



The Neglect of Global Oral Health: Symptoms and Solutions

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Summary

This thesis has presented a sequence of papers to illustrate selected aspects of the neglect of global oral health, highlighted new approaches to describing the extent and impact of dental caries, explained the difficulties related to quality assurance of fluoride toothpastes; and, finally, has described a successful model for school health, which integrates oral health. Moreover, the important role of advocacy in different contexts has been illustrated. The papers presented can be summarised under the following six broad areas:

1. Neglecting political priority

The reasons for the global neglect of oral health are complex and manifold (*Chapter 1*). In *Chapter 2* the reasons for the low political priority of global oral health are analysed through the lens of four areas of political power: 1) the power of the ideas; 2) the power of the issue; 3) the power of the actors; and 4) the power of the political context. It is the first time that a tool of political analysis has been applied to the sector of Global Oral Health. The analysis of eleven related sub-factors reveals a striking lack of power for the concept of oral health as a neglected disease area and for oral health as an issue in itself. Furthermore, the power of the key global oral health stakeholders is limited and the political context is not favourable for global oral health. The shortcomings and weaknesses demonstrated in the analysis range from the most basic matters, such as agreement on a clear problem definition, to complex and multi-levelled issues concerning appropriate data collection and selection of adequate and appropriate solutions.

2. Neglecting the oral health workforce - illegal oral care

One of the consequences of the global neglect of oral diseases is the lack of access to safe and affordable oral care for many populations around the world, who, in many cases, have to rely on the services of illegal providers. *Chapter 3* analyses this complex problem using a case study of Guyana. Illegal provision of oral care is a serious public health problem in many low- and middle-income countries, resulting in inadequate and harmful 'care' with great risks to patient safety. The paper argues that the issue goes far beyond the legal context that is evoked through the term 'illegal practice'. The phenomenon should rather be seen as a symptom of underlying health system and society deficits, ranging from social and health inequities to problems of weak governance and law-enforcement. A new classification of illegal practice based on the criteria of training and legal status is proposed, thus providing

for a better analysis of the problem in future research, even in areas outside of dentistry, where illegal practice occurs as well. The ethical challenges of the problem remain: On the one hand the risks to patients which stem from unsafe practices, and on the other hand the unmet treatment needs of patients that have no access to appropriate and safe formal oral health care. In this context illegal oral care must be seen as yet another complex symptom of the neglect of the oral health sector.

3. Addressing neglect by demonstrating new dimensions of impact

Caries is not one single entity in terms of burden – different impacts in terms of pain and discomfort can result from different manifestations of the decay process. The failure to differentiate and assess these various stages of caries and their consequences for health in the DMFT index results in the low calculations of burden in the context of measuring disease burden through the DALY concept. Most dental decay, particularly in low- and middle-income countries, remains untreated. Untreated caries has specific characteristics with a usually episodic high impact on quality of life. The new PUFA index introduced in *Chapter 4a* is most relevant for populations with a high caries burden and a low care index. This new caries index adds an important dimension to existing caries indices because it allows for assessment of the prevalence of the specific conditions associated with untreated decay and quantifies their extent in an easy understandable way. Suggestions to include only specific components of PUFA in a comprehensive caries index reduce the value of the index, which ultimately results in missing the consequences of caries with a high impact on health and wellbeing (*Chapter 4b*). Furthermore, the PUFA index helps to prioritise treatment needs - children with high PUFA scores should receive treatment first to address the complex consequences of odontogenic infection.

Chapter 5 investigates an aspect of untreated dental decay that has so far been widely ignored – the impact of odontogenic infection on the growth of children (measured through the Body Mass Index, BMI). The data for the research was gathered during the 2006 National Oral Health Survey in the Philippines. The survey revealed a prevalence of caries of 82% and a prevalence of odontogenic infection of 56% in 12-yr-olds. The analysis showed a significant association between low BMI and odontogenic infection (measured with the new PUFA index), but not between BMI and caries without odontogenic infection. The paper is the first ever to show this

association in a representative sample. On the basis of this finding, *Chapter 5* presents an expanded model of hypothesised factors leading to poor education performance of children. The model adds the dimension of advanced untreated dental caries as a specific and highly prevalent chronic disease of children and highlights pathways of interaction with all of the established factors contributing to poor child development.

In the context of increased efforts to achieve the United Nation's Millennium Development Goals (MDGs), and more specifically Goals 1 and 2 related to hunger and education, it is important to address the determinants of child development, nutrition status and educational performance comprehensively and from different perspectives. Since most determinants of poor child development are rather complex, outside of the health system or even impossible to address in the short term, the relatively simple interventions required for improving oral health of the world's disadvantaged children should be considered to be among the priority choices for health planners looking for quick, comparatively easy and cost-effective measures to contribute to the timely achievement of the MDGs. It is therefore suggested to include the absence of odontogenic infection (PUFA=0) as outcome indicator for (oral) health programme planning, monitoring and evaluation. This is of particular relevance for non-dental audiences involved in the larger context of child development.

4. Neglecting the quality of fluoride toothpaste

Fluoridated toothpaste is a major vehicle for exposure to fluoride and toothbrushing with fluoride toothpaste is one of the most important preventive actions against dental caries. It is therefore essential that fluoride toothpastes are able to achieve their therapeutic anti-caries effect, and that their content is clearly labelled for consumers corresponding to their actual ingredients. *Chapter 6* presents a multi-country study from Brunei, Cambodia, Laos, the Netherlands and Suriname revealing huge differences in claimed and actual total/free fluoride content, and widespread non-compliance with labelling requirements defined by the International Standards Organisation (ISO). The reasons for these problems are related to the absence of a generally accepted analysis methodology for total and free fluoride content, the lack of scientific clarity on the minimum concentration of fluoride to ensure efficacy, the weakness of regulatory institutions which are unable to control labelling and

consumer information, as well as an increasing influx of counterfeit low-quality products on the national markets surveyed.

The problems described in the chapter must be seen as clear symptoms of neglect:

- ISO consultations dominated by toothpaste producers with little or no involvement of public health professionals or civil society representation;
- No advocacy of dental public health specialists for strong national regulations and quality control institutions; and
- A lack of interest from the broader dental community in improving and promoting high-quality fluoride toothpaste as an important tool for self-care and prevention.

5. Addressing neglect through integrated school health

Chapter 7 presents the 'Essential Health Care Programme' (EHCP, also known as "Fit for School Programme") that is currently implemented in the Philippines and other Asian countries. The intervention package is an example of how oral health can be integrated in a broader health context. EHCP addresses high-impact child diseases, including dental decay, through a cost-effective, simple and integrated approach implemented by teachers, thus not requiring direct intervention of health professionals. The programme's simplicity and focus on tangible behaviour change through acquisition of life-long skills, such as daily handwashing and toothbrushing, is well founded in the evidence of the interventions. The programme is supported through a comprehensive set of advocacy and policy tools to ensure high quality implementation, scalability and sustainability. The novel focus on daily activities contrasts to traditional health education activities that assume behaviour change through increased knowledge.

While building on recognised policy frameworks for school health from the WHO and UNESCO, it exemplifies the current conceptual public health paradigms of integration, and intersectorial and interprofessional collaboration. Through daily toothbrushing with fluoride toothpaste it is a realistic approach for mass-scale evidence-based prevention of dental caries; and thus addresses the neglect of oral health in an upstream, evidence-based and surprisingly simple way. A longitudinal cohort study over four years has been set up to analyse the health and education

impact of the Fit for School Programme. The recently published 1-year data show a reduction in the prevalence of moderate to heavy worm infections, a rise in mean BMI, and a (statistically non-significant) reduction in dental caries and dental infections.¹ It is expected that further analysis after a longer observation period will confirm these initial trends. Such evidence will increase the programme's potential to become a template for policy makers, programme planners and community activists from a broad range of sectors, including water and sanitation, health and education. Through its modular and template-based approach it has already demonstrated its huge potential for effective scaling-up to reach broader coverage.

6. Addressing neglect through advocacy

Advocacy for oral health and inclusion in major international, regional and national health policy agendas is key to addressing the neglect of oral diseases. Building on the concept and lessons learnt from the Fit for School Programme in the Philippines, *Chapter 8a* presents an innovative and pragmatic new policy framework for school health, the 'Fit for School Action Framework'. It takes existing, more complex and more abstract school health policy frameworks into account and amalgamates them under the '3S' concept: simplicity, sustainability and scalability. These three key principles are supported by accompanying research and enabling factors, all of them essential for any given successful school health programme. The aim of the framework is to provide guidance in addressing the worldwide gap between existing well-intended policies and broad-scale implementation. As a policy framework, it provides a platform for effective interventions in school health targeting high-impact diseases affecting children, including oral diseases.

Chapters 8b, 8c and 8d are examples of advocacy aimed at including oral diseases in the context of the newly emerging global attention to non-communicable, chronic diseases. Advocacy potentially uses multiple channels, ranging from informal personal contacts to key opinion leaders and decision makers, to public campaigning and pressuring. While the best mix of advocacy tools is to be determined on a case-to-case basis, it is important that different players and stakeholders in this process use their complementary areas of expertise and align their activities and agendas to a converging goal. The publication in *The Lancet*, even though a short comment, provided for maximum exposure and contributed to creating momentum towards the inclusion of oral diseases in the NCD context. The international discussions and

political activities around non-communicable diseases may have this uniting potential on the oral health sector (as postulated in *Chapter 2*), though concrete and tangible action will have to follow.