Unacceptable global burden of oral disease

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The global challenge of oral disease affects billions worldwide, yet remains underestimated. With significant health and economic impacts, it demands a shift towards holistic prevention and integrated healthcare. The WHO's Global Strategy for Oral Health sets a vision for equitable oral care, emphasizing prevention, innovation, and collaboration across health sectors.

Oral health is a fundamental component of health and physical and mental wellbeing. It is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort, and disease of the craniofacial complex[1].

The scale of the challenge

However, good oral health is enjoyed by all too few people worldwide and the global burden of oral diseases is a widely underestimated challenge for almost all countries worldwide[2]. Oral diseases are the most widespread of all the noncommunicable diseases (NCDs) affecting almost half of the world's population[3]. They have serious health impacts, adversely affecting the quality of life of those affected[4]. Even though largely preventable, oral conditions are a substantial global population health challenge[5] and it has been estimated that they affect 3.5 billion people worldwide. Of these 2.3 billion have untreated decay of their permanent teeth; around 800 million have severe periodontal (gum) disease; half a billion chil-

dren have untreated decay in their deciduous teeth, and 267 million people have complete tooth loss[6]. Oral cancer accounts for a significant number of the remaining cases, with an estimated incidence of 300,000 to 700,000 new cases occurring every year. With a high mortality rate, oral cancer is among the ten most common cancers, depending on country or world region[2].

A major driver of health expenditure

The burden of oral disease remains unacceptably high and oral healthcare is one of the costliest of all health services. Worldwide, oral diseases and conditions accounted for US$ 357 billion in direct costs and US$ 188 billion in indirect costs in 2015[7] and the cost of treating oral diseases is a major driver of health expenditure, especially in high-income countries. In 2015 they were the third most expensive of health service costs in the European Union, exceeded only by diabetes and cardiovascular disease[5]. In low- and middle-income countries access to oral healthcare services is often either poor or non-existent, which can expose households to the risk of catastrophic health expenditure or preclude them from oral healthcare entirely.

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Persistent oral health inequalities exist within and between countries worldwide. Like most chronic diseases, the prevalence of oral diseases is socially patterned and follow the social gradient, with oral health declining in a stepwise fashion along the gradient[8]. The lower an individual's socioeconomic position the worse their oral health will be, with the consequence that oral diseases and conditions disproportionately affect the poor, vulnerable and marginalized members of societies.

Significant impact on quality of life

In addition to their economic impacts, oral diseases also have a significant adverse impact on the quality of life. In children they are the most common causes of pain that disturbs sleep and contributes to poor school performance. Between 2016–2017, dental extractions under general anaesthesia were the most common reason for hospital admission for children aged five to nine years in the United Kingdom. Similar patterns were also seen in Australia, The United States and New Zealand[9]. In adults and older people, dental pain, suffering and discomfort severely restrict dietary intakes, social functioning, and can lead to reduced economic productivity[10]. These high levels of oral disease and their wider impact on health and development constitute a major public health challenge, especially in disadvantaged groups in all countries 11 and even where overall improvements in oral health have occurred, inequalities persist[12].

Meeting the challenge: the need for a different approach

It is clear from the evidence that the current approaches to the delivery of

oral healthcare have not been effective in reducing the overall burden of disease. The traditional high-income country model of dental care is inappropriate for the management of disease at the global level. Not only is it unaffordable, but in low and middle-income countries the necessary human resources are simply unavailable or distributed unequally, so very different models of care will be required. If sustainable improvements in oral health and a reduction in oral health inequalities are to be achieved, strategies will be required to both manage the existing burden of disease and deliver effective population-level prevention.

It is now widely accepted that oral diseases share common risk factors with other NCDs, especially high sugar intake, all forms of tobacco use, and harmful alcohol consumption. They also share the same social determinants of health; the conditions in which people are born, grow, work, live, and age, the systems put in place to deal with illness, and the wider set of forces and systems shaping the conditions of daily life. Social determinants of health matter because addressing them not only helps prevent illness, but also promotes healthy lives and societal equity. In 2023 the World Health Organization (WHO) also recognised the commercial determinants of health as a key social determinant[13]. These include the conditions, actions and omissions by commercial actors that affect health. Prevailing interventions that focus on modifying health behaviours and lifestyle choices have only limited success, because the ignore the wider social influences that determine these choices. Only a broader integrative strategy that takes account of the common risk factors and determinants of health will result in fair and equitable approaches to promoting better oral and general health[2].

In addition to their shared determinants and risk factors, there has been considerable interest in the potential links between oral diseases and a range of chronic diseases, particularly diabetes and cardiovascular disease, and how these affect each other in a bi-directional fashion[14]. The strongest and most consistent evidence so far has shown an association between severe periodontal disease and diabetes mellitus, where clinical interventions to treat severe periodontal disease have shown improvements in diabetes status, at least in the short term[15].

Planning for the future: the WHO Global Strategy for Oral Health

For too long the global burden of oral disease has been ignored at the highest policy levels and oral healthcare has existed in its own silo, separate from the rest of healthcare. Oral health care systems have been inadequately funded, are commonly delivered by independent private providers, and isolated from the broader health care system. Consequently, in most countries universal healthcare (UHC) benefit packages and NCD interventions do not include essential oral health care. Given the strong evidence that that oral diseases share determinants and risk factors with the other NCDs, this is no longer an acceptable situation.

In 2021 the World Health Assembly (WHA) acknowledged that the global burden of oral diseases and conditions was an urgent public health challenge, leading to a resolution at that oral health should be firmly embedded within the NCD agenda and that oral health care interventions should be included in UHC programmes[16]. WHO was subsequently charged with developing a Global Strategy for Oral Health and this was approved by the WHA in 2022. The vision for the Strategy[17] is that oral health should be included in UHC packages for all individuals and communities by 2030, enabling them to enjoy the highest attainable state of oral health contributing to healthy and active lives. The six guiding principles of the Strategy are:

- a public health approach to oral health.
- integration of oral health into primary health care.
- innovative workforce models to respond to population needs for oral health.
- people-centred oral health care.
- tailored oral health interventions across the life course.
- optimizing digital technologies for oral health.

These principles are closely related to the FDI World Dental Federation's Vision 2030: Delivering Optimal Oral Health for All[18]. This report makes the case for essential oral health services to be integrated into healthcare in every country so that appropriate quality oral healthcare becomes available, accessible, and affordable for all; for oral and general person-centred healthcare to be integrated, leading to more effective prevention and management of oral diseases and improved health and wellbeing, and for oral health professionals to collaborate with a wide range of health workers to deliver sustainable, health-needs based and people centred healthcare.

Globally, there is a strong recognition that human resources for health are fundamentally important to deliver effective care, accessible to all people.

In conclusion: expect excellent oral health

In common with the other NCDs, oral disease will not be eradicated through treatment alone. Instead, health systems should incorporate population-level prevention; oral health should be included in all universal healthcare packages, and there should be much closer integration of oral health and general health. There needs to be a significant shift in health behaviours in which we accept responsibility for maintaining our own oral

health, rather than being passive recipients of care. For this to be achieved there needs to be an improvement in oral health literacy, both among health professionals and the population at large. In addition to delivering the population-level objectives, significant changes in behaviour will be required, not just of individuals but of the oral health sector itself with a person-centred approach that focuses on disease prevention from the outset.

The current exclusion of oral health services from public healthcare packages leaves people at an unnecessarily high risk of catastrophic health expenditures. As important as it is to change behaviours, there must equally be a push for regulatory change to address the upstream determinants of oral disease including education, accessibility of healthy foods and good self-care routines.

Substantial progress towards putting oral health back on the global health agenda has been achieved through the landmark WHO resolution to establish a Global Strategy for Oral Health. Now that we have a vision and target set for 2030, the challenge is to build on evidence-based research to make the case for including oral health as part of UHC benefits packages and national NCD intervention strategies. First steps will be to define a set of safe, cost-effective interventions to prevent and treat the most common oral diseases at an early stage. It is also imperative to engage with the private sector and civil society to drive reform in regulations surrounding unhealthy commodity industries, notably tobacco, alcohol, and sugar, to arrest the continued promotion of harmful goods.

Globally, there is a strong recognition that human resources for health are fundamentally important to deliver effective care, accessible to all people. This includes a focus on prevention, screening for and monitoring of systemic health conditions, environmentally friendly practices, and an appropriate, responsible use of technology that benefits patients. Successful oral health resource and workforce planning is critical to the sustainability of a healthcare system and should be developed in close cooperation between governments, educators, and the oral health profession to ensure the delivery of the right care, in the right place, at the right time, by the right number of people, to those most in need.

> For too long the global burden of oral disease has been ignored at the highest policy levels.

Ultimately, we are generators of our own health and should not be resigning ourselves to the inevitability of disease but must instead come to expect excellent oral health across our life course. The challenge for us now is to implement the measures articulated in the WHO Global Strategy for Oral Health.

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