

ENVISIONING DENTISTRY'S FUTURE: HIGHLIGHTING SELF-CARE AND HYGIENE AMID THE CHALLENGES OF THE WHO GLOBAL ORAL HEALTH ACTION PLAN

Visualizando el futuro de la odontología: destacando el autocuidado y la higiene frente a los desafíos del plan de acción global para la salud bucal de la OMS

Cesar Rivera.¹

1. Oral and Maxillofacial Histopathology Laboratory, Department of Stomatology, Faculty of Dentistry, Universidad de Talca, Talca, Región del Maule, Chile.

The global burden of oral diseases, despite decades of advances in dentistry, has remained persistently high, with little change in incidence or prevalence over the past 30 years (Table 1).¹ This stagnation reflects a systemic failure to address the root causes of these conditions and underscores the urgency of the World Health Organization's Global Oral Health Action Plan (GOHAP) 2023–2030. This perspective seeks to dissect and deliberate on the pivotal elements and strategic objectives outlined in the GOHAP, underscoring a comprehensive approach toward eradicating preventable oral diseases, and integrating oral health into the broader spectrum of universal health coverage.

The most ambitious and radical goal within the field of dentistry is the drastic reduction of preventable oral diseases. Fortunately, significant international collaborations, united under the GOHAP for 2023-2030, are making strides towards achieving this vision at some point in the future. The plan is anchored in two global objectives: firstly, to broaden the reach of essential oral health services to 80% of the global populace, and secondly, to achieve a 10% relative reduction in the incidence of major oral diseases by the designated year.² Achieving these objectives necessitates a comprehensive strategy, encapsulating six guiding principles alongside six strategic objectives (Supplementary Table S1), thereby orchestrating a holistic and coordinated upliftment of oral health on the international stage.

The GOHAP is a significant effort by the WHO to tackle oral diseases, which affect about 3.5 billion people globally,³ representing a considerable economic burden and highlighting the interconnection between oral health and general health. By focusing on prevention, treatment, reduction of inequalities, and the integration of oral health into universal health coverage, the GOHAP aims to improve access to dental care, especially in disadvantaged communities, and to reduce the prevalence of chronic and preventable oral diseases.

Received: December 12, 2024. | **Accepted:** March 20, 2024. | **Published online:** April 28, 2025.

Corresponding Author: César Rivera. Universidad de Talca Campus Lircay. Avenida Lircay S/N, Edificio de Ciencias Biomédicas, Oficina 4, Talca, Región del Maule, Chile. **Phone:** (+56-71) 2418 855 **E-mail:** cerivera@utalca.cl

doi:10.17126/joralres.2025.002

Table 1.

Global burden of oral conditions over nearly 30 years of dentistry (1990-2017).¹

| Disease | Prevalence | Incidence |
|--|---------------------|---------------------|
| All oral conditions | 45.0 (42.3 to 47.6) | 48.3 (43.1 to 53.9) |
| All oral conditions (% change between 1990-2017) | -5.5 (-6.0 to -4.9) | -0.3 (-1.1 to 0.6) |

The first row shows values per 100 inhabitants. The numbers in both rows are age-standardized (removing the confounding effect). Summarized from Bernabe *et al.*¹

Central to achieving these objectives is the promotion of oral health and self-care, a principle that underscores the critical importance of less invasive, cost-effective strategies focused on enhancing lifestyle choices to mitigate oral diseases. Highlighted within this framework is the evidence supporting self-care and regular dental hygiene as the paramount factors in preventing dental diseases.³ Notably, moderating the intake of free sugars emerges as a pivotal self-care strategy in averting dental caries,⁴ while maintaining efficient oral hygiene is key to preventing both caries and periodontal disease.⁵ Furthermore, reducing

or altogether ceasing alcohol consumption substantially lowers the risk of oral cancer,⁶ and quitting smoking is shown not only to decrease the incidence of oral cancer but also to improve survival rates following diagnosis.⁷

This paradigm shift towards emphasizing behavioral changes and healthy lifestyle habits requires dedicated time and effort—a commitment that the field of dentistry often overlooks. In a recently published article, Watt *et al.*,⁸ critically address the current dental care system's failure to effectively tackle these diseases. The article

Table 2.

Relevant oral diseases/conditions according to WHO and pertinent figures.

| Disease/condition | World ¹² | The Americas ¹³ | Chile ¹⁴ |
|----------------------------|---|--|---|
| Dental Caries | 3.5 billion people are affected globally. | More than 467 million cases in the Americas. | Prevalence of untreated caries in permanent teeth: 49.5%. |
| Severe Periodontal Disease | Affects 1 in every 10 people globally. | 19.7% increase in prevalence between 1990 and 2019 in the Americas. | Prevalence: 21.6% in individuals aged 15+ years. |
| Edentulism | Particularly affects disadvantaged populations. | Almost 75 million cases in individuals aged 20+ years in the Americas. | Prevalence: 7.3% in individuals aged 20+ years. |
| Lip and Oral Cavity Cancer | Over 377,713 new cases and 177,757 deaths globally in 2020. | 45,357 new cases in 2020 in the Americas. | 295 new cases in Chile in 2020; Incidence rate: 1.0 per 100,000 population. |

The global figures were sourced from the “Global Oral Health Status Report,” for the Americas from the “Regional Summary of the Region of the Americas,” and for Chile from the “Chile Oral Health Country Profile,” all of which were published by the WHO.

points out that in high-income countries, the prevalent treatment approach—characterized by high technology and intervention—fails to address the root causes of diseases and the inequalities in oral health. Conversely, in low and middle-income countries, the shortcomings of a "westernized" dental model become even more pronounced, often proving to be inaccessible, unaffordable, and inappropriate for most of the population, particularly for the rural poor. Recognizing the importance of time dedicated to influencing habits and promoting effective hygiene is essential.

Such a focus on behavioral modification should be a critical consideration for dental services, particularly those serving a large patient volume. Thus, a key success indicator for dental policies should be the elimination of harmful habits and the gradual improvement in oral hygiene practices. This perspective advocates for a significant shift in oral healthcare, highlighting the profound impact of preventive measures and self-care on both specific oral health issues and overall well-being.

Chile has implemented a range of public health initiatives aimed at promoting comprehensive health across different stages of life. These efforts are encapsulated in the eight Health Goals established under Law 19.813, which form a cornerstone of the country's public health policies. Within this framework, the third Health Goal for 2023, as outlined by the Ministry of Health (MINSAL), focuses on protecting the oral health of children. This includes risk-based dental assessments for children aged 0 to 9 and ensuring that 6-year-olds remain caries-free.⁹ To achieve these objectives, specific programs such as **Pro-grama CERO**, **Sembrando Sonrisas**, and the Explicit Health Guarantees Plan (GES)

for 6-year-olds have been developed to support the healthy development of children and adolescents.¹⁰ Additionally, dental pathologies are addressed within the GES framework, catering to various age groups. The National Oral Health Plan 2018–2030 further reinforces these efforts by striving to improve oral health and reduce disparities through strategic pillars such as health promotion, quality service delivery, workforce development, and research.¹¹ Collectively, these measures reflect Chile's commitment to advancing oral health equity and reducing health disparities.

If global and local efforts have a significant impact, these should be reflected in the most relevant diseases for the global population according to the WHO (Table 2).

The article "WHO's global oral health status report 2022: Actions, discussion, and implementation" mentions that a society's gross domestic product (GDP) is positively correlated with the amount of money spent on health systems.³ However, it points out that this approach presents a major problem for low-income countries attempting to implement primary prevention strategies in their health programs, as almost all a country's health expenditures come from its own budget. In that sense, the document emphasizes that, while global strategies to improve dental health are suitable for most developed countries, they may not be as feasible for countries with a lower GDP, especially from a financial and logistical standpoint. Therefore, promoting oral hygiene from an early age, both through educational systems and within the family, may be the most effective and least expensive strategy to reduce the global burden of dental diseases. Fortunately, Chile is on that path, but actions must be strengthened and deepened.

Keeping in sight the most ambitious goal of dentistry, primary prevention should be the main tool in oral health, as most oral conditions are preventable. Currently, dental services devote most of their time to repairing damage in populations with a history of difficult access, but this emphasis should be abandoned, especially in future dentists who will begin to treat communities that have received increasing efforts in the prevention of oral diseases and accumulation of oral damage.

Indeed, despite all the knowledge on healthy habits, what we can observe in the dental environment is that human nature reacts preventively when things are wrong or about to go wrong, but not usually when things are going well. This poses significant challenges in terms of behavioral sciences, in which the dental curriculum is not well nourished. It seems that three elements are important if one wants to decisively advance in reducing oral diseases:

i) first to assume this ambitious goal and put the indicators for the evaluation of dental services at the service of self-care and health education;

ii) secondly, to advance a research agenda that, through patience and dedicated resources, develops a highly efficient model for the drastic reduction of oral diseases and the sustained maintenance of oral health.

This model should incorporate national-specific factors of the community's macro and microenvironment, enhanced by bio-medical analyses to support precision dentistry initiatives, and

iii) thirdly the renewal of the undergraduate dental curriculum from an interventionist dentistry to a preventive one with communication channels to other health professions that equip dentistry with the necessary arsenal to promote and maintain healthy life habits and optimal oral hygiene throughout life.

CONFLICT OF INTERESTS

The author declares that he has no conflicts of interest.

ETHICS APPROVAL

Does not apply.

FUNDING

Self-financed.

AUTHORS' CONTRIBUTIONS

Cesar Rivera: Conception and compilation of literature, writing of the article.

ACKNOWLEDGEMENTS

None.

ORCID

Cesar Rivera

 0000-0002-5491-4233

PUBLISHER'S NOTE

All statements expressed in this article are those of the authors alone and do not necessarily represent those of the publisher, editors, and reviewers.

COPYRIGHT

This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms. ©2025.



PEER REVIEW

This manuscript was evaluated by the editors of the journal and reviewed by at least two peers in a double-blind process.

PLAGIARISM SOFTWARE

This manuscript was analyzed Compilatio plagiarism detector software. Analysis report of document ID. e2a109b44d4582d464173ce45885b418de5e1eb7

ISSN Print 0719-2460 - ISSN Online 0719-2479

<https://joralres.com/index.php/JOralRes>

REFERENCES

- GBD 2017 Oral Disorders Collaborators; Bernabe E, Marcenes W, Hernandez CR, Bailey J, Abreu LG, Alipour V, Amini S, Arabloo J, Arefi Z, Arora A, Ayanore MA, Bärnighausen TW, Bijani A, Cho DY, Chu DT, Crowe CS, Demoz GT, Demsie DG, Dibaji Forooshani ZS, Du M, El Tantawi M, Fischer F, Folayan MO, Futran ND, Geramo YCD, Haj-Mirzaian A, Hariyani N, Hasanzadeh A, Hassanipour S, Hay SI, Hole MK, Hostiuc S, Ilic MD, James SL, Kalhor R, Kemmer L, Keramati M, Khader YS, Kisa S, Kisa A, Koyanagi A, Laloo R, Le Nguyen Q, London SD, Manohar ND, Massenburg BB, Mathur MR, Meles HG, Mestrovic T, Mohammadian-Hafshejani A, Mohammadpourhodki R, Mokdad AH, Morrison SD, Nazari J, Nguyen TH, Nguyen CT, Nixon MR, Olagunju TO, Pakshir K, Pathak M, Rabiee N, Rafiei A, Ramezanzadeh K, Rios-Blancas MJ, Roro EM, Sabour S, Samy AM, Sawhney M, Schwendicke F, Shaahmadi F, Shaikh MA, Stein C, Tovani-Palone MR, Tran BX, Unnikrishnan B, Vu GT, Vukovic A, Warouw TSS, Zaidi Z, Zhang ZJ, Kassebaum NJ. Global, Regional, and National Levels and Trends in Burden of Oral Conditions from 1990 to 2017: A Systematic Analysis for the Global Burden of Disease 2017 Study. *J Dent Res.* 2020;99(4):362-373. <https://doi.org/10.1177/0022034520908533>. Epub 2020 Mar 2. PMID: 32122215; PMCID: PMC7088322.
- WHO. Draft Global Oral Health Action Plan (2023–2030). World Health Organization. 2023; <https://cdn.who.int/media/docs/default-source/ncds/mnd/oral-health/eb152-draft-global-oral-health-action-plan-2023-2030-en.pdf?>
- Jain N, Dutt U, Radenkov I, Jain S. WHO's global oral health status report 2022: Actions, discussion and implementation. *Oral Dis.* 2024;30(2):73-9. <https://doi.org/10.1111/odi.14516>.
- Sheiham A, James WP. Diet and Dental Caries: The Pivotal Role of Free Sugars Reemphasized. *J Dent Res.* 2015;94(10):1341-7. <https://doi.org/10.1177/0022034515590377>.
- Jepsen S, Blanco J, Buchalla W, Carvalho JC, Dietrich T, Dörfer C, Eaton KA, Figuero E, Frencken JE, Graziani F, Higham SM, Kocher T, Maltz M, Ortiz-Vigon A, Schmoekel J, Sculean A, Tenuta LM, van der Veen MH, Machiulskiene V. Prevention and control of dental caries and periodontal diseases at individual and population level: consensus report of group 3 of joint EFP/ORCA workshop on the boundaries between caries and periodontal diseases. *J Clin Periodontol.* 2017;44 Suppl 18:S85-S93. <https://doi.org/10.1111/jcpe.12687>. PMID: 28266120.
- Gapstur SM, Bouvard V, Nathan ST, Freudenheim JL, Abnet CC, English DR, Rehm J, Balbo S, Buykx P, Crabb D, Conway DI, Islami F, Lachenmeier DW, McGlynn KA, Salaspuro M, Sawada N, Terry MB, Toporcov T, Lauby-Secretan B. The IARC Perspective on Alcohol Reduction or Cessation and Cancer Risk. *N Engl J Med.* 2023;389(26):2486-2494. <https://doi.org/10.1056/NEJMs2306723>. PMID: 38157507.
- Warnakulasuriya S. Living with oral cancer: epidemiology with particular reference to prevalence and life-style changes that influence survival. *Oral Oncol.* 2010;46(6):407-10. <https://doi.org/10.1016/j.oraloncology.2010.02.015>.
- Watt RG, Daly B, Allison P, Macpherson LMD, Venturelli R, Listl S, Weyant RJ, Mathur MR, Guarnizo-Herreño CC, Celeste RK, Peres MA, Kearns C, Benzian H. Ending the neglect of global oral health: time for radical action. *Lancet.* 2019;394(10194):261-272. [https://doi.org/10.1016/S0140-6736\(19\)31133-X](https://doi.org/10.1016/S0140-6736(19)31133-X). PMID: 31327370.
- MINSAL. Orientaciones Técnicas Metas Sanitarias Ley 19.813. Ministerio de Salud. 2022. https://biblioteca-ssnuble.cl/archivos/_archivos/%5B75%5DOOTT%20Metas%20Sanitarias%202023.pdf
- Calfuán J, Gutiérrez F, Molina J. Grau de Progreso nas Metas de Saúde Bucal Infantil na Região de Maule. *SciELO Preprints.* 2024. <https://doi.org/10.1590/SciELOPreprints.7628>.
- Cartes-Velásquez R. Salud bucal en Chile, situación actual y desafíos futuros. *Odontol Sanmarquina.* 2020;23(2):189-96. <https://doi.org/10.15381/os.v23i2.17764>.
- WHO. Global oral health status report: towards universal health coverage for oral health by 2030. World Health Organization. 2023. <https://iris.who.int/bitstream/handle/10665/364538/9789240061484-eng.pdf>.

13. WHO. Global oral health status report: towards universal health coverage for oral health by 2030: regional summary of the Region of the Americas. World Health Organization. 2023. <https://iris.who.int/bitstream/handle/10665/373542/9789240070820-eng.pdf>
14. WHO. Oral Health Chile 2022 country profile (Technical document). World Health Organization. 2022. <https://cdn.who.int/media/docs/default-source/country-profiles/oral-health/oral-health-chl-2022-country-profile.pdf>

Supplementary Table S1.

Principles, objectives, and global health aspirations.

| Guiding principles | Contribution to global objective A | Contribution to global objective B |
|--|--|---|
| 1. A public health approach to oral health | Facilitates the integration of oral health services into universal health systems. | Promotes prevention and education strategies to reduce the incidence of oral diseases. |
| 2. Integration of oral health in primary health care | Improves universal access to basic oral health services. | Enables early interventions and management of oral conditions, decreasing their global impact. |
| 3. Innovative workforce models | Enhances the capacity of health systems to provide oral health care, addressing universal coverage. | Develops new competencies in the workforce to prevent and treat oral diseases effectively. |
| 4. People-centered oral health care | Personalized oral health care, improving patient satisfaction and access to necessary services. | Ensures interventions are relevant and effective for reducing oral diseases based on individual needs. |
| 5. Tailored oral health interventions across the life course | Considers changing oral health needs at different ages for comprehensive coverage. | Directs preventive and therapeutic efforts to at-risk populations at all life stages, reducing condition prevalence. |
| 6. Optimizing digital technologies for oral health | Uses digital tools to expand access and management of oral health. | Utilizes technology to enhance detection, diagnosis, and treatment of oral diseases, contributing to their reduction. |
| Strategic objectives | Relationship with global objective A | Relationship with global objective B |
| 1. Oral health governance | Sets policies and leadership to integrate oral health into health systems, advancing towards universal coverage. | Encourages intersectoral collaboration to address oral health determinants, reducing its burden. |
| 2. Oral health promotion and disease prevention | Implements accessible universal educational and preventive programs. | Reduces the incidence of oral diseases through effective prevention strategies. |
| 3. Health workforce | Develops competencies in the workforce to provide universal and quality oral health care. | Increases the capacity to effectively manage oral diseases at the population level. |
| 4. Oral health care | Promotes the integration of oral health care into primary health care, essential for universal coverage. | Improves the quality and efficiency of oral disease treatment, contributing to its reduction. |
| 5. Oral health information systems | Facilitates data collection to monitor the coverage and quality of oral health services. | Allows tracking of the prevalence and impact of oral diseases, informing reduction policies. |
| 6. Oral health research agendas | Drives innovation to expand and improve the coverage of oral health services. | Generates critical knowledge to develop effective prevention and treatment strategies. |