

Children's Oral Health and Access to Dental Care in the United States

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Institute of Medicine

Oral Health Access to Services Meeting: 4 March 2010



**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics**



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Objectives

- Brief overview of access to care measures used by the dental community
- Pediatric oral health trends in the U.S.
- What does it all mean

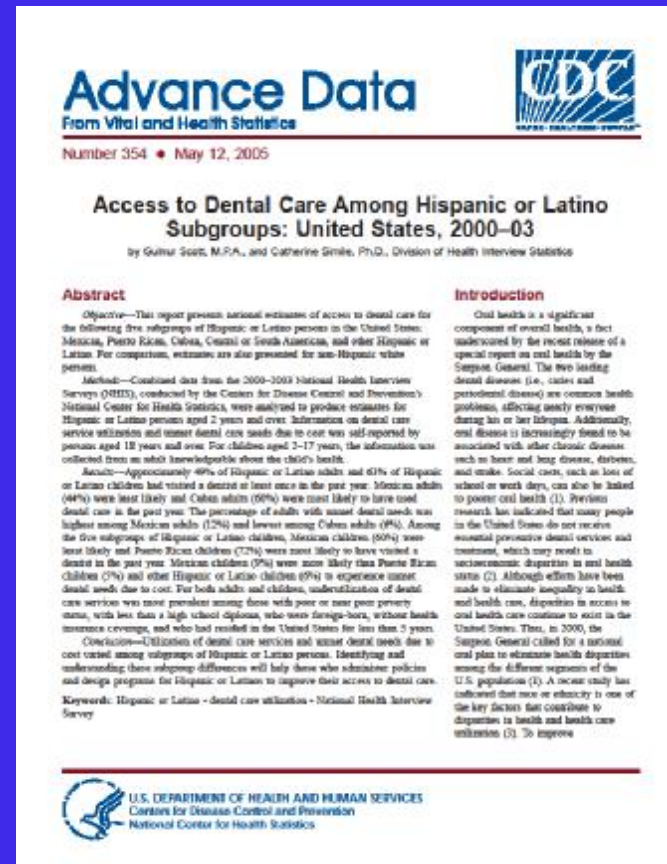


Background

- **Surrogate measures are typically used to assess adequate access to health care**
 - Having health insurance
 - Having a usual place of care
 - Healthcare provider distribution
 - Unmet health needs
 - Burden of out of pocket expenditures
 - Prevalence of undiagnosed medical conditions
 - No annual medical visits

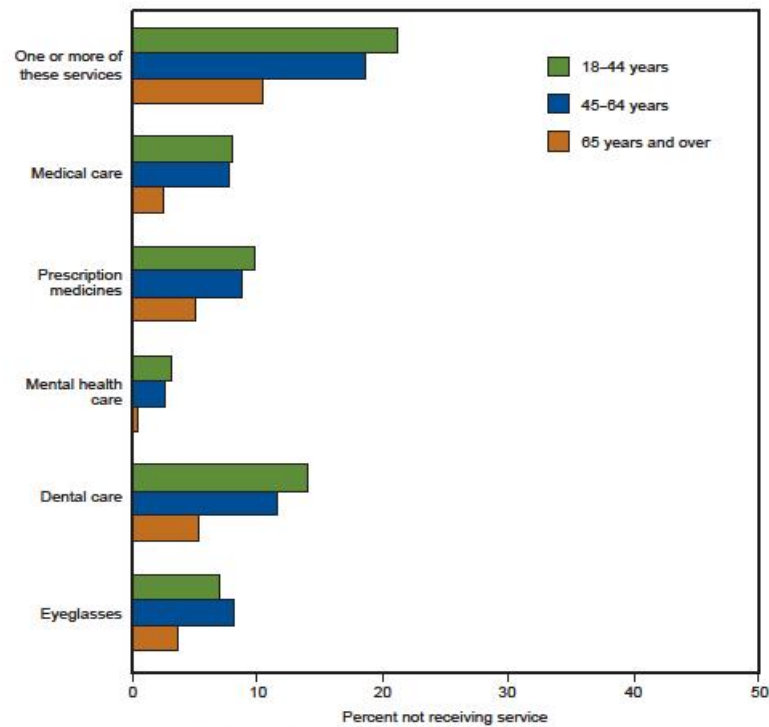
Background

- Oral health surrogate measures typically focus on:
 - Unmet dental treatment needs—mostly untreated dental caries
 - No annual dental visits
 - Lack of dental insurance
 - Reasons for not seeking dental care—affordability



Background

Figure 21. Adults 18 years of age and over reporting they did not receive needed health-related services in the past 12 months because they could not afford them, by age and type of service: United States, 2005



NOTE: See data table for Figure 21 for data points graphed, standard errors, and additional notes.


SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.

Access to Dental Care

Children and Adolescent Oral Health Trends

Dental Caries


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Monitoring the
Nation's Health

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Trends in Oral Health Status: United States, 1988–1994 and 1999–2004



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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National Center for Health Statistics

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Trends in paediatric dental caries by poverty status in the United States, 1988–1994 and 1999–2004

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Background. Recent reports have suggested that dental caries among young children is increasing in the United States.

Aim. To describe changes in paediatric caries prevalence by poverty status in the United States.

Design. National Health and Nutrition Examination Survey (NHANES) data for children aged 2–11 years for 1988–1994 and 1999–2004 were used.

Results. Caries in the primary dentition increased among poor and non-poor boys aged 2–8 years (45–55% and 25–31%, respectively) and among non-poor boys aged 2–5 years (13–21%) from 1988–1994 to 1999–2004. Caries experience also increased on buccal-lingual, mesio-distal, and occlusal primary dental surfaces among poor children aged 2–8 years and this increase may be attributed to an increase in the number of dental surfaces restored. In the mixed dentition, caries remains relatively unchanged. Caries continues to decline in the permanent dentition for many children, but is increasing among poor non-Hispanic whites aged 6–8 years (9–22%) and poor Mexican-Americans aged 9–11 years (38–55%).

Conclusions. For many older children, caries continues to decline or remain unchanged. Nevertheless, for a subgroup of younger children, caries is increasing and this increase is impacting some traditionally low-risk groups of children.

Introduction

Although the Surgeon General's Report on Oral Health described important improvements in dental caries prevalence over the past 50 years, significant disparities have persisted between key socio-demographic groups, including between those who live in poverty and those who do not¹. Dental caries continues to be the most common chronic disease of childhood in the United States. Asthma, a common chronic medical condition in US children, affected 6% of children aged 0–4 years and 10% of children aged 11–17 years in 2003–2005². During 1999–2004, the prevalence of dental caries was 24% for children aged 2–4 years and 51% for 12–15 year-olds³.

Since the 1960s, information from national health examination surveys has been used to demonstrate a decline in dental caries among children in the United States. Nevertheless, recent findings have suggested that the decline in dental caries has not been consistent among all children. For instance, a comparison between the third National Health and Nutrition Examination Survey (NHANES), 1988–1994 and NHANES 1999–2004 showed that dental caries prevalence increased in the primary dentition from 24 to 28% among 2–5 year-olds, remained unchanged in the mixed dentition among 6–8 year-olds (52–53%), and decreased in the permanent dentition from 57 to 51% among 12–15 year-olds³. Nevertheless, this report did not assess changes in caries prevalence among children by poverty status.

The increase in caries prevalence among preschool children is particularly disturbing as one of the best predictors for future tooth decay is the presence of current caries or evidence of past caries in the form of existing restorations^{4–6}. Understanding dental caries trends within youth socio-demographic

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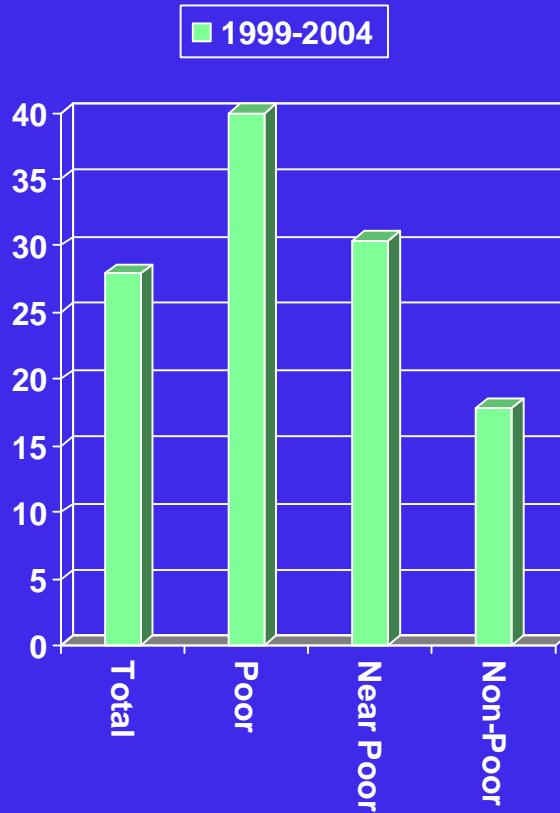
Pediatric Oral Health Trends

**Surrogate marker—caries in primary
teeth**

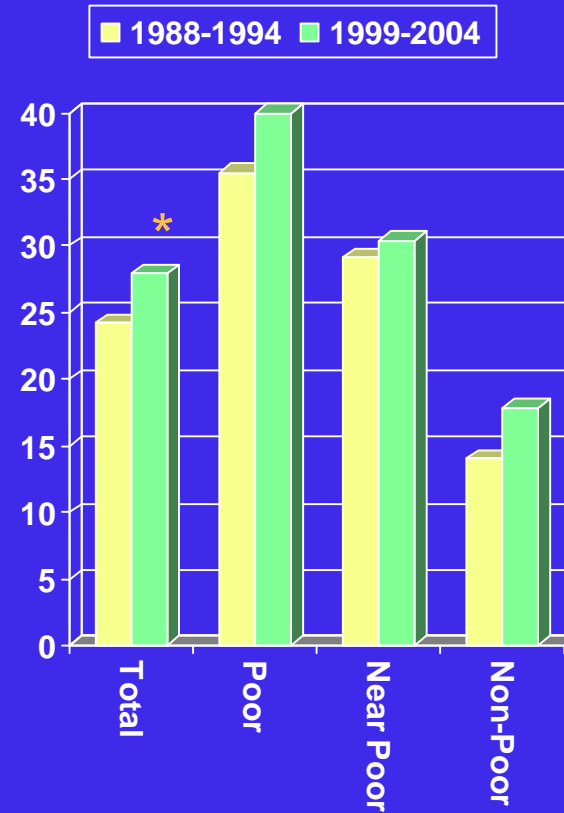
Children ages 2-5 years

Caries Experience for Children age 2-5 years

History of Decay-All

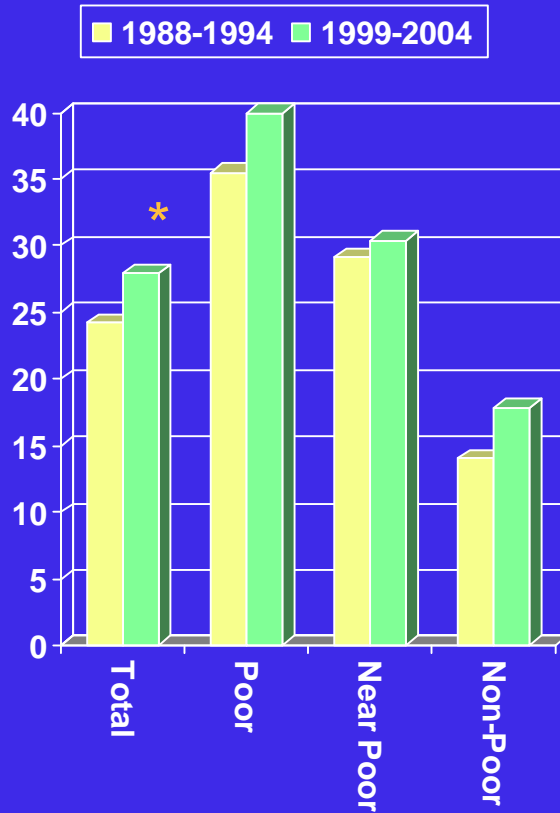


History of Decay-All

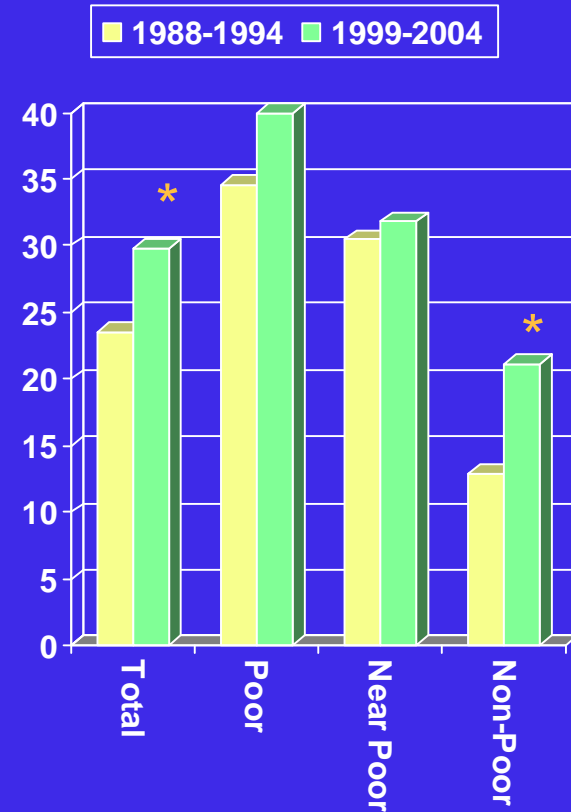


Caries Experience for Children age 2-5 years

History of Decay-All

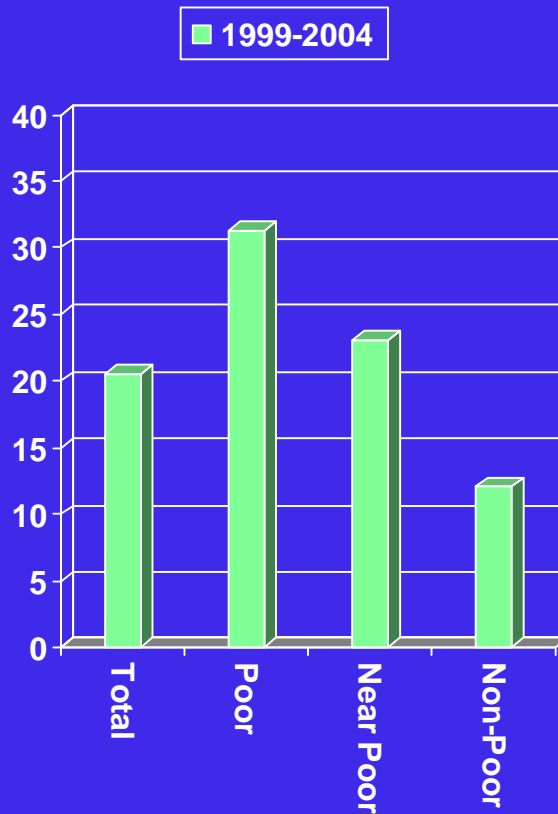


History of Decay-Boys

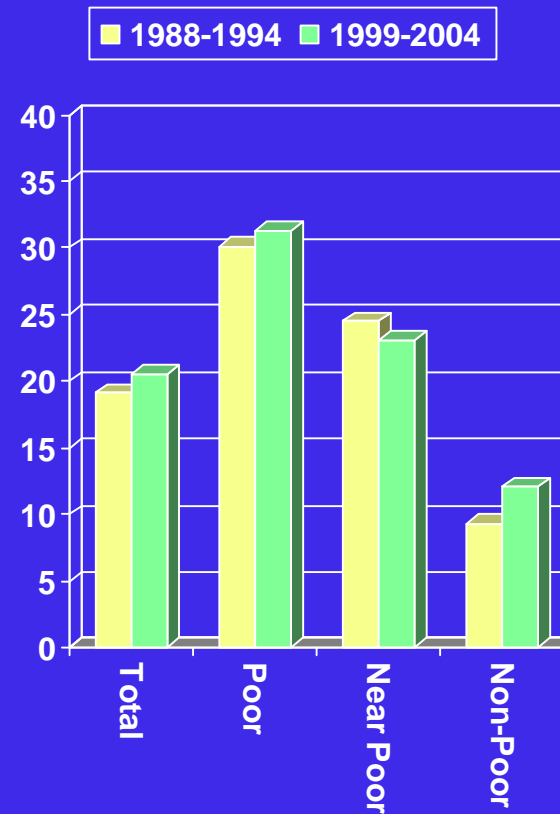


Untreated Caries for Children age 2-5 years

Untreated Decay-All

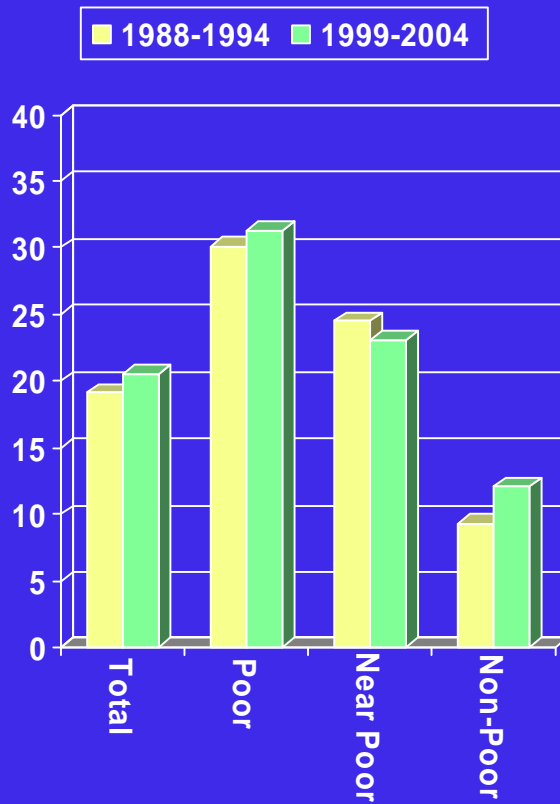


Untreated Decay-All

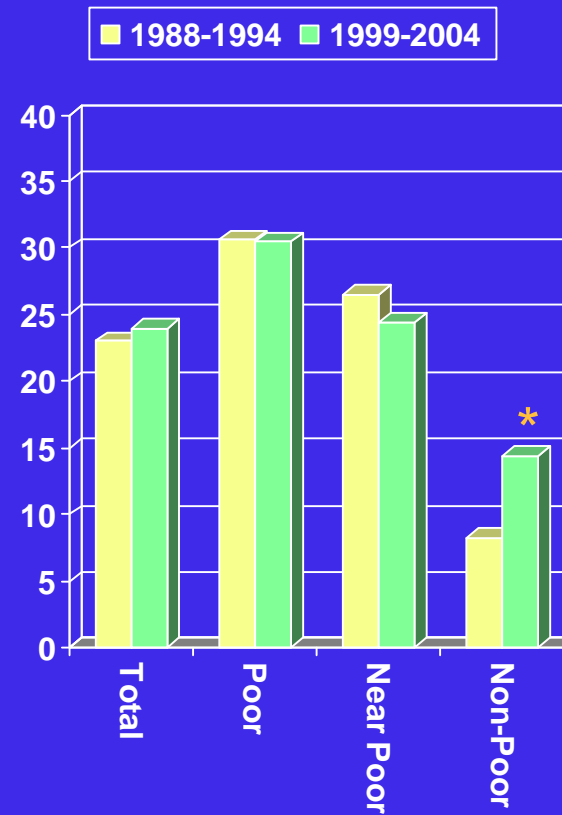


Untreated Caries for Children age 2-5 years

Untreated Decay-All

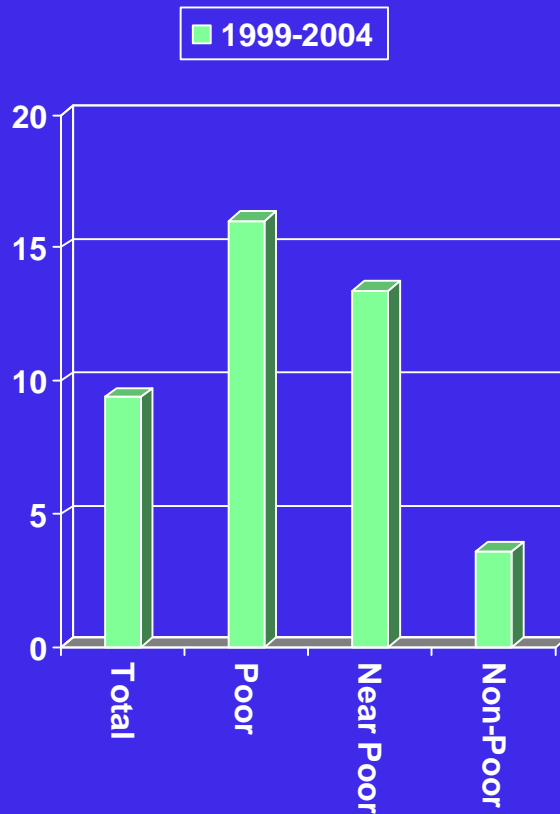


Untreated Decay-Boys

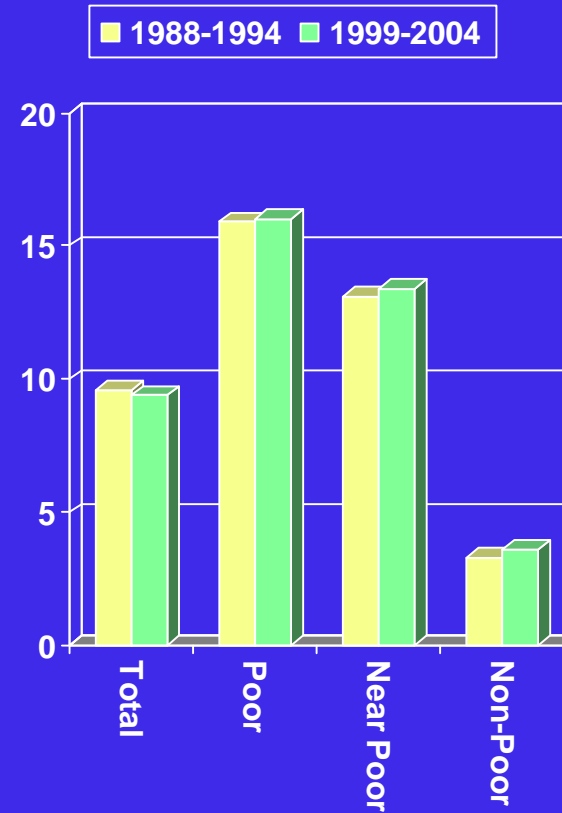


Caries Severity for Children age 2-5 years

3+ Teeth w/ Decay-All



3+ Teeth w/ Decay-All



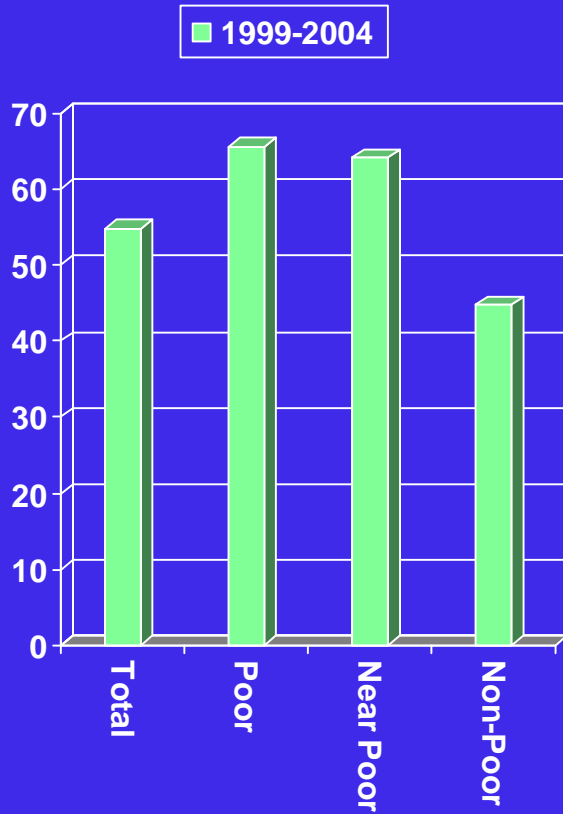
Pediatric Oral Health Trends

Surrogate marker—caries in the mixed dentition

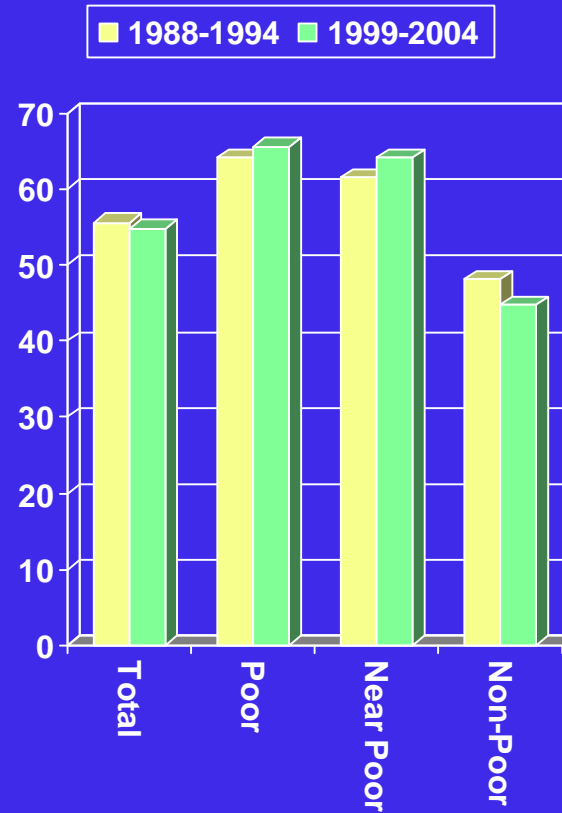
Children ages 6-11 years

Caries Experience for Children age 6-11 years

History of Decay-All

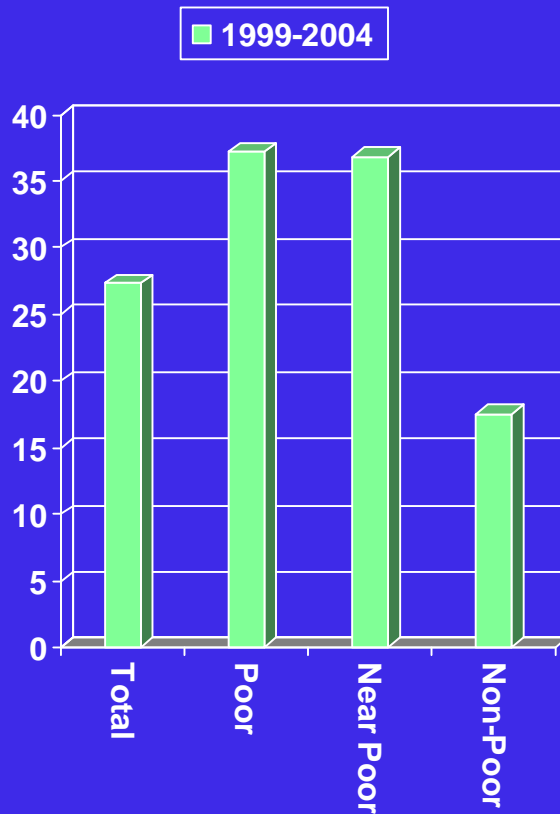


History of Decay-All

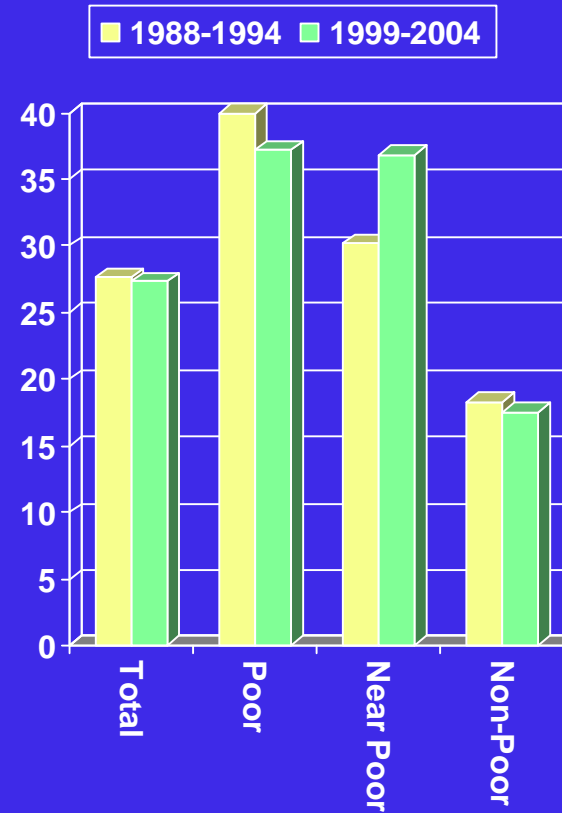


Untreated Caries for Children age 6-11 years

Untreated Decay-All

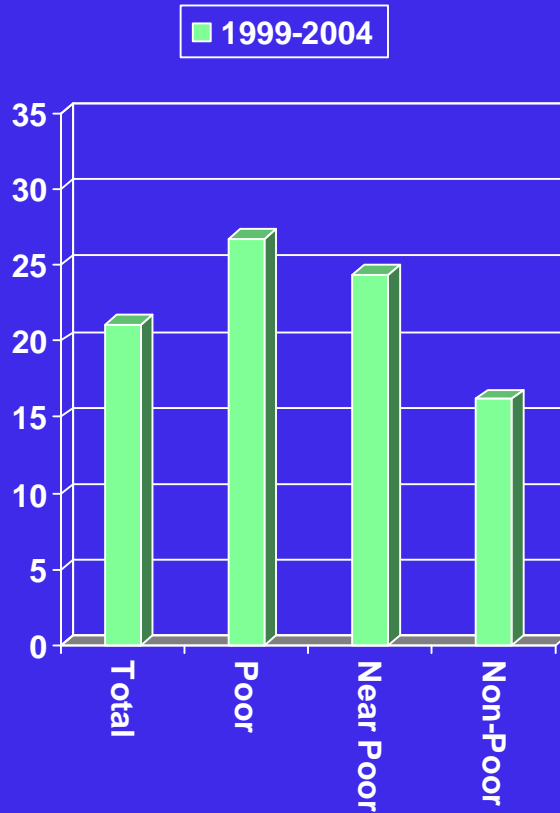


Untreated Decay-All

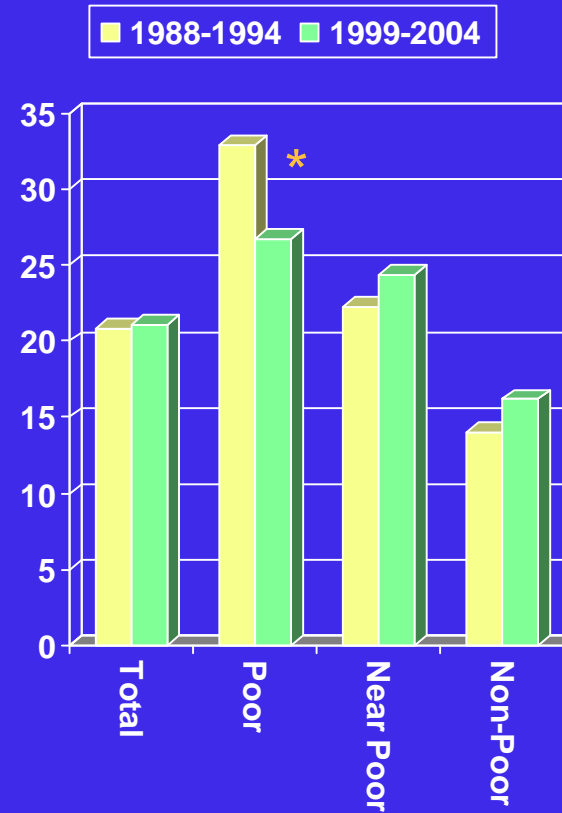


Severe Caries for Children age 6-11 years

3+ Teeth w/ Decay-All



3+ Teeth w/ Decay-All



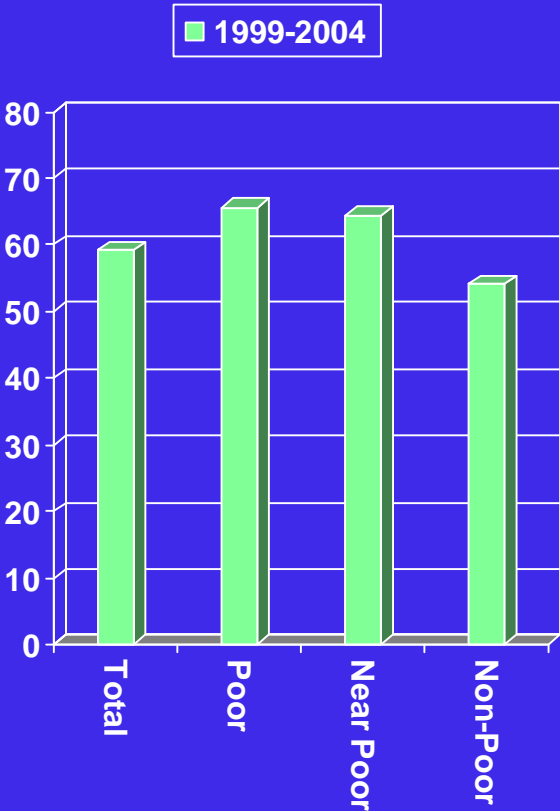
Pediatric Oral Health Trends

**Surrogate marker—caries in the
permanent dentition**

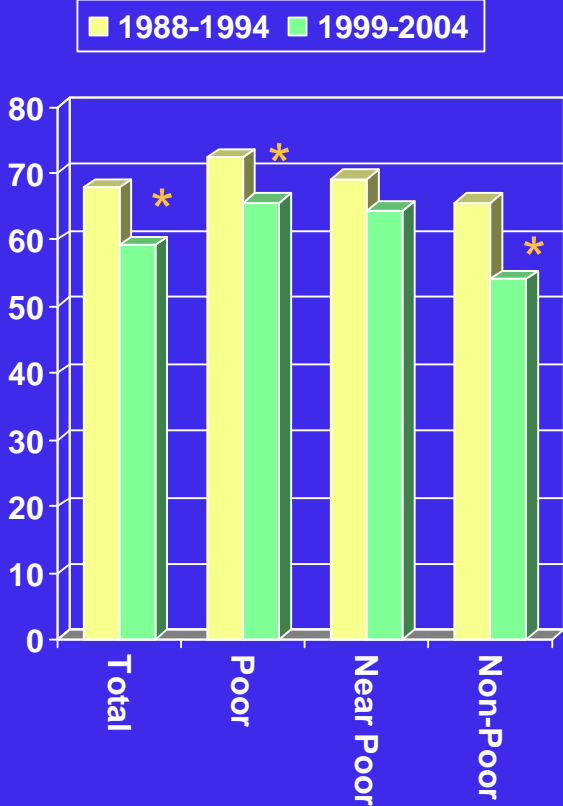
Adolescents ages 12-19 years

Caries Experience for Adolescents age 12-19 years

History of Decay-All

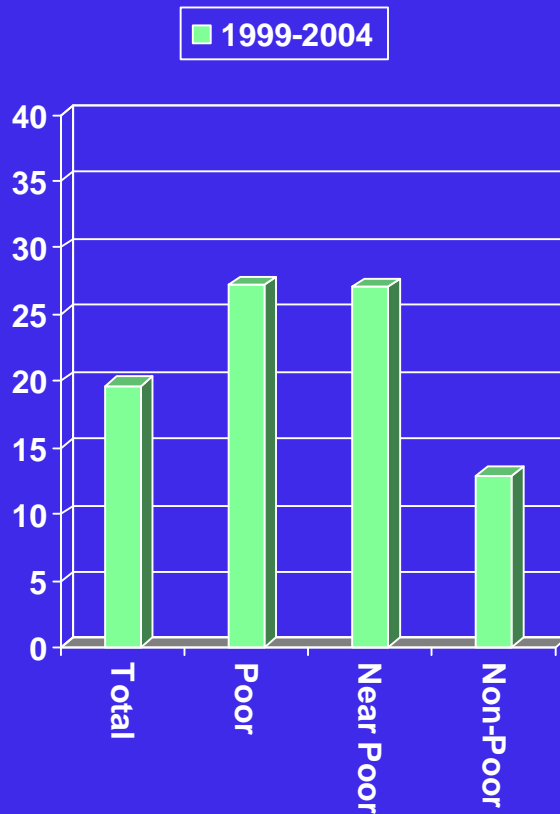


History of Decay-All

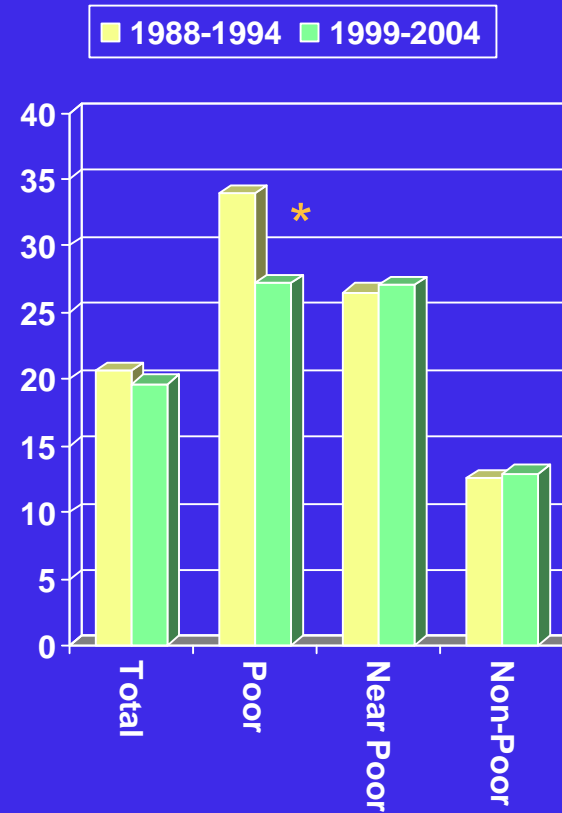


Untreated Caries for Adolescents age 12-19 years

Untreated Decay-All



Untreated Decay-All



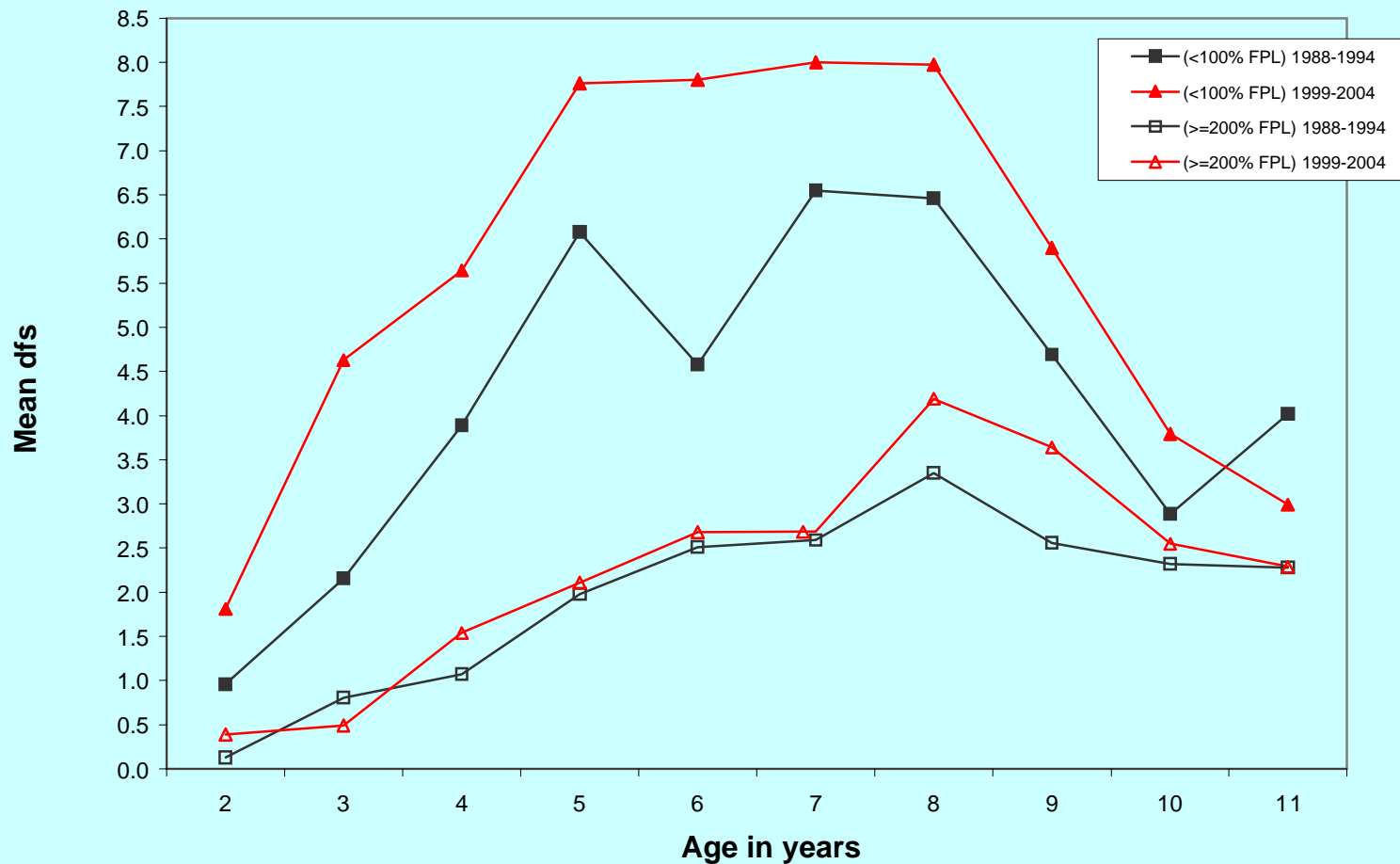
Pediatric Oral Health Trends

Surrogate Marker—Dental Caries

Important issues underlying the current interpretation of data describing dental caries affecting primary teeth in the United States

Pediatric Oral Health Trends

Fig 2. Mean dfs scores by children age 2-11 years and federal poverty level status: United States, 1988-1994 and 1999-2004.



Pediatric Oral Health Trends

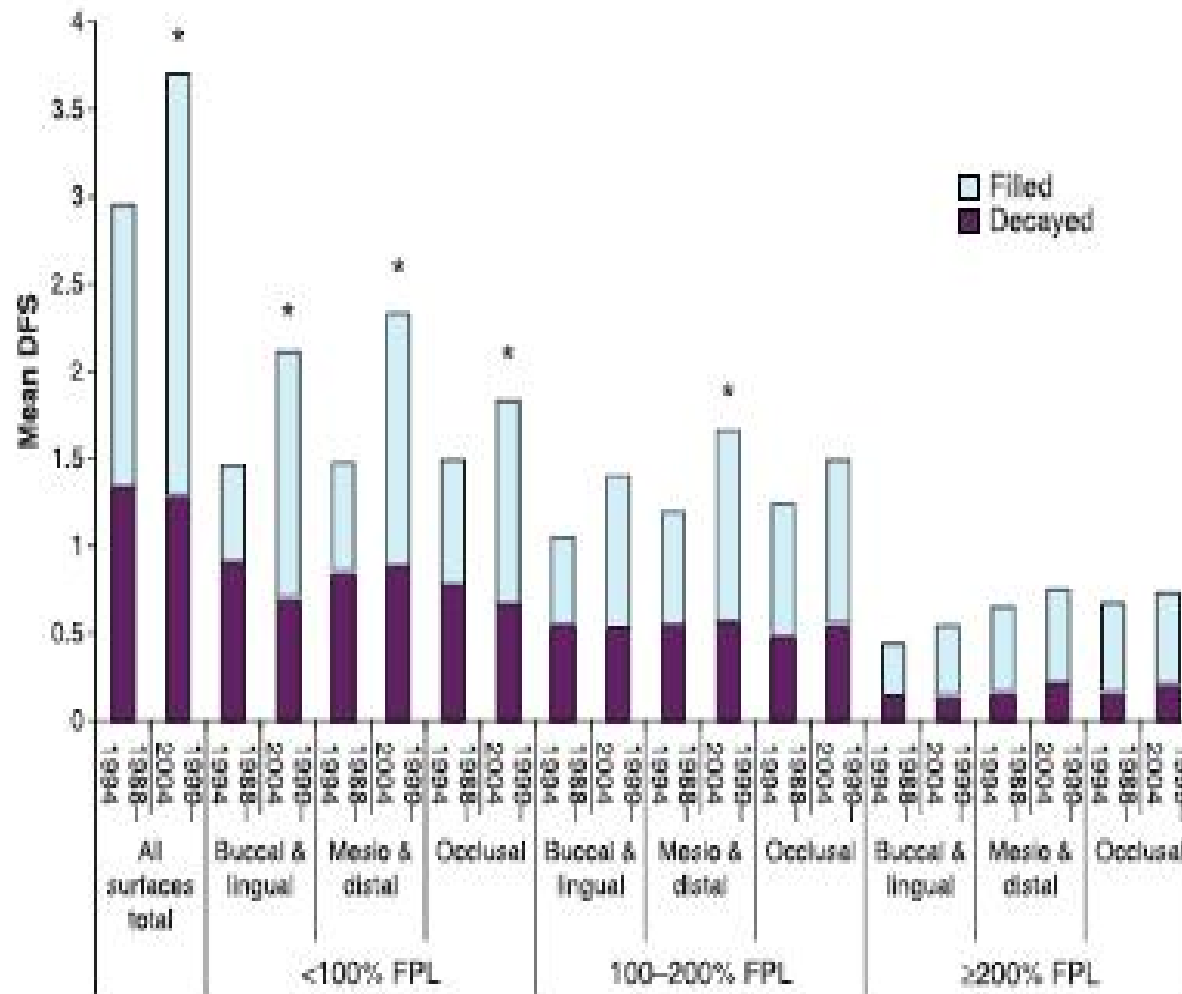
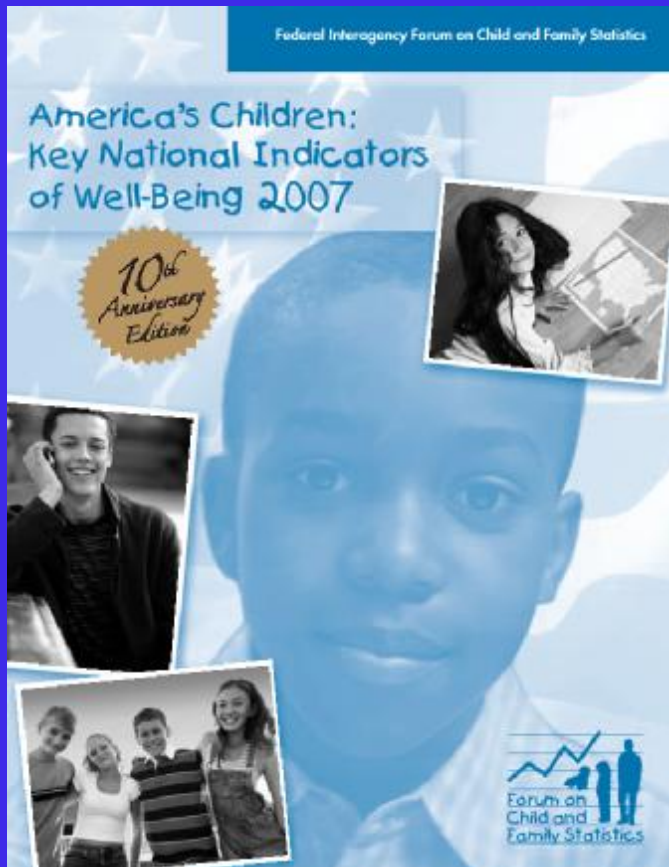


Fig. 1. Decayed and filled primary dental surfaces (dfs) for children age 2-8 years by surface group and federal poverty level status: United States, 1988-1994 and 1999-2004. * $P \leq 0.05$.

Pediatric Oral Health Trends

Surrogate Marker—Children Dental Visits

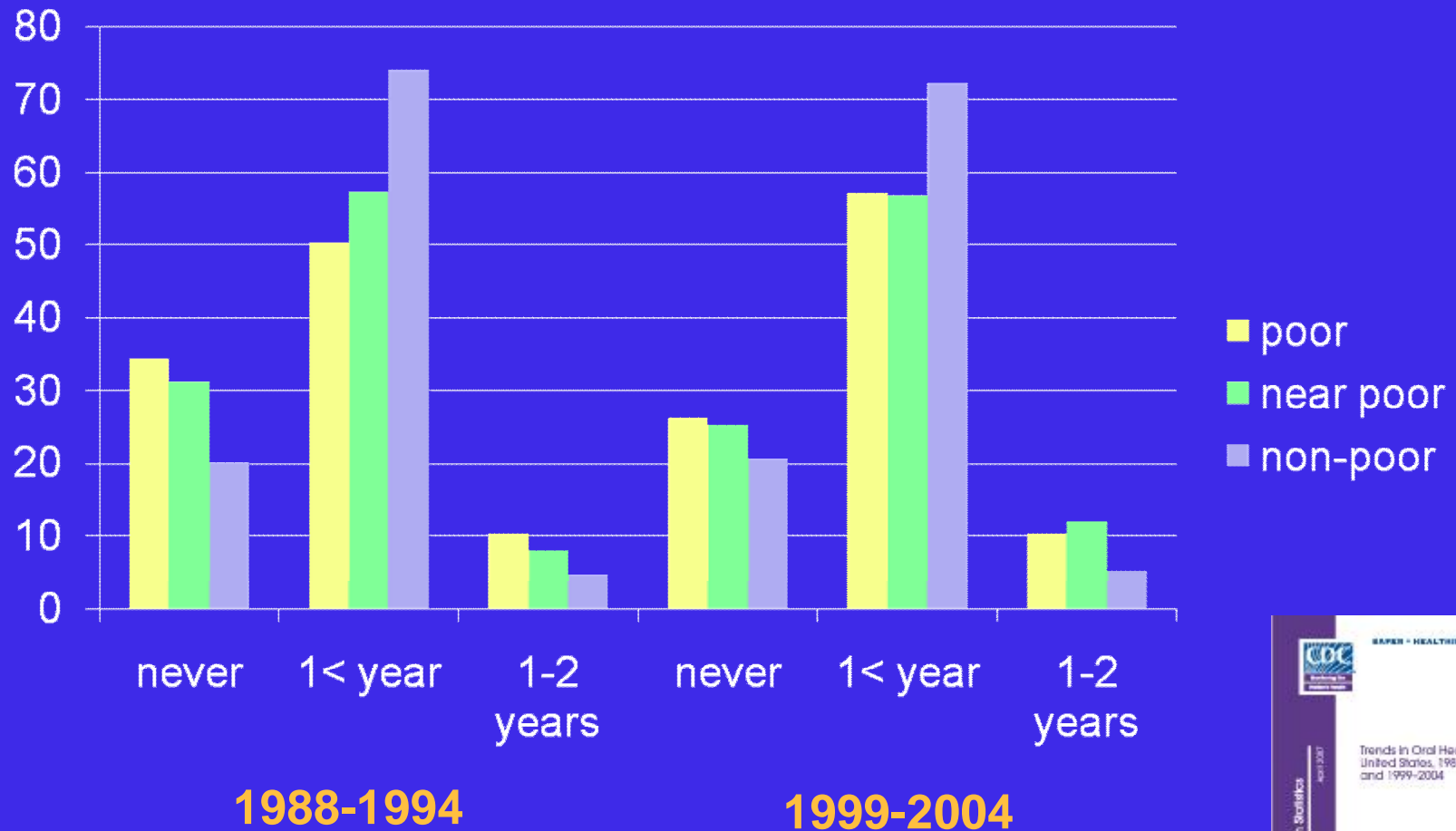
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Children age 2-17 years



Children Dental Visits ages 2-11 years



Pediatric Oral Health Trends

Surrogate Marker—Insurance Coverage

Pediatric Oral Health Trends

MEPS
MEPS Chartbook No. 17
Medical Expenditure Panel Survey

Dental Use, Expenses, Dental Coverage, and Changes, 1996 and 2004

Community Population	Children: Birth–Age 20	Adults: Age 21–64	Older Adults: Age 65 and over
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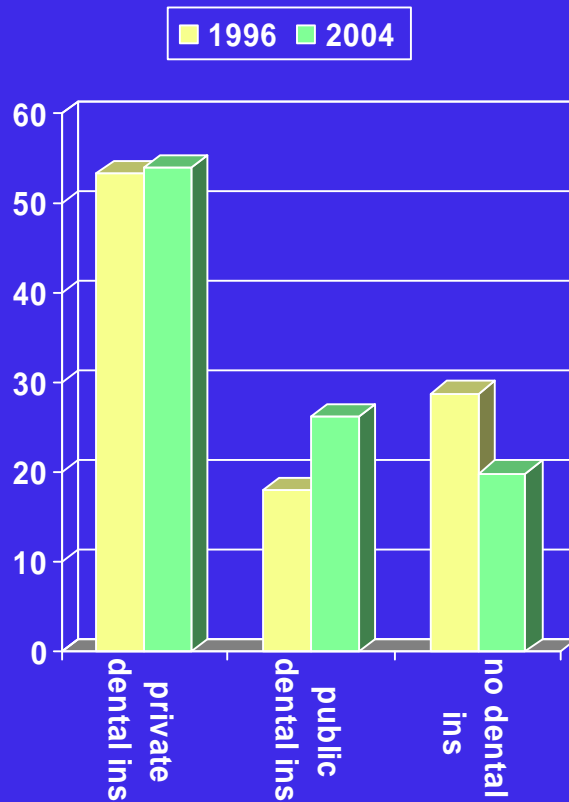


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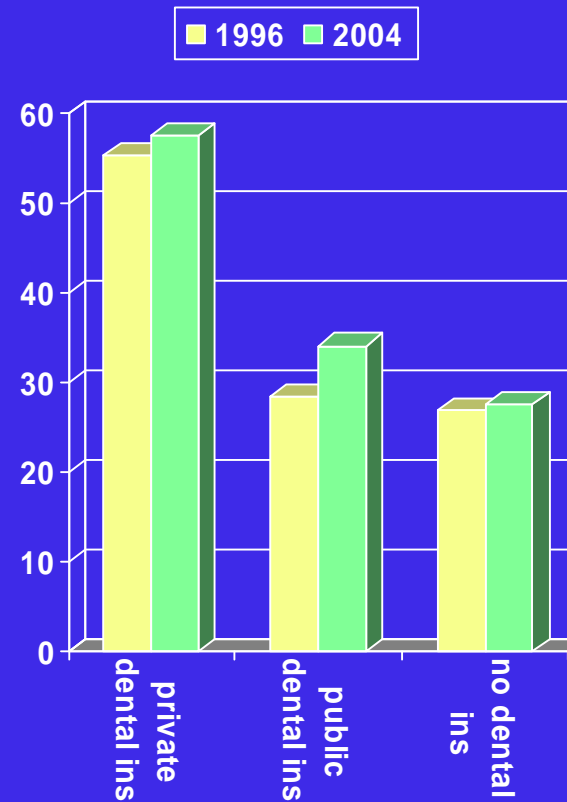
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Dental Insurance Coverage for Children— Birth to Age 20 Years

Dental Coverage



Annual Dental Visit



Access to Dental Care

**Under-reported Surrogate Marker—
Caregiver Influence**

Oral health status of mothers and their children: United States, 1988-1994

International Association for Dental Research
2009 Meeting

Maternal and Child Oral Health Session #185.0 (Program #1612)



UNIVERSITY of MARYLAND BALTIMORE
College of Dental Surgery
Department of Health Promotion and Policy

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Adjusted ORs for key relationships between a child's and a mother's OH characteristics

Mom Characteristics	covariates	↑ caries prevalence child	↑ untreated caries child	↑ caries prevalence child	↑ untreated caries child
Untreated Caries	High (5+surfs)	5.0	3.4	-	-
	Low/Moderate	2.5	2.2	-	-
Missing Teeth	High (5+ teeth)	-	-	4.9	2.9
	Low (1-4 teeth)	-	-	2.5	1.5
Age	Years	NS	NS	NS	NS
Race/ethnicity	Hispanic	3.5	3.6	3.4	3.4
	NH Black	NS	NS	NS	NS
Poverty	Poor	NS	NS	NS	NS
	Near Poor	NS	NS	NS	NS
Child Characteristics					
Age	Years	1.9	1.5	1.9	1.5

Access to Dental Care

TABLE 3 Estimated Effects of Mothers' RSDC at Baseline (2004) on Whether Children Received Any Medicaid Dental Care in the Subsequent Year (2005), According to the Mothers' Racial/Ethnic Group

Parameter	Black Mothers (n = 523)		Hispanic Mothers (n = 796)		White Mothers (n = 882)	
	OR	95% CI*	OR	95% CI*	OR	95% CI*
Model 1 with child covariates only	1.80	1.21–2.68	1.76	1.22–2.53	1.13	0.82–1.56
Model 2 with child and mother covariates	1.71	1.11–2.62	1.84	1.24–2.72	1.13	0.80–1.59
Model 3 with children and mother covariates and propensity scores	1.69	1.10–2.62	1.84	1.23–2.73	1.12	0.79–1.58

Shown are adjusted ORs of whether children whose mothers had an RSDC at baseline had greater odds of receiving any dental care in the subsequent year versus children whose mothers had no RSDC, adjusted by using children covariates (percentage of 2005 Medicaid covered, dental fear, tooth pain, mother's rating of child's dental health, gender, age, ABCD enrollment, immigrant, primary language in the home, Medicaid dentist availability, and rural/urban community), mother covariates (insurance, income, education, age, survey mode, immigrant status, length of stay in current county and address, marital status, employment, smoking, mental health, and dental fear), and propensity scores.

*CIs that do not contain 1.00 indicate a significant association with the mothers' RSDC.

Authors' conclusion: For young children of Hispanic and black mothers, dental care use was higher when their mothers have a regular source of dental care.

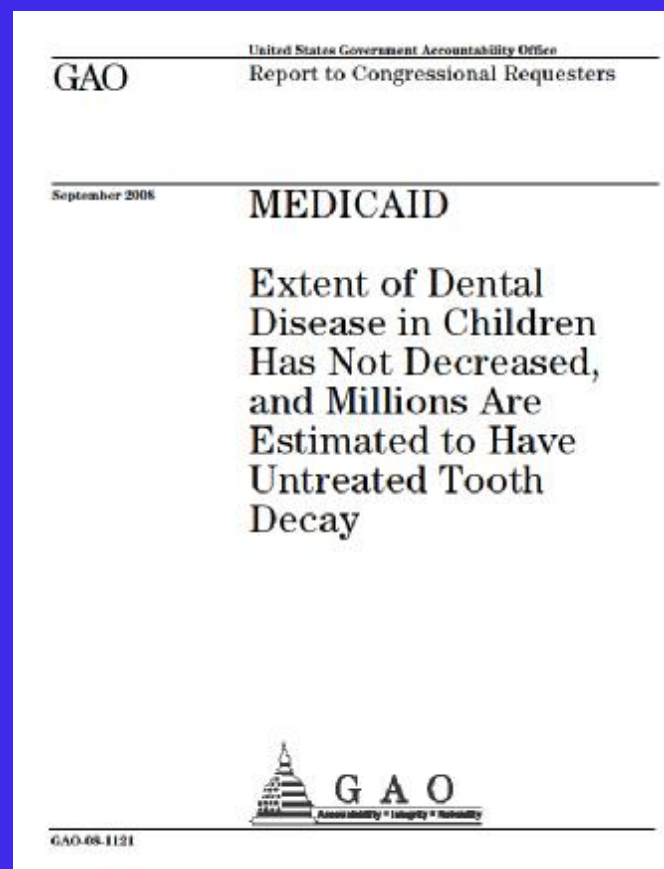
Summary

How has all of this information been interpreted from a policy perspective?

It depends upon which surrogate measures are used to represent key indicators of adequate access to dental care.

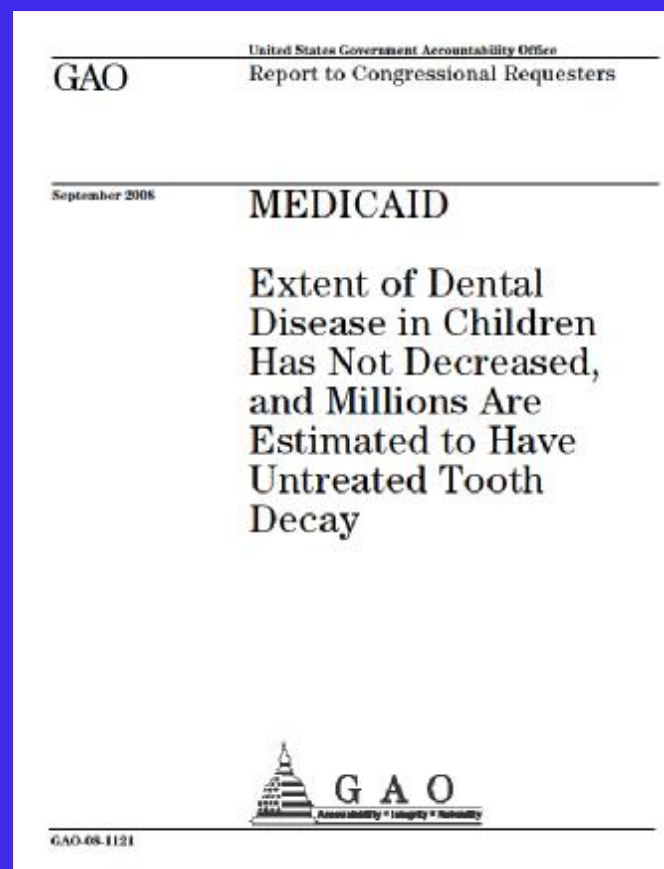
Summary

- **Increase in prevalence of dental visits by children with public dental insurance has not seemed to translate to improvements in access to care for low income children**
- **GAO—access to dental care has not improved because caries has not changed**



Summary

- Interestingly, the report also states that only 4% (1 in 25) children enrolled in Medicaid was unable to access **NEEDED** dental care—and—reason given the most for not accessing **NEEDED** dental care **REGARDLESS** of dental insurance was **affordability**.



Summary

Key summary points when considering adequate access to oral health care for children and adolescents in the U.S.

Summary

- **Dental Caries continues to be a key surrogate measure of adequate access to oral health care**
- **Overall, caries experience recently has:**
 - Increased for children age 2-5 years
 - Remained unchanged for children age 6-11 years
 - Decreased for adolescents age 12-19 years

Summary

- **The increase in caries experience appears to be driven by:**
 - **Young boys who live in households at or above 200% FPL**
 - **This same group of boys also have experienced a significant increase in untreated tooth decay**

Summary

- **The prevalence of untreated decay among low-income children has remained unchanged.**
 - Having 3 or more teeth with decay has remained unchanged for low-income children age 2-5 years.
 - However, for low-income children age 6-11 years, the prevalence of untreated caries severity (3+ decay teeth) has declined.

Summary

- **Among low-income children age 2-8 years, the increase in caries experience is being driven by an increase in dental restorations/fillings—potentially indicating higher utilization of dental care.**

Summary

- **However, caries experience in children under 11 years-of-age increases at a disproportionately greater rate between low-income children and children living in households at or above 200% FPL beginning around the age of 2 and leveling off around the age of 5.**
 - **This suggests that key caries prevention and health promotion programs should be implemented early—around age 2 years or earlier.**

Summary

- **The prevalence of untreated caries has significantly decreased for low-income adolescents to a level similar to that for adolescents living in households above 100% but below 200% FPL.**

Summary

- Overall, dental visits among children have remained unchanged over the past decade.
- Public dental insurance coverage has improved for low-income children.
- And it appears that dental utilization by children with public insurance has also increased.

Summary

- **A mother's level of caries experience, the number of teeth with untreated tooth decay, and the number of missing teeth is significantly associated with their child's dental caries status.**
- **Emerging research suggests that low-income mothers who have a regular source of dental care are more likely to utilize dental care for their children.**