Dental disease prevalence, prevention, and health promotion: the implications on pediatric oral health of a more diverse population

Paul S. Casamassimo, DDS, MS

Dr. Casamassimo is a professor and chair, Pediatric Dentistry, The Ohio State University, and chief of dentistry, Columbus Children's Hospital, Department of Dentistry, Columbus, Ohio. Correspond with Dr. Casamassimo at casamassimo.1@osu.edu

Disease prevalence

Our nation is changing. The percentage of people of color and those of other cultures in proportion to the white population will continue to increase in the future. Currently, children under 18 years of age account for 27% of the US population. Of these children, 37% are African American, Hispanic, Asian/Pacific Islander, and American Indian/Aleut/Eskimo.[1] So, in an ideal world, over one-third of children we would see in our practices would be from a minority group. Unfortunately, we do not live in an ideal world, and, with a few exceptions, the typical pediatric dental practice sees few minority children.

The Surgeon General's report, Oral Health in America, made us all more aware of the disparities in oral health affecting our children.[2] Minority children, children of poverty, and children of immigrants suffer from more dental disease, are less likely to receive treatment, are less likely to benefit from prevention, and are more likely to experience pain from dental caries than white children. These data are available in that report for those who are interested in numbers, but the purpose of this short presentation is to look at the breadth of the problem and suggest reasons why it is so.

I will concentrate on dental caries because this disease accounts for the pain, suffering, missed school and work, unnecessary restorative and emergency care, general anesthesia cases, and space loss that have the greatest impact on these children and society. The Surgeon General's report relies heavily on NHANES data, which give a rather sanitized view of the extent of the problem of dental caries in children. Table 1 depicts what I call "orphan" populations—those underserved minorities and poor who suffer far greater than the "average" minority child suggested by NHANES. These data are derived from IADR abstracts from the last 3 to 5 years. You can see that these children suffer from extensive dental caries. Head Start data, representing poor and minority children's oral health, confirm this picture. One in 5 Head Start children has dental caries.[3] In our urban areas, border states, and places like North Carolina, Ohio, and along the Mississippi river, we see this kind of devastating dental disease. Our Native American child populations suffer terribly from dental caries, with dmfs/t rates well over 50% being commonplace.[4]

Table 1. Niche Groups of Diverse Preschool Populations

Niche group	Sample	dmfs/dmft
Preschool (PR)	69 (0.5-5 y)	1.64 (29%)
Hispanic PS (Calif)	234 (4.95±0.33 y)	5.47±7.23
Head Start (Flor)	1,220 (4.5+0.5 y)	3.56±3.88 (14.8% NC)
Hispanic (Tex)	184 (3.92+1.7 y)	2.77±4.0
Hmong (Wis)	174 (4.0 y)	3.35±0.87
Hispanic (Neb) WIC	150 (2-5 y)	Caries kids: 50%>5 teeth
Daycare (NJ)	187 (2-5 y)	3.1±7.6

Unfortunately, too few of us see these children. My point in sharing these data is that I, like others, feel that we have no real idea of the extent of dental caries in this group of children and because of that, have failed to address their plight in policy, public payment programs, prevention, and dental education. We need to realize first that the problem exceeds our ability to measure it and then realize that it far exceeds our ability to manage it.

Why is this so? I don't believe we exactly know. The reasons for high rates of dental caries are many. Some of it is related to a lack of access that deprives the child of prevention, early identification of disease, and interventions in the early stages of caries. This leads to a downward spiral of dental caries, tooth pain, emergency care, and dental phobia. Some relate the problem to the cycle of neglect that has characterized the plight of the minority patient for generations. That cycle may have 3 or more generations of a

family who have not been able to gain access to the care system and have given up. The influence of extended family may be critical, and, if they feel that edentulism is compatible with life, prevention may be doomed. So, for many poor and minority patients, oral health is defined by pain[5] or lack of it. In some cultures, the primary dentition has no value and early loss of it symbolizes a life transition or a brotherhood or sisterhood with other children in that community. Income also plays a role—these are people who must make choices that most of us never have or never will regarding food, clothing, and shelter. Their income also forces them into the Medicaid system, which offers the hollow promise of access to care, but as all of you know, means no care.

We also have little knowledge of social stresses and their impact on oral health. Large and single-parent families stretch not just money but time and energy. Children from larger families are less likely to get care or have home supervision. We recently studied emergency visits for dental caries-related pain and found that single-parent families accounted for 66% of the children seen in our emergency department.[6] When the challenge is to get to school alive, unmolested, drug- and smoke-free, dental health drops way down the list of life's priorities.

What we see in these children and their families is what some authors[7] have come to call "urbanization," and this refers to the effects of putting people in an environment for which they are not prepared and which is not prepared for them. While this concept is most commonly applied to primitive populations newly exposed to civilization, it accurately reflects what we see happening to minority children, immigrants, and those not enfranchised by society. These people come to a world that offers opportunities as well as excesses and dangers, and they often do not have the education or skills to take advantage of the former or protect themselves from the latter. Hence, we see a consistent, multigenerational underclass with a host of needs, of which oral health is but one.

Although somewhat off the topic, I would predict that globalization of the economy will eventually bring these same ills to the current middle class as well-paying industrial jobs continue to move overseas, and the working class is dislocated from stable communities and extended family and forced to seek employment elsewhere, and to take lower wages to meet the basic necessities of life.

What is the role of the system in all of this? The oral health care system is, unfortunately, codependent in oral health disparities. The system includes reimbursement programs, the profession, the educational system, and the public health infrastructure. Payment mechanisms favor those with economic advantages including insurance, and poverty remains a strong predictor of dental caries. As long as Medicaid is the primary payment system for the poor, disparities will continue, since only about 1 in 4 or 5 children can effectively access care through Medicaid and dentist participation is understandably low. Anyone who further analyzes Medicaid data will find that even the 20 odd percent of children who visit a dentist in a year belies a largely diagnostic and preventive set of services and little treatment, spread thinly and ineffectively over few practitioners.

The dental profession cannot alone be held accountable for disparities, but the portrait of pediatric dental practices is such that we are not where these patients are. The suburban ring of dental providers often surrounds areas of greatest need. Transportation remains an obstacle for the poor, and in rural areas, where provider presence is scattered, lack of transportation becomes an issue. Access difficulties run deep as well. A recent study in North Carolina found that even those dentists who see the poor often present a cool staff reception.[8] To say that our offices are culturally competent and ready for the changing complexion of children would be inaccurate at best.

Dental education presents the brightest picture from the standpoint of providing services to this population, although a critical element is missing. Dental schools and academic health centers provide significant services to minorities and newly arrived immigrants, but once trainees graduate, they seem to leave behind their altruism and commitment. We have not found the missing piece to make care of these children an enduring practice element. A new Robert Wood Johnson Foundation program that will begin soon is aimed to instill a sustainable involvement among dental graduates to care for the diverse communities in need of dental care. [9] We'll see how this program works.

In the microcosm of pediatric dentistry education, we see some cracks in competencies as well. Our faculty is aging and we may see less and less emphasis on caring for the young child with extensive needs. A recent study by the American Academy of Pediatric Dentistry confirms that we are training our general dentists to care for a low-acuity, easily managed child population, not the dentally complex child with diverse cultural and social needs.[10] Pediatric dentists provide about 40 times the restorative care of general dentists in the preschool population,[11] and we tend to see 2 to 3 times the Medicaid children they do,[12] but there are limits to what our specialty can do with only 4,000 providers nationwide.

Finally, as we discovered on September 11, 2001, our public health infrastructure is needy. This applies to pediatric dentistry as well. The Bush administration has made the neighborhood health center its centerpiece, yet few of these have dental clinics and many that do cannot find dentists to fill them. The number of PHS dentists has dwindled over the years and, like many facets of our Baby Boomer-dominated society, many are graying or have retired after a career of service. They also face the same challenge dental educators do—how to counter the seductive lure of private practice, which can provide 4 to 5 times the annual income of government service.

What can we do as individuals and in aggregate? I have no doubt that, over time, the system will flex to a growing

minority health need, but that will take decades. Mouradian[13] has spoken to the ethics of addressing oral health disparities and this includes both our individual commitment to children—all children—and our commitment to society. Frankly, these people will be caring for you and me, my needs, your needs and those of your family in the future. They are us.

"Act locally, think globally" may be the appropriate bumper sticker to cite for what needs to be done. Find ways to care for these patients in your own practices. Make your offices culturally competent (read Linda Nelson's paper closely—she has good advice). We can never fully serve the rainbow of diversity that will come to our offices at a language and ethnic level of competence, but we can learn basic principles of engagement and interaction that can break down barriers.

On a global level, we need to work for justice in reimbursement. It is all about money. Let's stop wringing our hands and turning our backs, and let's stop trying to apply fresh paint to and market a failed Medicaid system under some other name. Let's work to provide a meaningful entry into care and a dental home. We must ask these questions. If we—and I mean society—are serious about opportunity for minority people and if we can justify affirmative action in education and job placement and devote significant resources to those ends, why can't we demand that our health system give these people the same opportunities for health and well-being? We need to be the voice of justice and ethics for the disenfranchised.

In summary, oral health disparities hit the diverse and poor with the hardest impact. We all have a role in the problem and in its solution. Begin individually to make an impact and work collectively to affect change.

References

1. Passel JS. Demographic and social trends affecting the health of children in the United States. *Ambul Pediatr.* 2002;2:169-179.
2. US Dept of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, Md: US Dept of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
3. Louie R, Brunell JA, Maggiore ED, Beck RW. Caries prevalence in Head Start children, 1986-1987. *J Pub Health Dent*. 1990;50:299-305.
4. Tsubouchi J, Tsubouchi M, Maynard RJ, Domoto PK, Weinstein P. A study of dental caries and risk factors among Native American infants. *ASDC J Dent Child*. 1995;62:283-287.
5. Atchison KA, Gift HC. Perceived oral health in a diverse sample. *Adv Dent Res.* 1997;11:272-280.
6. Von Kaenel D, Vitangeli D, Casamassimo PS, Wilson S, Preisch J. Social factors associated with pediatric emergency department visits for caries-related dental pain. *Pediatr Dent*. 2001;23:56-60.
7. Gracey M. Child health in an urbanizing world. *Acta Pediatr Esp.* 2002;91:1-8.
8. Mofidi M, Rozier G, King RS. Problems with access to dental care for Medicaid-insured children: what caregivers think. *Am J Public Health.* 2002;92:53-58.
9. Robert Wood Johnson Foundation. *Pipeline, Profession, and Practice: Community-based Dental Education*. Princeton, NJ: RWJ; 2001.
10. Bohaty B. Survey of predoctoral pediatric dentistry education programs. Presented at the ADEA 79th Annual Session; March 4, 2002; San Diego, Calif.
11. Brown J. The market for pediatric dental services in the United States. Presented at Dental Health and Disparities in US Children: What are the Solutions to the Needs of Our Youngest Patients; September 20-21, 2001; University of Michigan, Ann Arbor, Mich.
12. Mayer ML, Stearns SC, Norton EC, Rozier RG. The effects of Medicaid expansions and reimbursement increases on dentists' participation. *Inquiry.* 2000; 37:33-44.
13. Mouradian M. Ethical principles and the delivery of children's oral health care. *Ambul Pediatr*. 2002; 2(suppl):162-168.