

# **3<sup>RD</sup> GRADE BASIC SCREENING SURVEY**

SCHOOL YEAR 2019-2020, ARKANSAS

**OFFICE OF ORAL HEALTH**  
ARKANSAS DEPARTMENT OF HEALTH



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## GLOSSARY

Decay experience	Refers to having untreated decay or a dental filling, crown, or other type of restorative dental material. Also includes teeth that were extracted because of tooth decay
Untreated decay	Dental cavities or tooth decay that have not received appropriate treatment
Dental sealants	Plastic-like coatings that are applied to the chewing surfaces of back teeth. The applied sealant resin bonds into the grooves of teeth to form a protective physical barrier
Early dental treatment	Child needs to see a dentist within the next few weeks for dental treatment
Urgent dental treatment	Child needs to see a dentist within 24 – 48 hours because of pain or infection
Sampling	Method where a subset population is used to infer information about a population without having to investigate every individual
Weighting	Adjusts the data to ensure that the sample accurately reflects the characteristics of the population from which it was drawn and to which an inference will be made
Confidence interval	Indicates the precision of a result's measurement
Basic screening survey	Method used by states to assess oral health status of a group
Healthy People 2030 Objectives	Provides science-based, 10-year national objectives for improving the health of all Americans using baseline measurement to determine a target goal
Disparity	Refers to a higher burden of illness/disease, injury, disability, or mortality experienced by one group relative to another

## ACRONYMS

ASTDD	Association of State and Territorial Dental Directors
ADE	Arkansas Department of Education
ADH	Arkansas Department of Health
BSS	Basic Screening Survey
CDC	Centers for Disease Control and Prevention
LHU	Local Health Unit
NHANES	National Health and Nutrition Examination Survey (NHANES)
NSLP	National School Lunch Program. Also known as the Free/Reduced Price Lunch Program
OOH	Office of Oral Health
PHR	Public Health Regions as determined by the ADH
SBHCs	School Based Health Clinics
SBSPs	School Based Sealant Programs
SSID	State Student Identification
SSPs	School Sealant Programs

## INTRODUCTION

Dental decay is the most common chronic childhood disease in the United States. Children with untreated decay can experience dental pain and infections that can impact their overall health, such as issues with eating, speaking, playing, and learning. However, dental decay is preventable at an early age. Dental sealants, easily applied to the back teeth of a child, can prevent dental caries by 80% (CDC Oral Health, 2020).

The Association of State and Territorial Dental Directors (ASTDD) developed the Basic Screening Survey (BSS) to assist state and local public health agencies monitor oral health conditions and diseases to correlate with the Healthy People objectives (ASTDD *The Basic Screening Survey*, 2017). Since oral disease patterns differ between preschool children, school children, and older adults, ASTDD modeled the BSS specifically for each age group. In particular, the BSS for school children has 4 areas of oral health focus:

1. Decay experience
2. Untreated decay experience
3. Dental sealants presence
4. Urgency of need for dental treatment

The Arkansas Department of Health – Office of Oral Health (ADH OOH) mission to “*promote life-long, optimum oral health for all Arkansans through primary prevention, education, accessible and culturally competent community-based oral health care*” is supported by performing and using the BSS findings to address high-risk groups and their oral health needs. The OOH routinely evaluates oral health conditions among 3rd grade students about every five years to ensure the goals align with those of Healthy People oral health objectives, a set of national objectives designed to improve the health of all Americans. The survey provides oral health advocates, researchers, policy makers, and government officials with valuable information for future programs and recommendations.

Oral health data is important for establishing evidence-based practices and to form new policies and interventions. This type of surveillance is also the most effective way to monitor current efforts and how Arkansas trends in relation to national targets. For the 2019 – 2020 school year, the OOH conducted a BSS within the state of Arkansas to gather the most current oral health status of 3rd grade students utilizing ASTDD BSS detailed protocol for school recruitment and data analysis. Following this protocol allows Arkansas to publish results in the National Oral Health Surveillance System.

KEY FINDINGS

# KEY FINDINGS

## Arkansas 3rd Grade Oral Health Survey



**37%**

About **37%** of students have a protective dental sealant

**2%** of students **urgently need** dental treatment

**18%** of students **need** dental treatment

**80%** of children are were **not in need** of dental treatment

**Need for dental treatment**

Students attending schools with

**50% OR MORE NSLP ELIGIBILITY**



have a **HIGHER** prevalence of:

**DECAY EXPERIENCE,  
UNTREATED DECAY, AND  
NEED FOR EARLY TO URGENT  
DENTAL TREATMENT**

## Disparities

### GEOGRAPHICAL

**Northeast PHR** had **lowest presence** of

**Dental sealants**

And **highest prevalence** of

**Untreated decay experience**

**Need for dental treatment**

**Urgent need for dental treatment**



### RACIAL

**Hispanic students**

have a **HIGHER** prevalence of **decay experience**

**African American students**

have **LOWER** prevalence of **Dental sealants** AND **HIGHER** prevalence of: **Untreated decay, Need for early to urgent dental treatment**

## METHODS

### Sampling methods

The sampling frame for this survey consisted of all non-virtual public schools with 15 or more students in 3rd grade (464 schools with 36,394 students in 3rd grade). A systematic probability proportional to size cluster sampling scheme was used to select 65 schools. If a school refused to participate, a school within the sampling interval was randomly selected. Of the 65 schools originally selected, nine refused to participate and were replaced. Data is available for all 65 sampling intervals (**Appendix 1-2**). Schools were used as the clusters and stratified by Public Health Regions (PHRs). PHRs are grouped as Central, Northeast, Northwest, Southeast, and Southwest.

### Collection methods

Of the 6,612 eligible students enrolled in the 65 participating schools, based on the 2018-2019 enrollment data obtained from the Arkansas Department of Education (ADE), about 77% of 3rd grade students (n = 5,084) received an oral health screening.

Six trained and registered dental hygienist Oral Health Specialists (OHSs) collected each State Student Identification (SSID) and screened each student's current oral health status on-site at the respective school using secured iPad-to-cloud data collection. The four BSS oral health focuses were examined; presence of untreated decay (no/yes), presence of treated decay (no/yes), presence of dental sealants (no/yes), and urgency of need for dental care (none/early/urgent).

Untreated decay experience was determined if a dental cavity, or tooth decay, had not received appropriate treatment. Dental sealant presence was determined if a plastic-like coating was applied to the chewing surfaces of the back teeth. Decay experience was determined if there was presence of a treated/untreated decay, a dental filling, crown, or other type of restorative dental material. This also included teeth that were extracted because of tooth decay. To determine the need for dental treatment, early dental treatment was identified if a student needed to see an OHS within the next few weeks. Urgent dental care was identified if a student needed to see an OHS within 24-48 hours because of pain or infection.

### Data analysis

The data was weighted (**Appendix 1**) to represent the participating 3rd grade students within each sampling interval calculated as such:

$$\text{Weight} = \frac{\text{Total \# of children in sampling interval}}{\text{\# of children screened in sampling interval}}$$

Oral health status results were calculated using the sample weight. All data presented was adjusted for the sampling scheme and non-response within each school. The SSID was used to merge the oral health screening data with the ADE's student database to obtain the students' selected demographics; age, gender, race/ethnicity, and National School Lunch Program (NSLP) Eligibility.

Age ranged from 6 years to 11 years. Race/ethnicity were identified as 'White', 'Black/African American', 'Hispanic', and 'Other'. 'Other' race/ethnicity is considered to include students who identified as 'Asian', 'American Indian/Alaska Native', 'Native Hawaiian/Pacific Islander', and 'Multi-Racial'. NSLP Eligibility was determined by the school's participation rate as '< 25% of students', '25-49% of students', '50-74% of students', '≥ 75% of students', and 'Schools does not participate in NSLP'. An additional categorization for NSLP Eligibility was included to reflect the percentage of students for '< 50% of students' and '≥ 50% of students'. All percentages were rounded to the nearest tenth place. Data analyses were completed using SAS 9.4.



## RESULTS

### Participants selected demographics

A total of 5,084 students participated in the survey (**Table 1**). After the merge, about 87% (n = 4,504) participants had complete demographics successfully merged, but 12.8% (n = 580) had missing information on age, gender and race/ethnicity.

Among participating students, 53.8% of the students identified as 'White' (n = 2,805), 14.3% identified as 'Black/African American' (n = 670), 13.4% identified as 'Hispanic' (n = 726), and 5.5% identified as 'Other' (n = 303) (**Figure 1**).

Approximately 43% of students identified as female (n = 2,248) while 44% identified as male (n = 2,256) (**Figure 2**).

Approximately 59% of students were 6 – 8 years of age (n = 3,019) and 28% of students were 9 – 11 years of age (n = 1,485) (**Figure 3**).

About 3% of students (n = 129) attended a school with less than 25% of NSLP Participation/Eligibility; 17% of students (n = 969) attended a school with 25-49% of NSLP Participation/Eligibility; 40% of students (n = 2,286) attended a school with 50-74% NSLP Participation/Eligibility; 37% of students (n = 1,561) attended schools with 75% or more NSLP Participation/Eligibility; and 3% of students attended a school that does not participate in the NSLP (**Figure 4**).

For PHRs, 26.2% of students (n = 1,280) attended a school in the Central region, 20.0% (n = 1,151) in the Northeast, 35.4% (n = 1,843) in the Northwest, 7.7% (n = 328) in the Southeast, and 10.8% (n = 482) in the Southwest region (**Figure 5**).

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

**Table 1. Demographic Characteristics of 3rd Grade Students Screened in Arkansas (Including Missing/Unknown), School Year 2019-2020**

Characteristic	Number of students	Weighted Percent	Lower 95% CL	Upper 95% CL
<b>Race/Ethnicity (N=5,084)</b>				
White	2,805	53.8	47.1	60.5
Black/African American	670	14.3	10.1	18.6
Hispanic	726	13.4	9.6	17.1
Other				
Asian	88	1.8	1.1	2.5
American Indian/Alaska Native	49	0.5	0.2	0.8
Native Hawaiian/Pacific Islander	25	0.4	0.1	0.7
Multi-Racial	141	2.8	2.1	3.6
Missing/Unknown	580	12.8	10.8	14.9
<b>Gender (N=5,084)</b>				
Female	2,248	42.8	40.9	44.8
Male	2,256	44.4	42.8	45.9
Missing/Unknown	580	12.8	10.8	14.9
<b>Age (N=5,084)</b>				
6 years	1	0.0	0.0	0.1
7 years	1	0.0	0.0	0.1
8 years	3,017	59.3	57	61.5
9 years	1,423	26.8	24.9	28.7
10 years	61	1.1	0.7	1.5
11 years	1	0.0	0.0	0.1
Missing/Unknown	580	12.8	10.8	14.9
<b>NSLP Participation/Eligibility (N=5,084)</b>				
< 25% of students	129	3.1	0.0	7.3
25-49% of students	969	16.9	7.7	26.2
50-74% of students	2,286	40.0	27.5	52.5
≥ 75% of students	1,561	36.9	24.6	49.2
Does not participate	139	3.1	0.0	7.4
<b>Public Health Region (PHR) (N=5,084)</b>				
Central	1,280	25.2	26.2	26.2
Northeast	1,151	22.6	20.0	20.0
Northwest	1,843	36.3	35.4	35.4
Southeast	328	6.5	7.7	7.7
Southwest	482	9.5	10.8	10.8

# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 1. Percentage (%) of 3rd Grade Students in Arkansas by Race, School Year 2019-2020

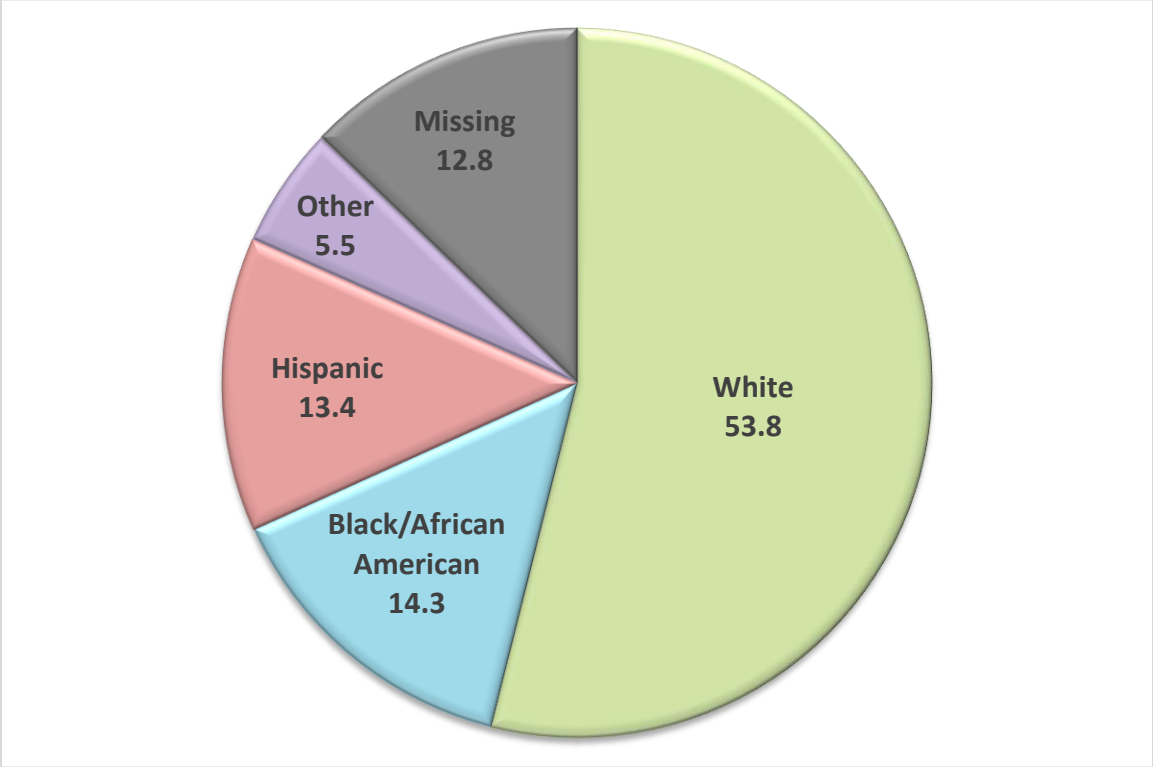
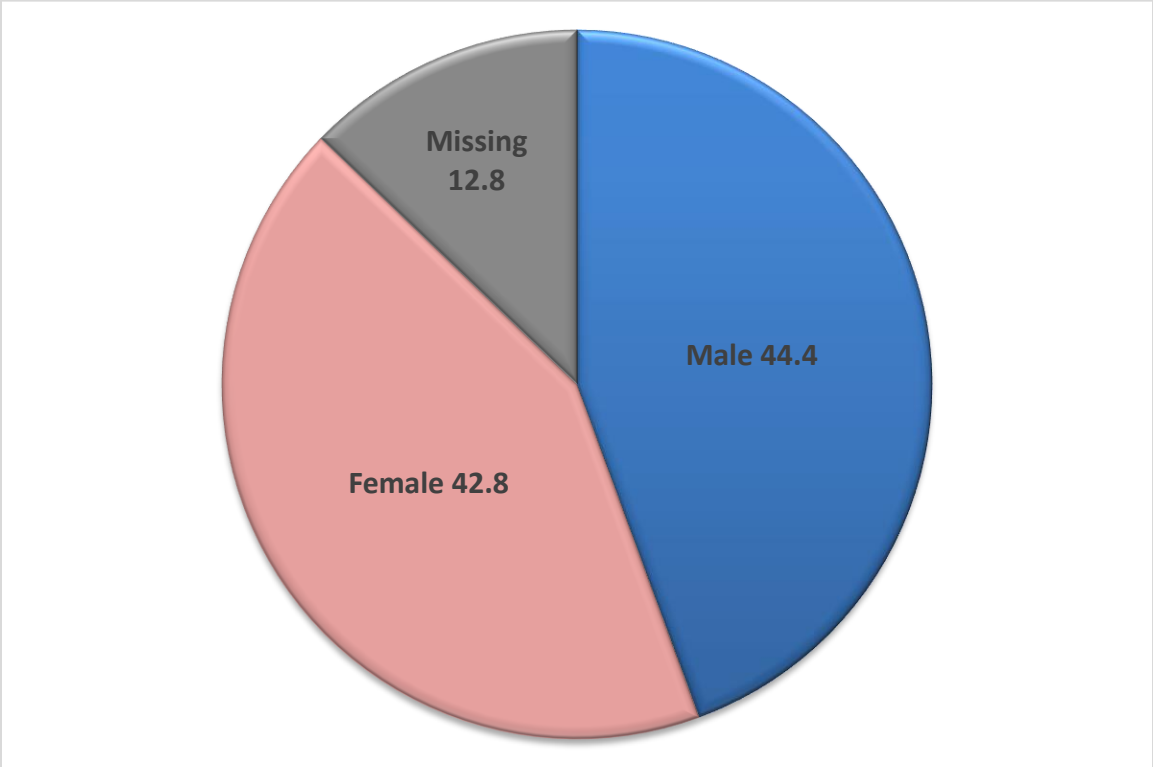
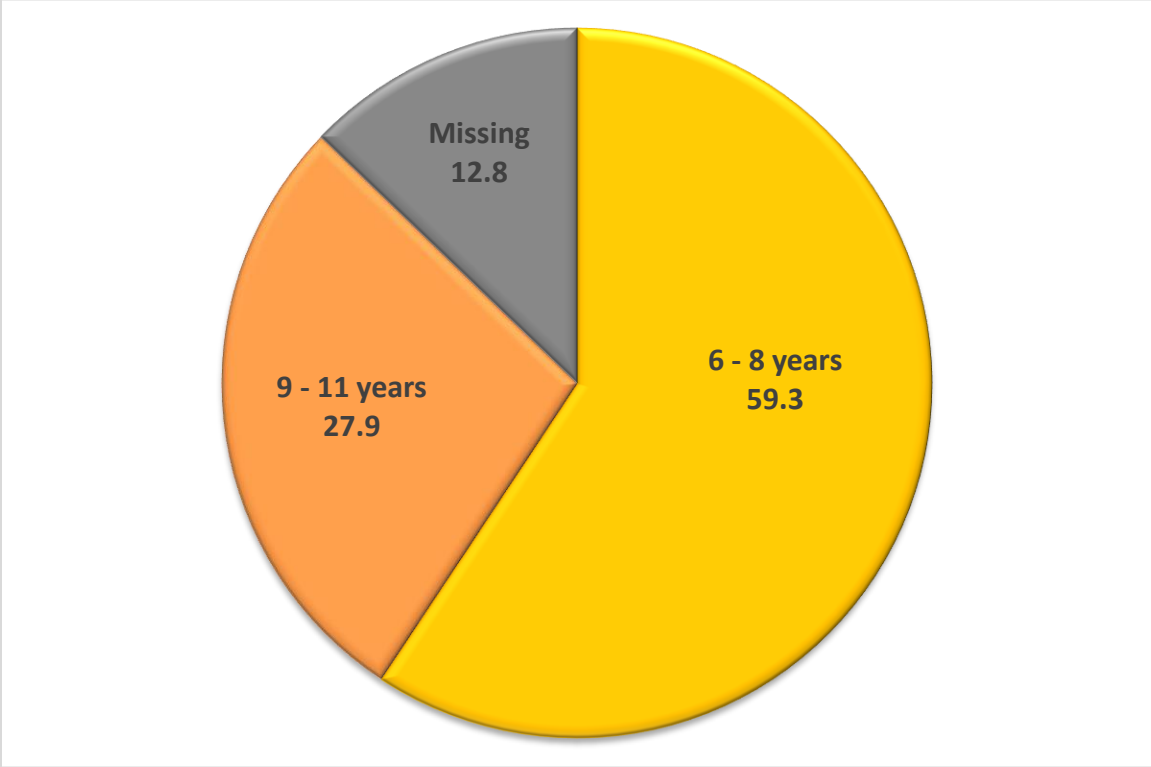


Figure 2. Percentage (%) of 3rd Grade Students in Arkansas by Gender, School Year 2019-2020

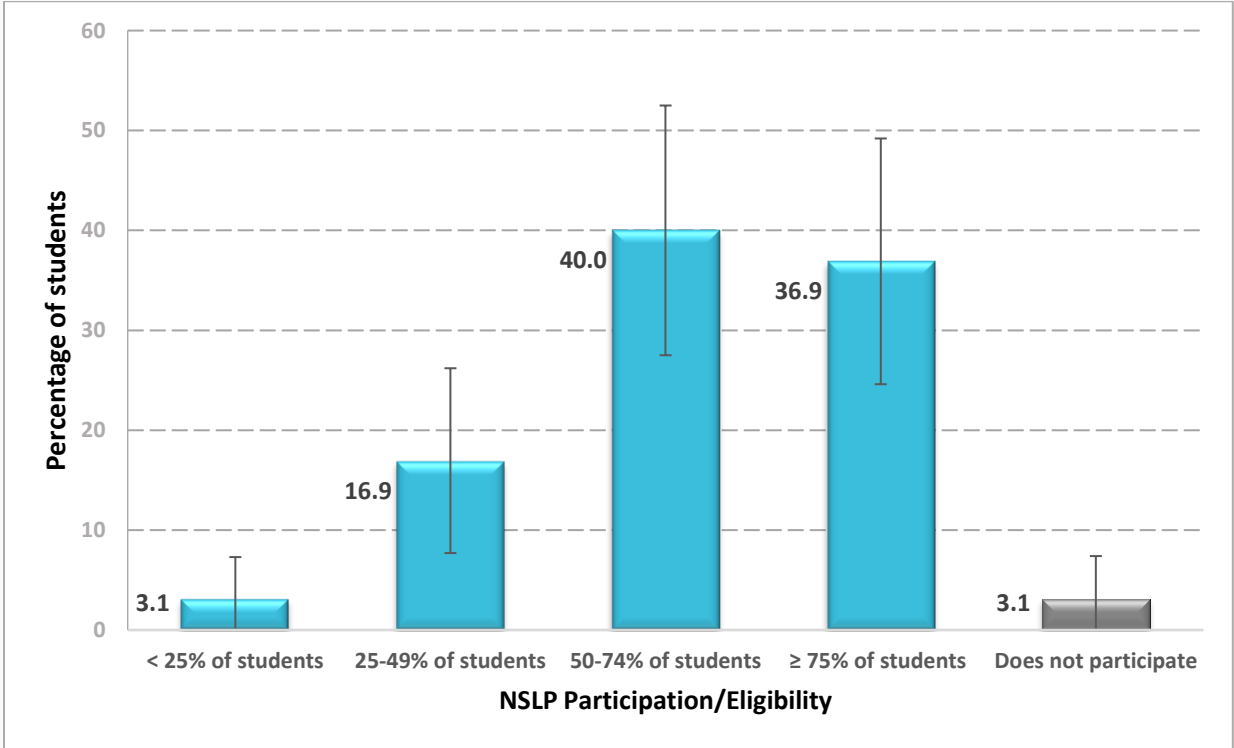


# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

**Figure 3. Percentage (%) of 3rd Grade Students in Arkansas by Age, School Year 2019-2020**

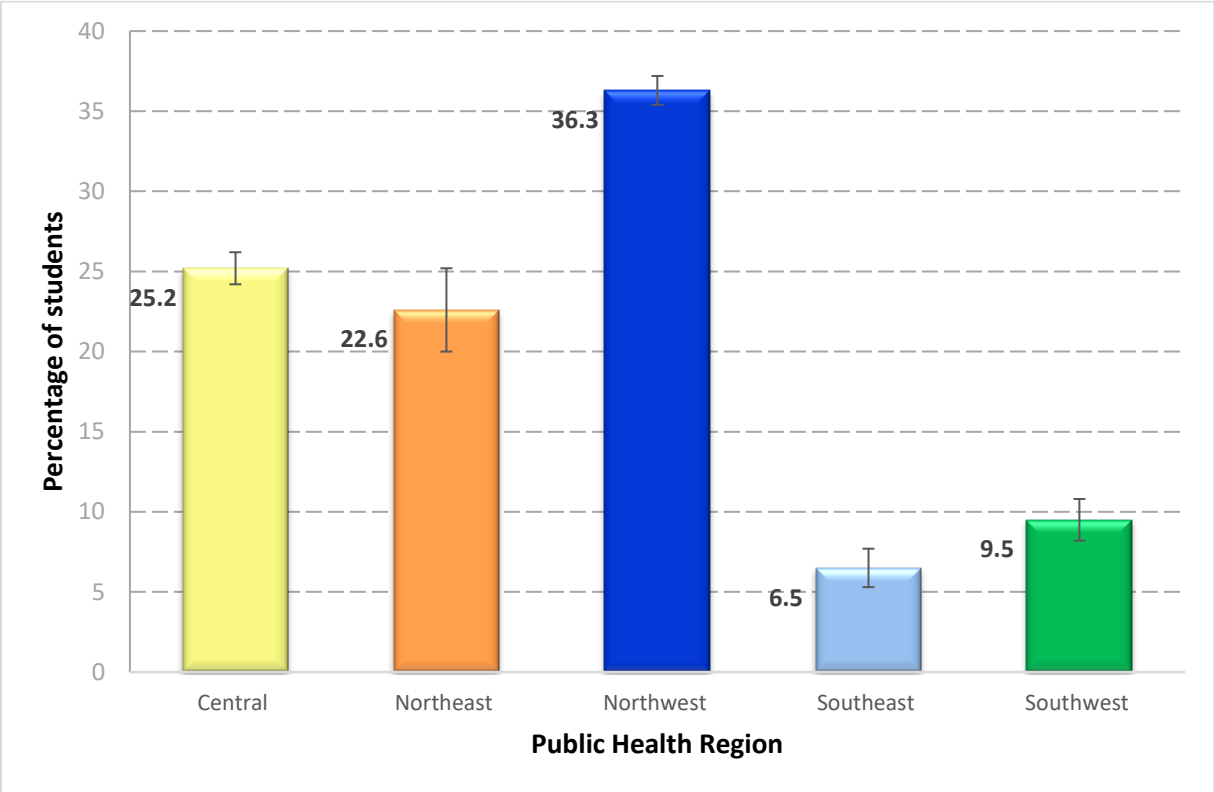


**Figure 4. Percentage (%) of 3rd Grade Students in Arkansas by NSLP Participation/Eligibility, School Year 2019-2020**



# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 5. Percentage (%) of 3rd Grade Students in Arkansas by PHR, School Year 2019-2020



## OVERALL ORAL HEALTH STATUS

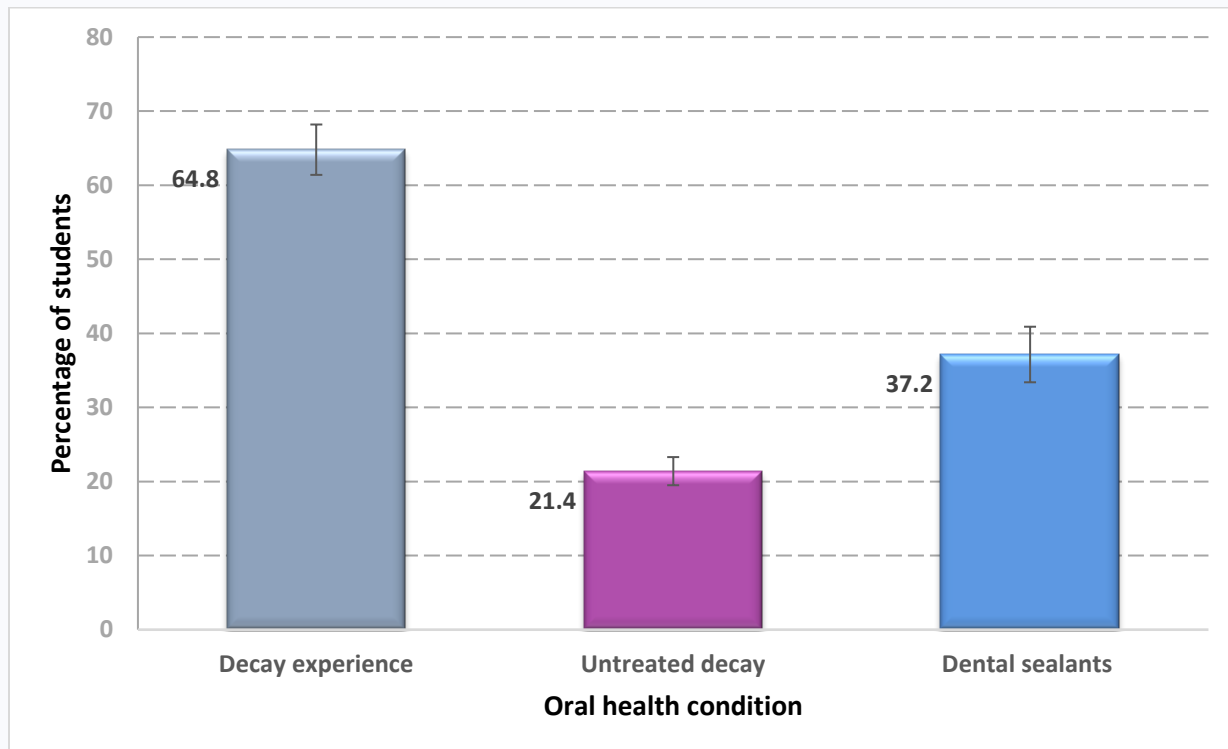
In **Table 2**, the overall oral health screening of participating students showed 64.8% of 3rd grade students had decay experience, 21.4% had untreated tooth decay, and 37.2% had presence of a dental sealant (**Figure 6**).

About 80% of students did not need dental treatment, 17.7% needed early dental treatment, and 1.9% urgently needed dental treatment (**Figure 7**).

**Table 2. Overall Oral Health Status of Arkansas 3rd Grade Students, School Year 2019-2020 (N = 5,084)**

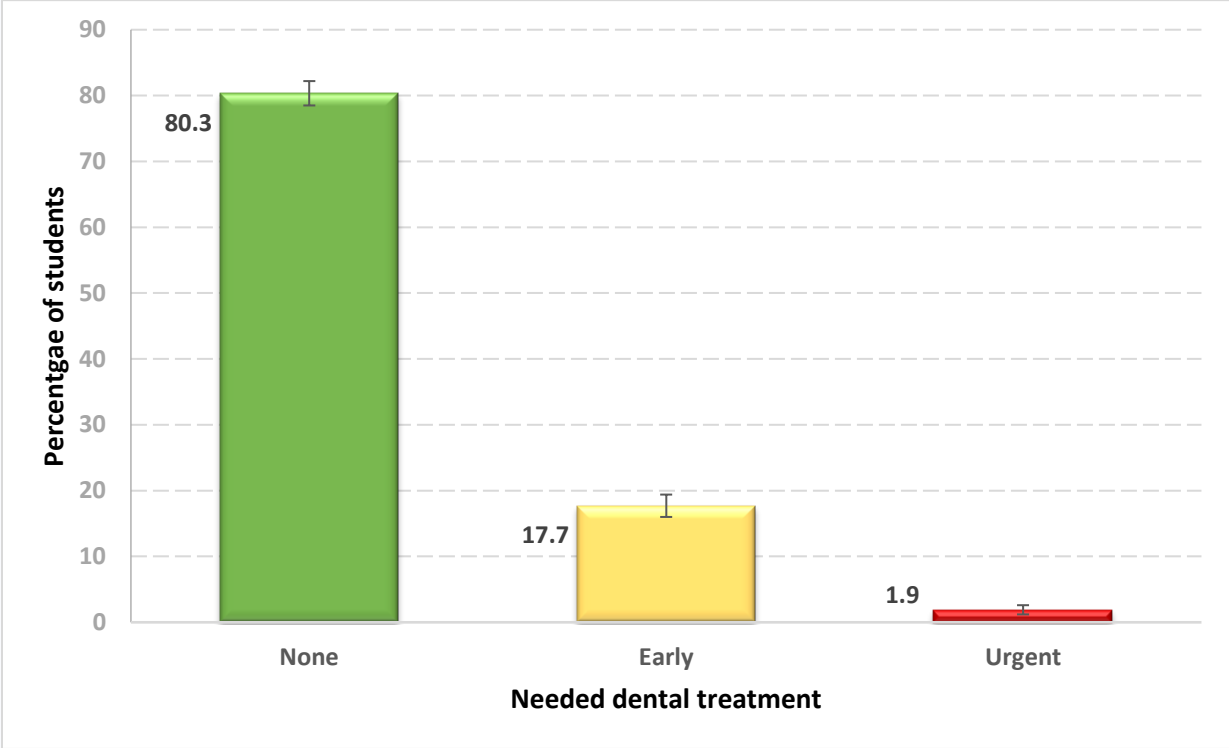
Oral health status	Percent (%) 'Yes'	Lower 95% CL	Upper 95% CL
<b>Condition</b>			
Decay experience (%)	64.8	61.4	68.2
Untreated decay (%)	21.4	19.5	23.3
Dental sealants (%)	37.2	33.4	40.9
<b>Need for Treatment (%)</b>			
None	80.3	78.5	82.2
Early	17.7	16.0	19.4
Urgent	1.9	1.2	2.6

**Figure 6. Percentage (%) of 3rd Grade Students in Arkansas by Oral Health Condition, School Year 2019-2020**



# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 7. Percentage (%) of 3rd Grade Students in Arkansas by Need for Treatment, School Year 2019-2020



# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

## ORAL HEALTH STATUS

### Decay experience by selected characteristics

Among 3rd grade students with decay experience (**Table 3**), 72.4% were Hispanic students, 68.3% were Black/African American students, 63.7% were Other students, and 61.1% were White students (**Figure 8**).

About 51% of students attending schools with less than 50% NSLP Eligibility had experienced decay while 68.4% of students attending schools with 50% or more NSLP Eligibility experienced decay (**Figure 9, Figure 10**).

The Central PHR had 60.5% of students experience decay, 64.1% in the Northeast, 66.1% in the Northwest, 72.7% in the Southeast, and 67.0% in the Southwest (**Figure 11**).

**Table 3. Percentage (%) of students with decay experience by selected characteristics**

Characteristic	Percent (%) with decay experience	Lower 95% CL	Upper 95% CL
<b>All Students (N=5,084)</b>	<b>64.8</b>	<b>61.4</b>	<b>68.2</b>
<b>Gender</b>			
Female	62.7	58.8	66.5
Male	65.6	61.5	69.8
<b>Race</b>			
White	61.1	56.9	65.3
Black/African American	68.3	61.6	75.1
Hispanic	72.4	67.6	77.3
Other	63.7	56.1	71.4
<b>NSLP Eligibility</b>			
< 25% of students	39.3	26.5	52.2
25-49% of students	52.5	44.5	60.5
50-74% of students	64.4	60.3	68.6
≥ 75% of students	72.8	68.5	77.1
<b>NSLP Eligibility</b>			
< 50% of students	50.5	42.8	58.1
≥ 50% of students	68.4	65.2	71.7
<b>Public Health Region (PHR)</b>			
Central	60.5	52.7	68.2
Northeast	64.1	57.7	70.5
Northwest	66.1	60.4	71.8
Southeast	72.7	63.2	82.2
Southwest	67.0	56.6	77.4



# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 8. Percentage (%) of 3rd Grade Students with Decay Experience in Arkansas by Race, School Year 2019-2020

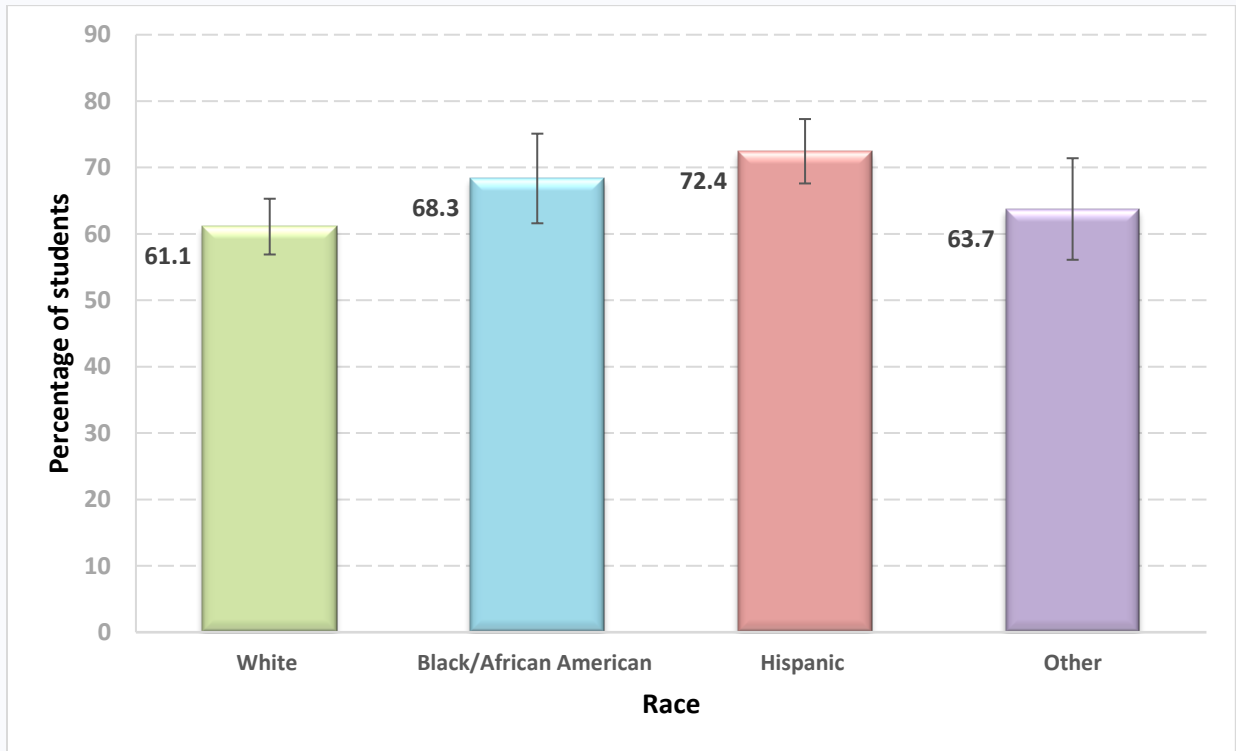
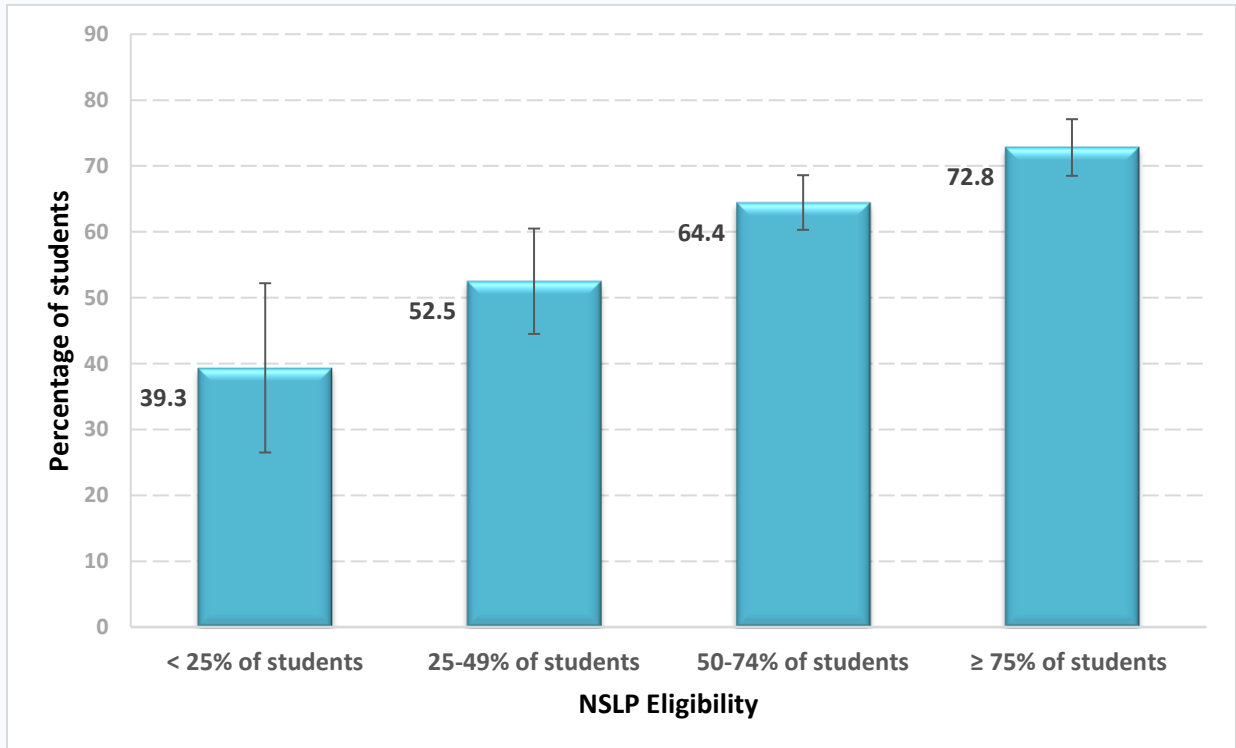


Figure 9. Percentage (%) of 3rd Grade Students in Arkansas with Decay Experience by NSLP Eligibility, School Year 2019-2020



## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 10. Percentage (%) of 3rd Grade Students in Arkansas with Decay Experience by NSLP Eligibility, School Year 2019-2020

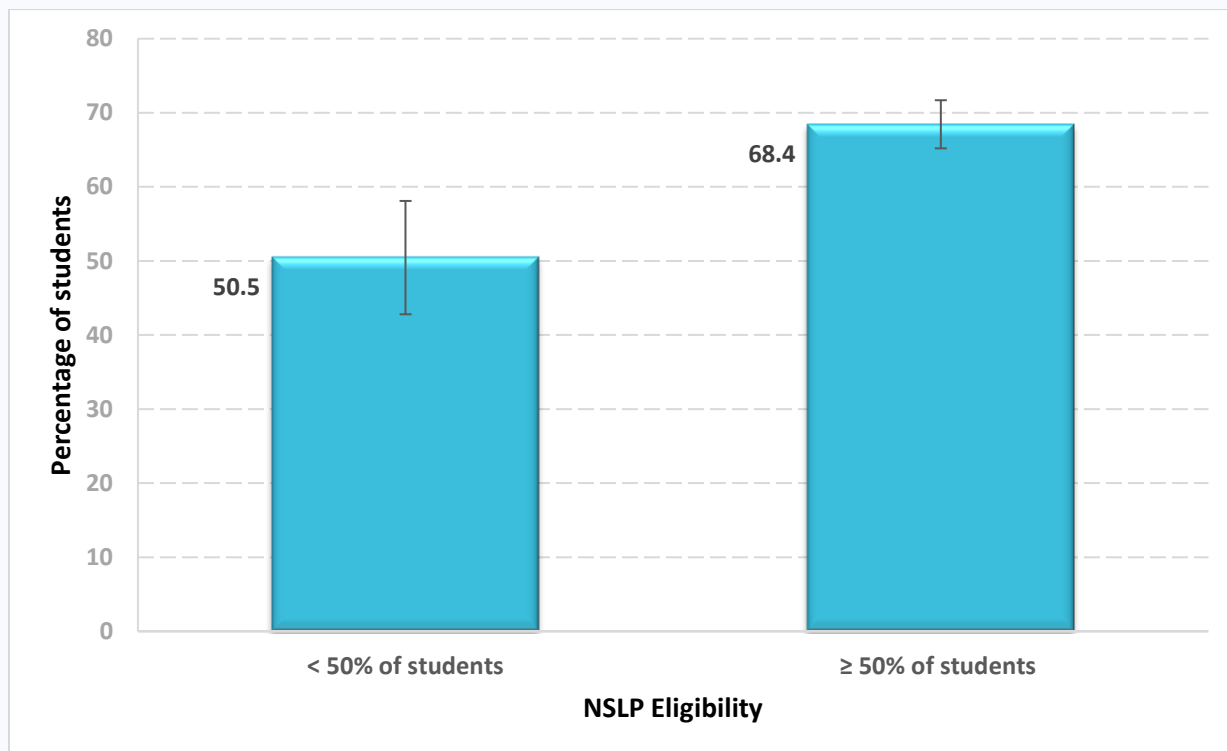
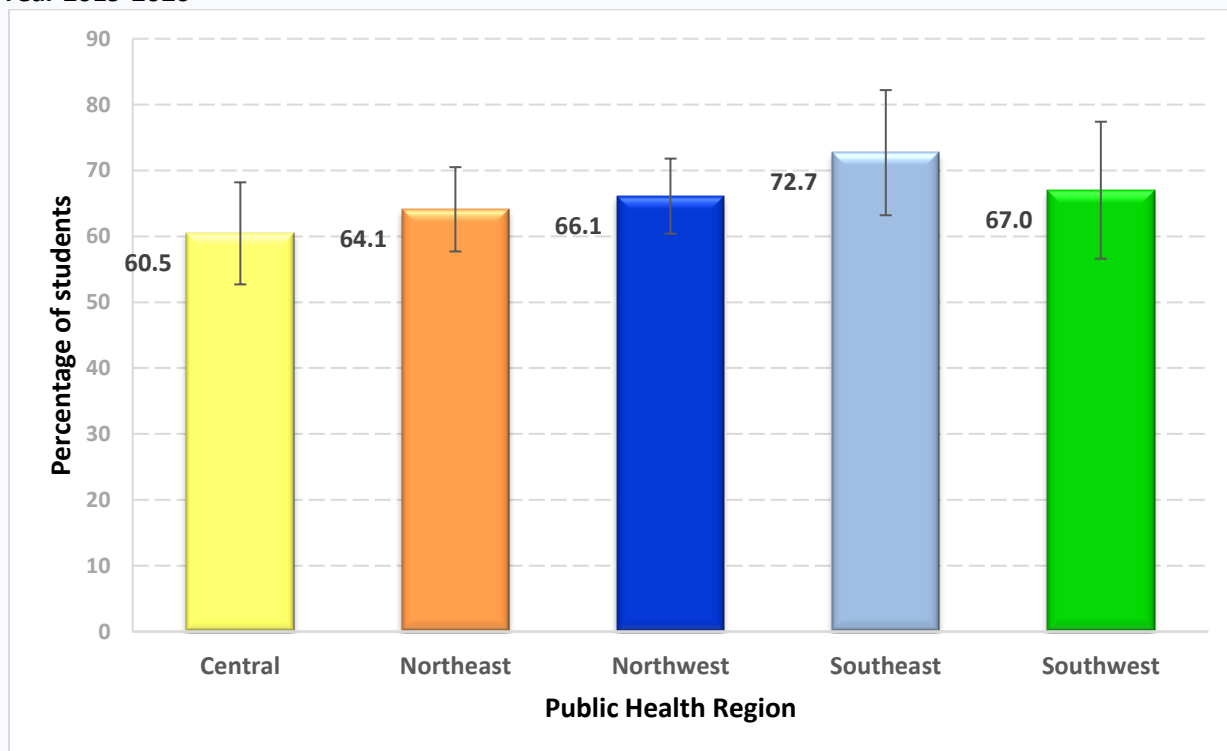


Figure 11. Percentage (%) of 3rd Grade Students in Arkansas with Decay Experience by PHR, School Year 2019-2020



# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

## ORAL HEALTH STATUS

### Untreated decay by selected characteristics

Among students with untreated decay experience (**Table 4**), 29.5% were Black/African American, 19.6% were White, 17.0% were Hispanic, and 14.6% were Other (**Figure 12**).

About 15% of students attending schools with less than 50% NSLP experienced untreated decay compared to 22.7% of students attending schools with 50% or more NSLP Eligibility (**Figure 13, Figure 14**).

Based on PHR, 18.5% of students in the Central region experienced untreated decay, 36.8% in the Northeast, 16.2% in the Northwest, 27.2% in the Southeast, and 13.1% in the Southwest (**Figure 15**).

**Table 4. Percentage (%) of students with untreated decay experience by selected characteristics**

Characteristic	Percent (%) with untreated decay experience	Lower 95% CL	Upper 95% CL
<b>All Students (N=5,084)</b>	<b>21.4</b>	<b>19.5</b>	<b>23.3</b>
<b>Gender</b>			
Female	19.3	16.7	21.9
Male	21.7	19.1	24.3
<b>Race</b>			
White	19.6	16.9	22.3
Black/African American	29.5	23.8	35.3
Hispanic	17.0	13.7	20.3
Other	14.6	10.9	18.3
<b>NSLP Eligibility</b>			
< 25% of students	7.6	2.9	12.3
25-49% of students	16.1	11.3	21.0
50-74% of students	21.5	17.9	25.0
≥ 75% of students	24.0	19.8	28.2
<b>NSLP Eligibility</b>			
< 50% of students	14.8	10.3	19.3
≥ 50% of students	22.7	20.4	25.0
<b>Public Health Region (PHR)</b>			
Central	18.5	15.1	21.9
Northeast	36.8	30.7	42.8
Northwest	16.2	13.5	18.8
Southeast	27.2	22.8	31.6
Southwest	13.1	8.7	17.5

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 12. Percentage (%) of 3rd Grade Students in Arkansas with Untreated Decay Experience by Race, School Year 2019-2020

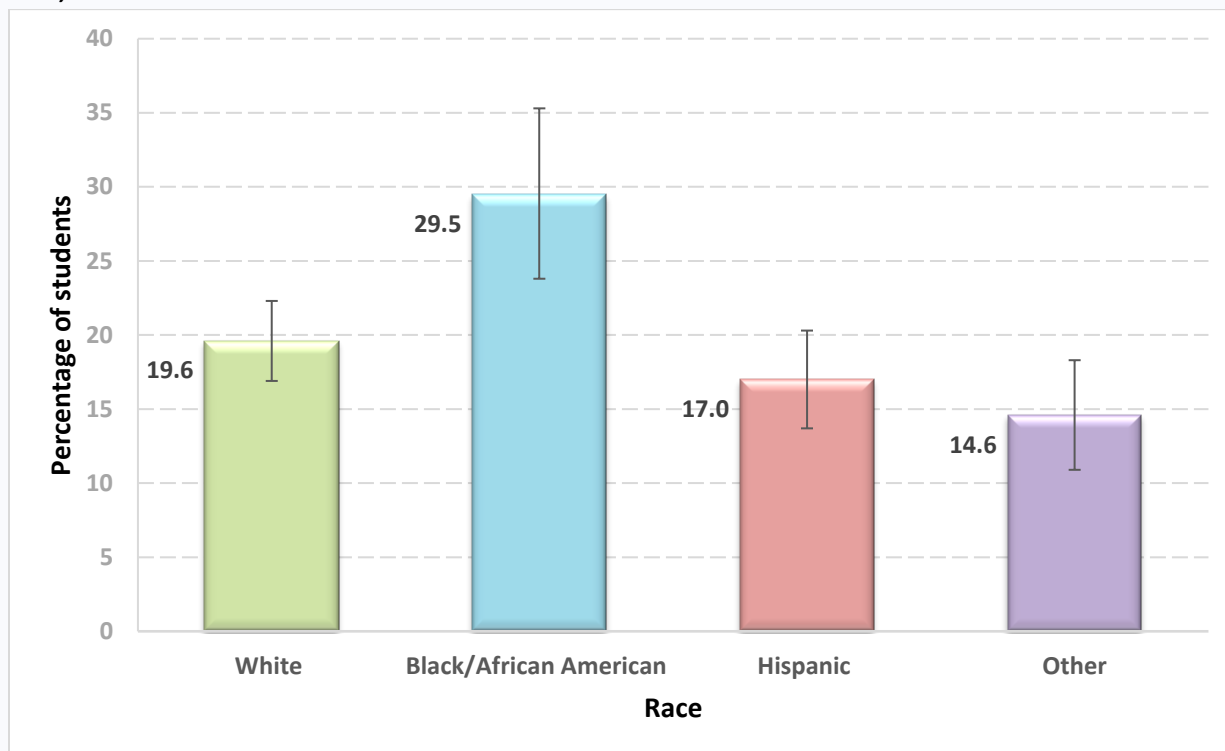
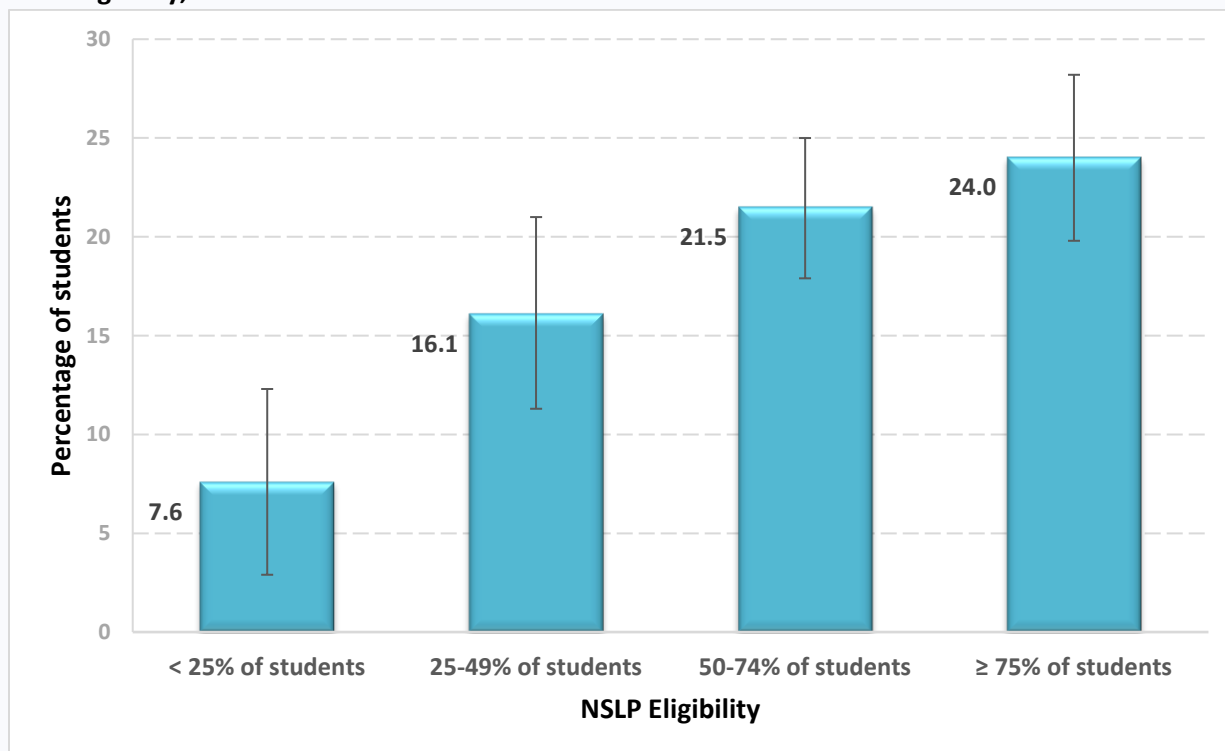


Figure 13. Percentage (%) of 3rd Grade Students in Arkansas with Untreated Decay Experience by NSLP Eligibility, School Year 2019-2020



## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 14. Percentage (%) of 3rd Grade Students in Arkansas with Untreated Decay Experience by NSLP Eligibility, School Year 2019-2020

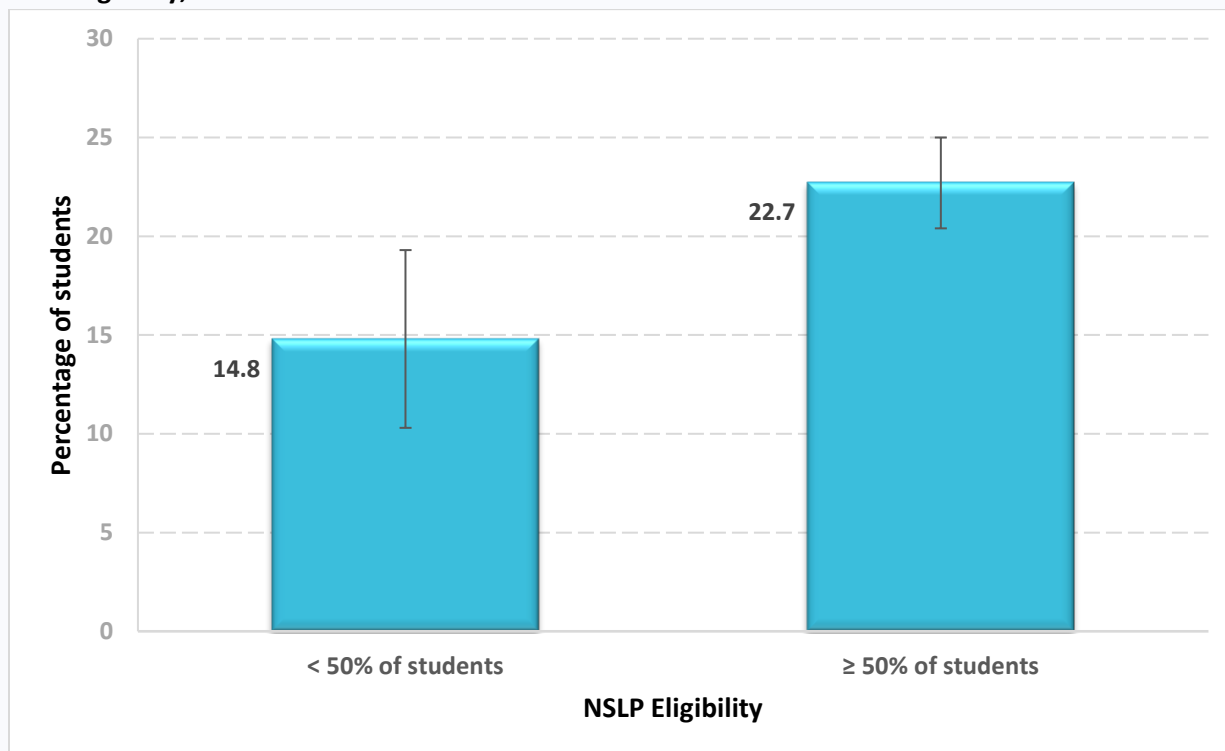
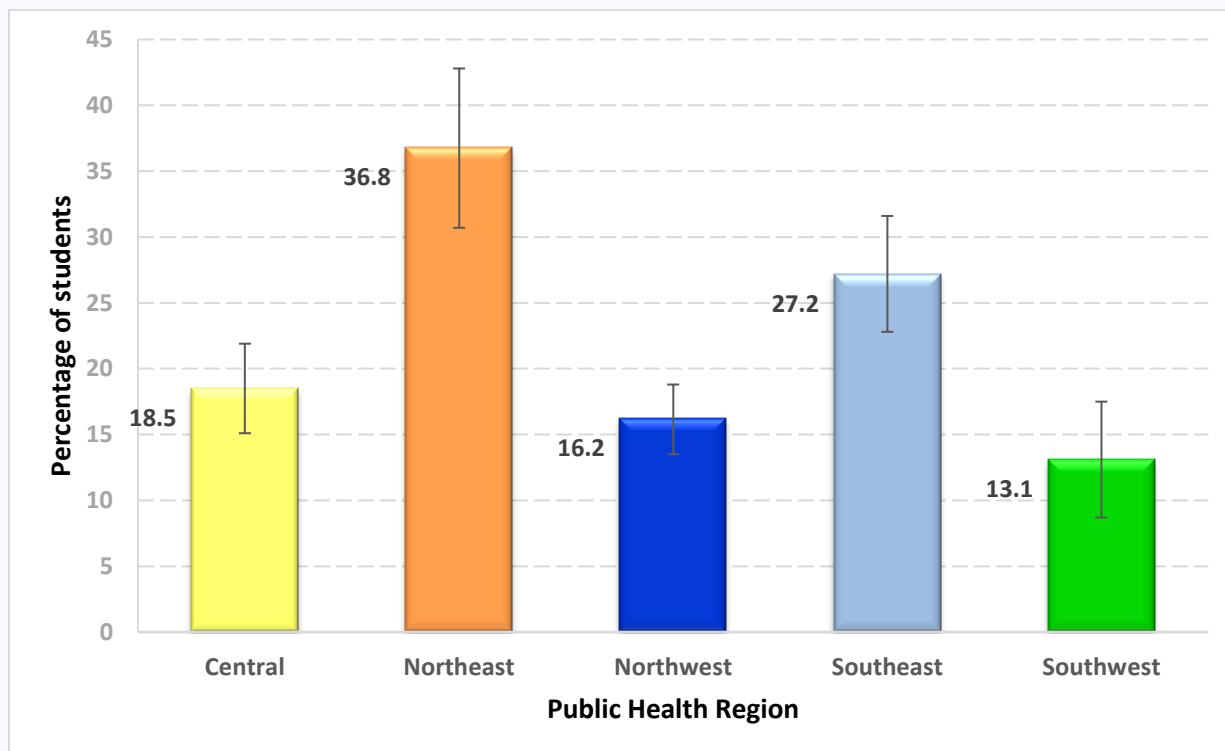


Figure 15. Percentage (%) of 3rd Grade Students in Arkansas with Untreated Decay Experience by PHR, School Year 2019-2020



# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

## ORAL HEALTH STATUS

### Presence of dental sealants by selected characteristics

Among students with presence of dental sealants (**Table 5**), 40.0% of students identified as Other, 39.9% were Hispanic, 39.0% were White, and 29.0% were Black/African American (**Figure 16**).

About 36% of students attending schools with less than 50% NSLP had dental sealants compared to 37.9% of students attending schools with 50% or more NSLP Eligibility (**Figure 17, Figure 18**).

Based on PHR, 33.1% of students in the Central region had dental sealants, 16.9% in the Northeast, 45.8% in the Northwest, 41.0% in the Southeast, and 53.6% in the Southwest (**Figure 19**).

**Table 5. Percentage (%) of students with dental sealants by selected characteristics**

Characteristic	Percent (%) with dental sealant	Lower 95% CL	Upper 95% CL
<b>All Students (N=5,084)</b>	<b>37.2</b>	<b>33.4</b>	<b>40.9</b>
<b>Gender</b>			
Female	39.5	35.2	43.7
Male	35.7	31.4	40.0
<b>Race</b>			
White	39.0	33.9	44.1
Black/African American	29.0	21.5	36.6
Hispanic	39.9	34.0	45.9
Other	40.0	32.7	47.3
<b>NSLP Eligibility</b>			
< 25% of students	43.7	37.1	50.2
25-49% of students	35.0	22.6	47.4
50-74% of students	38.2	31.2	45.2
≥ 75% of students	37.5	30.3	44.7
<b>NSLP Eligibility</b>			
< 50% of students	36.3	25.7	46.9
≥ 50% of students	37.9	33.3	42.4
<b>Public Health Region (PHR)</b>			
Central	33.1	23.0	43.1
Northeast	16.9	9.1	24.8
Northwest	45.8	41.1	50.6
Southeast	41.0	29.4	52.6
Southwest	53.6	43.3	63.9

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 16. Percentage (%) of 3rd Grade Students in Arkansas with Presence of Dental Sealants by Race, School Year 2019-2020

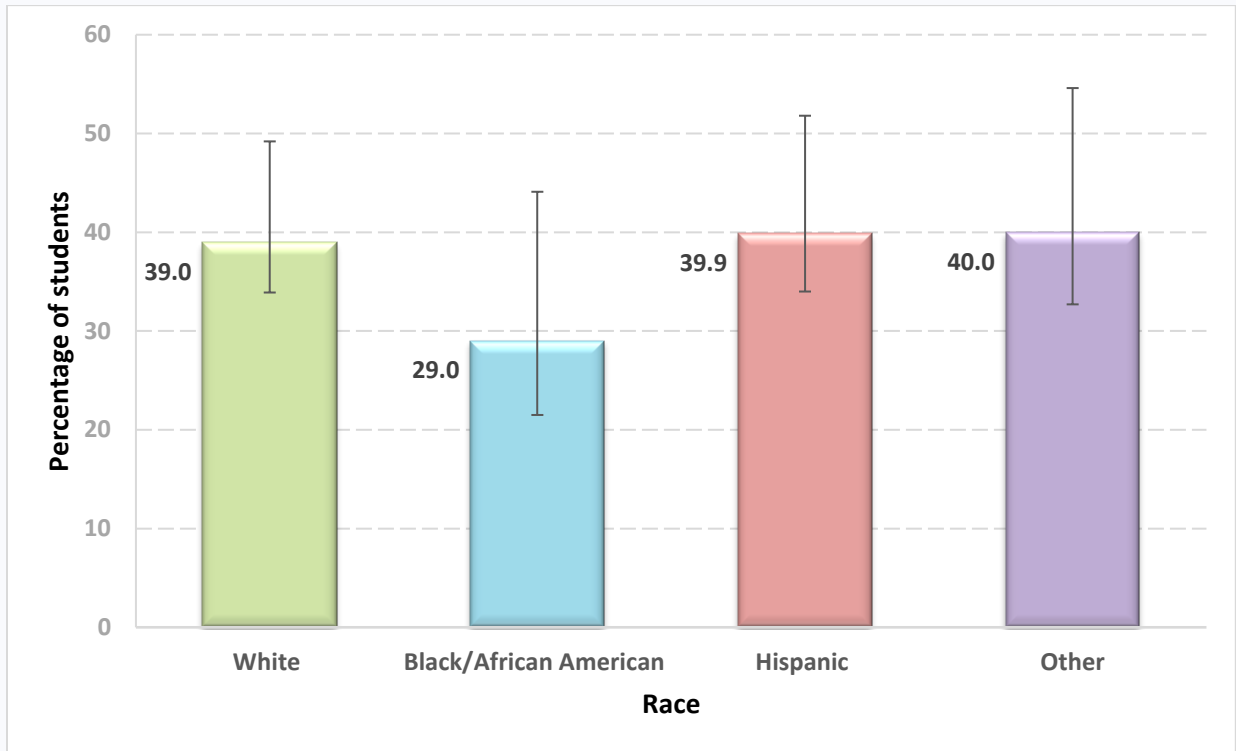
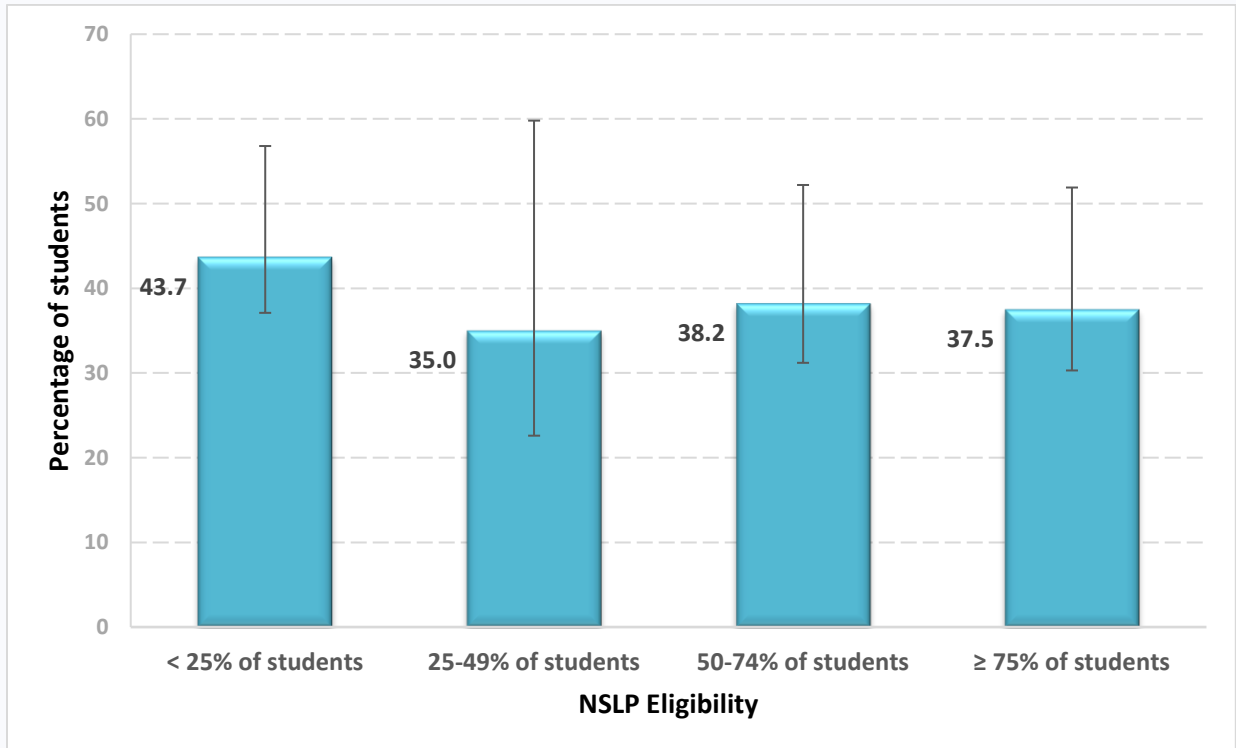


Figure 17. Percentage (%) of 3rd Grade Students in Arkansas with Presence of Dental Sealants by NSLP Eligibility, School Year 2019-2020



## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 18. Percentage (%) of 3rd Grade Students in Arkansas with Presence of Dental Sealants by NSLP Eligibility, School Year 2019-2020

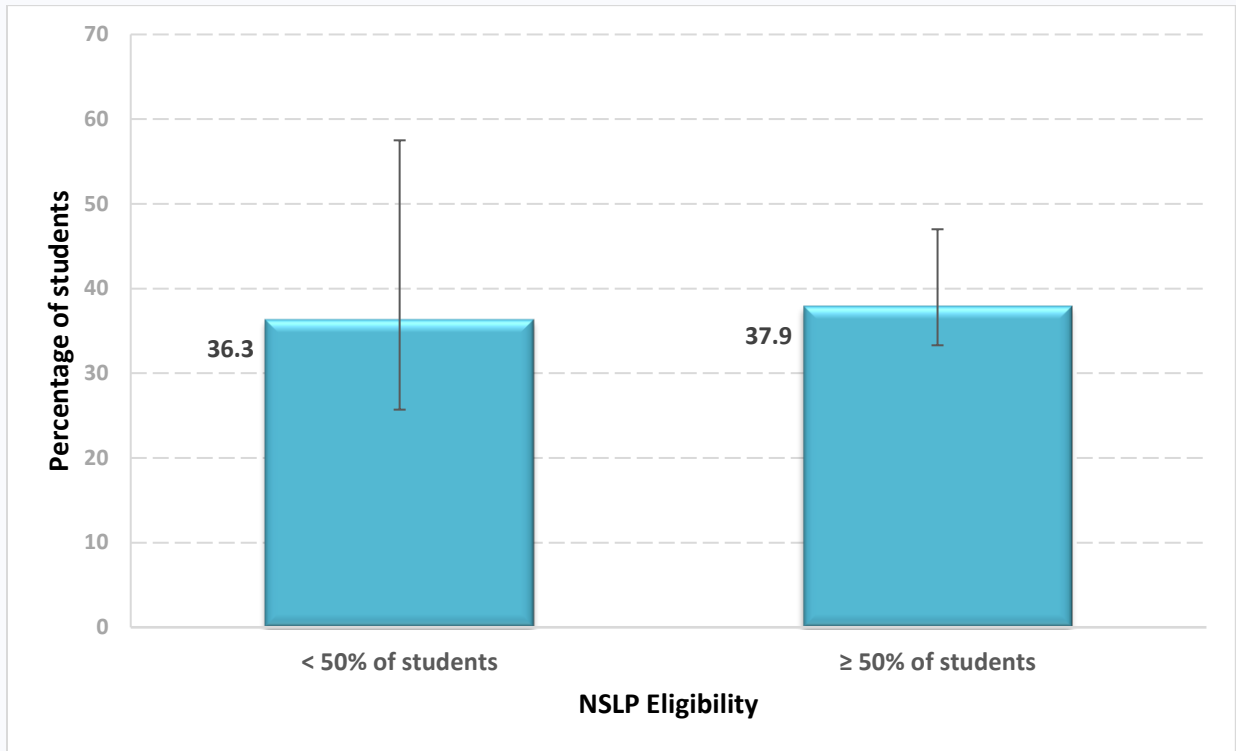
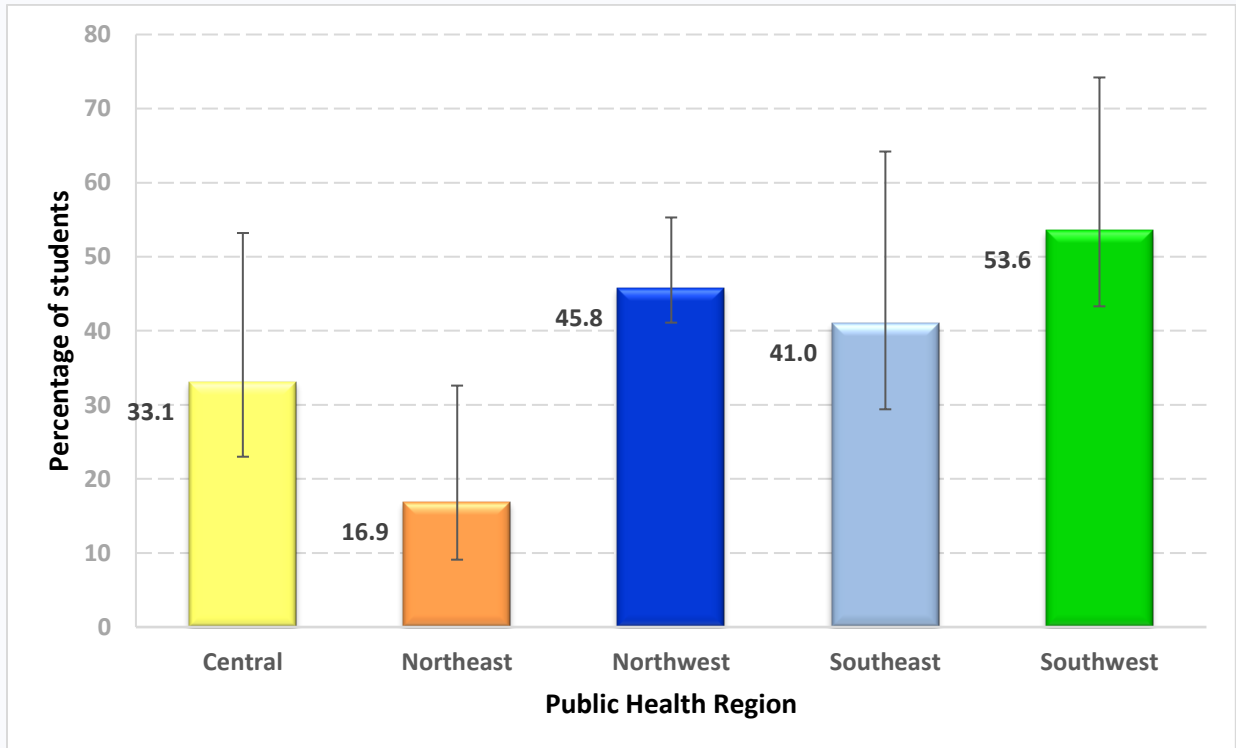


Figure 19. Percentage (%) of 3rd Grade Students in Arkansas with Presence of Dental Sealants by PHR, School Year 2019-2020





# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

## ORAL HEALTH STATUS

### Need for early or urgent dental treatment by selected characteristics

Among students needing dental treatment (**Table 6**), 25.7% of students were Black/African American, 18.3% were White, 16.2% were Hispanic, and 13.1% were Other (**Figure 20**).

About 13% of students attending schools with less than 50% NSLP Eligibility needed dental treatment compared to 21.1% of students attending schools with 50% or more NSLP student Eligibility (**Figure 21**, **Figure 22**).

Based on PHR, 12.2% of students in the Central region needed dental treatment, 36.6% in the Northeast, 16.0% in the Northwest, 27.2% in the Southeast, and 12.9% in the Southwest (**Figure 23**).

**Table 6. Percentage (%) of students needing dental treatment by selected characteristics**

Characteristic	Percent (%) needing dental treatment	Lower 95% CL	Upper 95% CL
<b>All Students (N=5,084)</b>	<b>19.7</b>	<b>17.8</b>	<b>21.5</b>
<b>Gender</b>			
Female	17.4	15.1	19.8
Male	20.3	17.7	22.8
<b>Race</b>			
White	18.3	15.7	21.0
Black/African American	25.7	20.2	31.2
Hispanic	16.2	12.8	19.6
Other	13.1	9.7	16.6
<b>NSLP Eligibility</b>			
< 25% of students	7.6	2.9	12.3
25-49% of students	13.7	8.3	19.1
50-74% of students	19.6	15.9	23.2
≥ 75% of students	22.8	18.4	27.2
<b>NSLP Eligibility</b>			
< 50% of students	12.8	8.0	17.5
≥ 50% of students	21.1	18.8	23.4
<b>Public Health Region (PHR)</b>			
Central	12.2	9.2	15.2
Northeast	36.6	30.5	42.6
Northwest	16.0	13.4	18.7
Southeast	27.2	22.8	31.6
Southwest	12.9	8.4	17.4

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 20. Percentage (%) of 3rd Grade Students in Arkansas with Need for Dental Treatment by Race, School Year 2019-2020

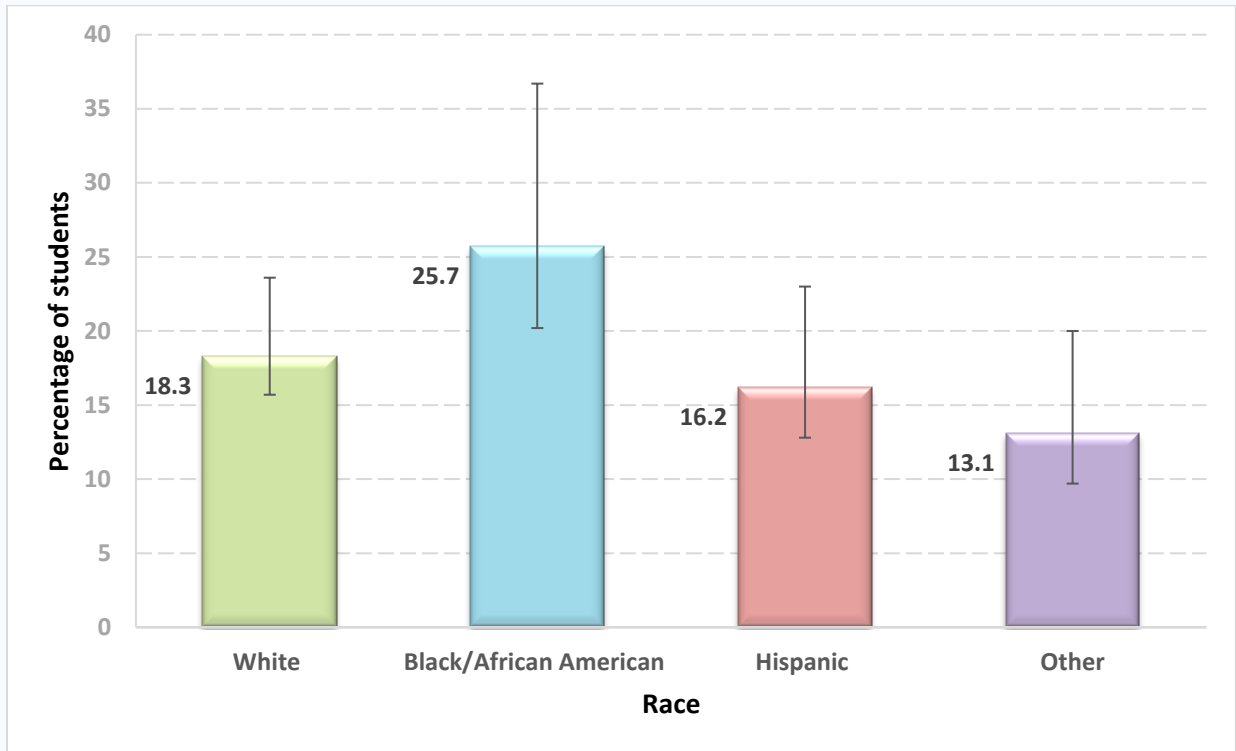
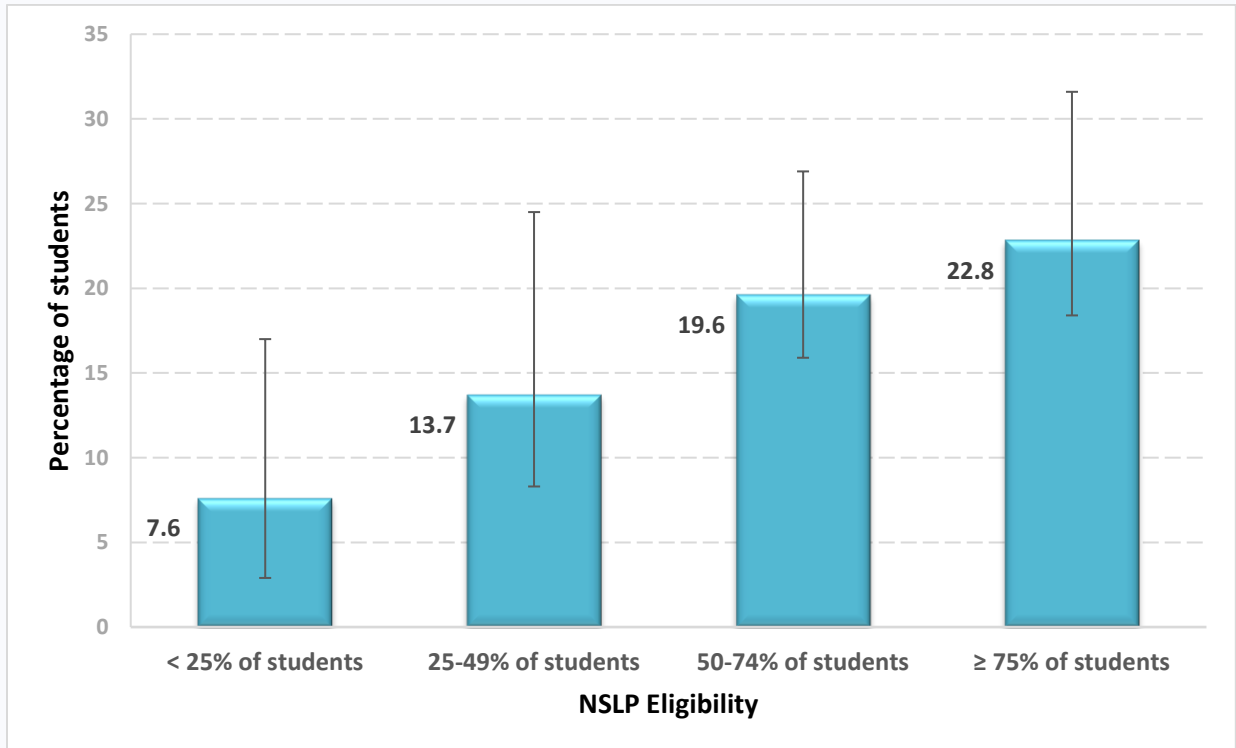


Figure 21. Percentage (%) of 3rd Grade Students in Arkansas with Need for Dental Treatment by NSLP Eligibility, School Year 2019-2020



## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 22. Percentage (%) of 3rd Grade Students in Arkansas with Need for Dental Treatment by NSLP Eligibility, School Year 2019-2020

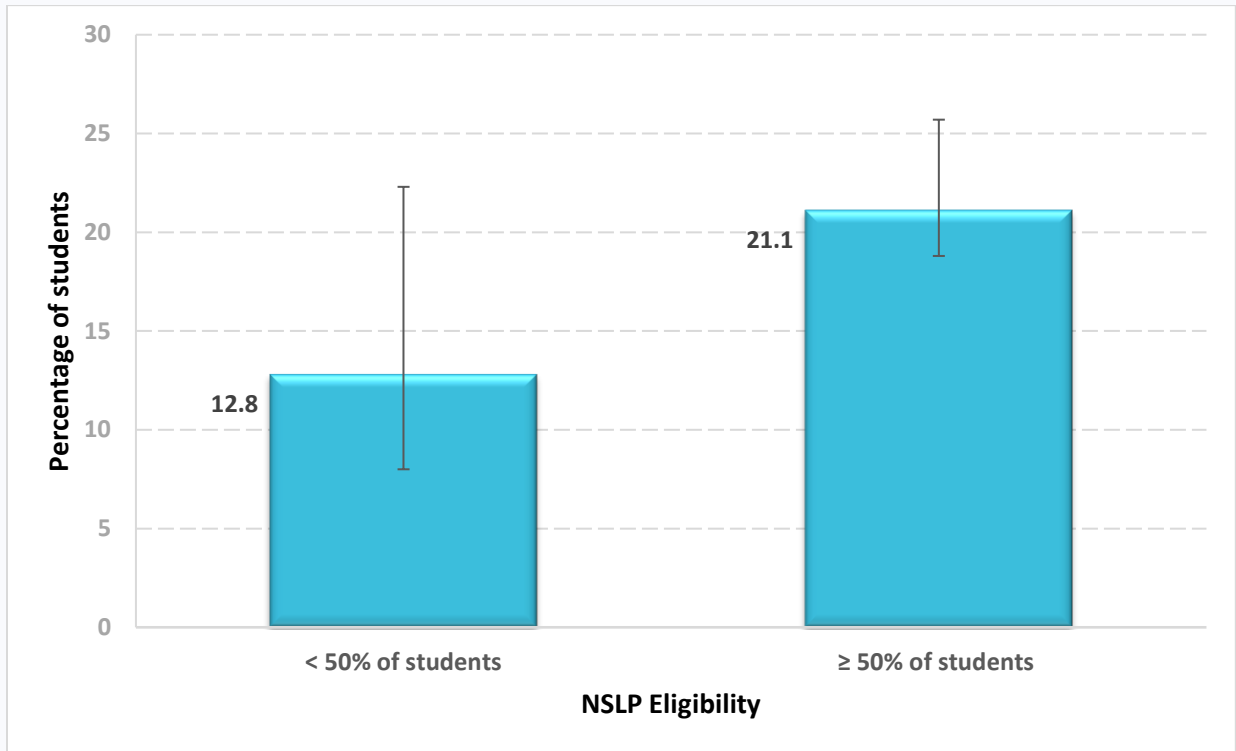
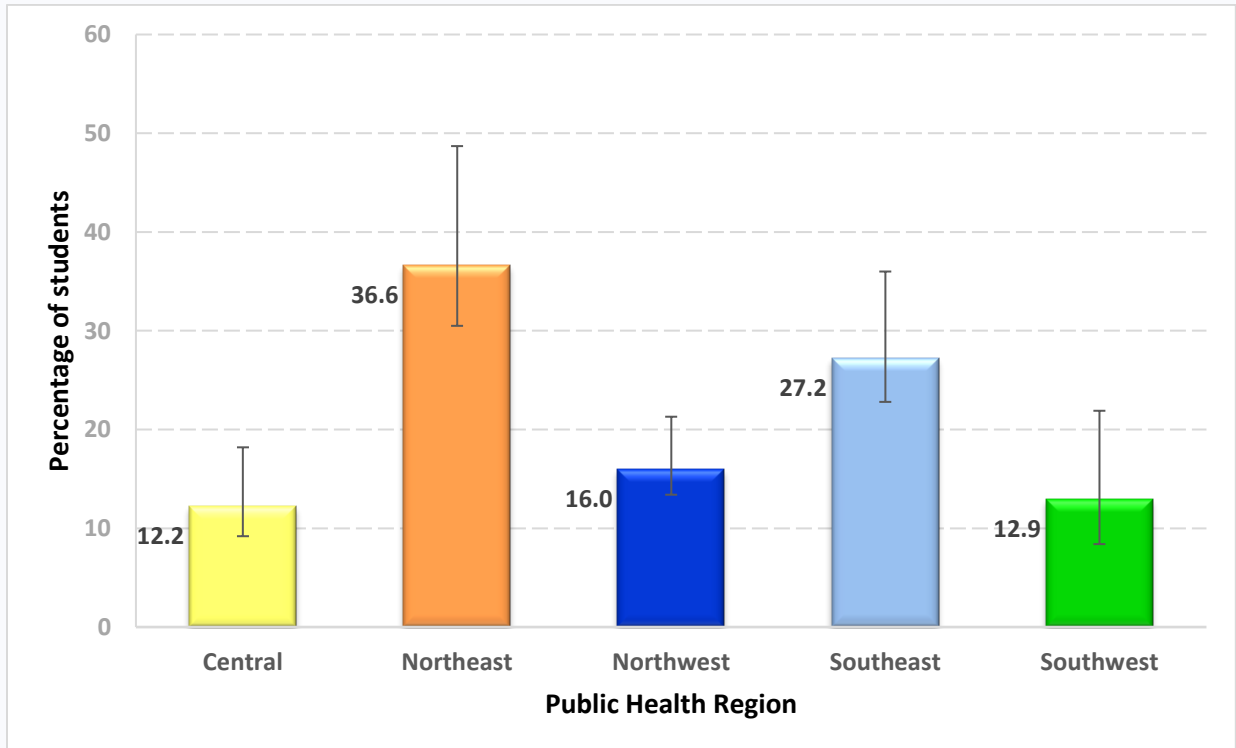


Figure 23. Percentage (%) of 3rd Grade Students in Arkansas with Need for Dental Treatment by PHR, School Year 2019-2020



## ORAL HEALTH STATUS

### Need for urgent dental treatment by selected characteristics

For the evaluation of urgent dental treatment (**Table 7**), 2.6% of students were Black/African American, 2.1% were Other, 1.8% were Hispanic, and 1.2% were White (**Figure 24**).

About 1% of students attending schools with less than 50% NSLP Eligibility needed dental treatment compared to 2.2% of students attending schools with 50% or more NSLP Eligibility (**Figure 25, Figure 26**).

Based on PHR, 1.7% of students in the Central region urgently needed dental treatment, 4.3% in the Northeast, 1.2% in the Northwest, 0.9% in the Southeast, and 1.3% in the Southwest (**Figure 27**).

**Table 7. Percentage (%) of students needing urgent dental treatment by selected characteristics, School Year 2019-2020**

Characteristic	Percent (%) needing urgent dental treatment	Lower 95% CL	Upper 95% CL
<b>All Students (N=5,084)</b>	<b>1.9</b>	<b>1.2</b>	<b>2.6</b>
<b>Gender</b>			
Female	1.4	0.7	2
Male	1.8	1	2.5
<b>Race</b>			
White	1.2	0.7	1.7
Black/African American	2.6	0.9	4.2
Hispanic	1.8	0.4	3.1
Other	2.1	0.2	4.1
<b>NSLP Eligibility</b>			
< 25% of students	0.0	0.0	0.0
25-49% of students	0.8	0.0	1.5
50-74% of students	1.6	0.9	2.3
≥ 75% of students	3.0	1.3	4.6
<b>NSLP Eligibility</b>			
< 50% of students	0.6	0.0	1.3
≥ 50% of students	2.2	1.4	3.1
<b>Public Health Region (PHR)</b>			
Central	1.7	0.1	3.3
Northeast	4.3	1.8	6.8
Northwest	1.2	0.5	1.9
Southeast	0.9	0.1	1.6
Southwest	1.3	0.1	2.6

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Figure 24. Percentage (%) of 3rd Grade Students in Arkansas with Need for Urgent Dental Treatment by Race, School Year 2019-2020

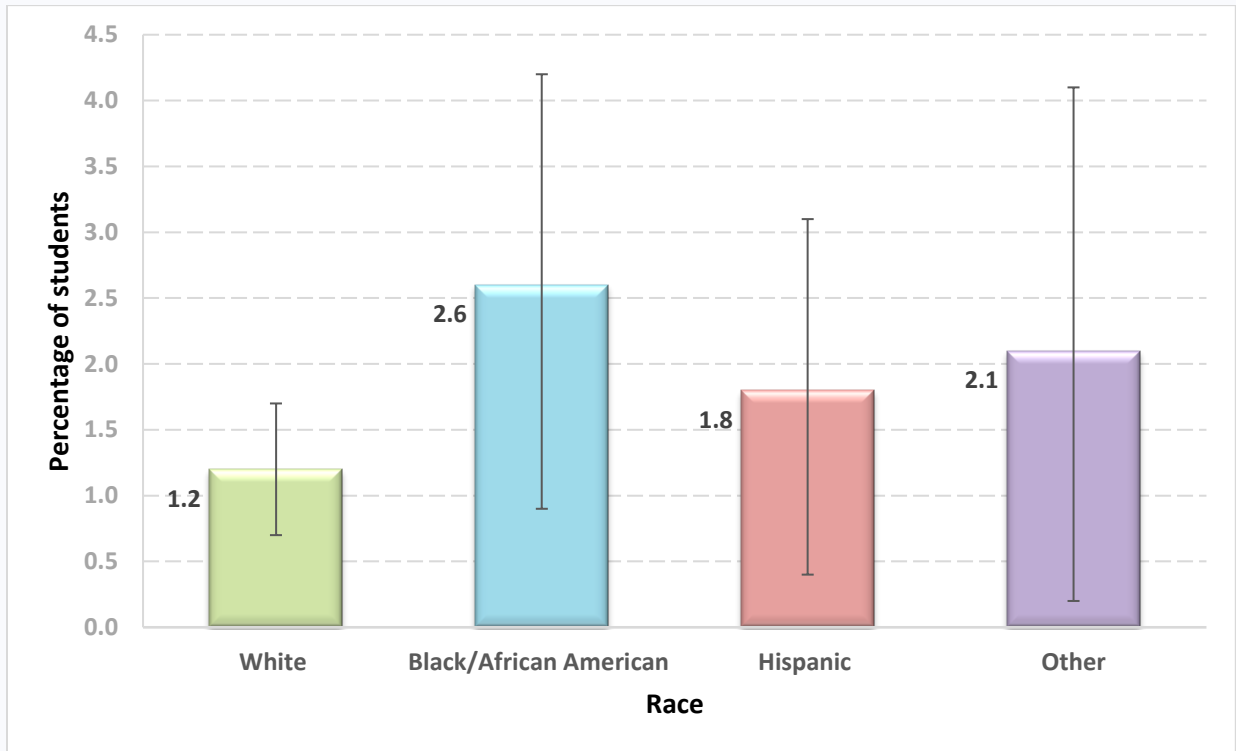
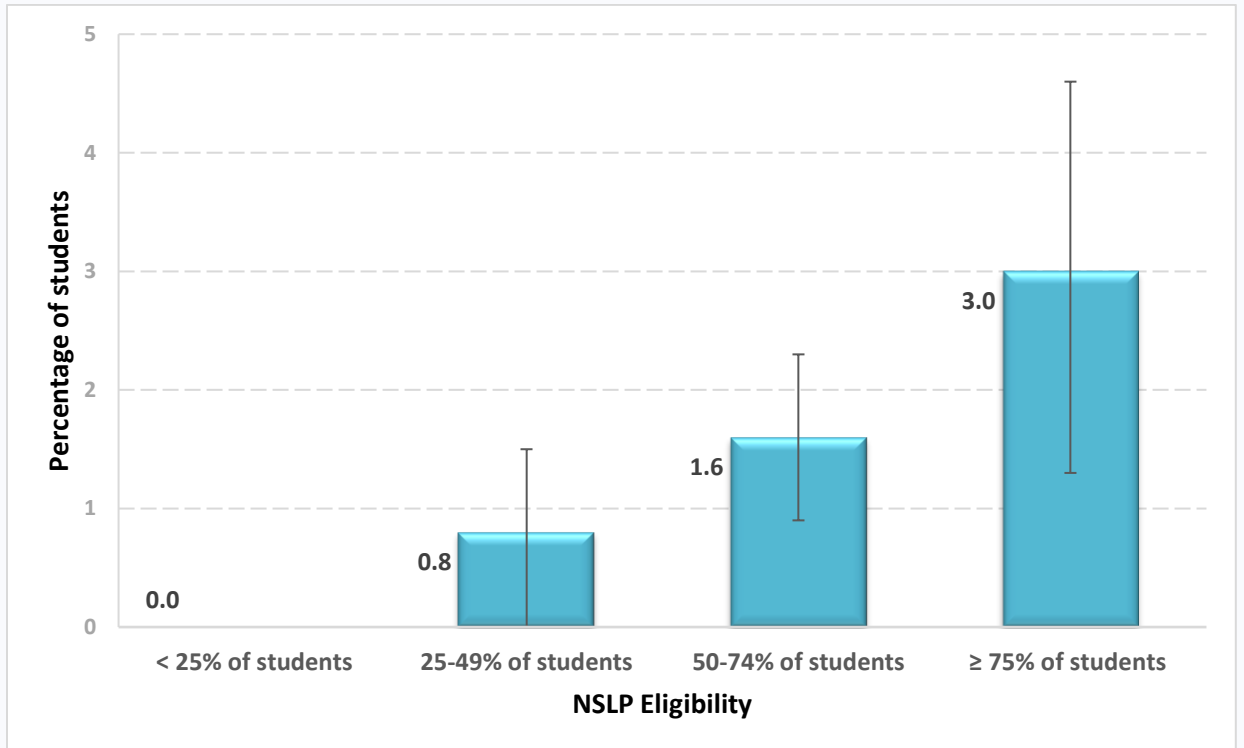
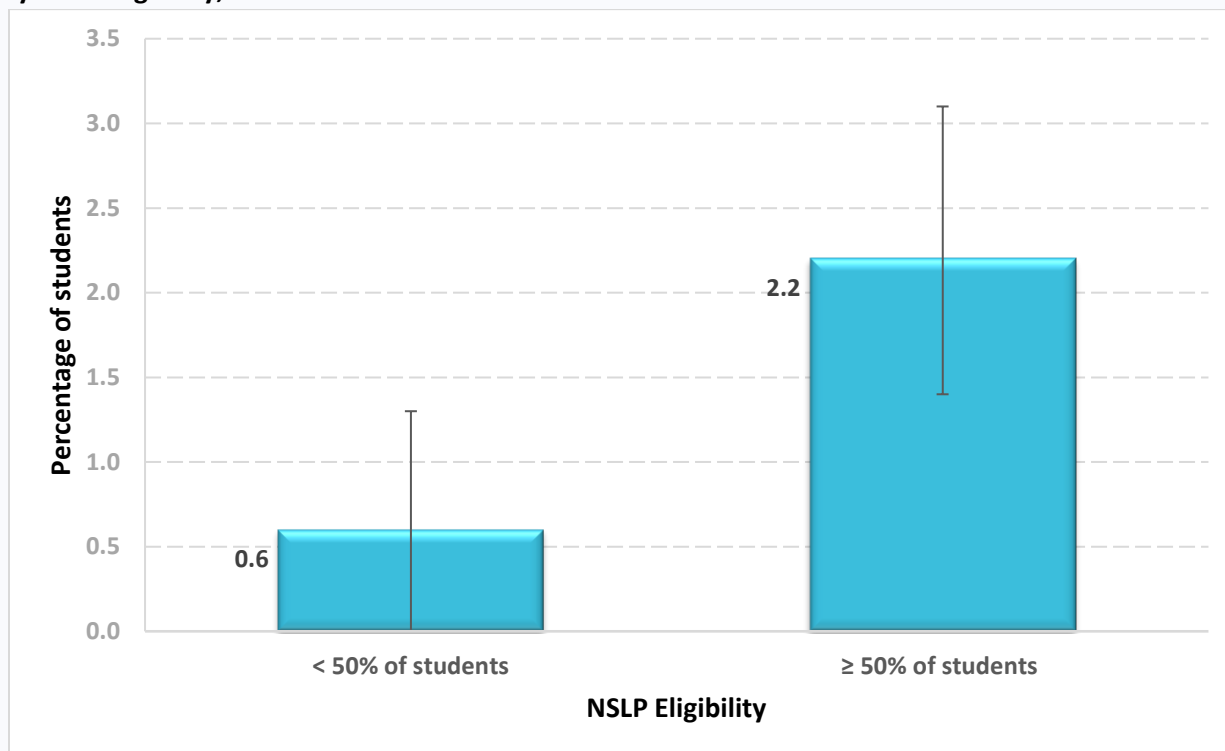


Figure 25. Percentage (%) of 3rd Grade Students in Arkansas with Need for Urgent Dental Treatment by NSLP Eligibility, School Year 2019-2020

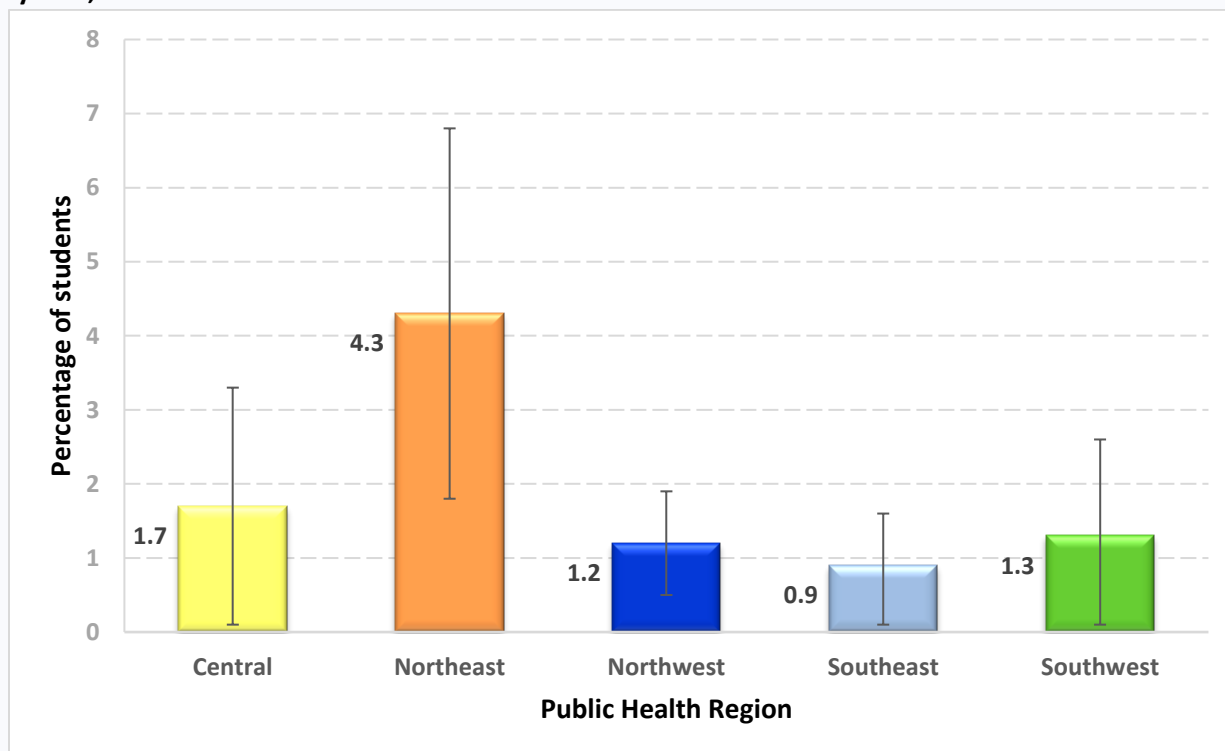


## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

**Figure 26. Percentage (%) of 3rd Grade Students in Arkansas with Need for Urgent Dental Treatment by NSLP Eligibility, School Year 2019-2020**



**Figure 27. Percentage (%) of 3rd Grade Students in Arkansas with Need for Urgent Dental Treatment by PHR, School Year 2019-2020**



## CONCLUSIONS

Percentage for decay experience among students was higher than the percentage for presence of dental sealants.

Hispanic students had a higher decay experience percentage, followed by Black/African American students, than White and Other students. Based on NSLP Eligibility, students attending schools with 50% or more NSLP Eligibility had a higher decay experience percentage than schools with less than 50% of NSLP student Eligibility. The Southeast PHR has the highest percent of students with decay experience.

For untreated decay experience, Black/African American students had a higher percentage of untreated decay experience than other races/ethnicities. Students attending schools with 50% or more NSLP Eligibility had higher untreated decay experience percentage than schools with less than 50% NSLP Eligibility. Compared to all other PHRs, the Northeast region had a higher percentage of students experience untreated decay.

Black/African American students had the lowest percentage with presence of dental sealants compared to all other races/ethnicities. Students located within the Northeast PHR had a lower percentage for presence of dental sealants with the Southwest PHR having the highest percentage of students with dental sealants presence.

For the evaluation of dental treatment needs, Black/African American students were considered to have a higher percentage of need for dental treatment than all other races/ethnicities. Students attending schools with 50% or more NSLP Eligibility had a higher percentage of need for dental treatment than its counterpart. Students in the Northeast PHR had a higher percentage of need of dental treatment while students in the Northwest PHR had the least percentage of need for dental treatment.

Black/African American students had a higher percentage who were urgently needing treatment while White students had the lowest. Students attending schools with 50% or more NSLP Eligibility had a higher percentage of need for urgent dental treatment than students attending schools with less than 50% NSLP Eligibility. The Northeast PHR students had the highest percentage of need for urgent dental treatment while students in Southeast PHR had the lowest percentage of need for urgent dental treatment.

## DISCUSSION

According to the 2011-2014 NHANES, 3rd grade students at a national level had 62.3% decay experience, 21.9% untreated decay experience, and 41.8% had dental sealants presence. Compared to national estimates, the most recent findings from the 2019-2020 BSS Oral Health Survey show higher decay experience, slightly lower untreated decay experience, and lower prevalence of dental sealants among Arkansas 3rd grade students. This clearly reflects the need for continued, targeted oral health interventions in Arkansas. More information on comparison between national, state, and HP 2030 objective targets can be seen in **Appendix 3**.

Compared to the 2016 BSS Oral Health Survey, decay experience was higher by 0.8%, untreated decay experience was higher by 2.7%, and presence of dental sealants was lower by 6.2%. However, caution must be considered in comparing these two reports since the 2016 BSS had limitations in its methodology for recruiting schools. A few limitations for the 2016 BSS was not including replacements for the original selected schools that did not take part in the survey and a lower participation rate of only 51 schools compared to 65 during the 2019 survey. In comparison, the 2019-2020 BSS followed ASTDD BSS guidelines for the recruitment of Arkansas schools in order to achieve the correct number of participating schools.

Dental disease remains a very prominent aspect of life for many children in Arkansas. The state needs to continue to invest in evidenced-based strategies for preventing oral disease to continue progress forward. The data was critically analyzed to suggest targeted initiatives by population group, geographic region, and income. Racial disparities are present among each oral health parameter collected as part of the BSS, with Hispanic students having a significantly higher prevalence of decay experience (95% CI, 67.6-77.3). This could be due to socioeconomic and linguistic barriers. While Hispanic students had a higher prevalence of decay experience, they did not lead in untreated decay. This means at some point they were still able to access the dental community and receive care. This could be through our increasing presence in School Based Health Clinics (SBHC) and other safety net providers serving this population.

Meanwhile, Black/African American students have a significantly higher prevalence of untreated decay (95% CI, 23.8-35.3), need for early and urgent dental treatment (95% CI, 20.2-31.2; 95% CI, 0.9-4.2, respectively), and the lowest prevalence of dental sealants (95% CI, 21.5-36.6). This supports the persistent disparity that African American children are disproportionately afflicted. Several factors could be influencing this finding. Previous research has explored African American's difficult relationship with the medical community with evidence of mistrust for medical professionals. Other, well documented barriers like stigma and insurance underutilization should also be considered. Additional studies in the African American community would be valuable to better understand why families have more untreated decay and need for early and urgent dental treatment.

Geographically, the Northeast PHR, with 20% student participation, had the highest prevalence for untreated decay experience, need for dental treatment, urgent need for dental treatment, and the lowest presence of dental sealants. This is primarily a rural region of Arkansas part of what is known as the "Delta", which runs along the Mississippi River. The Northeast PHR contains counties identified as a Dental Health Professional Shortage Area (**Appendix 4**). Although the area has been visited by School Sealant Programs (SSP), supplied with optimally fluoridated water, and many Local Health Units (LHU) provide fluoride varnish in the medical units, the area continues to struggle. It is possible that access is



## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

still a primary concern with minimal professional recruitment. Low oral health literacy might also be to blame for lack of participation in such programs.

NSLP is a federally assisted meal program that is often used as an indicator of socioeconomic status. Schools with a higher percentage of children participating would be deemed “poorer” and schools with a lower percentage enrolled would be relatively “wealthier”. Based on NSLP Eligibility, students attending schools with 50% or more NSLP eligibility have a higher prevalence of decay experience, untreated decay, and need for early to urgent dental treatment. There was no significant percentage difference for presence of dental sealants by NSLP eligibility. This suggests that our lower-income children are not getting all early preventive services. It is interesting that the presence of dental sealants did not change based on NSLP eligibility. This could be because many of our School Based Sealant Programs (SBSP) focus on schools with 50% or more NSLP eligibility. While the process of placing dental sealants is infiltrating lower incomes, the same cannot be said for other preventive measures like restorations and fluoride varnishes. Providing quality dental care in nontraditional settings such as schools, expanded functions for dental hygienists, and tele-dentistry can reduce barriers.

It is also important to note some methodology shortcomings of the survey to improve data in the next collection. There was a significant percentage of missing demographic data from the Arkansas Department of Education. It was assumed that when the student profile was merged with the oral health assessment, we would have complete data. Therefore, it was determined for efficiency not to collect demographics of age, gender, and race at the time of the assessment. This will have to be considered in future surveys whether it would be better to simply gather all the data at once.

Continuing the work with oral health partners and stakeholders, ADH OOH continues to strive in educating and providing resources to Arkansas communities to prevent oral health diseases, especially among those at an early age. With 64% of Arkansas third graders already experiencing dental decay, it is clear that prevention must happen as early as possible.

Recommendations such as drinking fluoridated water, application of topical fluoride varnish, continued work with SBHCs and SBSPs, and providing educational resources are continued actions that help parents and their children in understanding the importance of oral health. Utilizing the Basic Screening Survey aids OOH in completing the overarching goal to reduce dental caries, to address preventable oral health diseases in the future, and encourage a healthier smile starting at an early age.

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# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

## APPENDICES

**Appendix 1: Participating schools, number screened and sampling weight, 2019-2020**

District	School	Number Screened	Sampling Weight
Benton School District	Angie Grant Elementary School	74	7.566
Arkansas Arts Academy	Arkansas Arts Academy Elementary	66	8.483
Barton-Lexa School District	Barton Elementary School	44	12.725
Pulaski County Special School District	Bates Elementary School	43	13.021
Beebe School District	Beebe Elementary School	192	2.916
Bismarck School District	Bismarck Elementary School	57	9.823
Blytheville School District	Blytheville Elementary School	107	5.233
Fort Smith School District	Bonneville Elementary School	38	14.734
Pine Bluff School District	Broadmoor Elementary School	51	10.978
Pulaski County Special School District	Cato Elementary School	42	13.331
Cedarville School District	Cedarville Elementary School	31	18.061
Bryant School District	Collegetown Elementary School	60	9.332
Dequeen School District	Dequeen Elementary School	154	3.636
Dewitt School District	Dewitt Elementary School	59	9.490
Little Rock School District	Don Roberts Elementary School	101	5.544
Sheridan School District	East End Intermediate School	104	5.384
Cabot School District	Eastside Elementary School	94	5.956
Ozark School District	Elgin B. Milton Elem. School	100	5.599
Springdale School District	Elmdale Elementary School	81	6.912
Rogers School District	Elza R. Tucker Elem. School	62	9.031
Exalt Academy of Southwest Little Rock	Exalt Academy of Southwest Little Rock	59	9.490
Fort Smith School District	Fairview Elementary School	56	9.998
Nettleton School District	Fox Meadow School of Creative Media	76	7.367
Rogers School District	Frank Tillery Elem. School	76	7.367
Little Rock School District	Fulbright Elementary School	61	9.179
Hot Springs School District	Gardner Stem Magnet School	64	8.748
Gravette School District	Gravette Upper Elementary	126	4.444
Greenland School District	Greenland Elementary School	53	10.564
Harmony Grove School District (Ouachita)	Harmony Grove Elem. School	49	11.427
Rogers School District	Janie Darr Elementary School	46	12.172
Dierks School District	Joann Walters Elementary Sch	38	14.734
Pulaski County Special School District	Joe T. Robinson Elem. School	15	37.327
Fort Smith School District	John P. Woods Elementary School	58	9.653
Van Buren School District	King Elementary School	70	7.999
Lake Hamilton School District	Lake Hamilton Elementary Sch	281	1.993
Lisa Academy	Lisa Academy Chenal	54	10.369
Marion School District	Marion Math, Science & Technology Magnet	85	6.587
Marked Tree School District	Marked Tree Elementary School	29	19.307
Searcy County School District	Marshall Elementary School	68	8.234
Jonesboro School District	Math & Science Magnet School	86	6.510
Mccrory School District	Mccrory Elementary School	35	15.997
Mcgehee School District	Mcgehee Elementary School	74	7.566
Monticello School District	Monticello Intermediate School	100	5.599

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<b>South Conway County School District</b>	Morrilton Elementary School	128	4.374
<b>Mountain View School District</b>	Mountain View Elem. School	72	7.776
<b>Paragould School District</b>	Oak Grove Elementary School	70	7.999
<b>Omaha School District</b>	Omaha Elementary School	17	32.935
<b>Ouachita School District</b>	Ouachita Elementary School	24	23.329
<b>Corning School District</b>	Park Elementary School	41	13.656
<b>Prairie Grove School District</b>	Prairie Grove Elementary School	114	4.911
<b>Little Rock School District</b>	Pulaski Heights Elem. School	37	15.132
<b>Bentonville School District</b>	R.E. Baker Elementary School	83	6.746
<b>Rogers School District</b>	Reagan Elementary School	81	6.912
<b>West Memphis School District</b>	Richland Elementary School	68	8.234
<b>North Little Rock School District</b>	Seventh Street Elem. School	41	13.656
<b>Cabot School District</b>	Southside Elementary School	65	8.614
<b>Southside School District (Independence)</b>	Southside Elementary School	106	5.282
<b>Siloam Springs School District</b>	Southside Elementary School	290	1.931
<b>Fort Smith School District</b>	Tilles Elementary School	39	14.356
<b>Valley View School District</b>	Valley View Intermediate School	184	3.043
<b>Vilonia School District</b>	Vilonia Elementary School	85	6.587
<b>Springdale School District</b>	Walker Elementary School	62	9.031
<b>Greenwood School District</b>	Westwood Elementary School	98	5.713
<b>Cossatot River School District</b>	Wickes Elementary School	33	16.967
<b>Hope School District</b>	Wm. Jefferson Clinton Primary	127	4.409

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

**Appendix 2: Percentage of 3rd grade children screened with decay experience, untreated decay and dental sealants by school, 2019-2020 (unweighted)<sup>1</sup>**

District	School	Decay Experience	Untreated Decay	Dental Sealants
Benton School District	Angie Grant Elementary School	81.1%	14.9%	32.4%
Arkansas Arts Academy	Arkansas Arts Academy Elementary	56.1%	–	40.9%
Barton-Lexa School District	Barton Elementary School	79.5%	22.7%	27.3%
Pulaski County Special School District	Bates Elementary School	62.8%	14.0%	20.9%
Beebe School District	Beebe Elementary School	66.1%	25.5%	53.1%
Bismarck School District	Bismarck Elementary School	47.4%	–	59.6%
Blytheville School District	Blytheville Elementary School	52.3%	42.1%	21.5%
Fort Smith School District	Bonneville Elementary School	71.1%	18.4%	42.1%
Pine Bluff School District	Broadmoor Elementary School	80.4%	27.5%	39.2%
Pulaski County Special School District	Cato Elementary School	69.0%	14.3%	52.4%
Cedarville School District	Cedarville Elementary School	87.1%	19.4%	83.9%
Bryant School District	Collegeville Elementary School	58.3%	13.3%	61.7%
Dequeen School District	Dequeen Elementary School	60.4%	–	37.7%
Dewitt School District	Dewitt Elementary School	54.2%	22.0%	30.5%
Little Rock School District	Don Roberts Elementary School	40.6%	16.8%	49.5%
Sheridan School District	East End Intermediate School	72.1%	32.7%	35.6%
Cabot School District	Eastside Elementary School	60.6%	17.0%	33.0%
Ozark School District	Elgin B. Milton Elem. School	67.0%	14.0%	46.0%
Springdale School District	Elmdale Elementary School	75.3%	21.0%	38.3%
Rogers School District	Elza R. Tucker Elem. School	64.5%	19.4%	41.9%
Exalt Academy of SW Little Rock	Exalt Academy of SW Little Rock	59.3%	18.6%	–
Fort Smith School District	Fairview Elementary School	75.0%	25.0%	42.9%
Nettleton School District	Fox Meadow School Creative Media	47.4%	19.7%	–
Rogers School District	Frank Tillery Elem. School	80.3%	15.8%	44.7%
Little Rock School District	Fulbright Elementary School	32.8%	18.0%	13.1%
Hot Springs School District	Gardner Stem Magnet School	79.7%	18.8%	18.8%
Gravette School District	Gravette Upper Elementary	61.9%	16.7%	47.6%
Greenland School District	Greenland Elementary School	49.1%	11.3%	54.7%
Harmony Grove School District	Harmony Grove Elem. School	77.6%	20.4%	36.7%
Rogers School District	Janie Darr Elementary School	30.4%	–	39.1%
Dierks School District	Joann Walters Elementary Sch	57.9%	18.4%	68.4%
Pulaski County Special School District	Joe T. Robinson Elem. School	66.7%	20.0%	60.0%
Fort Smith School District	John P. Woods Elementary School	69.0%	19.0%	56.9%
Van Buren School District	King Elementary School	88.6%	22.9%	47.1%
Lake Hamilton School District	Lake Hamilton Elementary Sch	60.1%	12.8%	66.2%
Lisa Academy	Lisa Academy Chenal	70.4%	18.5%	44.4%
Marion School District	Marion Math, Science & Tech	64.7%	44.7%	–
Marked Tree School District	Marked Tree Elementary School	75.9%	44.8%	–
Searcy County School District	Marshall Elementary School	85.3%	25.0%	48.5%
Jonesboro School District	Math & Science Magnet School	61.6%	34.9%	15.1%
Mccrory School District	Mccrory Elementary School	82.9%	37.1%	28.6%
Mcgehee School District	Mcgehee Elementary School	74.3%	33.8%	50.0%
Monticello School District	Monticello Intermediate School	75.0%	30.0%	58.0%
South Conway County School District	Morrilton Elementary School	61.7%	21.1%	45.3%
Mountain View School District	Mountain View Elem. School	75.0%	33.3%	29.2%
Paragould School District	Oak Grove Elementary School	61.4%	50.0%	–
Omaha School District	Omaha Elementary School	58.8%	–	29.4%
Ouachita School District	Ouachita Elementary School	75.0%	–	45.8%
Corning School District	Park Elementary School	65.9%	51.2%	–

<sup>1</sup> Values under 10% hidden for confidential purposes

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

<b>Prairie Grove School District</b>	Prairie Grove Elementary School	63.2%	13.2%	36.0%
<b>Little Rock School District</b>	Pulaski Heights Elem. School	54.1%	24.3%	10.8%
<b>Bentonville School District</b>	R.E. Baker Elementary School	48.2%	10.8%	48.2%
<b>Rogers School District</b>	Reagan Elementary School	66.7%	14.8%	35.8%
<b>West Memphis School District</b>	Richland Elementary School	64.7%	36.8%	–
<b>North Little Rock School District</b>	Seventh Street Elem. School	82.9%	36.6%	43.9%
<b>Cabot School District</b>	Southside Elementary School	27.7%	–	–
<b>Southside School District (Independence)</b>	Southside Elementary School	72.6%	41.5%	18.9%
<b>Siloam Springs School District</b>	Southside Elementary School	61.0%	12.4%	48.3%
<b>Fort Smith School District</b>	Tilles Elementary School	79.5%	25.6%	41.0%
<b>Valley View School District</b>	Valley View Intermediate School	42.4%	16.3%	18.5%
<b>Vilonia School District</b>	Vilonia Elementary School	49.4%	14.1%	–
<b>Springdale School District</b>	Walker Elementary School	58.1%	17.7%	32.3%
<b>Greenwood School District</b>	Westwood Elementary School	62.2%	16.3%	63.3%
<b>Cossatot River School District</b>	Wickes Elementary School	87.9%	18.2%	57.6%
<b>Hope School District</b>	Wm. Jefferson Clinton Primary	63.0%	11.8%	69.3%

## Arkansas 3rd Grade Basic Screening Survey, 2019-2020

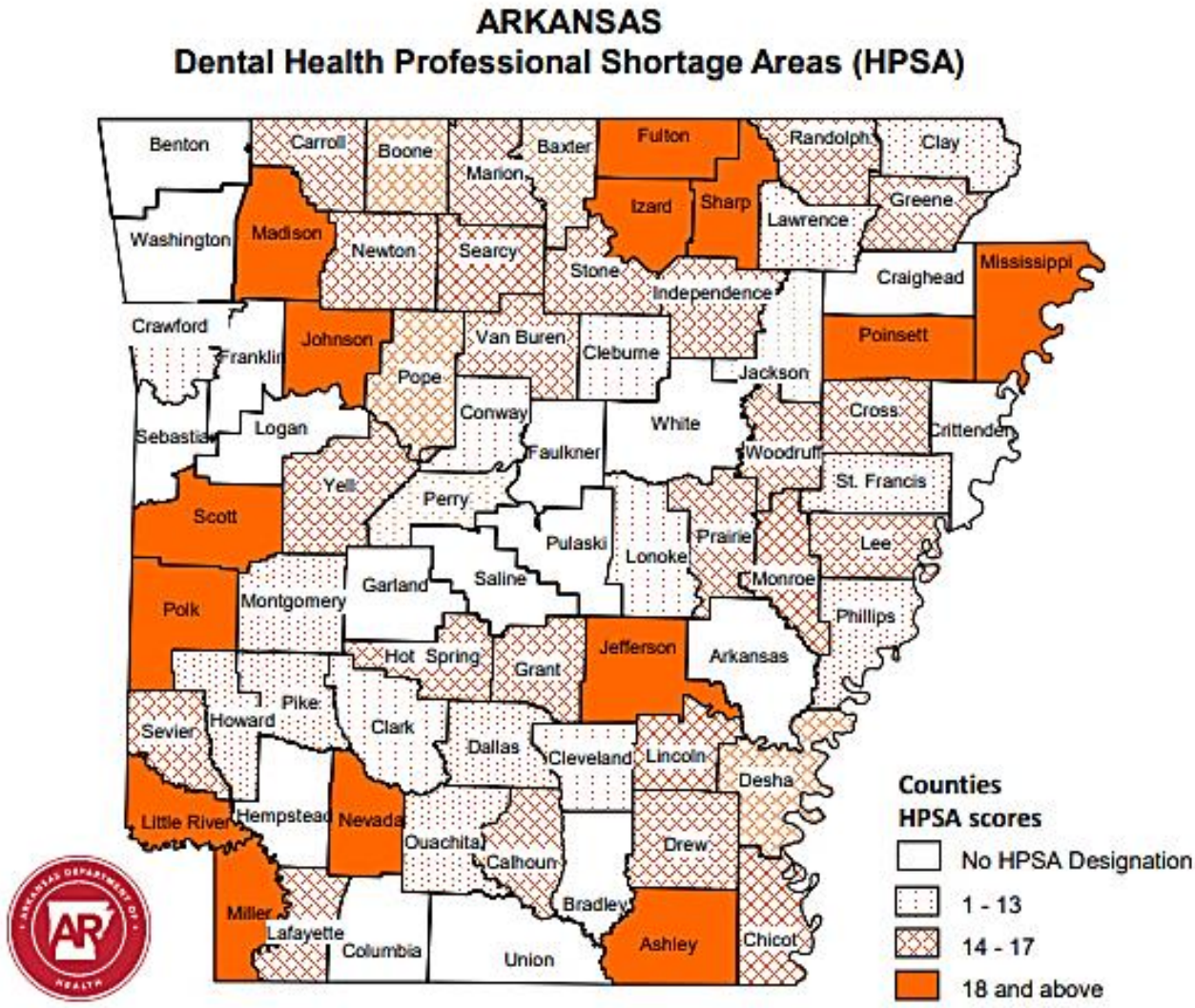
Appendix 3: Comparison of most recent national oral health estimates and 2019-2020 BSS, including HP 2030 objectives

Objective	National (2011-2014 NHANES)	State (2019-2020 BSS)	Healthy People 2030 <sup>2</sup> (2013-2016 NHANES)	
			Baseline	Target
Decay Experience	62.3%	64.8%	48.4%	42.9%
Untreated Decay Experience	21.9%	21.4%	13.4%	10.2%
Presence of Dental Sealants	41.8%	37.2%	37.0%	42.5%

<sup>2</sup> Objectives for HP 2030 consider population size to include children and adolescents ages 3 – 19

# Arkansas 3rd Grade Basic Screening Survey, 2019-2020

Appendix 4: Dental Health Professional Shortage Areas (HPSA) Map in Arkansas



Date: August 25, 2020  
 Source: Arkansas Department of Health  
 Map created by: Naomi Sweeney  
 Email: Naomi.Sweeney@arkansas.gov  
 Office of Rural Health and Primary Care  
 Data Source: Health Resources and Services Administration (HRSA)