Health experts go cuckoo over mental patients

Daniel Zimmermann

HONGKONG/LIPEZIG, Germany: People with psychiatric disorders are more likely to suffer from dental diseases than people who are mentally stable, a new report from Australia suggests.

Having reviewed over 20 studies from Europe, Asia and the US, researchers from the University of Queensland (UQ) found that patients diagnosed with severe mental illnesses had a three-fold higher risk of losing all their teeth.

Mental patients also had significantly more decayed, filled or missing teeth, the study shows. Levels of dental disease however were lower in countries or regions with water fluoridation.

The alarming figures were released on the same day that new findings from Germany revealed that almost 40 per cent of Europeans suffer from some kind of mental health problem.

According to the study, treating disorders like anxiety, insomnia or depression costs the Union an average of €160 billion a year, including costs for dental treatment.

Besides their neglect of oral hygiene, mental patients often lack access to oral health care owing to dental phobia and treatment-related costs, UQ professor and lead researcher Steve Kísely said. He added that medication commonly used to treat disorders, such as antidepressants or mood stabilisers, can additionally reduce saliva flow, which can cause xerostomia and increase plaque formation in these patients.

"Patients with severe mental illnesses like schizophrenia, dementia or bipolar disorders are most affected by bad oral health," heralded Dental Tribune Asia Pacific.

Conversely, Kísely said that dental diseases can lead to mental disorders like social phobia caused by the poor anaesthetic appearance of teeth or other symptoms, like bad breath.

He recommended including oral health check-lists in the standard assessment of psychiatric patients and increasing promotion of oral hygiene measures amongst this group. "They should be given advice on diet, smoking and brushing technique," he concluded.

Fiji has eyes on people’s oral health

New light on oral leukoplakia

Chemical luminescence can aid in the visualisation of oral leukoplakia, new research has found. Following oral examinations, researchers at King’s College London Dental Institute evaluated the accuracy of chemiluminescence in detecting potentially malignant oral disorders using a commercially available detection kit.

According to a study, more attention should be given to the oral health status of mentally disabled. "(DTI/Photo Refat Mamutov)

Australia sets up dental council

Dental experts have been gathered by the Australian coalition to form a new advisory body on oral health. The National Advisory Council on Dental Health, which includes the President of the Australian Dental Association, as well as heads of other national oral health organisations, is intended to develop strategies to improve the country’s poor public dental care system.

The decision to set up the council follows an agreement on the improvement of public dental services signed by Labor and the Green party during last year’s federal elections.

Both coalition partners already clashed over the issue in early May, which resulted in additional funding of AU$55 million (US$56 million) for dental care by the government over the next four years.

Public dental services, especially in South Australia, are poor, with patients having to wait for months or even years to get a dentist appointment.

Managing bone with Acteon

The Thailand subsidiary of French dental manufacturer Acteon has announced to hold a seminar and workshop on the issue of bone management next January in Bangkok, Thailand. The seminar will be joined by Drs Fred Bergmann and Sarakit Visuttiwat-Tanakorn as well as Prof. Furumihisa Watanabe and Lars Svennerby.

A new oral health survey is being conducted by the Fiji Ministry of Health to re-evaluate the prevalence of dental diseases on the island. Over the next few weeks, dental check-ups will be conducted on and questionnaires distributed to 6,000 individuals from different parts of the country in collaboration with the Fiji National University in the capital Suva, the ministry said.

The last two surveys, done in 1998 and 2004, revealed that dental diseases like caries and periodontal disease plague the majority of Fijians, especially young children and adolescents.

It also found that one in ten adults had decayed, missing or filled teeth. According to the ministry, the initial results of the new survey are expected to be released early next year.

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Ortho start-up
Interview with Singapore investor Nanostart

Filling materials
The best choice for posterior restorations

Borneo charity
Dentist helps to reforest orang-utan habitat

Surveying damage caused by the earthquake/tsunami in Japan. In an exclusive interview, America’s Ellis Gadsden talks about restoring dental care facilities.

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Serial robber, dentist rapist nabbed by Philippine police

PDA president calls for better security measures in dental clinics

**HONG KONG, Thailand:** Female dentists in the Philippines can breathe a sigh of relief, as the National Capital Region Police Office has reported that it has arrested a man who could be responsible for a series of robberies and sexual crimes targeting dental offices in the Metropolitan Manila area. Police representatives told reporters that the 52-year-old suspect was seized in early September in his home in Las Piñas City, 20 kilometres south of the capital.

The arrest is a success of estimate for the Philippine Dental Police, which has recently been cast in a poor light by reports posted on whistleblower website Wikipedia, describing the agency as inefficient and corrupt. It also ends a manhunt lasting for months and involving intelligence operations throughout the country, as well as the Philippine Dental Association (PDA), which it said was cooperating closely on the matter with the police.

The suspect, who spent five years in prison on robbery charges from 2004 to 2009, is accused of robbing over 20 dental offices and raping or sexually assaulting female dentists over the last 12 to 14 months. His modal operandi was to pose as a client requesting dental treatment and once having gained access to immobilize his victims with a semi-automatic handgun to make them compliant.

According to the police, he has confessed to 19 of the robberies, starting in May 2010, but has denied the charges of rape and sexual assault.

Another individual suspected to be involved in crimes of this kind is also in custody, the police said. PDA President Dr Roberto Tajonera, a dentist from Manila, appeared relieved, but said that better security measures need to be taken in dental clinics, such as the installation of CCTV cameras, to prevent further attacks on dentists.

**Fibre–optic sensor research honoured by AP dental student body**

From news reports

**BANGKOK, Thailand:** Research from Singapore demonstrating the use of fibre–optic Bragg-stack sensors to measure demineralization of enamel has taken first place at this year’s scientific research competition held at the 38th Asia Pacific Dental Students Association’s (APDSA) annual congress in Thailand.

High–resistance fibre–optic sensors are commonly employed in a wide range of industrial applications in order to measure temperature, strains, illumination and other physical quantities. In dentistry, they have been used to study contraction and setting expansion of composite materials, amongst other things, but not to sense the decrease of minerals in the outer layer of teeth. The team from the National University of Singapore hopes to utilise the novel technique for the early detection of tooth decay.

The APDSA research prize is awarded to outstanding research conducted by dental students throughout the Asia-Pacific region. This year, 14 teams from universities in Japan, Indonesia, Malaysia, Taiwan and South Korea took part in the annual contest.

Prizes were also given to students from Indonesia who had tested the effect of white tea on tumour cell viability and of mouthwash containing Cuminum xanthorrhiza on caries risk factors.
Dental students in India face new regulations

From news reports

NEW DELHI, India: The Indian Ministry of Health and Family Welfare recently approved a revision of course regulations for Bachelor of Dental Surgery (BDS) programmes, making it mandatory for dental undergraduates to participate in a paid, rotating one-year internship after four years of theoretical training. The new regulations will first be applied to students who started their BDS in 2009/2010 and be implemented in dental schools around the country in Autumn.

Internships were temporarily dropped from BDS courses in 2007 after the Dental Council of India found out that many students, especially from private schools, had tried to fake certificates instead of actually doing hands-on training. It also contributed to increased stress levels amongst dental students owing to the high number of subjects in the final year, according to a 2009 study.

Since then, BDS programmes have been five-year courses and consisted of theoretical modules only. Reviving the scheme after four years follows international standards that require mandatory internships in dental education institutions worldwide, ministry officials said in a statement. They added that it will also provide for better opportunities for practical training and skill development.

It is estimated that India currently has the largest number of dental schools in the world. However, experts say that the country is putting too many dentists on the market, making it difficult for BDS graduates to find a job.

Treatment of swallowing disorders

Daniel Zimmermann
DIT

HONG KONG: Magnetic brain stimulators could help stroke patients overcome life-threatening swallowing difficulties, Australian scientists have reported. In a clinical study conducted at the University of Adelaide (UA) in South Australia, researchers are currently investigating how the process of trans-cranial magnetic stimulation (TMS), a non-invasive electromagnetic stimulation of cerebral nerve cells, could help to regain control of mouth and throat muscles damaged by cerebrovascular accidents.

According to UA speech pathologist and lead researcher Dr Sebastian Doeltgen, swallowing disorders affect more than 50 per cent of patients suffering from the effects of a stroke. Untreated, the condition can lead to severe health conditions like silent aspiration, dehydration or even pneumonia, which can be life-threatening, especially for elderly patients. Common therapies to overcome the problem include physical exercises to improve the coordination of mouth and throat muscles.

The new therapy approach developed by Doeltgen and his team uses magnetic stimulation to create electric currents in the brain that could stimulate the nerve cells that the scientists believe control the complex process of swallowing. Similar techniques were successfully used by German researchers earlier this year to stimulate cerebral nerve cells in rats.

“When people have a stroke, the parts of their brain that control the muscles in the mouth and throat are often damaged and we have to find ways to reactivate these regions,” Doeltgen told Dental Tribune Asia Pacific. “Using TMS, we can assess to what degree different cortical motor networks are involved in swallowing motor control. This information will ultimately allow us to develop tailored swallowing rehabilitation approaches that target specific motor circuits.”

The initial results of the study, which has received governmental funding of AU$500,000 (US$515,000), are expected to be released in two to three years.
Dear reader,

If you ever had to treat a patient with any kind of mental disorders, you may be aware of the fact that it can be quite a challenging task. Unfortunately, latest reports from clinicians are suggesting that most mental disorders are on the rise among almost all age groups, from common forms like depression, anxiety or dementia, to closely related conditions like burnout.

As different as these conditions might be on the first look, they all seem to be connected to deterioration of oral health. Therefore, patients suffering from these illnesses do not only increasingly require dentists to follow treatment protocols that are significantly different to that commonly used for patients who fall into the classification that is most frequently treated in dental clinics. However, according to the results of an oral health survey by the National Yang-Ming University here in Taipei for in-patients with mental disorders, an important modifiable factor associated with the filling rate of the DMFT index is prolonged stay in long-term care institutions.

The results demonstrated that long-term care institutions and dental clinics in the community might have limited capability or willingness to offer essential oral health services to people with mental disabilities. Thus, accessibility to quality care, preventive oral health programmes and a proper budget are the three principle issues for enhancing the oral health of people with mental disabilities.

Most individuals with mental disabilities are on medication for long periods, which frequently leads to increased risk of dental diseases and more difficult dental procedures. However, according to the results of an oral health survey by the National Yang-Ming University here in Taipei for in-patients with mental disorders, an important modifiable factor associated with the filling rate of the DMFT index is prolonged stay in long-term care institutions.

Many studies have shown that people with mental illnesses have poorer oral hygiene and oral health than the general population. They also have a lower utilisation of dental care than other disabled people. Amongst them, the most frequently observed component of the DMFT index is missing teeth. This finding indicates insufficient preventive and conservative dentistry in the community and long-term care units, and a growing need for prosthetic treatment aimed at mentally ill. The high prevalence of dental diseases also creates an urgent need for dental treatments for the mentally ill.

When conducting comprehensive assessments, psychologists should take dental problems into consideration and design effective health care plans for people with mental disabilities. The present integration of general and oral health programmes is inadequate. Better cooperation amongst medical and dental professionals for long-term care could better meet the dental needs of the mentally ill. Financial support from the government could facilitate the above-mentioned reforms, and break the economic barrier to prosthetic treatments for people with mental disabilities.

Yours sincerely,

Daniel Zimmermann
Group Editor
Dental Tribune International

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Care for mentally disabled

Many studies have shown that people with mental illnesses have poorer oral hygiene and oral health than the general population. They also have a lower utilisation of dental care than other disabled people. Amongst them, the most frequently observed component of the DMFT index is missing teeth. This finding indicates insufficient preventive and conservative dentistry in the community and long-term care units, and a growing need for prosthetic treatment aimed at people with mental disabilities. The high prevalence of dental diseases also creates an urgent need for dental treatments for the mentally ill.

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Da Silva assumes presidency of World Dental Federation

The new FDI President justified the above by saying that, on the one hand, we are seeing an increasing number of invasive dental treatments and, on the other hand, there is a need to help people achieve optimal dental health. Other reasons cited were the ageing population in some countries, the growing number of medically compromised patients and awareness of the importance of patient safety. Finally, he mentioned the relationship between non-communicable diseases, such as cancer, cardiovascular and respiratory diseases and diabetes, and dental caries and periodontal disease, which affect over 90% of people worldwide.

Monteiro da Silva concluded by saying that one of his goals is to achieve a better integration of the Portuguese-speaking communities worldwide in FDI.

The newly appointed Secretary of Health of Mexico, Salomon Chertorivski, opened the congress as his first official act. Chertorivski said that as he entered the Centro Banamex he met the dentist who treated him as a child. He went on to describe a series of measures that met with broad support amongst the practitioners attending. The Health Secretary said that he will implement steps to reduce red tape eligibility for dental care now demanded by the Mexican social security system. He added that Mexico agrees with the proposal of Dr Margaret Chan, director-general of the World Health Organization, who stated that oral health is a neglected area of international health. Therefore, “Mexico adheres to the FDI initiative to obtain official recognition by WHO of dental diseases as non-communicable diseases.”
British researchers develop method for filling without drilling

From news reports

LEEDS, UK: The thought of the dentist’s drill puts many people off visiting their dentist, even if they only need a check-up and not treatment. Researchers at the University of Leeds have announced that they have discovered a pain-free way of tackling dental decay that reverses the damage of acid attack and rebuilds teeth as new. The pioneering treatment promises to transform the approach to filling teeth forever.

Tooth decay begins when acid produced by bacteria in plaque dissolves the minerals in the teeth, causing microscopic holes or “pores” to form. As the process of decay progresses, these micro-pores increase in size and number. Eventually, the damaged tooth may have to be drilled and filled to prevent toothache, or even extracted.

The researchers have developed a revolutionary new way to treat the first signs of tooth decay by arming dentists with a peptide-based fluid that is painted onto the tooth’s surface. This peptide technology is based on knowledge of how the tooth forms in the first place and stimulates regeneration of the tooth.

“This may sound too good to be true, but we are essentially helping acid-damaged teeth to regenerate themselves. It is a totally natural non-surgical repair process and is entirely pain-free too,” said Prof Jennifer Kirkham from the Leeds Dental Institute, who led the development of the new technique.

The “magic” fluid was designed by Dr. Amalia Aggelis and other researchers in the School of Chemistry. It contains a peptide known as P11-4 that assembles into fibres under certain conditions. In practice, this means that when applied to the tooth, the fluid seeps into the micro-pores caused by acid attack and then spontaneously forms a gel. This gel then provides a scaffold or framework that attracts calcium and regenerates the tooth’s minerals from within, providing a natural and pain-free repair.

The researchers tested the technique on a small group of adults whose dentist had spotted initial signs of tooth decay. According to the scientists, the results of this initial trial suggest that P11-4 can indeed reverse the damage and regenerate the tooth tissue.

“The results of our tests so far are extremely promising,” said Prof Paul Brunton, who oversees the patient testing at the Leeds Dental Institute. “If these results can be repeated on a larger patient group, then I have no doubt whatsoever that in two to three years’ time this technique will be available for dentists to use in their daily practice.”

According to Brunton, the main reason that people do not see a dentist regularly is fear. “If we can offer a treatment that is completely non-invasive, that doesn’t involve a mechanical drill, then we can change that perceived link between dental treatment and pain. This really is more than filling without drilling, this is a novel approach that enables the patients to keep their natural teeth,” he said.

The study is being funded by Swiss company credentis AG, which has licensed the technology.
Dental surgeries should think pink, UK designers say

LONDON, UK: When refurbishing their premises, dentists who want relaxed patients should think about how their customers want to feel when they visit the dentist. According to a design team from London, a mid to light pink helps to relax the muscles and is an ideal colour for a dental surgery.

Feelings experienced when entering a new environment can in part be attributed to colour. Colour is light that travels in waves from the sun and the energy from light is absorbed through the eyes. It stimulates the pituitary and pineal glands, which in turn control some of the body’s systems, including hormonal changes. Research suggests that pink is a calming colour and so is regularly used in rooms where a tranquil effect is desired, for example, in hospitals, rehabilitation centres and even prisons.

However, according to commercial interior designers at Lima Europe, dental practices should avoid cerise and hot pinks, as these could add to an increased heart rate, respiration and brainwave activity. “Light colours such as white and cream or pale pastel shades evoke feelings of freshness and tend to have a calming, relaxing nature, especially lighter greens and warm yellows,” Alía Ordíg, a designer at Lima Europe, told DENTAL TRIBUNE Online.

“In rooms appears brush, can increase one’s heart rate and could possibly be more alarming to some patients, as it has obvious connotations of blood. Orange is also stimulating rather than calming so unless used as an accent colour to evoke a fun element of the brand these colours would be best avoided for dental surgeries, as they would most likely make the majority of patients feel uneasy or giddy,” Black would be a difficult colour to work with for practical reasons, as these could add to an increased heart rate, respiration and brainwave activity. “Light colours such as white and cream or pale pastel shades evoke feelings of freshness and tend to have a calming, relaxing nature, especially lighter greens and warm yellows,” Alía Ordíg, a designer at Lima Europe, told DENTAL TRIBUNE Online.

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All Dental Tribune readers are cordially invited to submit their applications online without registration fees by October 21, 2011.

For preregistrations and your online application please go to:

awards.dental-tribune.com
From news reports.

NEW DEHLI, India/FRANKFURT/MAIN, Germany: It has been reported that New Dehli-based Unicorn Denmart, one of India’s largest distributors of dental products and services, has become an exclusive dealer for German dental laser company elexxion. The recent agreement includes the company’s claros pico, a low-cost, mobile diode laser indicated for use in endodontics, as well as periodontics and soft-tissue laser surgery.

The agreement is elexxion’s first step into Asia markets. Its claros pico laser received market approval in Europe in late 2010 and has since been distributed in countries like Germany, France and Spain. It will extend Unicorn’s existing portfolio of laser dentistry devices, which includes a mini diode laser system imported from Dilas Diodenlaser in Germany. In addition to elexxion, the company stocks products from dental heavyweights such as Cefla Group, Vatech or NSK in India.

Elexxion shares on the Frankfurt Stock Exchange in Germany reacted positively.

New player to enter Indian dental laser market

The claros pico diode laser (promotional picture) will soon be available to dentists in India. (DTI/Photo courtesy of elexxion AG, Germany)

Amann-Girrbach opens office in Singapore

Daniel Zimmermann
DTI

SINGAPORE: The city-state has become host for another prominent dental market player: CAD/CAM specialist AmannGirrbach has announced the opening of a new branch in the Singapore River Planning Area. With this step, the Austrian company, which also has a subsidiary in the US, intends to expand its business in the Asia-Pacific and Middle Eastern markets.

The new Singapore branch will support Amann’s distribution partners in both regions through logistics and responsive customer service, the company said. It also announced plans for a help desk and company training centre to be established by the end of the year.

Founded through a merger of an Austrian and German company in 2004, AmannGirrbach manufactures laboratory instruments and CAD/CAM solutions. As one of a few providers worldwide, they offer a complete in-house milling solution for dental laboratories with their Ceramill product line.

Chairman Marco Ratz said that AmannGirrbach is currently experiencing average growth rates of 30 per cent per year in the combined Asian and Middle Eastern markets. The company makes €46 million in annual revenue, according to market sources.
“Our investments in Singapore are developing favourably”
An interview with Andreas Kröll, CEO of Nanostart AG, Singapore

Dental Tribune Asia Pacific

With SimpliClear, the Singapore-based start-up company BioMers Pte Ltd is setting out to conquer the growing market segment of aesthetic orthodontics. Dental Tribune Asia Pacific spoke with the Managing Director of German investor Nanostart Asia, Andreas Kröll, about the company and its long-term prospects in the global market for orthodontic applications.

Andreas Kröll

How does SimpliClear want to position itself in the market?
The core proposition behind the SimpliClear technology is its unique and almost invisible archwire that is made of a specifically designed composite that qualifies the product notably for use within the aesthetic segment. The aesthetic market is recognised as a large growth market in which there are a number of solutions available. Many of the current solutions, however, have limitations in terms of the patient cases that can be addressed, owing to limitations in terms of clinical effectiveness. SimpliClear, with its effectiveness in addressing a broad range of patient cases, offers a new standard of care in the aesthetic segment. The goal is to capitalise on the opportunity to combine a product that delivers the aesthetic benefits and predictable clinical outcomes.

Through the Nanostart Singapore Early Stage Venture Fund, your company currently owns 25 per cent of BioMers. What is your role in the company?
As a venture capital investor, my role is to assist the company in finding suitable strategic partners who can provide the capital required for the company to grow through successful commercialisation of the technology. Through the Nanostart Singapore Early Stage Venture Fund, we are working on another round of financing for BioMers in the end of this year, which will give the company the financial capacity to build a larger production site in Singapore.

Thank you for the interview.

An interview with Andreas Kröll, CEO of Nanostart AG, Singapore

Dental Tribune Asia Pacific

Mr Kröll, your fund is currently invested in three technology-based companies in Singapore, including BioMers. What was the reason behind this investment?
Andreas Kröll: BioMers is a National University of Singapore spin-off that was founded about five years ago. We have had an eye on the company for quite some time and finally decided to invest in the SimpliClear technology in 2009, which in our opinion offered a very interesting treatment option that provided a unique combination of clear aesthetics and excellent clinical outcomes. At this time, the product already existed, but in a slightly different form, with standardised archwires. A few months later, the product development of SimpliClear was completed. Since then, the company has been focusing on the marketing side and managing its expansion.

How has your fund been active in Singapore?
Our investments in Singapore are developing favourably. In this regard, the Singapore government has put a lot of effort into research and development. In fact, the development of Singapore as a leading hub for nanotechnologies is one of its top economic priorities. In this regard, the Singapore government provides considerable support to companies such as BioMers. Through this support, numerous innovations such as SimpliClear emerged that are now in the process of being released onto the market.

Moreover, the Singapre state offers an excellent market environment for commercial enterprises including such things as legal security for the protection of intellectual property, ease of doing business and the availability of talent. On top of this, two of the world’s largest growth markets, China and India, are on Singapore’s doorstep.

In which markets is the product already available?
We recently completed the initial test marketing phase successfully. As a result, a large number of orthodontists in Singapore and the US are already familiar with SimpliClear. However, the market in Singapore, with only approximately five million people, offers limited opportunities for growth and so we are planning to expand further into key markets such as Europe and the US. We have received market approval from the US Food and Drug Administration and the European Union.

Do you invest in other dental technologies?
We are certainly looking into two or three other technologies, but will focus on the current portfolio involving BioMers and three other companies. It is common knowledge that Singapore offers as a development site already available.

Which advantages does Singapore offer as a development site for nanotechnologies?
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Moreover, the city-state offers an excellent market environment for commercial enterprises including such things as legal security for the protection of intellectual property, ease of doing business and the availability of talent. On top of this, two of the world’s largest growth markets, China and India, are on Singapore’s doorstep.

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INTERNATIONAL LIVE WEBCAST

SMILE UPGRADE WITH ALL-CERAMICS:
How to replace, improve and create esthetic restorations based on a minimal invasive concept

SPEAKER  Dr Eduardo Mahn
DATE       Sunday, 2 October 2011
TIME       1 pm Indian Standard Time
LINK        www.DTStudyClub.com

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Dr Eduardo Mahn, DDS, DMD, graduated from the University of Chile School of Dentistry and pursued further studies in Germany and the US. He worked at Ivoclar Vivadent’s International Center for Dental Education for several years and is now a guest lecturer at the University Andres Bello, Santiago, Chile. Dr Mahn is currently working with the Samaya Group in Saudi Arabia, where he is specializing in implantology, restorative and esthetic dentistry.

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Duumvirate to lead GC Asia after director retires

Daniel Zimmermann

HONG KONG: GC’s Asia division has announced the retirement of its long-time director Eddie Balchin, Dental Tribune Asia Pacific has learned. The sixty-five-year-old Brit who has been with the company for almost 20 years already took leave during the company’s anniversary dealer meeting in May. He will be replaced by a duumvirate of Kazuo Terada, who will be responsible for finances and administration, and sales and marketing executive Dr Pia Trinos.

Having begun his career at the Royal Army Dental Corps in the UK, Balchin joined GC in 1994. Prior to that, he had worked for numerous dental businesses in the UK and Hong Kong.

In an official statement, Trinos recognised Balchin’s contribution in setting up the regional operation for GC and establishing a wider customer base for the company’s brand products in South and South East Asia. She also emphasised his efforts in establishing positive working relationships with GC’s customers, dealers and associates over the years.

Mergers drain capital

From news reports

LONDON, UK: Business analysts have warned that the rise of mergers and acquisitions in the medical technology industry is leaving little for early starter companies to sustain their businesses. According to an Ernst & Young LLP report released in September, transactions in the industry accounted for US$47.3 billion so far this year, a huge increase from US$30.6 billion recorded in 2010. In the same period, capital going to early starter companies has declined dramatically, the same report suggests.

This lack of investment in innovation could hinder the market in generating significant growth rates over the next few years because industry leaders like Johnson & Johnson, General Electric and Medtronic are driving consolidation, John Babitt, head of Ernst & Young’s medical technology practice told Bloomberg. “With interest rates at basically zero, there is no desire to do better. That has fuelled merger and acquisition activity,” he said.

Despite decreasing innovation, Babitt said the trend for acquisitions will continue as companies use them to bolster sales and diversify their operations internationally. New capital, however, could flush in from private equity firms attracted by the sector’s sound fundamentals.

Recent acquisitions in the dental industry include DENTSPLY’s takeover of AstraZeneca’s dental unit for $1.8 billion and Philips’ acquisition of tooth-whitening specialist Discus Dental in 2010 for an undisclosed sum. In the overall medical technology market, Johnson & Johnson rose to top of the list this year with the purchase of US implant maker Synthes for $2.5 billion in one the largest acquisitions in the last decade.
Comparison of titanium and Roxolid implants at three different time points in an animal model

Dr Daniel S. Thoma et al.
Switzerland & USA

Titanium dental implants with a narrow diameter may help to overcome some limitations of regular diameter implants (e.g. cases of narrow ridge width or situations with small interdental space).

Materials and methods
In nine large bound dogs, 54 Straumann Bone Level titanium implants (control) and 54 Straumann Bone Level Roxolid implants (test) were placed. All implants had an endosteal diameter of 3.5 mm and featured the SLActive surface.

Tooth extraction surgery was performed four months prior to the implant placement surgery. The implants were placed in a randomised manner in all dogs. In every mandible, 12 implants (six per hemi-mandible) were placed by alternating the two implant types (Fig. 1).

Standardised X-rays were taken at surgery (n = 9) and after two weeks (n = 9), four weeks (n = 6) and eight weeks (n = 5) to measure the bone loss. At each stage, three animals were sacrificed for histological preparation.

Results
The parameters measured within the histo-morphometric analysis were the first bone-to-implant contact (fBIC) and the bone-to-implant contact (BIC) in order to evaluate the osseointegration behaviour of the two groups.

The fBIC is the distance between the bone shoulder over time. A positive fBIC value means that the bone is located apically to the implant shoulder. A negative fBIC value indicates that the bone is located coronally to the implant shoulder and a positive fBIC value means that the bone is located apically to the implant shoulder.

The mean fBIC values did not reveal any statistically significant difference for the two implant types at any evaluated time point. There was a pattern of increasing bone growth at the implant shoulder over time (Fig. 4).

The mean BIC values did not reveal any statistically significant difference between test and control implant types at two weeks, with peak values obtained at four weeks (Ti) and eight weeks (Roxolid), as shown in (Fig. 4). The results did not reveal any statistically significant difference in the BIC in the two materials.

Conclusions
This animal study did not reveal any statistically significant difference in osseointegration between Straumann BL Roxolid implants and Straumann BL titanium implants. From baseline to eight weeks only minimal change in bone level occurred. Mean BIC values of over 80% were reached at four weeks and eight weeks, indicating a good anchorage of the implant. Roxolid implants show similar osseointegration behaviour to SLActive titanium implants and have higher tensile strength than pure titanium.

Parts of this article originally appeared online in the Journal of Periodontology, 22 February 2011. A complete list of references is available from the publisher.

Contact Info
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“Oral health often tends to be side-lined as a minor concern”

An interview with Ella Gudwin, AmeriCares, about dental relief efforts in Japan

Ella Gudwin: The last time I went to the Miyagi Prefecture was in June and at the time there were mixed feelings about the progress. Now, with the country entering the reconstruction phase, new issues are arising as decisions are made about where the communities will be built and how they will be set up.

While it is good news that people in the affected areas are finally being moved from the shelters to temporary housing facilities, the process has been difficult for some survivors, especially many elderly people who are not very fond of the idea of being separated from their old communities.

How important are oral health issues amongst the affected population?

In the case of natural disasters, oral health often tends to be sidelined as a minor concern
but over the time, there is usually a slow but significant deterioration of oral health. If you take the demographics of the population in the area we are serving into consideration, which consists of many elderly people with dentures, it has indeed become very important. In addition, there was a lack of running water for almost six months, which had a visible impact on dental hygiene as a whole because people stopped performing daily procedures like toothbrushing.

**How has coordination with the local authorities been?**

Unfortunately, Japan did not adopt the cluster system established by the United Nations after the devastating tsunami in 2004, which was intended to bring together relief organisations all active in the same sector, such as health or food distribution. Though the country has a very good mechanism at the macro-level, coordination at the micro-level, e.g. in towns and villages, was rather ad hoc and not as well orchestrated as it could have been. The further we go now into the reconstruction phase, the more resource gaps are beginning to emerge.

**In contrast with other organisations, which have tended to send money through intermediaries, we have decided to set up our operational office in Sendai, where we are close to the communities we are serving, and be part of the daily dialogue about what is happening and where the resource gaps really are.**

**The issue of radiation was highly debated over the course of the disaster owing to inconsistent information provided by authorities. How does it affect your work?**

Fortunately, our staff in Japan is working outside the no-go zone. Our colleagues there however carry radiation dosimeters and iodide tablets as an emergency precaution. There are also weekly sample checks on water and food, like milk, beef and vegetables conducted by local authorities.

**How long do you expect your help to be required?**

The clinics are expected to be operational for at least two years—possibly as long as ten years. As soon as they open, we expect an upswing of visits because the Japanese people place a high value on health care and are accustomed to seeing a doctor more than ten times a year. Each clinic will have the capacity to treat a maximum of 20 patients per day, although, realistically, we expect them to take care of approximately ten patients per day, depending on the staff available onsite.

Our hope is that this project will help not only to ensure that survivors maintain good oral health, but also to keep them inside the community rather than relocating elsewhere, including the remaining dentists.

*Thank you very much for this interview.*

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GICs chemically bond to the tooth structure and release fluoride over time. Moreover, they are easy to use and biocompatible. GICs are composed of polyalkenoic acid and glass powder, mainly aluminium thofosilicate glass. An initial acid-base reaction occurs when the powder and liquid are mixed. A salt gel matrix is formed and a completely cross-linked structure results, which assists in the setting of the cement.1,4 Current research efforts are focused on using acids with a high molecular weight, which would heighten the viscosity of the product and accelerate curing.

The applications of GICs range from cementation and lining procedures to the placement of Class V restorations and small dentin tooth fillings. Nevertheless, it is important to note that the adhesive strength of GICs is relatively low (only 3 to 7 MPa).1,4 Furthermore, the problem of marginal integrity and seal must be taken into consideration. Even though GICs demonstrate a thermal coefficient of expansion similar to that of natural tooth structure,1,4 glass ionomer fillings often show marginal leakage. Several studies have found that composite resins have higher success rates with regard to marginal integrity than GICs in enamel.4

The most important characteristic of GICs is probably their ability to release fluoride when the components are mixed. This continues gradually without negatively influencing the mechanical properties of the material.1,4 Moreover, GICs are capable of absorbing topical fluoride and releasing this component over an extended period.14 Therefore, GICs are considered to have a cariostatic effect in clinical use.15 However, carious lesions are often found along the margins of GIC restorations. The amount of fluoride to be released by GICs to inhibit the development of caries has not been established yet. The life cycle of GIC restorations is another concern. Numerous studies have shown that the survival of these restorations is considerably shorter than those made with composite resin and amalgam. Therefore, GICs are more appropriately used in the fabrication of long-term temporary than permanent restorations. A systematic analysis has shown that the failure rate of GICs is above 7%, while that of composite resins is lower than 3%.14

Despite these drawbacks, many practitioners recommend the temporary use of GICs because they are easier to use. In addition, their application protocol is faster than that of composite resins. They are also much cheaper and have therefore gained popularity in emerging markets.

As a result of developments in the field of composite resins, particularly with regard to inorganic fillers13 and monomers used during the procedure,18 these materials now feature lower solubility, as well as higher wear and fracture toughness. The overall mechanical properties of composite resins have improved significantly. The interaction of the bonding agent and the tooth structure establishes micromechanical retention,10,11 which ensures a high level of resistance.

Nowadays, composite resins have the only two-step formulations compared with GICs: they take longer to place and the application technique is more technique sensitive. The time difference is not significant if the entire procedure, including examination, diagnosis, anaesthesia, excavation, preparation, isolation, and finishing and polishing, is considered. The development of self-etching adhesives—irrespective of one-step or two-step systems—has required the entire treatment to become considerably more technically sensitive. The introduction of self-etching adhesives has also helped to reduce technical sensitivity and increase the reproducibility of results.18 The dentine tissue is not etched and the smear layer is not removed. Instead, infiltration takes place. As a result, the dentine tissue is easy to dry and post-operative sensitivity is reduced.15 Furthermore, the evaporation of the solvent after the application is not a critical issue. As is the case with many total-etch adhesives, a mixture of different solvents, rather than just one, is used. In this context, it is important to note that strong adhesion to dental enamel can only be achieved with phosphoric acid etching.19,20 This step is always recommended, regardless of the method used.

In the following case study, a self-etching adhesive of the latest generation was used (Tetric N-Bond Self-Etch, Vivadent, Switzerland). Owing to its innovative pen-shaped delivery form, this material can be applied directly, which saves time. Regardless of these advances and developments, however, composite resin users must have in-depth knowledge of materials. Operational instructions recommended by the manufacturer must be strictly followed.

Case study
A 51-year-old female patient presented to our surgery after a lengthy absence. A thorough examination revealed that several aspects required attention, in particular a highly opaque, damaged filling in tooth #47. The filling in question had the

Fig. 1: Pre-op views. — Fig. 2: Proper isolation of the operative field with a rubber dam. — Figs. 3a & b: Application of the self-etching adhesive for 30 seconds. — Fig. 4: Application of a flowable composite resin as the first layer.
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distinct appearance of a GIC. Secondary caries had formed in the distal area. According to the patient, it had been placed less than two years previously. Furthermore, we took note of a filling made of Tetric Ceram (Ivoclar Vivadent) in tooth #46 that had been placed in our surgery more than eight years ago. The restoration was clearly worn out after all this time. Nevertheless, the margins were still intact (Fig. 1).

We recommended that the filling in tooth #47 be replaced. Figure 2 shows the working field isolated with a rubber dam (OptraDam Plus, Ivoclar Vivadent) to ensure clean and safe placement of the restorative material. The old filling was removed and carious tissue was excavated. An adhesive (Tetric N-Bond Self-Etch) was placed directly on the tooth structure and scrubbed in for 30 seconds (Figs. 3a & b). The solvent was evaporated with a strong stream of air. Then, the surface was light-cured with a third-generation LED polymerisation unit for 10 seconds.

First, a layer of flowable composite resin (Tetric N-Flow) was placed in the cavity (Fig. 4) and light-cured for 10 seconds. Subsequently, the filling was built up with shade A2 of the universal composite resin Tetric N-Ceram. A non-stick modelling instrument (OptraSculpt, Ivoclar Vivadent) was used, with which the cusp slopes and tips were faithfully reproduced. This instrument is supplied with various working tips to satisfy different clinical indications. In this case, the chisel shape with the pointed tip end was used to sculpt the fissures.

The restoration was built up in four steps. One cusp was modelled and light-cured at a time. The natural-looking anatomy is clearly evident, as well as the worn eight-year-old filling in tooth #46 and its intact margins. After occlusal grinding, the restoration was polished with OptraPol Next Generation rubber tips (Ivoclar Vivadent, Fig. 8), which have a high diamond crystal content (72 wt %). This high diamond content achieved excellent polishing results in only one step. Figure 9 shows the finished filling with the marked contact points.
Indonesian dentist helps reforest orangutan habitat

Yvonne Bachmann

Dr Hotlin Ompusunggu, a Sumatran dentist, is the co-founder and programme manager of Alam Sehat Lestari (ASRI), a health-care and conservation charity located in Sukadana on the Indonesian island of Borneo. She was recently given the Whitley Award for her efforts to improve the health and well-being of rainforest communities, while also safeguarding a globally important habitat for gibbons, hornbills and orangutans, amongst many other species.

The Whitley Award is a British nature conservation prize that comes with £30,000 (US$47,500) prize money, Whitley Awards are made annually at a ceremony in London, hosted by Princess Anne, Princess Royal.

“It feels exciting having won the award”, Hotlin Ompusunggu told Dental Tribune in an interview. The 56-year-old dentist, originally from Sumatra, now works in Gunung Palung National Park in West Kalimantan, an Indonesian province on the island of Borneo. The park is home to about ten per cent of the world’s orangutans, as well as clouded leopards, hornbills, crested fireback pheasants and sun-bears. Its twin 1,000 metres peaks are swathed by tall dipterocarp forests in their lowlands and montane cloud forests near their summits. The park is a watershed for the roughly 60,000 villagers living on its borders.

Health-care provision almost impossible

Local people living around the park are poor, with an average income of US$15 a month. The provision of good local health care is almost impossible in this region. Most people are subsistence farmers, and local farming methods are heavily reliant on expensive and dangerous chemical fertilizers and pesticides. Health-care and farming costs drive villagers into debt, and illegal logging is one of the few sources of cash income. Logging and slash-and-burn agriculture are destroying the Gunung Palung watershed, resulting in flooding, damage to agricultural areas, and high rates of waterborne illnesses. And so the cycle of poor health, poverty and environmental destruction is perpetuated.

The charity’s name ‘Alam Sehat Lestari’ means ‘Healthy Nature, Everlasting’ and the abbreviation ASRI ‘harmoniously balanced’. ASRI aims to stop the process by increasing the forestation cycle by working to empower local people to turn from loggers into forest guardians. Members work with local communities to integrate high quality, affordable health care with strategies to protect the threatened forest and park. The charity enables local people to access health care that they could normally not afford, providing villagers with free contraception, as well as immunisation, cataract surgery and general medicine. They are also educated on health, the environment and the importance of protecting the links between both. In return, villagers exchange items used in conservation work, e.g. seedlings for reforestation or manure for organic farming, or participate in work like replanting parts of the park previously damaged by illegal logging. In this way, the villagers help ASRI to conserve Gunung Palung National Park and, ultimately, the fate of the park lies in their hands.

The ASRI clinic was born in 2007 when Hotlin Ompusunggu began working with Dr Kinari Webb, founder of Health In Harmony (HIH), a US-based non-profit organisation that supported the establishment of the Indonesian ASRI. "HIH supports ASRI through fundraising, by coordinating expert volunteers for ASRI, and providing knowledge resources when they are needed," Antonia Gorog, HIH Programme Director, told Dental Tribune. "The organisation was founded on the principle that human health and environmental health are tightly linked," she explained.

Poor dental hygiene

For the people in West Kalimantan poor dental hygiene is a major problem across the board. “When I came here in 2007 and first started treating patients, I did a survey. The results showed that 100 per cent of the people were in great need of dental care,” Hotlin Ompusunggu said.

“I have worked in many places in Indonesia and think with regard to dental health care this is one of the worst,” she continued. The dentist does not treat patients, but also aims to educate them. She started informing patients, particularly children, on dental health care and environmental conservation at the same time. “We give out tooth brushes to children, so they can maintain their oral health. However, we quickly learned that things which have been given away for free are not appreciated that much. So we started swapping toothbrushes for bamboo sticks, which we need to plant trees in the park. This way the children will remember that we planted a tree, will get to know why we planted a tree and find out that it is important. The children begin to appreciate the fact that, without trees, they would not have the water supply to brush their teeth. Every time they brush their teeth they can be the cause to save and replant trees,” Hotlin Ompusunggu explained to Dental Tribune.

The cornerstone of ASRI’s programme is health care, which is linked to conservation initiatives in multiple ways. Villagers can receive high quality health care, including dental care, at the ASRI clinic on the border of the national park. For local people, there are many ways to receive help. “Communities that cease illegal logging receive discussion on alternative care services at the clinic. Other initiatives involve Goats for Widows, a project that provides mated pairs of goats to severely disadvantaged members of the community and receives in return the first goat and sacks of manure for organic composting, and Organic Farming Training, which helps farmers improve soil quality and removes the need for opening new farmland each year,” Antonia Gorog said.

In May, 50 Forest Guardians joined the team. Their wages are paid from the Whitley Award prize money. “We knew the money should be used towards new staff that help to protect the park,” the dentist explained. “This plan was part of the proposal for the Whitley Award.”

According to Antonia Gorog, the number of staff is no indication of the number of people involved. “Many thousands are involved. In 2009, first year of ASRI’s reforestation programme, 4,000 families gave seedlings and other essentials for the reforestation effort, hundreds of people traded seedlings for toothbrushes. Hundreds more helped in the planting both years. Over 100 people have been trained in organic farming and they are training others. There, then all widows who received goats, and the 14,000 patients that we have cared for in our clinic and the mobile clinic.”

Even though ASRI was initially received with scepticism by some local communities, they have gained the locals’ trust. The charity strives to be honest and transparent about the programme’s goals and is extremely prudent regarding the use of funds. “ASRI has successfully demonstrated to local communities that it really is about helping them, and not out for its own gain,” Antonia Gorog emphasised.

Support is always welcome

The organisation is always grateful for any support. HIH coordinates expert volunteers for ASRI, such as medical professionals who could help to train Indonesian doctors and nurses in the clinic, or people knowledgeable about organic farming and reforestation. “Additional expertise in goat husbandry, conservation and agricultural training can, for example, will soon build a hospital, solar engineering, and a workshop. Learning stores would also be welcomed,” Antonia Gorog told.

Anyone wishing to support ASRI can also personally donate money both in Indonesia and tax-exempt in the US. Donations go to the much-needed medical or dental equipment that helps to save orangutan habitat and train communities in alternative livelihoods to illegality. Interested people can contact ASRI and/or HIH through their websites: www.asriindonesia.org and www.healthinharmony.org.
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