

Every Smile Counts



The Oral Health of Mississippi's
Third Grade Children
2009-2010 School Year

Every Smile Counts The Oral Health of Mississippi's Children



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TO PROMOTE AND PROTECT THE HEALTH OF ALL MISSISSIPPIANS



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The Oral Health of Mississippi’s Children

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Executive Summary

Oral health is more than a “perfect smile” with straight, white teeth. Oral health is defined by the World Health Organization as “being free of chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, dental decay, tooth loss, and other diseases and disorders that affect the mouth and oral cavity.” In Mississippi, our children’s oral health status is affected by limited access to dental care, limited use of preventive services, lack of oral health education, and poor dietary habits. Dental decay is the most common oral health problem in children. Dental decay refers to a disease process where bacteria cause the hard surfaces of teeth to deteriorate. The quality of oral health is influenced by family behavior and practices.

The Mississippi State Department of Health (MSDH) conducts an oral health survey of third grade children in Mississippi public schools every five years. During the 2009-2010 school year, we screened 3,483 third grade children at 45 of 444 schools statewide. Parental permission was obtained from 1,974 children, and on the day of the screenings, 46 children were absent, leaving 1,928 children available for screening. The purpose of the survey was to evaluate children’s oral health status, discover trends in children’s oral health, and determine factors that contribute to poor oral health in the state. The survey results are intended for enhancing education and programs that work toward improving the oral health status of Mississippi children.

Key Findings

1. Dental decay is a significant public health problem for Mississippi’s children.
2. Many children in Mississippi do not get the dental care they need.
3. Lower income children have poor oral health and less access to dental care.
4. Non-Hispanic black children have poorer oral health status in comparison to Non-Hispanic white children.
5. While dental sealants are a proven method of preventing decay, the majority of Mississippi’s third grade children do not have access to this valuable preventive service.
6. The majority of children in Mississippi have dietary habits that increase their risk of dental decay.



Key Strategies

Several Key Strategies have been identified to improve the oral health of children in Mississippi:



1. Promote and educate parents and caregivers on the importance of oral health.
2. Recruit and increase the number of Medicaid dental providers within the state.
3. Educate dental providers about the disparities that affect the oral health of Mississippi's children.
4. Increase the availability of evening and weekend appointments as well as the acceptance of Medicaid in order to improve access for high risk populations.
5. Implement state-wide school-based dental programs to improve knowledge and awareness about good oral health through classroom education, and provide preventive services for school-aged children.
6. Evaluate and develop new policies that will allow Mississippi regional oral health consultants to apply dental sealants through the school-based dental sealant program.
7. Develop partnerships with state, public, and private entities to continue to promote oral health as part of general health.

The Importance of Oral Health

There are many misconceptions regarding dental care that can contribute to poor oral health. One myth is that primary teeth, or “baby teeth,” do not need diligent care because they are replaced by permanent teeth. Another myth is that dental decay cannot be avoided. These myths persist throughout generations and communities. Although oral health may not be emphasized or often discussed, it is important for all people to have and maintain good oral health. Many Mississippi children suffer from dental decay that is untreated. Untreated dental decay can lead to severe problems.

“The mouth reflects general health and well-being.” Former Surgeon General David Satcher, 2000

The results of not treating decay:

- **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 uncomfortable and difficult. Children with dental disease often do not get the nutrition needed 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 affect 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.



The Importance of Oral Health

In the last few decades, our nation has become increasingly aware of overall health and how it impacts our quality of life. From heart disease and diabetes to cancer and infant mortality, health agencies have worked to educate the public on the multitude of potential health problems. Even with increased health consciousness, oral health is still not seen as a vital component of overall health.

In 1990, the first set of Healthy People objectives was released. Healthy People objectives serve as a 10-year agenda for improving the nation's overall health. Healthy People recently launched its third set of objectives, Healthy People 2020*. In these national health goals, it was recognized that poor oral health status was a growing issue and interventions were needed. Each objective has a prevalence goal that should be achieved for the nation by 2020. There are currently 22 objectives relating to oral health in our nation. The following objectives focus on promoting and increasing childhood oral health status:

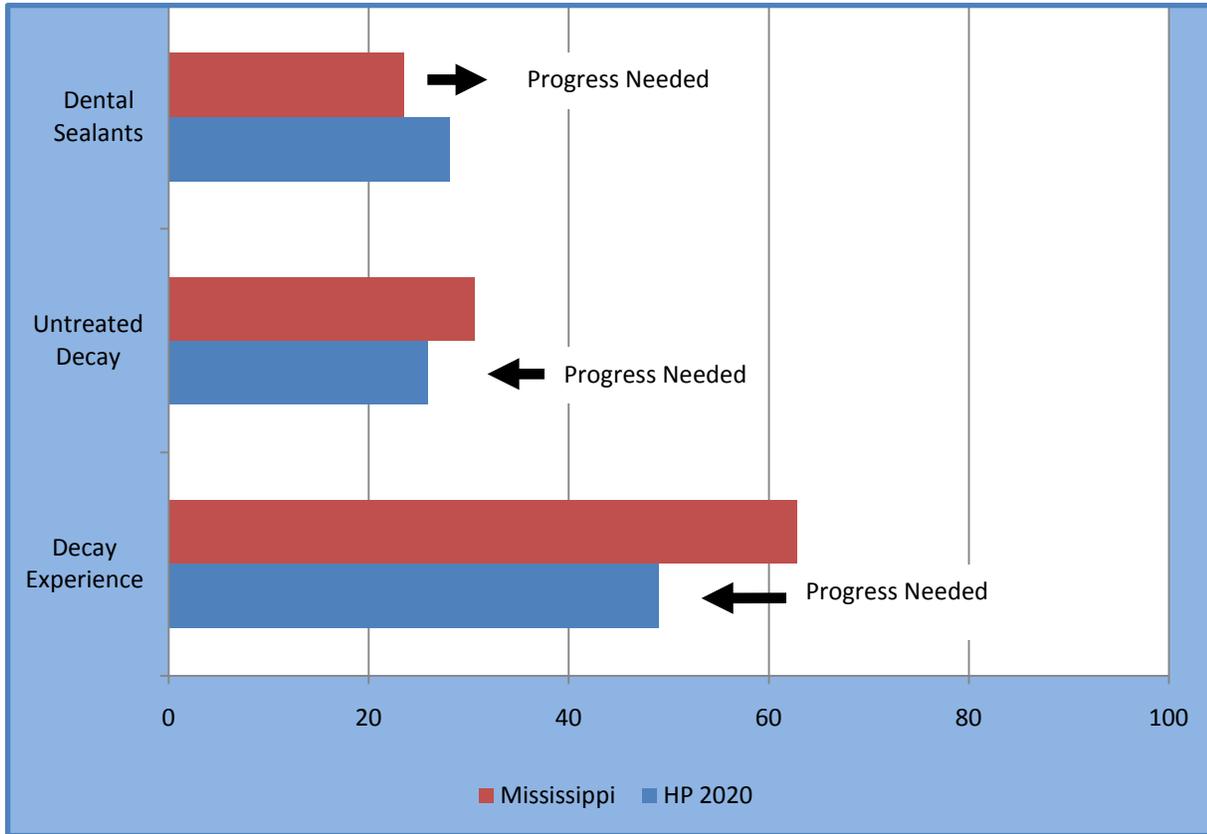
- Reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth.
Baseline: 54.9% of children aged 6-9 years had dental caries experience in at least one primary or permanent tooth in 1999-2004
Target: 49.0%
- Reduce the proportion of children and adolescents with untreated decay.
Baseline: 28.8% of children aged 6 to 9 years had untreated dental decay in at least one primary or permanent tooth in 1999–2004
Target: 25.9%
- Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year.
Baseline: 44.5% of persons aged 2 years and older had a dental visit in the past 12 months in 2007
Target: 49.0%
- Increase the proportion of low-income children and adolescents who received any preventive dental service during the past year.
Baseline: 26.7% of children and adolescents aged 2 to 18 years at or below 200 percent of the federal poverty level received a preventive dental service during the past year in 2007
Target: 29.4%
- Increase the proportion of children who have received dental sealants on their molar teeth.
Baseline: 25.5 % of children aged 6 to 9 years received dental sealants on one or more of their first permanent molars in 1999–2004
Target: 28.1

*All information obtained from Healthy People, 2020: <http://www.healthypeople.gov/hp2020/>



The Importance of Oral Health

Oral Health of Mississippi Third Grade Children Compared to Healthy People 2020 Objectives



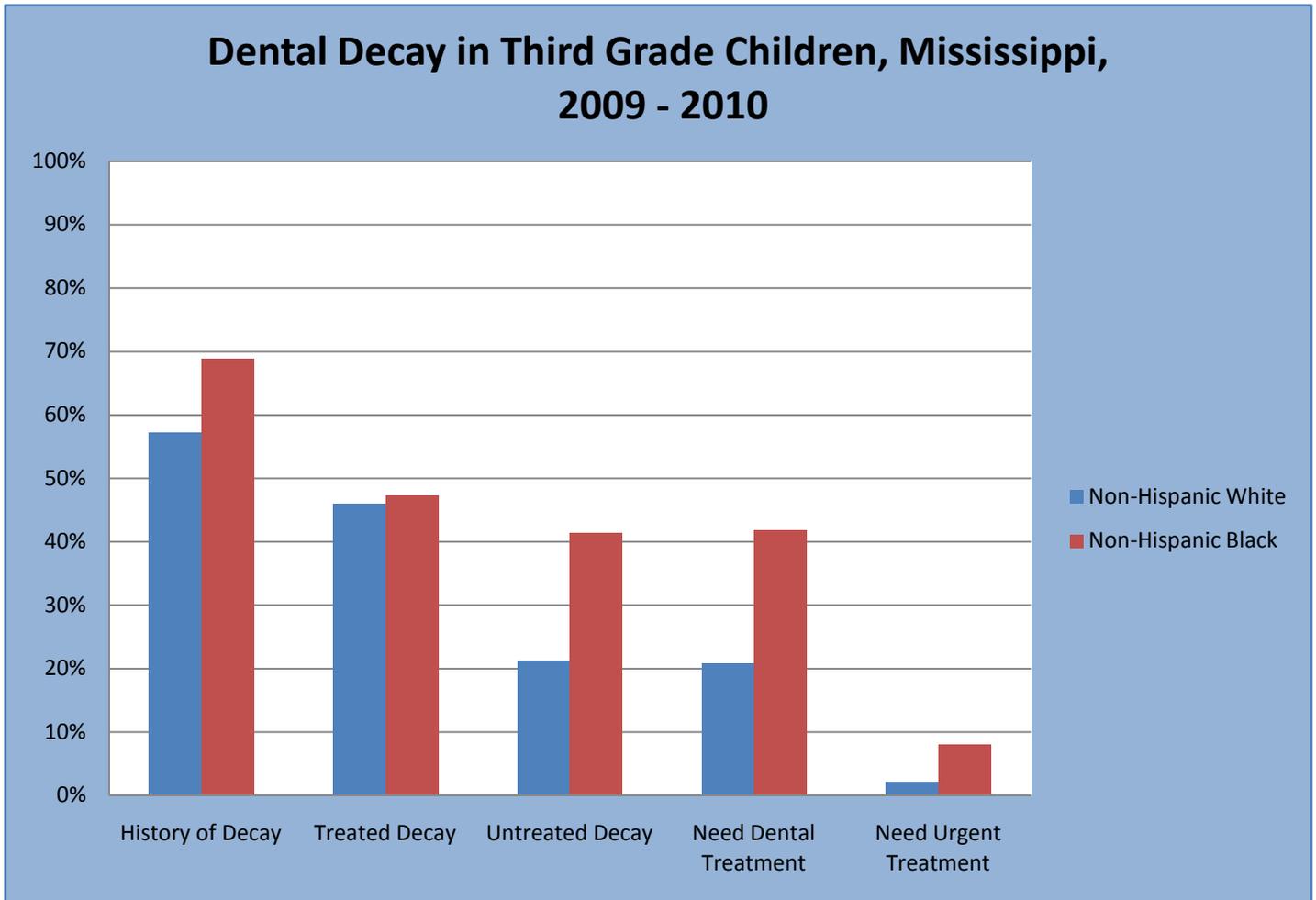
Survey results showed that 63% of third grade children have a history of decay. Mississippi has more children with than without dental decay experience. Once decay begins, the damage cannot be reversed. The tooth can be restored only by fillings or caps (crowns may be applied in permanent teeth). In severe cases extraction is necessary.

Some teeth can be restored, but children with tooth decay may suffer extreme pain, infections, or nutritional deficiencies (due to the pain of chewing and swallowing). There are also social consequences of tooth decay: children with untreated tooth decay are likely to miss days at school, causing them to fall behind in their education.

Although the survey focused on children's oral health status, we also want to emphasize the importance of oral health for adolescents and adults. Oral health should be a priority for all age groups. Recent research has shown that poor oral health can be linked to heart disease, diabetes, and stroke. Oral health is a vital component of overall health. MSDH is working to increase public awareness of importance while providing resources that encourage and improve the oral health status of all Mississippians.



Key Finding #1 Figure A: Dental Decay is a Significant Public Health Problem for Mississippi's Children.



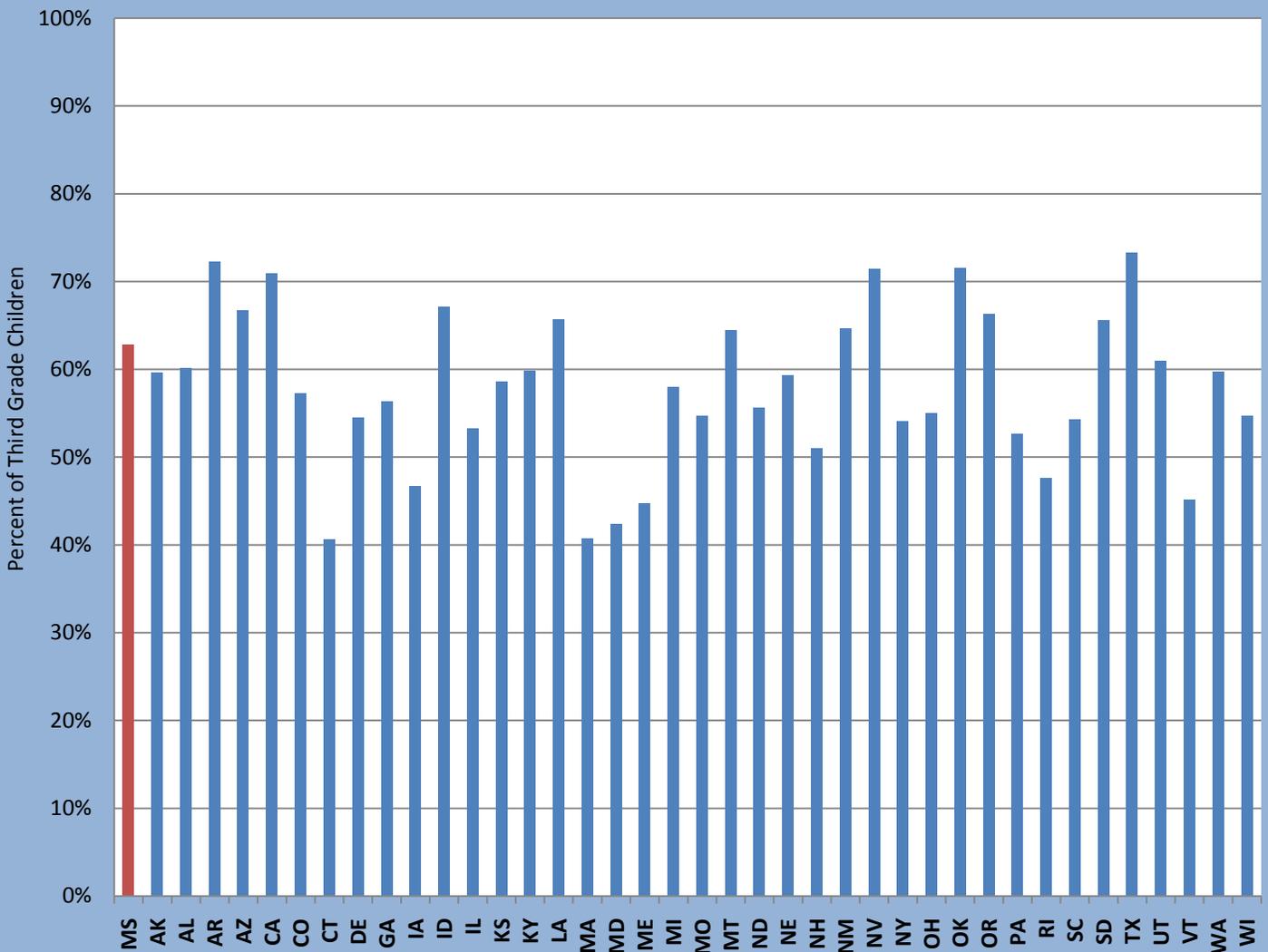
State-licensed dental hygienists conducted visual dental exams for the oral health screening survey. The results of the survey were classified into five categories: History of decay, treated decay, untreated decay, needed dental treatment, and need for urgent treatment. History of dental decay refers to a disease process where bacteria deteriorates the hard surface of the tooth. Treated decay would represent fillings, caps/crowns, or missing teeth (due to extractions). Untreated decay is characterized by tooth decay/cavities, broken teeth, an abscess, or swelling of face or gums.

The results examined dental decay in non-Hispanic white students compared to non-Hispanic black students. Non-Hispanic black children had higher percentage rates for all categories in comparison to non-Hispanic white students.



Key Finding #1 Figure B: Dental Decay is a Significant Public Health Problem for Mississippi's Children.

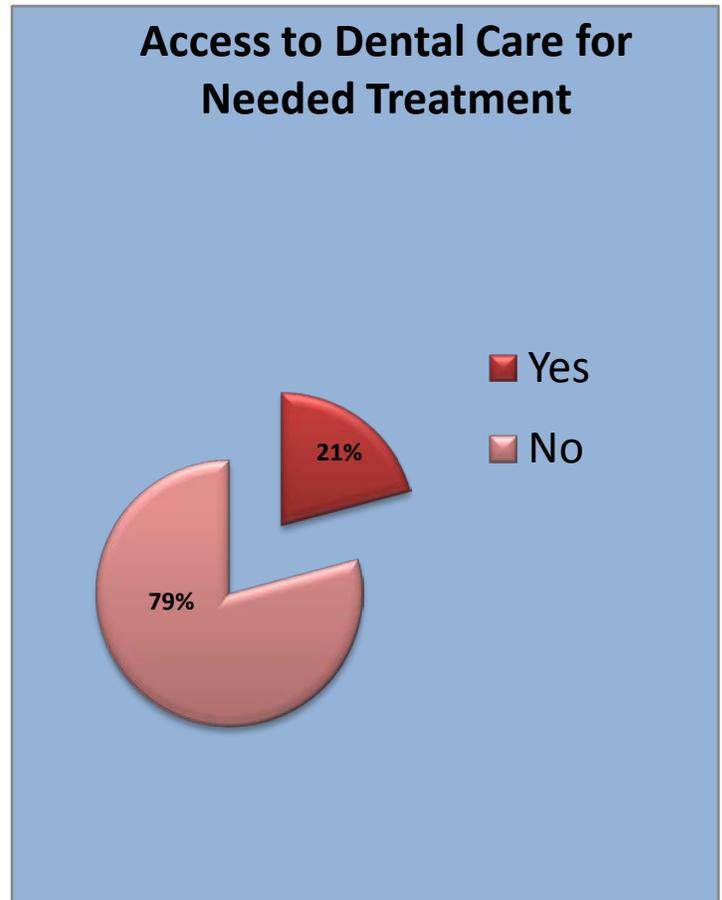
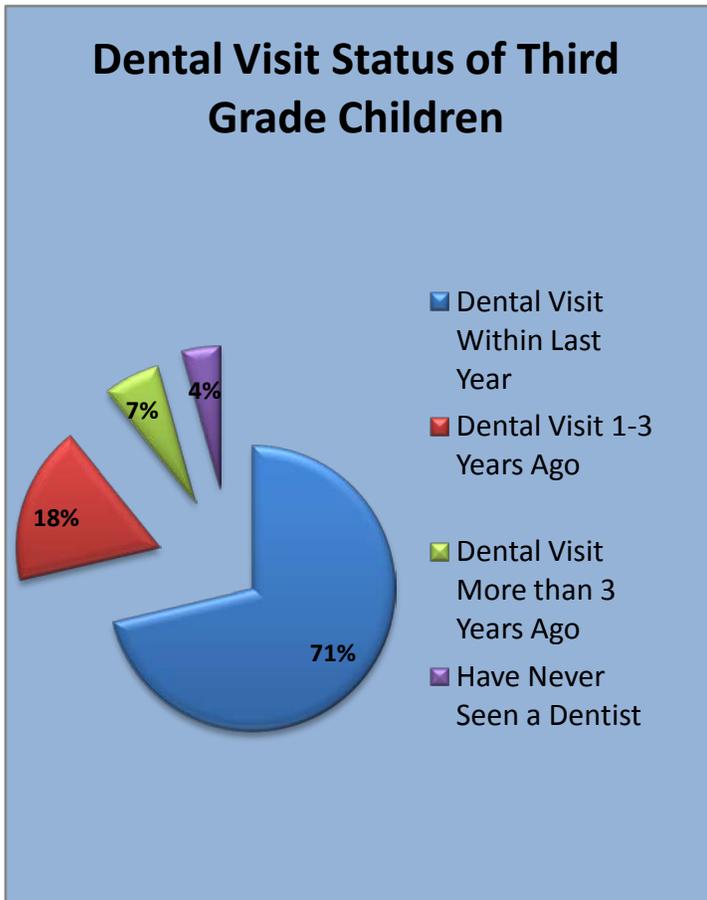
Dental Decay in Mississippi 3rd Graders Compared to Other States, 2009 - 2010



Mississippi has one of the highest percentages of dental decay in the nation among third grade children. Healthcare professionals must work to determine what barriers prevent parents and caregivers from taking children to the dentist in Mississippi. Identifying these barriers will allow healthcare professionals to provide necessary education and interventions that will benefit children's overall health by improving their oral health status.



Key Finding #2 Figure A: Many Children in Mississippi Do Not Get the Dental Care They Need.

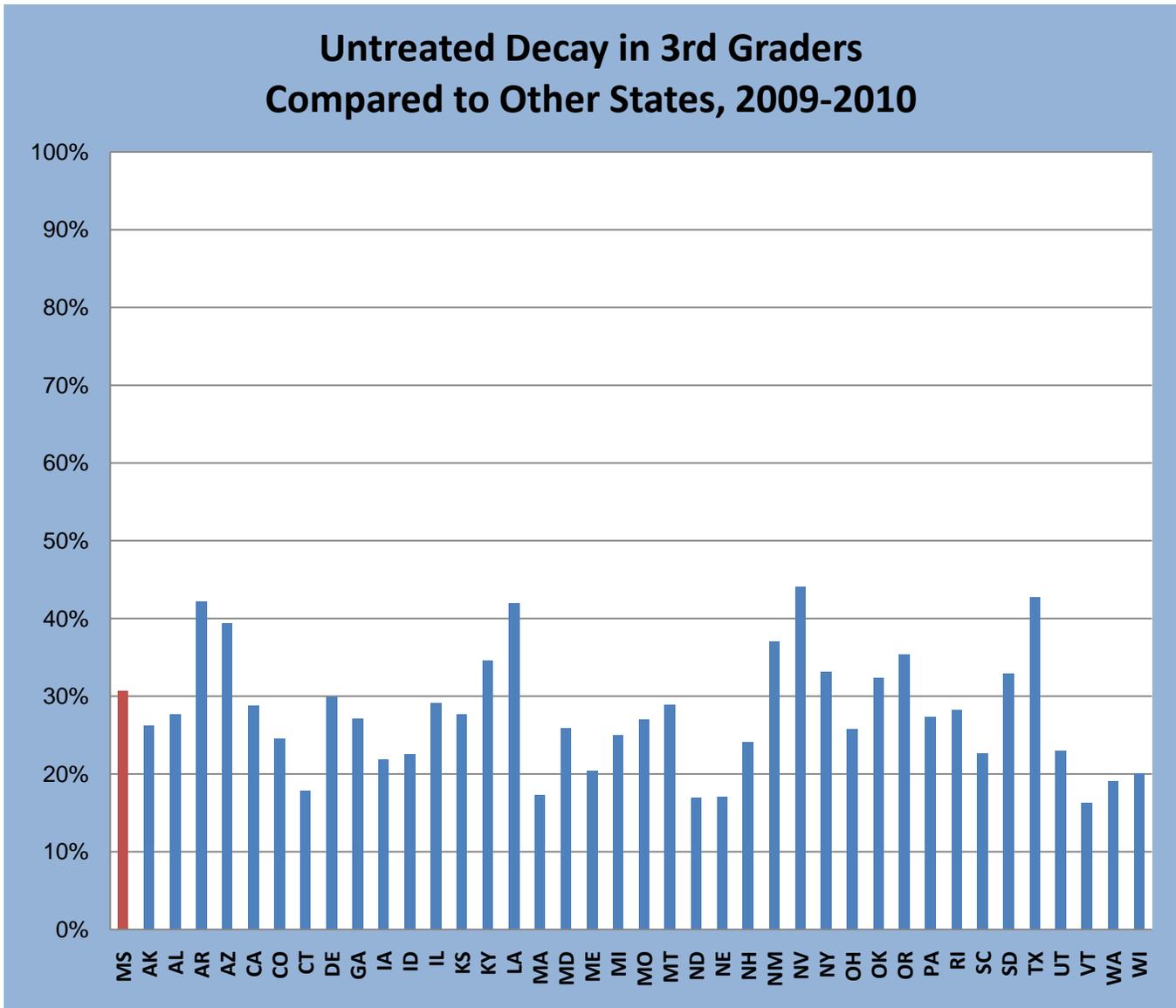


Although 71% of 3rd graders had a dental visit within the past year, adequate access to dental care is still a problem for Mississippi children. One out of every five 3rd graders in Mississippi needs dental care and cannot get it. In addition to the visual screening, parents completed a survey (See Appendix A, Table 5). The parents gave the following reasons for their child not receiving dental care:

- not being able to afford care
- dentist not accepting Medicaid
- difficulty in getting an appointment
- transportation issues



Key Finding #2 Figure B: Many Children in Mississippi Do Not Get the Dental Care They Need.

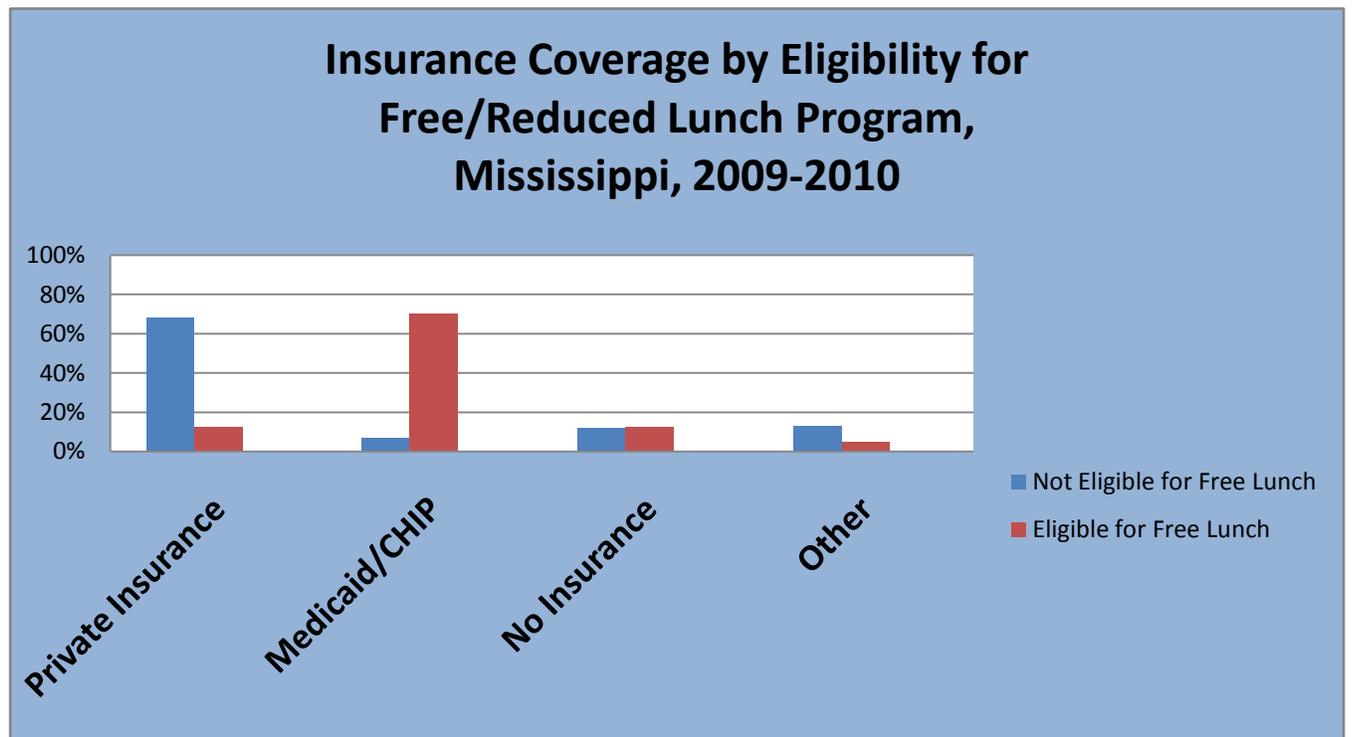
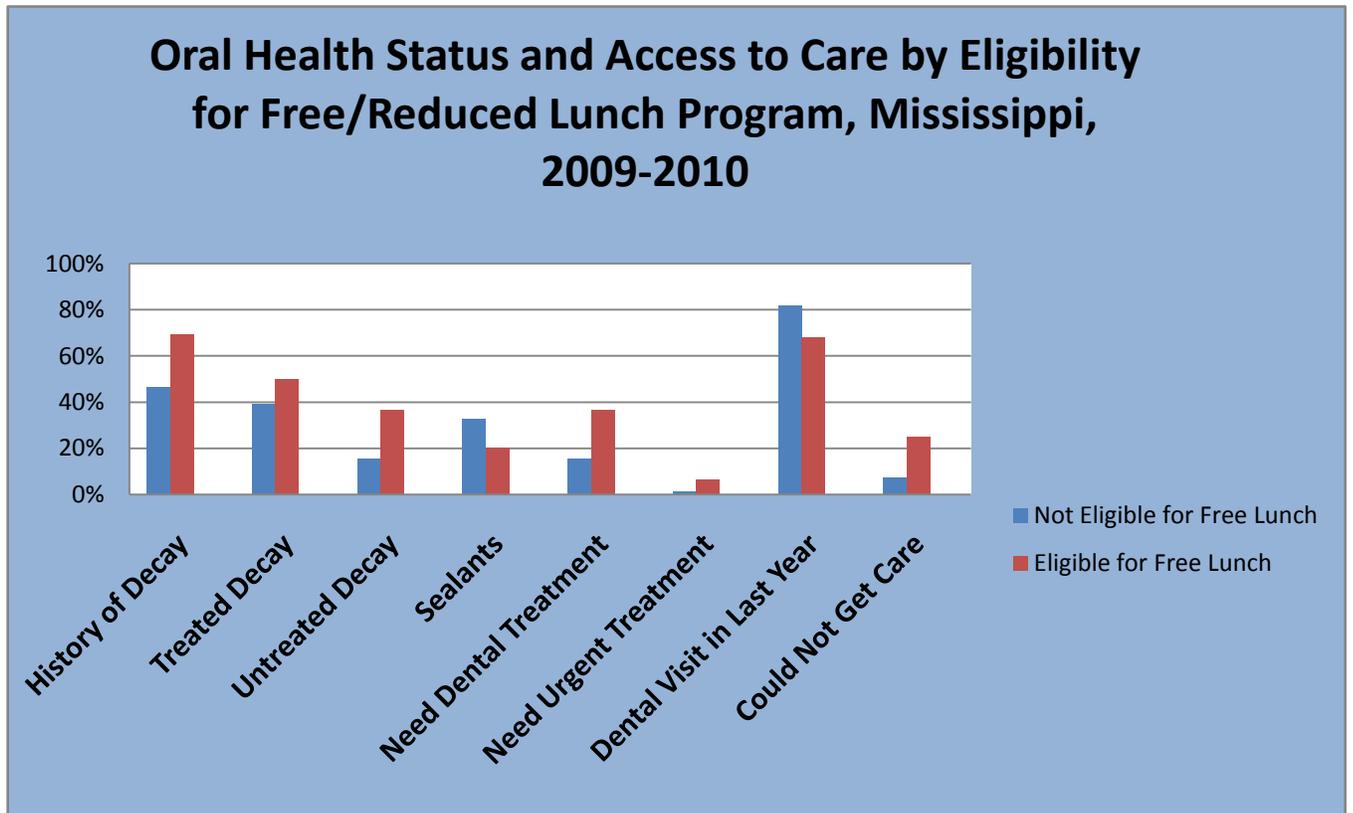


- One in three children within the state of Mississippi has untreated decay present.
- Mississippi is one of twelve states with 30% or more of children having decay present.
- “Within the nation Mississippi has the highest percentage (31.8%) of underserved individuals in reference to dental care.”¹

¹ Frate, D., Krause, D., & May, W. (2005). Demographics and distribution of dentists in Mississippi: A Dental Work Force Study. *The Journal of the American Dental Association* May 1, 2005 vol. 136 no. 5 668-677.



Key Finding #3 Figure A & Figure B: Lower Income Children Have Poor Oral Health and Less Access to Dental Care.





Key Finding #3: Lower Income Children Have Poor Oral Health and Less Access to Dental Care.

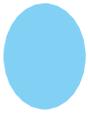
“Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2009-2010 school year, annual family income for a family of four could not exceed \$40,793².”

Children eligible for the FRL program had a higher prevalence of decay experience, untreated decay, and urgent treatment needs compared to those not eligible for the FRL program. There was also a significantly lower prevalence of dental sealants among lower income children. Children eligible for the FRL program were less likely to have had a dental visit in the last year, were more likely to report the inability to obtain dental care, and were more likely to have publicly funded dental insurance such as, Medicaid or Children’s Health Insurance Program (CHIP) (See Key Finding 3 Figure A).

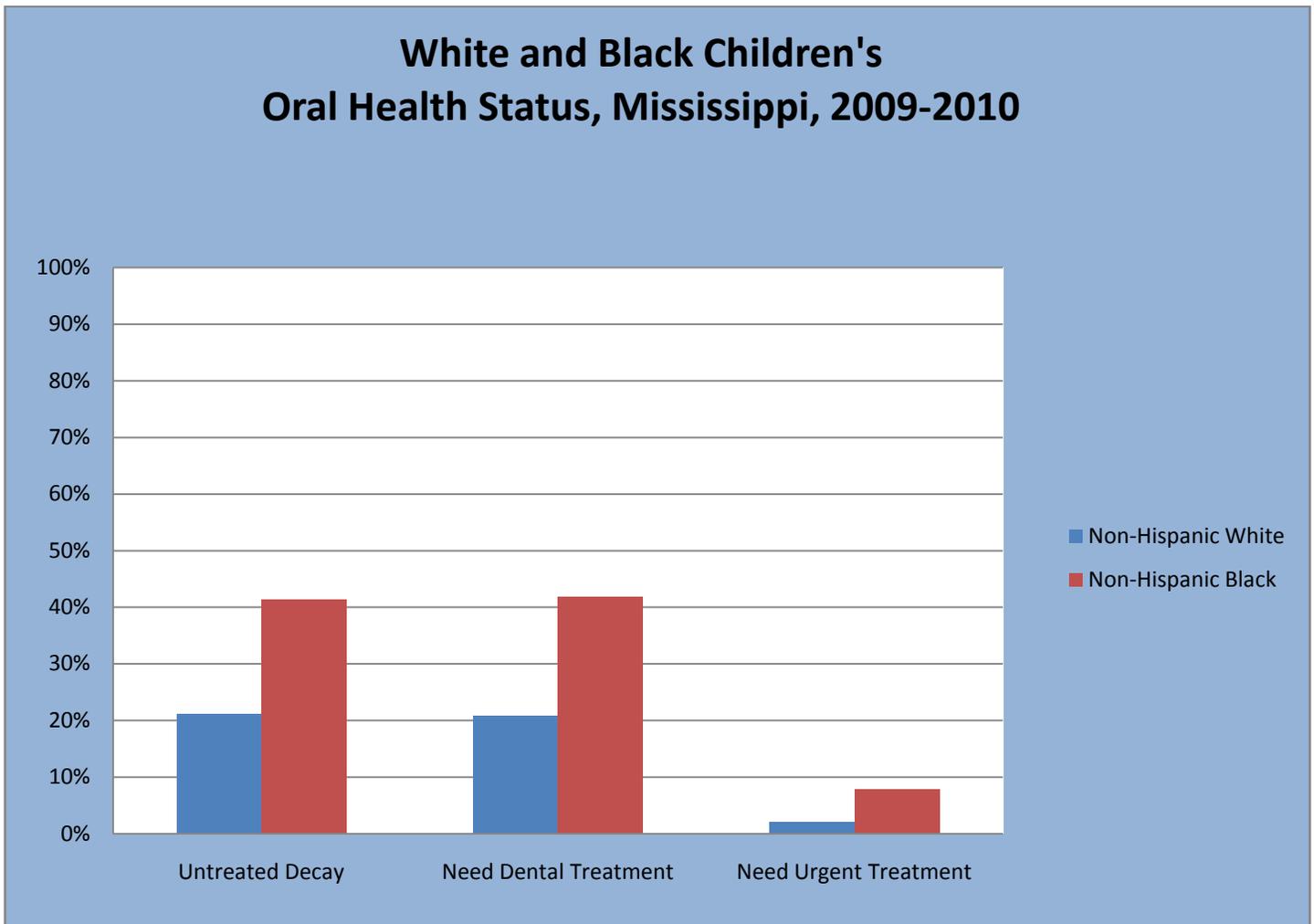
Oral Health Status, Access to Dental Care, Insurance Coverage and Beverage Consumption for 3rd Grade Children, Stratified by Eligibility for the Free/Reduced Lunch (FRL) Program

Variable	Not Eligible for FRL		Eligible for FRL	
	Percent	95% CI	Percent	95% CI
History of Decay (% yes)	46.4	41.7 – 51.1	69.3	66.7 – 71.9
Treated Decay (% yes)	39.0	34.4 – 43.6	50.0	47.1 – 52.8
Untreated Decay (% yes)	15.4	12.0 – 18.7	36.5	33.9 – 39.1
Sealants (% yes)	32.6	28.2 – 36.9	20.2	17.8 – 22.5
Need Dental Treatment (% yes)	15.5	12.1 – 18.8	36.5	33.9 – 39.1
Need Urgent Treatment (% yes)	1.3	0.2 – 2.4	6.3	5.0 – 7.6
Race = White (% yes)	81.8	78.3 – 85.2	33.5	30.9 – 36.1
Dental Visit in Last Year (% yes)	81.8	78.3 – 85.3	68.2	65.5 – 70.9
Could Not Get Care (% yes)	7.2	4.9 – 9.5	24.9	22.4 – 27.3
Insurance Coverage				
Private (% yes)	68.1	63.7 – 72.4	12.7	10.7 – 14.7
Medicaid/CHIP (% yes)	6.7	4.3 – 9.2	70.0	67.3 – 72.6
No Insurance (% yes)	12.2	9.1 – 15.3	12.5	10.6 – 14.4
Other (% yes)	13.0	9.9 – 16.0	4.8	3.6 – 6.0
Sugared Drinks with Meals (% yes)	47.6	42.9 – 52.4	68.3	65.7 – 71.0

² U.S. Department of Agriculture, Child Nutrition Programs, School Lunch Program, Income Eligibility Guidelines SY 2004-2005, <http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs09-10.pdf>



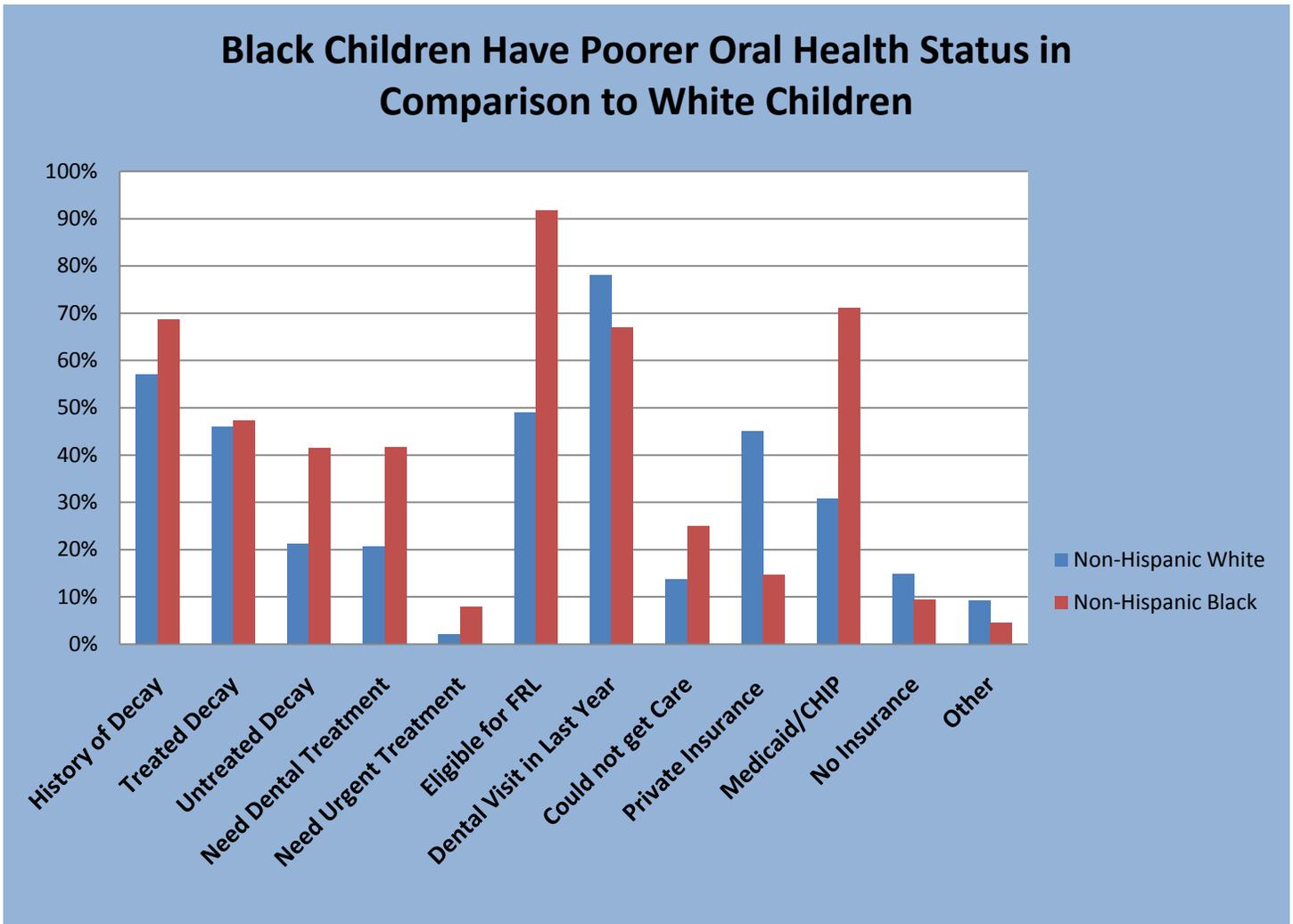
Key Finding #4 Figure A: Non-Hispanic Black Children have Poorer Oral Health Status in Comparison to Non-Hispanic White Children.



In Mississippi, non-Hispanic black children have a significantly higher prevalence of decay experience, untreated decay, and urgent treatment needs compared to non-Hispanic white children. It should be noted that 92% of non-Hispanic black children were eligible for the free and/or reduced price lunch (FRL) program while only 49% of the white non-Hispanic children were eligible for the FRL program.



Key Finding #4 Figure B: Non-Hispanic Black Children Have Poorer Oral Health Status in Comparison to White Non-Hispanic Children.



Non-Hispanic black children had higher percentages of publicly funded insurance (Medicaid, CHIP) and higher rates of decay and need for treatment, compared to non-Hispanic white children. Mississippi has an overall shortage of dental providers and specifically providers who accept Medicaid.

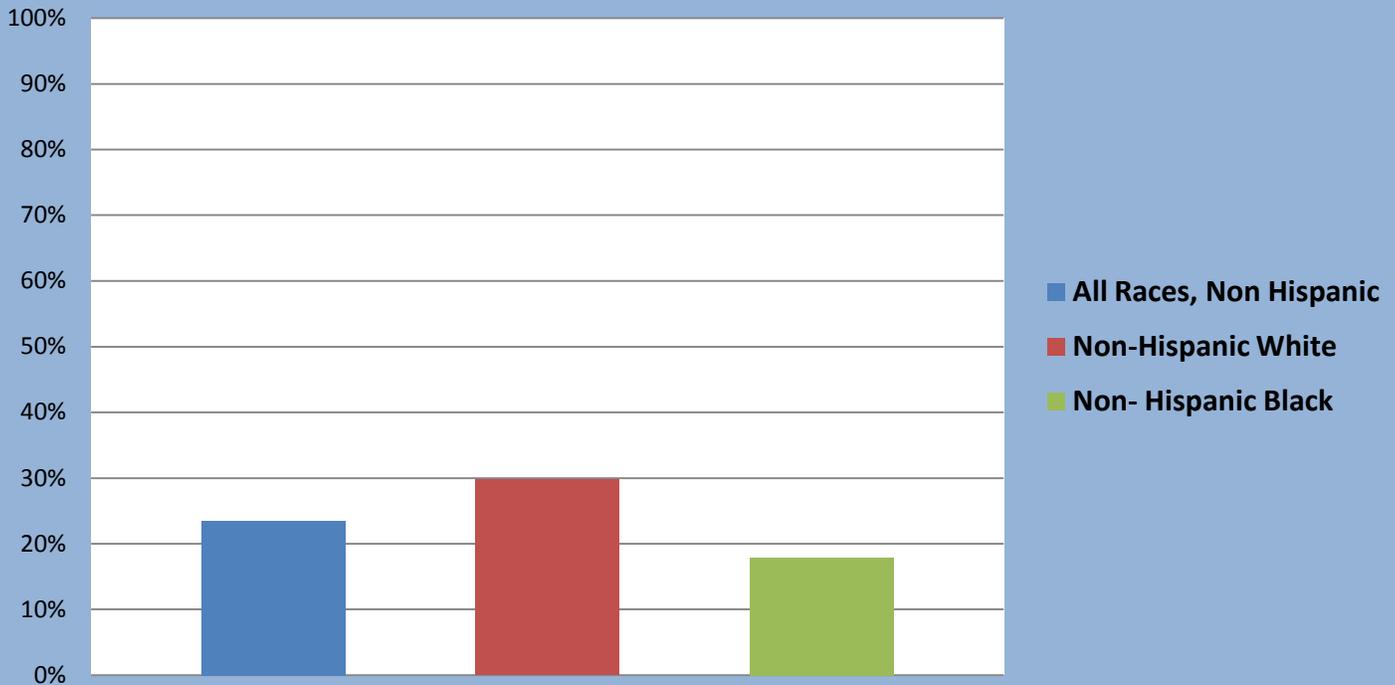
According to *Demographics and Distribution of Dentist in Mississippi: A Dental Work Force Study (2005)*, “Many geographic areas in Mississippi remain underserved. Identifying these areas is a critical first step when addressing the current state of Mississippi’s dental work force. This type of information is useful for decision making as well as responding to the population’s oral health care needs (Frate, Krause, & May).”

Mississippi dental providers should be encouraged to accept Medicaid insurance to increase the quantity and quality of children’s oral health within Mississippi.



Key Finding #5: While dental sealants are a proven method of preventing decay, the majority of Mississippi third graders do not have access to this valuable preventive service.

Percentage of Third Grade Children with Sealants, Mississippi, 2009 - 2010



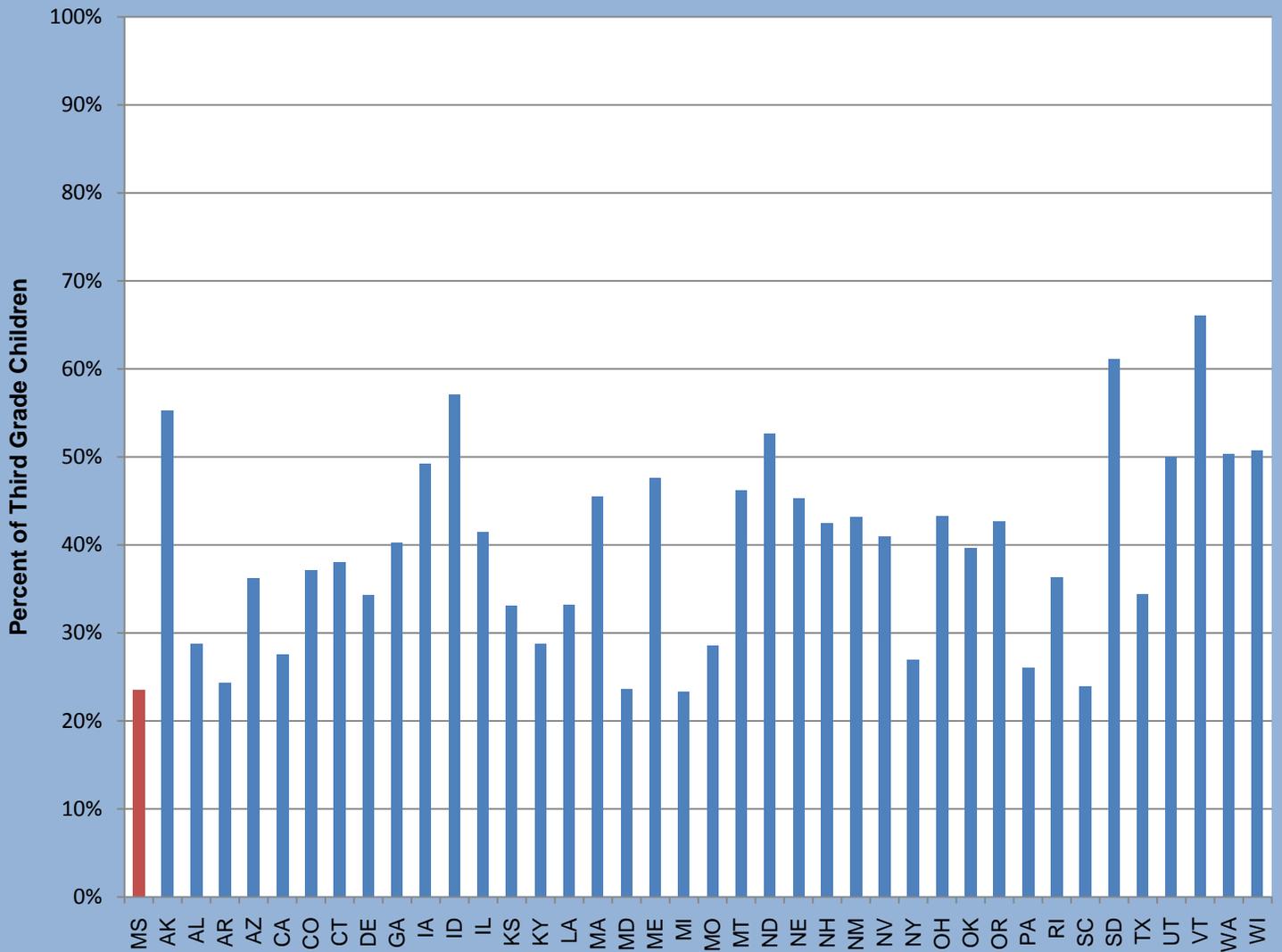
Dental sealants are a preventive practice used by dental providers to decrease the risk of tooth decay in and on the molar surfaces. The sealants are a thin plastic coating (the color of teeth) that are applied in and on the deep pits and grooves of teeth (chewing surfaces). The chewing surfaces of permanent molars (back teeth) are hard to clean when brushing, making the areas susceptible for decay. The Center for Disease Control (CDC) reported that when sealants are properly placed, they are almost 100% effective in preventing cavities in first and second molar teeth. Although sealants are a proven preventive practice, only 23.5% of Mississippi children have dental sealants in one or more molars. The MSDH Office of Oral Health continues to promote a School-Based Dental Sealant Program that provides dental sealants for 2nd graders at eligible schools.

A current limitation of the sealant program is that dental hygienist may apply sealants but under dentist supervision only. The Office of Oral Health is currently recommending a change in existing policy of the Mississippi State Board of Dentals Examiners (MSBDE). A new policy is needed to allow state-employed dental hygienist to apply sealants under the supervision of a licensed dentist; this will increase the effectiveness of the school based dental sealant program.



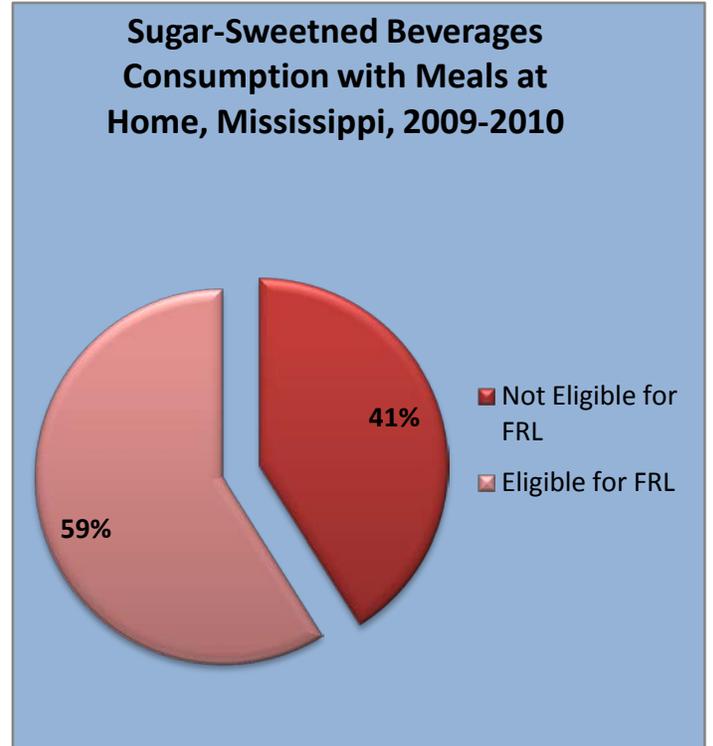
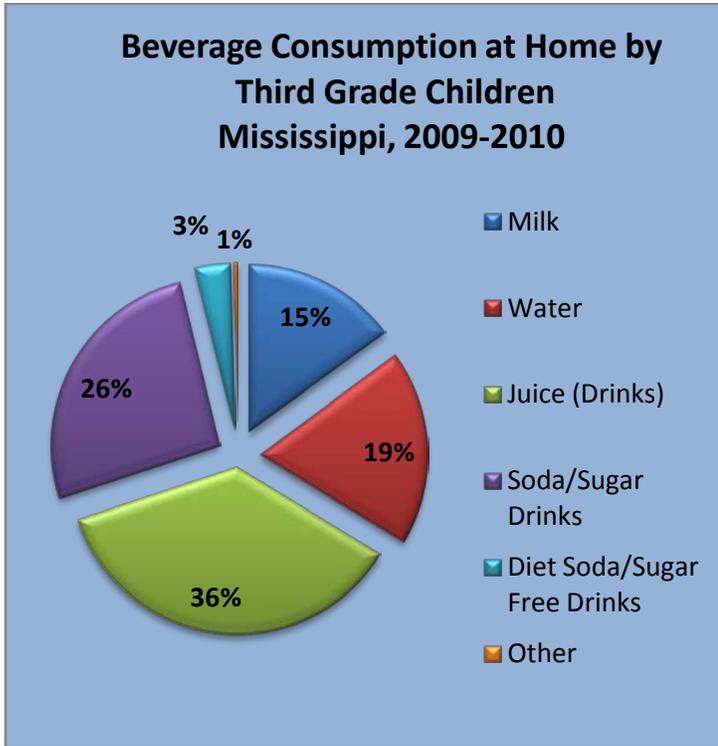
Key Finding #5: While dental sealants are a proven method of preventing decay, the majority of Mississippi third graders do not have access to this valuable preventive service.

Prevalence of Dental Sealants in Mississippi Third Grade Children Compared to Other States, 2009 - 2010





Key Finding #6: Majority of Children at Home in Mississippi have dietary habits that increase their risk of dental decay.



Dental decay rates in Mississippi children have decreased by 6.6% since 2005 (See Appendix A, Figure 1) yet there remains a need to educate Mississippians on beverage consumption and oral health. Sugar-sweetened beverages are defined by the Center for Disease Control (CDC) as beverages that contain caloric sweeteners such as sodas, sports drinks, fruit drinks, punches, energy drinks, tea and coffee drinks, and sweetened milk or milk alternatives. Children consumed a combined total of 62% of sugar-sweetened drinks (juice, sodas). A higher percentage of students who received FRL drank sugar-sweetened beverages with meals at home. The results suggest a need for continued oral health education, particularly for low income families.



What we are currently doing to Improve Mississippi's Oral Health

The MSDH, Office of Oral Health continues to educate the public on the importance of oral health and the ramifications of poor oral health. Currently, we are implementing a variety of programs that work toward improving oral health through health education and primary prevention strategies.

Woman, Infants, and Children's Nutrition Program (WIC) Oral Health Education Classes

WIC is a special supplemental food program for pregnant, breastfeeding, post-partum women, infants, and children under five years of age. WIC allows individuals to receive healthy foods and healthy advice during the first years of their baby's life. Under the new October 2009 mandate for WIC recertification, WIC and MSDH, Office of Oral Health will provide oral health education classes that WIC mothers must attend. The classes will educate and inform participants about the importance of good oral health care for infants, children, and mothers. We are currently working with the Supplemental Nutrition Assistance Program (SNAP), a program that provides low-income households with electronic benefits for food purchases at stores; thru WIC to educate the public on the importance of oral hygiene and the foods and beverages that may negatively impact oral health. Our collaboration with WIC has provided the opportunity to educate expectant mothers with small children on appropriate and effective oral health practices that can begin in infancy.

Head Start Dental Survey

The purpose of the survey is to assess the oral health status in pre-school aged children. It informs efforts to create and implement oral health education programs to reduce the proportion of children with dental caries.

Cavity Free Kids (CFK)

MSDH is using the Cavity Free Kids (CFK) curriculum developed by the Washington Dental Service Foundation to provide educational instruction for child care centers. CFK is a "train-the-trainer" oral health curriculum that provides an understanding of dental decay, what causes the disease and how it can be prevented. CFK is used at child care centers to instruct center directors and staff about the importance of oral health. CFK uses hands-on oral health exercises that are fun and easy to understand. The curriculum helps to improve the staff's understanding of oral health so they can provide guidance and instruction to children and parents.

Make a Child's Smile

MSDH provides a preventive dental service for children in Head Start. The services include a visual oral health screening and an application of fluoride varnish. With parent's permission, a dental hygienist evaluates children for noticeable dental problems and also applies a thin coating of fluoride varnish on the child's teeth to prevent dental decay. Fluoride varnish is a protective coating of fluoride applied to teeth to prevent dental decay. Parents of participants receive results of their dental assessment.



School-Based Dental Sealant Program

The purpose of the school-based dental sealant program is to provide dental sealants in the first permanent molars of second grade students in order to prevent dental decay. Dental sealants are thin, plastic coatings painted in the chewing surfaces of the back teeth. Each year the Office of Oral Health recruits schools, dentists, and community health centers to participate in order to minimize dental decay in school-aged children.

Community Water Fluoridation

Fluoridation is a safe, beneficial, and cost-effective way of improving the oral health of Mississippi residents through public water systems. In 2009, the State Board of Health passed a regulation requiring community water fluoridation for systems serving a population of at least 2,000 residents. Mississippi currently has 72 counties with at least one public water system that participates in the program. As part of the program, these counties report their water fluoridation levels monthly through the Water Fluoridation Reporting System (WFRS). WFRS is an internet reporting/monitoring system through the Center for Disease Control. The purpose of the community water fluoridation is to achieve optimal water fluoridation in all public water systems in the state of Mississippi.



Sampling and Data Analysis

An electronic data file of all public elementary schools in Mississippi was obtained from the Mississippi Department of Education. The data file, which was for the 2008-2009 school year, contained the following information for each school – district, county, total enrollment, 3rd grade enrollment, number of children participating in the free or reduced price lunch program, enrollment by race/ethnicity, and school address. During the 2009-2010 school year, there were 444 schools in Mississippi with a 3rd grade total of 39,760 students. All 444 schools were included in the sampling frame. Using implicit stratification by health district region along with percent of children eligible for the free or reduced price lunch (FRL) program, a systematic sampling scheme was used to select a sample of 45 schools. The sampling frame was ordered by health district region then by percent of students eligible for the FRL program. A random number between 1 and 10 was selected (n=4); the 4th school was selected followed by every 10th school thereafter. Selecting a sample using implicit stratification assures that the sample is representative of the state's schools in terms of both health district region and free/reduced lunch participation. If a school refused to participate, a replacement school within the same sampling strata was randomly selected. Data is available for all 45 sampling strata.

Data analysis was completed using the survey procedures within SAS 9.1 (SAS Institute, Cary, North Carolina). Unless otherwise noted, all data were adjusted for the sampling scheme and non-response within each school. For the non-response sampling weight, the number of children enrolled in each school was divided by the number of children screened. Statistical significance was conservatively assessed by non-overlapping confidence intervals.

Parent Questionnaire and Screening Methods

An informational letter, consent form and dental health questionnaire was sent home with all third grade children in the 45 sample schools. Those children who returned a signed consent form were screened (positive consent). Dental hygienists completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Directors publication Basic Screening Surveys: an Approach to Monitoring Community Oral Health was used. The dental hygienists attended a full-day training session which included a didactic review of the diagnostic criteria along with a hands-on calibration session. Information on age was obtained from the child while gender and race was provided by the parent on the dental questionnaire. If the parent did not provide gender and/or race it was determined by the screener. A copy of the parent questionnaire is located in the Appendix, Table 5.

* Non-hispanic white children and non-Hispanic black children were those who were represented throughout the survey results as other races did not have a large enough sample size to be represented in the results.

Demographic Characteristics

The percentage of children screened who were non-Hispanic black (51%) was similar to all 3rd grade children in Mississippi (50%). Of the 45 schools in the original sample, 41 agreed to participate while four schools were replaced by randomly selected schools within the same sampling strata. There were 3,483 children enrolled in the participating schools of which 1,928 were screened, a 55 percent response rate. The percentage of children eligible for the free and/or reduced price meal program was similar between those children screened (70%) and all 3rd grade children in Mississippi (72%) (Refer to the Appendix Tables 1 and 2).

The majority of the children screened (96%) were either 8 or 9 years of age. Half of the children were male, 48% were non-Hispanic white and 46% were non-Hispanic black.

Race/Ethnicity, Gender, Age and Eligibility for the FRL Program for 3rd Grade Children Screened

Characteristic	Number of Children with Valid Data	Percent of Children
Race/Ethnicity	1,914	
White (% yes)		48.1
Black/African-American(% yes)		45.9
Other (% yes)		6.0
Gender	1,908	
Male (% yes)		50.1
Female (% yes)		49.9
Age	1,911	
7 years (% yes)		0.1
8 years (% yes)		65.8
9 years (% yes)		30.2
10 years (% yes)		3.4
11 years (% yes)		0.5
12 years (% yes)		0.0
Eligible for Free/Reduced Lunch	1,831	
Yes		70.2
No		29.8



Oral Health Status

Sixty-three percent of the children screened had decay experience in their primary and/or permanent teeth while 31% had untreated decay at the time of the screening. About 31% of the children needed dental treatment including 5% in need of urgent dental care because of pain or infection.

Oral Health Status of Mississippi’s 3rd Grade Children

Variable	# with Data	Percent	95% CI
History of Decay (% yes)	1,927	62.8	60.6 – 65.1
Treated Decay (% yes)	1,927	47.0	44.6 – 49.3
Untreated Decay (% yes)	1,927	30.6	28.5 – 32.7
Sealants (% yes)	1,917	23.5	21.5 – 25.5
Treatment Urgency			
None (% yes)	1,926	69.4	67.4 – 71.5
Early (% yes)		25.8	23.8 – 27.7
Urgent (% yes)		4.8	3.8 – 5.8
Need Dental Treatment (Early & Urgent) (% yes)	1,926	30.6	28.5 – 32.6

Only 24% of the children had a dental sealant on at least one permanent molar. Dental sealants provide an effective way to prevent decay on the chewing surfaces of molars (back teeth), which are most vulnerable to caries. A clear resin is used to cover the “pits and fissures” on the top of the teeth so that cavity-causing bacteria cannot reach areas that are difficult to clean and for fluoride to penetrate.

Parent Questionnaire

Parents were asked to complete a short questionnaire to obtain information on the time since last dental visit, access to dental care, dental insurance, and beverage consumption at meals. About 71% of parents reported that their child had a dental visit in the last year, while 4% reported that their child had never been to a dentist. Twenty-one percent of parents reported that their child needed dental care during the last year but was unable to obtain it with the primary reasons being inability to pay and difficulty in getting an appointment. The majority of children in Mississippi (53%) have publicly funded dental insurance while 26% have private insurance and 8% have no dental insurance.

In terms of beverage consumption at meals, 34% report that their child drinks milk or water most with meals. Sugar sweetened beverages are the primary beverage at meals for 63% of children.

Parent Questionnaire Cont'd

Information from Parent Questionnaire (Unadjusted)

Characteristic	Number of Children	Percent of Children
Q1: Time since last dental visit		
Within the last year	1,262	71.3%
1-3 years ago	318	18.0%
More than 3 years ago	114	6.4%
Never	76	4.3%
Q2: Needed dental care but could not get it		
No	1,413	79.2%
Yes	372	20.8%
Q3: Reason could not get care*		
Could not afford it	306	NA
Dentist did not accept Medicaid	81	NA
Difficulty in getting appointment	194	NA
No way to get to dentist office	94	NA
Q4: Dental insurance		
Private insurance	478	26.4%
CHIP	226	12.5%
Medicaid	741	40.9%
None	227	12.5%
Other	138	7.6%
Q5: Beverage drank most with meals		
Milk/soy milk	275	14.9%
Water	346	18.8%
Juice or juice drinks	670	36.3%
Regular soda / sugar drinks	485	26.3%
Diet soda / sugar free drinks	62	3.4%
Other	7	0.4%
Q6: Eligible for Free/Reduced Lunch	1,831	
Yes		70.2
No		29.8

* The denominator for this question is unknown so calculating percent is not appropriate.

Impact of Race/Ethnicity and Socioeconomic Status

Table 8 presents the oral health of Mississippi third grade children stratified by both race and eligibility for the free and/or reduced price lunch (FRL) program. Only 68 of the non-Hispanic black children screened were not eligible for the FRL program, so information for this group is not presented. Among non-Hispanic white children, those eligible for the FRL program, compared to those not eligible, had a significantly higher prevalence of decay experience, untreated decay, urgent treatment needs, and lower prevalence of dental sealants. Among lower income children eligible for the FRL program, the prevalence of decay experience and dental sealants was similar between non-Hispanic white and non-Hispanic black children; however, the prevalence of untreated decay and urgent treatment needs was significantly higher among non-Hispanic black children.

There were no significant differences between lower income non-Hispanic white and lower-income non-Hispanic black children in terms of dental visits in the last year or inability to obtain needed dental care. There were significant differences, however, in terms of insurance coverage and sugar-sweetened beverage consumption at meals. Lower income non-Hispanic white children were more likely to have no dental insurance coverage while lower income non-Hispanic black children were more likely to drink sugared beverages with meals.

Oral Health Status, Access to Dental Care, and Insurance Coverage for Mississippi's 3rd Grade Children Stratified by Race and Eligibility for the Free/Reduced Lunch (FRL) Program

Variable	Non-Hispanic White No FRL % (95% CI)	Non-Hispanic White Yes FRL % (95% CI)	Non-Hispanic Black Yes FRL % (95% CI)
History of Decay (% yes)	53.4 (48.1-58.7)	67.3 (62.3-72.4)	70.2 (67.1-73.4)
Untreated Decay (% yes)	13.9 (10.3-17.5)	27.8 (23.1-32.5)	41.8 (38.5-45.2)
Sealants (% yes)	36.1 (31.2-41.0)	23.5 (18.9-28.1)	18.8 (16.1-21.5)
Need Dental Treatment (% yes)	14.0 (10.4-17.6)	26.9 (22.3-31.6)	42.3 (39.0-45.7)
Need Urgent Treatment (% yes)	0.5 (0.0-1.2)	3.7 (1.9-5.5)	8.0 (6.1-9.9)
Dental Visit in Last Year (% yes)	84.3 (80.6-88.0)	70.5 (65.6-75.4)	66.8 (63.4-70.2)
Could Not Get Care (% yes)	7.2 (4.6-9.7)	21.1 (16.8-25.4)	26.9 (23.8-30.0)
Insurance Coverage			
Private (% yes)	70.8 (66.0-75.6)	18.5 (14.0-23.0)	10.4 (8.3-12.5)
Medicaid/CHIP (% yes)	5.3 (2.7-7.8)	57.6 (52.2-63.0)	76.5 (73.5-79.5)
No Insurance (% yes)	12.7 (9.1-16.2)	16.6 (12.7-20.5)	9.8 (7.7-12.0)
Other (% yes)	11.3 (8.0-14.5)	7.3 (4.4-10.1)	3.3 (2.1-4.5)

Results

Impact of Time since Last Dental Visit

Children who had not been to the dentist in the last year had a significantly higher prevalence of untreated decay and urgent dental needs because of pain or infection. These children also had a significantly lower prevalence of dental sealants. Children without a dental visit were more likely to be non-Hispanic black children, low income, and without insurance coverage.

Oral Health Status, Access to Dental Care, Insurance Coverage for Mississippi's 3rd Grade Children Stratified by Time Since Last Dental Visit

Variable	Visit in Last Year		No Visit in Last Year	
	Percent	95% CI	Percent	95% CI
History of Decay (% yes)	62.7	59.8 – 65.5	62.3	57.9 – 66.7
Treated Decay (% yes)	52.6	49.7 – 55.6	34.2	29.9 – 38.6
Untreated Decay (% yes)	24.1	21.8 – 26.5	44.6	40.2 – 49.0
Sealants (% yes)	29.6	26.9 – 32.3	9.1	6.5 – 11.7
Need Dental Treatment (% yes)	24.0	21.6 – 26.3	44.9	40.6 – 49.3
Need Urgent Treatment (% yes)	3.6	2.6 – 4.6	7.7	5.2 – 10.1
Race = White (% yes)	53.2	50.4 – 56.0	39.2	34.9 – 43.5
Eligible for Free/Reduced Lunch (% yes)	65.3	62.5 – 68.1	79.8	76.0 – 83.7
Could Not Get Care (% yes)	12.4	10.6 – 14.3	36.2	31.7 – 40.7
Insurance Coverage				
Private (% yes)	35.1	32.2 – 37.9	17.6	14.1 – 21.1
Medicaid/CHIP (% yes)	50.5	47.6 – 53.3	49.4	44.8 – 54.0
No Insurance (% yes)	7.2	5.7 – 8.8	26.3	22.2 – 30.4
Other (% yes)	7.2	5.7 – 8.7	6.7	4.2 – 9.2

Impact of Dental Insurance Coverage

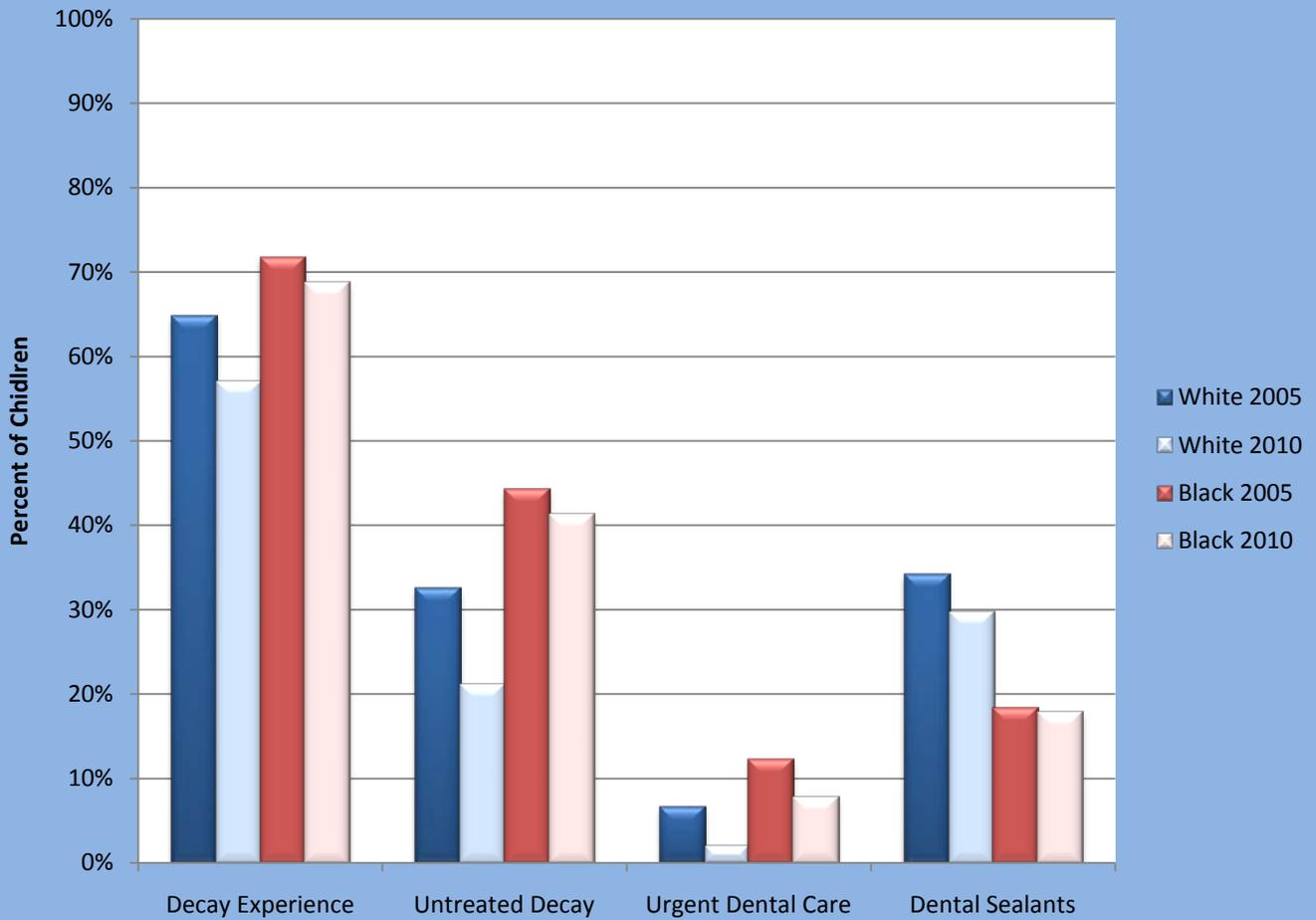
Compared to children with private dental insurance, children with publicly funded insurance or no insurance had a significantly higher prevalence of decay experience, untreated decay and a significantly lower prevalence of dental sealants. Children without dental insurance were more likely to have problems obtaining needed dental care and were less likely to have had a dental visit in the last year.

Trends over Time

Since the last statewide oral health survey in 2005, there has been a decrease in the prevalence of decay experience, untreated decay and the need for urgent dental care. There has been no change in the prevalence of dental sealants (refer to Table 11). Although both non-Hispanic white and non-Hispanic black children have seen improvements in oral health, the reduction is most dramatic for non-Hispanic white children.

Trends over Time (Cont'd)

Figure 1: Oral Health of Mississippi 3rd Grade Children in 2005 and 2010 by Race



Appendix: Data Tables

Table 1
Participation in the Mississippi Oral Health Survey

Number of Schools in Sample	Number of 3 rd Grade Children Enrolled	Number of 3 rd Grade Children Screened	Response Rate
45	3,483	1,928	55.4%

Table 2
**Enrollment, Free/Reduced Price Lunch Program Participation, and Racial Composition for all Mississippi
Elementary Schools with 3rd Grade and Sample Schools**

	3 rd Grade Enrollment	% on FRL	% Non- Hispanic White	% Non- Hispanic Black	% Other Race
Schools with 3 rd Grade (n=444)	39,760	72.2	46.6	49.9	3.5
Sample Schools (n=45)	3,483	73.9	51.0	44.0	5.0
Children Screened (n=1,928)	NA	70.2	48.1	45.9	6.0

Source: Mississippi Department of Education, 2008-2009 School Year

Table 3
Race/Ethnicity, Gender, Age and Eligibility for the FRL Program for 3rd Grade Children Screened

Characteristic	Number of Children with Valid Data	Percent of Children
Race/Ethnicity	1,914	
White (% yes)		48.1
Black/African-American(% yes)		45.9
Other (% yes)		6.0
Gender	1,908	
Male (% yes)		50.1
Female (% yes)		49.9
Age	1,911	
7 years (% yes)		0.1
8 years (% yes)		65.8
9 years (% yes)		30.2
10 years (% yes)		3.4
11 years (% yes)		0.5
12 years (% yes)		0.0
Eligible for Free/Reduced Lunch	1,831	
Yes		70.2
No		29.8

Table 4
Oral Health Status of Mississippi's 3rd Grade Children

Variable	# with Data	Percent	95% CI
History of Decay (% yes)	1,927	62.8	60.6 – 65.1
Treated Decay (% yes)	1,927	47.0	44.6 – 49.3
Untreated Decay (% yes)	1,927	30.6	28.5 – 32.7
Sealants (% yes)	1,917	23.5	21.5 – 25.5
Treatment Urgency			
None (% yes)	1,926	69.4	67.4 – 71.5
Early (% yes)		25.8	23.8 – 27.7
Urgent (% yes)		4.8	3.8 – 5.8
Need Dental Treatment (Early & Urgent) (% yes)	1,926	30.6	28.5 – 32.6

Table 5
Information from Parent Questionnaire (Unadjusted)

Characteristic	Number of Children	Percent of Children
Q1: Time since last dental visit		
Within the last year	1,262	71.3%
1-3 years ago	318	18.0%
More than 3 years ago	114	6.4%
Never	76	4.3%
Q2: Needed dental care but could not get it		
No	1,413	79.2%
Yes	372	20.8%
Q3: Reason could not get care*		
Could not afford it	306	NA
Dentist did not accept Medicaid	81	NA
Difficulty in getting appointment	194	NA
No way to get to dentist office	94	NA
Q4: Dental insurance		
Private insurance	478	26.4%
CHIP	226	12.5%
Medicaid	741	40.9%
None	227	12.5%
Other	138	7.6%
Q5: Beverage drank most with meals		
Milk/soy milk	275	14.9%
Water	346	18.8%
Juice or juice drinks	670	36.3%
Regular soda / sugar drinks	485	26.3%
Diet soda / sugar free drinks	62	3.4%
Other	7	0.4%
Q6: Eligible for Free/Reduced Lunch	1,831	
Yes		70.2
No		29.8

* The denominator for this question is unknown so calculating percent is not appropriate.

Table 6
Oral Health Status, Access to Dental Care, Insurance Coverage and
Beverage Consumption for Mississippi's 3rd Grade Children Stratified by Race

Variable	Non-Hispanic White		Non-Hispanic Black	
	Percent	95% CI	Percent	95% CI
History of Decay (% yes)	57.1	53.5 – 60.8	68.8	65.8 – 71.8
Treated Decay (% yes)	46.0	42.4 – 49.7	47.3	44.1 – 50.6
Untreated Decay (% yes)	21.2	18.3 – 24.1	41.4	38.2 – 44.5
Sealants (% yes)	29.8	26.5 – 33.1	17.9	15.4 – 20.4
Need Dental Treatment (% yes)	20.8	17.9 – 23.7	41.8	38.7 – 45.0
Need Urgent Treatment (% yes)	2.1	1.1 – 3.1	7.9	6.1 – 9.7
Eligible for Free/Reduced Lunch (% yes)	49.0	45.4 – 52.4	91.8	89.9 – 93.8
Dental Visit in Last Year (% yes)	78.0	75.0 – 81.0	67.0	63.8 – 70.8
Could Not Get Care (% yes)	13.7	11.2 – 16.2	25.1	22.2 – 28.0
Insurance Coverage				
Private (% yes)	45.0	41.4 – 48.7	14.8	12.4 – 17.2
Medicaid/CHIP (% yes)	30.8	27.4 – 34.2	71.1	68.1 – 74.2
No Insurance (% yes)	14.9	12.2 – 17.6	9.5	7.5 – 11.5
Other (% yes)	9.3	7.1 – 11.4	4.6	3.2 – 6.0
Sugared Drinks with Meals (% yes)	55.0	51.3 – 58.7	70.8	67.8 – 73.9

Table 7
Oral Health Status, Access to Dental Care, Insurance Coverage and Beverage Consumption for
Mississippi's 3rd Grade Children, Stratified by Eligibility for the Free/Reduced Lunch (FRL) Program

Variable	Not Eligible for FRL		Eligible for FRL	
	Percent	95% CI	Percent	95% CI
History of Decay (% yes)	46.4	41.7 – 51.1	69.3	66.7 – 71.9
Treated Decay (% yes)	39.0	34.4 – 43.6	50.0	47.1 – 52.8
Untreated Decay (% yes)	15.4	12.0 – 18.7	36.5	33.9 – 39.1
Sealants (% yes)	32.6	28.2 – 36.9	20.2	17.8 – 22.5
Need Dental Treatment (% yes)	15.5	12.1 – 18.8	36.5	33.9 – 39.1
Need Urgent Treatment (% yes)	1.3	0.2 – 2.4	6.3	5.0 – 7.6
Race = White (% yes)	81.8	78.3 – 85.2	33.5	30.9 – 36.1
Dental Visit in Last Year (% yes)	81.8	78.3 – 85.3	68.2	65.5 – 70.9
Could Not Get Care (% yes)	7.2	4.9 – 9.5	24.9	22.4 – 27.3
Insurance Coverage				
Private (% yes)	68.1	63.7 – 72.4	12.7	10.7 – 14.7
Medicaid/CHIP (% yes)	6.7	4.3 – 9.2	70.0	67.3 – 72.6
No Insurance (% yes)	12.2	9.1 – 15.3	12.5	10.6 – 14.4
Other (% yes)	13.0	9.9 – 16.0	4.8	3.6 – 6.0
Sugared Drinks with Meals (% yes)	47.6	42.9 – 52.4	68.3	65.7 – 71.0

Table 8

**Oral Health Status, Access to Dental Care, Insurance Coverage, and Beverage Consumption
for Mississippi's 3rd Grade Children
Stratified by Race and Eligibility for the Free/Reduced Lunch (FRL) Program**

Variable	Non-Hispanic White No FRL % (95% CI)	Non-Hispanic White Yes FRL % (95% CI)	Non-Hispanic Black Yes FRL % (95% CI)
History of Decay (% yes)	53.4 (48.1-58.7)	67.3 (62.3-72.4)	70.2 (67.1-73.4)
Untreated Decay (% yes)	13.9 (10.3-17.5)	27.8 (23.1-32.5)	41.8 (38.5-45.2)
Sealants (% yes)	36.1 (31.2-41.0)	23.5 (18.9-28.1)	18.8 (16.1-21.5)
Need Dental Treatment (% yes)	14.0 (10.4-17.6)	26.9 (22.3-31.6)	42.3 (39.0-45.7)
Need Urgent Treatment (% yes)	0.5 (0.0-1.2)	3.7 (1.9-5.5)	8.0 (6.1-9.9)
Dental Visit in Last Year (% yes)	84.3 (80.6-88.0)	70.5 (65.6-75.4)	66.8 (63.4-70.2)
Could Not Get Care (% yes)	7.2 (4.6-9.7)	21.1 (16.8-25.4)	26.9 (23.8-30.0)
Insurance Coverage			
Private (% yes)	70.8 (66.0-75.6)	18.5 (14.0-23.0)	10.4 (8.3-12.5)
Medicaid/CHIP (% yes)	5.3 (2.7-7.8)	57.6 (52.2-63.0)	76.5 (73.5-79.5)
No Insurance (% yes)	12.7 (9.1-16.2)	16.6 (12.7-20.5)	9.8 (7.7-12.0)
Other (% yes)	11.3 (8.0-14.5)	7.3 (4.4-10.1)	3.3 (2.1-4.5)
Sugared Drinks with Meals (% yes)	47.1 (41.8-52.4)	62.8 (57.7-68.0)	71.4 (68.3-74.6)

Table 9
Oral Health Status, Access to Dental Care, Insurance Coverage and Beverage Consumption for
Mississippi's 3rd Grade Children Stratified by Time Since Last Dental Visit

Variable	Visit in Last Year		No Visit in Last Year	
	Percent	95% CI	Percent	95% CI
History of Decay (% yes)	62.7	59.8 – 65.5	62.3	57.9 – 66.7
Treated Decay (% yes)	52.6	49.7 – 55.6	34.2	29.9 – 38.6
Untreated Decay (% yes)	24.1	21.8 – 26.5	44.6	40.2 – 49.0
Sealants (% yes)	29.6	26.9 – 32.3	9.1	6.5 – 11.7
Need Dental Treatment (% yes)	24.0	21.6 – 26.3	44.9	40.6 – 49.3
Need Urgent Treatment (% yes)	3.6	2.6 – 4.6	7.7	5.2 – 10.1
Race = White (% yes)	53.2	50.4 – 56.0	39.2	34.9 – 43.5
Eligible for Free/Reduced Lunch (% yes)	65.3	62.5 – 68.1	79.8	76.0 – 83.7
Could Not Get Care (% yes)	12.4	10.6 – 14.3	36.2	31.7 – 40.7
Insurance Coverage				
Private (% yes)	35.1	32.2 – 37.9	17.6	14.1 – 21.1
Medicaid/CHIP (% yes)	50.5	47.6 – 53.3	49.4	44.8 – 54.0
No Insurance (% yes)	7.2	5.7 – 8.8	26.3	22.2 – 30.4
Other (% yes)	7.2	5.7 – 8.7	6.7	4.2 – 9.2
Sugared Drinks with Meals (% yes)	61.7	58.8 – 64.5	63.5	59.1 – 67.9

Table 10
Oral Health Status, Access to Dental Care, Insurance Coverage and Beverage Consumption for
Mississippi's 3rd Grade Children Stratified by Type of Dental Insurance Coverage

Variable	Private Insurance % (95% CI)	Medicaid/CHIP % (95% CI)	No Insurance % (95% CI)
History of Decay (% yes)	50.6 (45.8-55.3)	69.7 (66.7-72.8)	63.5 (57.0-70.0)
Untreated Decay (% yes)	16.7 (13.3-20.1)	36.0 (32.9-39.1)	42.6 (29.8-43.2)
Sealants (% yes)	32.6 (28.2-37.0)	22.0 (19.2-24.8)	12.3 (7.9-16.8)
Need Dental Treatment (% yes)	17.5 (14.0-20.9)	35.9 (32.8-39.0)	41.6 (35.2-48.1)
Need Urgent Treatment (% yes)	2.1 (0.9-3.3)	5.9 (4.4-7.3)	8.3 (4.7-11.9)
Race = White (% yes)	73.8 (70.0-77.7)	29.3 (26.3-32.4)	56.9 (50.5-63.3)
Eligible for Free/Reduced Lunch (% yes)	30.3 (26.2-34.5)	96.0 (94.6-97.5)	70.4 (63.9-76.9)
Dental Visit in Last Year (% yes)	84.0 (80.8-87.3)	72.9 (69.9-75.9)	42.0 (34.9-49.1)
Could Not Get Care (% yes)	11.8 (8.9-14.8)	19.0 (16.5-21.6)	38.9 (32.0-45.7)
Sugared Drinks with Meals (% yes)	51.8 (47.1-56.6)	69.5 (66.4-72.6)	61.3 (54.5-68.0)

Table 11
Oral Health Status of Mississippi's 3rd Grade Children – 2005 and 2010

Variable	2005		2010	
	Percent	95% CI	Percent	95% CI
History of Decay (% yes)	68.9	67.5 – 70.2	62.8	60.6 – 65.1
Untreated Decay (% yes)	39.1	37.7 – 40.5	30.6	28.5 – 32.7
Sealants (% yes)	25.6	24.3 – 26.8	23.5	21.5 – 25.5
Need Urgent Treatment (% yes)	9.9	9.0 – 10.8	4.8	3.8 – 5.8

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Definitions of Terms

Acute (pain/condition) - Brief and severe

Center for Disease Control (CDC) - Center for Disease Control and Prevention: a federal agency in the Department of Health and Human Services; located in Atlanta Georgia; investigates, diagnoses, and tries to control or prevent diseases (especially new and unusual diseases)

Chronic (pain/condition) - Continuing for a long time

Dental Caries- Also known as tooth decay or a cavity, is a disease where bacterial processes damage hard tooth structure

Dental Sealants-A resin based material placed on the pits and grooves of the chewing surfaces of teeth. Sealants prevent tooth decay by creating a barrier between a tooth and decay-causing bacteria. Sealants also stop cavities from growing and can prevent the need for expensive fillings.

Evaluate-To examine carefully; to calculate or set down the numerical value

Extract-To remove

FRL-Free and Reduced Lunch

Healthy People 2020- Healthy People 2020 is a set of health objectives for the nation to achieve over the second decade of the new century. It can be used by many different people, States, communities, professional organizations and others to help them develop programs to improve health.

Molars-Teeth with a broad crown for grinding food; located behind the bicuspids

Oral Health-Oral Health means being free of chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the mouth and oral cavity.

Primary Teeth (Baby Teeth)-The first teeth which are shed and replaced by permanent teeth. The first primary tooth comes in at about 6 months of age and the 20th and last primary tooth erupts at around 2 1/2 years of age. The primary teeth are replaced beginning usually at about age 6.

Preventive Care- Refers to measures taken to prevent disease, (or injuries) rather than curing them or treating their symptoms.

Public Health-The art of protecting and improving community health by means of preventive medicine, health education, communicable disease control, and the application of the social and sanitary sciences

Tooth Decay- Tooth decay is the process that results in a cavity (dental caries). It occurs when bacteria in your mouth make acids that eat away at a tooth. If not treated, tooth decay can cause pain, infection, and tooth loss.