



State of Illinois
Illinois Department of Public Health

Healthy Smile Healthy Growth 2008-2009

An Assessment of Oral Health Status
and Body Mass Index Among Illinois
Third-Grade Children



Healthy Smile Healthy Growth Partners

The Illinois Department of Public Health wishes to thank the Illinois State Board of Education, Chicago Community Oral Health Forum, IFLOSS Coalition, Healthy Smile Healthy Growth grantees/screeners, Association of State and Territorial Dental Directors (ASTDD), and especially, participating schools, parents and children. Without our partners, this valuable opportunity would not have been possible. For more information or additional copies of this report, please contact the Illinois Department of Public Health, Division of Oral Health, at 217-785-4899 or www.idph.state.il.us. Support for this project was provided by the Sprague Institute and ASTDD.



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Introduction

According to the 2000 U.S. Surgeon General's report on oral health, tooth decay is the most common chronic disease affecting children in our country. This first ever national oral health report confirms that far too many children and adults suffer from oral disease. In response to this report, Illinois developed a state oral health plan designed to improve the oral health of its residents. The plan specifically calls upon the Illinois Department of Public Health (Department) to routinely collect data on dental decay and presence of dental sealants in children. Previously, two statewide oral health assessments have been completed of Illinois schoolchildren: Project Smile was conducted in 1993-1994; and the first Healthy Smile Healthy Growth (HSHG) in 2003-2004.

As we begin to collect data on a routine basis, we can better understand if programs and activities undertaken by the Department and by Illinois communities are making a difference in improving the oral health status of our children. Knowing the oral health status of children also enables us to better identify areas of need in the state and target programs that can improve oral health.

In addition, the increasing number of overweight children in the United States continues to concern parents, teachers and policymakers. The Office of Health Promotion, Division of Oral Health, and the Physical Activity and Nutrition Section of the Division of Chronic Disease Prevention and Control collaborated to not only gather oral health data, but also to measure the height and weight of third-grade children.

As a result, two very important health issues affecting children were brought to the forefront. This partnership allowed pooling of resources to raise awareness that oral health and general health go hand in hand. One of the common risk factors for obesity and tooth decay in children is poor nutrition. In addition, many schools reported that they chose to participate in the assessment based on an interest in either one or the other health issue and may not have participated had it just been a survey on obesity only or dental decay only. This allowed for an excellent response rate and strengthened the validity of the findings.

Methods

The survey method used to collect the data is based on the Basic Screening Survey (BSS) developed by the Association of State and Territorial Dental Directors (ASTDD - www.astdd.org). Because surveying every student in the state is impractical, a sample of the population being studied was selected. A good sample is scientifically selected and gives each eligible student a known probability of being chosen. This is referred to as probability sampling.

The Healthy Smile Healthy Growth school sampling was proportional to student enrollment and was based on sampling criteria specific to schools (urban/rural, total enrollment in the third grade, and free and reduced lunch eligibility). This school sampling method allows the results to be generalized to all third-grade children across the state. Assistance in sample selection was provided by ASTDD consultant, Mike Manz, D.D.S., M.P.H.. Notices from the Department were sent through Dr. Christopher A. Koch, state superintendent of education to district superintendents encouraging participation by the schools. Eighty-seven of the 100 schools selected in the sample participated in the survey.

The selected schools were located in 30 counties. In collaboration with local health departments representing these 30 counties, dentists and hygienists were identified to assist in the collection of data. The Department, ASTDD, and Chicago Community Oral Health Forum provided grant funding, training and technical assistance to the local communities to ensure that data collection was conducted in a consistent and uniform manner. Screener training was conducted during the fall of 2008. Grantees were trained on how to collaborate with local school districts, oral health and obesity data collection, and reporting paperwork. (Appendix 1 shows participating counties.)

ASTDD BSS protocols were utilized to collect oral health data. U.S. Centers for Disease Control and Prevention (CDC) body mass index (BMI) protocols were followed for obtaining height and weight measurements. Materials were provided by the Department including scales and stadiometers. Template letters encouraging principal, teacher and superintendent support were provided to the local health departments. Consent forms (available in both English and Spanish) were provided by the Department to all grantees. A positive consent from a parent or guardian was required for a child to participate in the screening. Incentives included a toothbrush, toothpaste and dental floss.

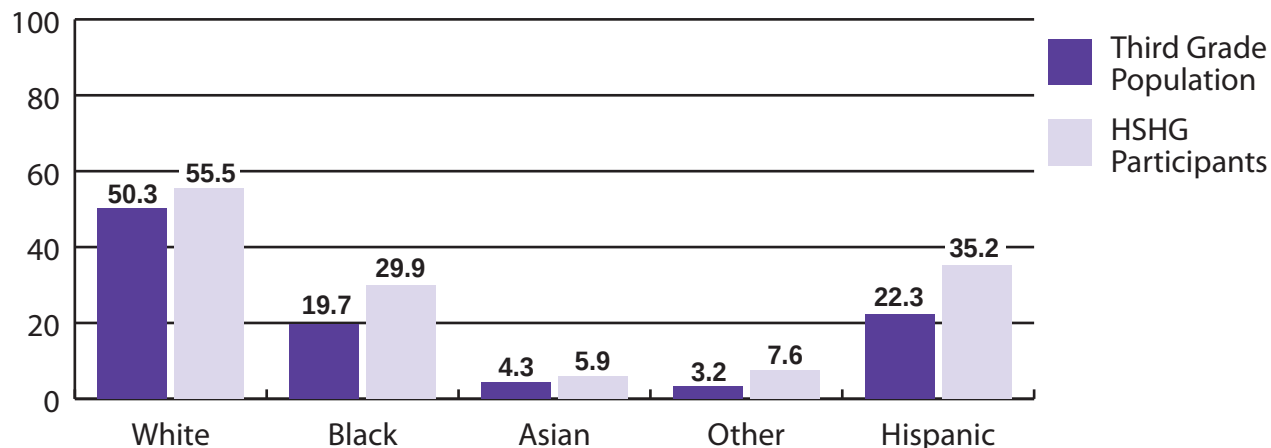
Results

Healthy Smile Healthy Growth data was collected during November 2008 through May 2009. Of the 7,063 children eligible, 3,696 positive consent forms were returned. Data was collected on scannable sheets, returned to DOH, and scanned into a database for analysis. Data were analyzed by the IFLOSS Coalition's oral health epidemiologist together with ASTDD consultant Dr. Mike Manz. Data elements collected on the consent form and the screening form (Appendix 2) included: (1) child's date of birth; (2) participation in the free and reduced meal program (Y/N); (3) dental insurance (Y/N); (4) gender, race and ethnicity; (5) dental cavity experience; (6) untreated cavities; (7) treatment urgency; (8) sealants; (9) height; and (10) weight.

Healthy Smile Healthy Growth utilized the National School Health's Free/Reduced Meal Program as a marker of socioeconomic status (SES). Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals. Healthy Smile Healthy Growth collected race and ethnicity to help identify health disparities. (Note: Free/reduced meal eligibility, race/ethnicity, and dental insurance status were self-reported by parents.)

Healthy Smile Healthy Growth data was analyzed by urbanicity. Illinois counties were categorized by urbanicity into collar, urban, rural, Chicago and Cook (Appendix 3). A total of 3,696 children were screened, 49 percent male and 51 percent female. Fifty-seven percent of the survey children were enrolled in the Free/Reduced Meal Program and 75.7 percent reported having dental insurance (private and public). The following is the breakdown of the race and ethnicity distribution: 55.5 percent were white; 29.9 percent were black; 6 percent were Asian; 7.5 percent were other; 35.2 percent were Hispanic and 64.8 percent were non-Hispanic.

Racial and Ethnic Distribution Among Third Grade Children Compared with Healthy Smile Healthy Growth Participants, 2008-2009

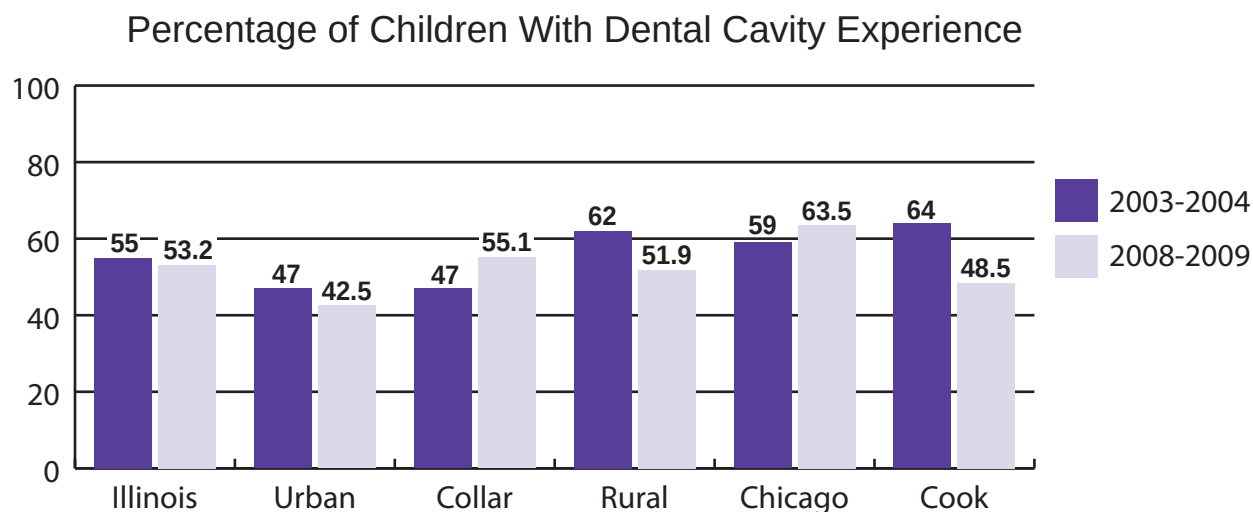


Note: The racial/ethnic distribution data for third grade children comes from the Illinois State Board of Education and they collect race and ethnicity together. In HSHG, race and ethnicity were collected separately.

Oral Health Data Results

Dental Cavity Experience

- 53.2 percent of third-graders screened had experienced dental cavities.



Compared to 2003-2004 statewide, we have made little improvement in terms of dental cavities experience. Collar counties and Chicago numbers are even higher than what they were five years ago.

The Healthy People 2010 objective is to reduce the proportion of children with dental cavity experience to 42 percent.

Why is this important?

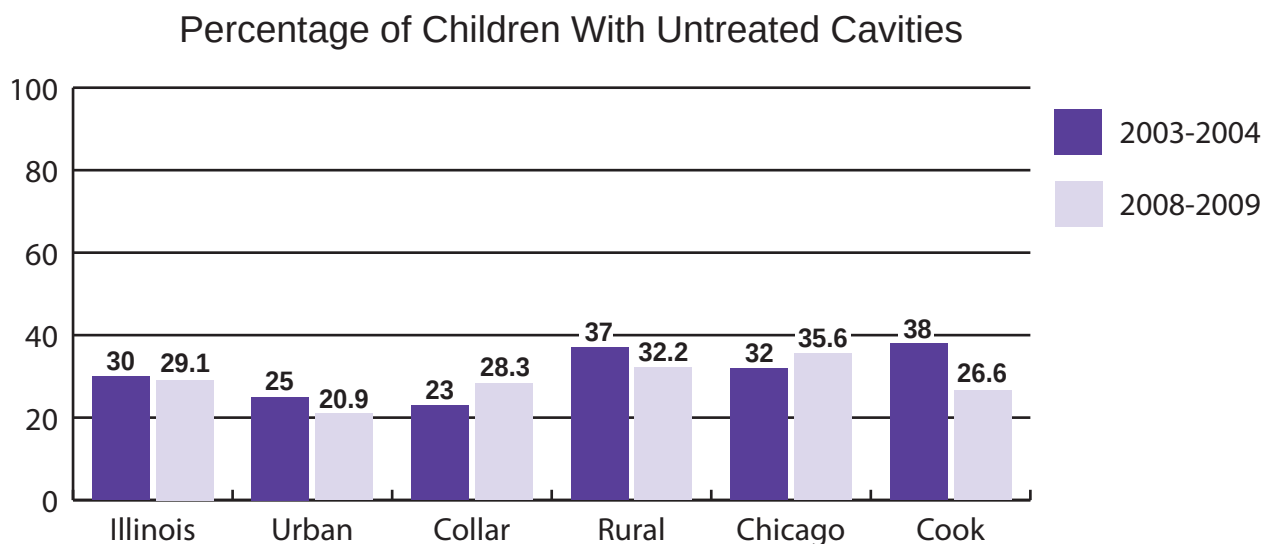
Children who have dental decay at an early age are more likely to have dental problems through their lives. Dental cavities are a preventable disease. The combination of factors that cause cavities can greatly be reduced through a variety of interventions. Factors include the transmissible nature of the bacteria that cause decay, diets that include carbohydrates and sugar that fuel bacteria, poor oral hygiene, lack of dental visits and lack of adequate exposure to fluorides. Given that dental disease can be avoided almost entirely, the fact that 53 percent of Illinois third-grade children have suffered the damaging effects of decay presents a public health challenge.

Where do we focus?

Although community water fluoridation and dental sealants have greatly reduced dental cavities over the years, more emphasis needs to be on prevention in the early years. Illinois needs to invest heavily into interventions to prevent dental cavities among children younger than 8 years old.

Untreated Cavities and Treatment Urgency

- 29.1 percent of third-graders screened had untreated cavities.

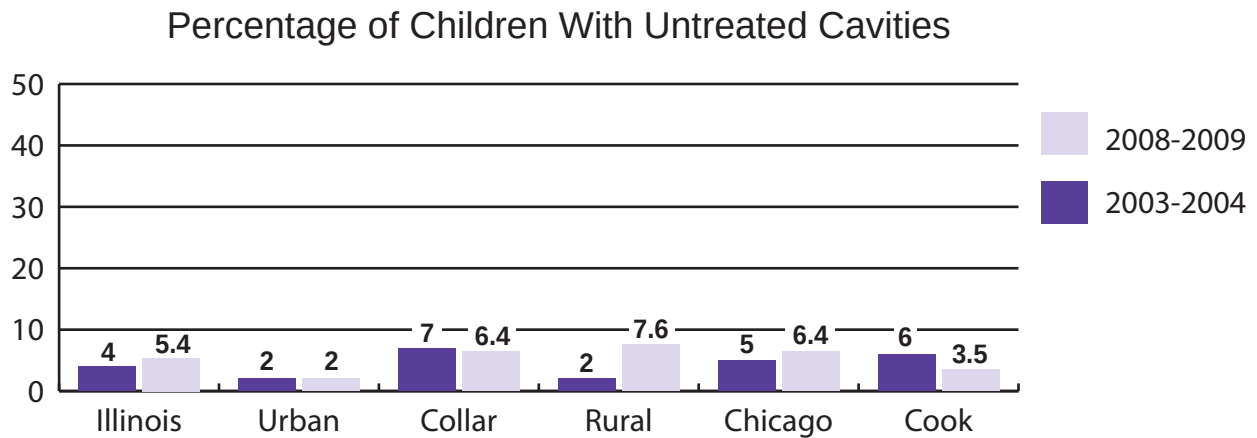


Untreated cavities (unmet need) seems to have improved in urban and rural counties and suburban Cook but Chicago and collar counties have higher rates of untreated cavities.

The Healthy People 2010 objective is to reduce the proportion of children with untreated dental cavities to 21 percent.

- 5.4 percent of third-graders required urgent treatment.

These children had signs or symptoms of pain, infection, swelling, or tissue ulceration.



Urgent treatment need has gone up statewide. Rural counties and Chicago demonstrate higher rates compared to five years ago.

Why is this important?

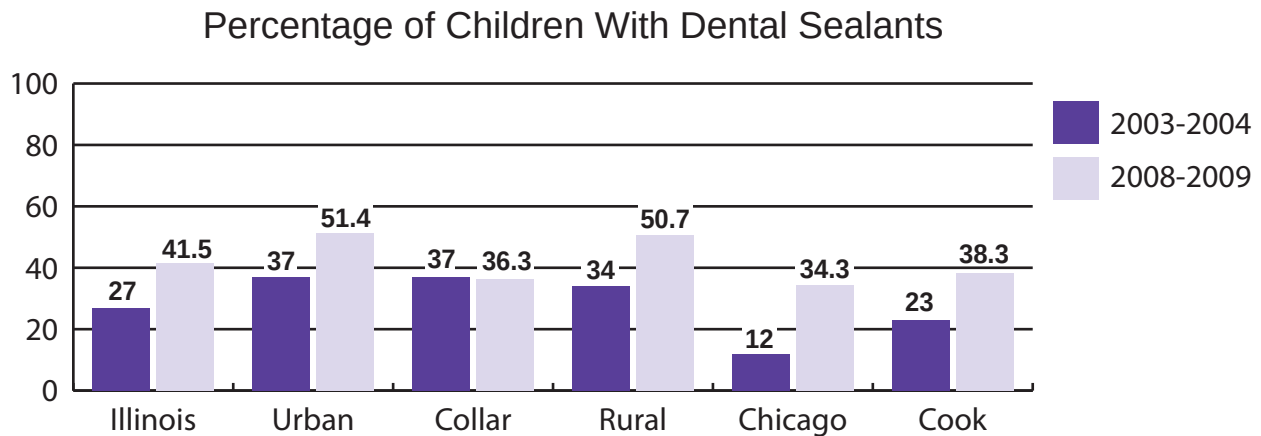
Poor oral health can affect learning. According to the National Maternal and Child Health Resource Center, 51 million school hours per year are lost because of dental-related illness. Children experiencing pain are distracted and unable to concentrate on schoolwork. Children who take a test while they have a toothache do not score as well as children who are undistracted by pain. Early tooth loss caused by cavities can result in failure to thrive, speech problems and reduced self-esteem. Also, children are often unable to verbalize dental pain. Teachers may mistake their behavior for something other than a dental problem.

Where do we focus?

The Healthy Smile Healthy Growth data shows that children in rural areas have a higher percentage of untreated decay and treatment urgency. This may be due in part to the collar and urban areas having more facilities to provide care. Safety net dental clinics provide oral care to underserved populations in Illinois. There are only 120 safety net dental clinics operating at this time of which 38 are in rural counties. More are needed, especially in the rural areas of the state.

Dental Sealants

- 41.5 percent of third-graders screened had at least one sealant placed on their permanent molar.



We have made significant improvement in sealant rates, much must be attributed to the statewide sealant program. Chicago adopted the program in 2002 and has seen significant improvement. In urban and rural areas, we have accomplished the Healthy People 2010 objectives where sealant programs are embraced by the community.

The Healthy People 2010 objective is to increase the proportion of children receiving sealants to 50 percent.

Why is this important?

Dental sealants are thin plastic coatings applied to the chewing surfaces of molars that prevent dental decay. Sealants have been shown to be a valuable evidenced-based public health measure.

Sealants also have been proven cost-effective. According to the National Maternal and Child Oral Health Resource Center's fact sheet titled "Preventing Tooth Decay and Saving Teeth With Dental Sealants," the 1999 average cost of applying one dental sealant was \$27, compared to the average cost of filling that same tooth at \$73.77. If all children and adolescents receive appropriate amounts of fluoride and have dental sealants applied to susceptible tooth surfaces, most tooth decay could be prevented.

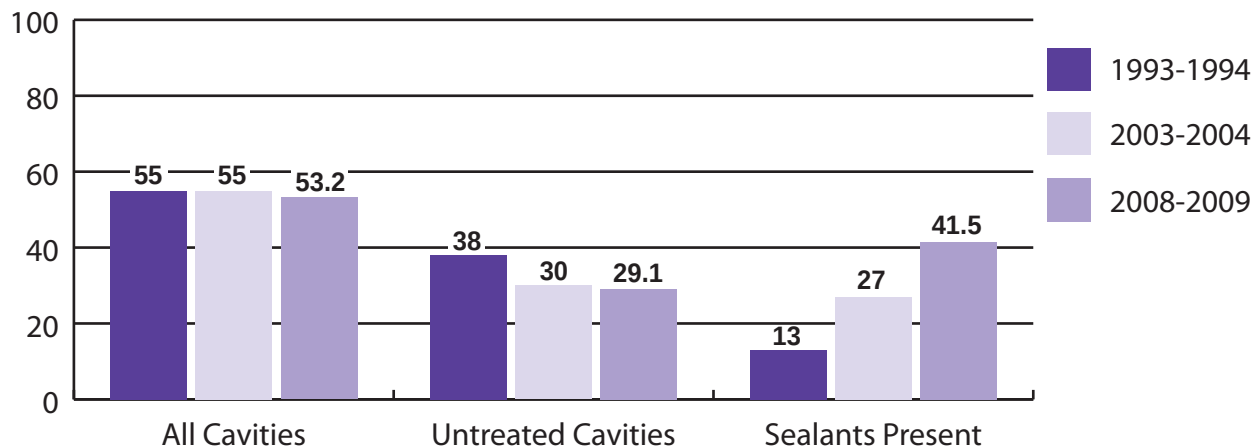
Where do we focus?

The CDC's Task Force on Community Preventive Services conducted a systematic review on school-based dental sealant programs and issued a strong recommendation that sealant programs be part of comprehensive oral health improvement activities. Sealants decrease tooth decay in children ages 6 to 17 years by 60 percent. By focusing on prevention, sealants can help children avoid the need for extensive and costly treatment.

The Department's Dental Sealant Grant Program (Appendix 4) assists communities with implementing school-based dental sealant programs targeting children at high risk for dental decay. The program is designed to

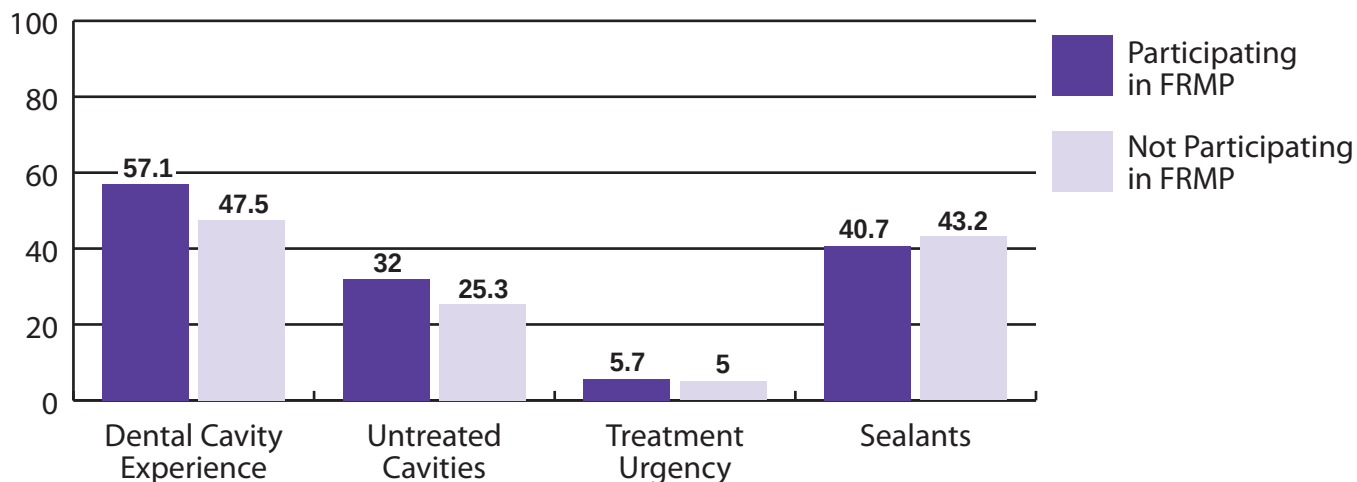
reduce oral disease in schoolchildren. The school-based Dental Sealant Grant Program is one possible reason for the increase in dental sealants. The program began operating in Illinois schools in 1987, and in 1992 became widespread throughout the state.

1993-1994 vs. 2003-2004 vs. 2008-2009

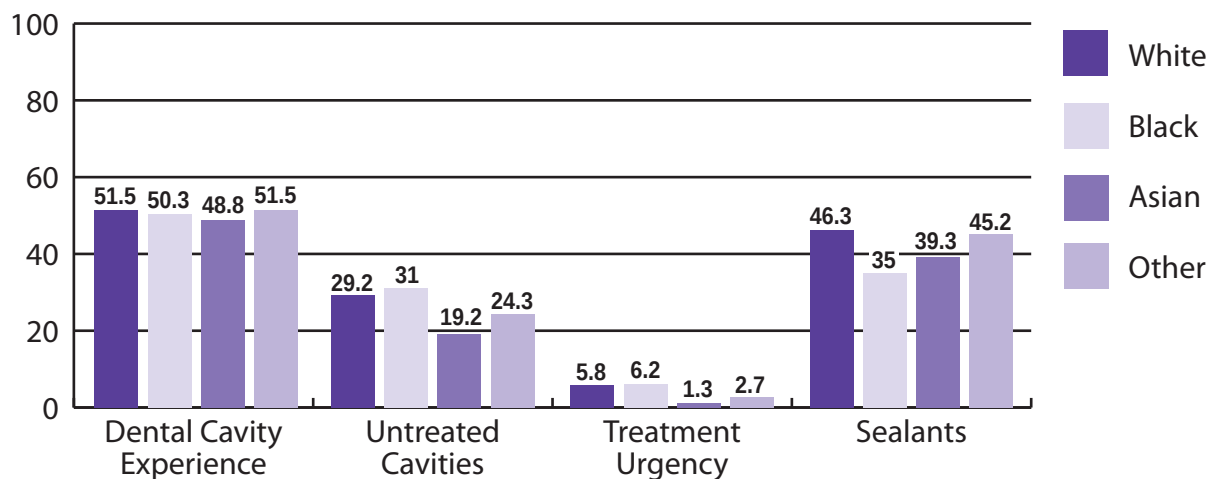


Socioeconomic Status (SES) and Race/Ethnicity

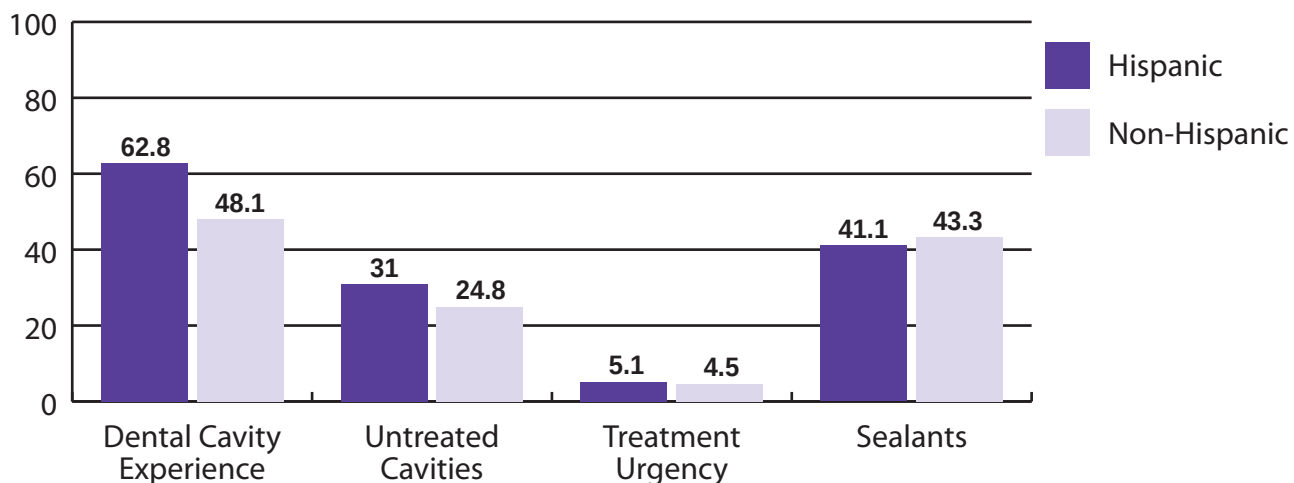
Percentage of Children by Free and Reduced Meal Program (FRMP) Participation and Oral Health Status, 2008-2009



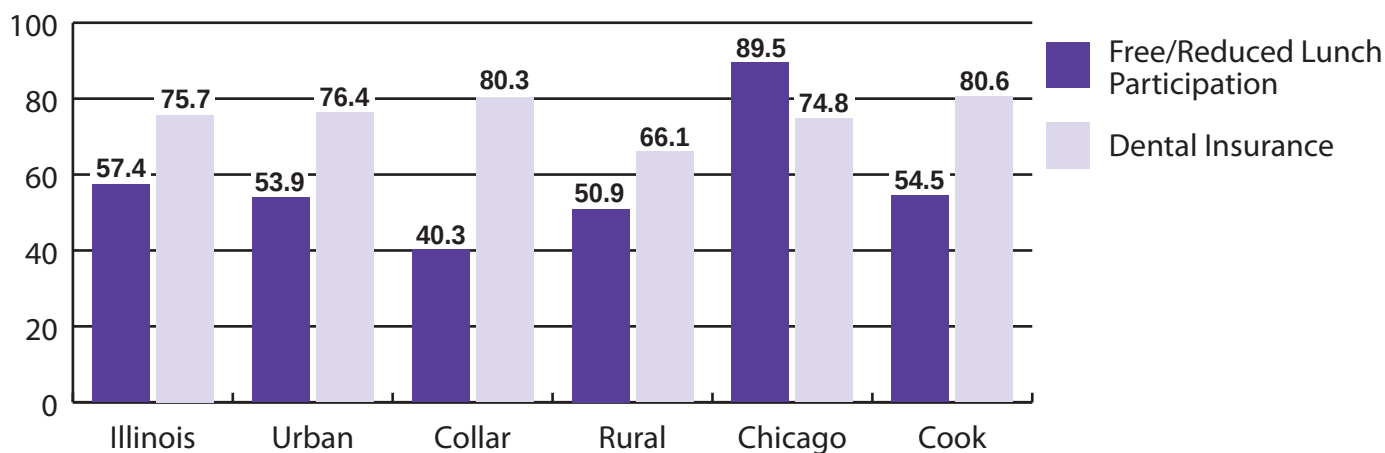
Percentage of Children by Race and Oral Health Status



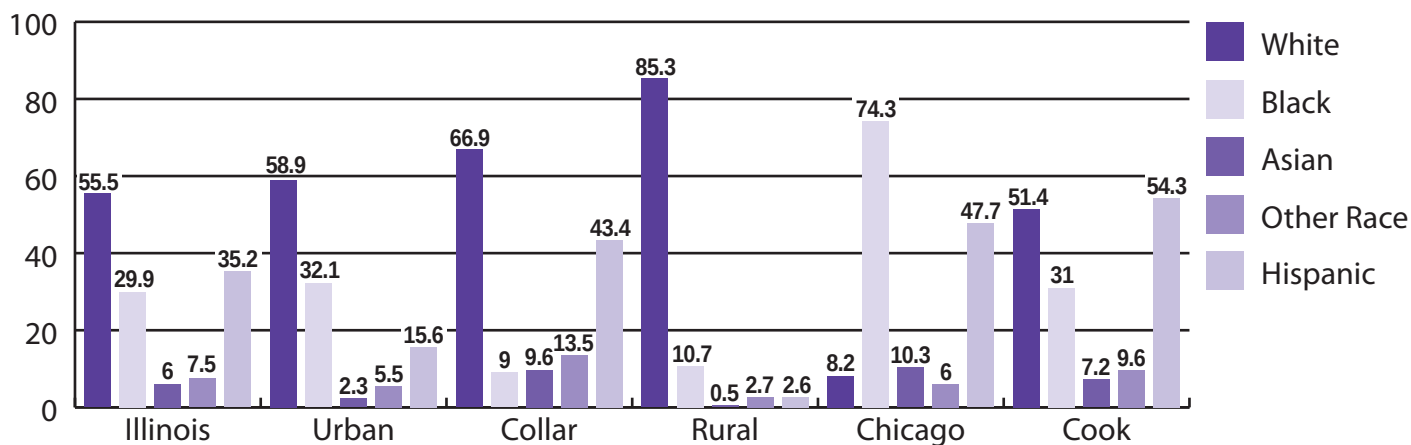
Percentage of Children by Ethnicity and Oral Health Status



Free and Reduced Lunch Participation and Dental Insurance Status Among HSHG Participants by Urbanicity



Race and Ethnicity Distribution Among HSHG Participants by Urbanicity



Why is this important?

Healthy Smile Healthy Growth results revealed disparities among various groups of children. Healthy Smile Healthy Growth used enrollment in the Free and Reduced Meal Program as a reliable indicator of SES. Like

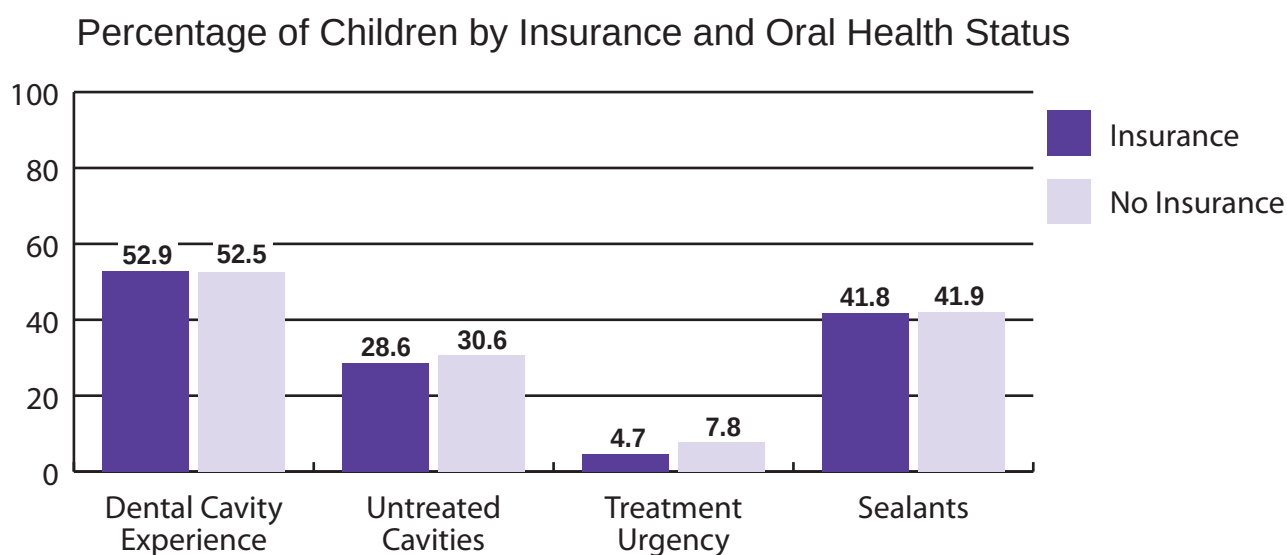
many other health problems, children in low SES families are vulnerable to oral health problems for a variety of reasons. Their nutrition may be poor, oral hygiene inadequate, and most have problems accessing care. They are at greater risk for experiencing more extensive and severe forms of oral disease, thus increasing the chances of complications of untreated disease. Healthy Smile Healthy Growth found more dental decay, more untreated disease and fewer sealants in children from low-income homes.

Where do we focus?

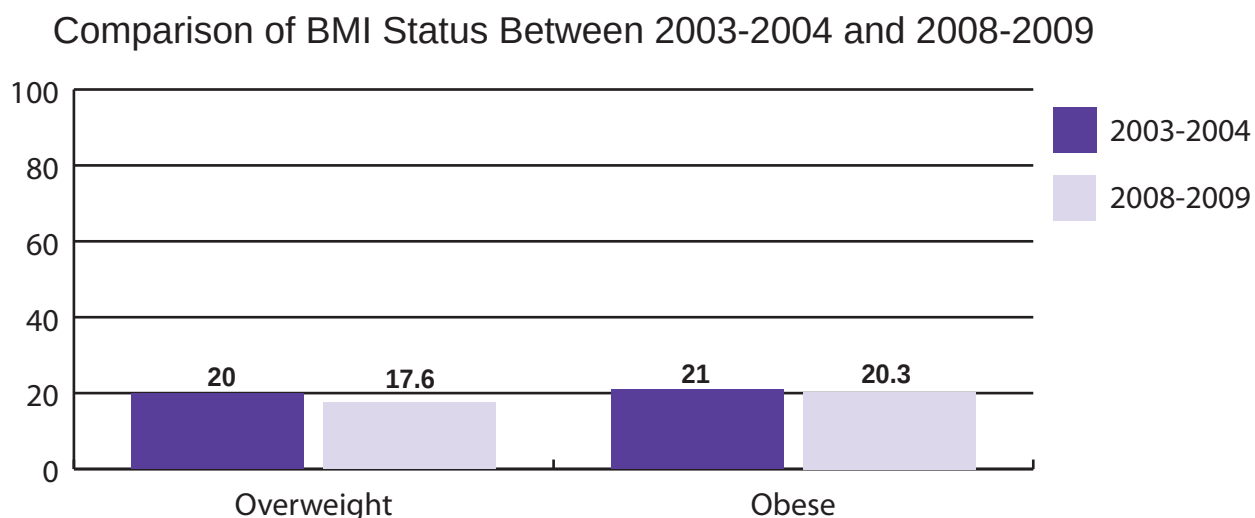
Ultimately, removing known barriers between people and oral health services is a priority. Many statewide efforts should, and are being undertaken, to reduce disparities and include expanding the scope of Medicaid oral health services, expanding funding for school-based dental sealant programs, and increasing the variety of races and ethnic groups represented in the oral health care field.

Insurance Status

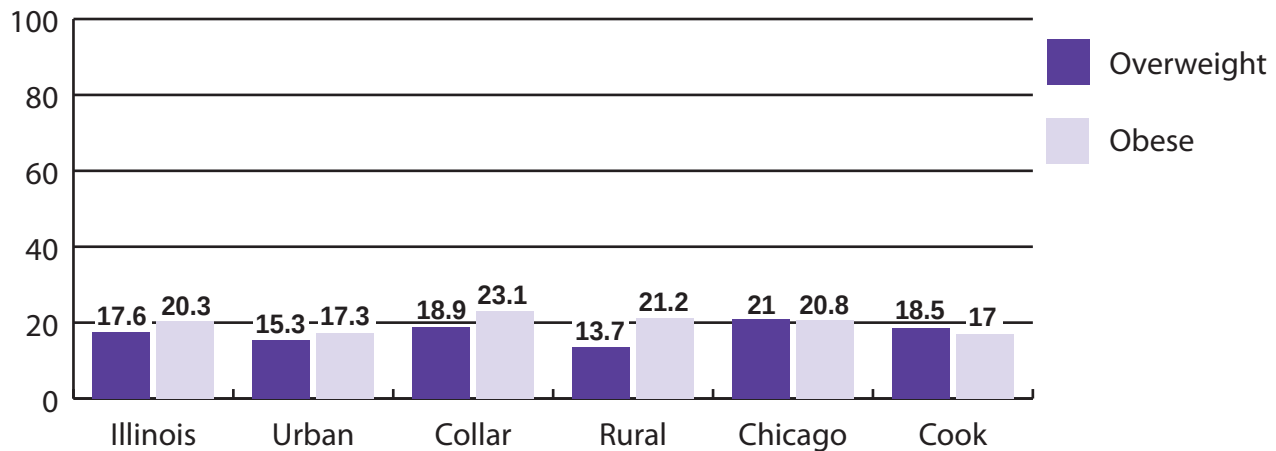
The insurance question is self-reported and does not differentiate between public and private insurance, hence the discrepancies are less noticeable.



Body Mass Index (BMI) Status



BMI Status by Urbanicity, 2008-2009



Note: The Department uses the CDC classifications for obesity. The categories are the same in 2008-09 as in 2003-04, but the names have changed.

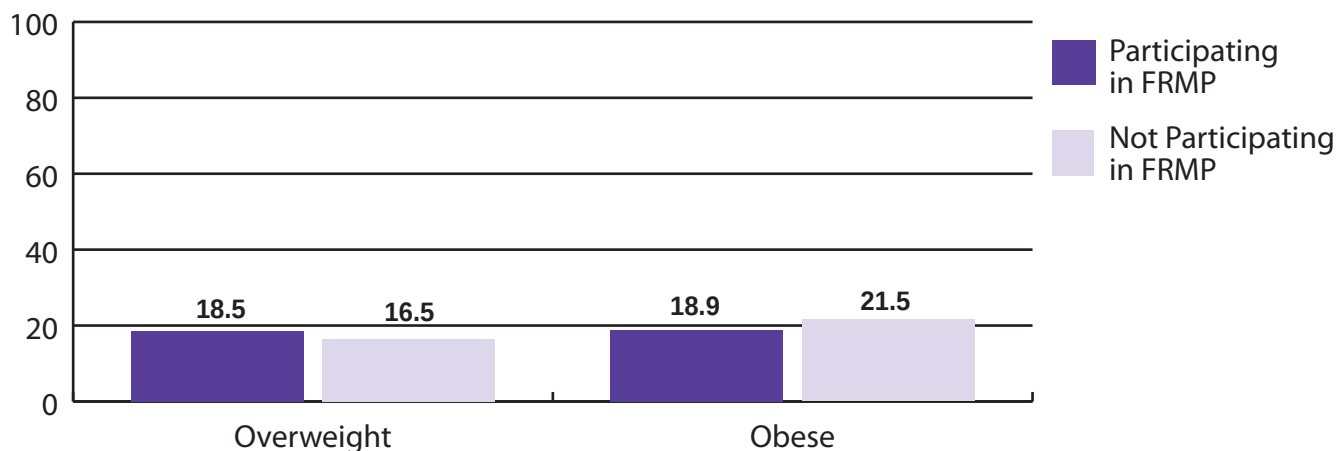
2003-2004		2008-2009	
Overweight	BMI of $\geq$ 95th percentile	Obese	BMI of $\geq$ 95th percentile
At Risk of overweight	BMI of 85th - < 95th percentile	Overweight	BMI of 85th - < 95th percentile
Underweight	BMI of < 5th percentile	Underweight	BMI of < 5th percentile

Because children grow rapidly and boys and girls grow at different rates, children BMI charts are based on age and gender. BMI for age is used only for children. The Supplemental Women, Infants and Children Program (WIC) collects BMI for children ages 5 and younger. Several other research projects have collected BMI for children. Currently, there is not a statewide surveillance system to collect BMI for all children. BMI data for all Illinois children is sparse. For children, sex and age-specific BMI charts have been developed; these charts use BMI to assess a child's risk for being overweight relative to other children of the same age and gender. The BMI percentile for a child tells how that child's BMI compares to the reference population of thousands of children on which the BMI chart is based.

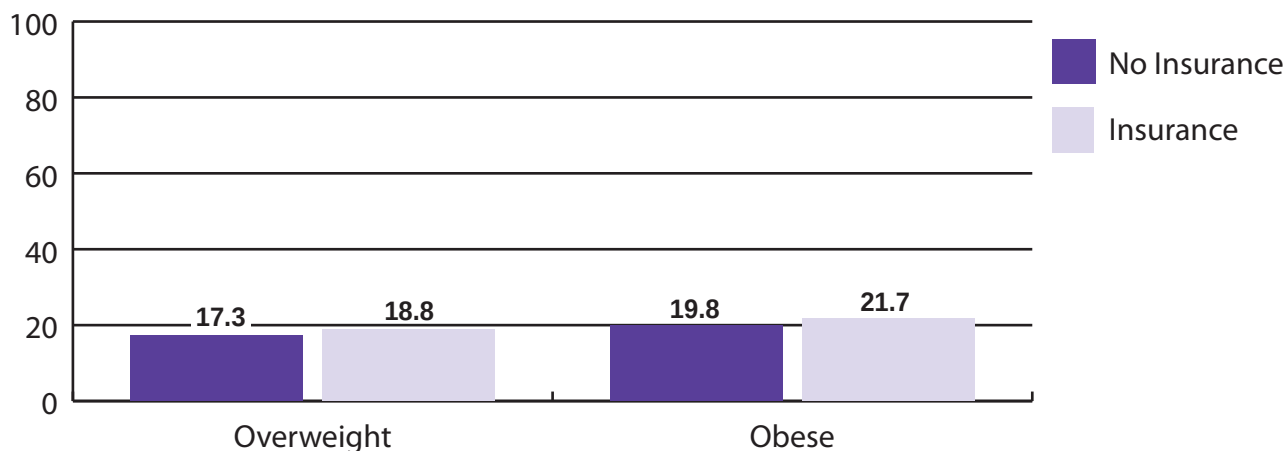
Children are classified as underweight, normal, overweight or obese. For example, if a boy is 8 years old and his BMI falls at the 60th percentile, that means 40 percent of 8-year-old boys have a higher BMI and 60 percent have a lower BMI than that child. Children with a BMI at or above the 95th percentile in the charts are considered obese. Children in the 85th percentile are considered overweight. It is considered inappropriate to label a child "obese" because this word tends to negatively stigmatize a child and has been associated with poor response to the problem. Judgment should be exercised when choosing how to inform the family. Using more neutral terms such as *weight*, *excess weight*, *body mass index*, *BMI*, or *risk for diabetes and heart disease* can reduce the risk of stigmatization or harm to self-esteem.

The Department's Nutrition and Physical Activity Program to Prevent Overweight and Obesity will use the data to assist in designing nutrition and physical activity, evidence-based strategies and programs to promote the adoption of healthy lifestyle behavior to prevent obesity and type 2 diabetes and other chronic diseases in children and families.

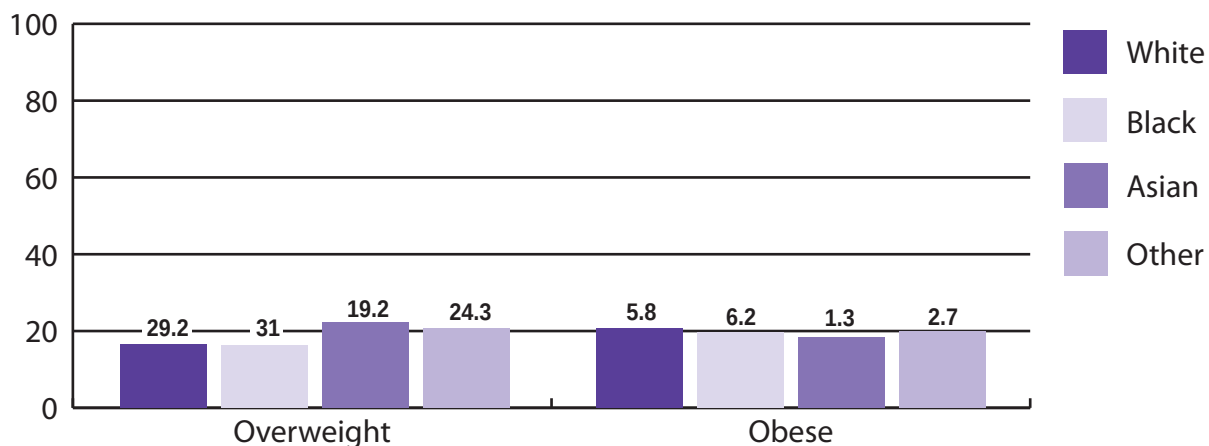
BMI Status by Free and Reduced Meal Program (FRMP) Participation, 2008-2009



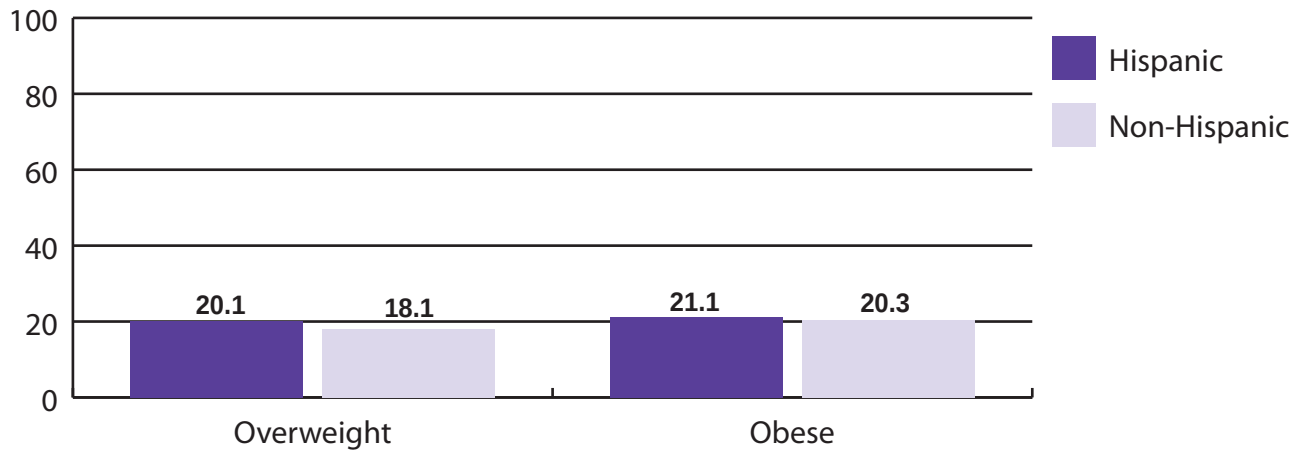
BMI Status by Insurance Status, 2008-2009



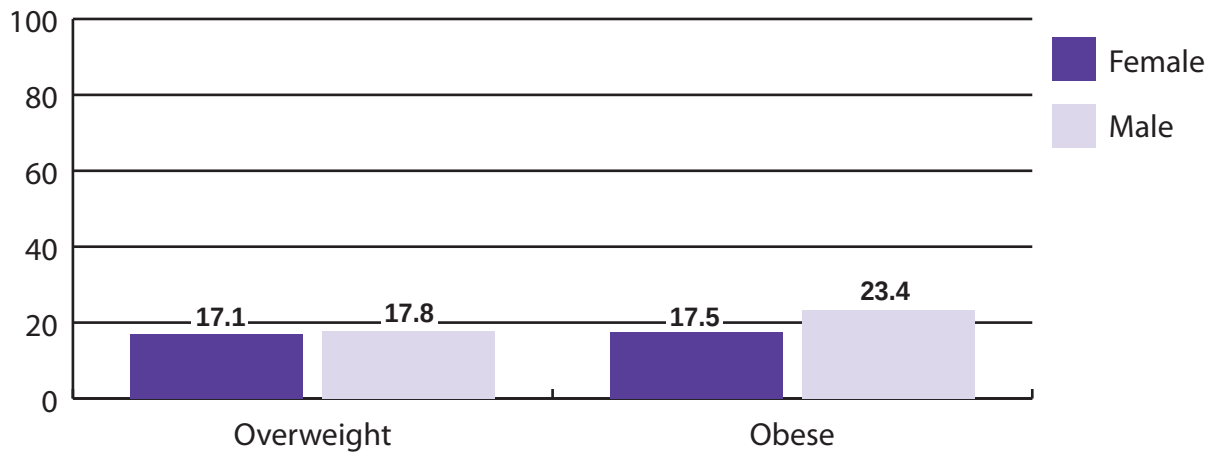
BMI Status by Race, 2008-2009



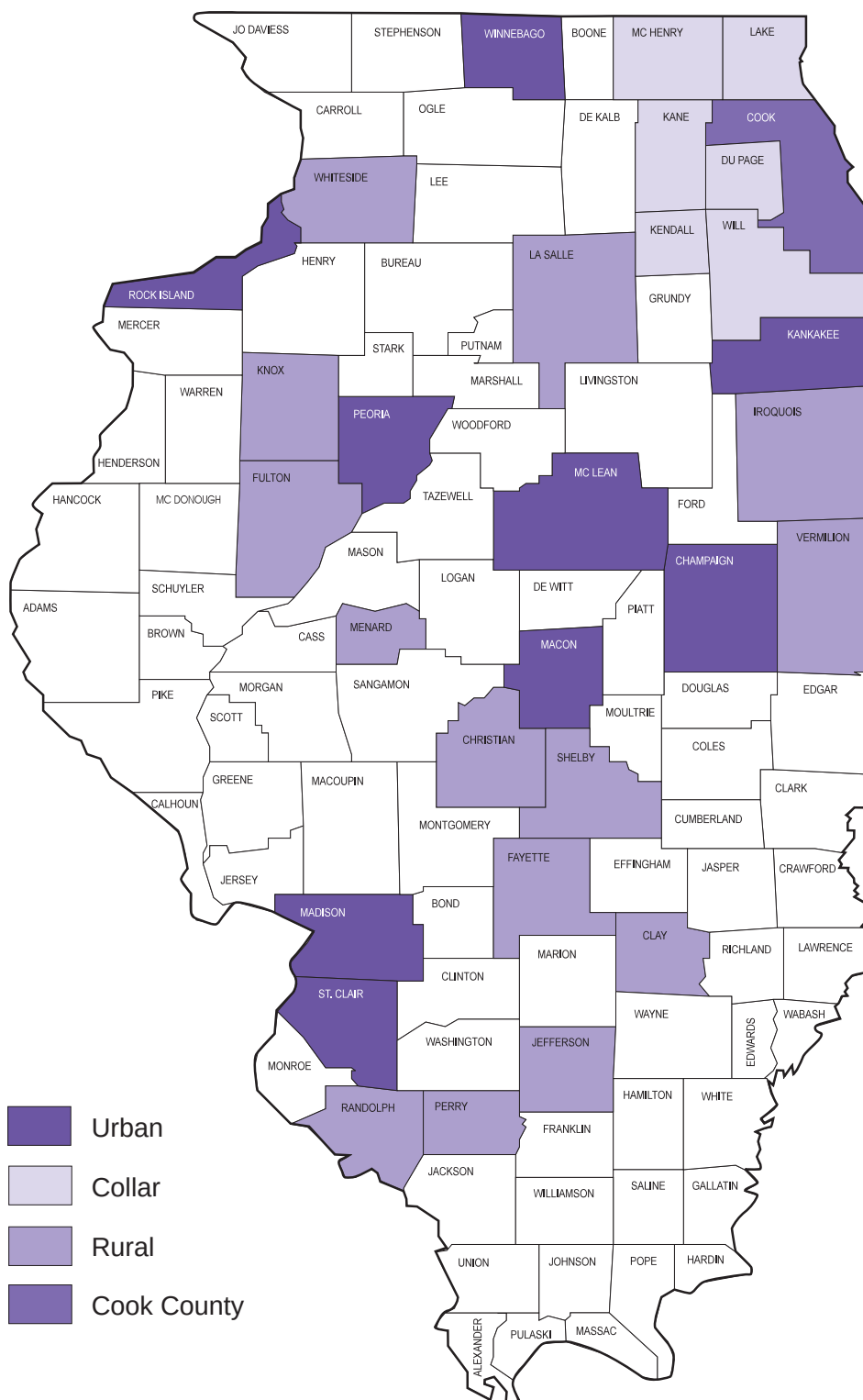
BMI Status by Ethnicity, 2008-2009



BMI Status by Gender, 2008-2009



Counties Participating in Healthy Smile/Healthy Growth (FY2009)



Healthy Smiles Healthy Growth 2008-2009

CONSENT

PARENT: Please complete the consent portion (top portion) of this form and return the entire form to your child's teacher tomorrow.

Child's Name _____

Child's Date of Birth / /

☐ Yes ☐ No I give permission for my child to have his/her teeth looked at and height and weight checked.

☐ Yes ☐ No My child is eligible for the Free and Reduced Meals Program.

☐ Yes ☐ No My child has dental insurance.

Gender: ☐ Male ☐ Female

Race (check one):

☐ American Indian / Alaskan Native

☐ Asian

☐ Black / African American

☐ Native Hawaiian / Pacific Islander

☐ White

☐ Other

Ethnicity: ☐ Hispanic ☐ Non-Hispanic

Signature of Parent or Guardian _____

Date _____

SCREENING (For Office Use)

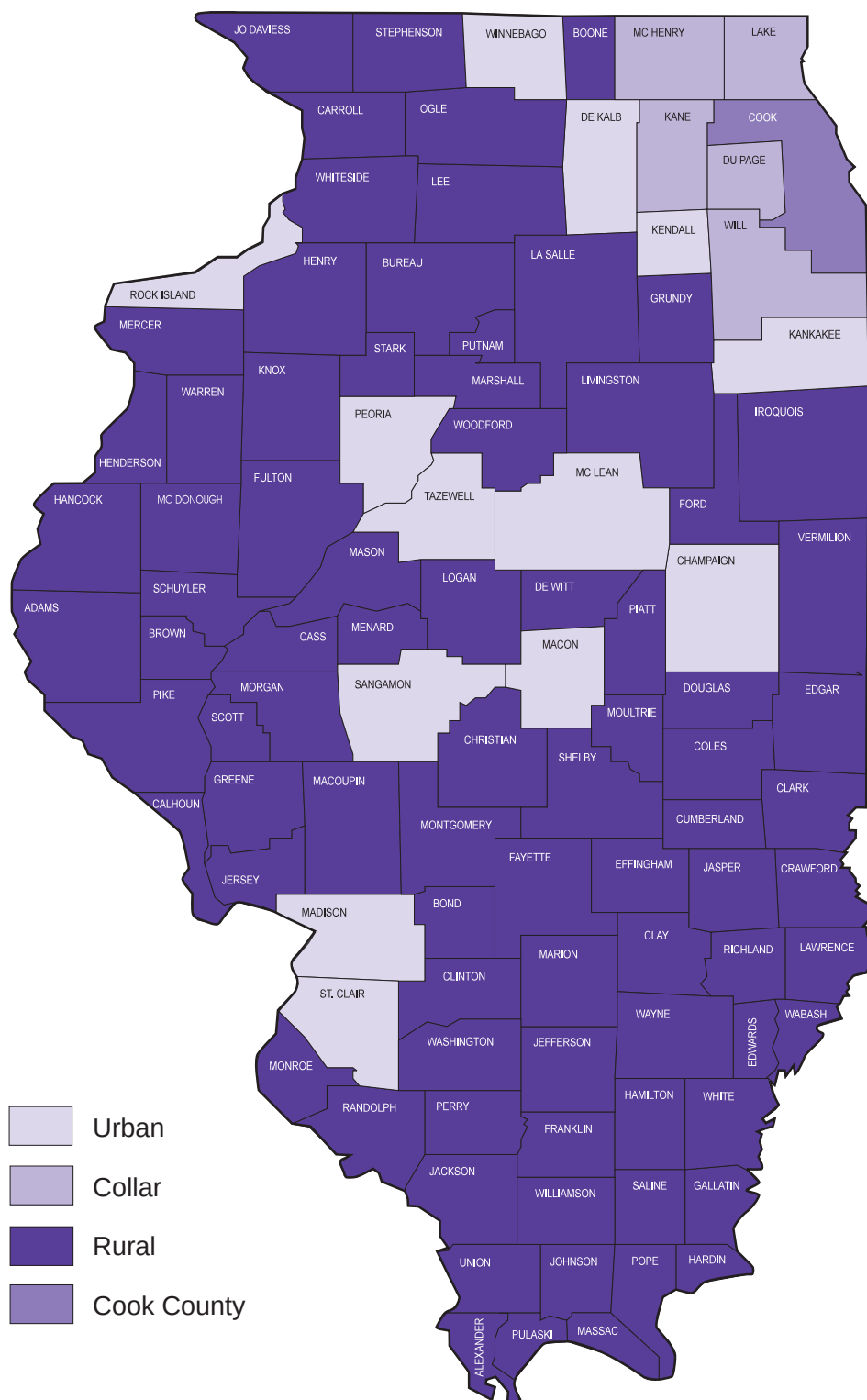
Survey Date (mm/dd/yyyy) ____ / ____ / ____	School ID _____	Student ID (001-999) _____
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Caries Experience: ☐ Yes ☐ No	A filling (temporary/permanent) OR a tooth that is missing because it was extracted as a result of caries OR missing permanent 1st molars AND/OR a cavitated lesion. Include both treated and untreated decay.
Cavitated Lesion: (Untreated Decay) ☐ Yes ☐ No	At least ½ mm of tooth structure loss at the enamel surface. Brown to dark-brown coloration of the walls of the lesion. These criteria apply to pit and fissure cavitated lesions as well as those on smooth tooth surfaces. If retained root, assume that the whole tooth was destroyed by caries. Broken or chipped teeth, plus teeth with temporary fillings, are considered sound unless a cavitated lesion is also present.
Sealants: ☐ Yes ☐ No	1st permanent molars only.
Treatment Urgency ☐ 0 ☐ 1 ☐ 2	Code 0 = No obvious problem. (No problems observed.) Code 1 = Early dental care is needed. (Cavitated lesion without accompanying signs or symptoms. Suspicious white or red soft tissue areas.) Code 2 = Immediate dental care is needed. (Signs or symptoms that include pain, infection, or swelling.)

Height (in) ____ . ____	Round to nearest quarter inch.
Weight (lbs.) ____ . ____	Round to nearest tenth of a pound (000.0).



County Urbanicity

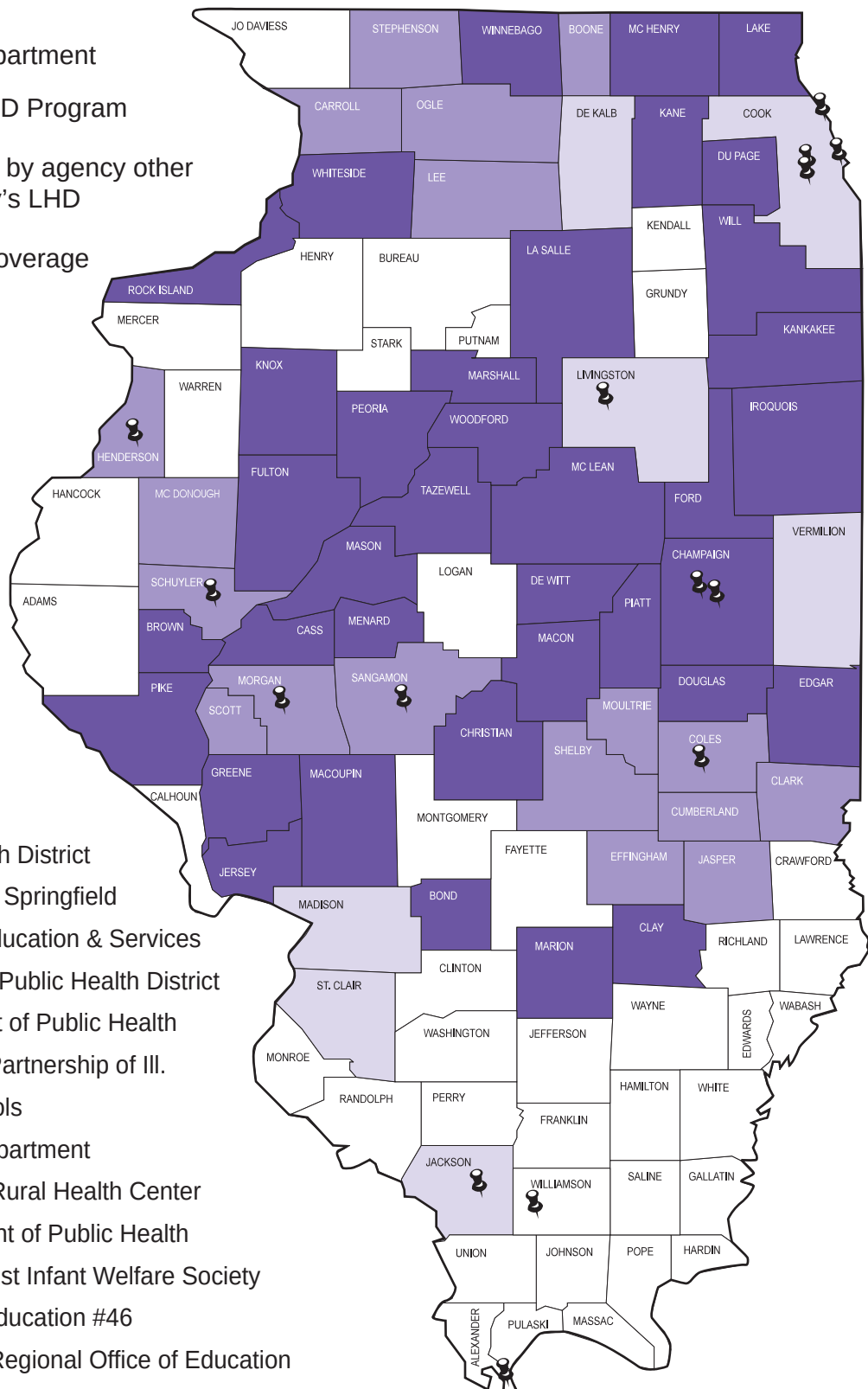


FY09 Dental Sealant Program Grantees

FY09 Grantees

LHD = Local health department

-  County wide LHD Program
-  County covered by agency other than that county's LHD
-  Partial county coverage



AGENCY

-  Berwyn Public Health District
-  Catholic Charities of Springfield
-  Central Ill. Dental Education & Services
-  Champaign-Urbana Public Health District
-  Chicago Department of Public Health
-  Community Health Partnership of Ill.
-  Cornell Public Schools
-  Evanston Health Department
-  Henderson County Rural Health Center
-  Oak Park Department of Public Health
-  Oak Park River Forest Infant Welfare Society
-  Regional Office of Education #46
-  Sangamon County Regional Office of Education
-  Schuyler/Industry County Unit District
-  Southern Illinois University - Carbondale

Last Revised 2/17/2009

Appendix 5

Definitions

Dental Cavity Experience: A filling that has been placed in a tooth indicates evidence of a cavity having occurred at some point in the child's life. Screeners also used extraction of baby teeth or having a permanent first molar missing as criteria for evidence of past dental decay. (Dental cavities also can be called decay or caries.)

Unfilled Cavity: An untreated cavity was recorded if the screener could readily observe loss of ½ mm of tooth structure at the enamel surface and/or dark brown color of the walls of cavity.

Treatment Urgency: Immediate dental care is needed. Signs or symptoms include pain, infection or swelling.

Obese	BMI of ≥95th percentile
Overweight	BMI of 85th - <95th percentile
Underweight	BMI of <5th percentile

Healthy People 2010 are the nation's health objectives designed to identify the most significant preventable threats to health. Measurable benchmarks have been set to reduce these threats.

- Reduce proportion of children with dental decay experience to 42 percent.
- Reduce proportion of children with untreated dental decay to 21 percent.
- Increase the proportion of children receiving sealants to 50 percent.
- Reduce the proportion of children who are overweight or obese to 5 percent.

Appendix 6

Healthy People 2010 National Health Objectives

Healthy People 2010 (HP 2010) is a nationwide comprehensive disease prevention and health promotion guideline for addressing health priorities. HP 2010 actually builds on initiatives that have been pursued over the past two decades. The HP 2010 agenda has two overarching goals: 1) to increase quality and years of healthy life; and 2) to eliminate health disparities. In addition, each health priority also has its own specific goals. The document provides health objectives that enable states, communities and various organizations to work together to improve health. By comparing state findings to HP 2010, we can measure trends over time and evaluate our successes in achieving the above goals as they relate to oral health. Below is the list of HP 2010 oral health objectives:

Goal: Prevent and control oral and craniofacial diseases, conditions, and injuries and improve access to related services.

Number	Objective Short Title
21-1	Dental decay experience
21-2	Untreated dental decay
21-3	No permanent tooth loss
21-4	Complete tooth loss
21-5	Periodontal diseases
21-6	Early detection of oral and pharyngeal cancers
21-7	Annual examinations for oral and pharyngeal cancers
21-8	Dental sealants
21-9	Community water fluoridation
21-10	Use of oral health care system
21-11	Use of oral health care system by residents in long-term care facilities
21-12	Dental services for low-income children
21-13	School-based health centers with oral health component
21-14	Health centers with oral health service components
21-15	Referral for cleft lip or palate
21-16	Oral and craniofacial state-based surveillance system
21-17	Tribal, state and local dental programs

Appendix 7

Acronyms

ASTDD – Association of State and Territorial Dental Directors

BMI – Body Mass Index

BSS – Basic Screening Survey

CDC – U.S. Centers for Disease Control and Prevention

DOH – Division of Oral Health

HP 2010 – Healthy People 2010 – National Health Objectives

SES – Socioeconomic Status

