

Global Periodontal Health: Challenges, priorities and perspectives

World Oral Health Forum 2017 Proceedings

31 August 2017 • Madrid, Spain

Executive Summary

KEY MESSAGES

- Oral health and oral hygiene should be recognized as essential components of a healthy lifestyle
- Periodontal diseases are common inflammatory diseases that share many risk factors with other noncommunicable diseases (NCDs) and can be addressed through the Common Risk Factor Approach (CRFA)
- Awareness of periodontal diseases among the general public, dentists, and other health professionals remains low worldwide
- Global campaigns addressing different audiences can play an instrumental role in increasing awareness and generating interest:
 - A global campaign targeting patients should offer a clear, simple, and positive message emphasizing the benefits of good oral health
 - A global campaign towards dentists should offer a concise message emphasizing the benefits of a more preventive approach for the effective management of periodontitis
 - A global campaign towards the medical profession and the oral health industry should encourage alliances in order to achieve the objectives set in FDI's Global Periodontal Health Project (GPHP)

Global Periodontal Health: Challenges, priorities and perspectives

World Oral Health Forum (WOHF)

THURSDAY 31 AUGUST 2017 • 09:00 – 12:00 • FDI World Dental Congress, Madrid

SPEAKERS & MODERATORS

Lijian Jin
David Herrera
Joerg Meyle
Stefan Renvert

PANELLISTS

Daniele Cardaropoli
Liran Levin
Phoebus Madianos
Juan Blanco-Carrion
Magda Feres
Jean Louis Giovannoli
Stefan Listl
Mariano Sanz
Alexander Tolmeijer

Agenda

Time	Topic	Speaker
09:00–09:10	Introduction	Lijian Jin
09:10–10:00	Why are periodontal diseases important?	
09:10–09:30	Presentation Section 1. Periodontal diseases: definition, classification and diagnosis Section 2. An overview of etiology and pathogenesis of periodontal diseases Section 3. Periodontal diseases as the most prevalent conditions in humans: epidemiology and global burden Section 4. Periodontitis as an infection and inflammation sharing risk factors with other NCDs Section 5. Consequences and impacts of periodontitis	David Herrera
09:30–09:50	Debate Why are periodontal diseases important? (Section 1-5)	Daniele Cardaropoli Liran Levin Phoebus Madianos
09:50–10:00	Summary of the Section Why are periodontal diseases important?	Lijian Jin
10:00–10:50	Are periodontal diseases preventable and treatable?	
10:00–10:20	Presentation Section 6. Prevention of Periodontal diseases Section 7. Treatment of Periodontal diseases	Joerg Meyle
10:20–10:40	Debate Are periodontal diseases preventable and treatable? (Section 6-7)	Juan Blanco-Carrion Magda Feres Jean Louis Giovannoli
10:40–10:50	Summary of the Section Are periodontal diseases preventable and treatable?	Lijian Jin
10:50–11:40	Current problems and recommended actions	
10:50–11:10	Presentation Section 8. Current problems and major challenges of periodontal care Section 9. Proposed recommendations, possible solutions, call for actions and future perspectives Section 10. Action Plan	Stefan Renvert
11:10–11:30	Debate Current problems and recommended actions (Sections 8-10)	Stefan Listl Mariano Sanz Alexander Tolmeijer
11:30–11:40	Summary of the Section Current problems and recommended actions	Lijian Jin
11:40-12:00	Wrap up and conclusions	Moderators & Panellists

Introduction

Periodontitis is closely linked with general health and major NCDs, such as cancer, cardiovascular diseases, and diabetes. Even though it is one of the most common diseases worldwide, it seldom receives the attention it deserves. This consideration has led FDI World Dental Federation (FDI) to launch the GPHP to tackle the burden of periodontal diseases.

This three-year project was officially launched in 2017. Its vision is to achieve global periodontal health; its mission is to reduce the global burden of periodontal diseases. The project involves a global awareness campaign; the development of specialized toolkits for patients, the public, oral healthcare professionals, policymakers and non-governmental agencies; symposia during World Dental Congresses; a World Oral Health Forum; and the production of a white paper and policy statements.

The recent *Perio Focus Green Paper* discusses the impact of the global burden of periodontal diseases on health, nutrition, and wellbeing of mankind and reflects the mission of the GPHP. Originally initiated by the European Federation of Periodontology (EFP), the *Perio Focus Green Paper* has been endorsed by leading international associations of periodontology and 46 national societies of periodontology worldwide¹. It is the first global consensus that identifies actionable preventive, diagnostic, and therapeutic strategies to promote periodontal health, general health, and healthy ageing. As such, it reflects the current strategy of the United Nations (UN), World Health Organization (WHO), and FDI for the prevention and control of NCDs and oral diseases via the CRFA.

To pursue this work, the 2017 World Oral Health Forum (WOHF) was dedicated to periodontal diseases as a part of the ongoing GPHP. Current evidence, trends, and challenges linked to periodontal health and disease were discussed in three subsequent panel sessions. As a result, the draft content of the upcoming FDI white paper on periodontal diseases was reviewed and priorities for the GPHP were set.

Panel 1

Panel 1 focused on the reasons why periodontal diseases are important.

The nature and magnitude of periodontal diseases were briefly summarized, and their political significance, due to their close links with other NCDs, was stressed. The fact that periodontal diseases share several risk factors with other NCDs (e.g. tobacco use and harmful use of alcohol) provides the basis for a common approach to health promotion and disease prevention that offers multiple benefits. It was also noted that bi-directional associations between periodontal diseases and a range of systemic disorders, including diabetes and its complications, poor glycaemic control, cardiovascular disorders, and adverse pregnancy outcomes, have increasingly been discussed over the recent years.

The panel discussion echoed the need to raise periodontal awareness among patients, dentists, and governments to foster a better understanding on the importance of periodontal diseases, their effects, and consequences. The need to shape a simple, positive message focusing on the benefits of good oral health was highlighted, whilst concern was expressed that using technical, dental jargon might deter non-specialists. In short, it was suggested that good oral health and hygiene should be branded as healthy lifestyle behaviours similar to healthy diets and regular physical activity. Finally, the importance to encourage the dental profession to overcome its focus on clinical interventions and to favour proactive prevention and early diagnosis was stressed.

Panel 2

Panel 2 debated the preventability and treatability of periodontal diseases.

Key features of primary and secondary prevention as well as different treatment approaches were discussed. Whilst the aim of primary prevention was defined as inhibiting the development of clinically detectable gingival inflammation or its recurrence, the role of secondary prevention of periodontitis was described as preventing disease recurrence in patients previously treated for periodontitis. As for the aim of periodontal

treatment, it was described as achieving oral/periodontal health — the key target for clinically healthy periodontal sites means no bleeding on probing and shallow residual pockets (<5 mm). There was a consensus over the fact that, to achieve good oral health, prevention cannot be the sole response and in some cases treatment is inherently required to treat the first signs of gingivitis.

Although there was unanimous agreement over the fact that periodontal diseases are preventable and treatable, it was observed that the relatively silent nature of periodontal diseases, a lack of awareness as well as insufficient access to appropriate professional oral care, represented important barriers. Panellists therefore called for improved public and professional education as well as reinforced political advocacy. Further, the need to raise public awareness and to disseminate a positive message for promotion of a healthy lifestyle was highlighted. Finally, the importance to encourage oral healthcare professionals to carry out state-of-the-art periodontal examinations that include probing was emphasized, as was the need to address the expanded role that dentists can play in a holistic healthcare system.

Panel 3

The last panel session focused on current problems and recommended actions.

In the preamble, it was noted that the prevalence of severe periodontitis has not changed since 1990, despite an improvement in the availability of oral health services and a clear shift in public opinion that oral health is essential to quality of life. Socio-economic factors, a lack of awareness about periodontal diseases and how they can be avoided, the fact that periodontitis is still widely perceived as a cosmetic problem rather than a serious health issue, insufficient access to proper care for ageing populations — especially for those living in residential care — were listed as possible factors which can explain this paradox.

Possible actions were identified as follows:

- Engaging with public and oral healthcare professionals, including dental hygienists and other health professionals, to ensure that clear and positive messages about oral health are delivered to a large audience
- Emphasizing the connections between oral and general health, and stressing the value of lifestyle change
- Ensuring that preventive care and health promotion are covered in oral health insurance/services
- Encouraging FDI and medical societies, albeit some of which already recommend routine dental check-ups, to align their global awareness campaigns to reinforce the role of primary prevention in the management of periodontal diseases and other NCDs
- Even though a lack of robust data on periodontal health and periodontal diseases remains a major challenge, the available socio-economic data should be used to raise global awareness

Conclusion

FDI will consider the important issues raised at the 2017 WOHF when finalizing its white paper in time for its implementation in 2018. On behalf of FDI's GPHP Task Team, Prof. Jin sincerely thanked the nine expert panellists and all Forum participants for their valuable contributions to the debate and constructive discussions as well as EMS, GSK, and P&G for their great support to the GPHP.

FDI President's Address

Dr Patrick Hescot, FDI President (2015-2017), warmly welcomed participants to the 2017 WOHF which explored the theme *Global Periodontal Health: Challenges, Priorities and Perspectives*. He noted that since its inception in 2012, the WOHF has become one of the most important fora for debate covering scientific, social, economic, and political aspects of oral health. The aim of the 2017 event was to discuss the global importance of periodontal health, its prevention and treatment, and today's challenges to identify solutions.

Based on the consideration that public knowledge of periodontal health remains low, even though the WHO lists periodontal diseases in the top 20 diseases affecting humanity worldwide, Dr Hescot highlighted the pivotal role dentists can play to enhance public awareness of oral and periodontal health. He noted that FDI was particularly well placed to take a global lead in tackling issues associated with periodontal diseases and as such intends to disseminate and expand current knowledge by providing the public, educators, and policymakers with state-of-the-art information through scientific programmes and events, white papers, and advocacy toolkits.

Dr Hescot also referred to a growing body of evidence supporting associations of periodontal diseases with other systemic diseases and the need to shape initiatives aimed at raising awareness on the existing bi-directional associations between oral/periodontal health and general health. He called upon the audience to engage directly with public health officials and ministries of health to ensure that oral disease, including periodontal diseases, is kept on the agenda of the upcoming UN High-Level Meeting (HLM) on the Prevention and Control of NCDs in September 2018 and that oral disease is specifically mentioned in any outcome document from the HLM as it was in 2011.

Subsequently, the three core aims of the GPHP were summarized as follows:

- To increase global awareness of periodontal health
- To raise the priority of periodontal health through health promotion and disease prevention
- To integrate oral and periodontal health into the general health and NCD agenda for optimal oral and general health

The aim of the 2017 WOHF is to review these issues concerned, so that a white paper, identifying key challenges, guiding strategies, and innovative solutions adapted to the settings, economics, and politics of individual countries, could be developed and finalized by the end of 2017, and then launched in 2018.

Introduction to the 2017 WOHF

Chair

- Professor Lijian Jin, *FDI Council Member and Professor of Periodontology, Faculty of Dentistry, The University of Hong Kong, Hong Kong SAR, China*

Professor Jin started his presentation with a brief overview of the nature and magnitude of periodontal diseases. Referring to the Global Burden of Disease Study (1990 – 2010), he stressed that severe periodontitis is the sixth most prevalent disease among all 291 diseases and disorders investigated, with a global prevalence of 11.2% – equivalent to affecting approximately 743 million people²⁻⁴. He remarked that, over the period under investigation, the global disease burden of periodontal diseases sharply increased by 57%⁵. Prof. Jin discussed the predominant role of uncontrolled periodontitis in severe tooth loss in the adult population and its negative impact on oral functions. Further, he discussed the association of periodontal diseases with general health and major NCDs, such as diabetes and heart disease⁵⁻⁸. Focusing on health economics, Prof. Jin referred to recent studies which indicate that the indirect cost of lost productivity due to severe periodontitis alone amounts to US\$54 billion annually, which accounts for a significant proportion of the estimated US\$442 billion cost of oral diseases in 2010⁹.

He then briefly introduced the recent *Perio Focus Green Paper* on the impact of the global burden of periodontal diseases on health, nutrition, and wellbeing of mankind, which has already been endorsed and supported by the leading international and national associations of periodontology worldwide¹. He remarked that this document is the first global consensus that identifies actionable preventive, diagnostic, and therapeutic strategies to promote periodontal health, general health, and healthy ageing, whilst also reflecting the current strategy of the UN/WHO and FDI for the prevention and control of NCDs and oral diseases via the CRFA. As such, it is deemed to provide a solid foundation for the global periodontal health campaign that the GPHP intends to initiate.

Prof. Jin then presented the background and framework of GPHP, which was officially launched in 2017 with the support of Electro Medical Systems (EMS), Glaxo-Smith-Kline (GSK) and Procter & Gamble (P&G), and which is one of FDI's core projects for the next three years. He reminded the participants that, for the purpose of the project, periodontal diseases were defined as 'inflammatory diseases that affect tooth-supporting gums and bones', and periodontal health as 'the absence of signs/symptoms of periodontal diseases that should contribute to good oral function and quality of life'.

Panel Sessions

Panel 1 – Why are periodontal diseases important?

Moderator

- Professor David Herrera, *Professor of Periodontology, University Complutense of Madrid, Spain*

Panel participants

- Dr Daniele Cardaropoli, *Scientific Director of the Institute for Professional Education in Dentistry, Torino, Italy*
- Professor Liran Levin, *Head of the Periodontology Division, Faculty of Medicine and Dentistry, University of Alberta, Canada*
- Professor Phoebus Madianos, *Professor of Periodontology and Graduate Program Director, National and Kapodistrian University of Athens, Greece*

Professor Herrera started his presentation by discussing why periodontal diseases could be categorized as possible systemic disorders sharing many risk factors with other NCDs. He pointed out that periodontal diseases, including gingivitis and periodontitis, are wrongly perceived as superficial disorders. He noted that the current classification system, developed in 1999¹⁰, would be revised at a joint meeting of the American Academy of Periodontology and the European Federation of Periodontology scheduled in November 2017 in Chicago, the United States. He then went on to discuss the nature and consequences of periodontal diseases. Key elements of his presentation are summarized below.

Periodontal diagnosis involves taking a medical and dental history, including the patient's primary complaint(s), extra- and intra-oral examination, teeth examination including occlusal aspects and pulpal status, periodontal assessment, and radiographic examination. It should be mandatory to screen all patients to identify those who need a more comprehensive periodontal examination that assesses plaque and calculus, periodontal and peri-implant soft tissues, bleeding on probing, measurement of probing pocket depth and gingival recession (or enlargement) at six sites per tooth as well as furcation lesions and mucogingival aspects¹¹.

Periodontal diseases are multifactorial disorders. Bacterial colonization induces an inflammatory response that is modulated by the immune system. If this fails to control the infection resulting from pathogenic or dysbiotic plaque biofilms, periodontal diseases ensue. It should be emphasized that this process always begins with a bacterial challenge, and it is clear that this is a consequence of microbial dysbiosis¹². This disturbance of the equilibrium between the host and commensal microbial communities is associated with modifiable and non-modifiable genetic, acquired, and environmental risk factors¹³.

Resident bacteria within the periodontal pocket can access the systemic circulation via blood vessels in the connective tissue. This increases the risk of bacteraemia and underlies the link between periodontal diseases and various systemic diseases/NCDs, such as cardiovascular disorders^{14–16}. Periodontal diseases share many risk factors with other NCDs, providing the basis for a common approach to disease prevention with multiple benefits¹⁷. Most importantly, the white paper should highlight the significance and high prevalence of periodontal diseases. Evidence from the United States shows that half of the adult population suffers from periodontitis, though the prevalence is even higher in older people¹⁸.

In summary, the consequences and impact of periodontal diseases fall into three categories. Local consequences include gingival bleeding, halitosis¹⁹, gingival recession, tooth displacement, spaces between teeth, tooth mobility, and tooth loss. The impact on daily living includes tooth loss, edentulism, aesthetic impairment, and chewing impairment, which cause impaired oral health-related quality of life²⁰, increased anxiety, and feelings of shame and vulnerability. Impacts on systemic health may include an increased risk of suffering from cardiovascular diseases, diabetes or adverse pregnancy outcomes, via shared underlying pathways such as bacteraemia, systemic inflammation, and exposure to common risk factors.

Panel discussion

The panellists agreed that all stakeholders - including patients, dentists, and governments - need to understand the importance of periodontal diseases but that there is currently a lack of awareness about periodontal health among dentists. The dental profession is neglecting periodontal treatment that can reduce inflammation and save diseased teeth, hence there is an urgent need to educate the profession about periodontal diseases and how to prevent them. Dentists have become preoccupied with treatment and surgical interventions at the expense of preventive measures. The concept of infection control should be stressed, and this should include efforts to improve socio-economic status where appropriate.

Panel participants reflected on how the themes of the white paper could best be communicated. In particular, there was concern that the overriding message about good oral health might be lost if non-specialists were deterred by an extensive use of terminology and focus on dental aspects. It was suggested that several tailor-made versions of toolkits might be produced, each written in a language appropriate to different audiences. Further, it was stressed that the objective of management in daily dental practice should be good oral/periodontal health. To optimize public engagement and understanding, good oral hygiene should be identified as a healthy lifestyle behaviour like healthy diets and regular physical activity. On a strategic level, the importance of gaining support from the medical profession was stressed.

Conclusions

- Short and clear messages about periodontal diseases and health, adapted for patients, oral healthcare professionals, other health professionals, social workers, oral health educators, media, and policymakers, are needed
- The importance of disease prevention and infection/inflammation control must be stressed, moving from the strict treatment approach to incorporation of education initiatives
- Periodontal disease-induced systemic inflammation and the host response have implications for other NCDs. Advocacy work should therefore be reinforced by insisting on the links between periodontal health and general health to increase the engagement of medical professions
- Common risk factors shared between periodontal diseases and other NCDs must be emphasized, thereby encouraging a proactive implementation of the CRFA
- As with other NCDs, health promotion and disease prevention in the periodontal setting require behaviour change. Good oral hygiene should be an essential component of the 'healthy lifestyle' concept recognized and promoted by the WHO
- Further research is needed to explore and establish causality between periodontal diseases and other diseases, though the evidence is clear that periodontitis is an independent risk factor for diabetes and cardiovascular diseases

- Periodontal diseases are crucial for systemic health. Oral/periodontal health is not distinct from systemic health. It is 'health' for everyone's general well-being and good quality of life

Panel 2 – Are periodontal diseases preventable and treatable?

Moderator

- Professor Joerg Meyle, *Chair of the Department of Periodontology, Justus-Liebig University in Giessen, Germany*

Panel participants

- Professor Juan Blanco-Carrion, *Professor of Periodontology, School of Medicine & Dentistry, University of Santiago de Compostela (USC), Spain*
- Professor Magda Feres, *Dean for Dental Research and Graduate Education and Professor of Periodontology, Guarulhos University, Brazil*
- Dr Jean Louis Giovannoli, *Periodontal Specialist, Paris, France*

Professor Meyle discussed key features of primary and secondary prevention as well as different treatment approaches. He described primary prevention of gingivitis as stopping the development of clinically detectable gingival inflammation or its recurrence. For secondary prevention of periodontitis, its aim was defined as preventing disease recurrence in patients previously treated for periodontitis. Management of gingivitis is therefore both a primary prevention strategy for periodontitis and a secondary prevention strategy for recurrent periodontitis.

Primary prevention

In 1965, it was shown that the accumulation of micro-organisms in healthy dentition causes a clearly visible inflammatory response in the gingiva²¹. This pioneering research established the fundamental concept that the initiation of gingivitis follows, after a delay of several days, the development of bacterial plaque²¹. It also demonstrated that effective oral hygiene reduces plaque and initiates a healing phase that results in the resolution of gingivitis. Importantly, gingivitis takes about 10 days to heal and perfect, and uninterrupted oral hygiene is a pre-requisite for healing. Dental practitioners therefore need to introduce oral hygiene measures and ensure they are carried out meticulously.

It is universally recommended to brush for at least two minutes, twice daily using a fluoridated dentifrice. Manual tooth brushing reduces the plaque score by 42%²² and controls gingival inflammation. Professional oral hygiene instruction (OHI) has been shown to lead to improvements in periodontal health²³. In clinical practice, it is therefore important to instruct patients how to use oral hygiene aids correctly and to reinforce hygiene instructions regularly. It should be acknowledged that manual brushing does not remove all deposits unless it is carried out correctly; systematic instruction on appropriate technique is therefore required if primary prevention is to be fully effective. Powered tooth brushing reduces the plaque score by 46% and data from short-term studies suggest that oscillating-rotating brushes are more effective than those with a side-to-side movement²³. Adjunctive chemical agents may be considered when there is a need to treat gingivitis and improve plaque control in susceptible patients, and mouth rinses may increase the effectiveness of plaque control. It is always useful to inspect patients' toothbrushes because they may be unaware of the importance of replacing worn heads regularly.

The role of plaque biofilms in periodontitis is well recognized. In a dysbiotic state, an inappropriate host response to gingivitis leads to chronicity and periodontitis; and this process is influenced by genetic, epigenetic, and environmental risk factors. A Swiss study with volunteers showed that switching to a Stone Age diet and lifestyle, in the absence of oral hygiene, is associated with improvements in gingivitis and bleeding scores accompanied by a reduction in bacterial count²⁴. This observation suggests that modern nutrition intake may, like lifestyle, be a modifiable risk factor for improving oral/periodontal health, at least in developed countries. Further study is highly warranted.

Treatment

The aim of periodontal treatment is to achieve oral/periodontal health — the key target for clinically healthy periodontal sites means no bleeding on probing and shallow residual pockets (<5 mm). Treatment involves several sequenced interventions²⁵. This represents relatively intensive management over a period of months to achieve a level of oral health at which maintenance can be substituted. Controlling infection and stopping inflammation allow tissue healing. Anti-infective treatment can be delivered by conventionally staged or full-mouth approaches but monotherapy with antibiotics must not be an effective option for the treatment of periodontitis²⁶. Different combinations of adjunctive systemic antibiotics may be considered appropriate, for example in patients with aggressive or recurrent periodontitis.

Supragingival scaling and recording the plaque index are not, on their own, as helpful as might be expected because plaque growth at the gingival margin is promoted subgingivally by exudates from a deep pocket. It is therefore essential to clean deep pockets from the bottom through effective root debridement using both hand-instruments and ultrasonic scalers with micro-tips as well as effective daily plaque control by patients at home. A good treatment response usually follows within six months. It is crucial to note that solely checking the gingival surface provides no useful information about periodontal diseases, which can only be assessed using a periodontal probe and radiographic examination as appropriate. In sites with deep pockets (>5 mm), repeated oral hygiene instructions and recording of plaque/gingival indices are ineffective in the absence of subgingival removal of the bacterial biofilms²⁵. One retrospective study has found that residual pocket depth >5 mm is a risk factor for disease progression and tooth loss²⁷; it therefore represents an incomplete periodontal treatment outcome, and certainly requires further therapy, including surgery when indicated, aiming for complete elimination of inflammation, removal of ecological niches, minimum aesthetic impact, and regenerative healing of defects. Residual pockets associated with intrabony defects can be successfully treated surgically or those associated with suprabony defects may be reduced significantly²⁶.

Secondary prevention

Professional mechanical plaque removal, defined as the routine professional mechanical removal of plaque and calculus with subgingival debridement to the depth of the pocket, is a pre-requisite for secondary prevention. This is an essential component of supportive therapy, which should also include the evaluation of oral hygiene performance, patient motivation, reinstruction in oral hygiene practices, and control of systemic risk factors, such as smoking cessation, effective management of comorbidities, and encouraging a healthy lifestyle. This should be carried out two to four times yearly²⁸. This proactive approach to regular periodontal maintenance reduces average tooth loss to 1.1 – 1.3 over a 12 – 14-year period, with over half of patients experiencing no tooth loss, whilst individuals with irregular adherence have higher rates of disease progression and tooth loss²⁸.

Panel discussion

Panellists agreed that the answer to the key question - *Are periodontal diseases preventable and treatable?* - was obviously yes. But, the relatively silent nature of the disease and the fact that many periodontal patients worldwide do not benefit from appropriate professional oral care represented important challenges. Improving education and enhancing political influence were felt to be key to raise standards for populations who do not have access to high quality care. Similarly, the need to raise public awareness of the consequences of failing to control plaque and to disseminate a positive message to promote a healthy lifestyle were highlighted. Greater awareness would help to achieve earlier diagnosis. Although it would be highly beneficial in reducing the disease burden and unwanted outcomes, it was felt that many oral health professionals do not carry out proper periodontal examinations that include probing.

Conclusions

- There is a need to raise awareness on the importance of daily plaque control from childhood in order to prevent periodontal diseases and avoid resultant periodontal destruction (e.g. attachment loss and bone resorption)

- Early diagnosis can greatly simplify treatment. However, oral healthcare professionals face great challenges: not all general dentists have periodontal probes and many patients have persistent advanced periodontal disease due to low periodontal awareness and irregular dental check-ups
- Periodontal diseases should be given a more prominent place in dental/oral health education
- Basic periodontal screening has a significant role to play in prevention and early diagnosis, and it can be combined with positive oral hygiene messages
- Over 740 million people worldwide suffer from severe periodontitis and their access to professional treatment seems to be low or very low. Prevention and early oral care are key measures if global periodontal health is to be achieved
- Every dentist should undertake appropriate periodontal diagnosis and refer patients to periodontists for care when needed
- The expanded role of dentists needs to be addressed by promoting the role they can play in holistic medical care, through co-management schemes and teamwork. This needs to be promoted in both dental and medical education
- Proper financial reimbursement is a pre-requisite to reach general acceptance of adequate preventive and proactive care/treatment concepts by the dental profession

Panel 3 – Current problems and recommended actions

Moderator

- Professor Stefan Renvert, *Professor of Oral Health Sciences and Research Director, Kristianstad University, Sweden*

Panel participants

- Professor Stefan Listl, *Professor in Quality and Safety of Oral Health Care, Radboud University, the Netherlands; and Director of Translational Health Economics, Heidelberg University, Germany*
- Professor Mariano Sanz, *Professor and Chairman, Department of Periodontology, University Complutense, Madrid, Spain*
- Dr Alexander Tolmeijer, *General Dental Practitioner and Consultant at Dentiva, Practice Management Consultancy, Delft, the Netherlands*

In his presentation, Professor Renvert discussed a series of factors which could explain why the prevalence of periodontal diseases have remained stable over the past decades and presented a few possible solutions that could lead to improvements. He remarked that the overall prevalence of periodontal diseases has changed little since the 1990s. Data from the Swedish city of Jönköping show that, among 20–70 year-olds, the proportion with advanced or severe periodontitis has only slightly decreased since the early 1980s, though the percentage of healthy gums or solely gingivitis increased from 45% to 69% during the same period²⁹. Access to dental care is limited in many parts of the world but dental services in Sweden are part of the state-funded health system. So, what is going wrong?

Socio-economic barriers may be one factor. People do not renew their toothbrushes frequently³⁰; fewer than 40% of elderly people regularly visit their dentists (this figure may be much lower in developing countries); and the risk of periodontal diseases is higher among the over-50s^{31,32}. Most older people say that oral health is important for quality of life but awareness of the presence of periodontal diseases is low, e.g. three out of four of those affected do not know they have a condition and there are major deficits in disease awareness and knowledge about aetiology and periodontal-related risks^{18,31,33}.

As part of FDI's GPHP, national dental associations (NDAs) worldwide were recently surveyed about the level of periodontal awareness in their countries. A preliminary report suggested that although awareness was

generally good among dentists, it was poor among the public and other health professionals³⁴. Periodontitis is widely perceived as a cosmetic problem rather than a health issue; often patients choose dental implants which are seen as ‘teeth for life’, rather than being aware that periodontal health can be maintained through good oral health practices. For instance, the general public is not aware that a history of periodontitis indicates a higher risk for developing peri-implantitis. Moreover, almost half of the survey respondents reported that periodontal screening is not a mandatory component of dental check-ups; in one-fifth of countries no oral health professionals were involved in providing periodontal care, leaving the dental service for periodontal care overstretched³⁴.

Another factor contributing to the high prevalence of periodontal diseases is the increasing proportion of elderly living in nursing homes. One review of published studies showed that almost 80% still had at least some teeth but 68% also presented with caries, with an average of five teeth affected per person³⁵. About a quarter of older people reported eating difficulties due to loose teeth or a sore mouth. Systemic comorbidities are common, in particular psychiatric disorders, and highlight the growing challenge to oral health maintenance posed by dementia.

Focusing on possible pathways to remedy this situation, Prof. Renvert noted that these findings emphasize the need to engage with the public and other healthcare professionals, such as dental hygienists in particular, if messages about oral health are to be delivered effectively. These messages should focus on the positive aspects of oral health, such as a nice smile, improving quality of life and general health, and reducing stress on the immune system. A key message is that oral health is integral to general health and should be integrated into primary healthcare to improve health outcomes and lower expenditure on healthcare. Seeking to raise awareness of the many dimensions of oral health, FDI has recently adopted a new definition of oral health³⁶ that acknowledges the multifaceted nature and attributes of oral health. It should therefore be emphasized among patients and health professionals alike that dental implants are not the ultimate solution to treat periodontal diseases. It is also important to highlight the early signs and symptoms of periodontal diseases, for example bleeding gums indicate the presence of periodontal diseases. The link between oral/periodontal and general health should be reinforced, so that smoking, poor diet, and other risk factors shared with other NCDs can be addressed in disease prevention strategies and health policies. It should be noted that appropriate periodontal care offers potential savings in medical care.

Prof. Renvert concluded his presentation by summarizing the action plan that FDI’s GPH Task Team has developed to achieve the project’s objectives:

- Producing a white paper
- Developing global periodontal prevention plans
- Creating a simple, easy-to-read leaflet that can be distributed to dental personnel worldwide
- Engaging with various stakeholders to enhance periodontal education through dental curricula and continuing professional development schemes as well as promoting the education of dental hygienists
- Collaborating with oral health industries to promote periodontal health through daily home care
- Liaising with the medical profession to highlight that periodontal diseases are very common, yet serious NCDs with many risk factors shared with other life-threatening NCDs like diabetes, heart disease, and cancer

Panel discussion

Panellists agreed that the challenges faced by oral healthcare professionals are shared with other healthcare professions. It was noted that the data from Sweden showing increases in the proportion of people with healthy gums or solely gingivitis have not been reported in Germany. This might be explained by the fact that, unlike their German counterparts, the Swedish authorities have a better understanding of dental health and heed advice from the dental profession. Dealing with medical agencies was felt to be fundamental to the success of the action plan. It was stressed that the American Diabetes Association now requires a regular

oral examination as part of routine diabetes care, and the European Heart Association includes periodontal diseases among the risk factors for cardiovascular disorders. Alliances with these healthcare groups are very important because they and the WHO recognize that oral health is part of a healthy lifestyle. Oral health is not a cosmetic issue for older people but a question of life or death. Moreover, FDI should liaise with its partners and other stakeholders, including the oral health industry, and use their expertise to deliver health messages and promote global oral/periodontal health.

Furthermore, economic aspects of periodontal diseases were discussed. Estimates show that periodontal diseases are associated with indirect costs of lost productivity equivalent to approximately US\$54 billion annually. It would be helpful to use socio-economic data to raise awareness at a policy level but robust global data on periodontal diseases are limited. To address this, regular reporting of standardized measures of oral health outcomes and their impact on quality of life and economic resources are needed. The question of linkage and causality between periodontal diseases and other NCDs was felt to be important. While providing evidence to support these associations, care should be taken not to lose credibility by over-emphasizing evidence derived solely from observational evidence. The key issue in raising periodontal awareness is identifying relevant stakeholder groups, framing appropriate strategies/messages for health promotion, and taking advantage of new technology when possible. It is also essential to listen to the valuable comments, suggestions, and feedback from stakeholders for further improving and refining strategic frameworks and action plans. It was noted that patients' perspectives have only been indirectly addressed in this forum but that further on the public should be actively involved in every conversation and implementation step. Focusing only on the clinical aspects of periodontal diseases may fail to adequately raise public awareness. Finally, it was observed that current fee-per-procedure reimbursement models do not support preventive dentistry because they mainly reward invasive dental measures rather than preventive care and health outcomes.

Panellists agreed that oral healthcare professionals have a key role to play as a team to help patients adopt the correct oral health behaviours and encourage dissemination of oral health messages³⁷. This is an ambitious but achievable primary prevention strategy, and dentists should be supported to identify and overcome the barriers they face. Many people do not visit the dentist or have regular check-ups. A single and simple key message is certainly needed to alter this behaviour for oral and general health, and a motivated dental hygienist can be a great asset in delivering preventive oral care.

Conclusions

- Dentists' education and understanding of the core function of periodontal health and literacy may contribute to reduce the burden of periodontal diseases and the number of people with mild and moderate periodontitis (Sweden is recognized as a good example)
- The European Heart Association has included periodontitis as a risk factor for cardiovascular disease in one of their policy papers. Such alliances with medical groups can strengthen the work of FDI's GPHP
- Promoting oral/periodontal health is crucial in advocacy work for healthy ageing and better quality of life among the elderly
- Stakeholders in healthcare and corporate partnerships can help dentists and other oral healthcare workers reach their target populations so that oral/periodontal health can be promoted through stronger teamwork
- Socio-economic information can be very helpful in raising national/global awareness at the policy level; datasets on oral health outcomes with a focus on quality of life aspects should be collected
- Oral health professionals should communicate better and engage with their patients, especially with vulnerable groups, to promote periodontal health literacy and disease prevention

- Technologically innovative approaches can facilitate better management of oral/periodontal health-related information for effective dissemination among policymakers, other healthcare professionals, media, and the public at large
- Reimbursement systems that look at health outcomes and the entire cycle of care can encourage more proactive preventive care rather than focus on invasive treatments through traditional fee-for-service models
- Health behaviour change among dentists needs to be actively promoted. Other healthcare professionals, such as medical doctors, nurses, and dental hygienists, also play a key role in oral health promotion and disease prevention. Professional support should be available to address dentists' concerns and facilitate change

Conclusion

FDI will consider the important issues raised at the 2017 WOHF when finalizing its white paper in time for its implementation in 2018. On behalf of FDI's GPHP Task Team, Prof. Jin sincerely thanked the nine expert panellists and all Forum participants for their valuable contributions to the debate and constructive discussions as well as EMS, GSK, and P&G for their great support to the GPHP.

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Annex

Table 1 - Objectives of FDI’s GPHP

- Raising awareness of the impact of periodontal diseases on public health and socio-economic development
- Responding to the urgent need for action to increase prevention efforts and reduce the occurrence of periodontal diseases
- Integrating oral/periodontal health into policies addressing general health and NCDs through a CRFA
- Engaging the public, oral health and other health professionals, educators, and policymakers in promoting periodontal health
- Engaging governments with Chief Dental Officers and ministries of health when developing national disease action plans to ensure an ‘oral health in all’ policy approach