



# Healthy Smile Healthy Growth 2003-2004

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, Healthy Smile Healthy Growth grantees/screeners, 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](http://www.idph.state.il.us). Support for this project was provided by the U.S. Centers for Disease Control and Prevention Cooperative Agreement U58/CCU522815-03.



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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 to routinely collect data on dental decay and presence of dental sealants in children. The last oral health assessment of Illinois schoolchildren, *Project Smile*, was conducted in 1993 and 1994.

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. Funding to support the current assessment was provided by the U.S. Centers for Disease Control and Prevention (CDC).

In addition, the increasing number of overweight children in the United States continues to concern parents, teachers and policymakers. In Illinois, we currently do not have any statewide data specific to the Body Mass Index (BMI) of school-age children. The Office of Health Promotion, Division of Oral Health (DOH) and 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 and also 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](http://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 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 sampling method allows the results to be generalized to all third-grade children across the state. Assistance in sample selection was provided by ASTDD Consultants, Drs. Mike Manz and Kathy Phipps. Letters from Dr. Eric E. Whitaker, State Public Health Director, and

Robert E. Schiller, State Superintendent of Education were sent to district superintendents encouraging participation by the schools. Ninety-nine of the 101 schools selected in the sample participated in the survey.

The schools selected were located in 26 counties. In collaboration with local health departments representing these 26 counties, dentists and hygienists were identified to assist in the collection of data. The Department 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 2003. 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. CDC BMI protocols were followed for obtaining height and weight measurements. All materials were provided by the Department and included gloves, masks, portable lights, disposable mirrors, tongue depressors, hand sanitizer, scales and stadiometers. Template letters were provided to the local health departments that encouraged principal, teacher and superintendent support. Consent forms (available in both English and Spanish) were provided by the Department to all grantees. A positive consent from parent or guardian was required for a child to participate in the screening. Incentives included a spinbrush, toothpaste, floss and a nutrition activity lesson.

## Results

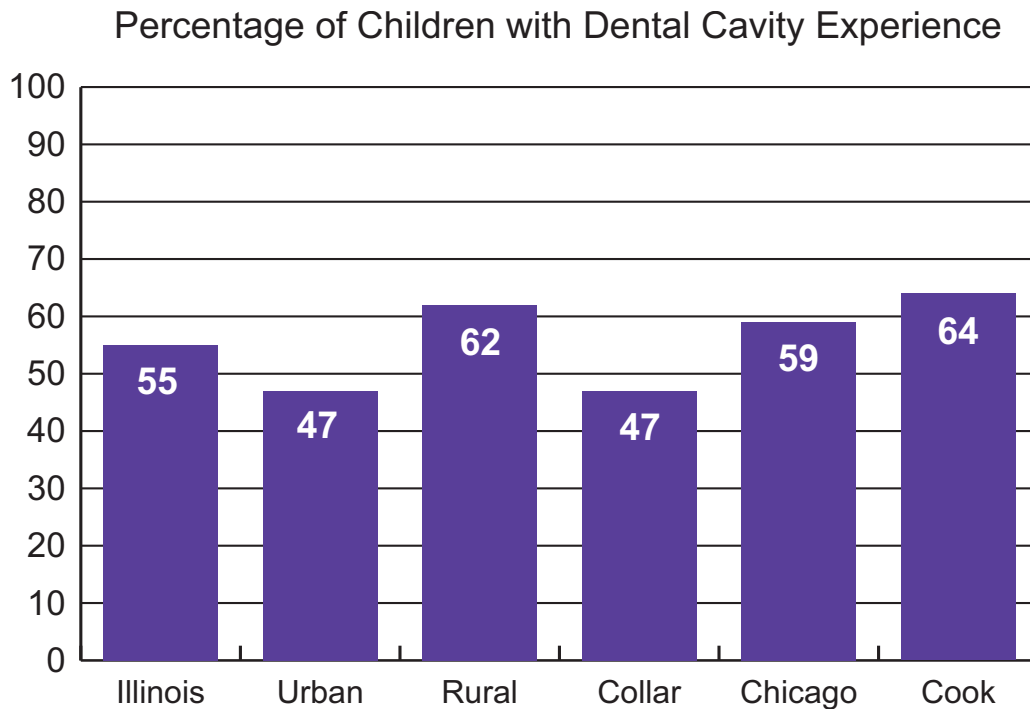
Healthy Smile Healthy Growth data was collected during December 2003 through June 2004. Of the 9,158 children eligible, 7,079 consent forms were returned. Data sheets were returned to DOH and were entered into an Access database for analyses. Data elements collected on the consent form and the screening form (Appendix 2 and 3) included: (1) child's date of birth and gender; (2) participation in the free and reduced meal program (Y/N); (3) language spoken at home; (4) dental cavity experience; (5) unfilled cavities; (6) treatment urgency; (7) height and (8) 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 utilized language spoken at home to help identify health disparities.** (Note: Free/reduced meal eligibility and language spoken at home 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 6,630 children were screened, 49 percent male and 51 percent female. Fifty-six percent of the survey children were enrolled in the Free/Reduced Meal Program. The following is the breakdown of language spoken at home: 70 percent spoke only English; 18 percent only Spanish; 6 percent English and Spanish; 2 percent English and other; 4 percent only other. Healthy Smile Healthy Growth data and graphs will be presented statewide and by region.

# Dental Cavity Experience

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



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 decay in the future. 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 55 percent of Illinois third-grade children have suffered the damaging effects of decay presents a public health challenge.

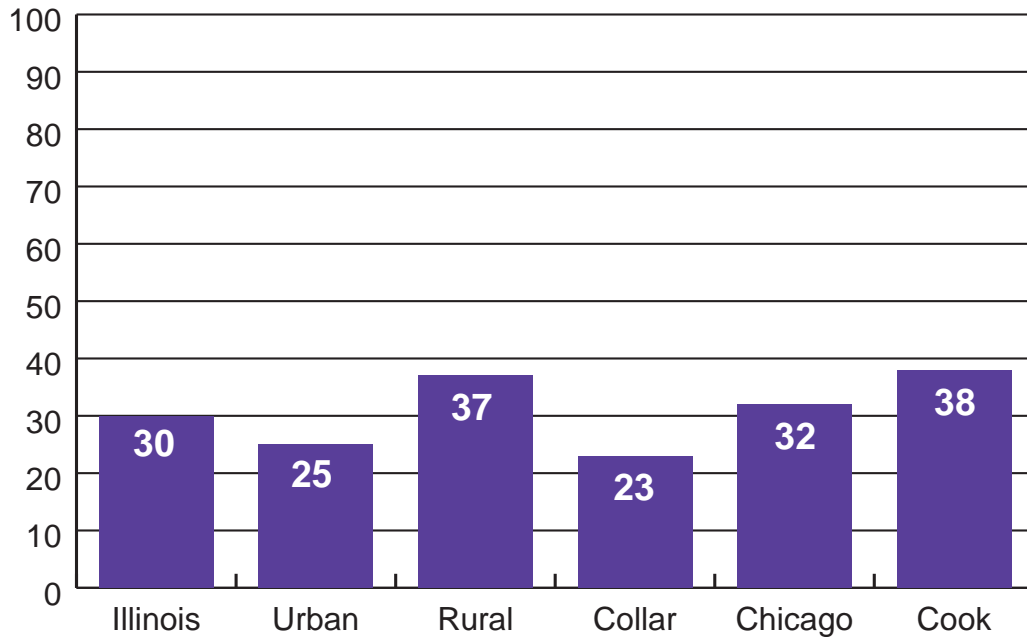
## Where do we focus?

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 is currently working on an early childhood caries prevention program targeting the Federal Supplemental Women Infant and Children Program (WIC) and Head Start. In the future, the program will expand into daycare settings and other early childhood programs statewide.

## Untreated decay and Treatment Needs

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

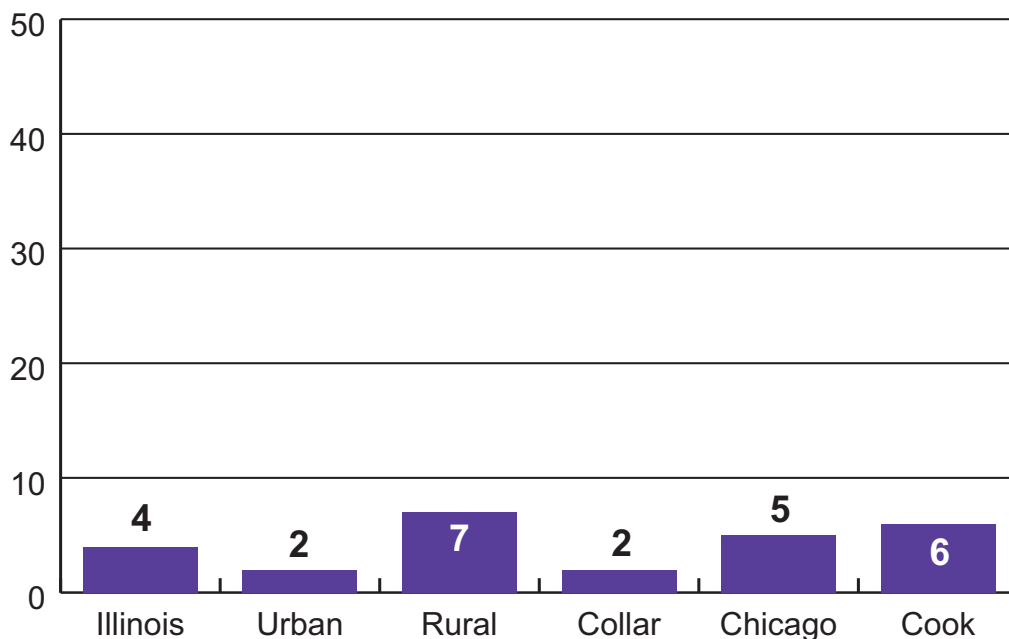
Percentage of Children with Unfilled Cavities



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

- 4 percent of third-graders screened required urgent treatment. These children had signs or symptoms of pain, infection, swelling, or tissue ulceration.

Percentage of Children Requiring Urgent Treatment



## Why is this important?

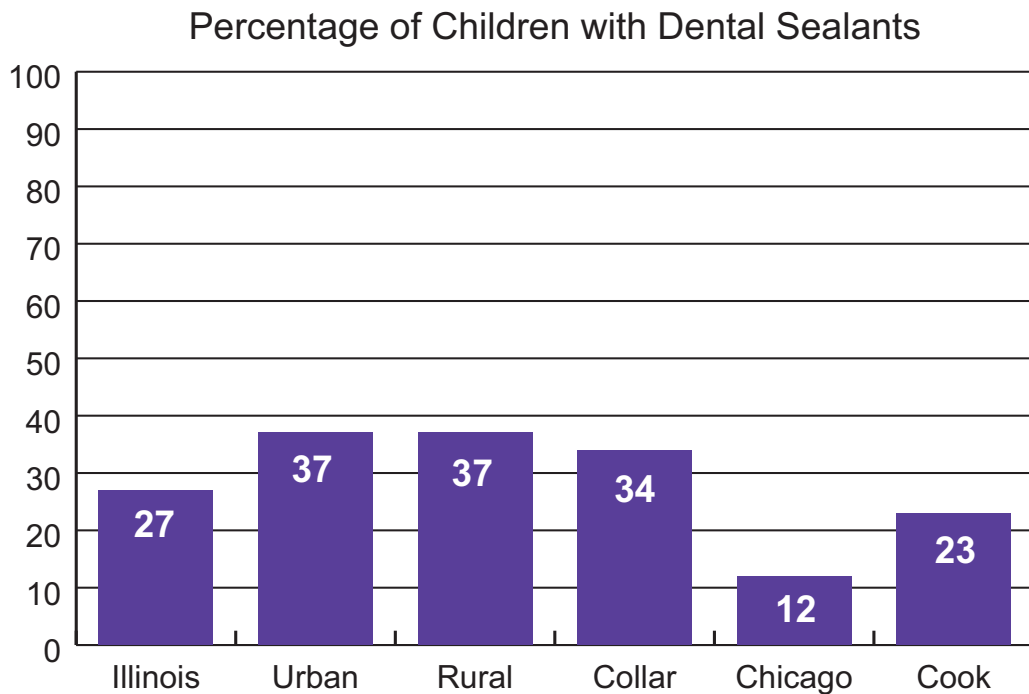
Poor oral health can affect learning. According to the National Maternal and Child Health Resource Center, 51 million school hours per year are lost because of dental-related illness. Children experiencing pain are distracted and unable to concentrate on schoolwork. Children who take a test while they 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. More are needed, especially in the rural areas of the state.

## Dental Sealants

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



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 entitled "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.

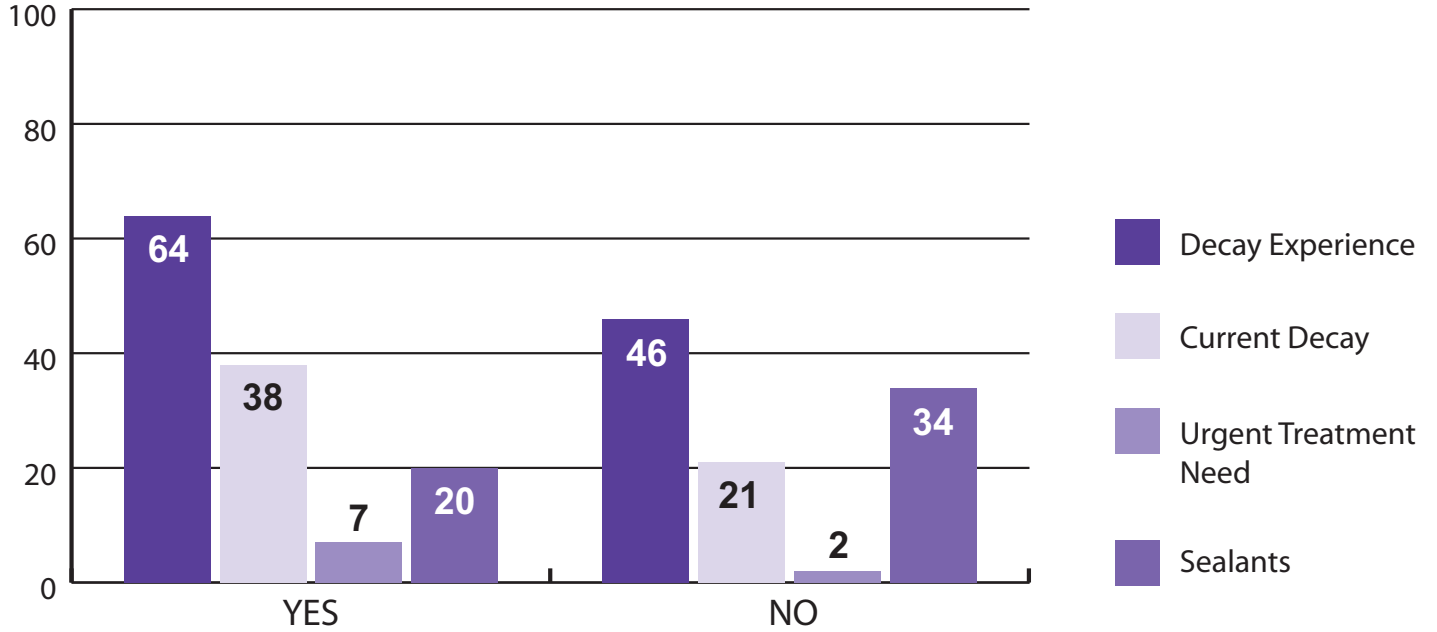
## **Where do we focus?**

The CDC's Task Force on Community Preventive Services conducted a systematic review on school-based dental sealant programs issuing 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.

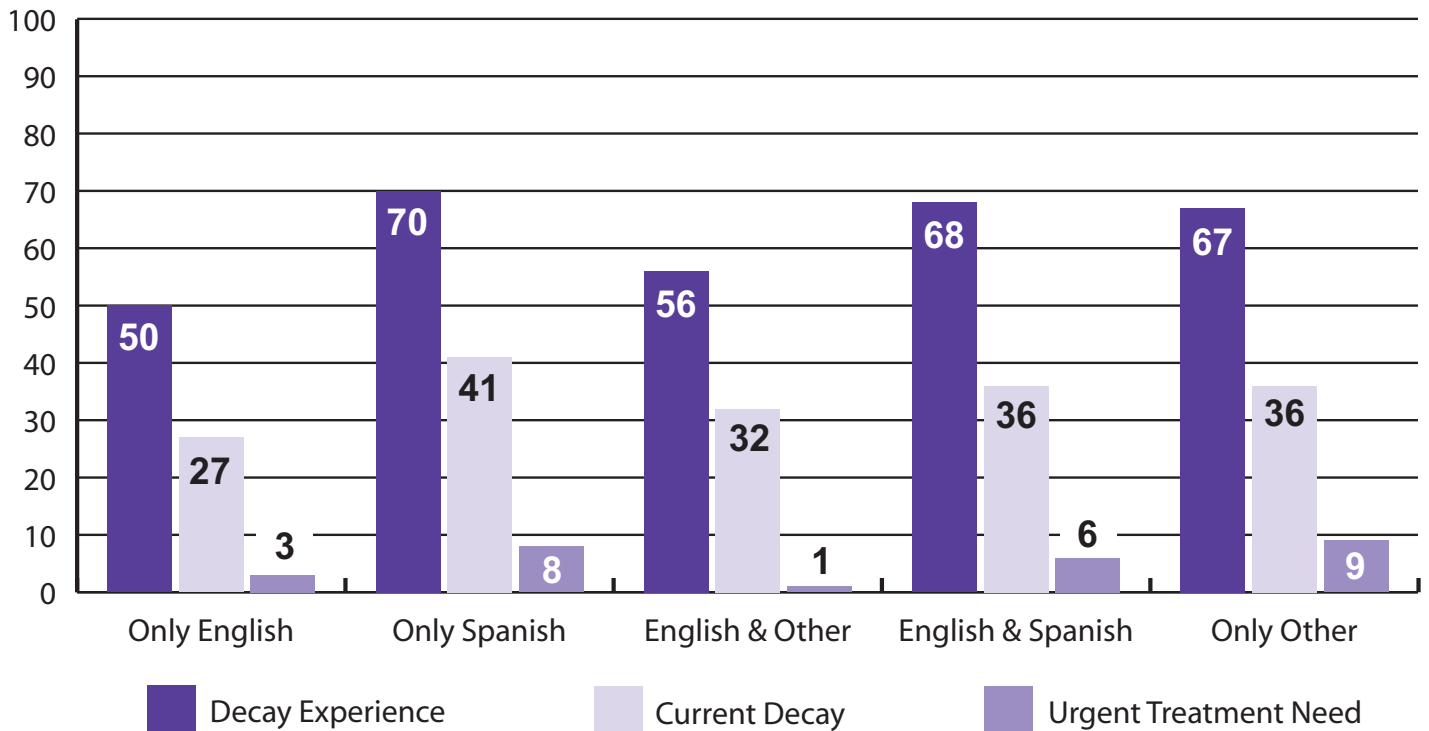
The Department's Dental Sealant Grant Program assists communities to implement school-based dental sealant programs targeting children at high risk for dental decay. The program is designed to reduce oral disease in schoolchildren. The school-based Dental Sealant Grant Program is one possible reason for the increase in dental sealants. The program began operating in Illinois schools in 1987, and in 1993 became widespread throughout the state.

# Socioeconomic Status (SES), and Language Spoken at Home

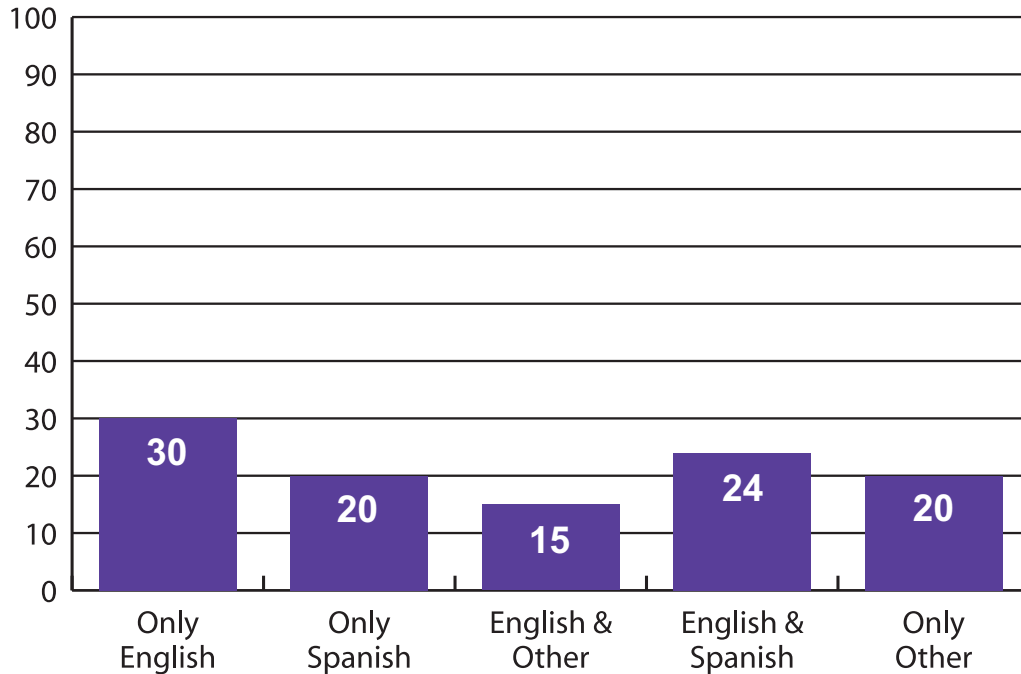
Percentage of Children by Free and Reduced Meal Program Participation and Oral Health Status



Percentage of Children by Language Spoken at Home and Oral Health Status



Percentage of Children with Dental Sealants  
by Language Spoken at Home



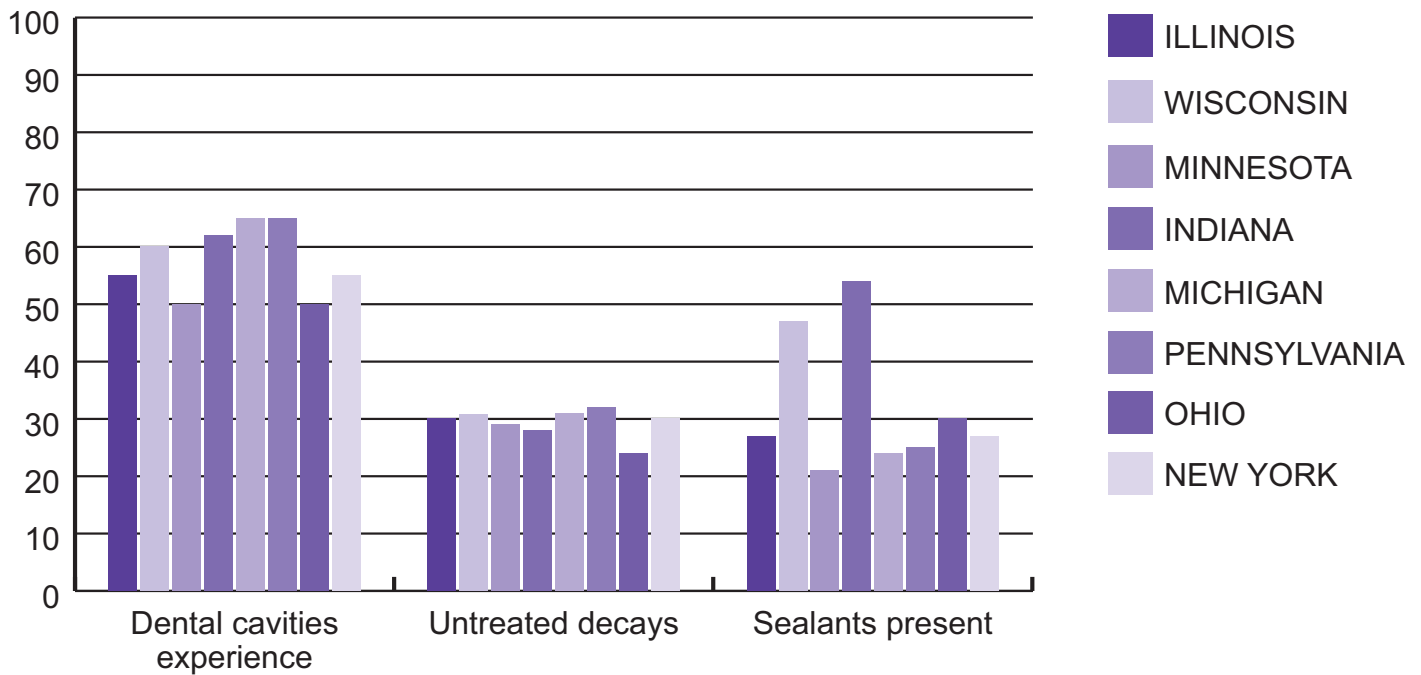
## Why is this important?

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 access to care problems. They are at greater risk for experiencing more extensive and severe forms of oral disease, thus increasing the chances of complications of untreated disease. Children of non-English speaking households face the same problems. Healthy Smile Healthy Growth found more dental decay, more untreated disease and fewer sealants in children from low income and non-English speaking 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.

## How Does Illinois Compare to Other States?



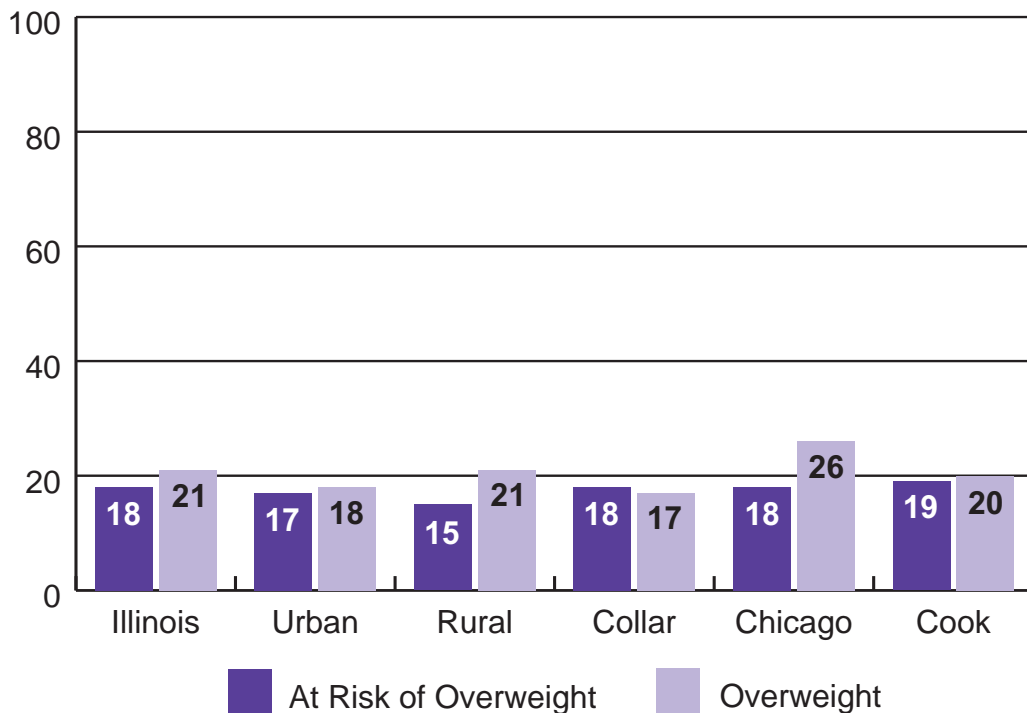
## BMI

BMI data for all Illinois children currently does not exist. CDC researchers and health professionals use BMI as the preferred method for determining overweight and obesity. For children, sex-specific BMI charts have been developed; these charts use BMI to assess a child's risk for being overweight relative to that of 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.

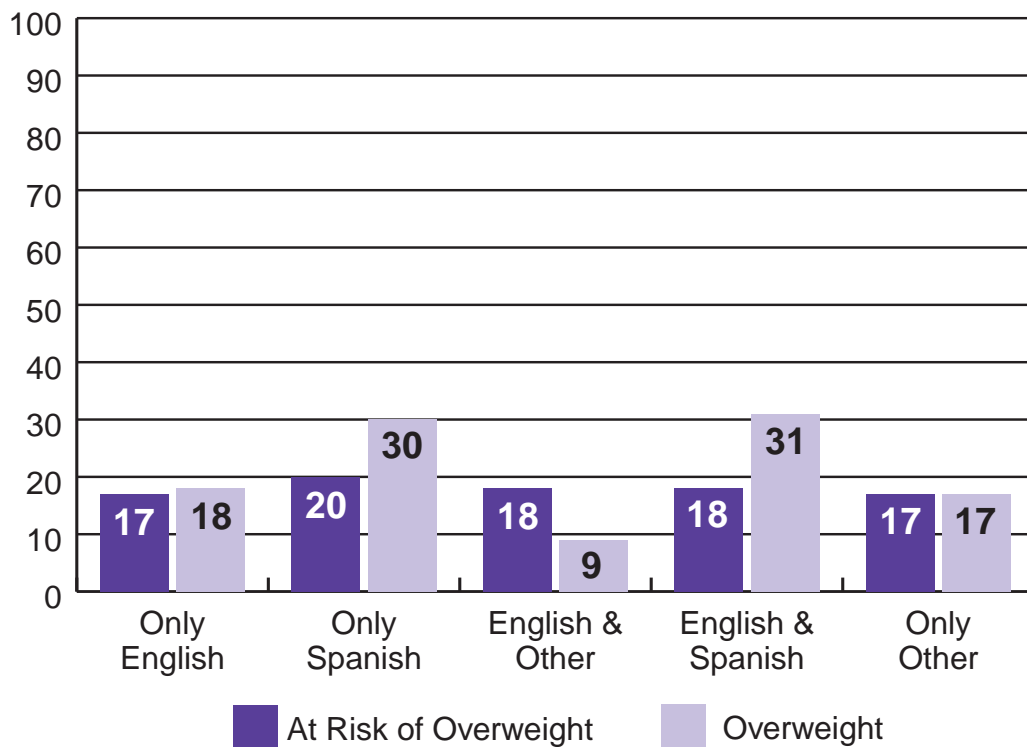
Children are classified as underweight, normal, at risk for overweight or overweight. For example, if a boy is 8 years old and his BMI falls at the 60<sup>th</sup> percentile, that means 40 percent of 8-year-old boys have a higher BMI and 60 percent have a lower BMI than that child. Children with a BMI at or above the 95<sup>th</sup> percentile in the charts are considered overweight. Children in the 85<sup>th</sup> percentile are considered at risk for overweight. At this time, there is no definition of "obesity" in children. A child who meets the definition of overweight may actually be "obese" by having excessive body fat that may be a threat to their health. It is considered inappropriate to label a child "obese" because it can stigmatize a child.

The Department's Nutrition and Physical Activity Program to Prevent Overweight and Obesity will use the data from this assessment as a state-wide baseline indicator of overweight for third-grade youth. This data will assist in designing prevention strategies for program planning and evaluation to address this health problem.

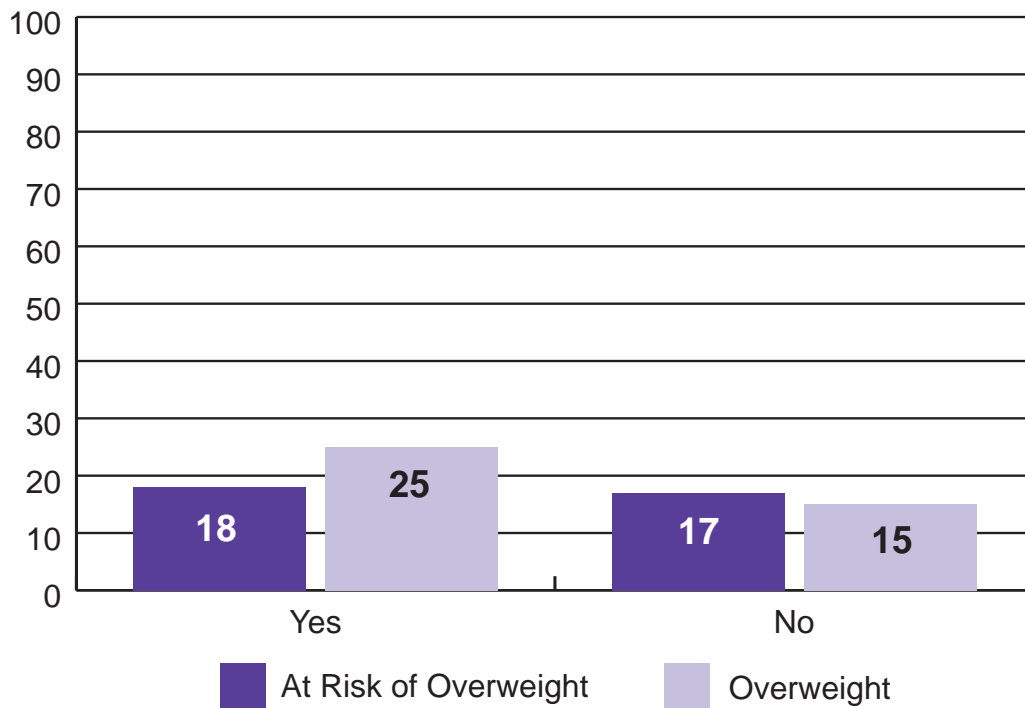
### BMI Status by Urbanicity



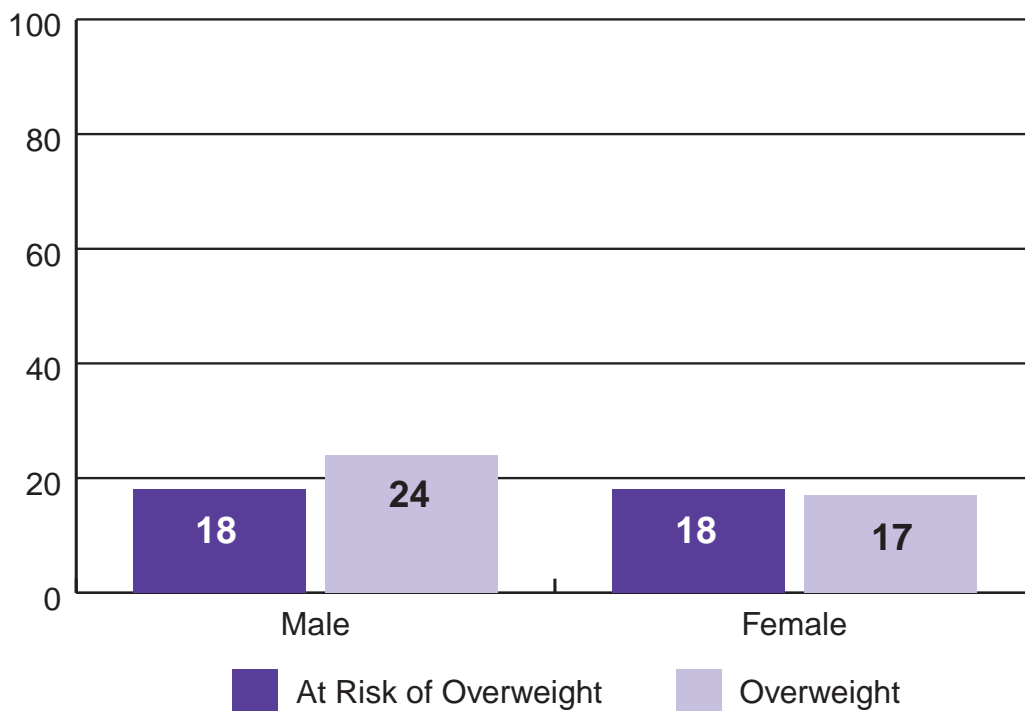
### BMI Status by Language Spoken at Home



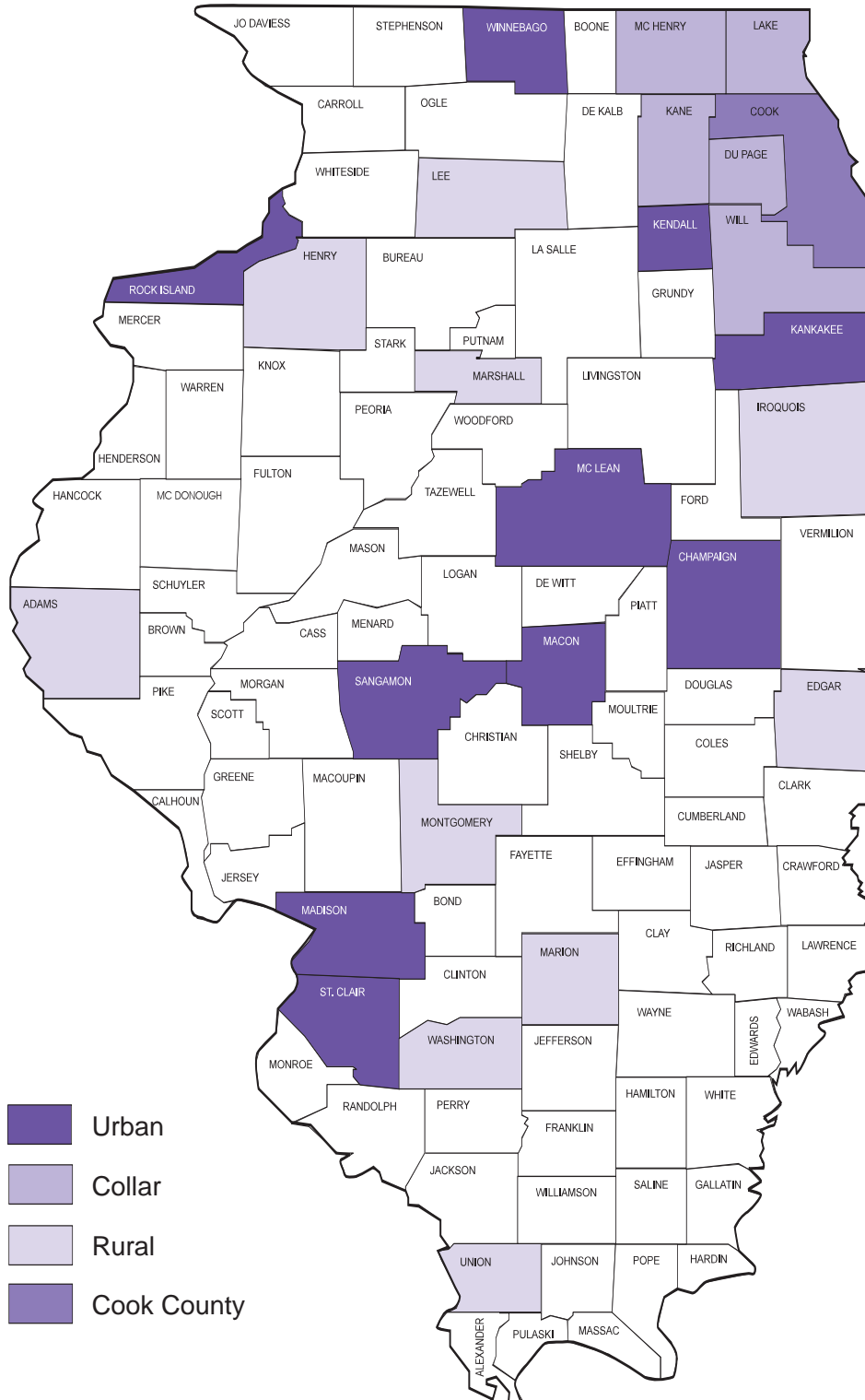
BMI Status by Free and Reduced Lunch Participation



BMI Status by Gender



# Counties Participating in Healthy Smile/Healthy Growth (2003-2004)



# Healthy Smile Healthy Growth 2003-2004

**Please complete this form and return it to your child's teacher tomorrow.**

Child's Name \_\_\_\_\_ Birthdate \_\_\_\_\_

Child's Teacher \_\_\_\_\_

**Yes, I give permission** for my child to have his/her teeth looked at and height and weight checked.

**No, I do not give permission** for my child to have his/her teeth looked at and height and weight checked.

Is your child eligible for the free or reduced lunch program?  Yes  No

What language does your family speak at home? (Check one)

English  Spanish  Russian  Vietnamese

Other (Please specify \_\_\_\_\_ )

Signature of Parent/Guardian \_\_\_\_\_ Date \_\_\_\_\_



**Appendix 3**

## Healthy Smile Healthy Growth Screening Form

*Fill in the data for each child's oral health, height and weight measurement*

<b>Survey Date</b> (mm/dd/yy)  _ _ / _ _ / _ _ _ _	<b>School ID</b>  _ _ _ _ _ _ _ _ _ _	<b>Student ID</b> (Serial # 001-999)  _ _ _ _ _
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**Gender:    Male / Female**

<b>Caries Experience: Yes / No</b>	<i>A filling (temporary/permanent) OR a tooth that is missing because it was extracted as a result of caries OR missing permanent 1st molar.</i>
<b>Cavitated Lesion: Yes / No</b>	<i>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.</i>

**Sealants (1<sup>st</sup> permanent Molars only):    Yes / No**

**Treatment Urgency:    0    1    2**

<b>Category</b>	<b>Criteria</b>
<b>Code 0</b> No obvious problem	No problems observed.
<b>Code 1</b> Early dental care is needed	Cavitated lesion without accompanying signs or symptoms. Suspicious white or red soft tissue areas.
<b>Code 2</b> Immediate dental care is needed	Signs or symptoms that include pain, infection, or swelling.

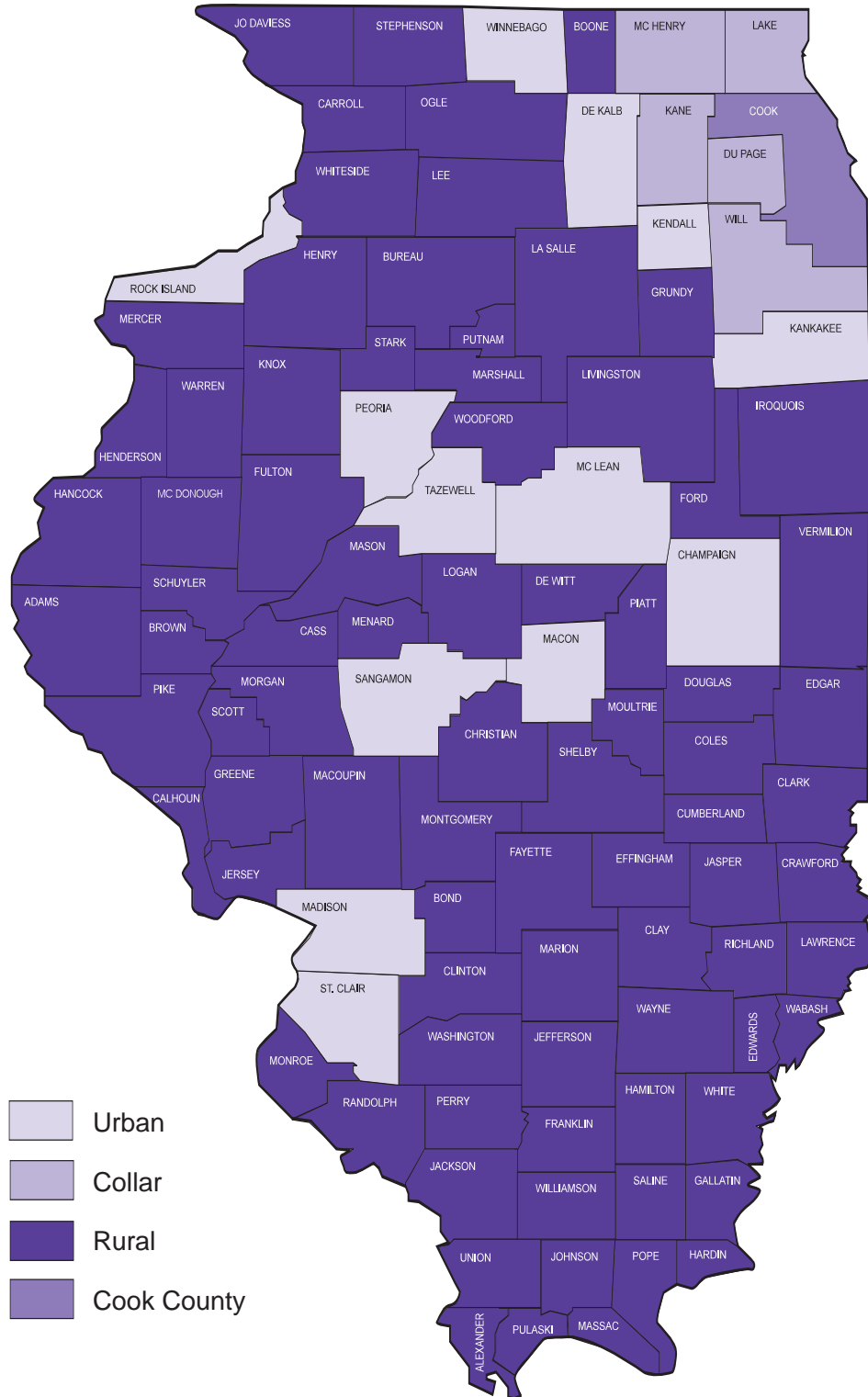
**Height (inches)**    \_ \_ . \_ \_

**Weight (lbs)**    \_ \_ \_ . \_

Please send this form with the child's consent form to the address given below before **5/15/04**

Illinois Department of Public Health  
Division of Oral Health  
535 W. Jefferson Street  
Springfield, IL 62761

# County Urbanicity



## 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 unfilled cavity was recorded if the screener could readily observe loss of  $\frac{1}{2}$  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.

<b>Overweight</b>	BMI of $\geq$ 95th percentile
<b>At Risk of overweight</b>	BMI of 85 <sup>th</sup> - 94.9th percentile
<b>Underweight</b>	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. 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.

<b>Number</b>	<b>Objective Short Title</b>
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

**WIC** – Federal Supplemental Women Infant and Children Program

