

The Oral Health of Montana's Third Grade Children, 2024

Oral health is important to a child's social, physical and mental well-being. Although tooth decay can be prevented, many children get cavities. The Montana Oral Health Program organized a survey of children's dental health during the 2023-2024 school year in collaboration with schools, providers and communities to assess oral health and preventive activities in Montana. This data brief is a follow-up to surveys conducted in 2005-2006, 2013-2015 and 2017-2018 on the prevalence of tooth decay on permanent and primary dentition and access to preventive dental sealants.

Data Highlights

- More than half, 52%, of Montana third-grade children experience tooth decay.
 - 12% have untreated decay
 - 2% with urgent dental needs
- Since 2005-2006 and 2013-2015 surveys:
 - There has been a significant decrease in children who experience tooth decay, 64% vs 52%.
 - There has been a significant decrease in the rate of untreated decay, 29% vs 12%.
- Socioeconomic and geographic disparities persist in oral health for Montana children.

Data Source and Methods

A systematic probability proportional to size sampling scheme with stratification by county urbanicity and percent of students participating in the National School Lunch Program (NSLP) was used to select 40 Montana schools. The sampling frame consisted of all public elementary schools with 10 or more children enrolled in third grade. Thirty-five schools agreed to participate and schools that declined were replaced with randomly selected schools from the same sampling interval. All analysis were completed using the complex survey procedures with SAS 9.4 and weighted to represent the third-grade population within each sampling interval.

Data was collected by dental providers on paper forms and then entered into an Access database. A total of 1,836 children received a dental screening during the 2023-2024 school year, 68% of children enrolled in the 40 sites. The following information was collected for each child: age, sex, race/ethnicity, presence of untreated decay in primary or permanent teeth, presence of treated decay in the primary or permanent teeth, urgency of need for dental care, and presence of dental sealants on permanent first molar teeth. The Basic Screening Survey¹ clinical indicator definitions and data collection protocols were used.

Prevalence of Decay Experience and Untreated Decay

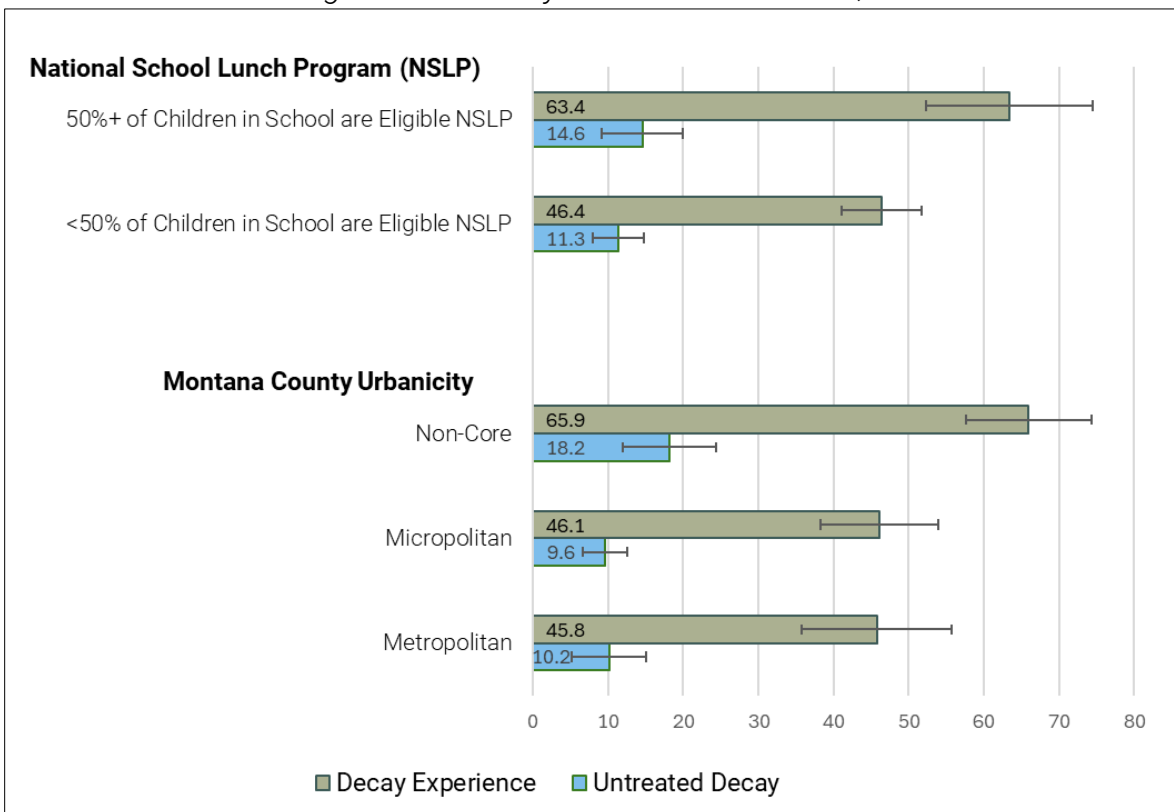
During the 2023-2024 school year, 51.9% [Confidence Interval (CI): 46.7-57.2] of third-grade children in Montana had experienced tooth decay. Children attending schools with over 50% participation in NSLP experienced significantly higher prevalence of tooth

¹ Association of State and Territorial Dental Directors [ASTDD | Basic Screening Survey Tool](#)

decay (Figure 1). Children attending schools with 75% or more children eligible for NSLP experienced decay at the highest rate, 73.2% (CI:59.5-86.9). Children in non-core counties, were significantly more likely to experience tooth decay (Figure 1). The Healthy People 2030 target for decay experience is 42.9% for children and adolescents. Most recent National Health and Nutrition Examination Survey (NHANES) data from 2017-2020 estimates 50.1% of children aged 6 to 9 years had decay experience.

Left untreated decay may lead to pain, infection and impact growth, development and nutrition. Overall, 12.4% (CI:9.5-15.2) of Montana third-grade children had untreated decay. Figure 1 provides untreated decay stratified by NSLP and county urbanicity. The Healthy People 2030 target for untreated tooth decay is 10.2%. NHANES 2017-2020 U.S. estimates are 12.4% for children aged 3 to 19 years.

Figure 1. Prevalence of decay experience and untreated decay in primary and permanent teeth of Montana third-grade children by select characteristics, 2024.



Error bars represent 95% confidence intervals

Prevalence of Dental Sealants

Dental sealants are a protective shield on chewing surfaces of molars. This shield blocks out germs and food that can cause tooth decay. To assess access to evidence-based preventive dental care, dental sealants were recorded if the child had sealant material on at least one adult molar.

Half (49.9%, CI: 44.2-55.6) of third-grade children had dental sealants on their six-year molars. There were not significant differences based on county urbanicity or NSLP

(Table 2). Montana third-grade children have a higher rate of sealants than the most recent NHANES estimates for children aged 6 to 9 years of age, 25.3%, and the Healthy People 2030 target of 42.5%.

Data Trends and Conclusions

Montana DPHHS has collected data on the third-grade children four times in the last two decades (Table 1). The findings in the 2023-2024 survey indicate that the oral health status of third-grade children has significantly improved since 2005 and access to preventive dental sealants has remained unchanged. Children in counties with lower populations or attending schools with a higher rate of enrollment in NSLP experience a higher rate of dental disease (Table 2).

Table 1: Oral health of Montana's third-grade children by survey year.

Oral Health Condition	2005-2006 (n=957)	2013-2015 (n=1,862)	2017-2018 (n=1,842)	2023-2024 (n=1,836)
Decay experience	64.4 (61.3-67.4)	64.8 (59.6-69.9)	61.6 (56.7-66.4)	51.9 (46.7-57.2)
Untreated decay	28.9 (26.1-31.9)	23.8 (18.4-29.2)	14.8 (10.8-18.7)	12.4 (9.5-15.2)
Sealants on permanent molars	46.2 (43.0-49.4)	55.2 (49.4-61.1)	48.2 (39.4-56.9)	49.9 (44.2-55.6)

Parentheses represent 95% confidence intervals

Recommendations

The Montana Oral Health Program mission is to improve the oral health of Montanans through prevention and education. Program activities support:

- Improving knowledge about the impact of oral health on overall health.
- Continue to build capacity for public health activities through community-based and telehealth models to support communities with limited access to dental care.
- Incentivize providers through policy in programs for integration of oral health services in medical settings, Access to Baby and Child Dentistry (ABCD) program and National Health Service Corp (NHSC) loan repayment.
- Promote innovation in workforce and dental care delivery models.

Definitions

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

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.¹

Metropolitan: schools in counties with population of 50,000 to 249,99.

Micropolitan: schools in counties with population of 10,000 to 49,999.

Non-core: schools in counties with population less than 10,000.²

² [National Center for Health Statistics Urban-Rural Classification Scheme for Counties](#)

Table 2. Proportion of Montana third-grade children with decay experience, untreated decay and dental sealants by select characteristics, 2023-2024.

Demographic Characteristic	Decay experience (n=1828)	Untreated decay (n=1832)	Dental sealants (n=1825)
All children	51.9 (46.7-57.2)	12.4 (9.5-15.2)	49.9 (44.2-55.6)
Gender			
Female	54.8 (48.6-61.1)	10.4 (8.1-12.7)	49.6 (43.0-56.1)
Male	49.1 (44.0-54.3)	14.3 (10.5-18.1)	50.2 (44.4-56.0)
Race/Ethnicity			
American Indian/Alaskan Native	82.9 (74.6-91.3)	21.4 (17.8-25.0)	30.6 (12.3-49.0)
White	47.9 (42.5-53.3)	11.6 (8.2-15.0)	52.2 (46.7-57.8)
Other	50.3 (36.2-64.4)	NR	51.6 (41.0-62.3)
Unknown/not reported	46.8 (27.9-65.7)	NR	54.3 (32.4-76.3)
County Urbanicity			
Metropolitan	45.8 (35.8-55.7)	10.2 (5.3-15.2)	47.7 (38.5-56.8)
Micropolitan	46.1 (38.3-53.9)	9.6 (6.6-12.6)	56.6 (49.8-63.3)
Non-Core	65.9 (57.6-74.3)	18.2 (12.0-24.4)	44.7 (31.7-57.6)
School participation in NSLP			
<25% of children in school are eligible	38.5 (28.1-48.9)	8.0 (5.9-10.1)	51.1 (42.4-59.7)
25-49% of children in school are eligible	50.4 (44.9-55.8)	13.0 (8.1-17.9)	53.8 (44.7-63.0)
50-74% of children in school are eligible	47.7 (41.7-53.7)	12.3 (7.6-17.1)	45.6 (32.7-58.5)
75%+ of children are eligible	73.2 (59.5-86.9)	16.1 (7.9-24.2)	42.5 (27.8-57.2)

Parentheses represent 95% confidence intervals.

NSLP=National School Lunch Program

NR=Not reported if weighted denominator is less than 30 or the relative standard error (RSE) is >30%