Interdisciplinary Approach to Caries Disparity: A Workshop Summary

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The global burden of untreated caries has increased since last the decade, as demonstrated by the World Health Organization's Global Burden of Disease (GBD) 2010 study. Of the 291 health conditions and diseases evaluated, untreated caries in permanent teeth was the most prevalent one, affecting 2.4 billion people worldwide. Many Canadians—and particularly those of low socio-economic status or living in rural, remote, Indigenous or new-immigrant communities—experience unacceptably higher rates of caries disease compared to the general population.

Traditionally, biomedical models have been used to explain how caries disease develops; however, this approach seems deficient as it doesn't take into account the role of underlying socio-environmental, psychological, and behavioural factors and their interactions in the complex disease pattern. This complexity highlights the need for reassessing theories and multidimensional models that utilize multidisciplinary, participatory approaches and integrate primary, mental, and oral health care in order to better understand and control caries disease throughout the life course.

In this context, Drs. Emami, Tikhonova, and Booij organized and hosted a two-day interdisciplinary workshop in September 2014 on caries disparities, funded through a grant from the Network for Canadian Oral Health Research (NCOHR). Several scientists with expertise in oral health and caries research, clinical psychology, nutrition, social work, health literacy, health policy and health services research, as well as community-oriented and Indigenous community focused research were introduced to community-based oral health and primary care providers, community stakeholders, policy makers, and research scholars.

The workshop was perceived by participants as having successfully met its objectives, which were to:

1. Exchange knowledge on multidimensional modelling of caries disparities and identify caries disparity research gaps and needs;
2. Discuss innovative strategies and interventions targeting aspects of caries disparity that can be controlled by stakeholders, decision makers, and primary health care providers and attract external funding; and
3. Develop strategic national and international interdisciplinary participatory-action research partnerships in the field of caries disparities, to strengthen research capacity and provide mentored training opportunities for graduate students, postdoctoral fellows, and junior faculty members.

Numerous speakers, presentations, and discussion panels helped meeting these objectives, which were divided into 4 themes that reflected the overall interdisciplinary approach of the workshop.

1. Caries epidemiology, prevention, and intervention
   - Caries is a dynamic and lifelong disease.
   - Although there are large global variations in reporting caries epidemiological data, there is a consensus that caries disease is highly prevalent in vulnerable and marginalized populations.
   - Caries disease results from interactions between biological, behavioural, socio-cultural, and contextual factors that
affect people at the individual, community, and population levels.

- Limited oral health literacy is a significant barrier to appropriate caries management and should be collaboratively addressed.
- Lower rate of consultation with dental professionals and fewer dental visits because of "non-perceived need" may result in the progression of caries disease.
- Oral health professionals alone cannot do miracles: families and caregivers should be educated and engaged in dental plaque control and healthy lifestyle habits.
- One-size-fits-all approaches do not work!

2. The bio-socio-psychological pathways contributing to risk for caries
   - Early life stressors such as poverty, divorce, and child abuse can affect physical, mental, and oral health.
   - Neurodevelopmental studies suggest that the interplay between genes and environment may alter brain development, and ultimately general and oral health outcomes. Epigenetic factors may play a role in these processes.

3. Interdisciplinary approaches on caries/oral health disparity
   - Oral health has received a lower priority in public policy compared to general health.
   - It is important to foster collaborations between health professionals, scientists from different disciplines, and stakeholders to address the various dimensions of oral health disparities and inequalities such as illiteracy, jurisdiction, and access to health care at a system level.
   - Historic background and cultural beliefs should be protected and integrated in the design and development of community-based interventions, especially in Indigenous communities.
   - Integration of oral health care in primary care is a crucial step toward an effective health care system. Oral health primary care will result in improved patient satisfaction and dental public services. It will also better address the needs of marginalized populations in terms of access to dental services.

**Future research**

The in-depth scientific presentations and further plenary discussions led to recommendations for future research:

- Identify and address common risk factors of oral and systemic diseases by adopting robust research methodologies.
- Use interdisciplinary approaches and mixed method research in the design of interventions that aim to reduce the rate of caries disease.
- Prioritize participatory action research to better address the perspectives and needs of communities.
- Conduct oral health promotion research to provide evidence of the cost-effectiveness of supportive environments.
- Fill the knowledge gap in oral health primary care through interprofessional education and interdisciplinary research.

The workshop's complete and summary reports are available on the NCOHR website at [www.ncohr-rcrsb.ca](http://www.ncohr-rcrsb.ca)

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References


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