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Whole Mouth Health

In 2016, the FDI received global approval and acceptance on the updated definition of oral health, which provides precision and clarity to its diverse aspects, including related research, education, practice, policy and advocacy. This latest definition also notes the importance of oral health as 'a fundamental component of health, physical and mental well-being'. Therefore, patients' comprehension of oral hygiene should go beyond teeth cleaning goals. A more effective approach to everyday prevention of dental diseases may be achieved by the adoption of a 'Whole Mouth Health' model. 'Whole Mouth Health' can be defined as a holistic approach that brings together perspectives and insights from oral biology, behavioural sciences, practice management and public health coupled with advanced oral care technologies. Such an approach takes into consideration a new paradigm of adopting patient-centred dentistry, which can help dental practitioners yield personalized and participatory care focused on patient empowerment and everyday prevention.

One key area of preventive care in dentistry is focused on supporting patients to adopt and maintain an effective daily oral care routine. Many dental teams go beyond providing routine care, engaging with their patients as their oral health coach, helping to motivate and optimize their behaviours. This approach is a hallmark of patient-centred care (PCC). In adapting PCC for dentistry, several models have developed fundamental principles to address comprehensive interactions with patients. These include physical and emotional support and consideration on how information is relayed, understood and acted upon.¹ These can be summarized as:^{2,3}

- The disease context: What is the nature of the oral disease and how is the patient experiencing it?
- The patient as a whole person context: How is the oral disease manifesting within the patient's own biosocial circumstance?
- The dental team-patient relationship: How is the empathy and compassion expressed by the dental team developing a long-term trusting relationship

with the patient to enhance decision-making?

- The dental team-patient shared responsibility: How do both the dental team and patient share the patient's preventive oral health involvement/experience?

The 'Whole Mouth Health' approach also involves the development and use of next-generation therapeutic oral care products which leverage the chemistry and biology of the mouth, particularly the management of the oral microbiome, and control of biofilms on all mouth surfaces. Since the incorporation of fluoride and antimicrobials into toothpastes, new research of the oral bacterial population's diversity and function has added to the understanding of the oral microbiome and revealed the opportunity for the optimized use of antibacterials. New knowledge about the oral microbiome is informing the development of next-generation oral care products aimed at sufficiently reducing the bacteria to control the risk of dental disease, whilst creating and supporting their beneficial functions consistent with health. Such antibacterial product designs, when successful, would likely control biofilm and promote oral health through subtle, more targeted effects.

In a healthy state, biofilms form on teeth and soft tissues from benign, 'friendly' bacteria. Beneficial biofilms shield against non-oral microbes and restrict the growth of pathogenic micro-organisms associated with caries and periodontal diseases. By maintaining a neutral pH that balances acid and alkali production, symbiotic biofilms help create a balance between the microbiome and oral cavity tissues. However, if a healthy oral microbiome is disturbed by changes in an individual's physiology or behaviour, dysbiosis can occur. In milder detrimental states, dysbiotic oral biofilms contribute to common concerns like oral malodour. In a lasting state of dysbiosis, biofilm progression at the gingival margin can lead to gingivitis inflammation and changes in the bacterial population. More deleterious dysbiotic states may also promote cariogenic bacteria by favouring growth of *Streptococcus mutans*. Furthermore, some bacteria

decrease their production of acid-neutralizing alkalis, reducing their protective effect on dental caries.

Given the recent advances in understanding the role of microbiome oral health, as well as the various factors that may lead to a dysbiotic state, the demands for new oral care products with improved effectiveness are increasing. The action of toothpaste ingredients now must be broader than simply enhancing mechanical plaque control. The design of such products could seek subtly to control the overall mix and amount of bacteria through more targeted action, enabled by more effective penetration of antimicrobial activity into biofilm.

In line with this notion, a joint EFP/ORCA workshop on the boundaries between dental caries and periodontal diseases (2016) recognized that 'the dental biofilm is a major biological determinant common to the development of both diseases' and, among various conclusions, also states that 'brushing twice daily with fluoride toothpaste is essential and can also be supplemented with chemical agents'.⁴

By encompassing these definitions, concepts and behaviours, as well as next generation oral care products, 'Whole Mouth Health' can become a new and holistic standard to achieve and maintain oral health.

References

1. Picker Institute. *The Eight Principles of Patient-Centred Care*. <https://www.picker.org/about-us/picker-principles-of-person-centred-care/> Retrieved September 2018.
2. Scambler S, Gupta A, Asimakopoulou K. Patient-centred care – what is it and how is it practised in the dental surgery? *Health Expect* 2014; **18**: 2549–2558.
3. Scambler S, Delgado M, Asimakopoulou K. Defining patient-centred care in dentistry? A systematic review of the dental literature. *Br Dent J* 2016; **221**: 477–484.
4. REPORT. Relationship between caries and gum disease. perioandcaries.efp.org