

Global Oral Health Inequalities: The Research Agenda

D.M. Williams

J DENT RES 2011 90: 549

DOI: 10.1177/0022034511402210

The online version of this article can be found at:

<http://jdr.sagepub.com/content/90/5/549>

Published by:



<http://www.sagepublications.com>

On behalf of:

[International and American Associations for Dental Research](#)

Additional services and information for *Journal of Dental Research* can be found at:

Email Alerts: <http://jdr.sagepub.com/cgi/alerts>

Subscriptions: <http://jdr.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [Version of Record](#) - Apr 13, 2011

[What is This?](#)

D.M. Williams

Professor of Pathology, and Vice Provost, Office of the Vice Chancellor, University of Southampton, Southampton, SO 32 3PF, United Kingdom; d.m.williams@soton.ac.uk

J Dent Res 90(5):549-551, 2011

KEY WORDS: global oral health, health inequalities, social determinants of health, tobacco, alcohol.

In spite of considerable investment in research and dental services, oral diseases are still a major global health burden. This is attributable in large part to the failure to implement what is known about the prevention of dental caries, periodontal disease, oral cancer, oral infections, and developmental abnormalities and to address the social determinants of oral diseases. The Global Oral Health Inequalities initiative described in this editorial was set up to address this failure, and it will articulate a five-year program of research that will lead to key improvements in global oral health, with particular reference to inequalities between and within countries.

Dental caries is one of the most common chronic diseases worldwide (Pitts *et al.*, 2011), and leads to millions of lost days of schooling for children and absenteeism from work in adults, resulting in both short- and long-term impacts on economic productivity. This effect is most marked in low- and middle-income countries, where ineffective prevention and limited access to dental treatment mean that much of the demand for care is not met. Severe periodontitis affects 5-20% of most adult populations worldwide, and it is a major cause of tooth loss in both developed and developing countries (Petersen *et al.*, 2005; Pihlström *et al.*, 2005; Jin *et al.*, 2011). As with dental caries, there is a marked social class gradient in the distribution of periodontal disease (Jin *et al.*, 2011). Oral cancer is the eighth most common cancer worldwide (Johnson *et al.*, 2011) and the most common in men in Southeast Asia. Tobacco use is a major risk factor for oral cancer as well as for cancers in other body sites. Heavy consumption of alcohol and diets poor in essential minerals and vitamins are also important causative factors, and it is now clear that infections with so-called high-risk types of human papillomaviruses make a significant contribution. Oral infections contribute importantly to the burden of oral disease (Challacombe *et al.*, 2011), and, from a global perspective, HIV infection, with its associated viral, fungal, and bacterial infections, constitutes a major problem. Tuberculosis, sexually transmitted diseases, and Noma are also major causes of oral disease. The most significant developmental abnormality afflicting the

Global Oral Health Inequalities: The Research Agenda

craniofacial region is cleft palate, which has a global incidence ranging from 1 to 4 *per* 1000 live births (Mossey *et al.*, 2011). Everywhere, craniofacial anomalies are expensive to manage.

Oral diseases remain a major public health issue for high-income countries, where expenditure on treatment often exceeds that for other diseases, including major diseases such as cancer, heart disease, stroke, and dementia. This is a disturbing fact, given that much of the oral disease burden in high-income countries is due to dental caries and its sequelae, and this is preventable through the use of fluoride and other cost-effective measures (Pitts *et al.*, 2011). The burden of oral cancer and of oral infections can be reduced by public health programs, and much periodontal disease could be prevented by improved oral hygiene.

In low- to middle-income countries, oral diseases constitute a severe and growing public health problem, as a consequence of the social determinants of the diseases and failure to adopt population-based health promotion using a common risk factor approach. However, statements about the differences in levels of disease at country level alone fail to reveal an even more important issue, namely, that major inequalities exist both within and between countries in terms of disease severity and prevalence (Marmot and Bell, 2011). Major social gradients exist in the prevalence of oral disease, in common with the major diseases of the 21st century, including cancer, heart disease, stroke, diabetes, and dementia (Sheiham *et al.*, 2011).

All of the above-mentioned issues raise important questions about what is to be done, and by whom. What responsibilities do we have as a dental community of researchers, policymakers, educators, and clinicians? It is relatively easy, but not enough, to say that we need outstanding fundamental research to improve our basic understanding of the diseases that concern us; that we need to deliver effective, ethical, evidence-based oral health promotion and care; that we need effective prevention as well as more effective treatments; and that we need to establish the kinds of workforces appropriate to a range of global settings (Williams, 2009). We still have a very long way to go in advocating effectively and implementing the potential improvements in oral health that are known to be achievable. Most importantly, the situation is unlikely to change without a transformation in our priorities for research and practice, together with recognizing that we need to work with other agencies. In the words of Garcia and Tabak (2011), "Tackling global oral health inequalities will require creativity, diligence and a strong commitment to partner with the many players involved in global health."

DOI: 10.1177/0022034511402210

Received January 31, 2011; Last revision February 3, 2011; Accepted February 3, 2011

© International & American Associations for Dental Research

The World Health Organization (WHO) has a major role in the improvement of global oral health (Petersen, 2010), and the WHO Global Oral Health Program has worked “to raise awareness of the global challenges to improving oral health, the specific needs of low-income countries and of poor and disadvantaged groups.” Importantly, at the Seventh WHO Global Conference on Health Promotion, held in Nairobi, Kenya, in 2009, oral health was addressed in a dedicated session. Here it was asserted that oral health is a human right and essential to general health and the quality of life. It was also recognized that the promotion of oral health and prevention of oral diseases must be provided through primary health care and general health promotion (Petersen and Kwan, 2010).

The International Association for Dental Research (IADR) has also embraced the challenge of global oral health inequalities through an initiative entitled Global Oral Health Inequalities: the Research Agenda (GOHIRA). This initiative was established in May 2009 with the objective of articulating a program and priorities for research that would have the potential to create meaningful reductions in inequalities in global oral health within five years. The following Task Groups were established under the direction of the IADR Board:

- Dental Caries Task Group
- Periodontal Disease Task Group
- Oral Cancer Task Group
- Oral Infections Task Group
- Developmental Abnormalities Task Group
- Implementation and Delivery Task Group

The Task Group leaders were responsible for assembling the members of their respective groups from the global international research community. This initiative has been undertaken with the participation of the WHO and the World Dental Federation-FDI, and this was reflected in the membership of the Task Groups. Each Task Group was charged with identifying:

- Global variations in diseases and their presentations, taking into account variations within as well as between countries
- Likely reasons to account for this variation
- Reasons for the failure to implement at scale measures that have been shown to be effective in clinical or laboratory studies
- Priorities for both basic and applied research
- A five-year research agenda that will lead to key improvements in global oral health, with particular reference to inequalities between and within countries. This agenda will have defined, expected outcomes and milestones by which progress will be measured.

All the Task Groups presented their initial reports at a symposium entitled “Global Oral Health Inequalities: the Research Agenda”, which was held at the IADR General Session in Barcelona in July 2010. Two further key elements of the symposium were presentations on “Social Determinants and Dental Health” by Professor Sir Michael Marmot, University College

London, and on “Global Oral Health Inequalities: the View from a Research Funder” by Dr. Lawrence Tabak, National Institutes of Health. The deliberations of each of these Task Groups and the papers by Marmot and Tabak have been brought together in a set of key position papers published this month in a Special Issue of *Advances in Dental Research*.

The work of GOHIRA will not end here, however. A Workshop will be held in Alexandria, Virginia, in May 2011, with the following objectives:

- (1) To formulate priorities for research and a coherent research agenda on reducing inequalities in oral health within and between countries, and to close the gap between research and the practical implementation of research findings.
- (2) To build on the evidence and take action, using the principles of Knowledge Translation. This entails the exchange, synthesis, and ethically sound application of research findings within a complex system of relationships among researchers and knowledge users, and the incorporation of research knowledge into policies and practice, thus translating knowledge into improved health of the population.
- (3) To develop strategies for integrating oral health research with research in other fields on the social determinants of general health and inequalities in health.
- (4) To develop a clear agreed plan to achieve the realization of the research agenda formulated by the six GOHIRA Task Groups.
- (5) To develop frameworks for the Research Community, and the IADR Scientific Groups and Divisions, for placing research on social determinants of health and reducing inequalities in oral health high on their agendas, building on the reports of the GOHIRA Task Groups.
- (6) To advocate to research funders that they should support research on the determinants of general and oral health, thereby reducing inequalities in oral health.

The challenge then will be to implement a coherent program of research with the intention of delivering measurable improvements in global oral health. It is crucial to tackle the social determinants of oral health and thereby improve global oral health and reduce inequalities. This is a major challenge indeed, but one that has the potential to bring significant, real health benefits to the world’s population. It is astonishing and professionally irresponsible that decisions about healthcare, including oral health care, are still being made without a solid research evidence base (Pang *et al.*, 2011). It is this deficiency that GOHIRA has been established to address.

ACKNOWLEDGMENTS

The GOHIRA initiative was convened at the direction of the IADR Board of Directors in 2009 by Professor David Williams, then President of IADR. The chairs of each of the Task Groups were as follows:

- Dental Caries Task Group: Nigel Pitts
- Periodontal Disease Task Group: Li Jian Jin
- Oral Cancer Task Group: Newell Johnson

- Oral Infections Task Group: Stephen Challacombe
- Developmental Abnormalities Task Group: Peter Mossey
- Implementation and Delivery Task Group: Aubrey Sheiham

The guidance of the GOHIRA Steering Group, composed of Maria Fidela de Lima Navarro, Dianne Rekow, John Clarkson, John Greenspan, Lois Cohen, and Christopher Fox, is gratefully acknowledged.

The GOHIRA initiative has been sponsored by IADR, which has met the publication costs of the issue of *Advances in Dental Research*, the costs associated with the Symposium held at the IADR meeting in Barcelona in July 2010, and the Workshop held in Alexandria, Virginia, in May 2011.

REFERENCES

- Challacombe SJ, Chidzonga M, Glick M, Hodgson T, Magalhães M, Shiboski C, *et al.* (2011). Global oral health inequalities: task group—challenges and approaches. *Adv Dent Res* 23:227-236.
- Garcia I, Tabak LA (2011). Global oral health inequalities: the view from a research funder. *Adv Dent Res* 23:207-210.
- Jin LJ, Armitage GC, Klinge B, Lang NP, Tonetti M, Williams RC (2011). Global oral health inequalities: task group—periodontal disease. *Adv Dent Res* 23:221-226.
- Johnson NW, Warnakulasuriya S, Gupta PC, Dimba E, Chindia M, Otoh EC, *et al.* (2011). Global inequalities in incidence and outcomes for oral cancer: causes and solutions. *Adv Dent Res* 23:237-246.
- Marmot M, Bell R (2011). Social determinants and dental health. *Adv Dent Res* 23:201-206.
- Mossey PA, Shaw WC, Munger RG, Murray JC, Murthy J, Little J (2011). Global oral health inequalities: challenges in the prevention and management of orofacial clefts and potential solutions. *Adv Dent Res* 23:247-256.
- Pang T, Terry RF, The PLoS medicine Editors (2011). WHO/PLoS Collection “No Health Without Research”: a call for papers. *PLoS Med* 8:e1001008.
- Petersen PE (2010). Improvement of global oral health - the leadership role of the World Health Organization. *Community Dental Health* 27: 194-199.
- Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C (2005). The global burden of oral diseases and risks to oral health. *Bull World Health Org* 83:661-669.
- Petersen PE, Kwan S (2010). The 7th WHO Global Conference on Health Promotion – towards integration of oral health. *Community Dental Health* 27(Suppl 1):1:1-11.
- Pihlström BL, Michalowicz BS, Johnson NW (2005). Periodontal diseases. *Lancet* 366:1809-1820.
- Pitts N, Amaechi B, Niederman R, Acevedo A-M, Vianna R, Ganss C, *et al.* (2011). Global oral health inequalities: dental caries task group—research agenda. *Adv Dent Res* 23:211-220.
- Sheiham A, Alexander D, Cohen L, Marinho V, Moysés S, Petersen PE, *et al.* (2011). Global oral health inequalities: task group—implementation and delivery of oral health strategies. *Adv Dent Res* 259-267.
- Williams D (2009). Global uncertainty and global challenges. *J Dent Res* 88:393-394.