Executive Summary

KEY MESSAGES

- Dental caries remain a global public health challenge despite the fact that it is preventable through a combination of population-wide and individual-level interventions.
- The modern approach to caries management is focused on preventing the initiation and progression of caries through primary, secondary, and tertiary prevention. However, the old practice of invasive treatments is still common, resulting in a major evidence-implementation gap.
- To close this gap, a concerted effort from all stakeholders, involving dental health professionals, government policymakers, and the public in general, is needed.
- Public-private partnerships are important to raise the public health profile of dental caries and leverage the expertise from both sectors to address the challenge.

Introduction

Dental caries is a major public health problem globally, despite the fact that the disease is largely preventable with a combination of public health and individual-level interventions. FDI World Dental Federation (FDI) and Colgate formed a Caries Prevention Partnership (CPP) to address the challenge. CPP is an initiative aimed at enhancing oral disease prevention through information, education and other activities targeting dental health professionals, policymakers, patients and the public in general.

As part of the CPP activities, on 21-22 September 2015 FDI hosted a two-day expert meeting (a summit and a workshop) on caries prevention and control in Bangkok, Thailand during the World Dental Congress. The purpose of the meeting was to identify the key issues of global/regional significance in caries management and propose solutions that FDI member associations can adapt and/or adopt as appropriate in their country contexts.
Day 1 – CPP Summit

The first day of the meeting was a Summit attended by FDI Council Members and experts. The internationally recognized expert group was well balanced in terms of gender, geography and the dental profession (practitioners and academics). The intention of the Summit was for the Council Members and experts to work together and come up with a list of questions/issues that will be addressed in an expert meeting/workshop the following day.

FDI President, Dr Patrick Hescot, and the Vice President of Global Oral Care at Colgate, Dr Marsha Butler, warmly welcomed the participants. The Summit was facilitated by Professors Nigel Pitts and Domenick Zero and included a series of presentations on caries aetiology, pathogenesis, epidemiology, treatment and modern approaches to the disease management. The presentations laid the groundwork for a thorough discussion and analysis of issues and resulted in a long list of topics/challenges regarding the different aspects of caries management, including education, economics/finance, policy, practice and partnerships with patients, policymakers, other healthcare professionals, and the private sector.

The experts agreed that a “one-size-fits-all” approach to prevention and disease management may not work and a more context-specific approach is needed, acknowledging the role of socioeconomic and political factors. The need for a new conceptual framework was also underscored to address the major shift from invasive interventions and treatment to the prevention and control of the disease as well as the evolving role of the dentist to accommodate these changes.

Despite the significant success of public health interventions to prevent caries, such as, for example, water fluoridation, prevention on the individual level was still perceived to be a problem. Partnerships with all relevant stakeholders were seen as essential to ensure caries prevention and control. The FDI-Colgate partnership was favorably viewed as a good example of the collaboration between the dental profession and product manufacturers.

Day 2 – CPP Workshop

The second day of the meeting was a workshop attended by the experts only. The workshop had two parts: The first part (Part I) of the day was a review of the issues that emerged from the Summit and an attempt to propose solutions. The second part (Part II) of the workshop was devoted to an overview of the White Paper Professors Pitts and Zero would be developing. The goal of the paper is to synthesize the evidence on modern methods of caries risk assessment and management and define the role of the dental team as well as other relevant stakeholders to reduce the caries burden globally and improve overall health and well-being.

Part I - Professors Pitt and Zero summarized the issues that emerged from the Summit. The experts acknowledged that caries is a complex disease process, and to manage it accordingly in addition to biological and dietary (sugar, processed foods with a high content of carbohydrates) influences, it was important to address wider social, economic and environmental factors and adopt a life-course approach to caries management, since all age groups are susceptible. Once there was a consensus on framing the issue, the experts proposed solutions with appropriate actions in the following areas of caries management: prevention, treatment, education, economics and partnerships.

To address the challenges, the experts proposed a conceptual framework identifying four main areas, such as policy, communication and advocacy, engagement of patients and the public, and partnerships, where interventions are needed to ensure effective caries prevention and control.

Part II – The experts agreed that the proposed White Paper was timely for the profession. Professors Pitts and Zero reviewed the detailed outline of the paper and sought the experts’ input. The feedback included specific comments on the outline, as well as case studies based on personal experiences from different countries. In the end, the outline was unanimously approved.
Conclusions

Two main conclusions were drawn from the meeting. One was the realization of the multidimensional character of dental caries, with multiple influencing factors affecting the disease process, and hence recognition that the response should also be multidimensional, involving diverse stakeholders at multiple levels. The other key message from the meeting was the consensus that the evidence-implementation gap persists and FDI needs to focus its work on closing this gap.

The meeting ended with a call to action for FDI member associations to work in partnerships with policymakers, dental health professionals and the public in order to meet the challenge of optimal oral health for all.

Index of Presentations and Participants

CPP Summit on September 21, 2015

Welcome and opening address
- Dr Patrick Hescot, FDI President Elect
- Dr Marsha Butler, Vice President, Colgate Global Oral Care

14:00 – 14:30 Caries Today: Evolution of Treatment Approaches, Classification and Epidemiology
- Prof. Nigel Pitts

14:30 – 15:00 Aetiology, Pathogenesis and Risk Assessment: Science informing Practice
- Prof. Domenick Zero

15:00 – 15:25 Evidence based Clinical Caries Management: A systematic approach
- Dr Stefania Martignon

15:25 – 15:30 Key Areas for Discussion: Issues emerging from the White Paper
- Prof. Domenick Zero
- Prof. Nigel Pitts

15:30 – 15:45 Break

15:45 – 16:30 Wrap up and Panel discussion about Caries Management
- Prof. Domenick Zero (Moderator)
- Prof. Nigel Pitts (Moderator)
- Dr. Stefania Martignon (Invited expert)
- Dr. Marsha Butler (Vice President, Colgate Global Oral Care)
- Dr Kathryn Kell (FDI President Elect)
- Dr Jack Cottrell (FDI Treasurer Elect)
- Dr Gerhard Seeberger (FDI Speaker)
- Dr Kathy Roth (FDI Council)
- Dr Jaime Edelson (FDI Council)
- Prof. Nermin Yamalik (FDI Council)
- Dr Alvaro Roda (FDI Council)
- Dr Edoardo Cavalle (FDI Council)
- Prof. Ihsane Ben Yahya (FDI Council)
- Prof. Prathip Phanumvanit (Invited expert)
- Prof. Hien Ngo (Invited expert)

16:30 – 17:00 Summary of Panel discussion and closure
- Moderators and all participants
Report

Introduction

Dental caries is a major public health problem globally, despite the fact that the disease is largely preventable with a combination of public health and individual-level interventions. World Dental Federation (FDI) and Colgate formed a Caries Prevention Partnership (CPP) to address the challenge. CPP is an initiative aimed at enhancing oral disease prevention through information, education and other activities targeting dental health professionals, policymakers, patients and the public in general.

Through this partnership, FDI and Colgate will develop high-quality educational materials and hold a number of events to raise awareness of the modern methods of caries management and control and help shift the focus from a restorative approach to prevention for optimal oral health. The deliverables of the CPP include:

1. A Smile Award
2. A White paper
3. A Summit and Workshop during the 2015 Bangkok AWDC, with proceedings
4. An advocacy toolkit
5. Webinars
6. A CPP website page

On 21-22 September 2015 in Bangkok, Thailand, FDI hosted a two-day expert meeting (a summit and a workshop) on the theme of caries prevention, as part of the Annual World Dental Congress (AWDC). The participants of the meeting included FDI council members and experts from academic institutions, as well as practicing dentists from different countries. The list of participants is included in the Annex.

The purpose of the meeting was to identify the key issues of global/regional significance in caries management and suggest solutions that FDI member associations can adopt and/or adapt to their own circumstances and country contexts. This paper is a report documenting the proceeds of the meeting.

The first day of the meeting was a Summit and was attended by FDI Council members along with the experts. The day consisted of a mix of presentations and discussions facilitated by Professors Nigel Pitts and Domenick Zero and guided by FDI Council members to ensure the relevance of the issues to FDI work and their alignment with FDI vision and mission.

The second day of the meeting was a workshop attended by the experts only and was led by Professors
Pitts and Zero. The workshop built on the issues that emerged from the Summit and explored possible solutions that could be customized to accommodate different country/regional contexts.

The experts also reviewed the outline of the White Paper that Professors Zero and Pitts would be developing. The paper will synthesize the evidence on modern methods of caries risk assessment and management and define the role of the dental team, as well as other relevant stakeholders, to reduce the caries burden globally and improve overall oral health and well-being. The discussion that followed was a mixture of feedback on the outline and a broader discussion of priority areas to be considered.

These proceedings aim to capture the essence of the presentations and discussions taking place during the Summit and Workshop. They will synthesize the key issues that experts agreed were important for the dental practice of the 21st Century and suggest priority areas for FDI to pursue in its global policy and advocacy work.

**Day 1 – CPP Summit**

**Opening**

The participants were welcomed by Dr Patrick Hescot, FDI President. Dr Hescot emphasized the importance of the FDI-Colgate Caries Prevention Partnership in shifting the focus of dental practitioners toward prevention. He expressed his hope that by the end of discussions the expert panel would identify a list of issues that FDI would need to address in the future at the global as well as regional levels, encompassing all five regions where FDI works through its member national dental associations: North America, Latin America, Europe, Asia Pacific, and Africa. This work will feed into the future strategy that FDI wants to develop towards Caries Management, in terms of education, communication, dental practice and advocacy.

The floor was then given to Dr Marsha Butler, Vice President of Global Oral Care at Colgate. Dr Butler gave a warm welcome to the participants and acknowledged the efforts of the FDI staff and Professors Pitts and Zero in organizing the meeting. She stressed Colgate’s interest in moving the caries prevention agenda forward with the FDI national associations and public in general. Dr Butler also emphasized that it was an opportune time for FDI to play a leadership role and work with all key stakeholders to make this happen.

After welcoming remarks, Prof. Pitts introduced the summit speakers – Professors Domenick Zero and Stefania Martignon and himself – who were invited to give presentations on caries aetiology, pathogenesis, risk assessment, classification, epidemiology, and management. Prof. Pitts mentioned that the presentations were intended to set the stage and stimulate the discussion in order to come up with a list of key questions and issues of practical importance to caries management practice. Prof. Pitts suggested that the focus of discussions should be regions rather than countries to make proposed solutions relevant to all FDI members’ work.

**Presentations**

**Prof. Nigel Pitts – Caries Today: Evolution of Treatment Approaches, Classification and Epidemiology**

In his presentation, entitled “Caries Today – Evolution of Treatment Approaches, Classification and Epidemiology,” Prof. Pitts provided a historical perspective on the evolution of treatment approaches, classification of caries and epidemiology. He emphasized the shift in managing caries from an extractive phase to a restorative phase and now to a preventive phase (“oral health physicians”). Prof. Pitts stressed that even though dentistry has seen dramatic evolutions in treatment approaches, in terms of caries...
management the progress has been uneven and “many countries are at different stages of the evolution to a more modern, evidence-based and health-focused approach.”

Prof. Pitts also touched on the evolution of caries classification systems and underscored the fact that depending on the reporting system used, caries detection thresholds can be set at different levels, resulting in different prevalence data, a fact that could confuse decision-making. Prof. Pitts warned on the importance of exercising caution when trying to interpret caries data presented in maps and survey results. Irrespective, he emphasized that there is a lot of evidence and insights from around the world in favour of minimally invasive treatment, but the evidence-implementation gap persists and needs to be closed.

In this regard, Prof. Pitts referred to an FDI Policy Statement on Classification of Caries Lesions and Tooth Surfaces and Caries Management Systems adopted by the FDI General Assembly in 2012. The document stresses the importance of practicing a minimally invasive treatment and provides a series of recommendations, but the implementation of these recommendations remains a challenge. Prof. Pitts said that the time was ripe for “a locally appropriate action on a global scale.” He suggested that FDI was presented with a great opportunity to facilitate the translation of available scientific evidence into policy and practice.

Prof. Domenick Zero – Aetiology, Pathogenesis and Risk Assessment: Science Informing Practice

Prof. Zero talked about the aetiology, pathogenesis and risk assessment of caries, focusing on how science can inform an effective clinical practice. His in-depth presentation was about the practical aspects of cariology and included the details of the multifactorial nature of the disease aetiology and process and the changes in our understanding of dental caries, along with the modern methods of personalized caries management.

More specifically, Prof. Zero stressed the role of four components in the development of dental caries: (i) diets high in processed sugars, (ii) microorganisms (bacteria), (iii) host & teeth (individuals’ genetic makeup) and (iv) time. Despite the complex interaction of these factors and the difficulty to control them, Prof. Zero said that “in the post-fluoride era the caries process progresses slower and thus there is an opportunity to adopt a more conservative approach and delay surgical (operative) interventions until it is absolutely necessary to prevent further caries progression.”

Prof. Zero also spoke about the clinical importance of caries risk assessment and early detection, emphasizing that extreme cases are easier to determine and that the challenge is to identify cases that are in the middle. He emphasized that the modern management of dental caries moved from the concept that caries is a treatable disease to caries as a controllable disease. Prof. Zero said that “caries is a dynamic process that can be arrested or reversed at an early stage.” However, it seems that despite the growing knowledge base, some old ways of caries management are still being used. In conclusion, addressing the expert meeting, Prof. Zero asked: “What do we need to do to move forward and improve caries management approaches?”

Prof. Stefania Martignon – Evidence-based Clinical Caries Management: A Systematic Approach

Prof. Stefania Martignon spoke about a systematic approach to clinical caries management. She highlighted the four main domains of one approach, the International Caries Classification and Management System (ICCMS): Research, education, public health and practice. Prof. Martignon stressed the health outcomes-based nature of ICCMS and the importance of a management plan that is appropriate, personalized, prevention-based, risk-adjusted and tooth-preserving.

Prof. Martignon gave the details of the ICCMS guide for practitioners and educators. The guide is a health-outcomes-based system that aims to maintain health and preserve tooth structure. The ICCMS system has been developed by a broad-based international group of experts through a series of workshops and symposia. The system incorporates “a contemporary understanding of the evidence on and around cariology, international agreements on current caries terminology, and how best to advance tooth preserving caries management pathways.”

Prof. Martignon highlighted the four steps of the comprehensive assessment and the personalized caries management plan. The process starts with an assessment of the caries risk at the patient level (History). The
next step is Classification, which includes intra-oral risk assessment and the determination of the stage and activity of each caries lesion, which leads to a correct diagnosis and Decision-making for treatment options. The final step is Management of caries. This step involves personalized caries prevention, control and tooth-preserving operative care. Prof. Martignon described each step thoroughly and supported her arguments with comprehensive slides.

**Discussion – Emerged Issues/Challenges**

The presentations triggered a discussion that reflected the consensus that preventing the progression of caries in early stages, even before the first clinical lesions or cavities appear, is important. With modern preventive methods, including the use of fluoride, lesions progress slowly and there are plenty of opportunities to intervene without using surgical methods. Thinking has changed, but action lags. Education of dentists and patients is important to address this issue, but the role of economics and finance, such as the remuneration of dentists, is key, since governments’ and insurance companies’ reimbursement policies have influence on dental practices.

Another theme that dominated the discussion was the need for better tools (some paper-based, some software-based) for dental practitioners, for policymakers and for the public in general. The need for educating and empowering patients, so they demand proper treatment from their dentists, was also emphasized.

One important issue raised was the strong link between the oral caries and non-communicable diseases (NCDs), particularly in terms of shared risk factors, such as diets rich in carbohydrates (processed sugars). It was stressed that there is a need for educating dental practitioners on the issue and also reaching out to other healthcare professionals (e.g. physicians, nurses), and forming partnerships with them to combat diseases with implications for oral health was stressed.

Within this context, reference was made to the FDI report entitled: “Optimal Oral Health through Interprofessional Education and Collaborative Practice”. The report stresses the important role dentists play within the oral health team and in relation to other health professionals in their effort to improve oral health and contribute to the improvement of general health and quality of life for all.

The issues/challenges that emerged from the discussion, and which the participants agreed needed to be addressed in the future, are summarized below:

**Public Health and Policy**

- Dental caries is both diet-dependent and fluoride-modifiable. We may be looking in the future at the customization of preventive products to match different caries risk levels.
- Linkages between caries and NCDs should be explored. The role of sugar as a shared risk factor with NCDs is a good start. Diabetes and obesity share risks factors with caries. In a wider consideration of oral health: cancer and tobacco smoking/addiction are other conditions that also have common risk factors.
- With demographic and epidemiological transitions when populations are ageing, retaining more teeth for longer and with chronic diseases are becoming more prevalent along with dental problems, the link between NCDs and dental health becomes even more relevant. Specifically, certain medications used to treat NCDs contribute to reduced salivary flow, a known risk factor for caries.
- Both dentistry in general and caries in particular are often ignored by policymakers.
- Dental problems, particularly caries, are contributing to the global disease burden.
- Prioritization can be difficult, since all the issues deserve attention. However, it is important to outline them, and then members will determine which priorities are most important in their countries or to their particular settings.
- It was strongly emphasized that, if progress is to be made in a realistic timeframe, then a number of priorities should be pursued in parallel.
Economics of treating caries

- Financial incentives or disincentives, as well as the business model, influence caries treatment decisions, and dentists should be rewarded for using the newer model, as opposed to the surgical only model of caries care.
- The business model of dental practices needs to be adapted to new/emerging caries management approaches.
- Risk assessment is an important process for proper diagnosis and treatment/care planning.
- Economic arguments need to be made that non-invasive treatments save costs in the long run.

Education

- A comprehensive set of clinical protocols is needed. Much of this work has been done, but it needs to be localized and adopted.
- Evolution of dental education is needed. However, countries will have to decide themselves which educational model would best fit their needs. For example, an updated core of educational materials, such as the consensus curricula in Cariology, which are being adopted in a number of regions, could be helpful. Development of sub-sets of the curricula for other health professions is also required.
- We may not always get everything right, but the changes needed are rooted in undergraduate and continuing education.
- Education is key. The whole structure of dental education may need to change to accommodate the advances of science.
- The evidence is convincing, but more understanding is needed in the dental community. Changes in the educational systems may be an answer.
- Public education and empowerment are needed. There may be a need for separate but related advocacy toolkits targeted at dentists, patients, policymakers.
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Dental Practice

- The modern approach is focused on preventing the initiation and progression of caries through primary, secondary and tertiary prevention.
- The dentist is the decision maker regarding when and how to intervene surgically. Given that often lesions progress slowly, a minimally invasive philosophy (advocated by FDI since 2000), seeking to preserve the tooth and its structure, should be the priority.
- A range of tools/guidelines is needed for clinicians to use in their practice.
- Dental health goes beyond oral health with serious implications for digestive health in general, as well as overall health and well-being.

Partnerships

- Partnerships are key. Partnership was understood in a broad sense. It can be formed with different stakeholders on many different levels, for example:
  - a) The FunPatients
  - b) Other health professionals
  - c) Government/policymakers
  - d) Industry

Research/Evidence

- There is no shortage of epidemiological data. However, the quality of data may be an issue. There are also methodological challenges, as well as reporting issues, making it difficult to make regional/country comparisons and draw meaningful conclusions.
- The scientific evidence is available. However, the implementation remains a challenge.
- It is difficult and time consuming to develop international classification systems. We should build on what we have that is based on best evidence.
- There is a challenge to deliver care that incorporates the latest scientific advances. In general, the evidence-implementation gap keeps persisting. What should be the steps and priorities to close this gap and keep it closed?

**Day 2 – CPP Workshop**

**Review of Day 1**

The second day of the meeting was a workshop attended by the experts only. The meeting was facilitated by Profs. Pitts and Zero. Prof. Pitts stressed that the goal of the summit (Day 1) with the participation of FDI council members was to come up with questions/issues, but the workshop (Day 2) needed to focus on some potential solutions of regional/global relevance. It was acknowledged that the expert group presented a good balance of geography, gender and the dental profession (practitioners and academics).

Prof. Pitts said that the underlying theme that came out of the summit was the overdue need for updated dental practices, i.e., that change from the restorative to a preventive approach was needed. He also stressed that it was not the lack of data or evidence that was hampering the progress, but the difficulty of translating evidence into policy and practice. Prof. Pitts also summarized the emerged themes from Day 1, such as education, economics of treating caries, need for improved communication between dentists and patients and forming partnerships with them as well as with other healthcare professionals, policymakers and the private sector. The FDI-Colgate Partnership was favorably viewed, and the participants felt it was a good example of the kind of partnerships FDI should be pursuing in the future with product-manufacturers.

Profs. Zero and Pitts suggested that the first half of the workshop focus on defining the issue and proposing potential solutions for the challenges identified during Day 1.

**The Issue**

Dental caries continue to be a major public health problem globally, despite the fact that the disease is largely preventable with a combination of public health and individual-level measures. Understanding of the aetiology, pathogenesis and distribution of caries is a prerequisite to correctly assessing the risk factors of the disease, timely diagnosis and classifying its severity and designing appropriate evidence-based interventions.

However, “one-size-fits-all” approaches to prevention and disease management will fail to address the significant differences in caries experience among regions, countries, population groups and individuals. The current scientific understanding of the disease underscores its diet-dependent, progressive and behavioral nature, while at the same time acknowledges the role of socioeconomic and political factors, resulting in variations in disease levels. Consequently, the current conceptual frameworks and practice of caries management need to address the major shifts from invasive-treatment-only interventions to prevention and management and control of the disease, and to define the evolving role of the dentist to accommodate these changes.
Challenges – What Can be Done?

The Disease – It is important to acknowledge that caries is a complex disease process and manage it accordingly, not just as a series of cavities to be filled. Historically, the focus has been on biological and dietary (sugar, processed foods high in carbohydrates) influences only. However, the evidence has accumulated showing that in addition to these key factors, wider social, economic and environmental factors also influence the disease. The condition affects all age groups, and therefore a life-course approach to its management is appropriate.

Prevention – Fluoride is still the best prevention against dental caries, and water fluoridation (where feasible) has been one of the success stories of how public health should work. However, prevention on the individual level still remains a problem and burden for many, and aggressive caries challenges can overwhelm normal fluoride regimens. Strategies are needed to educate patients, dentists and other relevant stakeholders. In this regard, the links between socioeconomic, cultural and psychological and behavioral factors, along with other determinants of health, need to be explored. Successful prevention also relies on collective and individual prevention through appropriate home behaviour and care, i.e. good oral health hygiene through usage of appropriate toothbrush and fluoride toothpaste, as well as knowledge of brushing techniques and frequency, as well as control of sugar intake.

The suggestion was also made to look into the role that mothers play in the dental caries of their children, since mothers’ own health practices can affect the oral health of their children. For example, a mother’s dietary preference for sugar will play an important role in shaping her child’s preference for sweets and increase the risk for caries. Therefore, it is important that pediatric dentists educate the mothers of their young patients on correct practices to avoid caries.

Treatment (including non-operative care) – It was stressed that caries should not be presented as an infectious disease, since antibacterial treatments have not proved to be effective. When considering treatment options, it is also important to explore the link between oral health and systemic health. A thorough consideration should be given to the realities of low-, middle-, and high-income countries and what options (e.g. technology) are available to them. However, in a digital age, with the proliferation of mobile technologies and technology transfer from wealthier nations to less prosperous ones, this distinction is becoming increasingly blurred.

Education – There is a pressing need to not only educate dental health professionals, but also to reach out to other health professions (e.g. inter-professional education), policymakers and the public. A communication strategy is needed for appropriate messaging that is understood by each target group. Educational reform should encompass undergraduate as well as continuing education, to make sure dental practice reflects the advances of science.

Economics – The economic dimension of addressing caries is paramount. It is important to understand the cost level of prevention versus surgical treatment in the long term and to consider other costs involved, such as lost productivity and opportunity costs that patients incur, particularly in settings where access to care is an issue. Financing is another major challenge. Insurance companies should encourage beneficial treatments for patients, such as tooth preserving techniques.

Partnerships – Partnerships on many levels were seen as essential to ensure prevention of caries and its proper management and control. Specifically, it was suggested that the dental professionals reach out and form collaborations with professions, patients, public, policymakers, third-party payers and product manufacturers.

Conceptual Framework to Address Challenges

The key conclusion of the meeting was the realization of the multidimensional character of the issue and the understanding that no single factor influences dental caries in isolation, and that the response should also be multidimensional, involving multiple stakeholders at multiple levels. The proposed framework reflects the complex interactions between the key themes, areas that influence the optimal dental health practice and caries management. The framework is intended to assist FDI in defining its priority areas for work in caries care and control.
Framework Depicting the Areas where Actions/Interventions are Needed for Modern Dental Practice
(Figure to be revised with CPP experts in London)

Feedback on the White Paper Outline

The second half of the workshop was devoted to the overview of the outline of the White Paper. Profs. Pitts and Zero went through the outline headings and solicited feedback from the expert group.

CPP White Paper on Dental Caries Outline with Key Questions

**Introduction** – Evolution of Caries Treatment Approached and Comorbidity (Explain Evidence Challenges) with Systemic Health Problems (Including shift from Extraction to Restoration to Prevention).

**Global Epidemiology** – (Variations in disease levels between and within counties – including inequalities). How do we improve and harmonize criteria & quality standards?

**Aetiology and Pathogenesis** – (What causes caries and what is the caries process?) How do we improve & harmonize education on this to ALL members of the Health Professions?

**Classification and Measurement** – (How disease severity is staged and caries activity assessed). How do we best pick up on earlier FDI Policy & Guidance and update the profession and health teams?

**Risk Assessment** – (Understanding & assessing the range of rates at which caries starts/progresses). How do we explain the importance to public, patients and professions?

**Primary Prevention** – (Preventing disease in the absence of disease – at both population & individual levels). How do we influence policymakers to move and make this a priority for both populations and individual patients?

**Secondary Prevention** – (Early detection and control of initial-stage disease). How do we develop methods to deliver this more effectively in routine clinical and public health practice – and explain the approach to public and patients?

**Preservation of Tooth Tissues** – (Understanding importance of retaining natural tissue where possible). How do we stop iatrogenic and inappropriate cutting of teeth?
Evidence-based Clinical Caries Management: A Systematic Approach – (ICCMS & others).
How do we best implement already developed and evolving system(s) locally and globally?

Remuneration for Appropriate Caries Prevention & Management – (Avoiding perverse incentives).
How do we implement fairer systems rapidly on a global basis?

The Role of the Dental Team & Other Health Professionals – (Opportunities across different countries).
How do we take team-delivered prevention forward in ways which are locally effective and acceptable?

Supporting Change in Caries Management Where it’s Needed – (Locally, nationally & globally).
We largely know what should be done. How to make it happen?

Caries Prevention & Management: Assessing Outcomes/Progress - (Locally, nationally & globally).
How do we assess both progress and improved health outcomes at all three levels?

Dental Caries – A Call to Action – (Simple steps needed globally to improve the caries problem).
How do we best communicate the ability and need we have to reduce the caries burden to the very
different stakeholders who can make a difference?

Feedback
The participants unanimously approved the headings of the outline. They felt the paper was timely for
the profession. The feedback mostly consisted of some essential points that the authors (Profs. Pitts and
Zero) will need to consider when developing a paper. Experts also shared their experiences from different
countries (Thailand, USA, Morocco, Iran, Germany, Colombia, UK, Jordan). In the end, the following main
points emerged from the extensive discussion:

Public Health and Policy
- A distinction should be made between prevention at the population level (which was perceived to
be successful in some regions) and at the individual level (where success was more problematic).
Prevention should also be differentiated as primary, secondary, and tertiary.
- Proposed strategies should be short-term and long-term, since most politicians do not hold office
longer than 2-4 years, and the implementation of recommendations may become an issue.
- Messages should be tailored for different populations, as well as age groups.
- Young professionals should be provided incentives to practice in underserved areas.
- Sugar is the key culprit. This has to be communicated very clearly.
- Demonstration projects and cost-effectiveness studies are needed, but action should not wait on
their results.
- The social determinants of health should be considered.
- Culture, through cultural norms and practices, influences a wide range of factors affecting oral health
and caries in particular.

Financing
- Remuneration issues are critical when we are promoting a shift toward prevention. There has to be a
shift toward paying for prevention as well.
- Remuneration should reflect the changes in education and practice.
- Economics is important. True risk-benefit analysis and informing the patient will shift the balance
toward prevention.
- Remuneration is important. We need to send a message that it is important to change the mindsets of
governments and insurance companies.

Education
- Harmonization of education has its challenges, since education is context-specific. Current educational
models in countries should be kept in mind when proposing changes. Dentists need to be trained to
see themselves as delivering a whole package of care from prevention to minimally invasive care to surgical treatments.

- Inter-professional education is important.
- Recruitment of students is critical. The values and ethics of the recruits needs to be considered, since they will be the future dental practitioners.
- Continuing education should be a key message.
- Learning from other successful health programmes will be helpful. For example, tobacco cessation programmes.
- Professional ethics need to be mentioned. Patients’ interests should come first. Trust between a dentist and a patient is critical for favorable outcomes.
- We are talking to different audiences. We need a communication strategy with messages for dental associations, policymakers, and patients and public in general.
- E-learning is important, and increasingly so, in low-income countries.
- Need to pay attention to terminology, so key concepts are clearly understood when translated into different languages, and different (non-specialist) groups can understand the intended meanings.

Dental Practice

- Classification and measurement are critical in caries management. FDI’s guidance in this regard is paramount. For the White Paper, earlier documents issued by FDI (e.g. FDI Policy Statements) need to be consulted and the agreed recommendations taken forward.
- Risk assessment is an integral part of caries management. We need to communicate this and give the necessary tools to the profession. Risk assessment should be part of the management plan.
- The focus should be on implementation of what we have as best practice. There was a plea to try to avoid giving too many options throughout the materials produced.
- Focus on integrated management of dental caries and implementation of currently available strategies. The time to act is now.
- Use the term “care” to emphasize the continuum of care from prevention to treatment.
- In dentistry in many places, we have lost the long-term “biological view” and adopted a more mechanistic perspective, forgetting that in our profession less is more.

Partnerships

- Partnership with the producers of dental materials and dental treatments is key.
- Collaboration and partnerships are critical to address the multidimensional character of the disease.

Conclusion of the Workshop

Moving Forward

Two key messages were drawn from the meeting. One was the realization of the multidimensional character of dental caries with multiple influencing factors affecting the disease process, which means the response should also be multidimensional, involving diverse stakeholders at multiple levels. The other key message from the meeting was the consensus that the evidence-implementation gap persists, and FDI needs to focus its work to help close the gap.

FDI has an excellent opportunity to lead the change on a global level through its policy and advocacy work. The areas of change were reflected in the themes presented in the framework that emerged from the discussion. More specifically, it was felt that there was a need to develop a communications strategy incorporating messages for patients, the public in general, policymakers and dental practitioners. FDI’s guidance in terms of tools and guidelines for the members will be appreciated. The White Paper will provide the evidence on which to base policy and advocacy arguments. Partnerships with key stakeholders were seen as a solution to address the multilevel and multidimensional nature of dental caries.
Closing

Profs. Pitts and Zeno thanked all the participants for their valuable contribution to the summit and workshop and for the constructive feedback on the White Paper. They encouraged the experts to continue their involvement in the FDI's work and wished them well.

Call to Action

Caries prevention and control is critical for optimal oral health. There is a need for a comprehensive public health approach, as well as individual interventions to address and control all aspects of the disease. FDI and the Caries Prevention Partnership will be working at the global level to help develop new strategies and tools to ensure best practices for optimal, prevention-based caries management and control.

FDI calls on its national member associations, policymakers and oral health practitioners to implement a new paradigm shift for caries prevention, management and control, to improve the oral and general health of populations.