Experts quarrel over mouthwash
Study in Australian dental journal pushes oral cancer debate

Daniel Zimmermann
DTI

LEIPZIG, Germany: New evidence from Australia has revealed that the long-term use of mouthwash containing alcohol can lead to an increased risk of developing oral cancer. The information, which was released after a scientific review was published in the Australian Dental Journal, reports evidence that ethanol allows carcinogenic substances, such as nicotine, to permeate the lining of the mouth. Top-selling mouthwashes contain as much as 26 per cent alcohol, which is used to kill the bacteria responsible for tooth decay. It is also necessary as a solvent for different flavour oils.

Michael McCullough, Associate Professor of Oral Medicine at the University of Melbourne in Australia, who led the study said: “We see people with oral cancer who have no other risk factors than the use of mouthwash containing alcohol, so what we’ve done is review all the evidence. Since the article, further evidence has come out, too.”

“We believe there should be warnings. It was a facial cream that had the effect of reducing acne but had a four- to five-fold increased risk of skin cancer, no one would be recommending it,” he added.

The Australian government said although the study was “very interesting”, it lacked definite proof that these products would increase the risk of cancer. Ministry of Health dental officer, Robin Whyman, recommended people speak to their dentists when using mouthwash long term.

In a written statement sent to Dental Tribune in January, Johnson & Johnson rejected the claims: “Leading cancer scientists, as well as the US Food and Drug Administration and researchers in dentistry, have found no evidence that alcohol-containing mouthwashes, if used properly, lead to increased risk of developing oral cancer.”

The company, which is behind the Listerine brand, holds 25 per cent of the global mouthwash market and claims to have conducted more than 100 scientific evaluations of its top-selling brand.

Amalgam fillings banned in Sweden

The Swedish Government has announced the introduction of a blanket ban on mercury in the country that will be effective from 1 June 2009. The ban will mean that amalgam fillings and other products containing mercury will not be allowed on the Swedish market, and alternative techniques will have to be used in dental care, chemical analysis, and the chloralkali industry, the country’s Ministry of the Environment has announced in a press release. It also said that the Swedish Chemicals Agency is authorised to grant exemptions in individual cases.

In connection with the Government’s decision, waste containing mercury is to be disposed of in deep geological repositories, such as salt mines, in other EU countries.
Dental services in Brunei fall short

The Ministry of Health in Brunei has admitted that the country’s Dental Service is facing a serious shortage of staff, training, and dental clinics. According to Minister of Health Pehin Dato Hj Suyoi, who spoke at a dental forum in capital Bandar Seri Begawan in January, only 28 dental officers currently serve the total population of 410,000 people under the Primary Oral Health Care Scheme. There is also a low number of local graduates as well as foreign dentists with suitable qualifications for the post of Dental Officer, he added.

The Dental Service Department under the Ministry of Health manages 31 dental clinics and 17 dental chairs in the Brunei-Muara district. The new Muara Health Centre, which will have two dental chairs, is being built, and another new clinic is planned for the Gadong Health Centre.

Pehin Dato Hj Suyoi announced that from next year, an Oral Health Surveillance and Research Unit will be established, to monitor and evaluate the country’s oral health status, especially that of children. A similar programme has already been implemented, but due to the high number of clinical commitments in dental clinics, there have been difficulties in arranging appointments, he said. The Ministry is also developing a protocol for Primary Oral Care Guidelines for dental professionals, and other programmes that focus on the prevention of oral diseases and the importance of oral health measures to overcome the lack of adequate dental facilities, by expanding four major clinics in the Brunei-Muara district. The new Muara Health Centre, which will have two dental chairs, is being built, and another new clinic is planned for the Gadong Health Centre.

Pehin Dato Hj Suyoi said that the Ministry of Health has already taken measures to overcome the lack of adequate dental facilities, by expanding four major clinics in the Brunei-Muara district. The new Muara Health Centre, which will have two dental chairs, is being built, and another new clinic is planned for the Gadong Health Centre.

Laos is waiting for dental equipment

Dentaid, a UK-based international oral health charity, needs £6,000 (US$8,500) in funding to send eight dental surgeries to the Faculty of Dentistry at the National University of Laos in Vientiane. Although the equipment is ready to be shipped out, the anticipated funding for the packing and shipping has not been realised, the organisation has announced in a press release.

The equipment is urgently needed to advance the quality of dental training in Laos, which has only 300 dentists to serve a population of 8.5 million people. Its only dental school currently has 170 students enrolled in a six-year course that leads to a Doctor of Dental Surgery degree. According to Dentaid, less than half of the 18 dental chairs and units at the school are in working order, with 19 students per chair and unit. The Dentaid surgeries could double the capacity of both the clinical training of the students and the treatment of patients. In addition, the surgeries will introduce a cross-infection procedure that will serve as a model for other treatment centres in Laos.

Upon delivery, a Dentaid engineer will provide on-site installation and train a group of technicians in the servicing and maintenance of the equipment.

UCLA receives US$1 million pledge from Shapiro Foundation

New chair honouring dean Dr No-Hee Park to advance dental medical research

Dr No-Hee Park, Dean, UCLA School of Dentistry, has established an endowed chair, named in his honour, to advance research in the field of dental medicine. The Park Chair is the latest gift to UCLA from Ralph and Shirley Shapiro, UCLA alumni with a long history of generous service and philanthropy to the campus, as well as to charitable organisations throughout Los Angeles and the United States.

“Dr No-Hee Park has made significant advances in our understanding of cancer biology, and for ten years, he has provided exemplary service as Dean of the UCLA School of Dentistry,” said Ralph Shapiro. “My wife, Shirley, and I agree that the best way to honour his contributions is to support, in a lasting manner, the scholarship of another outstanding faculty member leading international research in cancer biology.”

Korean-born Dr Park received his DDS Degree from Seoul National University in 1968 and joined the faculty of the UCLA School of Dentistry in 1984. There, he served as the Director of the Dental Research Institute and Associate Dean for Research. Named Dean of the School in 1998, he was appointed for a third term in 2006 and is the longest-serving dean in the School’s history.

Under Dr Park’s leadership, the School has emerged as a research-intensive institution, which currently ranks fifth among US dental schools in funding by the National Institutes of Health. During the past ten years, Park eliminated a deficit, stabilised student clinical operations, and increased the School’s budget from US$35 million in fiscal year 1998 to US$55 million in fiscal year 2007. His successful fundraising efforts have yielded numerous renovations, six endowed chairs for the recruitment and retention of world-class faculty members, and more than US$17 million in endowed funds. In autumn 2008, Park’s administration implemented a new BDS curriculum designed to improve the integration of basic and clinical sciences and to promote student leadership.

In addition to serving in an administrative capacity, Park is a world-renowned scientist in the area of oral and head and neck cancer research and is credited with more than 150 publications in distinguished scientific journals. He has trained more than 100 research students, post-doctoral fellows, and visiting faculty members during the past 25 years, many of whom are now faculty members of dental schools, medical schools, and colleges of life sciences in the US, Europe, and Asia.

The Dr No-Hee Park Endowed Chair in Dentistry, the seventh endowed professorship for the School, is part of a ten-year campaign to increase the School’s endowed professorship by US$50 million, to ensure its continued financial stability and success.

(Edited by Claudia Salwiczek)
Dear reader,

Have you attended a trade show lately? Did you feel that the experience was somewhat lacking compared to previous years? In a recent article published by the US consulting company Edge Marketing, the author and dental industry veteran Scott Mahnken states that dental trade shows are experiencing a decline in both quality and participation numbers. He attributes this to increased travel expenses and the losses dentists incur in closing their practices during exhibition times. In addition, taking online CE courses instead of attending seminars has become more attractive due to the increase in quality of these online courses, he claims.

Although Mahnken’s observations are accurate in terms of travel costs, clearly a result of the global financial crisis, online seminars cannot even begin to equal the actual experience dentists are able to gain at hands-on workshops or trade show booths. Should technology be so far developed as to simulate dentistry through 5-D technology or robotics, humans will remain essential for developing and identifying suitable materials and techniques for effective and appropriate patient treatment. Trade shows will be indispensable in assisting professionals in the planning and decision process.

This month, the world’s biggest marketplace in dentistry is set to open to dental professionals from Germany and around the world. The organizers of the International Dental Show in Cologne in Germany have projected an increased number of visitors to this year’s show compared with 2007. Over 1,700 exhibitors will give dentists the chance to get their hands on the latest in dentistry, be it designer furniture from Italy or handpieces that illuminate and feel fantastic in your hand. If you plan to attend, we wish you an enjoyable time and wish you an enjoyable time and wish you an enjoyable time.

Daniel Zimmermann
Group Editor
Dental Tribune International

“Guess, I should rethink my dental routine ...”

Disagreement over mouthwashes and its outcome

Prof. Bernard Stewart
Australia

Recent media controversy in Australia over the risk of oral cancer associated with the use of alcohol-containing mouthwashes can be seen as one aspect of a pervasive public health issue. Once an agent has been unequivocally established as carcinogenic to humans, exposure to that agent in any context may be perceived to be hazardous and therefore to be prevented. Consideration of this principle in relation to alcohol-containing mouthwashes clearly illustrates one aspect of the dilemma. Specifically, in determining public health policy, how much weight should be accorded to the general findings concerning the agent in question in comparison with those findings that relate specifically to the context under consideration?

Causation of cancer from drinking alcoholic beverages is established to the point of certainty. The anatomical sites principally involved are the oral cavity and oesophagus, and risk is increased multiplicatively in smokers. However, the evidence in relation to the risk of oral cancer associated with mouthwash use is equivocal to the point that sharply differing conclusions may be drawn. Writing in the Australian Dental Journal, McCullough and Farah, arguing from the perspective of alcohol as an established carcinogen, state: “There is now sufficient evidence to accept the proposition that developing oral cancer is increased or contributed to by the use of alcohol-containing mouthwashes.” This differs from the conclusion by La Vecchia in Oral Oncology: “A link between mouthwash use, specifically alcohol-containing mouthwash, and oral cancer is not supported by epidemiological evidence.” La Vecchia delineates uncertainties regarding mouthwash studies generally, specifically in relation to the lack of clear evidence regarding an anticipated increased risk attributable to alcohol per se.

General agreement that a carcinogenic hazard associated with the use of alcohol-containing mouthwashes is plausible suggests that cautionary advice should be given to those making long-term use of these products. However, present uncertainty would not justify warning labels or restricted sales of mouthwashes, especially with reference to current public health standards concerning availability of alcoholic beverages.

Contact Info
Prof. Bernard Stewart is currently working in the Faculty of Dentistry, University of New South Wales in Sydney, Australia. He can be reached at bernard.stewart@sesiahs.health.nsw.gov.au.

Tawain to legitimate implants

Prof. Hsein-Kun Lu
Taiwan

The modern technology of osseointegration in Taiwan has been growing for more than two decades. Currently, more than 40 dental implant systems are used and 170 specialists recognised by the Academy of Oral Implantology (AOIBOC) in Taiwan. General dentists play a major role in the huge dental implant therapy market in Taiwan. However, only 1.55 per cent of these dentists are certified as implantologists by the AOIBOC.

For many years, the Diplomate Recognition Committee of the AOIBOC has striven to develop a fair and sophisticated examination system, in order to advance research, clinical service, and educational levels in implant dentistry in Taiwan. To date, the AOIBOC has certified 14 training centres, based on their clinical performance and training programmes in periodontics, oral surgery, and prosthodontics. This innovative requirement for the certification of implant centres originated from the ideal of the multidisciplinary complexity of implant therapy in dental clinics. Dental implantology is expected to play a significant role in the field of endodontics and orthodontics soon.

There are 22 careers in the medical and dental sector, including oral surgery, oral pathology, and orthodontics, legitimised as clinical specialties beyond general practice by the Department of Health. Although the need for implant therapy and marketing is steadily growing, the government has yet to recognise dental implantologists. We estimate it may take several years for the government to realise the importance of dental implant therapy and advocate a higher standard of treatment for the rehabilitation of Taiwanese citizens. In my opinion, it is not only a matter of great honour for a dentist to be an implant diplomat in his practice, but also a commitment to contributing expertise in helping colleagues and creating a higher level of clinical value for the treatment of patients who need oral rehabilitation.

Contact Info
Prof. Hsein-Kun Lu is currently working in the Periodontal Department of the College of Dentistry at National Taiwan Medical University in Taipei, Taiwan. He can be reached at luke@ntmu.edu.tw.
LEIPZIG, Germany: Dr Shin Young-soo from South Korea has been appointed the new Regional Director for the Western Pacific Region, the World Health Organization (WHO) has reported. He will succeed Dr Shigeru Omi of Japan, who stood down at the end of January after two consecutive five-year terms. Dr Shin, who until recently held the position of Professor of Health Policy and Management at the College of Medicine at Seoul National University, has long-standing connections with the WHO from serving on its Executive Board as the representative of the Republic of Korea. He was nominated for the position of Regional Director last September and will be the first Western Pacific Regional Director to be appointed from outside WHO.

The WHO Executive Board, recently held its 124th session in Geneva, also reappointed Dr Samlee Plianbangchang for a second term as Regional Director for the South-East Asia Region. Dr Samlee has served for 16 years at WHO and worked in several key positions in the Ministry of Public Health, Royal Thai Government, including as Director of the Technical Division of the Department of Medical Services. He graduated from the University of Medical Sciences in Bangkok and holds a Master’s degree in Public Health and Tropical Medicine and Doctor of Public Health degree from Tulane University.

New health initiatives for Dubai

Representatives of Dubai Healthcare City (DHCC) have announced the launch of new initiatives to address a number of issues in the Middle East’s growing health-care sector. Speaking at a press conference at Arab Health, an annual event for the health-care industry in Dubai in the UAE, senior vice-president Dr Ayesha Abdullah said that the DHCC’s programmes in 2009 will include a CME session on diabetes by the Harvard Medical School Dubai Center, as well as a variety of mobile, simulation-based courses for various levels of health-care professionals including dentists.

To support the training of regional and local health-care professionals further, the Dubai Harvard Foundation for Medical Research is offering a Science Writers and Journalists Fellowship Program in 2009 for the second consecutive year and postdoctoral research fellowships to train scientists and researchers. The foundation is also offering annual grants for two research teams under the Collaborative Research Center Programme.

Dr Ayesha added that one of DHCC’s many achievements in the last two years has been the region’s first health-care licensing examination centre, established to help develop and administer comprehensive examinations for health-care professionals. Doctors in Dubai and other countries in the Middle East usually choose to advance their specialist training credentials through the postgraduate examinations of the British Royal Colleges, such as the Membership of the Royal College of Physicians, which is hosted in Dubai, or the Membership of the Royal College of Surgeons.

Postgraduate programmes in dentistry are offered by the DHCC’s Boston University Institute for Dental Research and Education. The only private postgraduate dental institute in the Middle East received accreditation by the UAE government last year. Its programmes include endodontics, orthodontics, periodontology, and prosthodontics.
As the Swedish market for hazardous waste is small, creating a new Swedish repository would be around 15 times more expensive than depositing waste in existing facilities in the EU, the Ministry says. The disposal possibilities in other EU countries provide better incentives for the development of safe, large-scale technologies to stabilise waste containing mercury.

Since health insurance stopped paying for amalgam restorations in Sweden in 1999, the use has decreased markedly and is now estimated to be 2–5 per cent of all fillings. “Sweden is now leading the way in removing and protecting the environment from mercury, which is non-degradable,” the Minister for the Environment, Andreas Carlgren, said. “The ban is a strong signal to other countries and a Swedish contribution to the EU and UN aims to reduce mercury use and emissions.”

Sweden is not the first country to remove mercury from the dental filling market. Last year, a similar ban was announced by the Norwegian government for environmental reasons.

Mercury is toxic to the human brain and results in various unstable mental conditions. Most countries in Europe only advise against the use of amalgam for children and pregnant women, but patients’ organisations believe that the rest of the population is also at risk. According to an EU scientific report, amalgam poses no danger to the human nervous system.

Checklist reduces surgical issues

Hospitals in eight cities around the globe have successfully demonstrated that the use of a simple surgical checklist, developed by the World Health Organization (WHO), during major operations can lower the incidence of surgery-related deaths and complications by one third. Analysis shows that the rate of major complications following surgery fell from 11 per cent in the baseline period to 7 per cent following the introduction of the checklist, a reduction of one third. Inpatient deaths following major operations fell by more than 40 per cent (from 1.5 per cent to 0.8 per cent).

The checklist, which was introduced by the WHO as a recommended guideline for safe practice last year, has since gained global recognition by operating theatre staff. WHO officials said that it is intended to ensure the safe delivery of anaesthesia, appropriate prophylaxis against infection, effective teamwork by the operating room staff, and other essential practices in perioperative care.

“The concept of using a brief but comprehensive checklist is surprisingly new to us in surgery,” said Dr Atul Gawande, main author of the study and team leader for the development of the WHO surgical safety checklist. “Not everyone on the operating teams was happy to try it. But the results were unprecedented. And the teams became strong supporters.”

Pilot studies were undertaken in hospitals in each of the six WHO regions and carried out in both high and lower income settings. In Asia, hospitals in Manila in the Philippines, New Delhi in India, and Auckland in New Zealand took part in the study. Data was collected from 7,688 patients.

“These findings have implications beyond surgery, suggesting that checklists could increase the safety and reliability of care in numerous medical fields,” Dr Gawande added. “The checklists must be short, extremely simple, and carefully tested in the real world. But in specialties ranging from cardiac care to paediatric care, they could become an essential in daily medicine as the stethoscope.”

“The immediate response to the checklist has been remarkable, and the studies undertaken in the pilot hospitals are significant. They will make a major contribution towards our goal of having 2,000 hospitals around the world using the safe surgery checklist by the end of this year,” said Sir Liam Donaldson, Chair of the WHO World Alliance for Patient Safety and Chief Medical Officer for England.
Millions to fight early childhood caries

Corinna Kaarlela
USA

SAN FRANCISCO, CA, USA: The University of California's School of Dentistry in San Francisco has received a multimillion-dollar grant from the US National Institutes of Health (NIH), to address disparities in children's oral health and to launch new programmes in preventing early childhood tooth decay, also called ECC. According to the School's Dean, Dr John Featherstone, the programmes will include new research that will compare methods of preventing dental caries in children and efforts to integrate current scientific understanding across a variety of primary care and social service settings.

The School will also work as coordinating centre, collecting data from randomised trials from two other centres in Boston and Denver.

Dental caries is one of the most prevalent health problems in the United States, and disparities in oral health are evident across the life span. A report by the US National Maternal and Child Oral Health Resource Center states that although more than 90 per cent of general dentists in the US provide care to children and adolescents, very few provide care to children under four. Among children and adolescents from families with low incomes, nearly 80 per cent of decayed primary teeth have not been restored in children between the ages of two and five.

Disparities also exist according to race and ethnicity, with decayed or filled teeth occurring in 42 per cent of Mexican American and 52 per cent of black children between the ages of two and five, compared with 24 per cent of white children, according to a National Health and Nutrition Examination Survey from the Center for Disease Control in Atlanta, Georgia.

A study by the Tel Aviv University in Israel has found that brushing teeth can prevent hospital-borne infections by up to 50 per cent. According to lead researcher, Ofra Raanan, from the University's Department of Nursing, nurses from different medical centres in the country found that brushing the teeth of intubated patients three times a day led to a decrease in ventilator-associated pneumonia (VAP), a lung infection that develops in people who are ventilated.

Hospital-borne infections such as VAP are a serious risk of a long-term hospital stay. VAP is usually caused by harmless bacteria in the mouth that travel in small water droplets through the tube and gain access to the lungs where they colonise. Once in the lungs, the bacteria exploit the patient's weakened immune system and multiply, causing serious infections that could result in death. Patients who are intubated can be infected with pneumonia only two or three days after the tube is put in place.

Nurses typically use a mechanical suction device to remove secretions from the mouth and throat, or put patients in a seated position every few hours. Raanan said that her recommendations—scheduled for publication in a leading nursing journal—may convince medical centres around the world to invest more resources in the routine practice of brushing their patients’ teeth. “This approach will certainly improve the odds for survival,” she asserted.

Better dental hygiene to lower hospital infections

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(Edited by Claudia Salwiczek)
In collaboration with Inspektor Research Systems BV in the Netherlands, scientists at the University of Liverpool have developed a new product for identifying plaque build-up in the mouth before it becomes visible to the human eye. The toothbrush-sized device has a blue light at its tip that allows plaque to be easily seen as a red glow when shone around the mouth and viewed through yellow glasses with a red filter.

Dentists currently use disclosing agents in tablet form to indicate tooth decay and plaque, but these often stain the mouth and taste unpleasant. The new product, known as Inspektor TC, has been designed for everyday use in the home and will be particularly useful for those who are vulnerable to dental diseases, especially children and the elderly.

“Early stage plaque is invisible, and so this device will show people the parts of the mouth that they are neglecting when they brush their teeth, enabling them to remove plaque before it becomes a problem,” said Prof. Sue Higham, Director of Research at the University of Liverpool’s School of Dental Sciences. “Inspektor TC is designed, so that people can easily incorporate it into their daily dental hygiene routine.”

Her team has already received a Medical Futures Innovation Award that acknowledges significant innovation in science for the product. “We now hope to work with industry partners to develop this prototype, so that people can use it in the home to identify plaque before any serious dental work is needed,” Prof. Higham added.

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The pain-relieving effects of nitrous oxide—laughing gas—may be enhanced by suggestion or hypnosis, according to a new study by University College London (UCL). The study, published online in the journal Psychopharmacology, found that the nitrous oxide boosted imaginative suggestibility by approximately 10 percent, despite participants’ expectations regarding the effects of the drug. The findings indicate that dental patients may benefit from being coached to relax while undergoing sedation.

“Nitrous oxide is one of the most widely used yet least well understood anaesthetic gases and until recently, relatively little was known about how it worked inside the body,” Dr. Matthew Whalley, Honorary Research Fellow at UCL, stated. “Many dentists use laughing gas to relieve discomfort in their patients, but our study suggests that combining the gas with instructions and suggestions to help them to relax and become absorbed in imagery, for example, might enhance the pain-relieving effect.”

Dr. Whalley said that an estimated number of 500 dentists in the UK have been trained to use hypnosis, and find that their patients respond well to being spoken to in a quiet, hypnotic manner. The new findings suggest that these effects could be further enhanced with laughing gas, he added.
GC, DuPont sign agreement on monomer technology

The GC Corporation based in Tokyo in Japan has signed a cooperative agreement with US DuPont to develop new filling materials for the dental market. With the agreement, the two companies will share knowledge in the fields of monomers and composites for improved abrasion resistance with no risk of shrinkage and enhanced aesthetics with chameleon-like effects.

DuPont is one of the largest manufacturers of synthetic material globally. Among others, the company has created widely used polymer compounds like Nylon, Lycra, Kevlar, and Mylar. The GC Corporation has some of the most advanced composite systems on the market, such as GC Grinda and GC Grindia Direct. By collaborating with DuPont, the company wishes to increase development possibilities for new dental composite systems and refine existing ones, officials told Dental Tribune.

“The cooperative agreement with DuPont is a strategic and historic milestone for our company and will definitely have synergistic effects for all concerned—not just for the cooperating partners themselves, but also for dentists and dental technicians,” explained Shoji Akahane, director of the research and development department of GC. “We don’t want to give too much away, but standing shoulder-to-shoulder with DuPont, we are sure GC will soon be causing quite a stir on the filling market. You could say we now have the licence for effective marginal adaptation.”

China’s dental implant market grows

According to a report by the Millennium Research Group in Toronto in Canada, new private dental clinics are continuing to emerge in response to increasing demand for dental care from China’s growing middle class and aging population. The establishment of these private dental clinics will enable the dental implant market to reach over US$425 million by 2015, reflecting a compound annual growth rate of more than 35 per cent over the next five years.

Dental services in China are offered in government-managed hospitals that deal with an overwhelming number of cases. With new private dental clinics now opening and a growing number of dentists offering dental implant treatment, however, Chinese patients will have increased access to dental implants. Currently, there are more than 5,000 privately run clinics operating across China and the success of the dental implant industry will continue to attract both domestic and foreign investment. In addition to the development of new dental facilities, increasing volumes of procedures performed by existing facilities will enable market growth over the next five years.

“The global economic crisis will slow this market in 2009, but only moderately,” says Kevin Flewwelling, Manager of Orthopedic and Dental Research at MBG. “Due to improved clinical education, greater patient awareness of dental implants, and a larger urban middle class, the Chinese dental implant market will still grow at double-digit rates even at the height of the world-wide economic crisis.”

A new recruitment agency in Derry in Northern Ireland aiming to attract experienced dentists from across the globe has been established. KMS Dental Recruitment is the first of its kind in the country, which suffers from an ongoing shortage of dentists, particularly in the north-west region. Previous recruitment drives by local health authorities have failed to attract dentists, with many local practices last year closing their doors to patients treated under the National Health Service scheme, DT UK reports.

The China Medicine Corporation in Guangzhou has reported governmental approval for selling dental equipment and instruments in China’s Guangdong province.

Providenthining, a new Australian company, plans to establish whitening kiosks in shopping malls in the country. The procedure will take up to 20 minutes and cost a little over US$100, company officials stated.

Colgate, through its Colgate-Palmolive (India) Ltd subsidiary, has purchased SS Oral Hygiene Products Pvt. Ltd. in Hyderabad in India. Previously, Colgate held a 75 per cent share in SS Oral Hygiene Products.

A new recruitment agency established in Hong Kong to attract internationally trained dentists from across the globe will be joined by programmes in Australia and New Zealand.

The FDI World Dental Federation has announced that online registration for the 2009 annual congress is now available on their website. The congress will be held from 2 to 5 September 2009 at the Suntec Singapore International Convention and Exhibition Centre.

MBG’s Chinese Markets for Dental Implants 2009 report provides coverage of key industry competitors, including Anthogyr, BRGO Implant Systems, Bicon Dental Implants, BIOMET 3i, DENTSPLY International, Nobel Biocare, Osstem, Straumann, and many more.
The 55+ IIDS will again exhibit a comprehensive range of modern dental products and technologies. Visitors will have the unique opportunity to experience an abundance of new products and service innovations. Technological developments in the medical field and industry's investment in research and development continue to provide new and improved system solutions for dental practices and laboratories, which are of the utmost interest to dentist and technician alike.

IIDS has always been a driving force behind the dental market and will remain in this role in the future. I expect our partner dentists, dental technicians, dental hygienists, and prophylaxis assistants – to be able to convince patients that investing in their health is the best way to secure their own well-being and quality of life. Investments in health are an investment in one's own future. I am confident that despite the current economic fluctuations patients pay more attention to their oral health or decide not to make use of necessary care and treatment. Falling prices for energy, the commuter tax relief fund, and private savings assets of around €1 trillion in Germany ensure the liquidity of a large portion of the population. Moreover, patients' demands for health-related services are mostly governed by acute health problems and the desire for a return to health and recuperating quality of life.

Dental implants and automated fabrication of dental restorations are currently the fastest growing sectors in dentistry; is this boom reflected in the products and services that are going to be presented at IDS?

Implant restorations are in fact one of the fastest growing sectors, with more than 700,000 dental implants placed in Germany last year and an annual growth rate of around 10 to 15 per cent. These high-quality restorations will continue to be in demand by many patients in the future because they are one of the most progressive and long-lasting restorations available. Incidentally, the growth in dental implants in Germany can largely be attributed to the fact that the statutory health insurance system has subsidised this treatment since the introduction in 1994 of a national coverage system in 2005, IDS will exhibit the entire range of modern implantology systems, presenting both innovations and developments in tried-and-tested systems.

What other sectors do you view as having potential for growth?

Apart from implantology, I see potential in the all-porcelain sector, with an around 25 million restorations worldwide were fabricated using CAD/CAM technology. Modern laser scanners are able to reach up to 100,000 reflecting points simultaneously, and this high-performance material provides the best possible stability for a wide range of indications and are able to guarantee biocompatibility at the same time.

The latest digital fabrication technology using laser metal sintering of, mostly precious metal-free, alloy powders can now also be considered for aesthetic and restorations. These dentures stand out because of their incredibly precise fit and durability.

German dental industry export activities are now being influenced by approximately two per cent in 2007, which comprises 31 per cent of the total turnover in the domestic market losing its value?

There is no doubt that Germany remains a key market. It is clear that the German dental industry researches and develops new products and services in collaboration with universities, research institutions, technical colleges, and training schools (Meisterschulen). We need this market in order to introduce products and services in conjunction with healthcare providers and users because the high standard of healthcare, dentistry and dental technology in our country, these products and services are considered models for dental practices and laboratories worldwide.

The shift of sales is a result of an expansion of our market position overseas disproportionate to growth in the domestic market.

It is important to guarantee dentists and dental technicians in the German market acceptable remuneration for their services. This is the only way to ensure that young people find the way into the health service, to prevent professional migration, and to ensure patients gain access to care. These are factors in general dentistry and dental technology.

German patients have to carry more medical expenses due to the introduction of the national health fund. Is this having an effect on dentistry as well?

I expect not only new patients to be deterred for the insured, but also an increase in bureaucracy that we need to react to. Therefore, a council of experts for the national health fund predict a shortfall of €440 million in 2009 alone.

I think notable negative effects are to be expected due to the reduction of the number of certain high technology devices and the new fee schedule, which is the new basis for private dental billing in 2009. In their calculations, the Association of German Dentists has concluded that large cutbacks in salaries could be the outcome of these regulations. If one considers that a significant proportion of the annual turnover in many practices already comes from patients who pay out of their own pockets and, therefore, essentially the existence of practices’ survival, one cannot understand why the dental profession should accept cutbacks in its budget, if only with a slight increase in refunding of only 0.46 per cent after 21 years.

In which markets has the German dental industry gained shares in 2008 and which markets do you regard as difficult to gain access to?

The results of our latest member questionnaire underline the fact that export figures in East European markets, especially Russia, and Asian markets have shown a positive trend. Furthermore, the economic outlook for Latin American markets is more or less stable and, therefore, market sentiments in these countries are changing much, as was evident during our several international press conferences last year held in collaboration with Koelnmesse subsidiaries in Japan, China, Russia, and the United States. Participants in these press conferences did express concern of the overall decreasing high standard of quality, service-friendly products, and high level of innovation, as well as dissatisfaction with the present system and the high quality of service, make our products globally competitive. We confidently meet the challenge of all competition in any market worldwide.

During the last two years you have travelled abroad to promote IDS in other regions. Can you tell us more about perceptions of the show in different parts of the world?

IDS is the international meeting for the dental sector. For years, it has been an established communication and marketing platform for the international dental community. The show has changed very much, as was evident during several international press conferences last year held in collaboration with Koelnmesse subsidiaries in Japan, China, Russia, and the United States. Participants during our several international press conferences did express concern of the overall decreasing high standard of quality, service-friendly products, and high level of innovation, as well as dissatisfaction with the present system.

We were also given credit for the high quality of communications, careful organisation, and the show’s international character.

Only at IDS is such a comprehensive display of the international dental industry as there is the complete spectrum of dentistry and dental technology is available to be seen and experienced. All products and services that make the work of dentists easier, help them work economically, and provide their patients with the state-of-the-art in dental technology are available at the show.

Unlike other international meetings, IDS seems to grow in popularity each year. In your opinion, what are the main factors contributing towards this growth?

IDS has an appealing and powerful concept that was developed in cooperation with our partner Koelnmesse. In particular, the sheer amount of state-of-the-art innovations makes IDS the most comprehensive dental exhibition and one of the liveliest and most significant international dental congresses.

It is important that we plan this growth carefully to keep up with market changes. We do not want the show to expand too rapidly and possibly outgrow its market.

We already have a high level of international participation at IDS from nearly 140 countries and regions. The show’s cosmopolitan, the standard of accommodation at the show is different in each country. We strive to ensure that our customers are comfortable and that they enjoy the high standard of quality, service-friendly products, and high level of innovation, as well as dissatisfaction with the present system.

The city of Cologne is ideally situated in terms of public transport within Germany, as well as “from Europe and the World”.

Thank you very much for the interview!
Zap Lasers makes debut at IDS

US leader Zap Lasers is exhibiting its family of soft-tissue lasers for the first time at this year’s IDS. According to the company, not only does the exhibition serve as Zap’s introduction to the European market, but it also marks the start of the company’s search for more international distributors.

“We sell our lasers direct in the United States but work with a market-expert distributor in some Asian countries,” says Zap Vice-President of Sales and Marketing Alex Di Sessa. “Their expertise has earned us great growth, and we understand that to emulate the same success in Europe, we need a partner who understands the European market’s nuances and needs.”

Zap has been manufacturing and distributing soft-tissue lasers for more than ten years and offers a wide selection of lasers for both general dentists and specialists. Since its introduction in the US in May 2008, the Styla, for example, has become one of the industry’s best-selling soft-tissue lasers. This first wire-free micro-laser boasts all of the power and functionality of its tabletop counterparts in a 56-gram, styloid design that is 20 times lighter than any other soft-tissue laser on the market, the company says.

Styla, and its orthodontic counterpart, StylaOrtho, is the latest in Zap’s line of soft-tissue lasers. This product line also includes SoftLase Pro, which introduced one of dentistry’s first touch-screen control interfaces and voice confirmation features. Zap’s HygieneLase and OrthoLase have the same touch-screen convenience and compact size as SoftLase Pro.

Zap Lasers makes debut at IDS

FDI Annual World Dental Congress
2 -5 September 2009
Singapore

congress@fdiworlddental.org
www.fdiworlddental.org

Interact with Ivoclar

Ivoclar Vivadent has announced the showcasing of a number of new products in the fields of all-ceramics, composites, CAD/CAM, and implant prosthetics at IDS. The company, which is based in Liechtenstein, will present an extended version of the IPS e.max System, which is now to cover all indications—even zirconium oxide abutments. The new blocks and matching equipment will open up unforeseen possibilities in CAD/CAM and press technology, company officials said.

Several products for dentists have also been adjusted to meet customer needs. One of them is the luting composite, Multilink Automix, now available with the ‘Easy Clean-Up’ formulation, which allows excess cement to be removed more easily and cleanly.

In addition, the removable prosthetics range of Ivoclar Vivadent will be complemented by a newly highly wear-resistant, nano-hybrid composite tooth line. Its aesthetics are claimed to surpass those of products that are currently available on the market.

Apart from new product developments, a live stage at the Ivoclar booth in Hall 11.3 will be one of the company’s highlights this year. A number of well-known international lecturers will be available for a Q&A session throughout the day. The experts will report on their experiences with Ivoclar products daily from 9.30 a.m. to 6 p.m. and provide tips and tricks for dental professionals. There will also be opportunities to exchange experiences with the industry’s leading experts throughout the exhibition.

www.ivoclarvivadent.com
A ‘First Touch’ with new glove from Cranberry

At IDS 2009, Cranberry USA will present the latest in their range of high-quality nitrile medical gloves. The new Naturale, with its low allergy and dermatitis potential, has been designed in line with the company’s mission to design and market products with dental professionals’ health in mind. Each pair of gloves is manufactured, examined, and packaged with zero direct skin contact exposure — the ‘First Touch’ approach — to prevent potential cross-contamination at source. In an average manufacturing process, a pair of gloves may be exposed to human skin up to eight times.

Naturale will be available from Cranberry to customers in the US and throughout dealers worldwide.

www.cranberryusa.com

Tissue integration made easy

Most dental implants today are made of a single material, although integration into hard and soft tissue requires different materials. Because of this, the TBR Group in France has redefined dental implants and developed a hybrid system that optimises integration in both bone tissue and gingiva.

The result of this process will be exhibited at IDS 2009: the TBR Hybrid implant. This one-stage titanium implant with a zirconia trans-gingiva collar promises to be more resistant than a regular titanium implant because it combines the mechanical advantages of titanium in flexion and those of zirconia in compression, the company says.

According to Julien Benhamou, CEO of the TBR Group, following over seven years of studies and articles in the Journal of Oral and Maxillofacial Implants and the Journal of Applied Biomaterial and Biomechanics, his company found that zirconia is an optimal material for gingiva-integration because, compared with titanium, it features no significant bacterial colonisation. Additionally, it is dense, smooth as glass, and offers perfect ivory transparency for high aesthetic results.

“Titanium is recognised as a very adapted material for bone integration, but we saw that it was not the best material for gingiva integration with regard to bacterial colonisation, grey transparencies, and aesthetic results,” Benhamou said.

TBR’s new hybrid zirconia-titanium technology, which received the Frost and Sullivan Award for Technological Innovation in 2007, is available in 45 countries and will be shown at IDS 2009 in Cologne. It is CE certified and has received clearance from the US Food and Drug Administration.

www.tbr-group.com

VITA Easyshade® Compact — The exact shade in the blink of an eye.

It’s digital, cable-free, lightweight and mobile — there are a good many reasons for choosing the VITA Easyshade Compact. And every one of these is in itself a winner. With the new generation of digital shade measurement you determine and check the tooth shade in a matter of seconds. The VITA Easyshade Compact is designed for all shades of the VITA SYSTEM 3D-MASTER and the VITAPAN classical A1-D4 shades. This high-tech instrument impresses with a great accuracy of measurement using state-of-the-art spectrophotometric measurement technology. See for yourself. Find out more at www.vita-zahnfabrik.com.
A new generation of opto-electronic shade-measuring units for dentists and dental technicians will be presented by VITA in 2009. The Germany-based manufacturer has announced the showcasing of its VITA Easyshade Compact unit at IDS Cologne in Germany in March and in other markets later this year. The previous model, VITA Easyshade, was introduced in 2003.

According to the company, the new VITA Easyshade Compact will feature advanced spectrophotometric technology for more accurate and faster results in the determination of natural tooth shades and the shade of dental restorations. Results can be displayed in the shade codes of the VITA-PAN classical A1-D4 or the VITA System SD-Master. Other key improvements include a cordless design that allows users to move freely, as well as a durable state-of-the-art LED light. The VITA Easyshade Compact will be compatible to LabRx from Dicom, USA.

VITA upgrades its shade-measuring unit

The VITA Easyshade Compact will offer storage capacity for 25 measurement cycles, which can be saved and stored before the unit is switched off. The lightweight and handy design of the previous model has been retained.

www.vita-zahnfabrik.com
“Dentistry in the US is more focused on pure cosmetics”

An interview with Dr Michael Miller, REALITY Publishing Co.

Nothing could be farther from the truth. When a manufacturer submits a product, it has absolutely no control over the evaluation. Unlike some manufacturers do not submit products—they are wary about what we are going to find. In addition, since there is no fee involved for manufacturers when they submit products, we have no reason to try to please them. While we don’t believe in testing products unprofessionally, we have warned our readers numerous times about products that don’t live up to their marketing propaganda. Any clinician that believes we are merely a marketing arm for manufacturers has never asked a manufacturer if it’s true.

How exactly does the product rating process work?

Products are listed on a password-protected section of our site for ET Members’ eyes only. We then ask the ET members to select products that they are interested in evaluating. At least ten members must volunteer to evaluate a consumable-type product such as a composite or adhesive for it to qualify for a complete evaluation. For more expensive equipment, the minimum is five. The manufacturer of these products are then invited to submit the product. If they agree, we provide them with the list of evaluators who have volunteered to evaluate the product. Once the evaluators receive the product, they have 90 days to use it clinically and/or perform tests of it. Then they are privy to a testing lab. During this 90-day period, we perform our own tests on the product in the REALITY Research Lab (RRL), check the results from the RRL, and write the final report. The actual numerical score and star rating for each product is largely the average of the evaluators’ scores modified by any exemplary or poor results in the RRL, although clinical results are always considered at a higher level than those from the lab.

Aside from checking the REALITY website, what clues should clinicians look for when choosing the right product?

We have many pieces of equipment you would find in other research labs around the world, including an Instron for testing bond strength of adhesives and other materials, a digital tooth hardness tester for measuring depth of cure, a thermocycler to age materials rapidly, a temperature/humidity chamber to test products in a month-like environment, a spectrophotometer to analyse the translucency/opacity of materials, a custom-made black light box to check the fluorescence of materials, and much more. However, the real difference between our lab and others is the way we perform tests. Our methods have all been designed to simulate the clinical condition as closely as possible, which is the primary reason our results can be radically different compared to those claimed by manufacturers. For example, our depth of cure tests are done in real, human teeth. These tests show that the claims of composites and curing light manufacturers are greatly exaggerated. If any clinician follows a manufacturer’s advice in this area, there is a great probability that the restoration will be under-cured.

Dr Miller is retrieving a product from REALITY’s archive in Houston, TX, USA. (DTI/REALITY).

From your experience, what are the trends in cosmetic dentistry in US? What expectations do you have for the future?

Anything digital should be considered as the main trend. From CAD/CAM to digital impressioning, this is definitely the future. But the same caveats apply here than in traditional products. Don’t be on the bleeding edge or you can find yourself with some very expensive white elephants. Another real trend is non-invasive dentistry including innovative ways to diagnose caries at incipient stages and treat it without invading teeth.

Are you familiar with the market in Asia and if so, how does it compare to the US market?

I have lectured in Japan and Thailand, but I am not an expert in how dentistry differs between the two regions. My gut feeling, however, is that there is more dentistry in the US focused on pure cosmetics compared to Asia.

How would you grade the quality of work done by Asian professionals?

I have seen some absolutely beautiful dentistry come from the offices of Asian clinicians. Definitely on par with the US and Europe.

Do you have any suggestions for our young readers who have an interest in incorporating cosmetic dentistry into their practice?

First, it takes a lot of study. You cannot attend a weekend seminar and learn the nuances of really fine cosmetic dentistry, read a magazine, and expect to completely understand the craft. A patient who has an interest in this field should read numerous and varied seminars, and watch as many masters as possible. Then start with easy cases and progress to more demanding ones.

Thank you very much for this interview!
The CAD/CAM evolution
Computers in practice and laboratory will determine action

Prof. Albert Mehl
Switzerland

Impression-free practice, virtual construction models and articulation on Windows desktops, biogeneric occlusal surface design with intelligent software, as well as rapid prototyping, are just some of topics increasingly mentioned in lectures and publications dealing with CAD/CAM. Already, ‘conventional’ CAD/CAM technology is in use in dental offices and laboratories, and now the next step in CAD/CAM evolution is anticipated. Only a few years ago, discussion focused on exactness of fit, the reduced costs for dentists and patients, and user-friendliness. The quality of CAD/CAM restorations was viewed with cynicism, and only a few pioneers gave scientific attention to this technology. At present, the situation is quite different. The hesitant and doubtful attitude towards computer-manufactured dental prostheses has been discarded, and an accepted, standard procedure has been established. Many companies now invest immense resources in the further development of this technology.

Fig. 1: Virtual automatic reconstruction: the scanned data of the antagonist, functionally moved, adjacent teeth and the preparation can be considered in toto, in order to create a fitting occlusal surface that follows all the rules of dentistry. (DTI/Photo A. Mehl)

What impelled this rapid change? On the one hand, the value of zirconium dioxide ceramic in particular, which can only be processed with computer-assisted techniques, became evident. This material made all-ceramic fixed partial dentures possible for the first time. Other ceramics, too, exhibited better material properties after automated milling because the blanks used could be industrially manufactured under optimal conditions. On the other hand, the efficiency of CAD/CAM systems has clearly improved. Based on more powerful computers and effective measuring techniques developed in the 1990s, it was possible to adapt 5-D recording/imaging systems to the needs of dentistry and simplify their operation. Continued development of CAD software enabled a multitude of construction options (Fig. 1) and an improvement in the quality of the grinding/milling units. Economic efficiency, combined with high quality restorations, is the current hallmark of CAD/CAM technology. It is not only dentists and dental engineers who benefited and smaller labs will use their core competence in the computer-assisted manufacture of high quality, aesthetic restorations and special fabrication of partial prostheses.

Another important current trend is the chairside manufacture of inlays, onlays, partial crowns, and single crowns. The dentist is this CAD/CAM procedure’s target group. The one-appointment treatment has a time-saving benefit for the patient and eliminates provisional restorations, which additionally minimises the risk of cuspl fracture, enamel-margin chipping, and weakening of the dentine bond. The biogeneric formation of occlusal surfaces enables the reconstruction of missing occlusal surfaces for inlays, onlays, and partial crowns according to nature’s designs (Figs. 2, 3).

What is the latest in CAD/CAM development? Anyone well acquainted with the field predicted early on that manufacturing centres would play a crucial role: high capacity utilisation, specialised staff, centralised material purchasing, and high quality standards for ‘standard care’ facilitate an economical throughput, which in turn enables the amortisation of the investment in highly developed manufacturing machines, while increasing economic efficiency. Mid-sized and smaller labs will use the core competence in the computer-assisted manufacture of high quality, aesthetic restorations and special fabrication of partial prostheses.

What does the future of CAD/CAM technology hold? Intra-oral 5-D measuring will at least in part make the impression-free practice possible (Fig. 4). The speed, operation, and precision of the images are being continually improved and the measurement range expanded. Once a 5-D data set of tooth surfaces has been stored, a completely novel form of dental diagnostics can be conducted, by comparing data that were recorded at different time points. Thus, quantitative, 3-D progression control of orthodontic treatment, the analysis of erosion and abrasion, periodontal changes, or interventions is possible.

A distinct advantage of computer-assisted procedures over the conventional wax-up technique also lies in the functional and morphological occlusal surface design. Complex algorithms can store an immense amount of basic knowledge about tooth structures and individual genetic contexts. Virtual articulators can simulate any programmable movement, so that considerably more natural laws and limits, as well as individual parameters, can be integrated into the restoration surface than has been possible up to now.

The needs of CAD/CAM technology have propelled basic research to new heights and thus advanced other areas of dentistry. Through cooperative ventures, universities and industry can form a useful symbiosis to promote and shape this exciting development. Until now, CAD/CAM or computer-assisted dentistry has not been a central subject at the universities. But because the technology is relatively new and the performance potential of CAD/CAM technology is tremendous, this is certain to change in the next few years, which in turn will influence the training of dental students and indirectly the treatment possibilities in practices as well, in the interests of our patients.
Dental implant maintenance through systematic after-care

Dr Gabriele David
Liechtenstein

Implants are exposed to many different influences within the oral cavity. The tissue surrounding implants is subjected to a significantly higher risk of inflammation through plaque than the gingiva. Bacteria and their metabolic products, as well as antibodies of the immune system, can cause inflammation of the oral tissue quite easily. Oral mucositis occurs, which could lead to peri-implantitis. This serious condition can impair the outcome of the treatment. Consequently, the superstructures, the residual dentition, and any restorative work need to be cared for continuously. In all cases, regular professional care must accompany the at-home measures.Implant restorations and the surrounding tissue are highly sensitive areas of the mouth and require special protection.

Gentle, effective measures that do not traumatisse the sensitive tissue should be implemented. In all cases, professional tooth cleaning is requisite and part of the standard treatment programme for patients with implants. Cleaning is particularly gentle if carried out with fine Proxyl prophy paste and a soft cup, which adapts itself to the surface structure (Fig. 1). The paste is characterised by a low RDA (Relative Dentine Abrasion) value of seven. Unnecessary roughening is avoided and irritation of the gingival margin is prevented. The more abrasive Proxyl paste with an RDA value of 56 is available for removing tough films. The fine paste is used to give the surfaces a smooth polish, which prevents the bacterial biofilm from adhering to the tooth structure.

Following professional cleaning of the superstructures and teeth (Fig. 2), it is advisable to apply a protective varnish like Cervitec Plus, which contains 1 per cent chlorhexidine and 1 per cent thymol (Fig. 5). The varnish system effectively protects at-risk areas, by sealing them. The tried-and-tested ingredients reduce the number of harmful bacteria. Cervitec Plus is characterised by excellent flow properties and wetting behaviour. Therefore, even hard-to-reach areas, such as retainer bars, can be selectively treated. Cervitec Plus is relatively moisture tolerant; as a result, it is easy to apply. The clear varnish thinly coats surfaces and sets in seconds. To enhance the effectiveness of the treatment, the mouth should not be rinsed immediately after the application of the varnish. Because the varnish layer is so thin, it does not impair the fit of removable bar-retained dentures.

Susceptible areas in existing natural teeth or restorations should be included in the treatment. Niches, which offer harmful bacteria a potential place where they can accumulate, may be successfully controlled with this strategy. The routine application of the product in dental surgery has the added advantage of allowing implant-supported restorations to be monitored professionally (Fig. 5). In many cases, the dexterity and/or compliance of the patient is inadequate for properly treating susceptible areas.

A professional care regime does not preclude thorough oral hygiene measures at home. The application of Cervitec Gel containing 0.2 per cent chlorhexidine and 900 ppm fluoride at regular intervals reinforces professional treatment measures. It helps to reduce the accumulation of plaque and harmful bacteria and to lower the risk of inflammation of the gingiva and oral mucous membrane. The gel is easy to integrate into daily routine. It can be applied directly to the gingiva, oral mucous membrane, or the inner surfaces of removable dentures. The smooth consistency of the gel allows the product to be applied with ease in proximal areas and around bar-retained dentures (Fig. 4). Alternatively, Cervitec Gel can be used instead of toothpaste. The gel, which also contains fluoride, should be used to brush teeth in the evening. In the morning, the teeth should be cleaned with toothpaste as usual. If this regime is diligently followed, neither discolouration nor an impaired sense of taste is likely. Practical experience has shown that patients prefer the taste of Cervitec Gel to that of comparable chlorhexidine gels. This finding should not be underestimated, as the taste of the product promotes patient compliance and therefore helps to enhance the effectiveness of the treatment.

Implant-supported restorations require regular aftercare measures to keep them in a good condition for a long time. An effective maintenance programme should include gentle professional cleaning measures and the use of chlorhexidine preparations.

Contact Info

Dr Gabriele David is currently Business Unit Manager of Ivoclar Vivadent in Schaaff, Liechtenstein. She can be reached at gabriele.david@ivoclarvivadent.com.
Miniscrews—a focal point in practice

Six-part series by Dr Björn Ludvig, Dr Bettina Glasl, Dr Thomas Lietz & Prof. Jörg A. Lisson—Part I

In view of the plethora of publications, courses, and advertising material on this subject, it would seem that miniscrews are widely used. Once some candid questions have been asked and answered, however, it becomes apparent that the reality is quite different. It seems evident that there are valid reasons that miniscrews are not yet in daily use in many practices. With this series, the authors intend to encourage those practitioners who are hesitant to use miniscrews to use them routinely, by providing a compendium of experiences and new findings in this field.

The basis and history of anchorage: the selection of screws

Anchorage in general

Moving a body requires anchorage in the form of a counter support. The force required for the movement acts on both body and abutment. In his Third Law (1687), Newton specified that every action has an equal and opposite reaction. In dentofacial orthopaedics, this means that the force acts on all teeth involved in the case of the dental support of a tooth movement. Thus, both bodies ultimately move. The extent of movement and counter-movement does, however, depend on the anchorage strength of the individual teeth, i.e., on the number and length of the roots, the root surface, and the structure of the surrounding bone.

Anchorage quality can be divided into three categories:

1. Minimum anchorage
2. medium anchorage
3. Maximum anchorage

These three categories can be described using the example of a conventional canine retraction after removal of a first premolar (Figs. 1.1).

In the case of minimal anchorage, the support is provided by the individual teeth. Figure 1.1a shows that a single premolar is not sufficient as an abutment to distilise a canine. The premolar is clearly mesialised in reaction to the complete force vector, as the reactive force is completely absorbed by the anchorage block formed.

Apart from anchorage quality, the basis, i.e., the type of anchorage location, plays a role:

1. Dental or desmodontal support
2. extra-oral support
3. Intra-oral support

This article only deals with anchorage in bony structures. The terms skeletal or cortical anchorage are used interchangeably in this case.

History and overview of skeletal anchorage

Bony anchorage has its roots in Gainsforth’s unsuccessful attempt to insert screws into the jawbone as load anchors in 1945. Many later experiments were unsuccessful and the method had become obsolete by the late 1970s. From 1980 onwards, various research groups (such as Creekmore, Boher, and Turley) took up the subject once more. Creekmore published the first, clinically successful patient treatment case.

There are now numerous options for cortical anchorage (Fig. 1.2), including artificial or pathologically ankylosed teeth on the basis of miniplates normally used in cranio-maxillo-facial surgery and the use of prosthetic implants. Wehrbein and Glatzmaier were the first to present an implant system specifically designed...
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Figs. 1.7: Interradicular X-ray image showing spatial ratios.

Figs. 1.8: For practical reasons, it is advisable to use systems that offer only one, universally applicable head variant. This simplifies the choice of implant.15–17 Several authors, and the surface of a force-absorbing block.18,19 In the opinion of Cope and Bamann, mini-screws are anchored by mechanical stability and not by osseo-integration.20,21

Diameter of the miniscrew

The diameter of the mini-screws on the market varies between 1.2 and 2.5 mm. Diameter specifications of a screw normally refer to its outer diameter, ie, the size of the shaft, including the thread. For secure and primarily mechanical anchorage, a certain amount of bone is required around the screw. To date there have been no studies on the amount of bone actually required; the information available suggests 0.5 to 2 mm. At an interradicular level, the amount of space available prescribes the maximum diameter of the screw.

More than thirty different terms for orthodontic screws are used in the international literature. The most common of these are mini-implant and miniscrew; while the terms minipin or pin are preferred when speaking to patients. At present, there are over thirty manufacturers of mini-screw systems (Fig. 1.5). The number of screws per system ranges from two to 154 different types. In order to assist practitioners in selecting such devices according to their practice’s needs, the most important decision-making criteria for choosing implant systems are discussed below.

Material

All mini-screws are made from pure titanium or from an alloy of titanium with aluminium or vanadium. The biocompatibility of such materials, the metal surface of which is in direct contact with the bone, has been firmly established.11–14

Osseo-integration

Brånemark was the first to define the concept of osseo-integration, which he described as “a direct functional and structural link between living bone tissue and the surface of a force-absorbing implant.”22,23 Several authors, such as Costa and Maimo, view anchoring a miniscrew not as osseo-integration, but as a skeletal resistance block.20,21 In the opinion of Cope and Bamann, mini-screws are anchored by mechanical stability and not by osseo-integration.20,21

Length of the miniscrew

The length of the mini-screws on the market varies between 5 and 14 mm. Length specifications of a miniscrew usually refer to the shaft, ie, the threaded section. The length of the screw selected depends on the amount of bone available. Depending on the region, the total thickness of the bone is between 4 and 16 mm.24 The length of a screw is of secondary importance to the diameter when it comes to secure anchorage, as mentioned above. Various studies have shown that it is the thickness of the cortical section that plays a more important role.25,26 As far as the distribution of force over the body of the screw is concerned, FEM analyses have shown that the load is applied only in the region of the cortical bone.27–29

When selecting the length of the screw, the depth of the gingiva...
Fig. 1.9: Height difference of the screw head in two clinical situations.

must also be taken into account, with an average layer depth of 1.25 mm. Thus, the ratio between the length of the head (the part of the screw outside the bone) and the length of the threaded section (the part of the screw inside the bone) should be at least 1:1. Poggio et al.\(^\text{35–36}\) recommend lengths of 6 to 8 mm. Costa\(^\text{24,25}\) suggests reducing bleeding.

A cork would seal a bottle, thus seals the perforation wound, as infections. The cone shape also assists to penetrate, thus preventing more difficult for micro-organisms to access point for micro-organisms, posing the risk of peri-mucositis, thus not new at all. The idea was conceived more than 75 years ago. Of all forms of skeletal anchorage, the mini-implant is the most universally used and is the most suitable for routine use. However, before practitioners can select the most appropriate miniscrew for use in their practice from the large range on offer, they will need to review the literature thoroughly.\(^\text{10}\)

Conclusions

The screw head should be very small and compact, to ensure that the patient experiences minimal discomfort. However, it must be large enough for the coupling elements to be securely fastened to it (Figs. 1.9).

The transgingival portion, also known as the gingival neck, is the most vulnerable part of an implant or a miniscrew. Perforation of the gingiva provides a potential access point for micro-organisms, posing the risk of peri-mucositis or peri-implantitis. This is one of the main causes of the premature loss of miniscrews.\(^\text{27–28}\)

During the immediate post-operative phase, the mucosa should be as close as possible to the screw, to seal the area.\(^\text{29}\) The most advantageous shape transgingival collum is that of a cone, as this shape naturally results in safe sealing without a pressure zone. This makes it more difficult for micro-organisms to penetrate, thus preventing infections. The cone shape also seals the perforation wound, as a cork would seal a bottle, thus reducing bleeding.

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Some suppliers have a special head variant for each potential application in their range, such as:

- hook tops;
- ball-shaped heads;
- eyelets;
- simple slots;
- cross-shaped slots; and
- universal heads (Figs. 1.5).

The transgingival portion, also known as the gingival neck, is the most vulnerable part of an implant or a miniscrew. Perforation of the gingiva provides a potential access point for micro-organisms, posing the risk of peri-mucositis or peri-implantitis. This is one of the main causes of the premature loss of miniscrews.\(^\text{27–28}\)

During the immediate post-operative phase, the mucosa should be as close as possible to the screw, to seal the area.\(^\text{29}\) The most advantageous shape transgingival collum is that of a cone, as this shape naturally results in safe sealing without a pressure zone. This makes it more difficult for micro-organisms to penetrate, thus preventing infections. The cone shape also seals the perforation wound, as a cork would seal a bottle, thus reducing bleeding.

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The screw head should be very small and compact, to ensure that the patient experiences minimal discomfort. However, it must be large enough for the coupling elements to be securely fastened to it (Figs. 1.9).

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SONY ERICCSON Xperia X1

Claudia Sabizewitz

Mobile phones are no longer simply just devices that enable us to communicate with one another. Nowadays, the majority of users expect their handsets to be a fully functioning mobile office. And with the success of a certain fruity brands design classic, it was only a matter of time before the big names of the mobile world started introducing their respective all-rounders.

In September ’08, Sony Ericsson launched its new multimedia Xperta X1 mobile phone at the London Design Festival 2008. The Xperta X1 is Sony Ericsson’s response to the growing demand for a premium, converged multimedia experience on the mobile phone and the first product in its new sub-brand Xperta. With user and usability at the heart of the concept, the handset includes several developments on Sony Ericsson’s established formula of phone design.

The phone features a 5-inch WVGA screen, the highest resolution screen on the market in Europe and North America at the moment. For those who prefer to push buttons over tap screens, the X1 features a slide-out full QWERTY keypad, while a touch screen option is also available. The phone is equipped with Turbo 5G internet access for a hassle free online performance.

The new user interface is probably the most interesting feature. Rather than having a fixed screen of applications the X1 allows the user to choose which applications appear on the screen of the phone by selecting up to nine interactive panels.

All in all, the new handset is an elegantly designed phone, supported by a powerful multimedia ecosystem inside. The X1 makes working on the go a real possibility and may therefore be the next step in replacing the work computer.

For more information log-on to: www.sonyericsson.com.

Sony Ericsson Xperia X1 specifications & features

App: Win 4.0, 5.0, 6.5, 7.0, 8.0, 9.0, 9.1, 9.2

Battery: Sony Ericsson 1250 mAh battery, 900 mAh battery, 800 mAh battery, 1200 mAh and 1300 mAh, 900 mAh battery features, 1400 mAh battery, 1200 mAh battery, 1300 mAh battery, 1400 mAh battery, 1500 mAh battery, 1600 mAh battery, 1700 mAh battery, 1800 mAh battery, 1900 mAh battery, 2000 mAh battery, 2100 mAh battery, 2200 mAh battery, 2300 mAh battery, 2400 mAh battery, 2500 mAh battery, 2600 mAh battery, 2700 mAh battery, 2800 mAh battery, 2900 mAh battery, 3000 mAh battery, 3100 mAh battery, 3200 mAh battery, 3300 mAh battery, 3400 mAh battery, 3500 mAh battery, 3600 mAh battery, 3700 mAh battery, 3800 mAh battery, 3900 mAh battery, 4000 mAh battery, 4100 mAh battery, 4200 mAh battery, 4300 mAh battery, 4400 mAh battery, 4500 mAh battery, 4600 mAh battery, 4700 mAh battery, 4800 mAh battery, 4900 mAh battery, 5000 mAh battery, 5100 mAh battery, 5200 mAh battery, 5300 mAh battery, 5400 mAh battery, 5500 mAh battery, 5600 mAh battery, 5700 mAh battery, 5800 mAh battery, 5900 mAh battery, 6000 mAh battery, 6100 mAh battery, 6200 mAh battery, 6300 mAh battery, 6400 mAh battery, 6500 mAh battery, 6600 mAh battery, 6700 mAh battery, 6800 mAh battery, 6900 mAh battery, 7000 mAh battery, 7100 mAh battery, 7200 mAh battery, 7300 mAh battery, 7400 mAh battery, 7500 mAh battery, 7600 mAh battery, 7700 mAh battery, 7800 mAh battery, 7900 mAh battery, 8000 mAh battery, 8100 mAh battery, 8200 mAh battery, 8300 mAh battery, 8400 mAh battery, 8500 mAh battery, 8600 mAh battery, 8700 mAh battery, 8800 mAh battery, 8900 mAh battery, 9000 mAh battery, 9100 mAh battery, 9200 mAh battery, 9300 mAh battery, 9400 mAh battery, 9500 mAh battery, 9600 mAh battery, 9700 mAh battery, 9800 mAh battery, 9900 mAh battery, 10000 mAh battery, 10100 mAh battery, 10200 mAh battery, 10300 mAh battery, 10400 mAh battery, 10500 mAh battery, 10600 mAh battery, 10700 mAh battery, 10800 mAh battery, 10900 mAh battery, 11000 mAh battery, 11100 mAh battery, 11200 mAh battery, 11300 mAh battery, 11400 mAh battery, 11500 mAh battery, 11600 mAh battery, 11700 mAh battery, 11800 mAh battery, 11900 mAh battery, 12000 mAh battery, 12100 mAh battery, 12200 mArt

ART

ART ASIA, a premier international Asian contemporary art fair is making its debut in June at the Rhine Art District in Basel in Switzerland. The exhibition aims to bring the best of Asian contemporary art from established and emerging artists to the forefront of the global art market. Sales at ART ASIA were consistently high last year in Miami despite low expectations from exhibitors. An early painting by Japanese artist Yoshitomo Nara, for example, sold for US$120,000 to a German collector, and Ma Bozhong’s monumental painting Little Shop of Horrors (2000), featured at ART ASIA’s entrance and recently on view at the Shanghai Biennial, sold for over a US$1 million.

8 to 14 June 2009, www.artasiafair.com

TECHNOLOGY

Porsche recently presented the innovative interior concept of the company’s fourth model series. Upon its introduction on 12 September 2009 in Germany, the Panamera will be available in top versions with a V8-power unit and luxury features. Boasting a centre console leading from the dashboard to the rear seats, Porsche’s four-door Gran Turismo offers a novel feeling of space and driving quality in all four seats.

www.porsche.com/pap

FASHION

The virtuous haute couture designer, Christian Lacroix, who is known for defining the look of the 1980s with its bright colours and extravagant embellishments, presents his splendid costume design work of 20 years for the ballet, theatre, and opera in an exclusive exhibition at the National Museum of Singapore. In Asia for the first time, 80 spectacular costumes and 60 sketches from the collection of the Centre National du Costume de Scène (National Costume Centre, Moulins, France) from Lacroix himself will take the stage at the National Museum of Singapore from March to June 2009. Lacroix’s inspiration for productions such as Carmen, Galile Parisisienne, Othello, Cosi Fan Tutte, and Pdrdre is eclectic, drawing from a wide variety of sources, and at once historical and modern. A knowledgeable and mischievous storyteller, through the splendid costumes Lacroix tells of tales of love and hate, and the dramas of comedy and tragedies.

20 March to 7 June, www.nationalmuseum.sg

DESIGN

The Sharky Tea Infuser concept by designer Pablo Matteotta from Argentina is probably the most brilliant tea-infuser ever envisaged. It is a floating tea-infuser that looks like a shark fin marauding through the dangerous waters of your teacup that releases clouds of steaming tea suspiciously like the aftermath of a shark attack.

www.designboom.com