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The Lancet: Big Sugar and neglect by global health community fuel oral health crisis

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THE LANCET

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- With a treat-over-prevent model, modern dentistry has failed to combat the global challenge of oral diseases, giving rise to calls for the radical reform of dental care
- The burden of oral diseases is on course to rise as more people are exposed to the underlying risk factors of oral diseases, including sugar, tobacco and alcohol
- Emerging evidence of the food, beverage, and sugar industry's influence on dental research and professional bodies raises fresh concern

Oral health has been isolated from traditional healthcare and health policy for too long, despite the major global public health burden of oral diseases, according to a Lancet Series on Oral Health, published today in *The Lancet*. Failure of the global health community to prioritise the global burden of oral health has led to calls from Lancet Series authors for the radical reform of dental care, tightened regulation of the sugar industry, and greater transparency around conflict of interests in dental research.

Oral diseases, including tooth decay, gum disease and oral cancers, affect almost half of the global population, with untreated dental decay the most common health condition worldwide. Lip and oral cavity cancers are among the top 15 most common cancers in the world. In addition to lower quality of life, oral diseases have a major economic impact on both individuals and the wider health care system.

Accessing dental care continues to present the highest cost barrier compared to any other healthcare service in the United States (U.S.) and the highest dental expenditures globally were found for the U.S. (\$129.1 billion).

[1]

The Lancet Series on Oral Health led by University College London (UCL) researchers brought together 13 academic and clinical experts from 10 countries, including the US, to better understand why oral diseases have persisted globally over the last three decades, despite scientific advancements in the field, and why prevalence has increased in low- and middle- income countries (LMIC), and among socially disadvantaged and vulnerable people, no matter where they live. [2]

A tipping point for global oral health

"Dentistry is in a state of crisis," said Professor Richard Watt, Chair and Honorary Consultant in Dental Public Health at UCL and lead author of the Series. "Current dental care and public health responses have been largely inadequate, inequitable, and costly, leaving billions of people without access to even basic oral health care. While this breakdown in the delivery of oral healthcare is not the fault of individual dental clinicians committed to caring for their patients, a fundamentally different approach is required to effectively tackle to the global burden of oral diseases." [3]

In high-income countries (HIC), dentistry is increasingly technology-focused and trapped in a treatment-over-prevention cycle, failing to tackle the underlying causes of oral diseases. Oral health conditions share many of the same underlying risk factors as non-communicable diseases, such as sugar consumption, tobacco use and harmful alcohol consumption.

Professor Robert J. Weyant, DMD, DrPH Professor and Chair, University of Pittsburgh, Department of Dental Public Health, said: "The U.S. continues to struggle with how to best ensure access to affordable dental care for many individuals. This has led to ongoing suffering for many with oral disease and significant disparities in oral health for vulnerable populations such as poor families, ethnic minorities, and the elderly. The Affordable Care Act helped to expand access to dental care for millions but many still remain unable receive needed care, highlighting an urgent need for improvements in dental health policy." [4]

In middle-income countries the burden of oral diseases is considerable, but oral care systems are often underdeveloped and unaffordable to the majority. In low-income countries the current situation is most bleak, with even basic dental care unavailable and most disease remaining untreated.

Coverage for oral health care in LMIC is vastly lower than in HIC with median estimations ranging from 35% in low-, 60% in lower-middle, 75% in upper middle, and 82% in high income countries.

Sugar, alcohol and tobacco industries fuel global burden

The burden of oral diseases is on course to rise, as more people are exposed to the main risk factors of oral diseases. Sugar consumption, the underlying cause of tooth decay, is rising rapidly across many LMIC. While sugary drinks consumption is highest in HIC, the growth in sales of sugary drinks in many LMIC is substantial. By 2020, Coca-Cola intend to spend US\$12 billion on marketing their products across Africa [5] in contrast to WHO's total annual budget of \$4.4 billion (2017).

"The use of clinical preventive interventions such as topical fluorides to control tooth decay is proven to be highly effective, yet because it is seen as a 'panacea', it can lead to many losing sight of the fact that sugar consumption remains the primary cause of disease development." said Watt. "We need tighter regulation and legislation to restrict marketing and influence of the sugar, tobacco and alcohol industries, if we are to tackle the root causes of oral conditions."

Writing in a linked commentary, Cristin E Kearns of the University of California and Lisa A Bero of the University of Sydney raise additional concerns with the financial links between dental research organisations and the industries responsible for many of these risk factors.

"Emerging evidence of industry influence on research agendas contributes to the plausibility that major food and beverage brands could view financial relationships with dental research organisations as an opportunity to ensure a focus on commercial applications for dental caries interventions--eg, xylitol, oral hygiene instruction, fluoridated toothpaste, and sugar-free chewing gum--while deflecting attention from harm caused by their sugary products."

Lancet Series authors argue a pressing need exists to develop clearer and more transparent conflict of interest policies and procedures, and to restrict and clarify the influence of the sugar industry on dental research and oral health policy.

Radical reform of dentistry needed

Lancet Series authors have called for wholesale reform of the dental care model in five key areas:

1. Close the divide between dental and general healthcare
2. Educate and train the future dental workforce with an emphasis on prevention
3. Tackle oral health inequalities through a focus on inclusivity and accessibility
4. Take a stronger policy approach to address the underlying causes of oral diseases
5. Redefine the oral health research agenda to address gaps in LMIC knowledge

Dr Jocelyn Clark, an Executive Editor at *The Lancet*, said: "Dentistry is rarely thought of as a mainstream part of healthcare practice and policy, despite the centrality of the mouth and oral cavity to people's well-being and identity. A clear need exists for broader accessibility and integration of dental services into healthcare systems, especially primary care, and for oral health to have more prominence within universal health coverage commitments. Everyone who cares about global health should advocate to end the neglect of oral health."

APPENDIX OF KEY FACTS & STATISTICS

Oral disease: types and causes

- The key oral health conditions include: dental caries (tooth decay) [localised destruction of dental hard tissues (enamel and dentine) by acidic by-products from the bacterial fermentation of free sugars]; periodontal (gum) disease [chronic inflammatory conditions that affect the tissues surrounding and supporting the teeth]; and oral cancer [squamous cell carcinoma is the most common type of oral cancer].
- The main cause of periodontal disease is poor oral hygiene leading to an accumulation of pathogenic microbial biofilm (plaque) at and below the gingival margin. Tobacco use is also an important independent risk factor for periodontal disease.
- The major risk factors for oral cancers are tobacco use, alcohol consumption, and areca nut (betel quid) chewing. In many high-income countries (HIC), human papilloma virus (HPV) infection is responsible for

a steep rise in the incidence of oropharyngeal cancers among young people.

- Oral diseases can lower quality of life in many ways, including pain, infections, problems with eating and speaking, diminished confidence, and disruption to social, work, and school activities.

The global burden of oral disease

- The most recent data from 2015 confirm that untreated caries in the permanent dentition remain the most common health condition globally (34.1%).
- A 4% decrease in the number of prevalent cases of untreated dental caries occurred globally from 1990 (31,407 cases per 100 000) to 2017 (30,129 cases per 100 000).
- The global burden of untreated dental caries for primary and permanent dentition has remained relatively unchanged over the past 30 years.
- Epidemiological evidence indicates that lifetime prevalence of dental caries has decreased in the past four decades, but this is mainly in HIC, with the most substantial decrease seen in 12-year-old children.
- Data from 2018 show that oral cancer has the highest incidence among all cancers in Melanesia and south Asia among males, and is the leading cause of cancer-related mortality among males in India and Sri Lanka.

Inequalities in oral disease

- Case-control studies showed a consistent association between low socioeconomic status and oral cancer in both LMIC and HIC, even after adjustment for behavioural confounders.
- Extreme oral health inequalities exist for the most marginalised and socially excluded groups in societies, such as homeless people, prisoners, those with long term disabilities, refugees, and indigenous groups, which serves as a classic example of a so-called cliff edge of inequality
- Indigenous children, even in HIC (Australia, Canada, New Zealand, and USA), are particularly vulnerable, with the prevalence of early childhood caries ranging from 68% to 90%.

Prevention

- WHO recommends that free sugars intake should be restricted to less than 10% of total energy highlighting that for further benefits, restriction in sugar consumption should be now more than 5% of total energy; however, many countries do not meet these guidelines.
- While topical fluorides are proven clinical preventive agents, caries will still develop in the presence of free sugars above 10% of total energy intake. Even where exposure to fluoride is optimal, evidence suggests that free sugars exposure as low as of total energy may still carry a risk of caries.

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****US data****

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