

# DENTAL TRIBUNE

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WOHD 2016

## PDA, Shield & Dental Tribune join hands to reach over 25,000 patients



World Oral  
Health Day  
20 March 2016

It all starts here  
Healthy mouth. Healthy body

DT Pakistan Report

**K**ARACHI - World Oral Health Day (WOHD) is celebrated each year on March 20 to highlight the benefits of a healthy mouth and to create worldwide awareness of the issues concerning oral health and oral hygiene among all and sundry, whether old and young.

Though the oral diseases affect 90 per cent of the world's population in their lifetime, many of them could be prevented with increased support of government, health associations and the society at large, and with the funding required for prevention, detection and treatment of such

ailments.

"It all starts here, Healthy mouth, Healthy body" is the theme of 2016 World Oral Health Day. Dental News a JV partner of Dental Tribune in Pakistan in collaboration with Pakistan Dental Association (PDA) launched a major campaign aimed at popularizing the WOHD 2016's current year's theme "It all starts here, Healthy mouth, Healthy body" so that people could be apprised about the importance of oral health. The campaign is backed by FDI, JPDA, DTI, FDI partner associations and the local sponsor, Shield Corporation.

World Oral Health Day is celebrated



throughout the world on March 20 and in Pakistan it would be the 6th consecutive year that the Shield Corporation, as part of its CSR activities, has sponsored the mega event. Shield Corporation will be doing 204 schools across Pakistan in April to create awareness among schoolchildren as part of its commitment to serve the community. In Pakistan, Shield Corporation Ltd. has been working in the sphere of oral cancer for over 30 years and like previous years, Shield® again joined

hands with the internationally celebrated "World Oral Health Day" to highlight the importance of oral hygiene and to offer the dental and oral health community an action platform so as to help reduce the global oral disease burden.

As more than 90 per cent of all dental diseases go untreated, Pakistan has a long way to go before it can truly celebrate 'healthy smiles'. Almost every Pakistani has or will suffer from oral disease in their lifetime, ranging

*Continued on page 04*

### 2,775 DRUGS REGISTERED IN 2015

## Drap vows to clear 7,500 pending cases by October

By Our Staff Reporter

**K**ARACHI- Drug Regulatory Authority of Pakistan's (Drap) chief executive officer (CEO) Dr Muhammad Aslam has vowed that all the 7,500 pending cases of drugs registration will be cleared during the current year. The Drap has, however, registered 1,900 medicines during 2014 and 2,775 medicines in 2015, he added. Giving details of the pending cases, Drap chief said that of the total 7,500 drug registration cases, 3,500 cases belonged to the period ranging between 2010 and 2015, while remaining 4,000 cases have been pending due to some technical reasons such as incomplete documents or non-payment of registration fees, etc.

According to a press release, the Drap had fixed the timeframe of 30 days to clear such cases and that all these cases would be registered by October this year.

A mechanism had been evolved to maintain transparency in registration of drugs and two meetings will be convened every month to study



the cases, the press release quoted Dr Aslam as saying.

"In fact, drugs registration cases kept on piling up as previously only few meetings used to be convened in a year," he added.

He said that of the 700 pharmaceutical companies registered with Drap, 24 are multinationals. He said that under the reforms transformation strategy, the authority had been focusing on four

aspects which include registration, licensing, quality control and price control of medicines, besides an international standard of registration was being developed in the country to make it on par with the standard of WHO-specific format, called Committee on Trade and Development (CTD).

Under the Drap's new reforms policy, senior-level officers such as chairman and secretary would be the signing authority for registration as against the past practice when a section officer used to be the signing authority, he said, adding that there would be an international standard accredited central drug-testing laboratory, while laboratories would also start working at provincial level.

He said these laboratories would be pre-qualified from the WHO in order to improve the credibility of these labs.

He said that a federal drug surveillance laboratory would soon start functioning under WHO assessment scheme and Drap would observe gaps and potentials, while its transparency would be checked by the WHO. *Continued on page 14*



# The new model of periodontal disease

DT International

By Richard H. Nagelberg, DDS

**P**olymicrobial Synergy and Dysbiosis (PSD) is the word salad that the new model of periodontal disease is called as revealed by research. Let's consume this salad.

**Polymicrobial is self-explanatory;** i.e., a community of different microbes. Synergy is a term used in many different settings. In business, it can be defined as the increased effectiveness that results when two or more people or businesses work together. The definition in the context of PSD is actually very similar. Synergy in this case refers to the coordinated action of oral bacteria promoting

inflammation and periodontal disease. A homeostatic (nondysbiotic) balance of bacteria promotes healthy gums. In this current model of periodontal disease, bacteria such as Porphyromonas gingivalis are called perio pathogens. In the new model of periodontal disease development and progression, P. gingivalis is called a keystone pathogen. This is not just a matter of verbiage, as you will see. It should be borne in mind that the current model of

*Polymicrobial Synergy and Dysbiosis (PSD) is the word salad that the new model of periodontal disease is called as revealed by research*



inflammation and bacterial survival. The term further explains that the coordinated action of the community of microbes is exponentially greater than it would be if the individual microbial species were working separately, and not in a good way. It's all about the increased virulence of the synergistic oral bacteria, and how damage is ramped up when they work together.

**Dysbiosis** is an imbalance in the abundance or influence of a microbial community. A dysbiotic state promotes

periodontal disease also involves a polymicrobial dysbiotic bacterial community. The current model indicates that a predominance of perio pathogens is required for disease development, which is a dysbiotic state. There are, however, fundamental and critically important differences in the current and new, emerging understanding of periodontal disease. The differences are critically important in a variety of ways.

## Neutrophil and cancer cell ‘crosstalk’ underlies oral cancer metastasis

DT International Canada

**A**n abnormal immune response or “feedback loop” could very well be the underlying cause of metastases in oral cancers, according to Dr. Marco Magalhaes, assistant professor at the University of Toronto’s Faculty of Dentistry and lead researcher in a study published in the journal Cancer Immunology Research. Magalhaes has unearthed a significant connection between the inflammatory response of a very specific form of immune cells, neutrophils, and the spread of this deadly disease.

“There’s a unique inflammatory response with oral cancers,” explains Magalhaes, citing the growing body of evidence between cellular inflammation and cancer, “because the oral cavity is quite unique in the body. A great many things are happening at the same time.”

Magalhaes focused attention on neutrophils, immune cells commonly found in saliva and the oral cavity but not widely researched in relation to oral cancer. Like other immune cells, neutrophils secrete a group of molecules, including TNFα, that regulates how the body responds to inflammation.

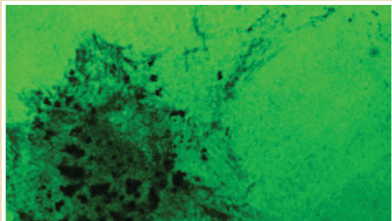
The study noted that oral cancer cells secreted IL8, another inflammatory mediator, which activates neutrophils, effectively establishing a massive immune-response buildup or “feedback loop.”

Ultimately, the researchers found, the immune-response loop resulted in increased invasive structures known as “invadopodia,” used by the cancer cells to invade and metastasize.

“If we understand how the immune system interacts with the cancer, we can modulate the immune response to acquire an anti-cancer response instead of a pro-tumor response,” Magalhaes argues.

While the study points to the possibility of one day creating targeted, personalized immunotherapies for patients with oral cancer that could effectively shut down the abnormal immune response, the team is currently expanding upon their study of inflammation and oral cancer.

Approximately 3,600 cases of oral cancer are diagnosed in Canada every year, yet the survival rates — 50 to 60 percent over five years — have remained stagnant for decades while other cancer survival rates have dramatically improved.



Oral squamous cell is shown invading the extracellular matrix of a healthy cell

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## DENTAL TRIBUNE

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### Publisher/CEO

Syed Hashim A. Hasan  
[hashim@dental-tribune.com.pk](mailto:hashim@dental-tribune.com.pk)

### Editor Clinical Research:

Dr. Inayatullah Padhiar

### Editors Research & Public Health

Prof. Dr. Ayyaz Ali Khan

### Editor - Online

Haseeb Uddin

### Designing & Layouting

Sh. M. Sadiq Ali

### Dental Tribune Pakistan

3rd floor, Mahmood Centre, BC-11, Block-9  
Clifton, Karachi, Pakistan.  
Tel.: +92 21 35378440-2 | Fax: +92 21 35836940  
[www.dental-tribune.com.pk](http://www.dental-tribune.com.pk)  
[info@dental-tribune.com.pk](mailto:info@dental-tribune.com.pk)

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### International Imprint

#### Group Editor

**Daniel Zimmermann**

[newsroom@dental-tribune.com](mailto:newsroom@dental-tribune.com)

Tel.: +44 161 112 1830

#### Clinical Editor

**Magda Wojtkiewicz**

#### Online Editors/Social Media Manager

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**Kristin Hübner**

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#### Executive Producer

**Gernot Meyer**

#### Advertising Disposition

**Marius Mezger**

#### Dental Tribune International

Holbeinstr. 29, 04229 Leipzig, Germany

Tel.: +49 341 48 474 302 | Fax: +49 341 48 474 173

[info@dental-tribune.com](mailto:info@dental-tribune.com) | [www.dental-tribune.com](http://www.dental-tribune.com)

#### Regional Offices

##### Asia Pacific

Dental Tribune Asia Pacific Limited

Room A, 20/F, Harvard Commercial Building,

105-111 Thomson Road, Wanchai, Hong Kong

Tel.: +852 3113 6177 | Fax: +852 3113 6199

##### The Americas

Tribune America, LLC

116 West 23rd Street, Ste. 500, New York, N.Y.

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# Study explores dentists' views on teledentistry



Teledentistry, which was first used by the US military to treat troops stationed far from dental specialists, could provide a means to improve access at low cost for people in need.

DT International

PERTH, Australia: Although teledentistry has shown to be a valuable addition to regular dental services in pilot programmes in remote and underserved areas, many dental professionals still have uncertainties regarding the implementation of an efficient teledental system in daily practice, an Australian study has found.

Teledental programmes hold the promise of providing underserved and low-income patients with affordable dental care and thereby reducing financial burdens through preventive care. The concept provides that specially trained hygienists and assistants consult via the Internet with their supervising dentists and might perform basic treatments that would normally be outside of their official scope of practice.

In order to explore dental practitioners' perceptions of the usefulness of teledentistry in improving dental practice and patient outcomes, researchers from the University of Western Australia surveyed 135

Australian dentists in an online questionnaire.

In the survey, dental practitioners' perceptions regarding teledental services were polled in four categories, namely the usefulness of teledentistry for patients, the usefulness of teledentistry for dental practice, the capability of teledentistry to improve practice, and perceived concerns about the use of teledentistry.

More than 80 per cent of the participants agreed that teledentistry would improve dental practice through enhancing communication with peers, guidance and referral of new patients. The majority also felt that teledentistry would be useful in improving patient management and increasing patient satisfaction. However, a substantial proportion of the respondents also expressed reservations towards telemedicine in routine practice, including uncertainty regarding technical reliability, privacy issues, practice expenses, as well as medical issues, such as surgery time and diagnostic accuracy.

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# Teeth may predict human evolution



Dr Alistair Evans examines a range of hominin skull casts that were included in the study

DT International

MELBOURNE, Australia: Variation in tooth sizes in humans has been primarily attributed to natural selection and dietary changes over the centuries. However, the underlying mechanisms of these changes have not been fully understood to date. Researchers have now found that relative tooth size in mammals follows a simple rule. Using the rule, scientists can predict the sizes of teeth missing from human fossils and extinct hominins, and provide clues about future evolution of human dentition.

The study was conducted by an international team of anthropologists and developmental biologists from Finland, Germany, the UK and the US, and led by Dr Alistair Evans from Monash University's School of Biological Sciences in Australia. In order to examine the evolution of the proportions of human teeth, the team used a new extensive database on fossil hominins and modern humans collected over several decades, as well as high-resolution 3-D imaging technology.

They found that the inhibitory

cascade, a mathematical model for interpreting relative tooth size, produces the default pattern of tooth size for all lower primary post-canines in hominins. "On the basis of the relationship of inhibitory cascade patterning with size, we can use the size at one tooth position to predict the sizes of the remaining four primary postcanine teeth in the row for hominins," they explained.

The findings of the study can be used to interpret hominin fossil finds and look into possible drivers of human evolution. "Sometimes we find only a few teeth in a fossil. With our new insight, we can reliably estimate how big the missing teeth were. The early hominin *Ardipithecus* is a good example—the second milk molar has never been found, but we can now predict how big it was," Evans said.

"Our new study shows that the pattern is a lot simpler than we first thought—human evolution was much more limited," he concluded.

The study, titled "A simple rule governs the evolution and development of hominin tooth size", was published online on 24 February in the *Nature* journal.

PDA, Shield & Dental Tribune....  
Continued from front Page

from gum disease and tooth decay to oral cancer. Only 20pc of the country's population enjoys access to oral healthcare; 50pc of school children have dental carries, while Oral Cancer is, unfortunately, the second most common cancer in the country.

Keeping in view the disturbing scenario vis-à-vis the oral health issues in Pakistan, Shield® in collaboration with Dental Tribune, the widely-read monthly magazine that had been providing instant coverage to the events taking place in the field of dentistry and carrying the most revealing stories for over a decade, reiterate its commitment of bringing out a positive change in the population's oral health by actively participating in PDA's activities.

This year's programme that includes 17 cities and 60 locations all over Pakistan - courtesy Shield Corporation and PDA - is the biggest-ever activity of its kind undertaken in the country. The sponsors also arranged free checkup of school children in various cities of Pakistan, besides launching extensive print and electronic media campaigns and the sole objective of all such activities is to create awareness about oral health among the masses.

The activities in Pakistan began with school programmes on March 7. It was followed by a press conference where PDA officials highlighted Pakistan's oral health issues.

A walk was organized by Liaquat University of Medical and Health Sciences in Hyderabad and it was followed by a well-attended symposium held to create awareness about oral health issues. At a free checkup camp organized on March 21, patients were taught correct brushing techniques and were given a tooth brush and paste free of any charge.

The participating institutions included Altamash Institute of Dental Medicine, Bahria University, Baqai Medical & Dental University, Bibi Asefa Dental College, Bhitai Dental & Medical College & Hospital, Dr. Khalid Dental Surgery, Sukkur; Civil Hospital Hyderabad, Dow International Dental College, Dr Ishrat-ul-Ebad Khan Institute of Oral Health Sciences, Dow Dental College, Fatima Jinnah Dental College, Hamdard University Dental Hospital, Isra University, Jinnah Medical & Dental College, Jinnah Sindh Medical University, Karachi Medical & Dental College, Liaquat College of Medicine & Dentistry, Liaquat University of Medical & Health Sciences, Madina Medical Centre, Bin Qasim, Sir Syed Dental

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Dental Tribune which spearheaded and initiated the World Oral Health Day in Pakistan with its sponsor - Shield Corporation - in 2010, has been working tirelessly to create oral health awareness across Pakistan and enjoying continued support from dental institutions in organizing free OPDs to mark the WOHD 2016.



new



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# Technological innovation in professional home bleaching: The ENA White 2.0 system in only 2 minutes per day without tray

DT International  
By Dr Luigi Leonardi, Italia

The desire for whiter teeth has considerably increased in the last few years. The demand for tooth bleaching as a cosmetic treatment is increasing more and more, despite the recession, which only marginally affected aesthetics and cosmetics.

Nowadays, we live in a world where appearance is extremely important in any field; according to independent studies conducted for the American Association of Cosmetic Dentistry:

- 99.7 % of Americans are convinced that a bright smile is an important social factor;
- 96 % of adults are convinced that an unpleasant smile may have a negative influence on career opportunities;
- 74 % of adults think that an unpleasant smile may have a negative influence on career opportunities. We are also aware that the desire of having a bright smile with white teeth has existed for centuries, but the research in this sector has only stepped notably forward during the past few decades.

We are also aware that the desire of having a bright smile with white teeth has existed for centuries, but the research in this sector has only stepped notably forward during the past few decades.

This happened especially at the end of '80s, thanks to Dr Eyneman and Dr Aiwood,[1-4] who conceived the idea of home bleaching treatment with the use of the well-known bleaching trays, customized or not, adequately filled with low-percentage hydrogen peroxide and worn for some hours a day or even all night long.

Afterwards, the companies of the dental field worked hard to improve these procedures, such as designing pre-filled trays or changing the flavour of the gel. The method is substantially the same, only the percentage of hydrogen peroxide (also available as carbamide peroxide) may vary from 10 % to 30 %.[6,7] This influenced the contact period, which is at least from a couple of hours a day (for percentages that are only allowed for cosmetic bleaching) to all night long. All of them start from a single assumption: the bleaching action of peroxide needs a variable contact period to penetrate through the enamel prisms and the dentinal tubules, releasing active oxygen and allowing the free radicals to attack the chromophobe particles and reach the



Fig. 1: Bleaching system ENA White 2.0: toothbrush with dispenser containing hydrogen peroxide bleaching gel with special activator XS 151, which increases its absorption rate exponentially.



Fig. 2: 30-year-old male patient with discolouration on the central and lateral teeth; shade A3 of VITA shade guide.



Fig. 3a: Unscrew and remove the cap of the toothbrush.



Fig. 3b: Unscrew the toothbrush and remove it from the dispenser.



Fig. 3c: Remove the seal from the base of the toothbrush with tweezers.



Fig. 3d: Screw the toothbrush again.



Fig. 3e: Rotate the ring anti-clockwise towards the direction 'UP' until the gel comes out from the hole among the bristles.



Fig. 3f: It is necessary to use a small lentil-sized dose of the gel.



Fig. 3g: The patient must brush the teeth to be bleached for about 30 seconds with horizontal movements, avoiding contact with the gums as much as possible.



Fig. 3h: Rinse the bristles with running water.



Fig. 3i: Brush again for further 30 seconds and rinse accurately.



Fig. 4: Check after 4 days.



Fig. 5: Check after 7 days.



Fig. 6: Check after 10 days.



Fig. 7: Check after 12 days.

desired effect.[9]

### Materials and methods

After years of attempts and experimentations used to improve the current methods and the result, I have managed to refine a new method, making it easy and above all reducing the daily duration of the treatment to only two minutes instead of 6-8 hours of the traditional cosmetic home bleaching: I have optimised the method in an extreme way.

After several tests, I deduced that

peroxide, if activated by a special accelerator (XS 151) could penetrate in a faster way, exploiting the action of mechanical pressure generated by a special toothbrush with nozzle-doser and a dispenser filled with this special bleaching substance (Fig. 1). This special bleaching toothbrush has been designed with a smaller head if compared to the most common toothbrushes in order to reduce the contact with oral mucosa. Soft blunted bristles activate the accelerator (XS

151) contained in the gel while brushing and guarantee a faster absorption of the bleaching gel; it also improves the procedure by drastically reducing the application time: from 6-8 hours to two minutes per day! The advantages are amazing, because reducing the contact period means reducing enormously the undesirable effects[8]: inflammation of soft tissues, hypersensitivity, risk of swallowing the gel and so on. There is also an improvement of some





Fig. 8: Check after 16 days



Fig. 9: Check after 21 days.



Fig. 10: Check after 28 days.



Fig. 11: Check after 35 days: the chromaticity at the end of the treatment corresponds to A1 of VITA shade guide.



Fig. 12: A 25-year-old female patient, unsatisfied with a bleaching treatment with tray; initial colour of teeth was A3 of the VITA shade guide



Fig. 13: Check after 10 days: the result corresponds to A2 of the VITA shade guide.



Fig. 14: Check after 21 days: she reached shade A1 of the VITA shade guide.

psychological aspects, due to the need of wearing the tray for hours or all night long[5] with interferences with normal interpersonal relationships both in private life and at work.

The new method, as said before, considers reduced application times of about two minutes per day; it is easy to understand how this can encourage the user to apply tooth bleaching. The average total contact period of the whole treatment is less than one hour (two minutes for 20 days). This corresponds to less than one-fifth of the time that a single application with the tray technique takes, which is currently the most common mode. Furthermore, this special toothbrush with dispenser is extremely easy to carry thanks to its pocket-size and can be used for one minute in the morning and one minute in the evening anywhere, after one's usual oral hygiene routine. The treatment lasts about 15–20 days on average, and this duration is sufficient to obtain an excellent result, achieving a reduction of 1–2 chromes of the VITA shade guide depending on the subject with a minimum commitment. Wherever you want, whenever you want: you can choose the place and time of application, which makes it different from other methods. The here-analysed method respects all the recent UE laws about the use of hydrogen peroxide as a cosmetic bleaching treatment, accepting a maximum percentage of 6 %, specifying that the bleaching kits must be delivered to the user only by the dentist as a professional treatment, after an accurate visit and the evaluation of each single case.

It is also important to underline that advice and protocols are the fundamentals of what has been stated so far. First of all, the dentist must undertake thorough plaque removal, advise the patient about correct oral hygiene use, which means brushing the teeth with adequate toothpastes with special characteristics, for example, the Enamel Plus toothpaste, which has a low abrasion formula and desensitizing action: this enhances and maintains the bleaching effect reached with this system. It is also important to limit the consumption of food with a high acid pH, such as citrus fruit, tomatoes, tea, tobacco etc, in order to preserve the achieved result. We also recommend to: schedule regular visits with your dentist in order to monitor the condition of teeth and mucosa and point out any irritation or inflammation of mucosa[10]; repeat the bleaching treatment regularly to maintain the results, considering that the repetition of this method decreases the undesirable effects thanks to the limited contact period of 1 hour maximum for the whole complete treatment of about 15–20 days, in comparison to the

120–150 hours or more of the traditional bleaching with tray method.

**Comparative analysis with traditional bleaching systems**

We carried out a comparative study performing 20 bleaching treatments in the same period: ten cases were treated according to the traditional technique with tray and 6 % hydrogen peroxide, and the other ten patients with ENA White 2.0. The patients were aged between 25 and 55, and were divided into three age groups.

The first group were treated with bleaching trays and 6 % hydrogen peroxide:

- Five were satisfied with the result;
- Three were not satisfied with the treatment and decided not to extend the treatment of a further 15–20 days;
- Two abandoned the treatment because they considered the application times to be too demanding; they didn't have time to carry out the treatment as it clashed with their hours of working and/or because they felt discomfort and annoyance wearing the tray at night.

The inconveniences reported during the bleaching treatment with tray include the fact that in some cases, it was very difficult or even impossible to keep the tray in the mouth—which has a recommended time of action of several hours or all night—due to illness, for example flu, bronchitis with coughing fits, also with phlegm and colds. This was a further complaint that sometimes contributed to demotivate the user in such a decisive way as to suspend the treatment.

The second group of ten people who used the new system ENA White 2.0 proposed by me:

We could verify the total satisfaction in nine subjects, only one of them was not completely satisfied because he expected a more evident effect and did not want to extend the treatment.

With regard to motivation, all of them showed a huge satisfaction, especially for how the kit had been introduced, considering it as very innovative, handy and with no limits of use.

#### Clinical cases

The case report in the pictures shows a 30-year-old male with an apparently optimal health condition, who was unhappy with the discolouration on the central and upper- and lower-lateral teeth near the cervical area. After an objective examination of the oral cavity, the subject showed a normal gingival biotype, good gingival health and good oral hygiene. For the verification of the initial and final colour (hue and chroma) I used the VITA shade guide, starting from A3 (Fig. 2).

After a session of professional prophylaxis I proposed to the patient the bleaching treatment Ena White 2.0 and advised him to perform it after his oral hygiene routine in the morning and in the evening. When he realised

how easy the system was to use, he immediately accepted the treatment that I explained, as shown in the pictures.

First of all you show the patient how to open the toothbrush by unscrewing the cap (Fig. 3a). Then the head of the brush must be unscrewed too (Fig. 3b) to remove the seal from the base of the toothbrush (Fig. 3c). After screwing the final part of the toothbrush on the dispenser again (Fig. 13d), you must rotate the ring on the base of the toothbrush anti-clockwise towards the direction 'UP' until the bleaching gel comes out (Fig. 13e). For the first application, a couple of rotations are required, until the tube is filled up to the bristles. Explain to the patient that for the following applications it will be sufficient to rotate the ring of 2–3 marks to obtain the needed quantity of gel, like a small lentil, as shown in the picture (Fig. 13f). Show the patient how to proceed with brushing: make a horizontal movement for about 30 seconds (Fig. 13g), avoiding brushing the gums as much as possible; the blunted shape of the bristles helps the patient to avoid this contact, which does not cause irritations anyway, considering the short application period. At this point it is necessary to rinse the toothbrush with water (Fig. 13h) and brush the teeth again for a further 30 seconds (Fig. 13i). In this way the residual gel on the teeth is diluted before the final rinse.

You can notice the evolution of the bleaching action in pictures from Fig. 4 to Fig. 11, where you can appreciate the final result of the treatment after 35 days with a shade corresponding to A1 of VITA shade guide. Halfway through treatment, a lighter chromaticity, almost equal to A2 of VITA shade guide, had been achieved, as shown in Fig. 9.

The second case (No 15 of the statistic table) shows a 25-year-old female patient who was not satisfied with a bleaching treatment performed with a tray six months before, which irritated her gums. With the new treatment, she reported no discomfort and appreciated the result, as you can see in the pictures she changed from shade A3 of VITA shade guide (Fig. 12) to shade A1 (Fig. 14) in about 20 days (after 10 days, the result was already equal to A2 (Fig. 13).

#### Conclusion

Dental discolouration is an important factor of psychological discomfort for the patient, which leads to an increase in cosmetic bleaching requests. The new method explained here makes the bleaching procedure easier, considerably reducing the side effects that can appear with other techniques, thanks to the shorter contact period between gel and tooth.

This method allows to reach very satisfying results and produces a growth in the request of bleaching

*Continued on page 14*





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#### For Any Info Regarding Conference

Dr Shehryar H Siddiqi: 0332-3501727  
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