

A milestone for the oral health community: Canada's first National Oral Health Research Strategy (2024–2030)

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The National Oral Health Research Strategy (NOHRS)¹ was officially released at the Canadian Oral Health Summit in Halifax, Nova Scotia, on June 21, 2024.

NOHRS is a collaboration between the Canadian Institutes of Health Research's Institute of Musculoskeletal Health and Arthritis, the Canadian Association for Dental Research, the Association of Canadian Faculties of Dentistry, the Network for Canadian Oral Health Research, the Canadian Dental Association, the Denturist Association of Canada, the Canadian Dental Therapists Association, and the Canadian Dental Hygienists Association (CDHA).

CDHA is proud to be a collaborator in this initiative. This strategy is a first of its kind and will inform governments and decision makers, funding agencies, researchers and their organizations, health care practitioners, the public, and others to focus both on emerging, priority issues for Canadian society and on innovative methodological and technological approaches to address these issues.

Recently, there have been significant changes and developments in oral health-related policy and in data on oral health and oral health care in Canada. For the first time in 15 years, national surveys of the oral health and oral health care of people living in Canada are currently being undertaken. The 2022–2024 Canadian Health Measures Survey (CHMS) cycle 7 includes clinical, biological, and self-report indicators of oral health. In addition, Statistics Canada is conducting the Canadian Oral Health Survey (COHS), which will gather information from Canadians on their care needs, ability to pay for oral health services, challenges in accessing oral health services, and experiences with the oral health care system.² The first Survey of Oral Health Care



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Providers (SOHCP) is also being conducted by Statistics Canada in collaboration with Health Canada.³ And all this work is in the context of the announcement in December 2023 of the Canadian Dental Care Plan (CDCP), which will help to provide oral health care coverage for those who do not have access to dental insurance and have a net family income below \$90,000.⁴ Finally, calls for proposals to the Oral Health Access Fund (OHAF) to expand access to oral health care by reducing non-financial barriers to care for targeted populations have recently been announced.⁵

Meanwhile, on the global stage, momentum for oral health and related research has continued to build with the publishing of *The Lancet* series on oral health in 2019^{6,7} and the establishment of a Lancet Commission on Oral Health in 2020.⁸ At the same time, the World Health Organization (WHO) engaged in an extensive consultative process to publish a global strategy and action plan on oral health, which highlights the need for countries to integrate oral health into primary medical care and into universal health coverage, and for countries to have an oral research strategy. NOHRS represents a major step for Canada in achieving a key action area for Strategic

Objective 6 of the *WHO Global Oral Health Action Plan 2023–2030*.⁹

The goals of Canada's NOHRS are to 1) galvanize the oral health and broader community to collaborate around the strategic priorities identified; and 2) leverage strengths in existing fields to foster and nurture new research areas and leaders and create the infrastructure required to address the identified priorities.

To undertake this work, we engaged in a broad and collaborative process, beginning with a meeting in Ottawa in March 2023 involving over 70 attendees from a broad

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range of oral research and oral health care sectors, plus representatives of patient and community groups. A report of that meeting was then widely distributed in the community, accompanied by a survey seeking feedback on the preliminary work as well as volunteers to participate in writing the strategy. Writing teams were formed in summer 2023 and a draft NOHRS was widely distributed for feedback in March 2024 prior to finalizing and publishing it in June 2024. Seventy-seven people contributed to the final document through consultations, writing, editing, and reviewing.

This process was grounded in 9 guiding principles centred on people, ideas, and science. These will continue to be central throughout the implementation of this work. Six priority areas for oral health research in Canada emerged from this comprehensive process:

- Access to care
- Inequities, identities, and oral health
- Artificial intelligence
- Omics
- Knowledge mobilization and implementation science
- Environmental sustainability

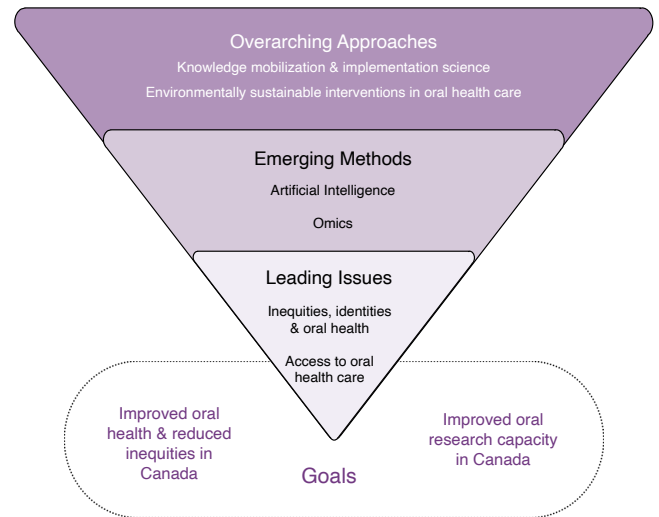
These priorities have been incorporated into a framework comprising **leading issues**, which are core problems requiring research to address them, **emerging methods** where we want to concentrate on building research capacity, skills, and infrastructure, and **overarching approaches**, which are both topics for research and themes applicable to all the work we will engage in related to this strategy (Figure 1).

Lastly, NOHRS includes a series of proposed goals and a timeline for the coming years. The intention is to encourage a broad range of people to engage with this high-level strategy and to create plans to implement it.

The role of the dental hygiene community in NOHRS

The oral health research community in Canada is a small but dynamic group, and NOHRS can help expand its numbers and skills, as well as its integration with other health research communities, ultimately supporting improvements in oral health and the reduction of inequities among people living in Canada.

Figure 1. National oral health strategy framework



Adapted from Allison PJ, Rock LD (eds.). National Oral Health Research Strategy 2024–30. Advancing the Health of Canadians through Research [Internet]. Canadian Institutes of Health Research; 2024 [cited 2024 Jul 4]. Available from: <https://blogs.ubc.ca/imhablog/files/2024/06/NOHRS-Full-FINAL-ENG.pdf> 1

NOHRS is of great importance to all of us as oral health practitioners. The CDCP, CHMS, COHS, SOHCP, and various federal and other sources of research funding to support oral health and oral health related questions are separate but intertwined. CDHA and the dental hygiene community at large have played pivotal roles in all these initiatives and are examples of the growing recognition of the dental hygiene profession at the national level. The dental hygiene community, as strong advocates for advancing oral health outcomes and key partners in the prevention of oral and systemic disease, represents a key arm to the successful mobilization and implementation of NOHRS research evidence. We all have a role to play in establishing oral health as “health” for all people living in Canada. These are truly exciting times!

Drive NOHRS Forward

NOHRS was created by, and for, people with an interest in oral health care and research. By 2025, we will have broadly disseminated NOHRS, engaged the research, health care and other communities, and formed NOHRS implementation working groups to achieve the milestones in the report. To get involved reach out to NOHRS co-chairs Dr. Leigha Rock leigha.rock@dal.ca and/or Dr. Paul Allison paul.allison@mcgill.ca

To read the full report:



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ISSUE AT A GLANCE

You will find 3 original research articles and 3 literature reviews in this robust issue. Alexandre Lopes, Laís Cezário, and Fábio Mialhe explore factors that affect the oral health of adults with mental disorders (pp. 149–54). Shweta Sonkusle and Varsha Singh study oncostatin M cytokine levels in saliva and serum, noting their potential as a diagnostic marker for periodontal disease (pp. 155–60). Afsary Khan, Budi Sabri, Aminda Omar, and Mas Ahmad report on oral health care programs and services at community-based rehabilitation centres for people with disabilities (pp. 161–73). Nazlee Sharmin, Mike Carbonaro, and Ava Chow examine the potential of whiteboard animation as a teaching tool in health sciences education (pp. 174–81). Heather Doucette, Rachel Ward, Charlotte Wheeldon, and Alexandra Whelan review the potential of probiotics and prebiotics as adjunct treatments for periodontal disease (pp. 182–95). Zihui (Eunice) Liu examines newcomers' perceptions of their experiences of oral health care in Canada and the United States (pp. 196–206). This issue also includes the abstracts of the oral and poster presentations that will be featured at the Canadian Dental Hygienists Association's fall national conference in Niagara Falls, Ontario (pp. 209–215). Rounding out the issue is a letter to the editor on artificial intelligence and robotics in dental plaque management (p. 216).

PLAIN LANGUAGE SUMMARIES

Lopes AG, Cezário LRA, Mialhe FL. The influence of socioeconomic and behavioural factors on the caries experience of adults with mental disorders in a large Brazilian metropolis. *Can J Dent Hyg*. 2024;58(3):149–54.

People with mental health disorders have a higher risk of poor oral health. This study looked at how socioeconomic and behavioural factors affected the oral health of 753 adults diagnosed with schizophrenia or depression, who were receiving treatment at public mental health clinics in São Paulo, Brazil. The study participants provided information about their socioeconomic background, medication use, and health habits. Dental checkups were also done to assess their plaque levels and cavities. The study found that older people, those with less education, people who smoked at least 3 times a week, and those with more dental plaque were more likely to have worse oral health (measured by the number of decayed, missing or filled teeth). On average, people with schizophrenia had 15.3 affected teeth, while those with depression had 15.8 affected teeth. The plaque levels were higher in people with schizophrenia (2.81) than those with depression (2.0). Brazilian adults with mental disorders had poor oral health, linked to their age, education, smoking habits, and oral hygiene habits. Oral health professionals must be better prepared to provide oral care to this vulnerable population.

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Sonkusle S, Singh V. Comparison of oncostatin M cytokine levels in saliva and serum in chronic periodontitis: a clinico-biochemical study. *Can J Dent Hyg.* 2024;58(3):155–60.

Oncostatin M (OSM) is a type of protein mainly produced by certain immune cells such as neutrophils, T cells, monocytes, and macrophages. It can increase inflammation, especially in response to tissue damage, by stimulating other inflammatory proteins, such as IL-6. Periodontitis, a serious gum disease caused by harmful bacteria, is linked to higher levels of OSM. This study aimed to compare the levels of OSM in saliva and blood between healthy people and those with periodontitis. The study involved 88 people aged 25 to 60, split into 2 groups: 44 people with healthy gums (Group A) and 44 people with periodontitis (Group B). Both groups were examined, and their OSM levels in saliva and blood were measured using a special test called ELISA. The study found that OSM levels were significantly higher in people with periodontitis compared to the healthy group ($p < 0.01$). There was also a positive association between gum health and OSM levels, showing that OSM is involved in the inflammation of gum tissues. OSM may play a key role in the development of periodontitis and could be used to identify people at higher risk of serious oral disease.

Khan AJ, Sabri BAM, Omar AFB, Ahmad MS. Perceptions of an oral health education program for persons with disabilities among community-based rehabilitation centre managers: a qualitative study. *Can J Dent Hyg.* 2024;58(3):161–73.

Community-based rehabilitation (CBR) centres in Malaysia were set up to improve the lives of people with disabilities (PWDs), including their oral and overall health. This study looked at what CBR managers think about the oral health care training given to CBR workers, current oral health care programs for PWDs, and the challenges and supports for providing oral health education and services at CBR centres. Nine CBR managers from districts in Kuala Lumpur and Selangor, Malaysia, were interviewed face-to-face using a set of open-ended questions. The interviews were recorded, typed out, and analysed using specialized software to find common themes. At all centres, CBR workers and PWDs receive basic oral health education, training, and care from dentists assigned by the Ministry of Health. However, no specific programs or courses are provided by the Department of Social Welfare to PWDs or their caregivers. Several factors were found to influence the oral health of PWDs. This study highlights gaps in oral health care for PWDs in CBR centres, which should be addressed by policymakers.

Sharmin N, Carbonaro M, Chow AK. Whiteboard animation: A potential teaching tool for health science education. *Can J Dent Hyg.* 2024;58(3):174–81.

Whiteboard animation, which combines drawing and storytelling, is a useful teaching tool. However, its use in health science education has not been widely studied. The authors of this article searched 5 databases (PubMed, Google Scholar, CINAHL, Web of Science, and Education Research Complete) to find research published in English between 2013 and 2024 on the use of whiteboard animation and how it affects learning in health science education. After 2 rounds of screening, 6 studies were included in the review, which focussed on the impact of whiteboard animations in dental, medical, and other health science education. All reported positive effects on student satisfaction and learning. There was also a link between how many times students watched the videos and their long-term exam performance. Whiteboard animations present information in a clear and engaging way, which helps reduce the mental effort needed to learn. More research is needed to fully understand how this tool can benefit health science education.

Doucette H, Ward R, Wheeldon C, Whelan A. The impact of prebiotics and probiotics on the oral microbiome of individuals with periodontal disease: a scoping review. *Can J Dent Hyg.* 2024;58(3):182–95.

Researchers have recently started examining how prebiotics and probiotics affect bacteria in the mouth, help fix imbalances, and support the immune system. This review looked at current studies on using prebiotics and probiotics alongside traditional treatments for gum disease, to find gaps in the research and guide future studies and clinical practice. From December 2022 to August 2023, the authors searched 3 databases for peer-reviewed studies on humans or lab tests published within the past 10 years. They found 204 articles, removed duplicates, and after reviewing 80 full articles, ended up including 19 in their review. Most of the studies showed that probiotics improve gum health based on certain disease markers. Future studies should look at different ways and in what doses to administer probiotics, and should also study prebiotics as a possible add-on to traditional treatments for periodontal disease.

Liu Z. Newcomers' perceptions of their experiences with oral health care in Canada and the United States. *Can J Dent Hyg.* 2024;58(3):196–206.

In recent years, more immigrants, asylum seekers, and refugees (ASRs) have moved to Canada and the United States (US). Many of these newcomers have poor oral health. This review looked at the experiences of immigrants and ASRs with professional oral health care in Canada and the US, highlighting areas where more research is needed to enhance culturally sensitive care. Four databases (PubMed, CINAHL, DOSS, and EMBASE) were searched between January and April 2024 for studies on oral health services provided to immigrants. Only peer-reviewed, qualitative studies published in English in the last 10 years were included. Of 1,349 studies found, 8 were selected for review. The studies revealed 3 themes about newcomers' experiences with oral health care: 1) the quality of care and behaviour of oral health professionals; 2) concerns about children's oral health; and 3) difficulties in accessing care. There is a need to improve cultural sensitivity and communication training in dental and dental hygiene education. Making dental insurance more affordable and understandable for newcomers, as well as encouraging cooperation between policymakers and other stakeholders, is crucial for addressing the oral health issues of immigrants and ASRs. Future research should focus on direct interviews to better understand their experiences with oral health care.