

## Quick Facts

### Statewide Head Start

- 49% have decay experience
- 27% have untreated decay

### Statewide Third Grade

- 58% have decay experience
- 24% have untreated decay
- 51% have dental sealants

### Lancaster County Third Grade

- 47% have decay experience
- 20% have untreated decay
- 55% have dental sealants

### Oral Health Disparities

- Children attending lower-income schools and minority children have the highest prevalence of decay experience and untreated tooth decay. The prevalence of dental disease is higher in rural counties compared to urban counties.

### Trends

- Since the previous survey in 2015-2016, there has been a substantial decrease in statewide decay experience and untreated decay rates among third graders. The dental disease disparity between urban and rural children has been significantly reduced.

### Conclusion

- The findings presented in this data brief indicate that community based dental disease prevention and educational programs are being effective, especially in rural regions. To further improve oral health outcomes for Nebraska's children, these essential evidence-based disease interventions should continue to expand into new statewide locations.

## Executive Summary

The following analysis report from the Association of State and Territorial Dental Directors (ASTDD) brings exciting news for Nebraska! There has been a significant reduction in 3<sup>rd</sup> Grade dental disease since the 2015-16 survey with Head Start rates remaining stable and Lancaster County having the healthiest outcomes. State third grade decay experience is down from 64% to 58% and is now below the national average of 60%. Third grade untreated dental decay decreased from 32% to 24% and early/urgent needs lessened. Also, 51% of 3<sup>rd</sup> graders have dental sealants, above the national average of 42%. These encouraging results are due to the combined efforts of private dentists, dental colleges, community health centers, tribal agencies and the DHHS Office of Oral Health and Dentistry (OODH). Urban disease changed little, but a large decrease was seen in rural areas where decay experience declined from 81% to 66% and untreated decay was also lowered. New innovative programs have increased preventive service delivery and reduced the urban/rural disparity. In 2016, the OOH established the "Nebraska Teeth Forever" (NTF) program within local health departments. NTF mobilizes Public Health Hygienists and Community Health Workers to form disease prevention teams that go directly into children's centers and elementary schools. This unique workforce averaged over 100,000 services from 2017-2019. The OOH also created the NE Early Dental Health Starter Kit program delivering thousands of hygiene kits aimed at educating parents of newborns. These educational and prevention interventions have had a positive effect on state disease rates. This progress was achieved despite the COVID-19 pandemic that negatively affected oral health across the U.S. The momentum these programs created should be expanded to ensure health outcomes will continue to improve for Nebraska's young children! ...**Charles F. Craft State Dental Health Director**

## The Oral Health of Nebraska's Children Compared to the General U.S. Population

Good oral health is important to a child's social, physical, and mental development. Even though tooth decay can be prevented, most children in Nebraska still get cavities. To assess the current oral health status of Nebraska's preschool and elementary school population, the Nebraska Department of Health and Human Services (DHHS) coordinated a statewide oral health survey of two population groups – children enrolled in Head Start and third grade children attending Nebraska's public and private schools. In addition, DHHS collaborated with the Lincoln-Lancaster County Health Department (LLCHD) to conduct a survey of another population group – third grade children attending public and private schools in Lancaster County (LC). All screenings were completed in the 2021-2022 / 2022-2023 school years.

## Nebraska Oral Health Survey of Young Children 2021-2022

**Statewide Head Start Survey:** Head Start provides comprehensive early childhood education, health, nutrition, and parent involvement services to low-income children and their families. The family income for most Head Start children is below the federal poverty level. The Head Start survey screened 909 children between 3-5 years of age at 32 Head Start sites across Nebraska.

**Statewide Third Grade Survey:** A total of 3,299 third grade children received a dental survey screening at a representative sample of 73 schools throughout Nebraska.

**Lancaster County Third Grade Survey:** A total of 1,434 third grade children received a dental survey screening at a representative sample of 22 schools in Lancaster County.

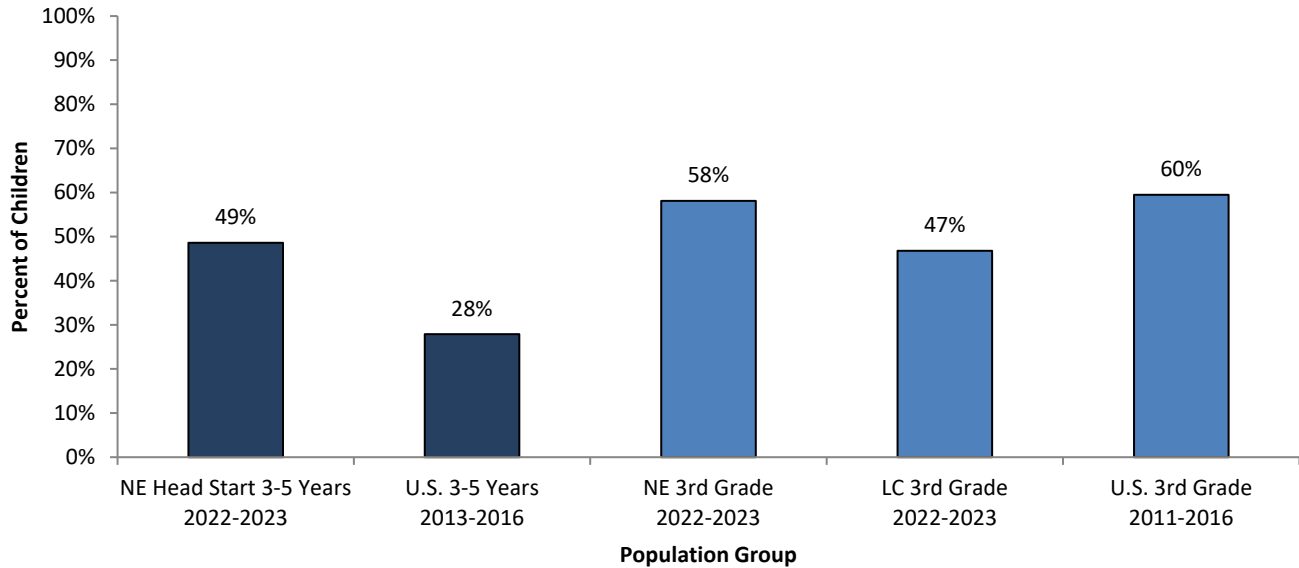
This data brief presents information on the prevalence of tooth decay in the primary (baby) and permanent (adult) teeth of Nebraska's Head Start and third grade children compared to the general U.S. population screened as part of the National Health and Nutrition Examination Survey (NHANES). It describes the prevalence of dental sealants among third grade children. Dental sealants are a plastic-like coating applied to the chewing surfaces of children's permanent teeth to prevent tooth decay. The report also shows the percentage of children needing early or urgent dental care. This report compares current 2021-2022 dental disease data to that obtained in the 2015-2016 Nebraska oral health survey and identifies positive or negative trends.

### Prevalence of Decay Experience.

Decay experience means that a child has had tooth decay in the primary (baby) and/or permanent (adult) teeth in his or her lifetime. Decay experience can be past (fillings, crowns, or teeth that have been extracted because of decay) or present (untreated tooth decay or cavities). In 2022-2023, about one-of-two Head Start children (49%) and almost six-of-ten third grade children (58%) in Nebraska had decay experience; compared to 28% of 3-5-year-olds and 60% of third grade children in the general U.S. population (NHANES, 2013-2016 and 2011-2016). The percent of children in Lancaster County with decay experience was 47%. It should be noted that most Head Start children live at or below the federal poverty level while the U.S. estimate for children 3-5 years of age includes children from all income brackets. Prevalence of decay experience among Nebraska third grade children statewide has gone down from 64% in 2015-2016 to 58% in 2022-2023 and is now below the national average of 60%. The NE Head Start decay experience rate of 49% is close to that of 46% in 2015-16. Refer to Figure 1 & Tables 6/7.

## Nebraska Oral Health Survey of Young Children 2021-2022

**Figure 1.** Prevalence of decay experience in the primary and permanent teeth among **Nebraska’s Head Start and Third Grade Children** compared to children in the general U.S. population. Data sources: Nebraska Oral Health Survey, 2022-2023, National Health and Nutrition Examination Survey (NHANES), 2013-2016 and 2011-2016

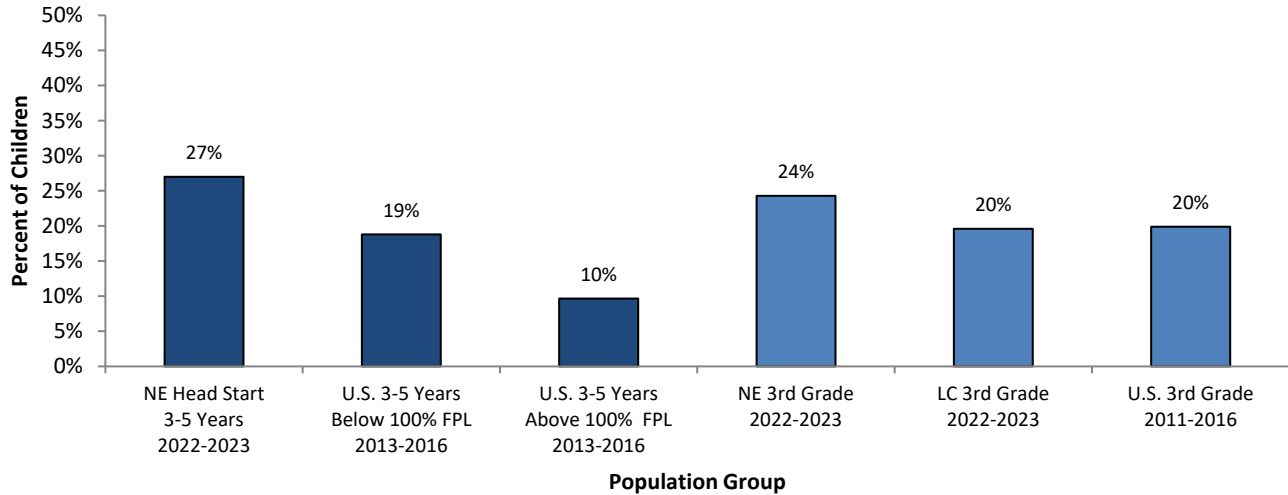


### Prevalence of Untreated Decay.

Left untreated, tooth decay can have serious consequences, including needless pain and suffering, difficulty chewing (which compromises children’s nutrition and can slow their development), difficulty speaking and lost days in school. Almost three-of-ten (27%) low-income Head Start children in Nebraska have untreated tooth decay; higher than the prevalence among low-income children in the general U.S. population (19%) and almost three times higher than the prevalence among higher-income U.S. preschool children (10%). Among third grade children, almost one-quarter of Nebraska’s children (24%) had untreated tooth decay; compared to 20% of third grade children in the general U.S. population (NHANES, 2011-2016). The percent of third grade children in Lancaster County with untreated decay was 20%, the same as the national average. Untreated decay rates for third grade children statewide in Nebraska have declined from 32% in 2015-2016 to 24% in 2022-2023, which is now near the national average of 20%. The NE Head Start untreated decay rates have also gone down from 30% in 2015-2016 to 27% currently. Refer to Figure 2 and Tables 6/7.

## Nebraska Oral Health Survey of Young Children 2021-2022

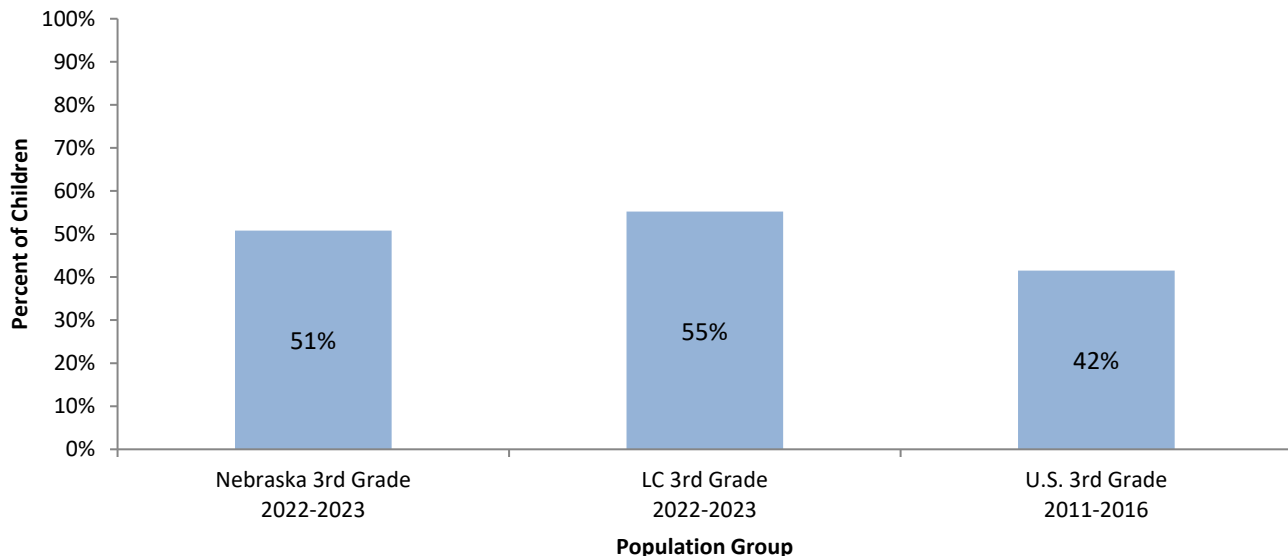
**Figure 2.** Prevalence of untreated decay in the primary and permanent teeth among **Nebraska’s Head Start and Third Grade Children** compared to children in the general U.S. population. Data sources: Nebraska Oral Health Survey, 2022-2023, National Health and Nutrition Examination Survey (NHANES), 2013-2016 and 2011-2016



### Prevalence of Dental Sealants.

Dental sealants are thin plastic coatings that are applied to the grooves on the chewing surfaces of the back adult teeth to protect them from tooth decay. Most tooth decay in children occurs on these surfaces. Sealants protect the chewing surfaces from tooth decay by keeping germs and food particles out of these grooves. More than half (51%) of Nebraska’s third grade children had at least one dental sealant, which is higher than the 42% average of the general U.S. population in third grade (NHANES, 2011-2016). The percent of third grade children in Lancaster County with dental sealants was 55%, slightly higher than the state and U.S. average. Refer to Figure 3.

**Figure 3.** Prevalence of dental sealants in the permanent molar teeth among **Nebraska’s Third Grade Children** compared to the general U.S. population in third grade



**Oral Health Disparities.**

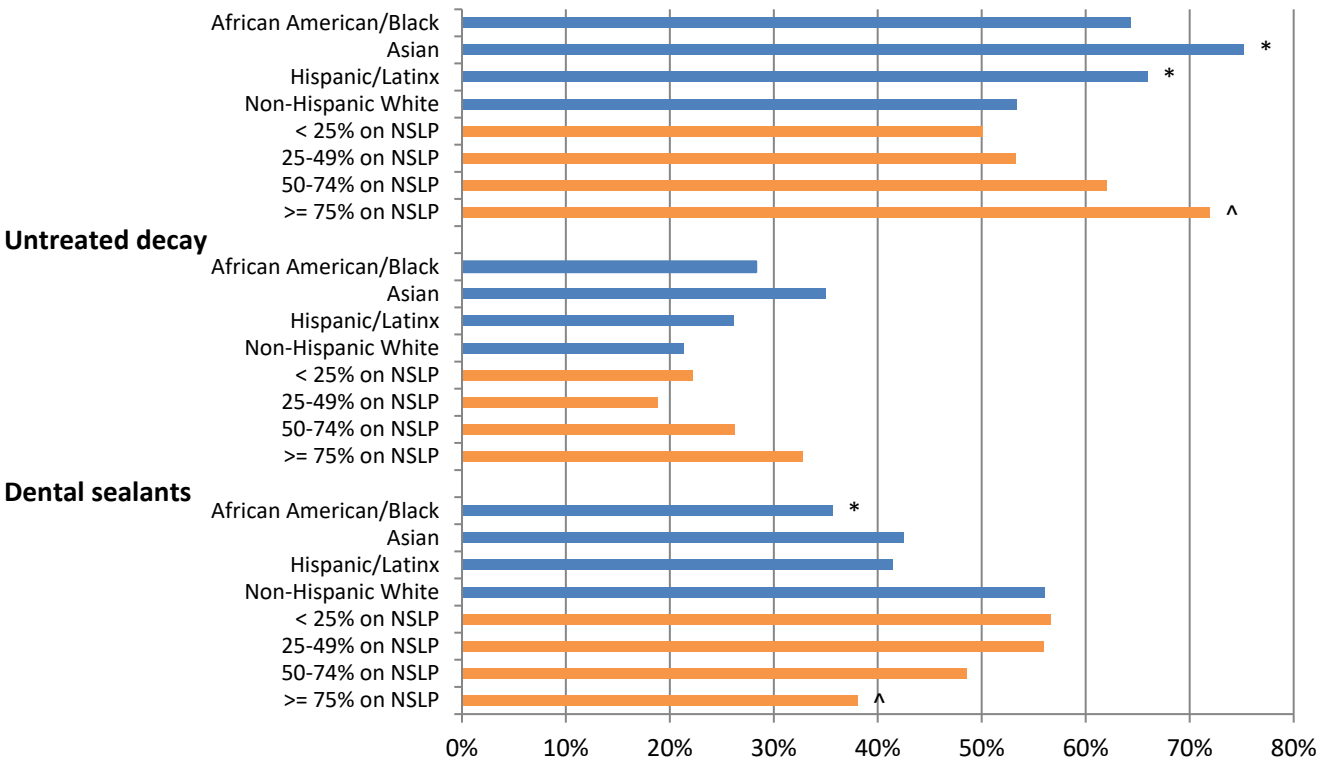
Influential sociodemographic indicators for oral health disparities in the United States include poverty status and race and ethnicity.

**Disparities among Nebraska’s Third Grade Children:** In Nebraska, lower income schools (schools with a high percentage of the students eligible for the National School Lunch Program (NSLP))<sup>1</sup> have a significantly higher prevalence of decay experience compared to higher income schools with a low percent of students eligible for the NSLP. Compared to non-Hispanic White children, Asian, African American/Black and Hispanic/Latinx children have a significantly higher prevalence of decay experience. There are no significant differences in the prevalence of untreated decay among racial/ethnic groups or by socioeconomic status. Compared to non-Hispanic White children, African American/Black children have a significantly lower prevalence of protective dental sealants as do children in lower income schools compared to those in higher income schools. Third grade children living in rural counties have a higher prevalence (66%) of decay experience than those living in urban counties (54%) but there is little difference in the prevalence of untreated decay. Refer to Figure 4 & Table 2.

**Disparities among Nebraska’s Head Start Children:** Compared to all other racial/ethnic populations, American Indian/Alaska Native Head Start children have a higher prevalence of both decay experience and untreated decay. Head Start children living in rural counties have a higher prevalence (52%) of decay experience than those living in urban counties (36%). There is less disparity in the prevalence of untreated decay. Refer to Figure 5 & Table 1.

Figure 4. Prevalence of decay experience, untreated tooth decay and dental sealants among **Nebraska’s Third Grade Children** by race/ethnicity and percent of children in a school eligible for the National School Lunch Program (NSLP), 2022-2023

**Decay experience**



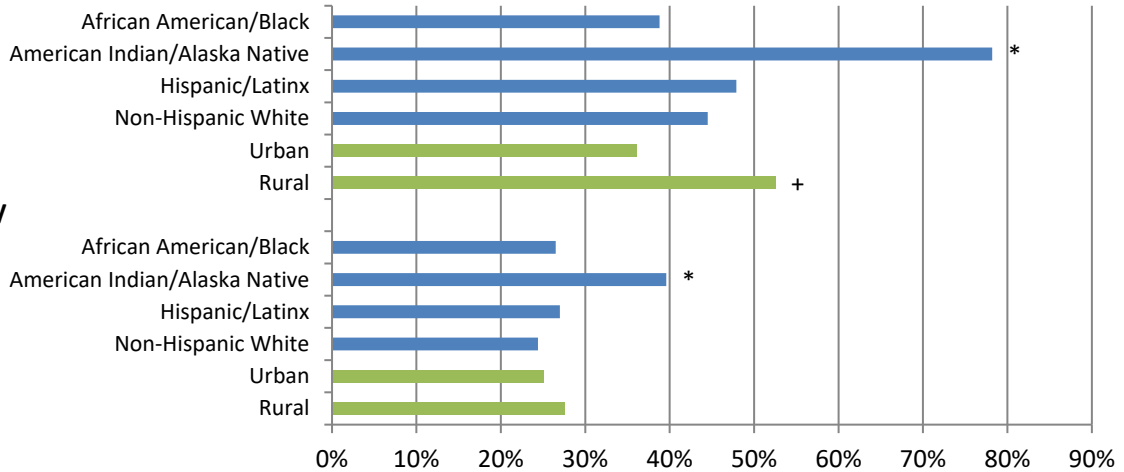
\*Significantly different than non-Hispanic Whites (p<0.05), ^ significantly different than < 25% on NSLP (p<0.05)

<sup>1</sup> To be eligible for the NSLP, the child must be from a household whose income is below 185% of the federal poverty level.

# Nebraska Oral Health Survey of Young Children 2021-2022

**Figure 5.** Prevalence of decay experience and untreated tooth decay among **Nebraska’s Head Start Children** by race/ethnicity and geographic location, 2022-2023

## Decay experience

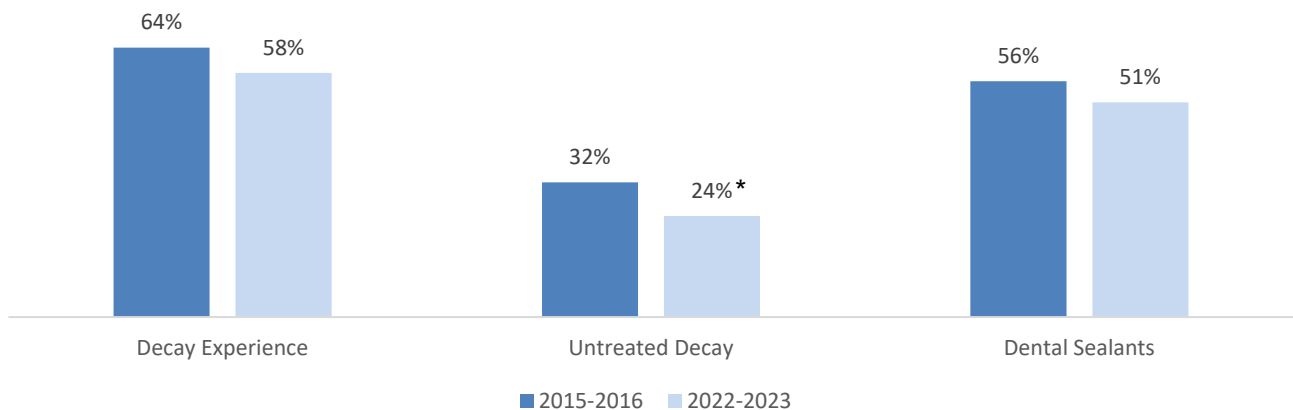


\*Substantially higher than non-Hispanic Whites, + substantially higher than urban

## State Oral Health Trends.

The Nebraska Department of Health and Human Services conducted a similar oral health survey in 2015-2016. Among Head Start children there were only slight overall changes in decay experience and untreated decay. But with third grade children, there has been a significant 8% decline in the percentage of children with untreated decay and a slight 6% decline in decay experience. The 2015-2016 survey found that children living in rural counties, compared to those living in urban counties, had a significantly higher prevalence of both decay experience and untreated decay. The results of the new 2022-2023 survey indicate that the geographic disparity gap has narrowed by 16% for decay experience and has been eliminated by 29% for untreated decay. In 2015-2016, 48% of rural children had dental sealants and that has increased in 2022-2023 to 55%. Lancaster County third grade children appear to have some of the best oral health with lower rates of decay experience, untreated decay and early or urgent dental care needs compared to the state average. Lancaster County also has higher rates of dental sealant placement than the state average. Refer to Figures 6 & 7 and Tables 1-7.

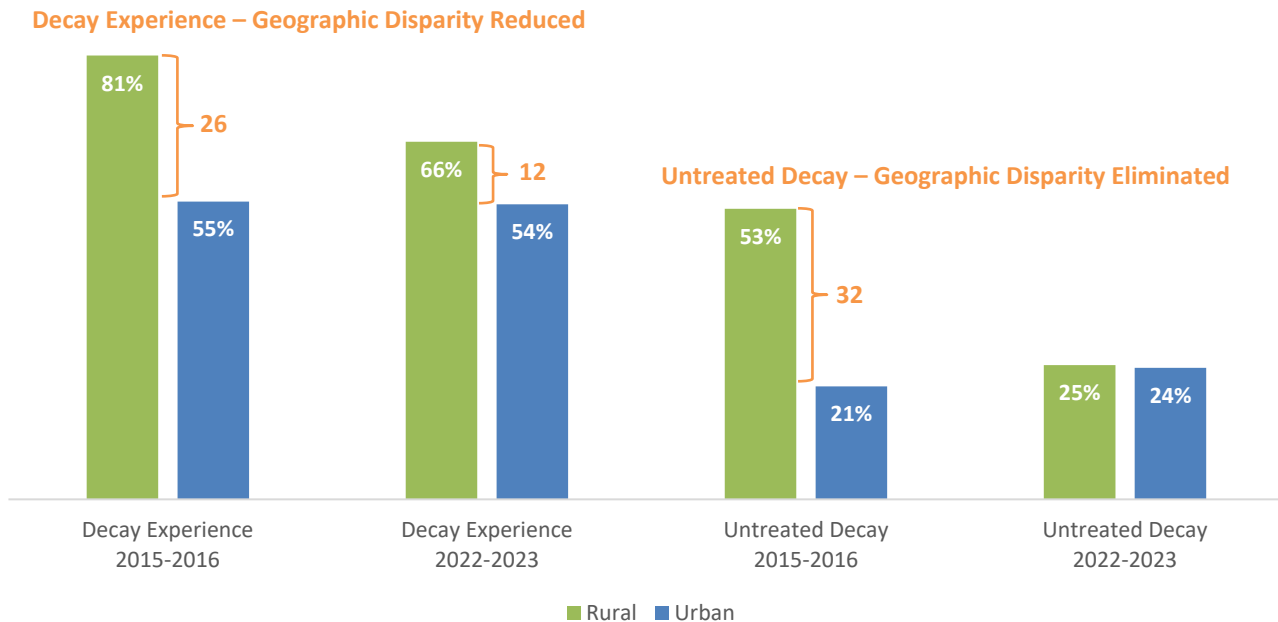
**Figure 6.** Prevalence of decay experience, untreated tooth decay, and dental sealants among **Nebraska’s Third Grade Children** by survey year, 2015-2016 and 2022-2023



\*Significantly lower than 2015-2016

## Nebraska Oral Health Survey of Young Children 2021-2022

**Figure 7:** Prevalence of decay experience and untreated decay among **Nebraska’s Third Grade Children** by survey year and county population density, 2015-2016 vs. 2022-2023



### Data Source and Methods.

This data brief is based on data from the Nebraska Oral Health Survey which was conducted during the 2021-2022 and 2022-2023 school years (March 2022 to January 2023). The Nebraska survey screened three different population groups – Head Start, third grade children from a statewide representative sample of public and private elementary schools, and third grade children attending public and private schools in Lancaster County.

**Sample Selection for the Statewide Third Grade Survey:** The sampling frame consisted of all non-virtual public and private schools with 15 or more children in third grade. The sampling frame was stratified by county population density (rural vs. urban). Within each stratum, the sampling frame was ordered by geographic region then by percent of the school’s students income eligible for the National School Lunch Program (NSLP). A systematic probability proportional to size cluster sampling scheme was used to select schools in 24 rural and 36 urban sampling intervals. Data are available for all 60 sampling intervals. Of the 4183 third grade children enrolled in the participating schools, 3299 were screened for a response rate of 79%.

**Sample Selection for Statewide Head Start:** To reduce travel costs, Head Start sites in the same communities as the selected third grade schools were screened. Some communities do not have a Head Start site, therefore, the total number of Head Start sites screened was 30.

**Sample Selection for the Lancaster County Third Grade Survey:** During the statewide sample selection process, third grade schools in Lancaster County were oversampled. Children were screened at 22 schools representing 21 sampling intervals. Of the 1764 third grade children enrolled in the participating schools, 1434 were screened for a response rate of 73%.

## Nebraska Oral Health Survey of Young Children 2021-2022

Trained and calibrated Nebraska professional dentists and public health hygienists completed the screenings at approximately 100 participating Head Start centers and elementary school sites. The following information was collected for each child: age, gender, ethnicity, race, presence of untreated decay in the primary (baby) or permanent (adult) teeth, presence of treated decay in the primary or permanent teeth, urgency of need for dental care, and presence of dental sealants in the permanent first molar teeth (third grade students only). Nebraska used national ASTDD *Basic Screening Survey* clinical indicator definitions and data collection protocols<sup>2</sup>. These uniform standards are recommended for utilization by states when conducting periodic oral health surveys.

For the third-grade surveys, statistical analyses were performed using the complex survey procedures within SAS (Version 9.4; SAS Institute Inc., Cary, NC) and sample weights were used to produce population estimates based on selection probabilities. Because the Head Start survey was a convenience rather than a probability sample, weights were not calculated, and confidence intervals are not presented.

### Definitions.

**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:** Describes dental cavities or tooth decay that have not received appropriate treatment

**Dental Sealants:** Describes plastic-like coatings applied to the chewing surfaces of back teeth. The applied sealant resin bonds into the grooves of teeth to form a protective physical barrier.

**Urgent Dental Care:** Refers to a child who needs restorative dental care within the next 24-48 hours because of pain or infection.

### Data Tables.

**Table 1:** Percentage of Nebraska’s Head Start Children aged 3-5 years with decay experience, untreated tooth decay, needing early or urgent dental care, and urgent dental care by selected characteristics, 2022-2023

	Decay Experience	Untreated Decay	Early or Urgent Dental Care	Urgent Dental Care
<b>All Head Start children screened (n=909)</b>	<b>48.6</b>	<b>27.0</b>	<b>23.1</b>	<b>4.3</b>
Race/ethnicity				
African American/Black	38.8	26.5	20.4	2.0
American Indian/Alaska Native	78.2	39.6	35.6	11.9
Hispanic/Latinx (any race)	47.9	27.0	22.5	4.6
White (non-Hispanic)	44.5	24.4	21.6	2.3
County population density				
Rural (n=693)	52.5	27.6	24.5	4.5
Urban (n=216)	36.1	25.0	18.5	3.7

<sup>2</sup> Association of State and Territorial Dental Directors. Basic screening surveys: an approach to monitoring community oral health. Available at: <http://www.astdd.org/basic-screening-survey-tool>.



## Nebraska Oral Health Survey of Young Children 2021-2022

**Table 2: Percentage of Nebraska’s Third Grade Children with decay experience, untreated tooth decay, and dental sealants on permanent molars by selected characteristics, 2022-2023**

Characteristic	Decay Experience			Untreated Decay			Dental Sealants		
	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
All 3 <sup>rd</sup> grade children (n=3,299)	58.1	53.5	62.8	24.3	20.4	28.1	50.8	45.8	55.7
Race/ethnicity									
African American/Black (n=232)	64.3	53.0	75.6	28.3	22.0	34.5	35.6	28.4	42.9
Asian (n=102)	75.2	63.8	86.5	35.0	17.9	52.2	42.5	29.7	55.2
Hispanic/Latinx (n=518)	65.9	59.2	72.6	26.1	21.3	30.9	41.4	29.7	53.0
White (n=2,198)	53.3	48.3	58.2	21.3	17.4	25.2	56.0	50.9	61.1
Percent eligible for NSLP									
< 25% eligible (n=958)	50.1	41.0	59.2	22.2	15.0	29.4	56.6	48.1	65.1
25-49% eligible (n=1,017)	53.2	45.8	60.5	18.8	13.5	24.2	55.9	49.5	62.4
50-74% eligible (n=831)	62.0	51.4	72.7	26.2	19.0	33.5	48.5	37.2	59.7
≥ 75% eligible (n=493)	71.9	64.7	79.1	32.8	23.6	41.9	38.0	26.4	49.6
County population density									
Rural (n=985)	65.6	57.7	73.5	24.6	17.1	32.1	54.6	45.2	64.0
Urban (n=2,314)	54.1	48.3	59.8	24.1	19.8	28.4	48.7	42.9	54.4

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Note: Information on decay experience was missing for 2 children, information on untreated decay was missing for 3 children and information on dental sealants was missing for 1 child.

**Table 3: Percentage of Nebraska’s Third Grade Children needing early or urgent dental care and urgent dental care by selected characteristics, 2022-2023**

Characteristic	Early or Urgent Dental Care			Urgent Dental Care		
	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
All 3 <sup>rd</sup> grade children (n=3,299)	<b>17.6</b>	<b>14.3</b>	<b>20.9</b>	<b>3.5</b>	<b>2.3</b>	<b>4.6</b>
Race/ethnicity						
African American/Black	17.5	8.8	26.2	5.5	1.3	9.6
Asian	20.0	11.1	28.9	5.7	0.7	10.6
Hispanic/Latinx	21.0	15.9	26.1	4.7	2.4	7.0
White	14.9	12.1	17.8	2.3	1.4	3.3
Percent eligible for NSLP						
< 25% eligible (n=958)	13.7	10.3	17.2	1.8	0.9	2.7
25-49% eligible (n=1,017)	12.8	8.7	16.9	2.9	1.2	4.6
50-74% eligible (n=831)	24.4	17.4	31.3	4.7	2.3	7.2
≥ 75% eligible (n=493)	23.2	12.7	33.6	5.2	1.7	8.7
County population density						
Rural (n=985)	22.6	15.1	30.1	5.0	2.4	7.5
Urban (n=2,314)	14.9	11.9	17.9	2.6	1.7	3.6

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Note: Information on need for dental care was missing for 16 children

## Nebraska Oral Health Survey of Young Children 2021-2022

**Table 4:** Percentage of Lancaster County's Third Grade Children with decay experience, untreated tooth decay, and dental sealants on permanent molar teeth by selected characteristics, 2022-2023

Characteristic	Decay Experience			Untreated Decay			Dental Sealants		
	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
All 3 <sup>rd</sup> grade children (n=1,434)	46.8	40.2	53.3	19.6	14.1	25.2	55.2	50.0	60.5
Race/ethnicity									
African American/Black (n=110)	52.7	41.0	64.3	25.8	17.9	33.8	36.6	25.2	47.9
Asian (n=63)	64.6	48.3	81.0	20.5	11.8	29.2	45.0	22.0	68.0
Hispanic/Latinx (n=174)	59.2	48.9	69.5	24.8	18.4	31.2	55.5	48.2	62.7
White (n=1,002)	41.9	35.4	48.5	18.3	11.5	25.0	57.7	51.4	64.0
Percent eligible for NSLP									
< 25% eligible (n=524)	43.6	32.3	54.9	20.1	7.9	32.4	61.3	52.4	70.2
25-49% eligible (n=383)	44.5	35.3	53.6	17.9	11.2	24.6	49.3	40.1	58.6
50-74% eligible (n=404)	46.9	34.1	59.6	16.6	10.1	23.0	55.4	50.8	60.0
≥ 75% eligible (n=123)	63.9	62.2	65.6	29.3	20.9	37.7	49.1	38.2	59.9

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Note: Information on decay experience was missing for 2 children, information on untreated decay was missing for 3 children and information on dental sealants was missing for 1 child.

**Table 5:** Percentage of Lancaster County's Third Grade Children needing early or urgent dental care and urgent dental care by selected characteristics, 2022-2023

Characteristic	Early or Urgent Dental Care			Urgent Dental Care		
	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
All 3 <sup>rd</sup> grade children (n=1,434)	<b>11.7</b>	<b>8.6</b>	<b>14.8</b>	<b>1.1</b>	<b>0.5</b>	<b>1.7</b>
Race/ethnicity						
African American/Black	17.8	11.1	24.4	1.3	-0.7	3.3
Asian	15.9	6.4	25.4	4.8	-0.6	10.3
Hispanic/Latinx	20.4	13.7	27.2	2.0	-0.3	4.3
White	9.3	6.4	12.2	0.8	0.2	1.4
Percent eligible for NSLP						
< 25% eligible (n=524)	11.1	6.6	15.6	1.1	0.1	2.1
25-49% eligible (n=383)	7.0	2.2	11.8	1.3	0.0	2.6
50-74% eligible (n=404)	13.6	9.0	18.2	0.8	0.1	1.5
≥ 75% eligible (n=123)	21.4	20.7	22.0	1.3	-0.7	3.2

NSLP: National school lunch program; Lower CL: Lower 95% confidence limit; Upper CL: Upper 95% confidence limit

Note: Information on urgency of need for dental care was missing for 7 children.

## Nebraska Oral Health Survey of Young Children 2021-2022

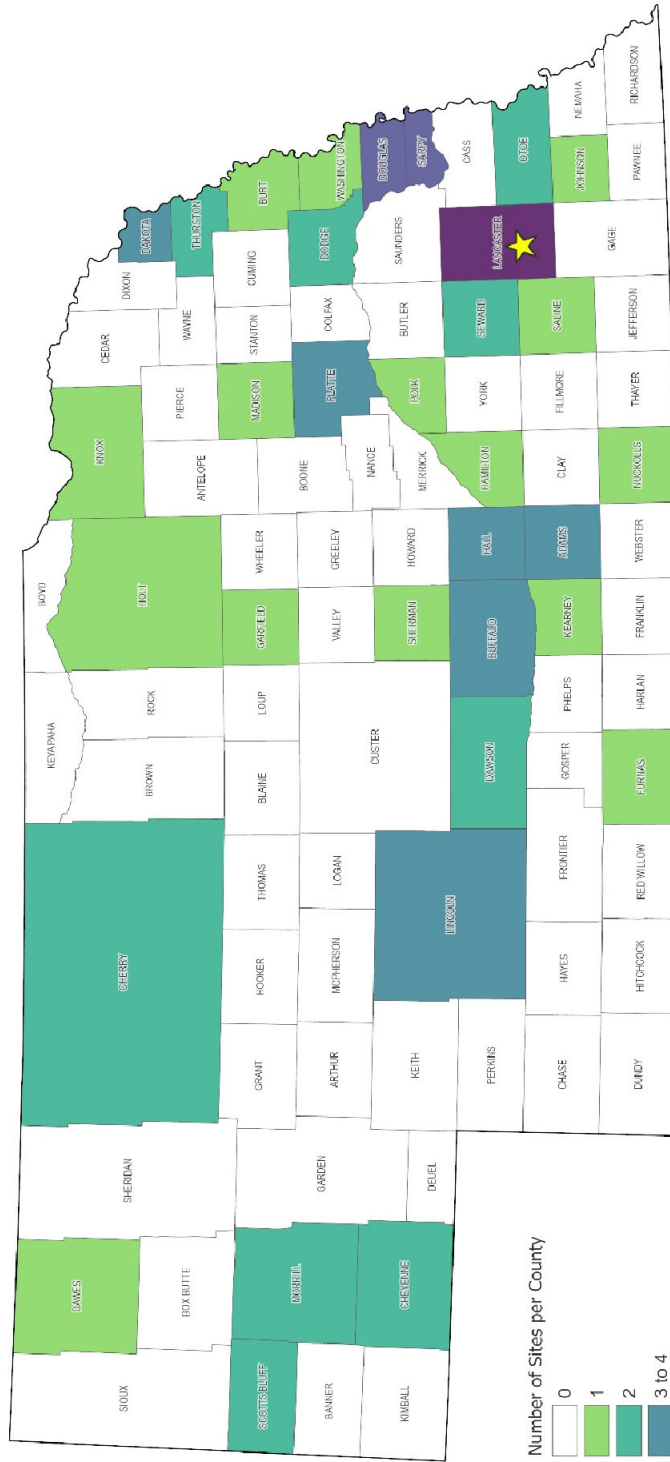
**Table 6:** Percentage comparison of **Nebraska’s Head Start and Third Grade children** with decay experience, untreated tooth decay, dental sealants on permanent molar teeth, needs early or urgent dental care, and needs urgent dental care by survey year, 2015-2016 and 2022-2023

Characteristic	2015-2016			2022-2023		
	Percent Yes	Lower CL	Upper CL	Percent Yes	Lower CL	Upper CL
Head Start						
Decay experience	46.2	38.4	54.1	48.6	NA	NA
Untreated decay	29.5	21.3	37.6	27.0	NA	NA
Early or urgent dental care	16.4	11.6	21.3	23.1	NA	NA
Urgent dental care	2.8	1.1	4.6	4.3	NA	NA
Third Grade						
Decay experience	63.9	59.5	68.3	58.1	53.5	62.8
Untreated decay	32.0	28.2	35.8	24.3	20.4	28.1
Dental sealants	56.2	51.5	61.0	50.8	45.8	55.7
Early or urgent dental care	18.8	15.6	22.1	17.6	14.3	20.9
Urgent dental care	3.2	2.3	4.1	3.5	2.3	4.6

**Table 7:** Percentage comparison of **Nebraska’s Head Start and Third Grade children** with decay experience, untreated tooth decay and dental sealants on permanent molar teeth by survey year and county population density, 2015-2016 vs. 2022-2023

Characteristic	Decay Experience			Untreated Decay			Dental Sealants		
	2015-16	2022-23	Change %	2015-16	2022-23	Change %	2015-16	2022-23	Change %
Head Start	46.2	48.6	2.4	29.5	27.0	-2.5	NA	NA	NA
Rural	55.5	52.5	-3.0	40.6	27.6	-13.0	NA	NA	NA
Urban	34.9	36.1	1.2	15.9	25.0	9.1	NA	NA	NA
Third grade	63.9	58.1	-5.8	32.0	24.3	-7.7	56.2	50.8	-5.4
Rural	81.4	65.6	-15.8	53.3	24.6	-28.7	48.6	54.6	6.0
Urban	54.6	54.1	-0.5	20.7	24.1	3.3	60.3	42.9	-17.4

# Nebraska Oral Health Survey of Young Children 2021-2022



Total of 105 Head Start and Third Grade Sites Statewide  
 Approximately 4,200 Head Start and Third Grade Students Screened  
 Data Source: Nebraska Office of Oral Health and Dentistry, 2023

