

Every Smile Counts

The Oral Health of Connecticut's Children



Connecticut Department of Public Health

Office of Oral Public Health
410 Capitol Avenue MS #11DNT
Hartford, CT 06134

December 2007

CONNECTICUT DEPARTMENT OF
PUBLIC HEALTH

Keeping Connecticut Healthy

Every Smile Counts

The Oral Health of Connecticut's Children



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

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

Connecticut Department of Public Health Office of Oral Health

410 Capitol Avenue MS #11DNT
Hartford, CT 06134-0308

<http://www.ct.gov/dph>

December 2007



Keeping Connecticut Healthy

Acknowledgements

Project Direction

Dr. 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
Lisa Barre
Mercedes Brown
Kelly Carta
Cheryl Ceniglio
Sophie Chenevert
Gerald Considine
Rachael Doner
Kris Feola
Roberta Kulas
Stephanie Lane
Andriana Michalski
Janice Morris
Lori Morrissette
Karen Nocera
Urszula Rzemien
Brenda Smith
Gail Swanson
John Valenta
Alison Vazquez
Mary Ann Burr
Ada Cruz
Evelia Cumpa

Project Design and Report Preparation

Kathy Phipps, DrPH.
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 by 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	i, ii, iii
Every Smile Counts Oral Health Survey AT-A-GLANCE	Insert
The Importance of Oral Health.....	1
The Oral Health of Connecticut's Children	3
Key Finding #1.....	4
Key Finding #2.....	5
Key Finding #3.....	6
Key Finding #4	7,8
Key Finding #5.....	9
Key Finding #6.....	10
Key Finding #7.....	11
Oral Health Resources in Connecticut.....	12
Key Strategies	13-15
Survey Methods.....	16
Data Tables	17-28
References.....	29
Definition of Terms.....	30
Resource List.....	31, 32

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.¹ 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. Seven 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. The oral health of Connecticut's children differs by County
6. 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.
7. Early prevention is essential to reduce the prevalence of early childhood dental caries.



Key Strategies

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



- Expand comprehensive decay prevention to include pregnant women, infants and toddlers all through the lifespan.
- Provide anticipatory guidance to prevent dental disease to parents in health and social service settings
- Teach parents how to use the dental health care system and advocate for oral health for themselves and their children
- Increase the number of dental insurance (private and public) enrollees who use 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.
- Establish access to preschool dental programs and expand community and school-based dental programs.
- Increase the number of dental providers in under-served areas.
- Educate medical care providers about the relationship between oral health and general health
- Build capacity in dental public health.
- Increase the number of dentists participating in public insurance programs.
- Increase the provision of dental sealants in schools, safety nets and private dental practices.
- Develop an ongoing campaign to promote oral health as part of general health and well-being
- Increase private and public sector participation in mobilizing resources and developing policy to pursue and sustain these strategies.

Every Smile Counts Oral Health Survey The Oral Health of Connecticut's Children AT-A-GLANCE

Overall	Oral Health Status
	<p>Decay Experience: 34% of children have decay experience</p> <p>Untreated Dental Decay: Of those with decay experience, 17% have untreated decay</p> <p>Rampant Caries: Of those with decay experience, 12 % have rampant decay (5 or more treated or untreated decayed teeth).</p> <p>Need for Care: 12% of children are in need of treatment.</p>
Grade	Oral Health Status
Head Start	<p>Decay Experience</p> <ul style="list-style-type: none">• 31% of Head Start children have experienced dental decay <p>Untreated Dental Decay:</p> <ul style="list-style-type: none">• Of those with decay experience, 20% have untreated decay. <p>Rampant Caries:</p> <ul style="list-style-type: none">• Of those with decay experience, 14% have rampant decay. <p>Need for Care:</p> <ul style="list-style-type: none">• 18% of Head Start children are in need of treatment.
Kindergarten	<p>Decay Experience</p> <ul style="list-style-type: none">• 27% of kindergarten children have experienced dental decay <p>Untreated Dental Decay:</p> <ul style="list-style-type: none">• Of those with decay experience, 16% have untreated decay. <p>Rampant Caries:</p> <ul style="list-style-type: none">• Of those with decay experience, 9% have rampant decay. <p>Need for Care:</p> <ul style="list-style-type: none">• 12% of kindergarten children are in need of treatment.
Third Grade	<p>Decay Experience:</p> <ul style="list-style-type: none">• 41% of third grade children have experienced dental decay <p>Untreated Dental Decay:</p> <ul style="list-style-type: none">• Of those with decay experience, 18% have untreated decay <p>Rampant Caries:</p> <ul style="list-style-type: none">• Of those with decay experience, 14% have rampant decay <p>Need for Care:</p> <ul style="list-style-type: none">• 12% of third grade children are in need of treatment. <p>Dental Sealants:</p> <ul style="list-style-type: none">• 38% of third graders have dental sealants.

The Importance of Oral Health

Dental caries (tooth decay) is an infectious disease process affecting both children and adults. It is probably the most widespread disease known to man.² During childhood, tooth decay is the single most common chronic disease, five times more common than asthma.³ 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.⁴ The public perception is largely that tooth decay is a natural and minor occurrence that deserves little attention or dollars.¹ 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.

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

Former Surgeon General
David Satcher, 2000

The results of not treating decay⁵

- **Pain:** Dental decay can hurt a lot and hurt constantly. Many children do not know that teeth are not supposed to hurt.
- **Infection:** Infected teeth are reservoirs of bacteria that flood the rest of the body, leaving the child prone to many other childhood infections, including ear infections and sinus infections. Antibiotic therapy is often not successful for other infections when dental decay is not treated.
- **Nutrition Problems:** Chronically painful and infected teeth make chewing and swallowing an uncomfortable and difficult chore. Children with dental disease often do not get the nutrition they need to grow.

- **Tooth loss:** Chronic childhood dental disease often makes children’s “baby” teeth fall out before their adult teeth are ready to take their place.

- **Sleep deprivation:** Children with chronically painful teeth have trouble getting a good night’s sleep.

- **Attention problems:** Children with infected and painful teeth have a hard time relaxing, sitting still and paying attention in class.

- **Slower social development:** Ugly or missing teeth can make it difficult to talk and can greatly effect a child’s self esteem. When a child’s front teeth are damaged or missing in their very crucial early years of development, they often can’t form words correctly and tend to retreat into shyness and silence.

- **Missed school days:** Children with infected and painful teeth miss more school days than other children, again disrupting their educational and social experiences and cost school districts money.

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.⁶

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.



The Importance of Oral Health

While the prevalence and severity of tooth decay has, in fact, declined among U.S. school-aged children, it remains a significant problem in some populations - particularly certain racial and ethnic groups and low-income children.⁷

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.⁸

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.



- 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 survey 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 Department of Public Health, 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 seven 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 third grade 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: The Oral health of Connecticut's children differs by County.

6: 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.

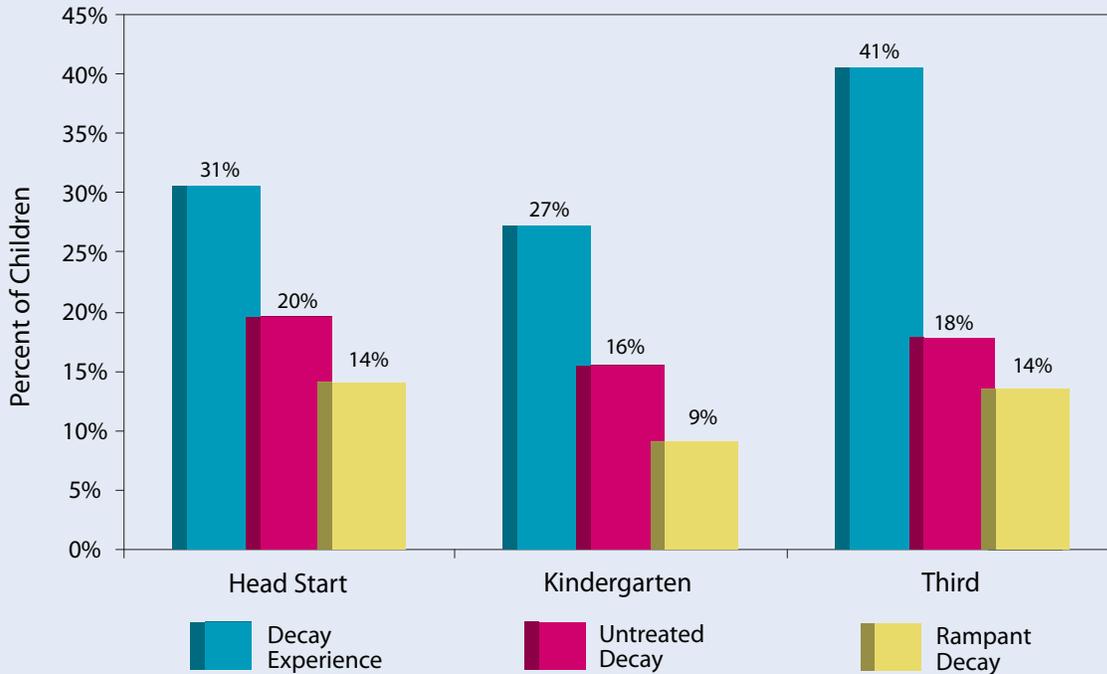
7: Early prevention is essential to reduce the prevalence of early childhood dental caries.

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



Note: Untreated decay and rampant decay are subsets of decay experience

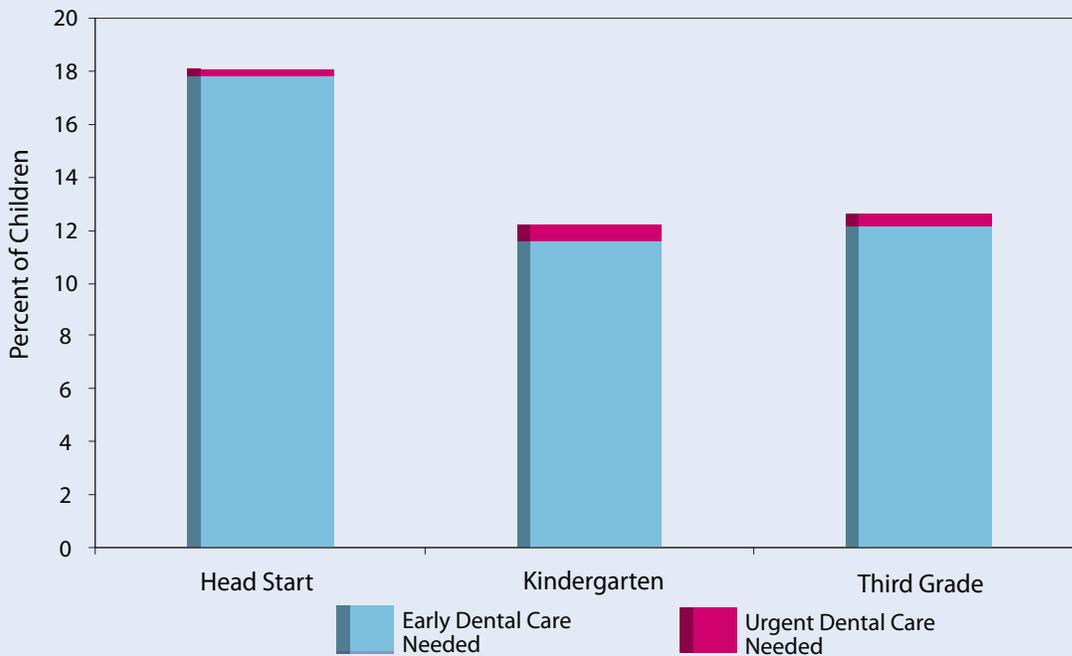
Decay experience means that a child has had tooth decay in the primary (baby) and/or permanent (adult) teeth in his or her lifetime. Decay experience can be past (fillings, crowns, or teeth that have been extracted because of decay) or present (untreated tooth decay or cavities). In Connecticut, over 30% of the 3 to 5 year old children in HeadStart 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, and 14% have rampant 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.⁹



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 3rd grade children in Connecticut. If 1% are in urgent need of dental care, this means that 850 kindergarten and 3rd 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.

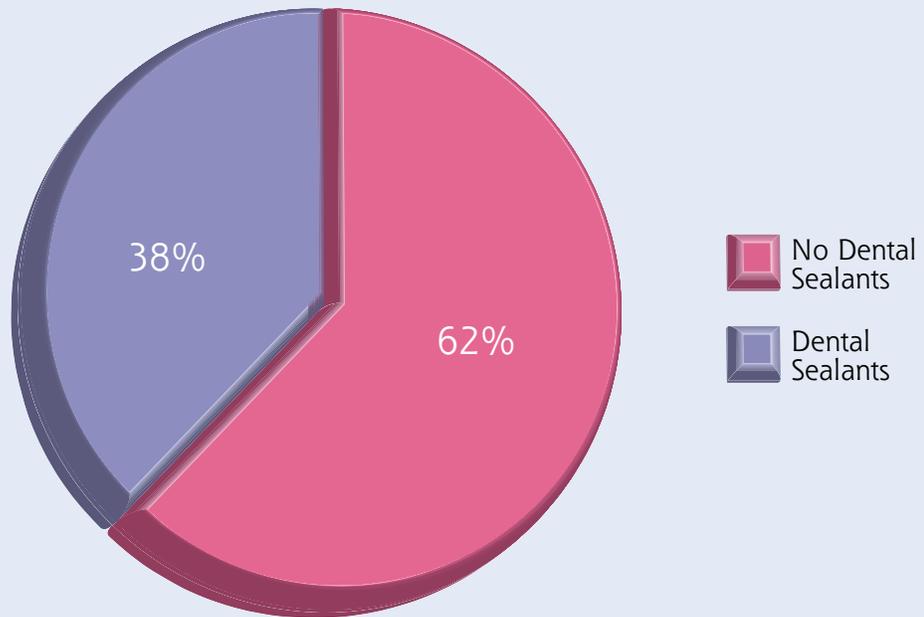


For the Every Smile Counts Survey we did not do complete diagnostic dental examinations. We did dental screenings - "Say 'Ah,'" a look inside with a dental mirror, a set of questions, no x-rays, none of the more advanced diagnostic tools. So we probably missed some problems. It is reasonable to assume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



Key Finding #3: More Than 60 Percent of Third Grade 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

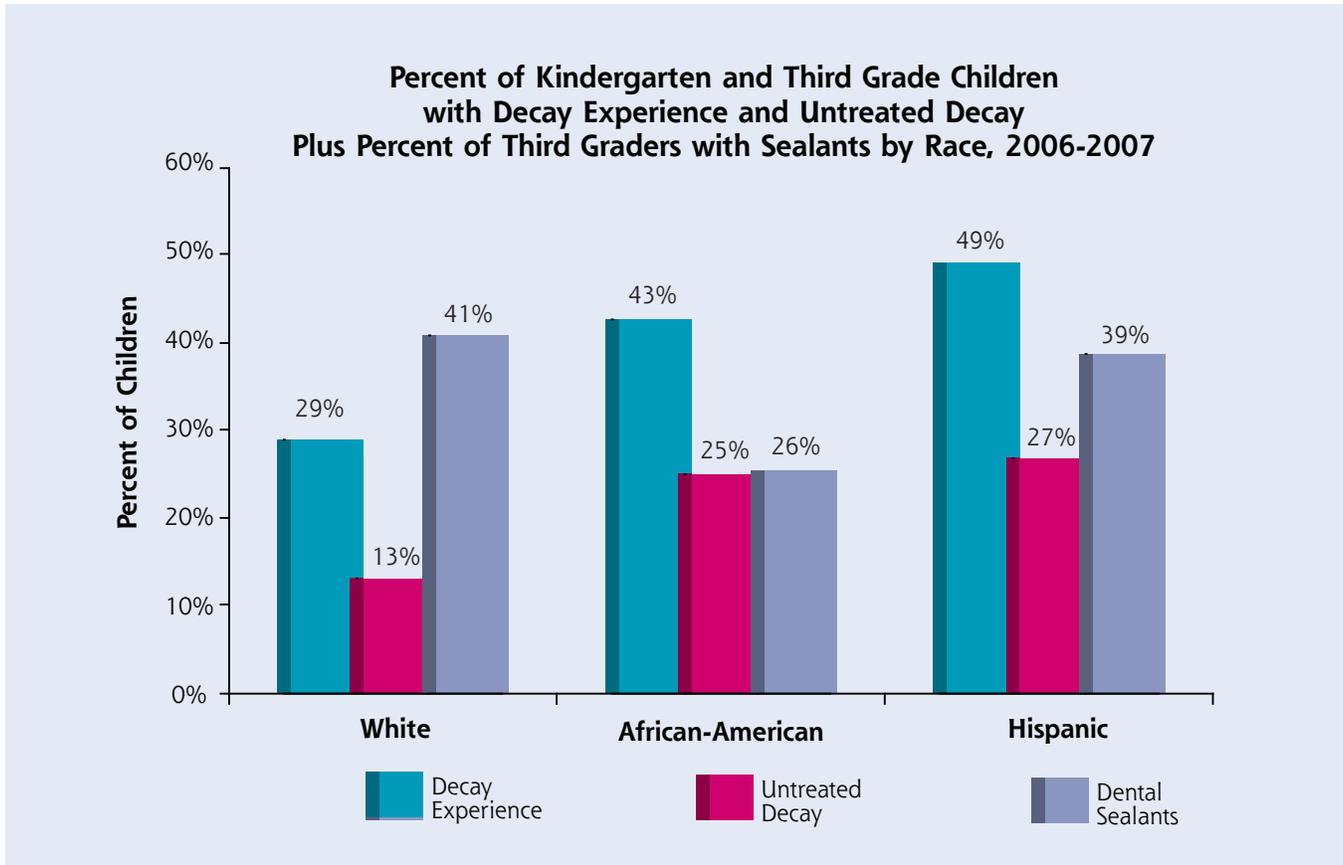


Dental sealants are a plastic coating applied to the chewing surfaces of the back teeth. They are a safe, effective way to prevent tooth decay among schoolchildren. Sealants have been shown to significantly reduce a child's risk for having untreated decay, In some cases, sealants can even stop tooth decay that has already started.¹⁰ 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.

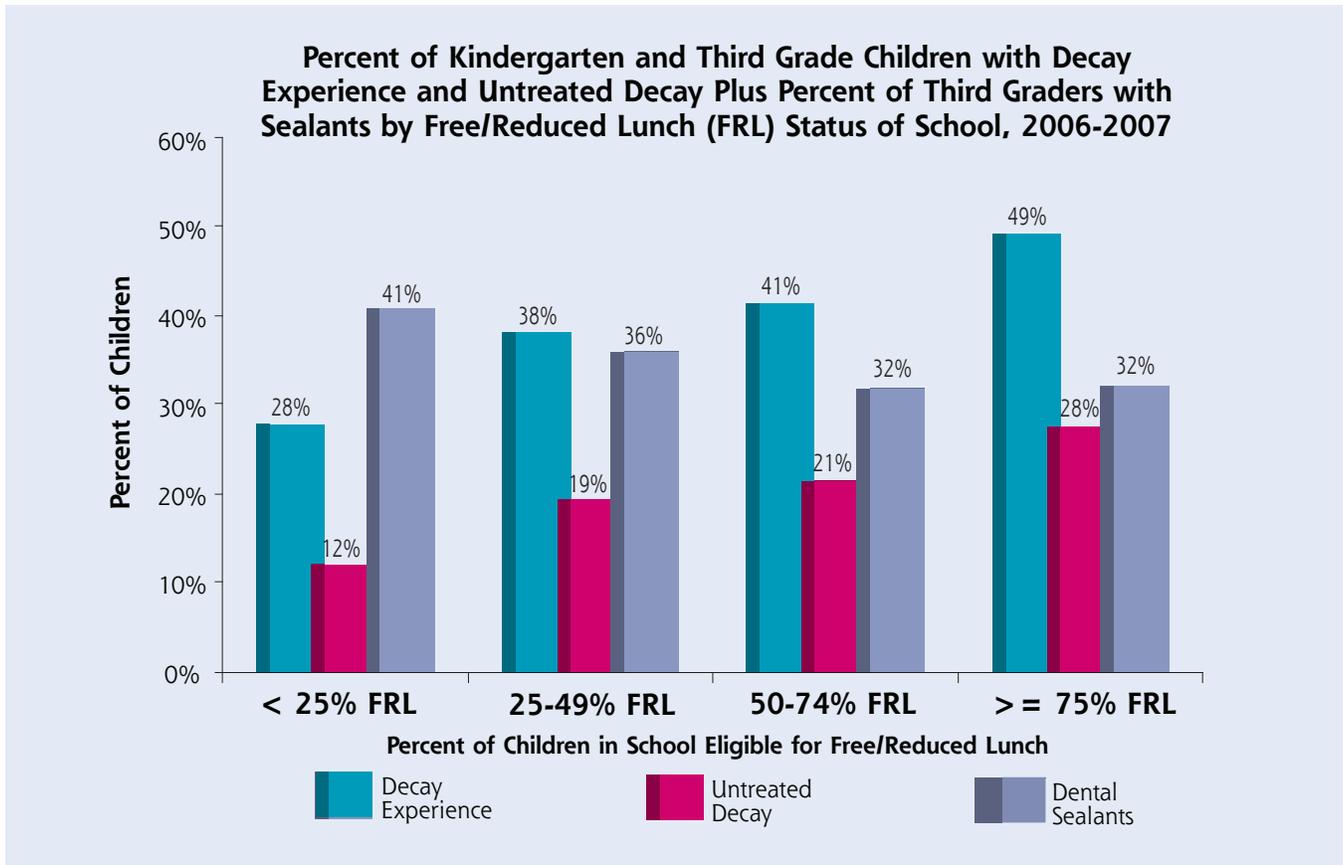


In Connecticut, African American and Hispanic children are more likely to have decay experience and untreated decay when compared to non-Hispanic white children. In fact, the prevalence of untreated decay is twice as high among minority children. Minority children, especially African-American children,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

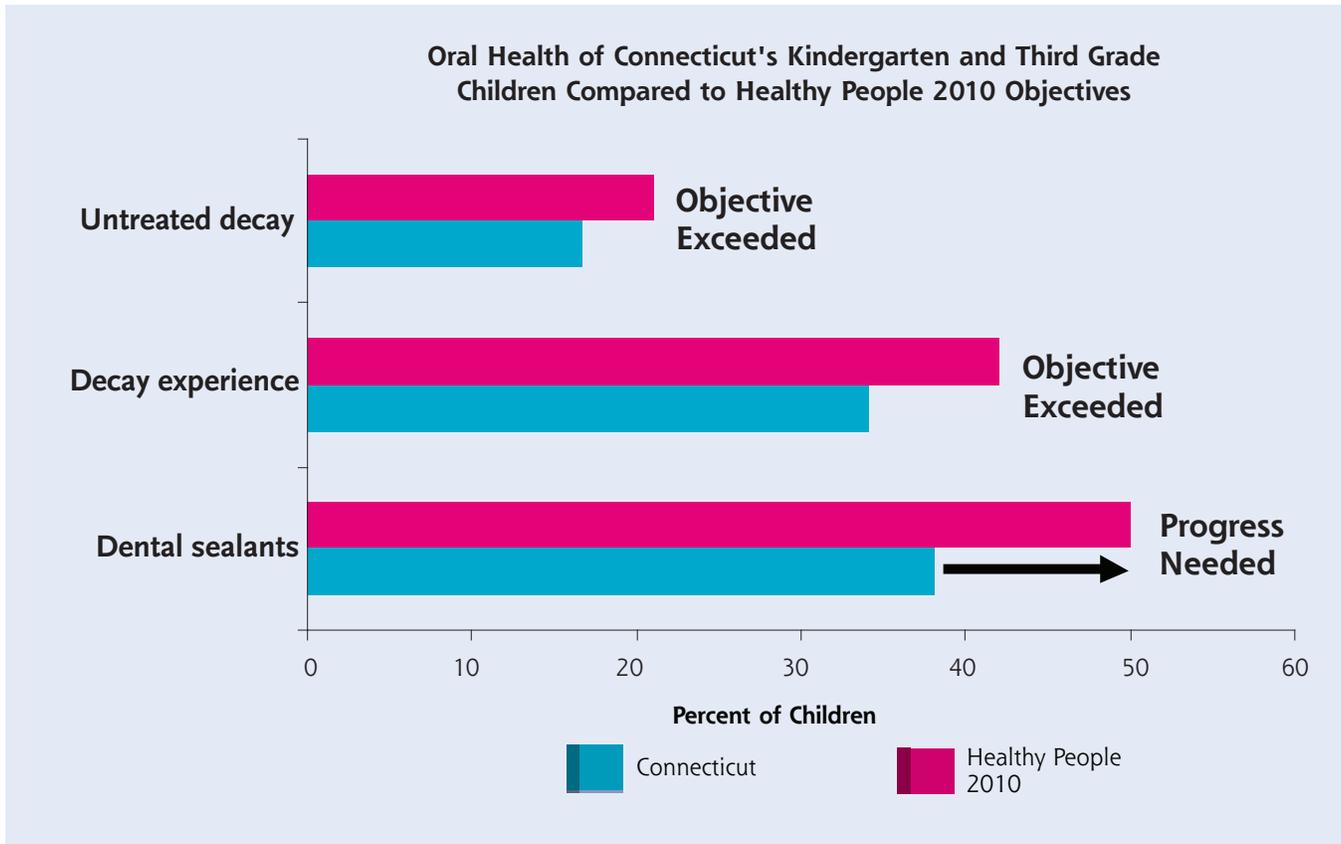


Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2006-2007 school year, annual family income for a family of four could not exceed \$37,000.¹¹ Information on an individual child's 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 (< 25%), children in schools where 25 percent or more of children participate 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.



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.



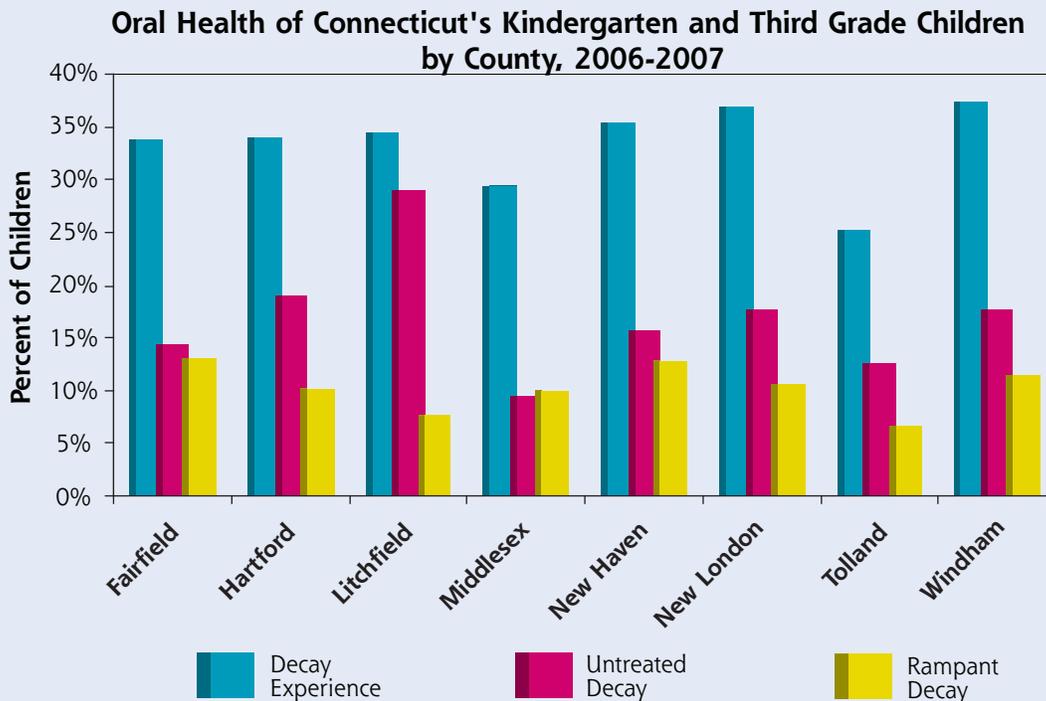
Healthy People 2010 outlines several oral health status objectives for elementary school children. These include:

- 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%.

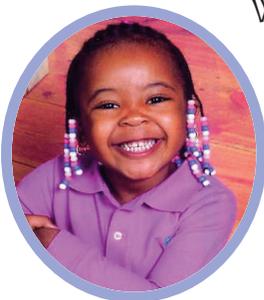
Connecticut has met the Healthy People 2010 objectives for both decay experience and untreated decay but must make substantial progress to meet the objective for preventive dental sealants. Dental sealants are a covered service under Medicaid/SCHIP Programs in Connecticut affording availability of sealants to low income children. Most private dental insurers also cover sealants. Both education of providers and patients about the effectiveness of dental sealants and better accessibility to sealants 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.¹²



Key Finding #6: The Oral Health Of Connecticut's Children Differs By County



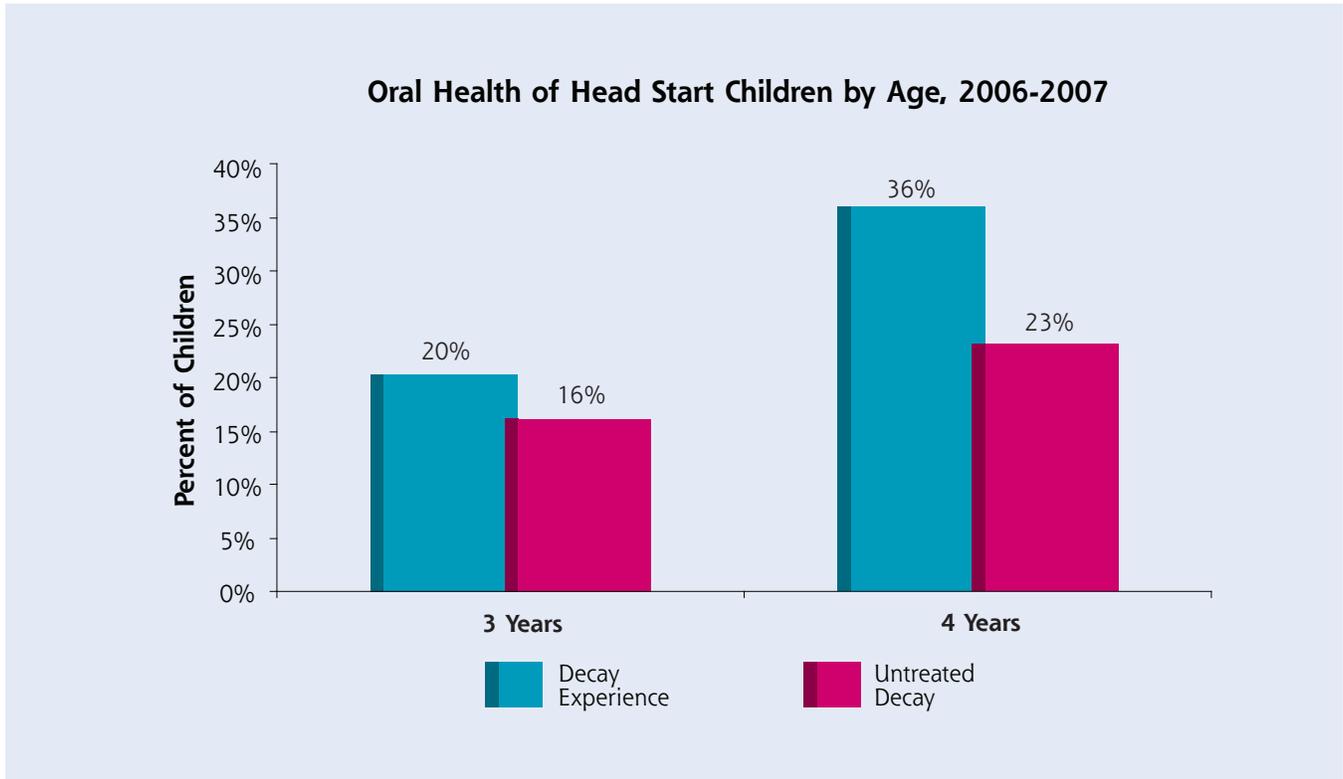
Information on the oral health status of Connecticut's kindergarten and third grade children by county is presented in the Data Tables section of this report. Middlesex County had the lowest prevalence of untreated decay (10%) while Litchfield County had the highest prevalence (29%) (See Table 1.15) Among the third grade children, New Haven County had the lowest prevalence of dental sealants (27%) and New London the highest (45%). (See Table 1.14)



Windham had the smallest difference between white (37%) and non-white (40%) children for caries experience next to Litchfield and Middlesex Counties. Hartford County had the largest difference (white 28%, nonwhite 45%) next to Fairfield and New Haven Counties (See Tables 1.16A and 1.16B).



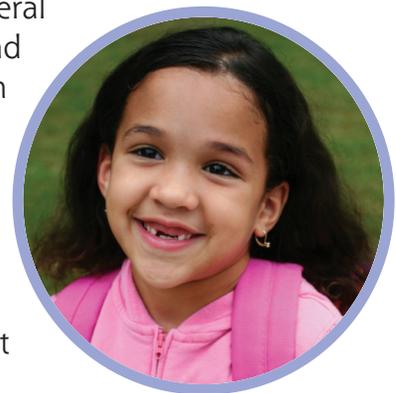
Key Finding #7: Early prevention is essential to reduce the prevalence of early childhood dental caries.



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. To prevent this infectious disease from occurring and spreading, we have to start before the age at which children already have the disease. That means, the medical and dental professions must focus dental disease prevention efforts on children less than 2 years of age because two is too late. The American Dental Association, the American Academy of Pediatric Dentistry and the American Academy of Pediatrics all recommend preventive dental care by age one and parent education.

The American Academy of Pediatric Dentistry recommends several strategies, focused on the mother (or the primary caregiver) and the infant.¹³ 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.



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 under-served 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
- The establishment of eight community-based Oral Health Collaboratives to implement action plans to improve oral health in the towns and regions they serve.
- 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.



In 2006, there were 3,121 dentists with a Connecticut license. Connecticut does not suffer from an inadequate supply of dentists; however, dentists are not adequately distributed to serve all populations in need. 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.¹⁴

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 freestanding 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 varies from only preventive services to comprehensive care.

Patients

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

Patients

- ✿ Expand comprehensive decay prevention to include pregnant women, infants and toddlers through the lifespan.
- ✿ Provide anticipatory guidance to parents to prevent dental disease in health and social service settings.
- ✿ Teach parents how to use the dental health care system and advocate for oral health for themselves and their children.
- ✿ Increase the number of dental insurance (private and public) enrollees who utilize their annual exam benefits for themselves and their children.



Increase private and public sector participation in mobilizing resources and developing policy to pursue and sustain these strategies

Providers

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

Providers

- ✿ Increase the number of dental providers in under-served areas.
- ✿ Educate non-dental health care providers about the relationship of oral health and general health and their role in oral health prevention.
- ✿ Increase the number of dentists participating in Medicaid/SCHIP
- ✿ Increase the number of dentists that have skills in treating young children and vulnerable groups.
- ✿ Increase the number of dental professionals providing dental sealants.



Increase private and public sector participation in mobilizing resources and developing policy to pursue and sustain these strategies

Systems

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

Systems

- ✿ Develop preschool dental programs and expand the number of dental programs in community and school-based centers.
- ✿ 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 the provision of dental sealants in schools and safety nets.
- ✿ Build capacity in dental public health at the state and local levels.



- ✿ Develop an ongoing campaign to promote oral health as part of general health and well-being.

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 percent 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.

Letters in English and Spanish were sent home to parents explaining the goals of the survey. Parents were asked to return signed forms only if they did not want their child to be surveyed.

All children enrolled and present on the day of the screening were examined unless a parent/guardian returned a consent form specifically requesting that the child not take part in the survey.

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 the screener determined gender and race.

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



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

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 & 3rd 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 & 3rd Grade
Children Screened

Variable	Kindergarten	Third Grade	Kindergarten & 3rd Grade
Number Screened	4,315	4,440	8,755
Age			
Mean	5.2	8.3	6.8
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	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 & 3rd Grade Children

Variable	Number Screened	Percent	95% CI
% 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
Treatment Need	8,755		
% with no obvious problem		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 & 3rd Grade Children
Stratified by Grade

	Kindergarten		3rd Grade	
	Number	Percent	Number	Percent
% caries free	4,315	72.7	4,440	59.4
% with caries experience – primary and/or permanent teeth	4,315	27.3	4,440	40.6
% with caries experience - permanent teeth	NA	NA	4,440	9.7
% with untreated decay – primary and/or permanent teeth	4,315	15.5	4,440	17.8
% with untreated decay – permanent teeth	NA	NA	4,440	17.8
% with rampant caries	4,315	9.1	4,440	13.6
% with dental sealants	NA	NA	4,440	38.1
Treatment Need				
% with no obvious problem		87.8		87.5
% needing early dental care	4,315	11.6	4,440	12.1
% needing urgent dental care		0.6		0.5

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

Table 1.6
Oral Health Status of Connecticut's Kindergarten & 3rd Grade Children
Stratified by Age*

	5 Years (n=3,390)	6 Years (n=884)	8 Years (n=3,117)	9 Years (n=1,245)
% caries free	73.6	70.4	61.4	55.3
% with caries experience – primary and/or permanent teeth	26.4	29.6	38.6	44.7
% with caries experience – permanent teeth	NA	NA	7.8	13.4
% with untreated decay – primary and/or permanent teeth	15.4	14.8	16.3	20.6
% with untreated decay – permanent teeth	NA	NA	2.3	4.5
% with rampant caries	8.4	11.3	12.5	16.0

* 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

Variable	White (n=2,727)	African American (n=462)	Hispanic (n=422)	Asian (n=87)	Other /Unknown (n=613)
% with caries experience	22.4	35.3*	35.1*	34.3	33.6*
% with untreated decay	11.9	22.2*	21.9*	17.8	19.6
% with rampant caries	5.5	13.3*	14.7*	17.7*	15.1*
% needing treatment	9.4	17.4*	16.7*	14.3	15.4

* 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

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	49.9*	62.9*	49.6*	42.1
% with caries experience – permanent teeth	7.5	13.5*	17.8*	7.5	11.3
% with untreated decay – primary and/or permanent	14.0	27.7*	31.6*	19.7	16.2
% with untreated decay – permanent teeth	2.5	6.4	4.0	2.9	2.1
% with rampant caries	10.0	19.5*	24.0*	18.5	17.3*
% with dental sealants	40.9	25.5*	38.8	44.7	35.0
% needing treatment	8.8	22.1*	24.9*	16.4	12.2

* Significantly different (p < 0.05) from white children

Table 1.9
Oral Health Status of Connecticut's Kindergarten and Third Grade Children
Stratified by Race/Ethnicity Percent of Children

Variable	White (n=5,579)	African American (n=938)	Hispanic (n=859)	Asian (n=173)	Other/ Unknown (n=1,194)
% with caries experience	28.9	42.8*	49.3*	42.0*	37.8*
% with untreated decay	13.0	25.0*	26.9*	18.8	18.0
% with rampant caries	7.9	16.4*	19.5*	18.1*	16.2*
% needing treatment	9.1	19.8*	20.9*	15.3	13.8

* 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	31.6*	36.3*	38.1*
% with untreated decay	10.2	20.7*	19.5	25.3*
% with rampant decay	5.1	11.2*	15.5*	15.5*

* 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	45.6*	49.8*	58.6*
% with caries experience – permanent teeth	7.4	11.3	15.5	4.3*
% with untreated decay – primary and/or permanent	14.1	18.0	24.6	29.5*
% with untreated decay – permanent teeth	2.3	2.3	5.4	5.6
% with rampant decay	10.2	17.4*	18.6*	21.5*
% needing treatment	8.4	15.7*	20.8*	21.9*
% with dental sealants	41.0	35.8	31.8	32.2

*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	38.3*	41.4*	49.2*
% with untreated decay	12.3	19.4*	21.4	27.6*
% with rampant decay	7.9	14.2*	16.7*	18.8*
% needing treatment	7.9	17.8*	17.6*	20.0*

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

Table 1.13

Oral Health Status of Connecticut's **Kindergarten** Children Stratified by County

	Fairfield (n=925)	Hartford (n=830)	Litchfield (n=231)	Middlesex (n=365)	New Haven (n=1,050)	New London (n=242)	Tolland (n=381)	Windham (n=291)
% with caries experience	26.3	24.9	33.4	22.9	30.6	28.5	19.8	27.9
% with untreated decay	12.8	15.1	29.9	8.1	16.5	20.0	12.0	18.5
% with rampant caries	10.0	6.3	5.0	5.8	12.7	7.8	5.4	9.4
% needing treatment	13.0	9.5	14.0	5.5	13.6	17.4	11.2	9.3

Table 1.14
Oral Health Status of Connecticut's Third Grade Children
Stratified by County

Variable	Fairfield (n=1,126)	Hartford (n=942)	Litchfield (n=343)	Middlesex (n=323)	New Haven (n=854)	New London (n=268)	Tolland (n=272)	Windham (n=312)
% with caries experience - primary and/or permanent	40.2	42.1	35.1	36.9	40.7	43.8	32.5	45.5
% with caries experience - permanent teeth	11.5	8.7	8.7	6.9	11.0	6.3	6.0	6.3
% untreated decay - primary and/or permanent	15.8	22.6	28.2	11.2	14.7	15.7	13.6	16.8
% needing treatment - permanent teeth	2.5	4.6	7.6	1.6	2.0	1.5	1.9	1.4
% with rampant caries	15.7	13.4	9.5	15.0	12.9	13.1	8.6	13.1
% with dental sealants	42.8	39.4	41.3	38.1	27.2	45.1	37.0	38.4
% needing treatment	12.6	13.2	12.7	8.0	12.9	11.0	13.3	11.4

Table 1.15
Oral Health Status of Connecticut's Kindergarten and Third Grade Children
Stratified by County

Variable	Fairfield (n=2,051)	Hartford (n=1,772)	Litchfield (n=574)	Middlesex (n=688)	New Haven (n=1,904)	New London (n=510)	Tolland (n=653)	Windham (n=603)
% white	54.9	62.4	83.3	75.9	49.8	68.6	91.9	74.8
% of children in schools - with <25% students in FRL	55.2	61.2	74.7	73.8	39.8	63.1	88.4	46.9
% with caries experience	33.9	34.1	34.4	29.3	35.3	36.9	25.2	37.4
% with untreated decay	14.4	19.1	28.9	9.5	15.7	17.6	12.7	17.6
% with rampant caries	13.1	10.1	7.8	10.0	12.8	10.7	6.7	11.4
% needing treatment	12.8	11.5	13.2	6.7	13.3	13.9	12.1	10.4

Table 2.1
Head Start Participation in the Connecticut Oral Health Survey

	Number of Sites	Enrollment	Number Screened	Response Rate
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

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean		3.8
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 2.4
Oral Health Status of Connecticut’s Head Start Children
Stratified by Age Percent of Children

	3 Years (n=192)	4 Years (n=334)
% caries free	79.7	64.1
% with caries experience	20.3	35.9
% with untreated decay	16.1	23.1
% with rampant decay	8.9	15.0
% needing dental treatment	15.1	21.0

Table 2.5
Oral Health Status of Connecticut’s Head Start Children
Stratified by Race/Ethnicity - Percent of Children

	White (n=101)	African American (n=151)	Hispanic (n=198)	Other/ Unknown (n=158)
% with caries experience	21.4	30.6	27.2	41.2
% with untreated decay	11.0	22.7	17.3	24.2
% with rampant caries	6.1	17.1	11.6	18.8
% needing treatment	11.0	21.8	16.5	20.4

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

Variable	White Non-Hispanic (n=101)		Minority, Other & Unknown (n=508)	
	Percent	95% CI	Percent	95% CI
% 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

- ¹ 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
- ² Burt BA, Eklund SA. Dentistry, Dental Practice, and the Community. Saunders, Philadelphia, 1999
- ³ Edelstein B, Douglass C. Dispelling the cavity free myth. Public Health Reports 1995, 110:522-30.
- ⁴ National Center for Health Statistics. National Health and Nutrition Examination Survey III, 1988-94. Hyattsville, MD: Centers for Disease Control and Prevention, unpublished data
- ⁵ Dental Health Foundation, "Mommy, it hurts to chew: the California smile survey", February 2006.
- ⁶ 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.
- ⁷ Vargas CM, Crall JJ, Schneider DA. Sociodemographic distribution of pediatric dental caries, NHANES III, 1988-1994. J Am Dent Assoc 1998, 129:1229-38.
- ⁸ 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.
- ⁹ 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>.
- ¹⁰ 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.
- ¹¹ 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>.
- ¹² Impact of targeted, school-based dental sealant programs in reducing racial and economic disparities in sealant prevalence among schoolchildren - Ohio, 1998-1999 MMWR August 31, 2001/50(34);736-8.
- ¹³ American Academy of Pediatric Dentistry. Clinical Guideline on Infant Oral Health. www.aapd.org/media/Policies_Guidelines/G_InfantOralHealthCare.pdf, Accessed December 2004.
- ¹⁴ Beazaglou, T, et al. Dental Workforce in Connecticut and Husky Children. Report to the Connecticut Health Foundation. September 2004

Definitions of Terms

Caries - A dental disease process that can result in tooth decay (cavity).

Decay Experience - The presence of an untreated cavity, a filling or a permanent molar tooth that is missing because it was extracted as a result of caries.

Dental Sealants - Transparent or opaque plastic coatings on the tops of first permanent molar teeth.

FRL - Free and Reduced Lunch Program available in schools to eligible children.

Need for Care - Caries (dental decay) without any signs of pain, swelling, and infections.

Rampant Caries - Five or more teeth that are untreated and/or have fillings.

Untreated Decay - A cavity or hole in the tooth that is at least 1/2mm in size and has brown to dark-brown coloration of the walls of the cavity.

Urgent Care - Signs or symptoms of pain, infection, swelling, or soft tissue ulceration.



Connecticut Association of School Based Health Centers

<http://www.ctschoolhealth.org>

- School based dental services

Connecticut Dental Hygienists' Association

<http://www.cdha-rdh.com>

(860) 688-7307

- Dental Hygiene promotion

Connecticut Department of Public Health, Office of Oral Health

<http://www.ct.gov/dph>

(860) 509-7797

- Connecticut Oral Health information and technical assistance
- "Every Smile Counts" oral health survey
- Open Wide program
- State Oral Health Plan
- List of Connecticut Safety Net Providers

Connecticut Department of Public Health

<http://www.ct.gov/dph>

(860) 509-8000

- State Loan Repayment Program

Connecticut Department of Social Services

<http://www.ct.gov/dss>

(800) 842-1508

Medicaid/Husky (SCHIP)

- List of Medicaid/Husky providers

Connecticut Health Foundation

<http://www.cthealth.org>

(860) 224-2200

- Statewide Oral Health Collaboratives

Connecticut Oral Health Initiative

<http://www.ctoralhealth.org>

(860) 246-2644

- Oral Health Advocacy



Connecticut Primary Care Association

<http://www.ctpca.org>

(860) 667-7820

- Community health centers in Connecticut

Connecticut State Dental Association

<http://www.csda.com>

(860) 378-1800

- Private dental practices in Connecticut
- "Give Kids a Smile Day"
- Mission of Mercy (MOM)

National Health Service Corps

<http://nhsc.bhpr.hrsa.gov>

(800) 221-9393

- National loan repayment program

Tunxis Community College, School of Dental Hygiene

<http://tunxis.commnet.edu>

(860) 255-3500

- Dental hygiene school
- Preventive dental outreach

University of Bridgeport, Fones School of Dental Hygiene

<http://www.bridgeport.edu/pages/3243.asp>

(203) 576-4138

- Dental hygiene school
- Preventive dental clinic and outreach

University of Connecticut School of Dental Medicine

<http://sdm.uhc.edu>

(860) 679-2000

- Dental school
- Dental clinic

University of New Haven, School of Dental Hygiene

<http://www.newhaven.edu/show.asp?durki=226>

(203) 932-7319

- Dental hygiene school
- Preventive dental clinic and outreach