

**Poverty, oral health and human development:  
Contemporary issues affecting the provision of  
primary oral health care**

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# Poverty, oral health and human development

## Contemporary issues affecting the provision of primary oral health care

**Martin H. Hobdell, BDS, PhD**

**Editor's note:** The Council of Science Editors has organized among science journals throughout the world a global theme issue on poverty and human development. Participating journals are simultaneously publishing articles on this topic of worldwide concern to raise awareness, provoke interest and stimulate research. This is an international collaboration among journals from developed and developing countries—more than 230 in all. The Journal of the American Dental Association is pleased to be among them and presents an editorial and four cover stories on this topic of interest to practitioners in the United States and around the world.

In the mid-1970s, I was working as a government dentist in what was then newly independent Mozambique. I found myself confronted with a 10-year-old girl who, quite obviously on first examination, had osteomyelitis of the mandible. Radiographs revealed that the infection involved the entire horizontal ramus of the mandible. After I removed several bony sequestra and instituted intensive antibiotic therapy, she recovered, but without any lower teeth—neither primary nor permanent.

The patient came from the northernmost province of the country and had traveled 1,200 to 1,500 miles to receive treatment. It must have been a frightening experience for such a young, sick child who traveled via referral through the newly revitalized health care system—but without friends or family—to a part of the country that, in comparison with the north, was relatively industrialized. Even the language was different from her own. Through her, I came to understand the meaning of access to oral health care and the impact on the lives of those for whom access is denied.

The aim of this article is to highlight the plight of the millions of people around the world for whom oral health care either is not locally available or is

beyond their financial reach. The objectives are to

- provide an estimate of the dimensions of the problem;
- examine some of the major health consequences;
- outline some influences on the ways in which governments are trying to ameliorate the situation.



### SIZE OF THE PROBLEM

In the developed industrialized world, many people take access to medical and dental care for granted. They might only briefly encounter the misery of a lack of access to care when they are away on vacation or visiting a remote area. For many people, however, lack of access to care is an everyday experience.

To obtain a measure of the number of people globally who might experience difficulty in accessing dental care, I examined the data provided by national dental associations that are available on the FDI World Dental Federation Web site.<sup>1</sup> I supplemented these data with data on the world's population, by country,<sup>2</sup> and gross national income (GNI) (formerly known as the gross national product), by country.<sup>3</sup> Complete

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**TABLE**

**Population and dentist data for 83 countries in four income groups.\***

<b>VARIABLE</b>	<b>HIGH-INCOME COUNTRIES ≥ \$11,116 GNI† PER CAPITA</b>	<b>UPPER-MIDDLE-INCOME COUNTRIES \$3,596 TO \$11,115 GNI PER CAPITA</b>	<b>LOWER-MIDDLE-INCOME COUNTRIES \$906 TO \$3,595 GNI PER CAPITA</b>	<b>LOW-INCOME COUNTRIES ≤ \$905 GNI PER CAPITA</b>	<b>TOTAL</b>
<b>Total Population in Group of Countries</b>	934,340,000	566,500,000	574,550,000	1,696,700,000	3,772,090,000
<b>Total No. of Dentists in Group of Countries</b>	577,643	368,379	77,689	14,244	1,037,955
<b>Dentist:Population Ratio in Group of Countries</b>	1 to 1,618	1 to 1,538	1 to 7,396	1 to 119,117	1 to 3,634

\* Sources: FDI World Dental Federation<sup>1</sup>; GeoHive country data index<sup>2</sup>; The World Bank.<sup>3</sup>

† GNI: Gross national income.

data were available for 83 countries representing approximately 40 percent of the 209 national economies listed on The World Bank Web site.<sup>3</sup> These 83 countries are composed of 31 high-income countries, 18 upper-middle-income countries, 17 lower-middle-income countries and 17 low-income countries. The table shows the results and the average dentist-to-population ratios for each of the four income groups.

High-income countries (like the United States, United Kingdom, Japan and Australia) have a dentist-to-population ratio of about one dentist to every 1,600 people. By contrast, countries in the low-income group (like Cambodia, Nigeria, Togo and Mongolia) have, on average, a dentist-to-population ratio of about one dentist to every 119,000 people.

Clearly, the major oral health problem for people living in low-income countries is a shortage of dentists and other trained personnel capable of delivering oral health care. However, the problem is exacerbated by the fact that nearly all dentists in the poorer countries of the world are located in the larger urban areas, but much of the population lives in rural areas. The results, as for my patient with mandibular osteomyelitis, can be disastrous.

From a global perspective, the size of the problem facing organized dentistry is great: 53 of the 209 countries—or approximately one-quarter of all countries listed on The World Bank Web site—are in the low-income bracket, with an average GNI per capita of less than \$906 a year. In this group of countries with a low GNI, which includes China and India, the total number of people for whom access to dental care is a problem

accounts for approximately one-half to three-quarters of the world’s population, rather than about one-quarter, as implied by the number of countries in the low-income group.

However, it would be unfair to ignore the fact that poverty does not occur just between nations, but also within nations, even in the wealthiest group of countries. Yet, because of the general affluence in this group of countries, poverty is hidden to the casual observer. In the United States, for example, large numbers of uninsured people have little-to-no access to care—a problem that continues to be of concern to the American Dental Association, but one that has so far eluded a sustainable solution.

The problems facing dental public health officers in poorer parts of the world in trying to provide even the minimum of care for dispersed, often isolated and socially deprived populations are compounded by the lack of roads, water and electricity. These problems equally affect the lives of those whom the public dental health officers are trying to help. This impact is reflected in the oral health problems that occur in poor and deprived communities.

**HEALTH CONSEQUENCES OF LACK OF ACCESS TO ORAL HEALTH CARE**

The social determinants of health, which affect general health, also affect oral health. They influence the patterns of oral diseases for which people seek treatment. In poorer parts of the world, oral

**ABBREVIATION KEY.** GNI: Gross national income.

UN: United Nations. WHO: World Health Organization.

infections, particularly those related to HIV/AIDS and trauma, are much more common than they are in wealthier parts of the world.<sup>4</sup>

In poor communities and countries (that is, lower-middle-income and low-income countries), where there is no dentist within easy access, the delay before seeking any form of treatment frequently is long, thus exacerbating the damage caused and the dangers of all oral diseases. People simply have to endure the symptoms, which often include severe pain and disability, and alleviate the major symptoms as best they can. The result is that the natural history of the oral disease is played out to its fullest: teeth develop abscesses, which go untreated, and what appeared initially as minor ulcers and painless swellings progress to untreatable carcinomas and massive cysts and other tumors.

For health care professionals confronted with such advanced levels of disease, it is easy to blame the victims for being ignorant and careless about their own health, when much of the time it is simply the lack of access to care at the time of need that is to blame for the delay in seeking treatment. This is not to say that people living under deprived circumstances do not or would not benefit from greater knowledge about the causes of oral diseases and how to avoid them, but the lack of access to education in general is a major barrier to development in poor communities.

#### **INFLUENCES ON GOVERNMENTAL EFFORTS TO AMELIORATE THE PROBLEM**

Since about 1978, when the International Conference on Primary Health Care was held at Alma-Ata,<sup>5</sup> profound changes have occurred in both the definition of health and the way in which public health officials and governments have sought to improve health. The focus has broadened from a concentration on the immediate causes of ill health to include “the causes of the causes” and the impact of ill health on the quality of life. This change in focus did not occur as a spontaneous random event, but rather was the result of much careful reflection about, and analysis of, the impact of the then (1970s) current approaches to health and health care on peoples’ lives.

Longitudinal and cross-sectional studies car-

ried out in the 1970s and 1980s, such as the Whitehall study<sup>6</sup> in the United Kingdom and the International Oral Health Collaborative Study<sup>7</sup> conducted by the World Health Organization (WHO) and supported by the National Institute of Dental Research, reported unexpected results. For example, despite an exceptionally well-organized and run school dental service, adults in New Zealand did not have significantly better oral health than that found in other developed nations. These findings brought into question the policies and programs that were in place for the provision of oral health care services.

Since WHO developed the Ottawa Charter for Health Promotion in 1986,<sup>8</sup> the entire area of health promotion and advocacy has reshaped the

way in which governments develop oral health care policies. The focus has shifted from an individual’s behavior to include the creation of public policy (for example, the adoption of public policies that promoted healthy lifestyles, such as banning smoking in the workplace), the creation of supportive environments, the reorientation of health services, the development of coping skills in individuals and community action.<sup>8</sup>

The current focus in the oral health field is on the following:

- development of national oral health policies that focus on control of the determinants of oral health (such as controlling the sale of sugar-containing drinks in schools) and the prevention of disease<sup>9</sup>;
- integrated programs of health promotion and disease prevention that use the “common risk factor approach”<sup>10</sup>—programs based on the understanding that oral diseases such as dental caries and destructive periodontitis share common risk factors with other chronic diseases, such as cardiovascular disease and stroke;
- provision of a minimum basic package of oral health care services,<sup>11</sup> which simplifies selection of dental instruments and materials and, consequently, the requirements for effective cross-infection control.

This basic package of care should be provided by appropriately trained oral health care providers. In many countries in southeast Asia and Africa, community nurses have been trained effectively to provide such a package of care,

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which consists of the relief of pain, the prevention of dental caries by using an appropriate fluoride intervention, relevant health education and atraumatic restorative treatment.

Nonetheless, in countries wracked by poverty, health budgets are tight and oral health care can be considered only when actions benefiting oral health are integrated into other health programs that are accorded higher priority. Lone-standing vertical oral health programs (that is, programs that concentrate entirely on dentistry and oral health) focusing on the provision of conventional restorative dental care are a thing of the past, because health budgets are not large enough and they have been shown to be inadequate unless supported by well-designed programs of oral health promotion based on the principles of the Ottawa Charter.<sup>8</sup>

The adoption of the millennium development goals by the United Nations (UN) General Assembly in 2000<sup>12</sup> provided further impetus for dental public health officers around the world to develop integrated oral health care programs. (Three of these goals are to eradicate extreme poverty and hunger; improve maternal health; and combat HIV/AIDS, malaria and other diseases.) However, in Africa, where poverty is so prevalent, the attainment of these goals is in doubt, and so, too, is the possibility of better oral health<sup>13,14</sup> unless national governments, UN agencies and nongovernmental agencies make a tremendous coordinated effort to improve the situation.

In May 2007, the World Health Assembly adopted a resolution on oral health<sup>15</sup> that may place more pressure on governments to make oral health a higher priority. However, much will depend on the efforts of organized dentistry in advocating internationally for improved oral health.

## CONCLUSION

The prospects for improving oral health globally by 2015 appear to be poor if current health poli-

cies continue to ignore oral health. The knowledge exists with regard to which policies and programs are needed to achieve better oral health. What is lacking is the political will to implement these policies and programs on a wide scale. Organized dentistry needs to devote the time and effort necessary to bolster the political will of governments sufficiently. Unless this happens, millions of people who have no access to oral health care will continue to suffer. ■

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