

# today



**Inside today**

You will find an overview about the UAE International Dental Conference & Arab Dental Exhibition—AEEDC 2014, new developments and trends in the world of dentistry as well as information on dental products and the industry.

»Page 2



**Interview**

Planmeca has recently made a significant equity investment in the US-based high-tech medical device company E4D Technologies. Vice-president at the Planmeca Group and acting CEO for E4D Technologies Tuomas Lokki sheds light on this new venture.

»Page 24



**Dental products in focus**

The UAE International Dental Conference & Arab Dental Exhibition—AEEDC 2014 will be an excellent opportunity to see the most up-to-date technologies and achievements in the field of dental medicine.

»Page 26

## Science and technology for dentistry

Eighteenth edition of UAE International Dental Conference and Arab Dental Exhibition being held in Dubai

■ The emirate of Dubai has again become the centre of the international dental community with the start of the next edition of the UAE International Dental Conference and Arab Dental Exhibition (AEEDC) this week at the Dubai International Convention and Exhibition Centre for dental professionals from around the world. Held under the patronage of Sheikh Hamdan bin Rashid al-Maktoum, Deputy Ruler of Dubai, the event is not only the largest gathering of dental participants in the MENASA region, but also the most prominent showcase of the latest in science, technology and products for dentistry.



This year, the international show is being held in Dubai for the 18<sup>th</sup> time. According to the latest estimates, over 600 dealers and manufacturers from the region and abroad have registered for the

global dental exhibition. Among innovations such as new and improved dental materials and equipment, a vast number of advanced digital solutions are on display, which were developed to improve the workflow and communication

between dental practices and laboratories for the benefit of patients.

Current issues and methods in dentistry will be discussed during

the conference, which will see clinical presentations by more than 130 local and internationally well-known speakers. A number of specialised courses were offered again this year prior to the congress as part of the Dubai World Dental

Meeting. In addition, a student competition will be held among participants from universities in the United Arab Emirates, Saudi Arabia, Libya, Egypt, Oman, Yemen and Russia. Awards will be given for research and other contributions to oral health, as well as for best booth design and activities, among other categories.

“AEEDC Dubai 2014 will yet again supersede its previous

records and achievements by delivering another outstanding event,” AEEDC Executive Chairman Dr Abdul Salam al-Madani said. “On behalf of the organisers of AEEDC Dubai and its team members, I would like to extend a warm welcome to all members of the oral health community and encourage them to seize this opportunity and benefit from the latest advancements in dentistry.”

The conference and exhibition are being held from 4–6 February. A part of the Global Scientific Dental Alliance and World Dental Exhibitions Alliance, the event is organised by INDEX Conferences and Exhibitions in partnership with the Dubai Health Authority annually. Last year’s edition attracted more than 30,000 dental professionals from the Middle East and abroad, according to INDEX figures. ◀

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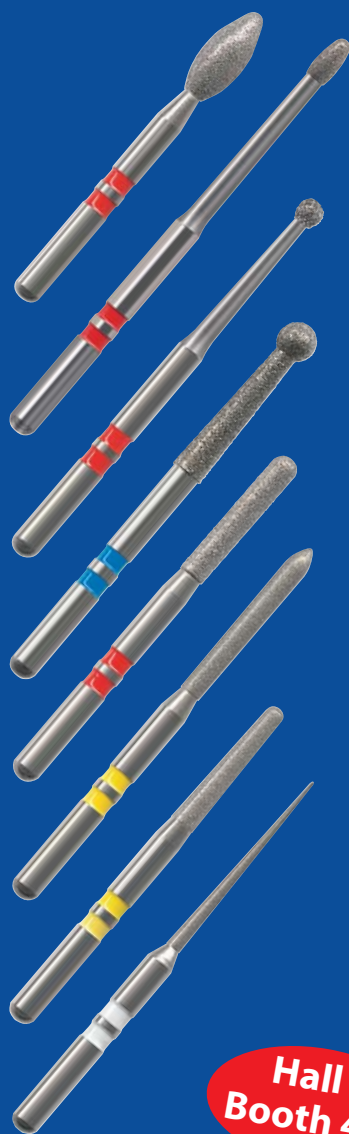


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# “Improvements in the oral health of Arab nations are definitely needed”

An interview with Prof. Manal A. Awad

At the upcoming AEEDC Dubai, Prof. Manal A. Awad from the University of Sharjah's College of Dentistry in the United Arab Emirates will be holding a presentation on the relationship between the body mass index and periodontitis in diabetic patients. In this short interview, she gives new insight into the state of oral health in Arab countries, and why more research is needed to address oral health care needs.

**Today international: Prof. Awad, how would you generally describe the state of oral health in the Arab world right now, and what are the most common features most countries share?**

Cultural values appear to have a significant impact on health in general. For example, in the Arab world, loss of teeth is still widely accepted as part of ageing. This should not be the case, especially with the observed increase in life expectancy. Accordingly, raising the public's awareness about oral health and its effect on general health should be highlighted better by health care professionals. Improvements in the oral health of Arab nations are definitely needed.

**What are the main differences with regard to oral health?**

Differences among Arab countries are mainly evident in the utilisation of health care. Financial considerations may have a significant impact on people seeking health care and this is particularly true for oral health care, which is seldom covered by insurance. However, in countries where oral health care is free, it is evident that people are more likely to visit dentists for treatments that could be regarded as more advanced and probably more expensive.

**Living standards have increased in the Arab world in the last decades, at least in most of the Gulf states. In your opinion, has oral health kept up with this development?**

There are known oral health problems, such as the relatively high prevalence of dental caries among children in most Gulf Cooperation Council (GCC) countries. Although there is ample data showing the extent of oral health problems among these children, more efforts are needed to reduce the incidence of dental caries in these early age groups. Efforts should include oral health promotion and education of parents and children about proper methods to maintain good oral hygiene.

For effectively reducing the burden of dental caries and periodontal disease, community engagement is very important. Attempts to change people's perceptions about their oral health are essential to produce desired results.

**In a recent literature review you co-authored, it was found that epidemiological data on the prevalence of periodontal disease in most Arab countries is insuffi-**



Prof. Manal A. Awad

**cient, particularly for the adult population. Is this a problem only related to periodontal disease or does this relate to oral health data in general?**

This problem extends to other oral health problems, too. For example, we do not have enough data on the prevalence of dental caries, malocclusion and other oral health problems, especially in the GCC countries. This data are extremely important for policy-makers and stakeholders to plan oral health

**“...community engagement is very important.”**

interventions that could address these problems and reduce the burden of oral health-related problems in these populations. However, research requires financial support, which could be regarded as one of the main obstacles to obtaining population-based data in many Arab countries.

**What can new studies contribute to the improvement of oral health in the Arab world?**

Studies that address oral health needs among adults and elderly groups of patients are important for planning future health care. More research can provide much-needed evidence for policymakers to implement oral health programmes that address those who need them most.

Decisions made based on research conducted in other countries, however, may not provide an accurate picture about outcomes of certain interventions. For example, in planning oral health promotion and education programmes, understanding cultural values, beliefs and social structure in the Arab world is important. Culture-specific values influence patient roles and expectations, and these must be taken into consideration when planning interventions that intend to change people's behaviour to improve their health.

Thank you very much for the interview. «



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# Changes in the oral health workforce: More prevention, public health and leadership

By Dr Jack Dillenberg, USA

■ While great progress has been made in the prevention of dental caries, the global incidence and prevalence of oral diseases has not diminished, especially among children. There are many preventive interventions available, including fluoridation, dental sealants, fluoride varnish, regular dental visits and good oral hygiene that can effectively reduce tooth decay and periodontal disease.

Current research and practice have continued to underscore the continuing lack of oral health maintenance among many groups throughout the world. Unfortunately, the low priority that is placed on oral health among many individuals from diverse cultures continues to affect the universal implementation of these effective and inexpensive measures negatively.

There is increasing evidence to support the association between oral health and systemic or overall health. The association between

periodontal disease and a variety of systemic illnesses continues to emerge and underscores the need for an interdisciplinary approach to address both oral health and general medical care. These numbers are amplified in low-income, disabled and other underserved groups. In the US, federal and state financial support for oral health services for low-income populations and those with complex medical conditions or intellectual disabilities continues to erode.

The ageing of the dentist population, projected retirements and maldistribution of providers coupled with an increasing population support the projections of significant provider shortages in the decades to come. Health professions in general and the dental profession in particular have to recruit, educate and promote a new kind of health provider, one that is community minded, service oriented with leadership skills and committed to interprofessional col-

laboration and utilising innovative technology (such as SMS) to meet the compelling societal needs the health system requires. This includes behavioural health, social determinants of health and population-based health issues, in addition to the traditional dental issues of the past.

So what does this mean for the future of oral health care delivery, the type of systems that should be in place and the type of dentist needed to meet these needs? How will the dental professional workforce have to change to address the health and societal issues affecting health and wellness throughout the world?

The selection of dental school candidates in years past focused on candidates that were analytical and had a strong science background with good hand skills. The anticipated outcome after graduation from dental school was establishing a solo private practice in

the geographic area of their choice. Not much attention was paid to community service or volunteer experience, leadership skills and an understanding of basic public health principles. The current societal needs and demands are changing the skill sets needed for success as a dentist and the practice environment in which dental graduates will find themselves.

Dental school applicants today must have the academic prowess to succeed in the rigorous science courses they will take in dental school, but they must have other critical skills to succeed and flourish. Dental students will now learn to a level of competency, not just productivity; they will treat patients with special needs, collaborate with other health professionals in friendly interprofessional settings, and participate in community-based activities to develop the communication and leadership skills to thrive in an interdisciplinary work environment.

This new culture of health care delivery incorporates prevention and personal responsibility for an individual's health and well-being. The new dentist will have to be comfortable practising in this environment, utilising skills, training and experience reminiscent of the stomatological training of physician-dentists of the past. Dr Norman Gevitz, a historian of the stomatological movement in American dentistry, notes, "Today's dentists need to be more broadly trained in general medicine and public health in order to more effectively respond to the oral and other related health needs of their patients and the larger community." ◀

*This Wednesday, Dr Jack Dillenberg will be presenting a paper during the Dental Education Problems and Solutions Session, which is part of the AEEDC Dubai 2014 scientific programme. He is currently President of Dillenberg & Friends, a health services consulting provider in the US.*

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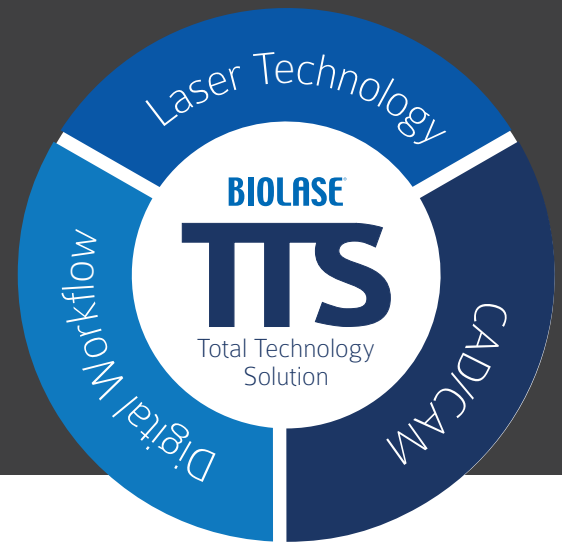
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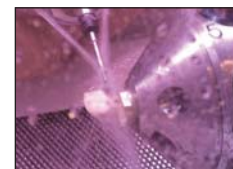
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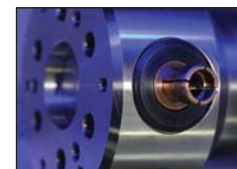


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# Biological and conservative root canal instrumentation with BT-Race file system

By Drs Gilberto Debelian & Martin Trope

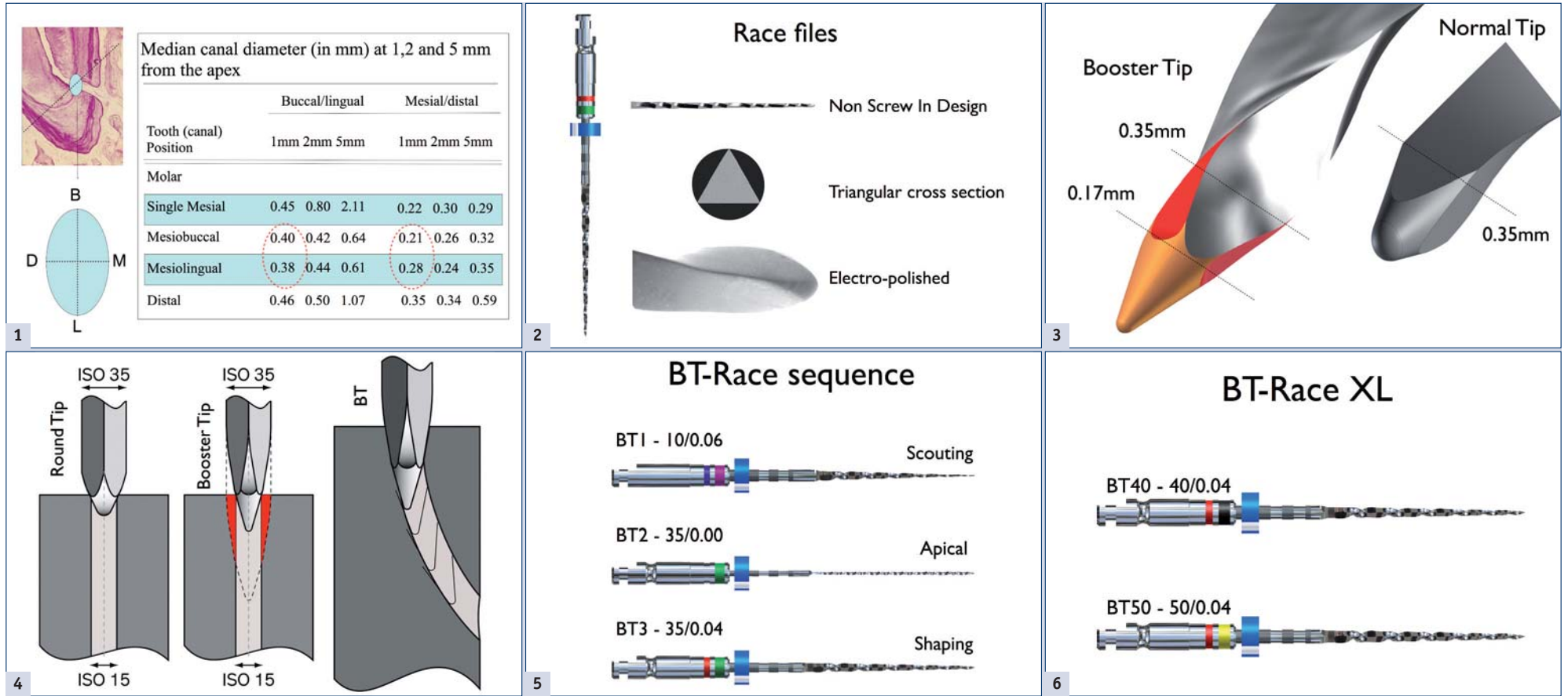


Fig. 1: Median canal diameters. - Fig. 2: Benefits of Race files. - Fig. 3: The BT and normal tip: localisation of the cutting point. - Fig. 4: Efficiency of the normal tip and the BT in the canal: the path of the tip, with a guide. - Fig. 5: BT-Race sequence. - Fig. 6: BT-Race XL for finishes at sizes 40 and 50.

Root canal instrumentation is one of the major tools for ensuring the long-term success of root canal therapy.<sup>1,2</sup> The aim is to mechanically disrupt as much biofilm as possible so that with the addition of irrigants and/or intra-canal medicaments a very low microbial count can consistently be achieved before the filling of the root canal. Another aim or challenge of root canal instrumentation is to achieve the microbial reduction goals mentioned above without unnecessarily weakening the root by over-instrumentation, for example through the reduction of the dentinal wall thickness. Preservation of native structure, especially in the cervical region of the tooth has been demonstrated to correspond to better long-term survivability from a loading and restorative standpoint. It is well established that as the remaining dentine thickness decreases so does the root's resistance to fracture.<sup>3</sup>

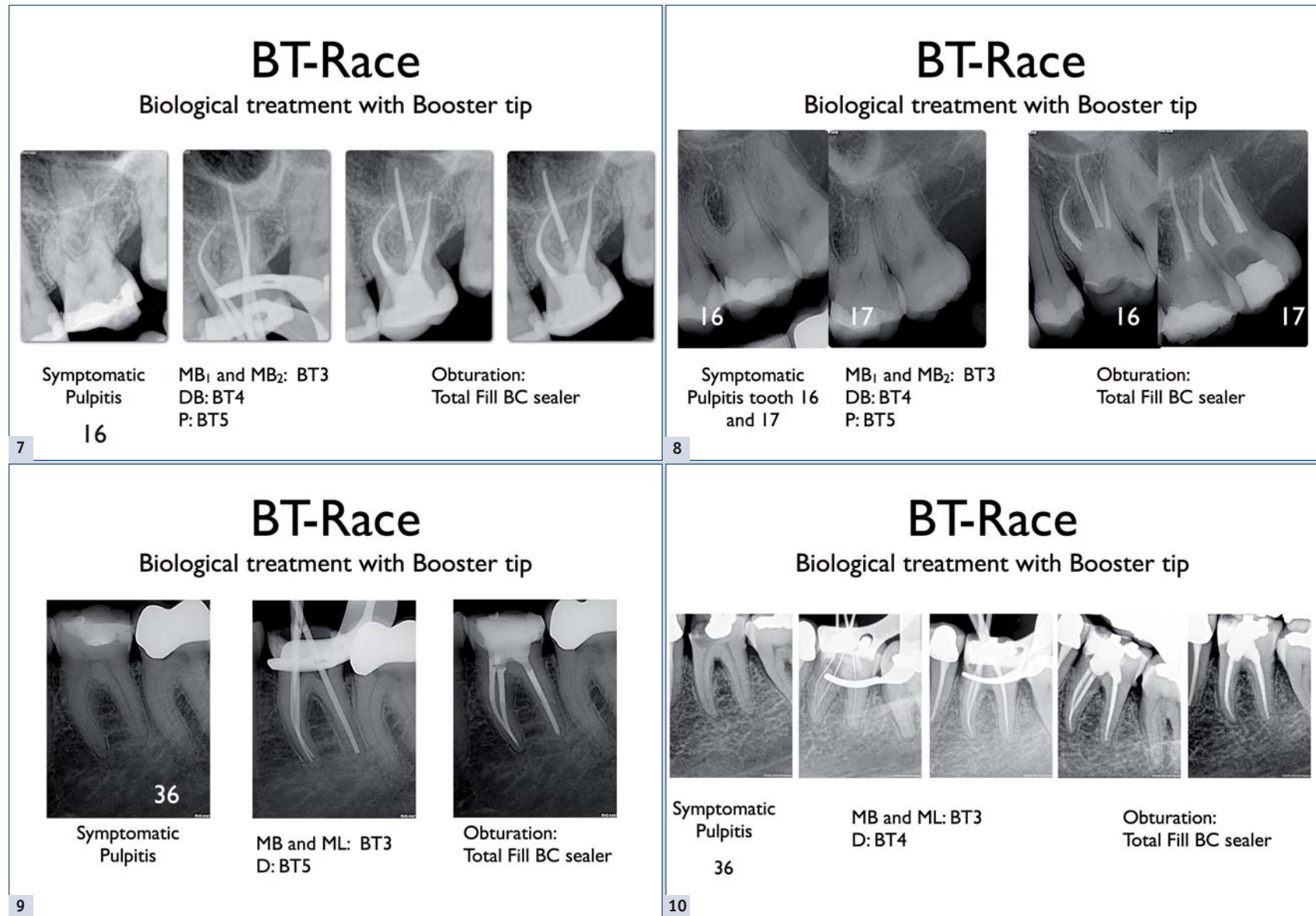
canal, a size 35 would appear adequate on the radiograph (mesiodistal view) but the correct size would be 50.

In order to achieve the goals mentioned above, we should aim for 35, 40 or 50 apical sizes with no more than a 0.04 taper.<sup>4-6</sup> These bi-

ological sizes with the addition of an adequate irrigation protocol will ensure a consistently low microbial count for maximal success.

### BT-Race system

BT-Race files (FKG Dentaire) are sterilised in individual blisters so that sterility is maintained for



Figs. 7-10: Clinical cases. (Courtesy: Dr. Gilberto Debelian, Norway [Fig. 7-9] and Dr. Johan Ulstad, Norway [Fig. 10])

In evaluating anatomical studies, it is striking that they are consistent. Figure 1 best summarises the anatomical aims for a mandibular molar. The mesiobuccal and mesiolingual canals are at the 1 mm measurement from the apical foramen, which corresponds most closely to the dentinocemental junction. In the mesiodistal direction, the diameters are 0.21 and 0.28 mm respectively, thus finishing at a 25 file would appear to be sufficient when viewed on a periapical radiograph, since the mesiodistal direction is what we see on the radiograph. However, when we look in the buccolingual direction, the correct files sizes are between 35 and 40. For the distal



every file. The biological sizes mentioned above can be achieved with three files every time once a glide path has been established. The system was designed in such a way that these sizes are attained with minimal removal of dentine coronally to maintain the strength of the root. Moreover, the Race file has a non-screw-in design and triangular cross-section to increase

#### BT2 (parallel 35 file with BT)

The BT2 file (*Fig. 5*) is used to prepare the apical third of the canal. It is extremely flexible owing to its non-tapered design, yet penetrates into the narrow canal easily and efficiently with the BT.

#### BT3 (35.04 file with BT)

This file (*Fig. 5*) is used to join the coronal and apical preparations created by the BT1 and BT2 files and thus create a 35.04 final

shape that allows maximal irrigation and a tight cone fit. The file is able to go to working length with minimal stress, since the coronal third has been cleared with the BT1 file and the apical third with the BT2 file. Importantly in this canal, the maximum diameter at the 12 mm level is 0.83 mm. Consequently, the removal of coronal dentine is minimal, allowing for the strongest root possible after restoration.

#### BT-Race XL: BT 40 (40.04 file) and BT 50 (50.04 file), 600–800 rpm

These two instruments (*Fig. 6*) enable finishes at ISO 40 and 50 when adequate apical sizes require larger sizes. If even larger apical preparations than ISO 50 are required, the Race range of instruments is recommended in the required sizes, preferably with a small taper of 0.02.

With this unique file system, all canals can be conservatively in-

strumented to the correct biological sizes while maintaining maximum cervical tooth structure. The BT ensures that the original canal shape is maintained, thus keeping even the larger files centred in the canal. Through this advantage, in addition to the minimal taper required to achieve these biological sizes, the canal is maximally cleaned without weakening or stressing the root. ◀



Dr Gilberto Debelian

flexibility and cutting efficiency. It is also electropolished to decrease the effects of torsional and cyclic fatigue (*Fig. 2*).

The Booster Tip (*BT; Fig. 3*) is the key feature of these files however. It allows them to follow curvatures in canals without undue stress on the file or the root. The BT starts as a non-cutting tip from 0–0.15 mm diameter and the cutting edges start from 0.15 mm and upwards on the file (*Fig. 4*).

Essential steps for the successful use of the BT-Race sequence are the following:

#### Glide path

In order to guarantee a minimal number of file breakages, a glide path to size 15.02 is essential. Hand files can usually achieve this aim. However, if a 6 or 10 file is extremely difficult to take to working length, ScoutRace files allow one to achieve this requirement more quickly.

#### Speed of 800–1,000 rpm

A high speed reduces the risk of breakage due to torsional fatigue. As these files are for use with individual patients only, the possibility of breakage from cyclic fatigue is also reduced.

#### BT1 (10.06 file)

This file (*Fig. 5*) establishes the final glide path and determines the coronal diameter. In any canal in which a 15.02 glide path has been established, the file will contact mainly the coronal third of the canal. At 12 mm from the working length, the diameter will be 0.82 mm.

These files have no BT, since the tip diameter is already 0.10 mm and smaller than the glide path established with a 15.02 K-file.

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# “Reach a point where dental restorative materials are rare for everybody”

An interview with Christopher H. Fox, Executive Director of the International Association for Dental Research

■ The adoption of the Minamata Convention in Japan recently made way for a ban on mercury-containing products on a world-wide scale. Provision was also made for phasing down the use of and trade in dental amalgam. Dental Tribune International had the opportunity to speak with the Executive Director of the International Association for Dental Research (IADR), Christopher H. Fox, who attended four of the intergov-

duction of atmospheric emissions of mercury, as well as mercury releases on land and in water.

Dental amalgam is included in the treaty as a mercury-added product contributing to the global demand for mercury. In this regard, it is important to note that the treaty calls for phasing down the use of dental amalgam, as opposed to phasing out or banning the use of it. This will give the

**You were involved in some of the intergovernmental negotiating committee sessions in the run-up to the Convention. What were the most discussed issues in formulating the treaty, and did the outcome meet the expectations of those involved in dentistry?**

The most discussed dental amalgam issue was a ban versus a phase-down. Led by the Responsible Officer for the WHO Global Oral Health Programme, Dr Poul Erik Petersen, a coalition of concerned dental organisations was able to show country negotiators that a ban would be detrimental to population oral health. Dental amalgam is a safe and effective dental restoration and remains the best restorative choice in many clinical situations or health system situations. As with any complex negotiation, the outcome has met many people's expectations, but there are those who would have preferred a phase-out

health effects of the use of dental amalgam.

**Mercury poisoning from amalgam is mostly found in countries where recycling of the material is insufficient. Is this not a more pressing issue that should be addressed globally?**

The proper handling of dental amalgam and its waste must be adhered to by the dental profession and the health facilities in which they work. In addition to the provision in the Minamata Convention calling for best environmental practices, there is a provision calling for dental amalgam to be used only in its encapsulated state. Only some countries require the use of dental amalgam separators and many more dental professional organisations are calling for their universal use.

Even if we were successful with our oral health promotion programmes however and could stop

**IADR-FDI workshop on dental materials. Is there any viable alternative, and what needs to be done to implement and sustain its use in the future?**

The symposium at the recent FDI Annual World Dental Congress in Istanbul was actually a much-condensed summary of a two-day workshop held in December 2012 at King's College London. In brief, yes, we can have much-improved, innovative dental restorative materials, but it is going to take a significant commitment from government funders, academia and industry. Keep in mind that even if a new material could be developed within a one- or two-year time frame, clinical safety and effectiveness trials and regulatory approvals will take significantly more time. Practising dentists have an important role here too, as they can participate in research networks evaluating new materials and identifying research questions, not to mention advocating for



Christopher H. Fox

ernmental negotiating committee sessions on behalf of the dental profession, about the impact this could have on dentistry and the future of dental amalgam as a restorative dental material.

**DTI: The recently adopted Minamata Convention on Mercury includes provisions on phasing down dental amalgam on a global scale. What impact do you think this will have on the dental community and particularly restorative dentistry in the long run?**

**Christopher Fox:** I think it must be first pointed out that the Minamata Convention is a very broad treaty designed to reduce all use of and international trade in mercury, as well as the demand for mercury in products and processes. In addition, it is intended to address the need for the re-

industry and profession time to make a transition and preserve dental restorative choices for our profession and patients.

One of the provisions for phasing down dental amalgam is for countries to set national objectives aimed at dental caries prevention and health promotion, thereby minimising the need for any dental restoration. A greater emphasis on prevention and health promotion is indeed welcome and will provide the greatest benefit to populations.

Another provision promotes research and development of alternative dental restorative materials. So, in the long run, dentistry and restorative dentistry, in particular, will have improved dental restorative materials from which to choose for their patients.

## “The reason for the agreed-upon phase-down is solely the environmental and health effects of mercury in the environment, not the direct health effects of the use of dental amalgam.”

of dental amalgam and those who would have preferred no limitations set on dental amalgam.

Another area of discussion was the need for best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land. Dentistry must be a good steward of the environment and implement best environmental practices for dental amalgam, as well as for all other dental materials, medical waste and consumables.

**You mention that in the dental community amalgam is still considered to be effective and safe. So why phase down its use at all?**

Dental amalgam is a safe and effective restoration. The US National Institute of Dental and Craniofacial Research funded two large-scale randomised clinical trials on the safety of dental amalgam in children and failed to find any adverse health effects. The reason for the agreed-upon phase-down is solely the environmental and health effects of mercury in the environment, not the direct

using dental amalgam tomorrow by the introduction of next-generation dental restorative materials, dental facilities would need dental amalgam separators in place for at least a generation as currently placed dental amalgams come to the end of their life cycle and need to be replaced.

**According to the Convention, a number of products containing mercury will be banned from 2020. Do you believe that amalgam will still play a major role in restorative dentistry by that time?**

Seven years is a short time frame when we are relying on a research and development pipeline to deliver improved dental restorative materials. Without being too pessimistic, a typical research and development time frame from discovery to clinical use in the pharmaceutical arena is 17 years. So, I believe dental amalgam will still be with us in 2020, but I am optimistic it will play a much-reduced role in restorative dentistry.

**Alternatives to mercury-containing dental filling material were discussed last year at an**

research funding with policymakers in their country.

For a more complete answer to your question, I would refer your readers to the proceedings, which have just been published in the November issue of the *Advances in Dental Research*, an e-supplement to the *Journal of Dental Research*.

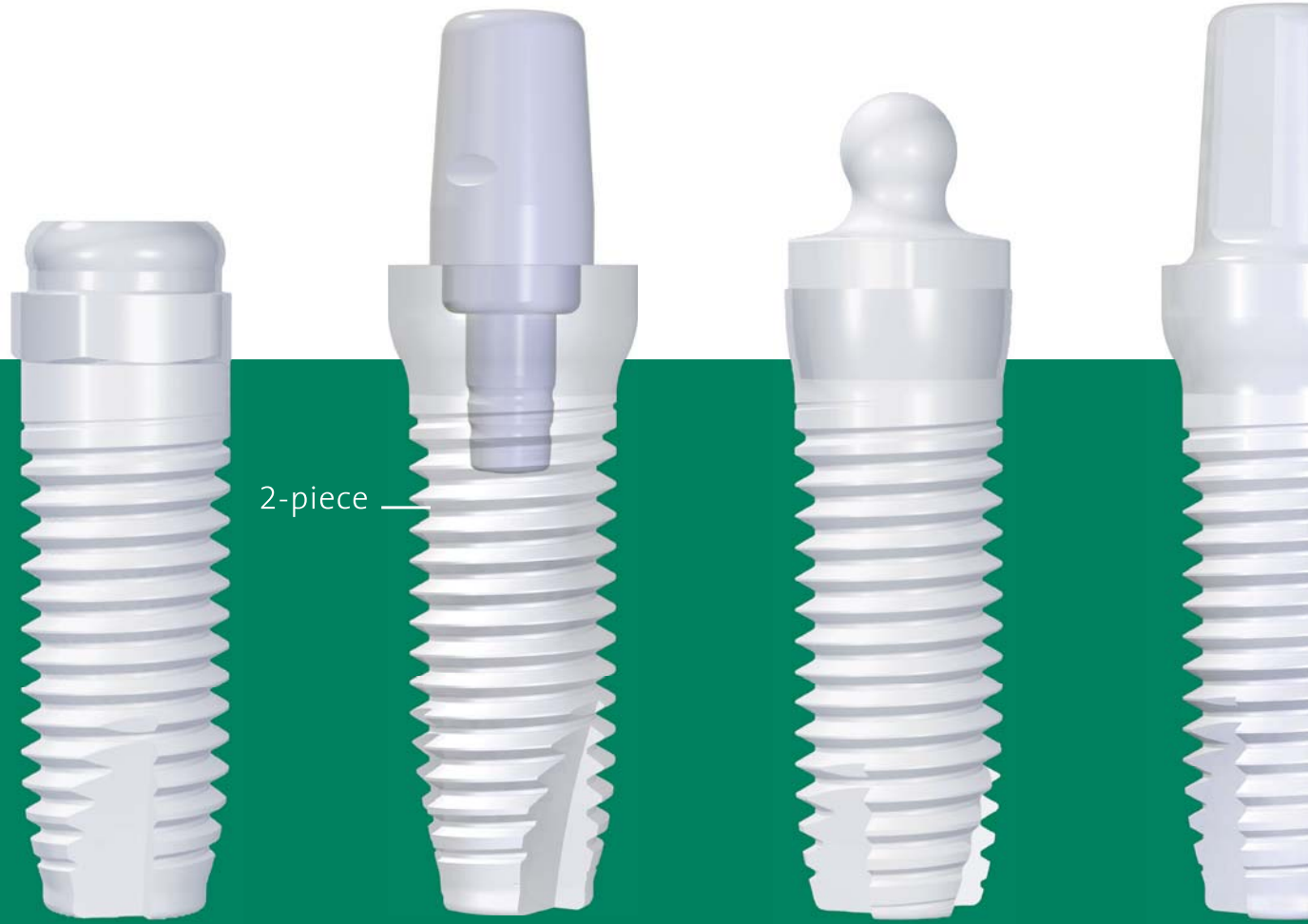
**With the advent of preventive dentistry, stem cell research and the sophistication of tooth replacements, will restorative materials become obsolete someday?**

Dental restorative materials are already obsolete or nearly obsolete for the socially advantaged post-fluoride generation. Our greatest challenge is addressing the oral health needs of socially disadvantaged and vulnerable populations. The IADR has a research agenda to reduce these oral health inequalities across populations and hopefully we will reach a point at which dental restorative materials are rare for everybody.

**Thank you very much for the interview. ◀**



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