

PRE-PUBLICATION REPORT

**Every Smile Counts**  
**The Oral Health of Connecticut's Children**  
***Current Status and Disparities***  
**PREPUBLICATION REPORT**



**Connecticut Department of Public Health**  
Office of Oral Public Health  
410 Capitol Avenue MS #11DNT  
Hartford, CT 06134-308  
<http://www.ct.gov/dph>

**September 2007**



PRE PUBLICATION REPORT

**CONNECTICUT DEPARTMENT OF PUBLIC HEALTH  
OFFICE OF ORAL HEALTH**

**EVERY SMILE COUNTS  
THE ORAL HEALTH OF CONNECTICUT'S CHILDREN  
PREPUBLICATION REPORT**

**J. Robert Galvin, M.D., M.P.H., M.B.A.  
Commissioner**

**Norma Gyle, R.N., Ph.D.  
Deputy Commissioner**

## PRE PUBLICATION REPORT

### Acknowledgements

#### **Project Direction**

Ardell A. Wilson  
Linda Ferraro  
Staff: Alyca Wagner, Brandi Gunn

#### **Project Advisory**

Diane Aye  
Carol Dingfelder  
Pat Doolan  
Meredith Ferraro  
MaryLou Fleissner  
Wendy Grove  
Jane Hylan  
Camille Jackson-Alleyne  
Robin Knowles  
Lisa Nowak  
Cheryl Resha

#### **Screeners (Dental Hygienists)**

Theresa Beeman  
Donna Considine  
Linda Conti  
Robin Knowles  
Pam Lindau  
Sheila Miehm  
Stacie Morris  
Julie Nocera  
Toni Parlanti  
Jodie Pipenbacher  
Jeannie Schnakenberg  
Sharon Smith-Ailling  
Julie Vanderkroef  
Pam Young

#### **Project Coordination**

Meredith C. Ferraro  
Julie Vanderkroef

#### **Trainers**

Wendy Grove  
Amy Neussl

#### **Recorders**

Celeste Baranowski	Stephanie Lane
Lisa Barre	Andriana Michalski
Mercedes Brown	Janice Morris
Kelly Carta	Lori Morrissette
Cheryl Ceniglio	Karen Nocera
Sophie Chenevert	Urszula Rzemien
Gerald Considine	Brenda Smith
Rachael Doner	Gail Swanson
Kris Geola	John Valenta
Roberta Kulas	Alison Vazquez

#### **Project Design and Report Preparation**

Kathy Phipps, Dr PhD.  
ASTDD Consultant

The Connecticut Department of Public Health wishes to thank all the Head Start Programs and elementary schools, parents and children that participated in the *Every Smile Counts Oral Health Survey*, 2007. Major funding for the survey was provided by the Connecticut Health Foundation, and funding from the Maternal and Child Health Block Grant, the Connecticut State Dental Association, and the Connecticut State Dental Foundation.

# The Oral Health of Connecticut’s Children

## Table of Contents

Executive Summary ..... 1

The Importance of Oral Health ..... 3

The Oral Health of Connecticut’s Children ..... 5

    Key Finding #1..... 6

    Key Finding #2..... 7

    Key Finding #3..... 8

    Key Finding #4..... 9

    Key Finding #5..... 11

    Key Finding #6..... 12

Oral Health Resources in Connecticut ..... 13

Key Strategies..... 14

Survey Methods ..... 15

Data Tables..... 16

References..... 30



## Executive Summary

---

Dental caries (tooth decay) is an infectious disease process affecting both children and adults. Even though the prevalence of tooth decay has declined in the U.S. over the last 30 years, it remains the most prevalent and yet easily preventable disease known to man. Certain groups suffer disproportionately including both low-income and minority children. Unfortunately, those individuals at highest risk of tooth decay are also the least likely to have access to routine professional dental care. The public perception among many is that tooth decay is a natural and minor occurrence that deserves little attention or dollars. If left untreated, however, tooth decay can lead to needless pain and suffering; difficulty in speaking, chewing, and swallowing; lost school days; increased cost of care; the risk of other systemic health problems; and loss of self-esteem. Additionally, emerging connections have been identified between bacterial infections of the mouth and diabetes, heart disease, and adverse pregnancy outcomes.<sup>1</sup>

The good news is that tooth decay is largely preventable through early risk assessment and comprehensive prevention strategies at the community and practice level.

During the 2006-2007 school year, the Connecticut Department of Public Health, Office of Oral Health completed *Every Smile Counts*, a statewide oral health survey of Connecticut's Head Start and elementary school children. More than 600 children in Head Start and 8,700 children in kindergarten and

third grade received a dental screening. Six key findings were identified.

### Key Findings

- 1: Dental decay is a significant public health problem for Connecticut's children.
- 2: Many children in Connecticut do not get the dental care they need.
- 3: More than 60 percent of children in Connecticut do not have dental sealants, a well accepted clinical intervention to prevent tooth decay in molar teeth.
- 4: There are significant oral health disparities in Connecticut with minority and low-income children having the highest level of dental disease and the lowest level of dental sealants.
- 5: Connecticut has met the Healthy People 2010 objectives for reducing the prevalence of decay experience and untreated tooth decay among elementary school children, but has not met the Healthy People 2010 objective for increasing the prevalence of dental sealants.
- 6: Treatment is good. Prevention is better. Early prevention is best.

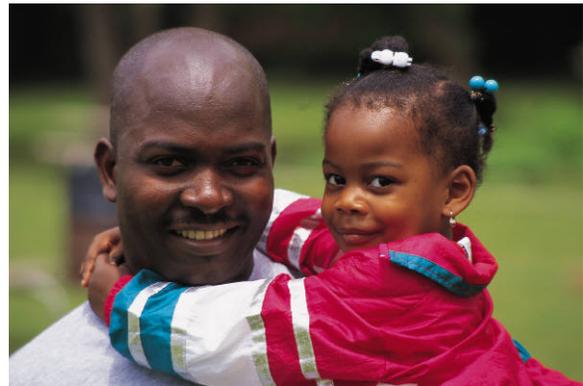
Several key strategies have been identified to improve the oral health of children in Connecticut:

- ◆ Expand access to community and school-based dental programs.
- ◆ Expand comprehensive decay prevention to include pregnant

## The Oral Health of Connecticut's Children

women, infants and toddlers, through the lifespan

- ◆ Increase the number of dental insurance enrollees who utilize their annual exam benefits for themselves and their children
  - ◆ Promote annual dental exams as a *minimum* standard of dental care, particularly for high-risk children by one year of age.
  - ◆ Increase access to dental insurance for high-risk children and adults
  - ◆ Increase number of dental providers in underserved areas.
  - ◆ Educate medical care providers about the relationship of oral health and general health.
  - ◆ Build capacity in dental public health
  - ◆ Increase the number of dentists participating in Medicaid.
- ◆ Increase the provision of dental sealants in schools, safety nets and private dental practices.
  - ◆ Increase private and public sector participation in mobilizing resources and developing policy to pursue *and sustain* these strategies.







## The Importance of Oral Health

---

**“The mouth reflects general health and well-being.”**

Former Surgeon General David Satcher, 2000

Dental caries (tooth decay) is an infectious disease process affecting both children and adults. It is probably the most widespread disease known to man.<sup>2</sup> During childhood, tooth decay is the single most common chronic disease, five times more common than asthma.<sup>3</sup> Tooth decay still affects more than half of all children by the third grade; by the time children finish high school, about 80% have tooth decay.<sup>4</sup> The public perception is largely that tooth decay is a natural and minor occurrence that deserves little attention or dollars. If left untreated, however, tooth decay can lead to difficulty in speaking, chewing, and swallowing, increased cost of care, loss of self-esteem, needless pain, and lost school days. In 1996, children between 5 to 17 years of age missed 1,611,000 school days due to acute dental problems – an average of 3.1 days per 100 students.<sup>5</sup>



significant problem in some populations – particularly certain racial and ethnic groups and low-income children.<sup>6</sup> National data indicate that 80% of tooth decay in children is concentrated in 25% of the child population, with low-income children and racial/ethnic minority groups having more untreated decay than the U.S. population as a whole.<sup>7</sup>

We hope that by recognizing and understanding the oral health needs of Connecticut's children, we will be able to contribute to policies that will ensure all children receive the oral health care they need. The answers to effective policies to protect children's oral health lie in a few sound principles outlined in the 2000 *Oral Health in America: A Report of the Surgeon General*. Some of the approaches to promote oral health include:

- ◆ Change perceptions regarding oral health and disease so that oral health becomes an accepted component of general health.
- ◆ Build an effective oral health infrastructure that meets the oral health needs of all Americans and integrates oral health effectively into overall health.

The mouth reflects general health and well-being. Recent studies point to associations between oral diseases and diabetes; heart disease; stroke; and preterm, low-weight births.

While the prevalence and severity of tooth decay has, in fact, declined among U.S. school-aged children, it remains a

## The Oral Health of Connecticut's Children

- ◆ Remove known barriers between people and oral health services.
- ◆ Use public-private partnerships to improve the oral health of those who still suffer disproportionately from oral diseases.

This needs assessment demonstrates that Connecticut still has many barriers to overcome to improve the oral health

of Connecticut's children. We are seeing more dental disease among children, and we need more effective ways to provide essential preventive and restorative services. In order to reverse these trends, we need to mobilize resources, including both public and private health care sectors.

## The Oral Health of Connecticut's Children

---



To describe the oral health of Connecticut's children, the Office of Oral Health conducted *Every Smile Counts*, a statewide oral health survey. During the 2006-2007 school year, two different groups of children were screened; (1) kindergarten and third grade children enrolled in public elementary schools and (2) low-income preschool children enrolled in Head Start. More than 600 children in Head Start and 8,700 children in kindergarten and third grade were screened. Detailed information on the design of the 2006-2007 oral health survey can be found in the Survey Methods section of this report.

Findings from *Every Smile Counts* have been organized into the following six key findings. These findings highlight the current oral health of Connecticut's children and disparities in oral health within Connecticut.

1: Dental decay is a significant public health problem for Connecticut's children.

- 2: Many children in Connecticut do not get the dental care they need.
- 3: More than 60 percent of children in Connecticut do not have dental sealants, a well accepted clinical intervention to prevent tooth decay in molar teeth.
- 4: There are significant oral health disparities in Connecticut with minority and low-income children having the highest level of dental disease and the lowest level of dental sealants.
- 5: Connecticut has met the Healthy People 2010 objectives for reducing the prevalence of decay experience and untreated tooth decay among elementary school children, but has not met the Healthy People 2010 objective for increasing the prevalence of dental sealants.
- 6: Treatment is good. Prevention is better. Early prevention is best.

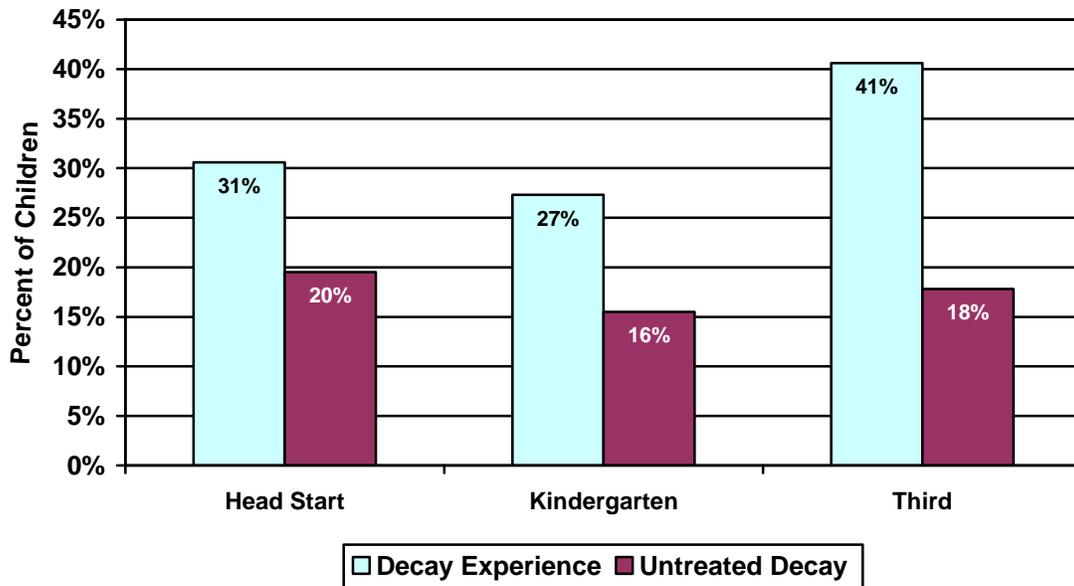
We hope that you find this information useful as well as informative.

---

**KEY FINDING #1: DENTAL DECAY IS A SIGNIFICANT PUBLIC HEALTH PROBLEM FOR CONNECTICUT'S CHILDREN.**

---

**Percent of Connecticut Children with Decay Experience and Untreated Tooth Decay, 2006-2007**



Decay experience means that a child has had tooth decay in the primary (baby) and/or permanent (adult) teeth in his or her lifetime. Decay experience can be past (fillings, crowns, or teeth that have been extracted because of decay) or present (untreated tooth decay or cavities). In Connecticut, over 30% of the 3 to 5 year old children in Head Start *already* have decay experience and 1 out of 5 have untreated tooth decay. By third grade, more than 40% of Connecticut's children have experienced tooth decay and more than 1 out of 6 have untreated tooth decay.

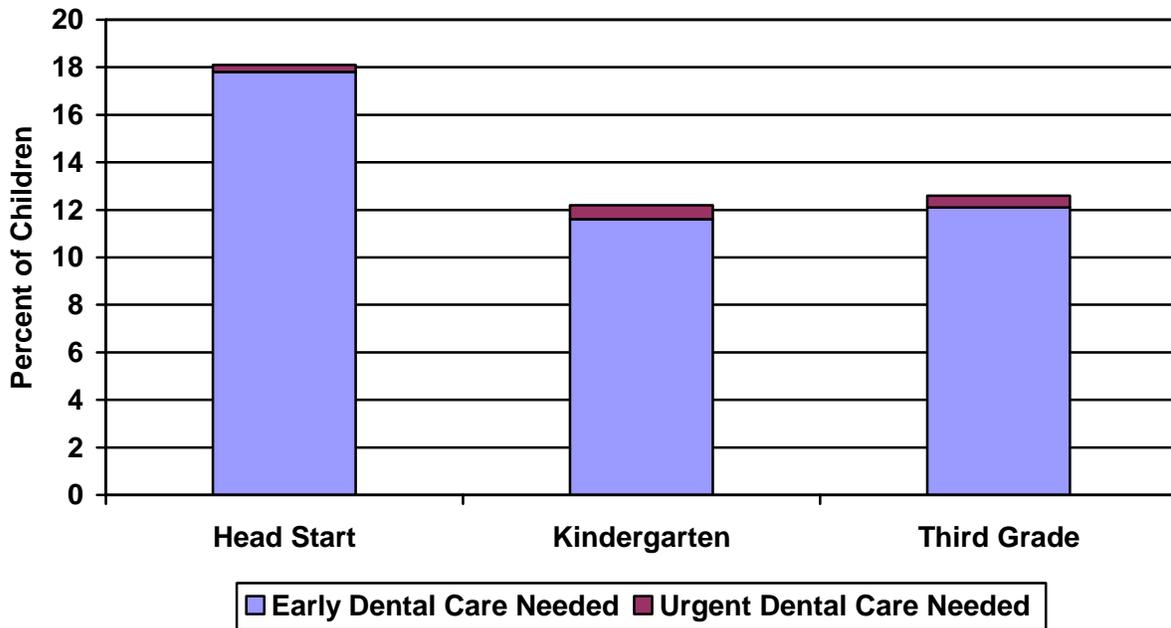
Untreated tooth decay hurts, and it introduces infection into the body, but it does more than that. Left untreated, tooth decay often has serious consequences, including needless pain and suffering, difficulty chewing (which compromises children's nutrition and can slow their development), difficulty speaking (which can slow their intellectual and social development), and lost days in school.<sup>1</sup>

---

<sup>1</sup> National Center for Education in Maternal and Child Health. Oral health and learning: when children's oral health suffers, so does their ability to learn, <http://www.mchoralhealth.org/PDFs/Learningfactsheet.pdf>.

**KEY FINDING #2: MANY CHILDREN IN CONNECTICUT DO NOT GET THE DENTAL CARE THEY NEED.**

**Percent of Connecticut Children Needing Early or Urgent Dental Care, 2006-2007**



Eighteen percent of the Head Start children and about 12% of the elementary school children screened had a need for dental care – with about **1% needing urgent dental care** because of pain or infection. In 2006-2007 there were about 85,000 kindergarten and 3<sup>rd</sup> grade children in Connecticut. If 1% are in urgent need of dental care, this means that 850 kindergarten and 3<sup>rd</sup> grade children are in the classroom in pain or with an oral infection. That’s just those two grades. If this percentage is extrapolated to all elementary school children in Connecticut, **about 3,000 children may need urgent dental care because of pain or infection.**

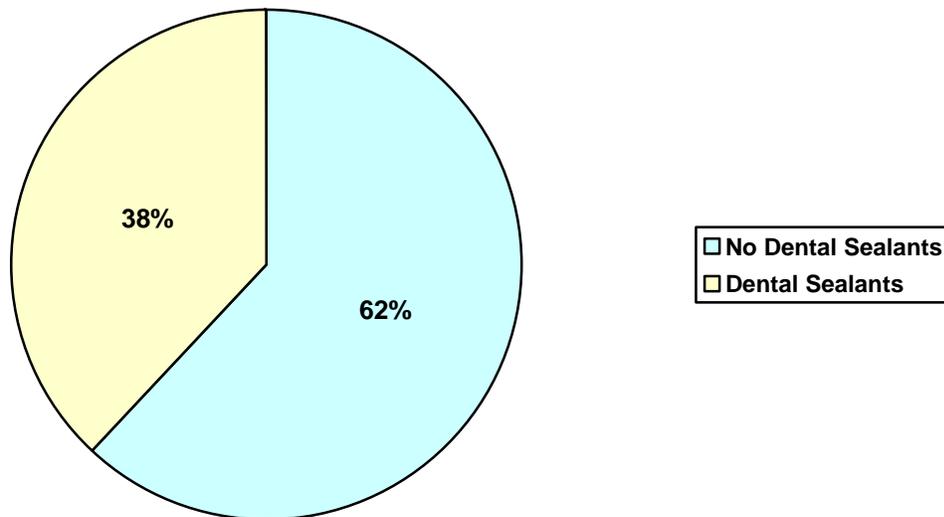
For the *Every Smile Counts Survey* we did not do complete diagnostic dental examinations. We did dental screenings - “Say ‘Ah,’” a look inside with a dental mirror, a set of questions, no x-rays, none of the more advanced diagnostic tools. So we probably missed some problems. It is reasonable to assume that these numbers actually **underestimate the proportion of children needing dental care.**

---

**KEY FINDING #3: MORE THAN 60 PERCENT OF CHILDREN IN CONNECTICUT DO NOT HAVE DENTAL SEALANTS, A WELL ACCEPTED CLINICAL INTERVENTION TO PREVENT TOOTH DECAY ON MOLAR TEETH.**

---

**Percent of Connecticut's Third Grade Children with Dental Sealants, 2006-2007**

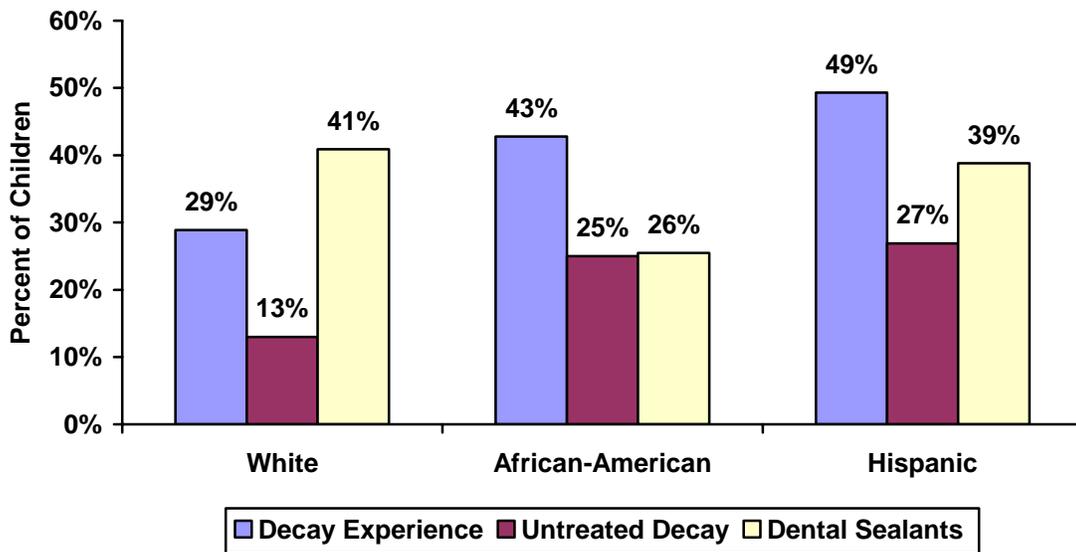


Dental sealants are a plastic coating applied to the chewing surfaces of the back teeth. They are a safe, effective way to prevent tooth decay among schoolchildren. Sealants have been shown to significantly reduce a child's risk for having untreated decay, in some cases, sealants can even stop tooth decay that has already started.<sup>8</sup> In Connecticut, only 38% of the third grade children screened had dental sealants.

Note: Kindergarten children were not screened for dental sealants.

**KEY FINDING #4: THERE ARE SIGNIFICANT ORAL HEALTH DISPARITIES IN CONNECTICUT WITH MINORITY AND LOW-INCOME CHILDREN HAVING THE HIGHEST LEVEL OF DENTAL DISEASE AND THE LOWEST LEVEL OF DENTAL SEALANTS.**

**Percent of Kindergarten and Third Grade Children with Decay Experience and Untreated Decay Plus Percent of Third Graders with Sealants by Race, 2006-2007**

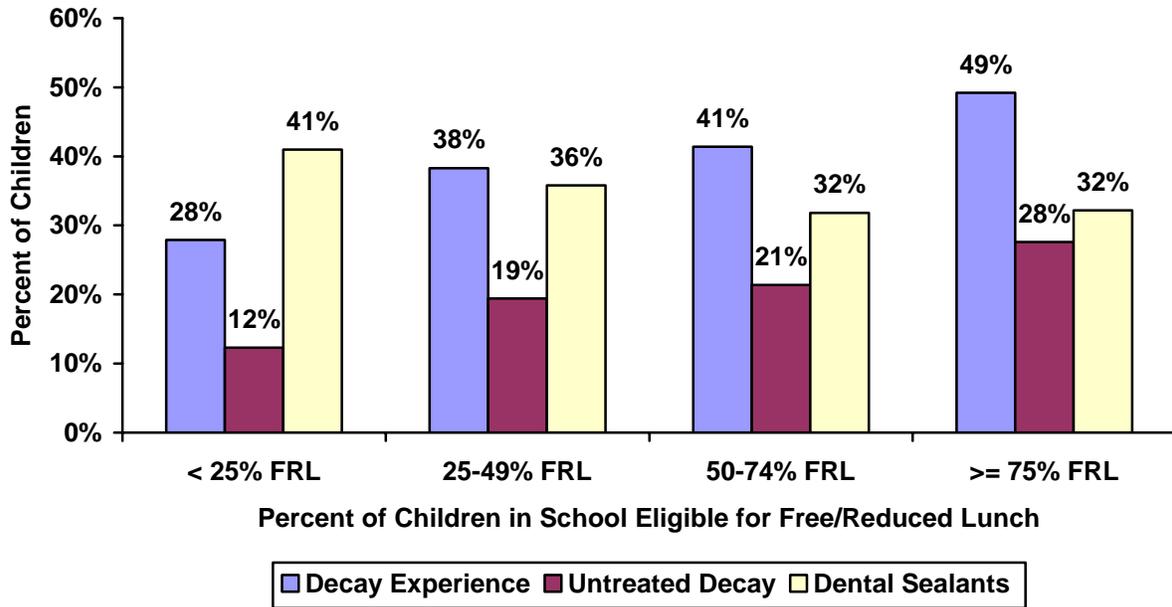


In Connecticut, African American and Hispanic children are more likely to have decay experience and untreated decay when compared to non-Hispanic white children. In fact, the prevalence of untreated decay is twice as high among minority children. Minority children, especially African-American children, are less likely to have the benefit of dental sealants.

Oral health disparities between racial/ethnic groups in Connecticut are further affected by socioeconomic status. Eighty-one percent of the children in the higher income schools were white non-Hispanic while only 10 percent of the children in the lower income schools were white non-Hispanic.

**KEY FINDING #4 (CONT.): THERE ARE SIGNIFICANT ORAL HEALTH DISPARITIES IN CONNECTICUT WITH MINORITY AND LOW-INCOME CHILDREN HAVING THE HIGHEST LEVEL OF DENTAL DISEASE AND THE LOWEST LEVEL OF DENTAL SEALANTS.**

**Percent of Kindergarten and Third Grade Children with Decay Experience and Untreated Decay Plus Percent of Third Graders with Sealants by Free/Reduced Lunch (FRL) Status of School, 2006-2007**



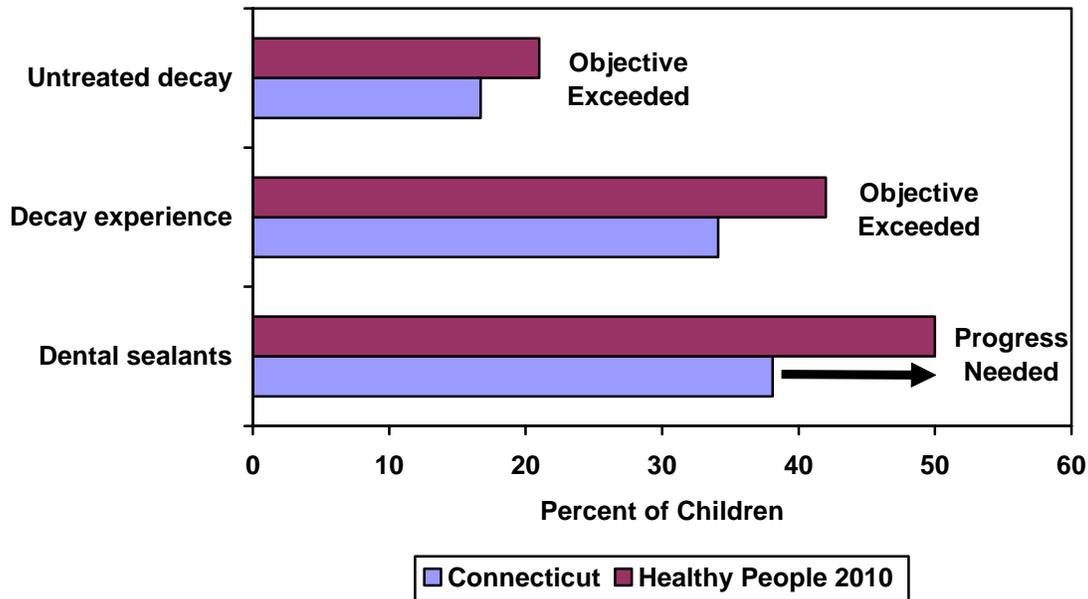
Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2006-2007 school year, annual family income for a family of four could not exceed \$37,000.<sup>1</sup> Information on an individual child's participation in the FRL program was not available; however, the percentage of children participating in the FRL program in each school was known. Compared to children from "higher income" schools, children in schools where  $\geq 25\%$  of children participates in the FRL program had a significantly higher prevalence of decay experience and untreated decay. Although third grade children in lower income schools were less likely to have dental sealants, the difference was not statistically significant.

If you are a child in Connecticut, the poorer you are, the more likely it is that your teeth hurt – and it is especially likely if you are African-American, Hispanic, or a member of some other racial or ethnic minority.

<sup>1</sup> U.S. Department of Agriculture, Child Nutrition Programs, School Lunch Program, Income Eligibility Guidelines SY 2006-2007, <http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs06-07.pdf>.

**KEY FINDING #5: CONNECTICUT HAS MET THE HEALTHY PEOPLE 2010 OBJECTIVES FOR REDUCING THE PREVALENCE OF DECAY EXPERIENCE AND UNTREATED TOOTH DECAY AMONG ELEMENTARY SCHOOL CHILDREN, BUT HAS NOT MET THE HEALTHY PEOPLE 2010 OBJECTIVE FOR INCREASING THE PREVALENCE OF DENTAL SEALANTS.**

**Oral Health of Connecticut's Kindergarten and Third Grade Children Compared to Healthy People 2010 Objectives**



*Healthy People 2010* outlines several oral health status objectives for elementary school children. These include:

- Decrease the proportion of 6-8 year olds with untreated tooth decay to 21%.
- Decrease the proportion of 6-8 year olds with decay experience to 42%.
- Increase the proportion of 8 year olds with dental sealants to 50%.

Connecticut has met the Healthy People 2010 objectives for both decay experience and untreated decay but must make substantial progress to meet the objective for preventive dental sealants.

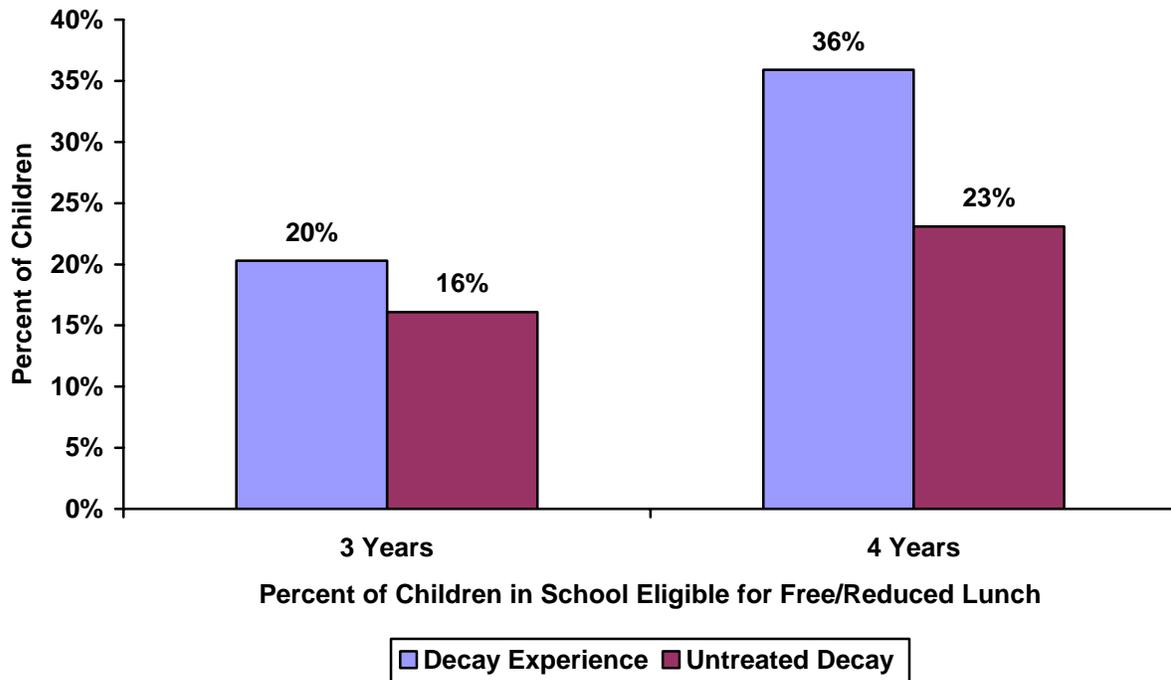
Dental sealants are a covered service under Medicaid/SCHIP Programs in Connecticut affording availability of sealants to low-income children. Private dental insurers' coverage is not as extensive as that of Medicaid/SCHIP for sealants. Both education about the effectiveness of dental sealants and better accessibility (through school programs) will increase the number of children receiving dental sealants. Children are 4 times more likely to receive dental sealants in schools where school dental sealant program exists.

---

**KEY FINDING #6: TREATMENT IS GOOD. PREVENTION IS BETTER. EARLY PREVENTION IS BEST.**

---

**Oral Health of Head Start Children by Age, 2006-2007**



If we want to eradicate dental disease in Connecticut's children, we have to get them started right with early prevention efforts. Look at the graph: More than 20% of 3-year-old Head Start children in Connecticut already have decayed teeth - and the percentage with a history of decay rises with age. If we hope to prevent disease, we have to start before the age at which most of the population already has the disease. The medical and dental professions must focus dental disease prevention efforts on children less than 2 years of age because ***“two is too late and five is way too late.”***

The American Academy of Pediatric Dentistry recommends several strategies, focused on the mother (or the primary caregiver) and the infant.<sup>1</sup> Mothers need to learn about: the use of fluoride in water and toothpaste, oral hygiene starting in infancy, proper diet, treatment of decay, and how cavity-causing bacteria get transmitted from mother to child.

For high-risk children, dental decay prevention strategies should be an integral part of health care messages given by physicians, particularly pediatricians, nurses, health department staff, teachers, health educators, and day-care providers. Refer to table 2.2

---

<sup>1</sup> American Academy of Pediatric Dentistry. Clinical Guideline on Infant Oral Health. Accessed December 2004, [www.aapd.org/media/Policies\\_Guidelines/G\\_InfantOralHealthCare.pdf](http://www.aapd.org/media/Policies_Guidelines/G_InfantOralHealthCare.pdf)

## Oral Health Resources in Connecticut

---

Connecticut is in an excellent position to make long lasting and profound improvements in the oral health status of children. Recent initiatives concerning oral health in the state include:

- ◆ The development the *Oral Health Improvement Plan 2007-2012*
- ◆ Allocation of state bond funds to expand dental facilities across the state to provide care to underserved populations
- ◆ Increased funding to community and school-based health centers to include oral health services.
- ◆ Increase funding to improve reimbursement rates for dental providers that accept Medicaid
- ◆ Federal funding to educate parents, and medical providers about the importance of oral health
- ◆ Model medical/dental home initiative to increase age one dental visits for at risk children
- ◆ Establishment of an ABC Program to reimburse physicians to conduct oral disease prevention services including fluoride varnish application.

Connecticut does not suffer from an inadequate supply of dentists. However, Connecticut dentists are not adequately distributed to serve the needs of the population. Approximately 12% of towns (more than 60,000 residents) in Connecticut have no professionally active dentists and almost 45% of towns in Connecticut have five

or fewer dentists. Fifteen (15) percent of dentists in 2005 accepted Medicaid and 595 dentists had at least one paid claim during that period. The number of professionally active dentists has stopped growing and, since 1991, has started to decline. The demand for dental services is strong, and this has caused significant increases in private dental fees. Because of continued decreases in numbers of dentists and increases in fees, access to dental care is likely to become more difficult for the entire population, particularly for the working poor, ethnic and racial minorities, the elderly, children and those with public dental insurance<sup>1</sup>.

In 2007, there were 22 dental clinics associated with community health centers located in 18 of the 169 towns. In 9 towns in the state, there are 17 school-based dental clinics and 13 free-standing dental clinics that provide care to students. While dental services is also available through the use of mobile vans and portable dental equipment, the degree to which dental services are offered within these modalities is variable and do not provide statewide or adequate coverage to meet the needs of the populations they serve.

---

<sup>1</sup> Beazaglou, T, et al. Dental Workforce in Connecticut and Husky Children. Report to the Connecticut Health Foundation. September 2004

## Key Strategies

---

Several key strategies have been identified to improve the oral health of children in Connecticut:

- ◆ Expand access to community and school-based dental programs.
- ◆ Expand comprehensive decay prevention to include pregnant women, infants and toddlers through the lifespan
- ◆ Increase the number of dental insurance enrollees who utilize their annual exam benefits for themselves and their children
- ◆ Promote annual dental exams as a *minimum* standard of dental care, particularly for high-risk children by one year of age.
- ◆ Increase access to dental insurance for high-risk children and their parents.
- ◆ Increase number of dental providers in underserved areas.
- ◆ Educate medical care providers about the relationship of oral health and general health.
- ◆ Build capacity in dental public health to promote and sustain improve oral health for the state.
- ◆ Increase the number of dentists participating in Medicaid.
- ◆ Increase the provision of dental sealants in schools, safety net and private dental practice sites
- ◆ Increase private and public sector participation in mobilizing resources and developing policy to pursue *and sustain* these strategies.

## Survey Methods

---

*Every Smile Counts* sampled children in Head Start, kindergarten and third grade. The survey methods were developed to collect statewide and regional data only.

For Head Start, 20 centers were randomly selected using implicit stratification by County. For the elementary school survey, all public elementary schools with at least 25 children in kindergarten and/or third grade were included in the sampling frame (634 schools with 41,810 kindergarten and 43,006 3rd grade students). The sampling frame was stratified by county then ordered within each county by percent of children that participate in the free/reduced school lunch (FRL) program. In Fairfield, Hartford, New Haven, and New London Counties, 10% of the schools were selected. For Litchfield, Middlesex, Tolland, and Windham Counties, 6 schools per county were selected.

If a school refused to participate, a replacement school within the same sampling strata was randomly selected. If the sample school plus the

replacement school refused to participate, no data were collected in that sampling stratum. Of the 78 elementary school strata, data are available for 76.

Dental hygienists completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Director's publication *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* were used. The screeners attended a full-day training session, which included a didactic review of the diagnostic criteria along with a visual calibration session.

Information on age was obtained from the child or the child's teacher while gender and race were determined by the screener.

The data were adjusted to account for the complex sampling scheme and non-response. Data analysis was completed using SAS and Epi Info.

## Data Tables

**Table 1.1**  
**Elementary School Participation in Oral Health Survey**

	Number of Schools	Number Enrolled	Number Screened	Response Rate
Sample Schools	78	11,113	8,755	78.8%
Participating Schools	76	10,843	8,755	80.7%

Source: The number of children enrolled in each participating schools was obtained from the school on the day of the screening. The enrollment figure for the non-participating schools was obtained from the Connecticut State Department of Education's website (accessed 05-15-07).

[www.csde.state.ct.us/public/cedar/edfacts/enrollment/enrollment\\_public\\_pk\\_to\\_g12\\_by\\_school\\_by\\_district\\_2006.xls](http://www.csde.state.ct.us/public/cedar/edfacts/enrollment/enrollment_public_pk_to_g12_by_school_by_district_2006.xls)

**Table 1.2**  
**Enrollment, Free/Reduced Lunch Program Participation, and Race/Ethnicity of Children in Connecticut Elementary Schools in Sampling Frame, Sample Schools and Participating Schools**

	K & 3 <sup>rd</sup> Grade Enrollment	Percent on FRL	Percent White	Percent Hispanic	Percent African-American	Percent Other Race
CT Schools in Sampling Frame (n=634)	84,816	35.0	63.5	17.2	15.1	4.1
Sample Schools (n=78)	11,113	35.4	66.5	16.2	13.2	4.0
Participating Schools (n=76)	10,843	36.7	66.2	16.9	13.0	3.9

Source: The number of children enrolled in the participating schools was obtained from the school on the day of the screening. All other data was obtained from Connecticut State Department of Education (2004-2005 School Year).

**Table 1.3**  
**Age, Gender, and Race/Ethnicity of Kindergarten & 3<sup>rd</sup> Grade Children Screened**  
**(Not Adjusted)**

<b>Variable</b>	<b>Kindergarten</b>	<b>Third Grade</b>	<b>K &amp; 3rd</b>
Number Screened	4,315	4,440	8,755
Age			
Mean (Standard Deviation)	5.2 (0.4)	8.3 (0.5)	6.8 (1.6)
Median	5 years	8 years	8 years
Mode	5 years	8 years	5 years
Range	4-7 years	7-11 years	4-11 years
Gender			
% Male	51.3	52.4	51.8
% Female	48.7	47.6	48.2
Race/Ethnicity+			
% White	63.2	64.2	63.7
% Black	10.7	10.7	10.7
% Hispanic	9.8	9.8	9.8
% Asian/Pacific Islander	2.0	1.9	2.0
% American Indian	0.1	0.2	0.1
% Other/Unknown	14.2	13.1	13.6

+ Race/ethnicity was determined by the screener.

**Table 1.4**  
**Oral Health Status of Connecticut's Kindergarten and 3<sup>rd</sup> Grade Children**

	<b>Number Screened</b>	<b>Percent</b>	<b>95% CI</b>
% caries free	8,755	65.9	63.1 – 68.6
% with caries experience – primary and/or permanent teeth	8,755	34.1	31.4 – 36.9
% with untreated decay	8,755	16.7	14.2 – 19.1
% with rampant caries	8,755	11.5	9.9 – 13.0
<b>Treatment Need</b>			
% with no obvious problem	8,755	87.6	85.5 – 89.7
% needing early dental care		11.8	9.8 – 13.9
% needing urgent dental care		0.5	0.3 -0.7

**Table 1.5  
Oral Health Status of Connecticut's Kindergarten and 3<sup>rd</sup> Grade Children Stratified  
by Grade**

	Kindergarten			3 <sup>rd</sup> Grade		
	Number	Percent	95% CI	Number	Percent	95% CI
% caries free	4,315	72.7	69.9-75.6	4,440	59.4	55.2-63.7
% with caries experience – primary and/or permanent teeth	4,315	27.3	24.4-30.1	4,440	40.6	36.3-44.8
% with caries experience – permanent teeth	NA	NA	NA	4,440	9.7	8.0-11.4
% with untreated decay – primary and/or permanent teeth	4,315	15.5	12.9-18.0	4,440	17.8	14.8-20.8
% with untreated decay –permanent teeth	NA	NA	NA	4,440	17.8	14.8-20.8
% with rampant caries	4,315	9.1	7.6-10.7	4,440	13.6	11.4-15.9
% with dental sealants	NA	NA	NA	4,440	38.1	34.3-42.0
Treatment Need						
% with no obvious problem						
% needing early dental care	4,315	87.8 11.6	85.4- 90.3 9.2-13.9	4,440	87.5 12.1	85.1- 89.9 9.7-14.4
% needing urgent dental care		0.6	0.3-0.9		0.5	0.2-0.7

NA=Not applicable; most kindergarten children do not have permanent teeth

**Table 1.6**  
**Oral Health Status of Connecticut's Kindergarten and 3<sup>rd</sup> Grade Children Stratified by Age\***

	<b>5 Years (n=3,390)</b>	<b>6 Years (n=884)</b>	<b>8 Years (n=3,117)</b>	<b>9 Years (n=1,245)</b>
% caries free	73.6 (70.9-76.4)	70.4 (66.0-74.8)	61.4 (57.9-64.9)	55.3 (48.4-62.2)
% with caries experience – primary and/or permanent teeth	26.4 (23.6-29.1)	29.6 (25.2-34.0)	38.6 (35.1-42.1)	44.7 (37.8-51.6)
% with caries experience – permanent teeth	NA	NA	7.8 (6.2-9.5)	13.4 (10.7-16.0)
% with untreated decay – primary and/or permanent teeth	15.4 (12.9-17.9)	14.8 (10.9-18.7)	16.3 (13.5-19.1)	20.6 (16.3-25.0)
% with untreated decay –permanent teeth	NA	NA	2.3 (1.6-3.0)	4.5 (2.9-6.2)
% with rampant caries	8.4 (7.0-9.9)	11.3 (8.4-14.3)	12.5 (10.4-14.6)	16.0 (12.5-19.6)
% with dental sealants	NA	NA	38.8 (35.1-42.5)	37.5 (32.1-42.8)
% needing dental care	11.9 (9.5-14.2)	12.4 (8.7-16.1)	11.3 (9.2-13.5)	14.8 (11.2-18.4)

\* Note: The sample was designed to be representative of grade not age; these data should be viewed with caution.

NA=Not applicable; most 5 and 6 year old children do not have permanent teeth

**Table 1.7**  
**Oral Health Status of Connecticut's *Kindergarten* Children Stratified by**  
**Race/Ethnicity**  
**Percent of Children (95% Confidence Interval)**

<b>Variable</b>	<b>White (n=2,727)</b>	<b>African American (n=462)</b>	<b>Hispanic (n=422)</b>	<b>Asian (n=87)</b>	<b>Other/Unknown (n=613)</b>
% with caries experience	22.4 (19.6-25.2)	35.3* (30.3-40.4)	35.1* (27.7-42.6)	34.3 (24.8-43.7)	33.6* (28.4-38.8)
% with untreated decay	11.9 (9.5-14.2)	22.2* (17.9-26.5)	21.9* (16.0-27.6)	17.8 (8.2-27.4)	19.6 (14.1-25.1)
% with rampant caries	5.5 (4.3-6.7)	13.3* (10.8-15.8)	14.7* (11.2-18.2)	17.7* (9.2-26.2)	15.1* (11.1-19.0)
% needing treatment	9.4 (7.5-11.3)	17.4* (12.5-22.3)	16.7* (12.8-20.6)	14.3 (6.0-22.6)	15.4 (10.1-20.8)

\* Significantly different (p<0.05) from white children

**Table 1.8**  
**Oral Health Status of Connecticut's *Third Grade* Children Stratified by**  
**Race/Ethnicity**  
**Percent of Children (95% Confidence Interval)**

Variable	White (n=2,852)	African American (n=476)	Hispanic (n=437)	Asian (n=86)	Other/Unknown (n=581)
% with caries experience – primary and/or permanent	34.7 (30.6-38.7)	49.9* (43.2-56.7)	62.9* (57.4-68.4)	49.6* (38.8- 60.3)	42.1 (37.2-47.1)
% with caries experience – permanent teeth	7.5 (6.0-8.9)	13.5* (9.3-17.6)	17.8* (13.9-21.7)	7.5 (1.6- 13.5)	11.3 (7.9-14.6)
% with untreated decay – primary and/or permanent	14.0 (10.8-17.2)	27.7* (22.1-33.4)	31.6* (25.9-37.4)	19.7 (11.5- 27.8)	16.2 (12.8-19.6)
% with untreated decay –permanent teeth	2.5 (1.6-3.4)	6.4 (3.3-9.5)	4.0 (2.3-5.7)	2.9 (-0.3-6.0)	2.1 (0.9-3.4)
% with rampant caries	10.0 (8.0-12.0)	19.5* (14.7-24.2)	24.0* (19.0-29.0)	18.5 (9.5- 27.5)	17.3* (13.7-21.0)
% with dental sealants	40.9 (36.7-45.0)	25.5* (20.3-30.7)	38.8 (28.1-49.4)	44.7 (31.7- 57.8)	35.0 (28.7-41.3)
% needing treatment	8.8 (7.0-10.5)	22.1* (17.2-27.1)	24.9* (18.3-31.5)	16.4 (8.0- 24.8)	12.2 (9.1-15.2)

\* Significantly different (p<0.05) from white children

**Table 1.9**  
**Oral Health Status of Connecticut's *Kindergarten and 3<sup>rd</sup> Grade* Children Stratified**  
**by Race/Ethnicity**  
**Percent of Children (95% Confidence Interval)**

<b>Variable</b>	<b>White (n=5,579)</b>	<b>African American (n=938)</b>	<b>Hispanic (n=859)</b>	<b>Asian (n=173)</b>	<b>Other/Unknown (n=1,194)</b>
% with caries experience	28.9 (26.4-31.3)	42.8* (37.6-48.0)	49.3* (43.7-55.0)	42.0* (34.4-49.5)	37.8* (34.2-41.4)
% with untreated decay	13.0 (10.7-15.3)	25.0* (20.6-29.4)	26.9* (22.1-31.7)	18.8 (11.4-26.1)	18.0 (14.4-21.5)
% with rampant caries	7.9 (6.6-9.1)	16.4* (13.2-19.6)	19.5* (16.4-22.5)	18.1* (11.3-24.9)	16.2* (13.1-19.2)
% needing treatment	9.1 (7.5-10.6)	19.8* (16.4-23.3)	20.9* (16.5-25.2)	15.3 (8.5-22.2)	13.8 (10.3-17.4)

\* Significantly different ( $p < 0.05$ ) from white children

**Table 1.10**  
**Oral Health Status of Connecticut's *Kindergarten* Children Stratified by Free/Reduced Lunch (FRL) Status of School**

	“Higher Income” < 25% FRL (n=2,371)	25-49% FRL (n=831)	50-74% FRL (n=601)	“Lower Income” ≥ 75% FRL (n=512)
% white	81.2	57.4	30.9	11.9
% with caries experience	20.6 (17.8-23.4)	31.6* (28.2-34.9)	36.3* (29.2-43.4)	38.1* (32.3-43.9)
% with untreated decay	10.2 (7.8-12.6)	20.7* (17.2-24.2)	19.5 (12.4-26.6)	25.3* (18.7-31.8)
% with rampant decay	5.1 (3.9-6.3)	11.2* (7.2-15.2)	15.5* (11.8-19.2)	15.5* (13.0-17.9)
% needing treatment	7.4 (5.6-9.1)	19.7* (15.7-23.8)	15.6 (7.2-24.0)	17.7* (13.1-22.2)

\* Significantly different (p<0.05) from the higher income schools

**Table 1.11**  
**Oral Health Status of Connecticut's *Third Grade* Children Stratified by**  
**Free/Reduced Lunch (FRL) Status of School**

	"Higher Income" < 25% FRL (n=2,722)	25-49% FRL (n=1753)	50-74% FRL (n=362)	"Lower Income" ≥ 75% FRL (n=603)
% white	81.6	59.9	20.3	9.0
% with caries experience – primary and/or permanent	33.8 (29.4-38.3)	45.6* (42.2-49.1)	49.8* (43.0-56.7)	58.6* (53.7-63.5)
% with caries experience – permanent teeth	7.4 (5.7-9.1)	11.3 (8.0-14.6)	15.5 (8.2-22.8)	14.3* (10.6-18.0)
% with untreated decay – primary and/or permanent	14.1 (10.4-17.7)	18.0 (14.7-21.3)	24.6 (16.3-32.8)	29.5* (24.9-34.1)
% with untreated decay –permanent teeth	2.3 (1.4-3.3)	2.3 (1.0-3.5)	5.4 (0.8-10.1)	5.6 (3.1-8.1)
% with rampant decay	10.2 (8.0-12.5)	17.4* (14.3-20.5)	18.6* (12.5-24.6)	21.5* (15.4-27.6)
% needing treatment	8.4 (6.6-10.1)	15.7* (12.1-19.4)	20.8* (13.8-27.8)	21.9* (16.7-27.1)
% with dental sealants	41.0 (36.7-45.3)	35.8 (21.7-49.9)	31.8 (15.6-48.1)	32.2 (23.8-40.6)

\* Significantly different (p<0.05) from the higher income schools

**Table 1.12**  
**Oral Health Status of Connecticut's *Kindergarten and Third Grade* Children**  
**Stratified by Free/Reduced Lunch (FRL) Status of School**

	“Higher Income” < 25% FRL (n=5,093)	25-49% FRL (n=1,584)	50-74% FRL (n=963)	“Lower Income” ≥ 75% FRL (n=1,115)
% white	81.4	58.6	26.8	10.3
% with caries experience	27.9 (25.4-30.4)	38.3* (35.6-40.9)	41.4* (34.4-48.5)	49.2* (44.1-54.3)
% with untreated decay	12.3 (9.7-15.0)	19.4* (16.6-22.3)	21.4 (14.2-28.6)	27.6* (22.5-32.6)
% with rampant decay	7.9 (6.4-9.4)	14.2* (11.4-16.9)	16.7* (13.0-20.3)	18.8* (14.8-22.7)
% needing treatment	7.9 (6.4-9.4)	17.8* (14.8-20.9)	17.6* (10.2-24.9)	20.0* (15.7-24.3)

\* Significantly different (p<0.05) from the higher income schools

**Table 2.1**  
**Head Start Participation in the Connecticut Oral Health Survey**

	<b>Number of Sites</b>	<b>Enrollment</b>	<b>Number Screened</b>	<b>Response Rate</b>
All Head Start Sites in Connecticut	114	6,476	NA	NA
Participating Sites	20	893	609	68.2%

**Table 2.2**  
**Age, Gender, and Race/Ethnicity of the Head Start Children Screened**  
**Not Adjusted for Non-Response**

<b>Variable</b>	<b>Number of Children With Valid Data</b>	<b>Mean or Percent</b>
Age		
Mean (Standard Deviation)		3.8 (0.7)
Median	609	4 years
Mode		4 years
Range		2-5 years
Gender		
% Male	609	49.6
% Female		50.4
Race/Ethnicity+		
% White		16.6
% Black		24.8
% Hispanic	609	32.5
% Asian/Pacific Islander		0.2
% American Indian		0.0
% Other/Unknown		25.9

+ Race/ethnicity was determined by the screener or obtained from the teacher

**Table 2.3**  
**Oral Health Status of Connecticut's Head Start Children**

	Number	Percent	95% CI
% caries free	609	69.4	62.6 – 76.2
% with caries experience	609	30.6	23.8 – 37.4
% with untreated decay	609	19.5	15.5 – 23.6
% with rampant decay (or a history of)	609	14.0	7.5 – 20.6
<b>Treatment Need</b>			
% with no obvious problem	609	81.9	77.6 – 86.2
% needing early dental care		17.8	13.6 – 21.9
% needing urgent dental care		0.3	-0.1 – 0.8

**Table 2.4**  
**Oral Health Status of Connecticut's Head Start Children Stratified by Age**  
**Percent of Children (95% Confidence Interval)**

	3 Years (n=192)	4 Years (n=334)	5 Years (n=82)
% caries free	79.7 (74.2-85.1)	64.1 (56.7-71.4)	67.1 (57.2-77.0)
% with caries experience	20.3 (14.9-25.8)	35.9 (28.6-43.3)	32.9 (23.0-42.8)
% with untreated decay	16.1 (10.7-21.6)	23.1 (17.6-28.5)	15.9 (7.7-24.0)
% with rampant decay (or a history of)	8.9 (4.8-12.9)	15.0 (8.5-21.4)	17.1 (9.3-24.8)
% needing dental treatment	15.1 (9.8-20.4)	21.0 (15.1-26.9)	14.6 (6.3-23.0)

**Table 2.5**  
**Oral Health Status of Connecticut’s Head Start Children Stratified by**  
**Race/Ethnicity**  
**Percent of Children (95% Confidence Interval)**

<b>Variable</b>	<b>White (n=101)</b>	<b>African American (n=151)</b>	<b>Hispanic (n=198)</b>	<b>Other/Unknown (n=158)</b>
% with caries experience	21.4 (11.5-31.2)	30.6 (20.4-40.9)	27.2 (21.6-32.9)	41.2 (29.7-52.6)
% with untreated decay	11.0 (3.3-18.8)	22.7 (15.5-29.8)	17.3 (12.7-22.0)	24.2 (17.7-30.6)
% with rampant caries	6.1 (1.6-10.5)	17.1 (7.5-26.7)	11.6 (5.0-18.21)	18.8 (5.9-31.7)
% needing treatment	11.0 (3.3-18.8)	21.8 (13.5-30.1)	16.5 (12.5-20.5)	20.4 (12.1-28.8)

**Table 2.6**  
**Oral Health Status of Connecticut’s Head Start Children Stratified by**  
**Race/Ethnicity**

<b>Variable</b>	<b>White Non-Hispanic (n=101)</b>		<b>Minority, Other &amp; Unknown (n=508)</b>	
	<b>Percent</b>	<b>95% CI</b>	<b>Percent</b>	<b>95% CI</b>
% with caries experience	21.4	11.5 – 31.2	32.2	25.0 – 39.4
% with untreated decay	11.0	3.3 – 18.8	21.0	16.9 – 25.0
% with rampant caries	6.1	1.6 – 10.5	15.4	8.1 – 22.7
% needing treatment	11.0	3.3 – 18.8	19.3	15.0 – 23.6

## References

---

- <sup>1</sup> Oral Health in America: A Report of the Surgeon General. Department of Health and Human Services, Washington, DC, 2000. Available at [www.surgeongeneral.gov/library/oralhealth](http://www.surgeongeneral.gov/library/oralhealth).
- <sup>2</sup> Burt BA, Eklund SA. Dentistry, Dental Practice, and the Community. Saunders, Philadelphia, 1999.
- <sup>3</sup> Edelstein B, Douglass C. Dispelling the cavity free myth. Public Health Reports 1995, 110:522-30.
- <sup>4</sup> National Center for Health Statistics. National Health and Nutrition Examination Survey III, 1988-94. Hyattsville, MD: Centers for Disease Control and Prevention, unpublished data.
- <sup>5</sup> National Center for Health Statistics. Current estimates from the National Health Interview Survey, 1996 (Vital and Health Statistics; Series 10, Data from the National Health Survey; no. 200). Hyattsville, MD: U.S. Department of Health and Human Services, National Center for Health Statistics, 1996.
- <sup>6</sup> Vargas CM, Crall JJ, Schneider DA. Sociodemographic distribution of pediatric dental caries, NHANES III, 1988-1994. J Am Dent Assoc 1998,129:1229-38.
- <sup>7</sup> Kaste LS, Selwitz RH, Oldakowski RJ, Brunelle JA, Winn DM, Brown LJ. Coronal caries in the primary and permanent dentition of children and adolescents 1-17 years of age: United States 1988-91. J Dent Research 1996, 75:631-41.
- <sup>8</sup> Heller KE, Reed SG, Bruner FW, Eklund SA, Burt BA. Longitudinal evaluation of sealing molars with and without incipient dental caries in a public health program. J Public Health Dent. 1995;55:148-53.
- <sup>9</sup> Beazaglou, T, et al. Dental Workforce in Connecticut and Husky Children. Report to the Connecticut Health Foundation. September 2004