health Organization (WHO) and, as a consequence, their improvement is not considered to be beneficial for better health care costs down. The challenge we face is that the dental profession is not doing enough to make sure that oral disease is viewed as a key component of the NCD category. There is still too much focus on the profession or on restorative procedures or aesthetics. While I think we are all a bit to blame for not getting the message out, I still see dentists who are focused too much on today versus the long-term, macro picture. It is our job, through public-private partnerships, for example, to make sure that this is not the only way to achieve better health.
The surgical contra-angle handpiece with 45° angle head
The new WS-91 and WS-91 LG high-speed surgical contra-angle handpieces feature a 45° angle head. They allow completely new, considerably better access to hard-to-reach operating areas such as in cases of wisdom tooth extraction or apical resection.
Seven dental marketing mistakes ...and how to avoid them

By Carolyn S. Dean, Australia

As a dental professional, you face unfamiliar challenges in running and marketing your practice. You are confronted with increased competition (both locally and abroad), an oversupply of dentists, ever-rising practice operating costs, and more marketing-savvy patients. On top of this, your potential patients are becoming more discerning about where they go for dental treatment, with many heading overseas.

In order to achieve practice success, it is essential to build long-term relationships with patients and prospects. Long-term patients are more likely to feel satisfied. It is they who welcome the opportunity to refer others to you and who will continue to use your services in the future. Over my years working with hundreds of dentists as a marketing consultant, I have observed the common mistakes that prevent them being able to market their practices successfully.

1. Not knowing your numbers and not tracking them

One of the most common mistakes that I see is that many dental practices just do not track their numbers. There is a saying that “if you fail to plan, you plan to fail”. It is critical that you track all of the metrics in your business, and your marketing spend is no exception. The significant numbers that you need to know and track are:

- average lifetime value of a patient
- marketing return on investment
- new patients
- patient loss.

2. Not knowing your ideal patient

One of the cornerstones of any marketing campaign is knowing who your ideal patient is. Many practices make the mistake of not identifying this in their eagerness to go ahead with their marketing campaigns as soon as possible. You need to stop and think about whom your marketing will be directed to, what this group of patients wants, what problems they have, and what solutions they need. The key to implementing a strategic marketing plan is identifying your practice’s ideal patient or target patient profile. Once you know your market, you need to establish how best to communicate with them.

3. Wanting a silver bullet

Marketing your dental practice to attract the right kind of patients, keep them active and encourage them to refer you to their contacts is no easy task. Many practices think (and hope) that there is a silver bullet to solve their marketing issues. This leaves them open to different approaches, but nearly all of these have been done in a haphazard way and in short bursts. I call this a ‘scatter-gun approach’ to marketing. It does not work to try one approach for a month or it is very common for practices to have their branding and logo professionally designed and then decide to take it over, producing home-made brochures and other marketing collateral that use different colours, fonts and even versions of the logo. If you are not consistent, your attempts at establishing a brand will be ineffective.

4. Taking a scatter-gun approach

I speak to many dentists who tell me that they have tried many different types of marketing and they have all failed and nothing has worked for them. When I dig deeper, I discover that they have tried many two in an inconsistent manner without tracking the results or refining the campaign. This will always end in failure. It has been shown that it can take between six and eleven repetitions for patients to see or hear a message before they act on it. Do you know how many ways and how many times you communicate with your patients?

5. Doing it all by yourself

You have to remember that patients are more savvy than ever before. They are constantly exposed to a huge amount of marketing and their expectations of what is and is not professional are continually increasing. The reality is that when you are competing against the corporates, you need to ensure that your marketing is up to scratch.

6. Procrastinating

There are just so many things for you to think about when it comes to your dental marketing. How can you fix your website that is not professional are continually increasing. The reality is that when you are competing against the corporates, you need to ensure that your marketing is up to scratch.

7. Not getting the right advice

When you own or run a dental practice, in fact any kind of business, there is no shortage of marketing advice to follow, there is an overwhelming amount of advice out there. You may have had the experience of wasting time or money on poor advice. The problem is that many dentists are not getting the right dental marketing advice. They may listen to many different sources and form opinions based on advice from people who may not understand the business of dentistry.

8. Summary

There is no magic when it comes to marketing your practice successfully. Quite simply, it comes down to:

- picking the aspects of marketing you want to use, wisely and with due care and thought
- ensuring that, whatever marketing activities you decide to undertake, you perform to the best of your ability and budget
- being consistent
- tracking your results—setting your goals and reviewing or refining them on a regular basis
- getting good advice from trusted experts in the area of marketing you are undertaking.

It takes time, but the effort that you put in will be rewarded by more patients, increased production, better relationships with your team and patients, and a sense of control when it comes to your marketing. It is now time for you to focus on your marketing. By marketing well, doing it consistently, and avoiding the scatter-gun approach, you can avoid making the common mistakes that many practices make.
Another CAD / CAM Restorative Option

SHOFU BLOCK H

AESTHETIC • RESILIENT • FLEXIBLE • SHOCK RESISTANT
PRECISE MILLING • EASY INTRA-ORAL ADJUSTMENT & POLISH

Life-like Hybrid Ceramic
Ideal for Crowns, Inlays, Onlays, Veneers and especially Implant superstructures

For more information, simply contact your nearest Shofu Dealer Today!

SHOFU DENTAL ASIA-PACIFIC PTE. LTD.
Tel (65) 6377 2722  Fax (65) 6377 1121  eMail mailbx@shofu.com.sg  website www.shofu.com.sg
For the anterior region, the crowns were cut back and veneered. Translucent zirconium oxide (Zenostar T, Wieland Dental) was used for the framework and IPS e.max Ceram for the veneering of the anterior. These materials allowed us to achieve the desired strength and aesthetics.

When the patient came to our dental lab, she wore a classic full-arch denture in her upper jaw. She was unhappy about the aesthetic appearance, functional qualities and the loose fit of the denture. Her oral condition was assessed and the loose fit of the denture. An adequate primary stability of 30 to 35 Ncm was achieved. During the healing phase, the patient wore the temporary denture that had been relined with soft silicone.

After a six-month healing period, a satisfactory level of osseointegration was achieved, without any signs of bone resorption or inflammation. The implants were uncovered and gingival formers inserted. Two weeks later, an impression was taken to transfer the position of the implants to the dental lab. After model fabrication, appropriate abutments were selected and adapted to achieve a common insertion direction for the bridge (Fig. 1).

Digital technology was used to manufacture the temporary bridge. The model was scanned with a Zenotec D800 lab scanner (Wieland Dental) and the temporary bridge was designed with the 3shape dental design software. Milling was carried out in a nesting of the bridge. The option of using a 0.3 mm bur was not taken as it was not needed for the restoration in question. Next, the job was placed in a virtual Zenostar blank (Fig. 4). We decided to use a translucent, pre-shaded zirconium oxide disc in the shade T sun, because the posterior teeth from 14 to 16 and 24 to 26 were planned to be re- stored with monolithic zirconium oxide. The warm, reddish shade of this disc closely matches the selected tooth shade and allows the A-D shades to be recreated efficiently and reproducibly.

A sinter support structure was designed to allow the restoration to be sintered in an upright position in the Programat S1 sintering furnace. The sinter frame minimises distortion during sintering and is instrumental in achieving a high accuracy of fit in long-span objects. Finally, the program calculated the milling data in a process that took less than three minutes to finish.

Then, the milling process was started. This process was achieved in a Zenotec select 52 milling unit that features 5-axis operation and an 8-disc material changer (Wieland Dental). The absolute precision with which this unit

Full-arch implant-supported superstructures can be achieved by various methods. Depending on the bone quality and number of implants, the patient may either receive a fixed or removable implant restoration. If a fixed prosthesis is indicated, the superstructure may either be cemented or, alternatively, screwed directly to the implant fixture, depending on the clinical situation.

In the case described here, we opted for a cemented zirconium oxide bridge. Monolithic crowns were used in the posterior region.

Fig. 1: The seven implants in the edentulous jaw were to be connected to a fixed bridge made of zirconium oxide.— Figs. 2a & b: Digital model with temporary restorations (abutments) in position.—Fig. 3a: In the first step, the restoration was designed in full contour and then cut back in the visible aesthetic region.—Fig. 4: Nesting of the bridge framework in the CAM software.—Fig. 5: After milling, high precision result with framework prior to sintering excellent marginal accuracy (incisal, occlusal).—Fig. 6: Shading the interior crown surfaces and basal surfaces.—Fig. 7: Customised framework prior to sintering.
Unrivaled innovation, thoughtful design, lasting integrity: A-dec 500 is based on decades of collaboration with dentists worldwide. Such cooperation has led to pressure-mapped patient comfort, robust integration of handpieces and technology to minimize reach, and a touchpad that provides single-point system control.

In a world that demands dependability, A-dec delivers a proven solution without a single compromise.
Customising the framework

Once the milling was completed, the framework and the sinter support structure were separated from the disc. In the next step, the unsintered bridge was customised with colouring liquids using the infiltration technique. The range of Zenostar Color Zr liquids is perfectly suited for this purpose, as they are supplied in the standard shades of the A–D shade guide. Five Effect shades are available for further customisation. We used Zenostar Color Zr in shades A2 and A3 as well as the grey-violet Effect shade.

In order to render the infiltration of the individual liquids visible, the virtually colourless liquids were mixed with a visualizer (Zenostar VisualiZr). First, the individual vestibular surfaces can be filled with the liquid. The cervical and dentin areas were beautifully accentuated by using a mixture of IPS e.max Ceram ZirLiner Clear and Incisal Line Liquid.

The incisal area of the anterior teeth and the cusps of the posterior teeth were infiltrated with a diluted version of grey-violet Effect shade and Zenotec Color Optimizer mixed with blue VisualiZr liquid (Fig. 7). It is essential to use a separate brush for each shade. After having been allowed to dry for two hours, the framework was sintered in the Programat S1.

After the sintering process, the restoration exhibited an excellent accuracy of fit, without the need for any adjustments by grinding, e.g. on the insides of the crowns. The advantages of the translucent zirconium oxide became obvious at this stage. Owing to the colouring liquids, the cervical and dentin areas were beautifully accented. The incisal areas exhibited a slight greyish-translucent sheen, which should facilitate the subsequent layering procedure (Figure 8 shows the smooth transition of the shades).

The simulation in Figure 9 demonstrates how difficult it would have been for us to achieve the desired tooth shade if we had used opaque white zirconium oxide for the framework. Despite the high translucency of the zirconium oxide, the titanium abutments did not show through the framework.

The simulation in Figure 10 shows the smooth transition and ideal basic shade for completing the bridge.—Fig. 9: Comparison between white opaque zirconium oxide (superimposed simulation at the top margin) and the Zenostar Zr framework.—Fig. 10: After the liner and foundation firing.—Fig. 11: The vestibular anterior surfaces were veneered individually.—Fig. 12: After final firing, the monolithic crowns did not appear brighter than the veneered crowns.—Fig. 13: Finished bridge: harmonious shade effects and homogeneous surface texture.—Figs. 14 & 15: The cemented bridge pleases with its beautiful natural appearances and meets the patient's functional and aesthetic expectations.

Individual framework refinements

An optimum aesthetic outcome is only achieved if the restoration exhibits ideal optical properties. A controlled brightness value, adequate saturation and translucency and minimised light reflection are essential to achieve a pleasing aesthetic outcome. If these parameters are not met, the result will never be satisfactory, even if the restoration is veneered with ceramics. The result would simply be a restoration that looks good on the model but appears too bright in the mouth.

Staining the zirconium oxide prior to sintering is the first measure to control the light reflection effects. Application of a liner is the second measure. The bridge was veneered with IPS e.max Ceram. As the framework already exhibited a pleasing basic shade, we applied a mixture of IPS e.max Ceram ZirLiner Clear and Incisal (70:30). ZirLiner Incisal reduces the light reflection of zirconium oxide; alternatively Liner 4 may be used. In order to mix the liners, IPS e.max ZirLiner Build-Up Liquid was added. The result was a mixture with a pleasing consistency that would ensure an even coating. After the firing process, the restoration exhibited a homogeneous surface and an adequate level of fluorescence. For the foundation firing of large restorations, we prefer the layering technique rather than the sprinkle technique. The layering technique provides better adhesion and optical effects (wash firing: Deep Dentin A2, A1, DA2, A1 and T-Neutral) (Fig. 10). The individual vestibular surfaces can be easily veneered.
The tooth shape was given and the framework was used as the basic shade (veneering: Dentin A2, A1, T-Neutral, OE1, OE2, i1) (Fig. 11).

After the firing process was completed, the value, saturation and light reflection effects looked as desired. The shade effect of the restoration is identical in intensive light, in normal light and in the shade and matches the chosen A-D-tooth shade.

Shade characterisations (Shades, Stains) are applied to the monolithic portions before dentin firing. We continued to apply thin “soft” coatings of colour and used IPS e.max Glaze Fluo for the glaze firing process.

After the final firing, the restoration exhibited harmonious shade effects. The bridge satisfied all functional and aesthetic criteria. The monolithic portions did not appear brighter than the veneered parts (Fig. 12). Finally, we polished the bridge and ensured that the conditions for optimum oral hygiene were in place. Smooth surfaces are essential to prevent the excellent biocompatibility of zirconium oxide from being diminished and undesirable wear from occurring in the opposing jaw. After a final check, the restoration was forwarded to the dental practice (Fig. 13).

Conclusion
After the preparations were completed, the bridge was cemented in place. The ceramic restoration looks three-dimensional. Even without layering, the posterior teeth demonstrated a natural colour depth. With their vibrant internal shade effects and lifelike warm translucency, the anterior teeth demonstrated impressive aesthetic properties (Fig. 14).

“The combination of cutting-edge milling technology and high-quality veneering ceramics provides an efficient route to achieving aesthetically pleasing, reliable and long-lasting treatment results.”

The combination of cutting-edge milling technology and high-quality veneering ceramics provides an efficient route to achieving aesthetically pleasing, reliable and long-lasting treatment results. The goal of the prosthetic treatment team is to see a happy patient with a beautiful natural smile (Fig. 15).
Dubai Clinical Masters™ Program in Esthetic and Restorative Dentistry

7 days of intensive live training with the Masters in Dubai (UAE)

2 sessions, hands-on in each session, plus online learning and mentoring.

Learn from the Masters of Esthetic and Restorative Dentistry:

Dr. Angelo Putignano
Dr. Francesco Mangani
Dr. Ed McLaren

Registration information:

7 days of live training with the Masters in Dubai (UAE) + self study

Curriculum fee: €6,350

(Based on your schedule, you can register for this program one session at a time.)

Details on www.TribuneCME.com

contact us at tel.: +49-341-484-74134
email: request@tribunecme.com

Collaborate on your cases and access hours of premium video training and live webinars.

University of the Pacific
This course is created in collaboration with University of the Pacific.

100 C.E. Credits
Certificates will be awarded upon completion.

Tribune Group GmbH is an ADA CERP provider. ADA CERP is a service of the American Dental Association to assist dental professionals in identifying quality providers of continuing dental education. ADA CERP does not approve or endorse individual courses or instructors, nor does it imply acceptance of credit hours by boards of dentistry.

Tribune Group GmbH is designated as an Approved PACE Program Provider by the Academy of General Dentistry. The formal continuing dental education programs of this program provider are accepted by AGD for Fellowship, Mastership and membership maintenance credit. Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement. The current term of approval extends from 7/1/2014 to 6/30/2016. (Provider ID 466/001).
For the ninth time since 2000, dental professionals will be gathering in Singapore to update themselves on the latest trends and developments in dentistry when the International Dental Exhibition and Meeting (IDEM) opens at the Suntec Singapore Convention and Exhibition Centre this month. With more companies and dealers to exhibit at the show than ever before, it will once again be an extensive showcase of the state-of-the-art in the field.

According to organiser Koelnmesse, over 550 exhibitors have confirmed their participation at the event, which will take place from 8 to 10 April on Levels 4 and 6 of the Suntec. There will be a number of world premiere product launches by leading dental suppliers, including new implant systems, dental disinfection lines and digital practice management solutions. Overall, up to 8,500 participants are expected at the upcoming IDEM, representing an attendance increase of 8 per cent compared with the last edition in 2014, which saw slightly over 7,800 visitors.

The congress part of IDEM has also been significantly expanded and will include additional offerings, such as the Digital Dentistry Forum on 10 April. Under the theme “A primer in digital dentistry—Practice and laboratory development for clinical excellence”, this introductory full-day event will feature internationally recognised experts from private practices and dental laboratories, who will be advising participants on ways to integrate digital dentistry and of the benefits of CAD/CAM, 3-D printing and CBCT scans, among others. Furthermore, the Singaporean Association for Oral Health Therapists has partnered with IDEM for the Dental Hygienist and Therapist Forum for the first time. Regulars, such as the New Dentist Forum, will also return. A special lunch lecture on Sunday, supported by prominent UK dentist Dr Linda Greenwall, will inform participants of how to incorporate new technologies into clinic routines and provide strategies on overcoming resistance encountered by practice staff implementing them.

Complementing the main congress educational offering, free clinical presentations will be held at a continuing education symposium hosted by the Dental Tribune Study Club on Level 6.

“The conference stresses the importance of continuing education in ongoing progression in the professional journey. Keeping up to date with changing trends in the industry helps dental professionals remain relevant and provide better service to their patients,” said Michael Dreyer, vice president of the Asia-Pacific region at Koelnmesse.

While online registration for trade visitors and conference attendees closed on 18 March, some parts of the programme, such as pre-congress courses, are subject to availability. Dental Tribune International will be covering IDEM Singapore again with its today daily congress newspaper. For those unable to attend the event this year, the publisher will also be providing the latest news from the show floor online on its website, www.dental-tribune.asia, as well as to subscribers worldwide through its e-newsletter on a daily basis.

More information about IDEM is available online at www.idem-singapore.com.
IDEM Singapore 2016—Striving for Clinical Excellence

A welcome message by Michael Dreyer, Vice President, Asia-Pacific, Koelnmesse Pte Ltd

Every two years, IDEM Singapore brings together dental traders and practitioners from Asia-Pacific and manufacturers from around the world in the cosmopolitan city of Singapore, turning it into the place to be for all professionals interested in dentistry. Since its conception in 2000, IDEM Singapore has grown from strength to strength, with every edition attracting more buyers to the exhibition and more delegates to the conference, and with visitors’ numbers doubling over the past decade. This year, we are very delighted to have the event back again for the 9th edition, presenting an even larger conference and exhibition.

Themed “Striving for Clinical Excellence”, the 2016 conference stresses the importance of continuous learning as an ongoing progression in the professional journey. Keeping up-to-date with changing trends in the industry helps dental professionals remain relevant and provide better service to their patients. One particular trend we’ve taken note of is the rise of digital dentistry. As one of the most talked about industry trends, it has warranted a dedicated Digital Dentistry Forum as part of the conference of IDEM Singapore this year.

The rise in health tourism and economic growth in Asia-Pacific has shifted consumer demands for better dental products and services in the region. This has further fueled the desire for an increasing number of companies to enter this market. These companies have come to realise that IDEM Singapore is the ideal platform to connect with potential customers here. Over 500 companies from 38 countries will exhibit this year and showcase the latest dental products and services.

In this year’s conference, we have once again an exciting line-up of speakers, topics and workshops for our delegates to address the needs of the various dental professional segments. We are also pleased to have some of our conference speakers featured in this and the upcoming issues of today IDEM, namely Dr. Linda Greenwall, Dr. Hien Ngo, Dr. Tan Wee Kiat and Dr. Christine Bellmann, who will cover topics such as aesthetics dentistry, paediatric dentistry and general dentistry.

We are proud to be the most anticipated dental event in Asia-Pacific, and trust that you will have a stimulating and fulfilling time at IDEM Singapore 2016!
First supplier of sterilizable LED technology in dental instruments

Ring LED+: World’s first sterilizable turbine with 5x ring LED

Shadowfree illumination

Now available from your dental supplier or via wh.com
Parents can be great allies

An interview with IDEM presenter Dr Tan Wee Kiat, Singapore

In a morning session on 10 April, Dr Tan Wee Kiat will be presenting a paper on paediatric dentistry as part of the Dental Hygienist and Therapist Forum at IDEM. In this interview, the head of the National Dental Centre of Singapore’s Paediatric Dentistry unit discusses important aspects of child treatment and how they affect treatment outcomes.

Today international: Who are the various dental and relevant healthcare professionals within a paediatric dentistry unit and what are their respective roles in supporting the principle paediatric dentists?

Dr Tan Wee Kiat: A paediatric dental healthcare team is no different from a general dental practice team. Both differ only in their training and their approach to patients. Furthermore, being a tertiary institution like the National Dental Care of Singapore, our team works closely with a wider range of health professionals like paediatricians, psychologists, speech therapists, medical social workers, and nurses.

Regardless of their respective fields of work within the dental unit, all members of the team have a common goal which is to deliver good treatment outcomes and to provide a experience that is as pleasant as possible for the child patient and the parent. Every principal of a practice has an image he or she wants to convey, for example the culture and philosophy of the practice, be it fun loving, professional, kind, etc. This must then be embodied and reflected at every customer contact from front line to support staff.

How can a dentist’s interaction with a child patient affect the success of their practice?

Paediatric dentists know that successful patient dynamics involve effective communication not just with the child but also the parent. Parenting styles influence child behaviour in the operator. Behavioural management techniques require parental “buy in” and in many instances their consent. Life style changes that ought to have an impact on the child’s oral health depend on a parent or caregiver’s co-operation.

Gaining trust of both patient and parent is paramount. We are truthful in all interactions, and we do not say it does not hurt when it does, but we help the child cope.

You emphasised the importance of the parent. Outside the clinical environment, which other groups of people contribute to the management of a child’s oral health?

Groups like school teachers are also important. For Singapore I would also add maids and caregivers such as grandparents or baby sitters. In regard to teachers, those involved in early childhood education and staff of preschool centres are very important in helping to manage children’s oral health, in my opinion, but how can they look after the children if they feed them with unhealthy snacks and make them drink milk from a bottle, when these children have been weaned off the bottle? In fact, I would like to see a dental component included in early childhood education programmes.

What are some of the more common development defects of the human dentition amongst children?

Enamel defects in the primary dentition associated with pre-, peri- and post-natal conditions such as low birth weight, children or mother’s ill health are the most common. The incidence is from 13 to 39 per cent in full term infants. Children of low birth weight are more prone to enamel defects1 and these leave them vulnerable to decay.

Cleft lip and palate is not generally regarded as a defect of the dentition but a defect of fusion of embryonic lip and palatal structures. The position of teeth is affected because these components carry teeth buds in them. The teeth decay long before parents decide to seek help from a dentist. Preventive measures and risk assessment that could have been implemented are missed out because parents do not bring their child for the first dental assessment by age 1. Genetic defects of tooth structure have a greater impact as primary and permanent teeth are affected. Affected teeth may cause pain, be unaesthetic, and need crowns later in life.

How can dental professionals identify children who deviate from normal dental development and what are appropriate interventions or counsel when identified?

First, dentists must know what is “normal” in terms of dental development. If they have been trained in dental development, embryology and oral pathology, they would just have to refresh their training by reading and have a high index of suspicion. Many alates show oral conditions in pictures with great clarity and this is the next best thing to seeing a case in real life, especially if the condition is rare. Learning to think in a systematic and logical manner is what a good dental school teaches you.

Intervention will depend on the condition and the risk of complications, such as decay. Thus stays also true for the anticipative guidance they can give to parents. Conditions of genetic causes often have an inbornance pattern. Knowledge of how these conditions are inherited is useful in genetic counselling.

What are the different types of dental developmental problems that paediatric dentists may encounter and what is the difference between behavioural problems and dental anxiety?

We shall confine this discussion to behavioural problems we encounter in normal children and not special needs children. Most behavioural problems stem from anxiety, and result in avoidance of treatment, or uncooperative behaviour in the dental clinic.
THE MASTERS OF ENDODONTICS

ARE MEETING IN DUBAI WITH THE ROOTS COMMUNITY

DATE: 30 NOV - 3 DEC
LOCATION: CROWNE PLAZA, DUBAI

EARLY BIRD 20% OFF
REGISTER AT WWW.ROOTS-SUMMIT.COM
Behavioural problems in the dental clinic can manifest as crying, screaming, tantrums, refusal to open mouth, delaying tactics like coughing, vomiting, or extreme talkativeness.

How can paediatric dentists gain more behavioural knowledge about the child patient prior to any relevant treatment?

The training in dental schools provides a good basis in information gathering, such as taking a good medical and dental history. Listening to parents, for instance, what the child likes or dislikes about going to dentist, as well as knowledge of previous dental visits and what happened there can also serve as a guide for dentists. Paediatric dentists develop an understanding of the child’s personality whether he or she is introverted, shy, outgoing, or adventurous. In addition, assessing the dynamics between parent and child, gives a sense of the parenting style and the likelihood of which treatment modality is acceptable to parents, as well as what management technique is likely to succeed with a particular child.

What can paediatric dentists do to safeguard the interest of children with anomalous behavioural patterns during care?

Some questions to ask oneself would be: Can I do fairly good dentistry with this level of behaviour? If not, am I able to control or minimise the disruption so that I can still provide an acceptable standard of dentistry? Can I still do the job safely? How traumatic is this whole process to the child and parent and will I jeopardize future co-operation? Is this a one-off procedure which does not have to be repeated and hence have a likelihood of the child forgetting any trauma that is associated with it?

What strategies can the dental team employ to ensure positive behaviour in children?

There is no way to ensure positive behaviour. People who say there is have not worked with children enough. You can load the dice in your favour by being friendly, non-threatening, and showing genuine care to the child. You can also schedule appointments which do not conflict with nap times when children can get crotchety. Furthermore, you can draw boundaries for acceptable behaviour, and you can enlist the parent in the strategies you will employ. Parents are a much underutilised resource, but when trained appropriately, they can be great allies. They serve as role models and they are the ones who will ultimately trust you with their child.

How common is the usage of restraints?

In our unit, we do not use restraints like papoose boards, or devices to strap children down. Restraint is usually done by parents, who help in holding the child. In America, paediatric dentists take consent for restraint, and show the devices they use to restrain children so that parents have a good idea of what they are consenting for. Restraint should be used cautiously as it can be taken as assault and liable to prosecution. In UK and Australia, restraint devices are seldom used by paediatric dentists and many schools do not teach this anymore.

Thank you very much for the interview. “

“Parents do not notice enamel defects unless they are very obvious.”

ENDPOINT
INTERNATIONAL ENDOIODONTIC CONGRESS
APRIL 18-21, MOSCOW

Pio Bertani
Arnaldo Castellucci
Elisabetta Cotti
Vittorio Franco

Irina Makeeva
John Meechan
Damiano Pasqualini
Aviad Tamse
Silvio Taschieri

INTERNATIONAL ENDOIODONTIC CONGRESS FEATURING THE LEADING WORLD SPECIALISTS IN ENDOIODONTIC

The event will take place within the International Dental Exhibition Dental Salon 2016 which will allow for attendees to combine the participation in a scientific event with visiting the exhibition booths. Within the ENDPOINT congress program there will be organised practical hands-on courses (pre-congress April 18 and post congress, April 21). An official get together closing party of the congress (April 20), following the second day of the scientific program.

The project committee is happy to offer optional excursions to visit the most exciting places of Moscow city!

Organisers
Scientific Partners
Information Support

www.endopoint.com


2. Tan KR1, Tan K, Ye GZ. Cleft de- 
formities in Singapore: a population- 
New products and services on display at IDEM

With more than 550 companies from around the globe participating in IDEM Singapore 2016, there will be plenty of new products to see and discover for dental professionals. Furthermore, participants at this year’s show will be able to find out more about the latest dental tools and technologies during a daily symposium presented by the Dental Tribune Study Club at Booth 6N-17 in the exhibition hall on Level 6.

In cooperation with Cincinnati dentist and creator of the original tapered implant Dr Jack Hahn, Glidewell Laboratories (Pacific Dental Specialties, Booth 4N-20) has announced the release of the Hahn Tapered Implant System, which adds to the extensive line of the company’s dental implant products, such as the Inclusive Tapered Dental Implant System, Hahn Tapered Implant System, and the new Global D implant solutions (Booth 4Q-12) will be exhibiting its complete spectrum of innovative dental implants and surgical kits at the French Pavilion (Booth 6J-02). One of the highlights is a 3 mm diameter, two-piece dental implant designed for the restoration of narrow spaces in the incisal area where conventional implants would not be suitable. Intended for the restoration of maxillary lateral incisors, mandibular lateral and central incisors, the implant optimises the management of the soft and hard tissue despite the small amount of space available. Global D’s showcase will also include its implants for subcrestal, subperiosteal and transmucosal placement, as well as slim implants, pre-implant solutions and surgical kits.

Global D, one of the foremost French producers of dental implants, will be exhibiting its complete spectrum of innovative dental implants and surgical kits at the French Pavilion (Booth 6J-02). One of the highlights is a 3 mm diameter, two-piece dental implant designed for the restoration of narrow spaces in the incisal area where conventional implants would not be suitable. Intended for the restoration of maxillary lateral incisors, and mandibular lateral and central incisors, the implant optimises the management of the soft and hard tissue despite the small amount of space available. Global D’s showcase will also include its implants for subcrestal, subperiosteal and transmucosal placement, as well as slim implants, pre-implant solutions and surgical kits.

Müller-Omicron, an innovative manufacturer of dental products based in Germany, is offering customers a completely new range of disinfectants for effective, user-friendly and safe disinfection. Owing to a new combination of active ingredients, ensuring hygiene in dental practices and laboratories has just become easier. The company will be presenting its new disinfection products for the first time at IDEM Singapore 2016, at the German Pavilion (Booth 4K-23).

Global D implant solutions

Recently introduced at the Chicago Dental Society Midwinter Meeting in the US, 3Shape’s (Booth 4Q-12) updated dental laboratory scanner will be on display in Singapore. Like the smaller D1000 laboratory scanner, the new D2000 processes multiple scan lines simultaneously to improve cavity and impression capture. This allows it to accurately scan analogue impressions sent to the laboratory by the dentists. According to the company, this eliminates the need for the laboratory to pour or create a gypsum model from the impression, and this not only saves it several steps in the workflow, but also allows it to print cost-effective 3-D models instead, based on the analogue impression, if a physical working model is needed.

Global D’s showcase will also include its implants for subcrestal, subperiosteal and transmucosal placement, as well as slim implants, pre-implant solutions and surgical kits.

German dental instrument manufacturer NTI will have its latest portfolio on display too (Booth 4H-15). Its new tungsten carbide instruments, for example, have been optimised for the separation of teeth and roots, as well as for apicectomies. The instrument of choice for surgical procedures, the company’s A-blade runs smoothly while providing excellent cutting. Bone lid preparation and harvesting of bone structure for augmentation are further possible uses. Also, the new perforated diamond finishing strips from NTI adapt particularly flexibly to the surface of the tooth, and this facilitates proximal contouring of Class II, III and IV fillings. Perfect laboratory appliances are created after reduction of the excess sections of the foil. Designed to smooth the surface of all foils, NTI’s SoftPol is available in three levels of abrasion. Different speeds allow customised fine contouring of all areas close to the sensitive gingiva. The open-pored instruments also reduce the risk of overheating the appliance and distorting it.

Müller-Omicron disinfection products

*Hahn Tapered Implant System

*3Shape D2000 laboratory scanner

*Global D implant solutions

*NTI Diamond Strips
The fruit of unrivalled technological and industrial expertise, the latest generation of I-Max panoramic systems is here to usher you into a new era. With a futuristic and ergonomic design and exceptional image quality, coupled with its user and installation friendly product features, we know you’ll love it too!

MAXIMUM TECHNOLOGY
IN A MINIMUM OF SPACE

VISIT US AT
IDEM
SINGAPORE
BOOTH 6H09