

## **The effect of poverty on access to oral health care**

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# The effect of poverty on access to oral health care

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**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.

Oral diseases qualify as major public health problems owing to their high prevalence and incidence. In all regions of the world, the greatest burden of oral diseases is on disadvantaged and socially marginalized populations.<sup>1</sup> But poverty, the world over, is not the sole factor limiting access to oral health care. In the developing world, a shortage of economic resources often comes with the lack of reliable information on the available workforce and the epidemiology of oral diseases for health authorities to plan cost-effective interventions to improve oral health, and for dental educators to train oral health care providers who can reduce inequities in access to oral health care through novel strategies for prevention and control of oral diseases.

## HOW POVERTY CHALLENGES ORAL HEALTH CARE

When it comes to oral health care, members of the economically disadvantaged population are at the mercy of other factors besides their insufficient income, such as a paucity of government funding and a lack of dental practitioners adequately trained to address public health challenges.

Poverty itself limits access to care but often is associated with the burden of additional expenses that drain the limited resources available for health care. As an example, in Mexico, the costs of nosocomial infections in 1991 represented 70 percent of the entire budget of the Ministry of Health.<sup>2</sup>

**Government funding.** Government agencies

may give oral health care a low priority for funding in relation to health care programs targeted to major killer diseases. For example, Mexico's most recent health survey conducted in 2006 investigated cardiovascular disease, diabetes mellitus and nutrition in 48,304 households.<sup>3</sup> Previous surveys conducted since the year 2000 have addressed immunization coverage, addictions, iodine deficiency, chronic diseases and violence against women—but not oral diseases.

However, this lack of attention paid to oral disease is not in proportion to its incidence. In Mexico's morbidity report for 2005, gingivitis and periodontitis ranked eighth among the 20 most common diseases detected among the general population.<sup>4</sup> In the World Health Organization's World Oral Health Report 2003, no data on caries were available for people aged 35 to 44 years in Mexico, but a "moderate" decayed-missing-filled (DMF) index score of 2.7 to 4.4 in 12-year-old children in Mexico was reported.<sup>1</sup>

It is possible that "decayed" and "missing" were the prevailing index components among these children, reflecting their lack of access to care. Caries and periodontal disease have a high preva-



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lence and incidence, but other oral diseases and their associated disabilities also contribute to the population's burden of disease. Moreover, oral health cannot be dissociated from general health.

**The dental workforce.** A disconnect exists between the population's needs and the development of specialized human resources. The sustained and chaotic growth of the dental profession, in the absence of structured educational programs in oral public health and preventive dentistry, may make the observed needs-and-access deficiencies more profound. In Mexico, between 2004 and 2007, the number of dental schools increased from 54 with more than 27,362 students to 70 with more than 30,000 students.<sup>5</sup> But this increase in the number of dentists will have little impact on access to care unless future dental practitioners are trained to meet the immediate treatment needs of the underserved population and to work with the community on disease prevention and promotion of health.

Working separately and without reliable data, neither health authorities nor dental educators can develop sustainable efforts to enhance oral public health. For a rudimentary comparison of available human resources, in Africa, the dentist-to-population ratio is approximately 1:150,000 against a ratio of about 5:10,000 in most industrialized countries.<sup>1</sup> Argentina, Brazil, Chile, Mexico, Panama and Venezuela are rated by The World Bank as upper-middle-income economies. The Pan American Health Organization's (PAHO's) Basic Indicators 2004 (based on figures recorded in 2001) showed a dentist-to-10,000 inhabitants ratio of 1 in Mexico, 9.5 in Brazil, 8.9 in Cuba and 5.9 in the United States.<sup>6</sup> In 2006, PAHO reported a 9.8 ratio in Brazil, 9.4 in Cuba, 9.3 in Argentina, 5.7 in Venezuela, 5.4 in the United States, 1.8 in Chile and 1.2 in Panama, but provided no figure for Mexico.<sup>7</sup>

Reliable figures for planning are crucial—but in Mexico, there is no official roster of licensed and active dentists. Until 1996, the Ministry of Education, charged with licensing professionals, had registered 67,616 dentists.<sup>8</sup> Recently, the FUNSALUD Research Group analyzed the 2004 National Employment Survey, in which 153,102 people declared they had studied dentistry, among them 27 percent “not working” and 18 percent working in “something else.”<sup>5</sup> When nearly 50 percent of dentists do not practice this profession, the institutions of higher education must consider the consequences of the unplanned growth of their

infrastructure for dental education, and young people interested in dentistry must consider well their expectations to avoid this appalling waste. On the basis of the 2004 employment figures, the ratio of practicing dentists to 10,000 inhabitants in Mexico, with approximately 100 million inhabitants, would have been closer to 8 and not 1, as reported by PAHO.<sup>6</sup>

### IMPROVING ORAL HEALTH AND ACCESS TO CARE: THE ROLE OF DENTAL EDUCATION

To optimize allocation of resources in the financially constrained environment of the underdeveloped world and improve people's access to oral health care, institutions of dental education should be committed to building capacity on the basis of evidence and reliable information provided by their own research regarding their nations' needs. Dental schools have strength not only in education and research but also in service to the community. In underdeveloped nations, traditional oral health services provided by public health institutions are insufficient to provide preventive care and treatment to most of their needy populations.<sup>1</sup> Dental education has a decisive role to play as part of a broad-based approach to addressing inadequate access to care.

**Serving the community.** The dental schools in Latin America are an example of this approach. Beyond their social and legal responsibilities, these schools have served as the major provider of oral health care for the low-income population. A glimpse of the scale is afforded by the fact that the school of dentistry at the National Autonomous University of Mexico has 3,200 students, 700 faculty members and 800 dental chairs. Each day, this school performs 5,000 procedures. Annually, it receives 45,000 new patients in Mexico City and, through humanitarian missions, extends its coverage to 30,000 patients in rural communities. To address access to care, dental schools must strengthen their collaboration with nongovernmental organizations, the private sector and other emerging partners, particularly where governments lack the resources or are retreating from their role as providers of health care.

**Rethinking dentists' training.** Despite their

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**ABBREVIATION KEY.** DMF: Decayed-missing-filled. PAHO: Pan American Health Organization. WHO: World Health Organization.

good work in providing care, however, dental schools have work to do when it comes to meeting the needs of economically challenged populations. Several programmatic and philosophical shifts need to occur in dental education: from restorative to preventive dentistry; from a private-practice model to a model that incorporates public health with private practice; from research as a specialized pursuit to research as an integral part of dental training and practice. New educational models to train oral health care providers must be developed that address the surveillance of changing disease patterns, prevention of oral diseases, identification of risk factors and their control within the community, promotion of healthy lifestyles and the effective integration of oral health into primary health care.

*Restorative versus preventive dentistry.* Traditional treatment of oral diseases is costly in industrialized countries and may not be affordable to most low-income and middle-income countries.<sup>1</sup> However, the prevailing dental education model prepares future professionals for private practice with an emphasis on restorative dentistry. The curricular content on preventive dentistry is limited and rarely taken from theory to community practice. Moreover, the principles of oral public health are included in the curricula of only a few schools.

*Community dentistry.* In developing nations, dental schools could develop curricula suited to prepare future oral health care providers for working in public health efforts. A curriculum with more emphasis on oral public health that offers community-based on-site experiences may help instill future oral health care professionals with a better understanding of the diverse issues that affect oral health care needs and access among disadvantaged populations. To make it appealing, this public health-oriented dental education would have to offer career opportunities and, perhaps, accommodate a competitive position in the traditional private-practice marketplace.

*Research.* In addition to providing treatment, dental education has an important role to play in stimulating community-based research initiatives. Research is the foundation of oral health policy. In the developing world, most dental research is done at universities, where researchers and clinicians conduct epidemiologic surveys and other research activities that provide insight into a population's oral health care needs.

Dental research capabilities must be strengthened and mobilized to assess the oral disease burden and prioritize oral health needs in diverse communities. The research agenda must address the oral health needs of underserved populations and provide the scientific evidence on which clinicians base critical decisions regarding prevention and treatment.<sup>9</sup> The availability of grants for community-based research may catalyze the establishment of research projects in neglected areas. Research training during dental education can play a role in preparing the future private practitioner to serve as an extension of the public health system, providing valuable feedback on oral disease trends.

## CONCLUSION

It is necessary to reverse the trend that increases the gap between the availability of dental care provided by trained dentists—which now is limited largely to those who can afford their professional services—and the lack of access to oral health care for those who need it most. Concerted efforts among higher education institutions, health authorities and nongovernmental organizations are paramount in a broad-based approach to address inadequate access to care. ■

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