Access and Barriers To Care

Update on Disparities in Oral Health and Access to Dental Care for America's Children

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This contribution updates federal survey findings on children's oral health and dental care since release of *Oral Health in America: A Report of the Surgeon General* in 2000. Dental caries experience continued at high levels, impacting 40% of all children aged 2 to 11 years, with greater disease and untreated disease burden borne by poor and low-income children and racial/ethnic minorities. Caries rates increased for young children (to 28% of 2- to 5-year-olds in the period 1999–2004) and remained flat for most other ages. The total volume of caries and untreated caries increased as the numbers of children increased. The proportion of US children with a dental visit increased modestly (from 42% to 45% between 1996 and 2004), with the greatest increases occurring among children newly covered by the State Children's Health Insurance Program (SCHIP).

Disparities in dental visits continued to be evidenced by age, family income, race/ethnicity, and caregiver education. Parental reports of children's oral health and dental care parallel these findings and also reveal higher unmet dental needs among children with special health care needs. Racial- and income-based disparities in both oral health and dental care continue into adolescence and young adulthood. These disparities can, as in the past, be expected to exacerbate under the forces of growing income disparities and demographic trends.

KEY WORDS: access; child/children; disparities; dental care; oral health

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Oral Health in America: A Report of the Surgeon General established that minority and low-income children in the United States experience poorer oral health and poorer access to dental services than do their majority and higher-income peers.[1] A review of federal surveys prepared for the 2002 US Surgeon General's workshop, Children and Oral Health, detailed these disparities and predicted that they would worsen as the percentage of US children who are poor and are minority increases.[2] This update reviews subsequent federal data on children's oral health and dental care to determine whether that prediction was realized.

The 2002 review found that children disadvantaged by poverty and minority status had greater likelihood of having cavities and, when affected, had more cavities than their peers. This subgroup of children had fewer overall and preventive dental visits than did their peers but used dental services more often for relief of pain.[2]

Over the years since those reports, child poverty has remained high—particularly among minorities[3]—and the percentage of young US children who are both minority and low income has increased.[4] Census Bureau data show that between 2000 and 2007 the percentage of children living in families with incomes below the federal poverty level increased from 16.2% to 18.0%, and black and Hispanic children were more than twice as likely to live in poverty as non-Hispanic white and Asian children. In 2007, more than a third (34.5%) of black children and a quarter (28.6%) of Hispanic children lived in poverty compared with 10.1% of non-Hispanic white children and 12.5% of Asian children.[4] If caries rates and poor access to dental services have remained correlated with minority and low-income status over time, disparities in oral health and dental care are expected to continue or worsen.

TRENDS IN DENTAL CARIES AMONG US CHILDREN

Dental caries experience in the primary teeth of children aged 2 to 5 years increased significantly and trended upward in children aged 6 to 11 years between the baseline period 1988 to 1994 that was reported in *Oral Health in America* and the period 1999 to 2004 (Table), whereas caries in permanent teeth of older children decreased.[5] Overall, 42.2% of US children aged 2 to 11 years experienced tooth decay, and more than a quarter of 2- to 6-year-olds were affected. For purposes of anticipating future disease burden and treatment needs, youngest children are of greatest interest. As expected of an early-onset, progressive, and cumulative disease, caries experience is evident in very young children and increases with age.[6] Among preschool aged children, 11% of 2-year-olds, 21% of 3-year-olds, 34% of 4-year-olds, and 44% of 5-year-olds have had caries experience.[7] Children who are affected earliest have the most intense disease experience and remain at substantial risk for ongoing disease progression.[8] Despite decreases in caries prevalence

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Table. Prevalence of Dental Caries in Primary Teeth (dft) Among Youths 2–11 Years of Age, by Selected Characteristics: United States, National Health and Nutrition Examination Survey, 1988–1994 and 1999–2004*

Characteristic	1988–1994		1999–2004		
	Percent	Standard Error	Percent	Standard Error	Difference
Age, y					
2–5	24.23	1.32	27.90	1.29	3.67†
6–11	49.90	1.79	51.17	1.96	1.27
Gender					
Male	39.50	1.73	44.43	1.90	4.92
Female	40.24	1.44	39.80	1.79	−0.44
Race and ethnicity					
White, Non-Hispanic	35.94	1.46	38.56	1.90	2.72
Black, Non-Hispanic	40.99	1.65	43.34	1.83	2.35
Mexican American	53.61	2.15	55.40	1.75	1.78
Poverty status					
Less than 100% FPL‡	51.18	2.02	54.33	2.47	3.15
100%–199% FPL	44.50	1.94	48.75	2.43	4.24
Greater than 200% FPL	31.10	1.74	32.30	1.62	1.20
Total	39.97	1.16	42.17	1.44	2.20

*From Dye et al;[5] dft = number of decayed and filled primary teeth.
†P value $< .05$.
‡FPL = federal poverty threshold or level.

among children older than 11 years, tooth decay remains the single most common chronic disease of US children as earlier reported by the Surgeon General. Because young children are most affected, this finding is likely to continue into the foreseeable future.

Disparities in pediatric caries experience reported by the Centers for Disease Control and Prevention (CDC) National Health and Nutrition Examination Survey by family income continue unchanged in the follow-up period (Figure 1).[5] Among 2- to 11-year-olds, more than half of children in poor families experienced cavities compared with a third of children in families with incomes above 200% of the federal poverty level. Disparities in pediatric caries experience by race and ethnicity also continue unchanged. Among the many US Hispanic populations, the CDC reports only on Mexican American children who experience higher rates of primary dentition caries (55%) than black children (43%) or white children (39%).

Untreated tooth decay similarly reflects disparities and general worsening of young children's oral health status.[5] Three quarters (73%) of preschoolers and half (48%) of primary school age children who have experienced caries have unfilled cavities. Among poor and low-income children aged 2 to 11 years with cavities, 60% have untreated disease compared with 46% of children in higher income families. Minority children also have greater rates of untreated disease than do non-Hispanic white children: 60% of Mexican American children and 64% of black children have unfilled cavities compared with 50% of white children. Similarly the numbers of decayed teeth per child are greater for poor and low-income than higher-income children and for minority than majority children.

Permanent tooth decay rates among 6- to 11-year-olds are down for all groups except Mexican Americans, but the relative disparities in the burden of disease and untreated disease remain.[5] For example, the percentage

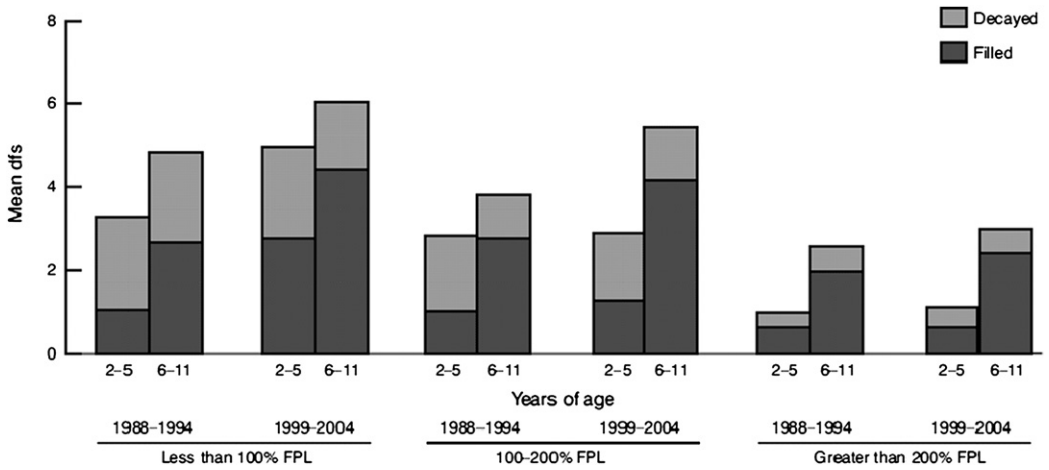


Figure 1. *Dental caries experience in primary teeth among US children aged 2 to 11 years, by family income level, 1988 to 1994 and 1999 to 2004.[5] dfs = number of filled and decayed surfaces in primary teeth; and FPL = federal poverty threshold or level.*

of children with permanent tooth decay that is unfilled is 45% for black children and 41% for Mexican Americans, compared with 30% for white children. In adolescents aged 12 to 19 years, the prevalence of dental caries overall in the permanent teeth has decreased from 68% to 59%, whereas racial and income disparities continue as in the past. The decrease in permanent tooth decay may reflect an overall increase in dental sealant rates among US children.

TRENDS IN DENTAL SERVICE UTILIZATION AMONG US CHILDREN

The most comprehensive and definitive national estimates of dental utilization by children are those derived from the federal Medical Expenditure Panel Survey, which tracks a panel of families over time to determine aspects of their health care utilization.[9] Between 1996 and 2004, the percentage of children under 21 years with at least 1 dental visit increased from 42% to 45%, with highest utilization rates and greatest increases for 6- to 12-year-olds. Visits for children under age 6 increased from 21% to 25%, for 6- to 12-year-olds from 54% to 59%, and for teens aged 13 to 21 years, visits remained stable at 48%.

Stepwise disparities in dental utilization by income remained as strong in 2004 as in 1996 (Figure 2), with 30.8% of poor children, 33.9% of low-income children, 46.5% of middle income children, and 61.8% of high-income children having at least 1 dental visit in 2004. One third of minority children (34.1% black and 32.9% of Hispanic children) obtain dental care in a year compared with half (52.5%) of white children (Figure 3). Children whose parents attained less than high school education were less than half as likely to obtain a dental visit in 2004 as children whose parents are college graduates (25% vs 54%).

The advent of the State Children's Health Insurance Program (SCHIP) in 1997 has positively impacted

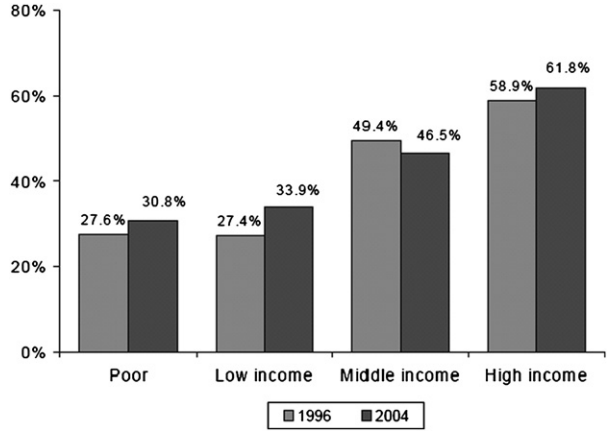


Figure 2. *Percentage of US children aged at birth to 21 years with a dental visit in 1996 and 2004, by family income level.[9] Poor = children in families with income under 100% of the federal poverty level (FPL); low income = children in families with incomes between 101% to 200% of FPL; middle income = children in families with incomes between 201% to 400% of FPL; high-income = children in families with incomes in excess of 400% FPL.*

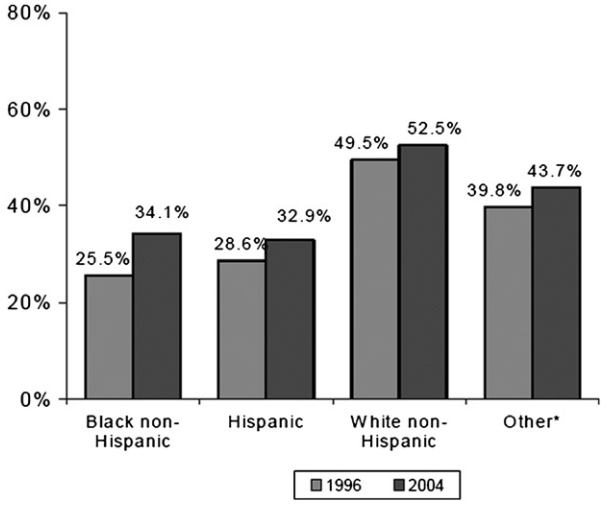


Figure 3. *Percentage of US children aged at birth to 21 years with a dental visit in 1996 and 2004, by race and ethnicity.[9]*

coverage and utilization for low-income children. The percentage of children lacking dental coverage dropped from 29% to 20% between 1996 and 2004, whereas the percentage with public coverage increased from 18% to 26% and the percentage with private coverage remained unchanged at 54%. Among low-income families who are targeted by SCHIP, the percentage of children with dental coverage increased from 18% to 41%.[9]

The percentage of children in publicly funded dental insurance programs who had a dental visit increased from 28% in 1996 before SCHIP to 34% in 2004,[9] 7 years into this expanded insurance program. Nonetheless, children in public programs—such as children with no dental coverage at all—experience far less dental care than children who enjoy private dental coverage, typically through parents' employer plans. In 2004, 58% of children with private coverage had a dental visit compared with 34% in Medicaid and SCHIP and 28% with no coverage.

Based on Medicaid utilization reports publicly available on the Web, the national average percentage of poor and low-income children receiving at least 1 dental visit in Medicaid trended upward between 1999 and 2006, but only a modest percentage of enrolled children received even a single dental visit each year (Figure 4).[10] Much of the increase may be related to the advent of SCHIP, which brought children from higher-income families into Medicaid in 30 states; higher income families tend to be higher utilizers of dental services. A literature review and study of non-Medicaid expansion SCHIP plans similarly found that providing dental coverage increased use of dental services.[11] It concluded that "children enrolled in [S]CHIP are accessing dental services at moderate rates—higher than children enrolled in Medicaid and lower than children with employer-sponsored coverage. Non-Medicaid expansion [S]CHIP dental programs are offering basic preventive, diagnostic, and restorative services that children need, although access may be hindered by financial barriers or benefit limitations."[11]

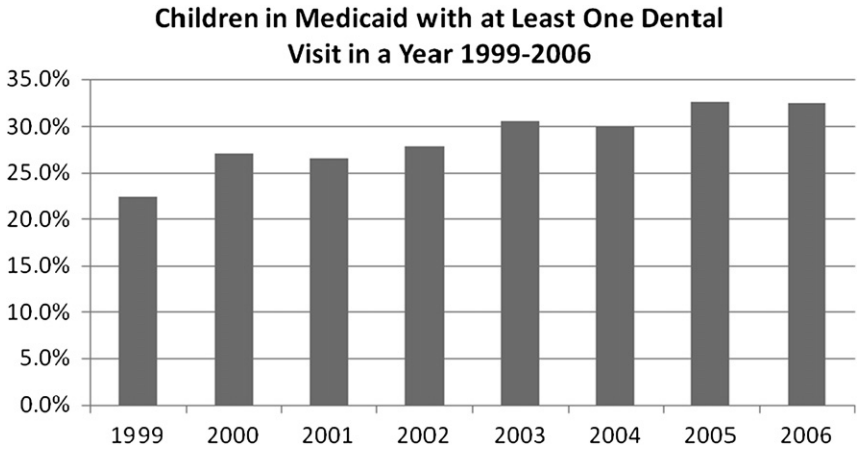


Figure 4. *National average of state-reported dental Medicaid utilization by children, 1999 to 2006.*[10]

The average number of dental visits for children between 1996 and 2004 have remained stable (2.7 in 1997, 2.6 in 2004), although the numbers of visits for children with a visit show the same stepwise disparities by age, income, race, caregiver education, and source of coverage as do the numbers of children with any visit.[9] The average numbers of visits by age are 1.6 for children aged under 6 years, 2.4 for 6- to 12-year-olds, and 3.3 for 13- to 20-year-olds. The average numbers of visits by income are 1.8 for poor children, 2.0 for low-income children, 2.6 for middle-income children, and 3.2 for high-income children. By race, numbers of visits in 2004 among dental care utilizers are 1.9 for black children, 2.3 for Hispanics, and 2.9 for white children. For caregiver education, rates are 1.9 for less than high school education parents, 2.3 for high school graduate parents, and 2.8 for college graduate parents. Children privately insured averaged 2.9 visits, whereas those in public coverage had 1.9 visits and those with no dental coverage averaged 2.7 visits.

PARENTAL REPORTS OF ORAL HEALTH AND DENTAL CARE

Parental reports of both oral health and dental care reflect this range of documented disparities. Stepwise disparities in perceived oral health status by race and income parallel findings from the CDC National Health and Nutrition Examination Survey (NHANES) survey.[12] Although 76% of white parents report that their children's "teeth are in excellent or very good condition," only 61% of black parents and 47% of Hispanic parents report this positive health status. Similarly, only 49% of poor parents report their children's teeth to be in excellent or good condition compared with 60% of low-income, 75% of middle-income, and 83% of high-income parents. The National Survey of Children's Health from which these findings are made also explores oral health as a function of overall health, finding that 74% of children whose overall health is excellent or very good are also regarded by their parents to have excellent or very good oral health. Conversely, only 38% of parents report that their children are less healthy and have teeth that are in less favorable condition. This disparity in oral health as a function of general health is also evident among parents who report their children as having special needs. Fewer children with special health care needs are reported by their parents to have excellent or very good oral health than children without such needs (65% vs 69%). Among the various dental conditions assayed by this survey, tooth decay accounted for the greatest percentage of problems (55%), followed by crooked teeth (34%) and broken teeth in need of repair (12%).

Children with greatest needs are also reported by parents to be those with least use of dental services. Stepwise disparities in access to preventive dental services are evident by race and income in ways that parallel Medical Expenditure Panel Survey findings.[12] White parents report higher use of preventive dental services than do black or Hispanic parents (77%, 66%, and 61%, respectively). Poor parents report less use of services than do low-income, middle class, and higher-income parents (58%, 66%, 77%, and 82%, respectively.)

Despite growing efforts to begin dental care very early in life when primary prevention of dental caries is possible, very few children receive early care as reported by their parents. Only 10% of children aged 1 year, 24% of 2-year-olds, and 51% of 3-year-olds are reported by parents to have had a preventive dental care visit in 2003.[12] This study further suggests that parents are generally unaware of the professional recommendation for early preventive care, as only 1% of parents of 1-year-olds, 2% of parents of 2-year-olds, and 4% of parents of 3-year-olds report that their child needed but did not receive a preventive dental visit.

This survey further details reasons reported by parents for not obtaining dental care when needed by their children. Cost appears to be the overwhelming reason, as 61% of parents reported either that they did not obtain care because they did not have insurance or did not obtain care because dental care "costs too much."[12] Access barriers are also evident, as 1 in 4 parents (23%) reported either that they "could not get a dental appointment" or that they could not find a dentist who takes the child's insurance.

Conclusions

As in 2002, children from low-income families experience the greatest amount of oral disease and the most extensive disease. Rates of disease are up for young children and flat for most other ages, but the total volume of disease and untreated disease is increasing as the numbers of children increase. The twin disparities of poor oral health and lack of dental care continue to be most evident among poor and low-income preschool children, a disproportionate portion of whom are children from minority groups.

Overall, the percentage of children covered by public insurance who receive a dental visit has increased, but this is attributed primarily to expansion of public dental coverage to higher income children through the advent of SCHIP. State Children's Health Insurance Program has performed well in expanding coverage, access, and utilization. Nonetheless, there are profound and ongoing disparities in dental access and utilization by race and income. Racial and income-based disparities in both oral health and dental care continue into adolescence and young adulthood. These disparities can, as in the past, be expected to exacerbate under the dual forces of growing income disparities and demographic trends.

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