

The Oral Health of Montana's Third Grade Children

Data from the Montana Oral Health Survey, 2014

Third grade children in Montana compared to third grade children in the U.S.

- Have higher proportion with history of decay on primary and permanent teeth: MT 65%, U.S. 52%
- Have similar proportion with untreated tooth decay: MT 24%, U.S. 23%.
- Have higher proportion with at least one dental sealant on a permanent molar: MT 55%, U.S. 32%

In Montana oral health disparities exist for

- Children in schools with a high proportion receiving free and reduced as part of the national school lunch program
- American Indian/American Native children

Good oral health is important to a child's social, physical and mental development. Even though tooth decay can be prevented, most children in Montana still get cavities. To assess the current oral health status of Montana's elementary school children, the Oral Health Program at Montana Department of Public Health and Human Services coordinated a statewide oral health survey of third grade children attending Montana's public and Bureau of Indian Education schools. A total of 1,862 children received a dental screening at 40 schools during 2014.¹ This data brief presents information on the prevalence of tooth decay in the primary and permanent teeth of Montana's third grade children compared to the general U.S. third grade population screened between 2005-2010 as part of the National Health and Nutrition Examination Survey (NHANES).² It also describes the prevalence of dental sealants, a plastic-like coating applied to the chewing surfaces of children's teeth to prevent tooth decay.

Data source and methods

This data brief is based on data from the Montana Oral Health Survey which was conducted during the 2013-2014 and 2014-2015 school years. The Montana survey screened children in third grade from a representative sample of public and Bureau of Indian Education elementary schools in Montana. The sampling frame consisted of all elementary schools with 10 or more students in third grade. The sampling frame was stratified by urbanicity of the county where the school was located (metropolitan, micropolitan or non-core) and percent of the school's students eligible for the national school lunch program (NSLP). A systematic probability proportional to size sampling scheme was used to select 40 schools. If a school declined participation, a replacement school was randomly selected from the same sampling interval.

Dental professionals completed the dental screenings at the participating schools. The following information was collected for each child: age, sex, race/ethnicity, presence of untreated decay in

¹ Montana DPHHS Oral Health Program, Oral Health Survey, 2014

² National Health and Nutrition Examination Survey (NHANES), 2005-2010 <http://www.cdc.gov/nchs/nhanes.htm>

the 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 in the permanent first molar teeth. We used the *Basic Screening Survey* clinical indicator definitions and data collection protocols.³

Screeners collected data using paper forms which were mailed to the Department of Public Health and Human Services and entered using Microsoft Access. All statistical analyses were performed using the complex survey procedures within SAS.⁴ Sample weights were used to produce population estimates based on selection probabilities. It should be noted that the NHANES data for third grade children is from 2005-2010 and current disease levels may be different; unfortunately more current NHANES data for third grade children is not available.

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.

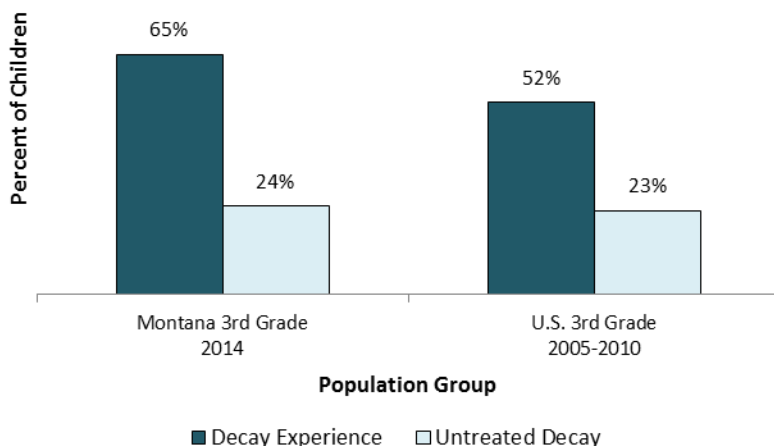
Dental sealants: Describes plastic-like coatings applied to the chewing surfaces of back teeth. The applied sealant resin bonds into the grooves of teeth to form a protective physical barrier.

Prevalence of decay experience and untreated decay

In 2014, 65% of third grade children in Montana had decay experience, compared to 52% of the general U.S. population in third grade (Figure 1).²

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 one-of-four third grade children in Montana (24%) had untreated decay. This compares to 23% of third grade children in the general U.S. population (Figure2).²

Figure 1. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth of Montana's third grade children compared to third grade children in the general U.S. population



Sources: Montana Oral Health Survey, 2014
National Health and Nutrition Examination Survey (NHANES)

³ Association of State and Territorial Dental Directors. Basic screening surveys: an approach to monitoring community oral health. (WWW document). URL: <http://www.astdd.org/basic-screening-survey-tool>.

⁴ SAS Version 9.3; SAS Institute Inc., Cary, NC

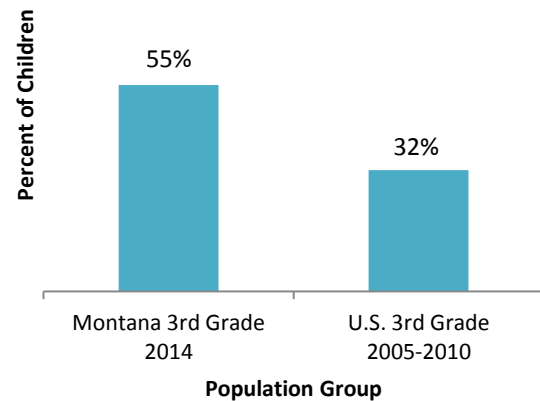
Prevalence of dental sealants

Dental sealants are thin plastic coatings that are applied to the grooves on the chewing surfaces of molars 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 grooves. Fifty-five percent of Montana’s third grade children had at least one dental sealant; compared to 32% of the general U.S. population in third grade.²

Oral health disparities

Sociodemographic characteristics associated with oral health disparities in the United States include poverty status and race and ethnicity. In Montana, lower income schools (schools with a high percentage of the students eligible for free and reduced lunch through the national school lunch program) have a significantly higher prevalence of decay experience and untreated decay compared to higher income schools with a low percent of students eligible for the national school lunch program (NSLP).⁵ American Indian children have a significantly higher prevalence of decay experience and untreated decay compared to non-Hispanic white children. There is no significant difference in the prevalence of dental sealants among racial/ethnic groups or by socioeconomic status.

Figure 2. Prevalence of dental sealants in the permanent molar teeth of Montana’s third grade children compared to the general U.S. population in third grade



Sources: Montana Oral Health Survey, 2014
National Health and Nutrition Examination Survey (NHANES), 2005-2010

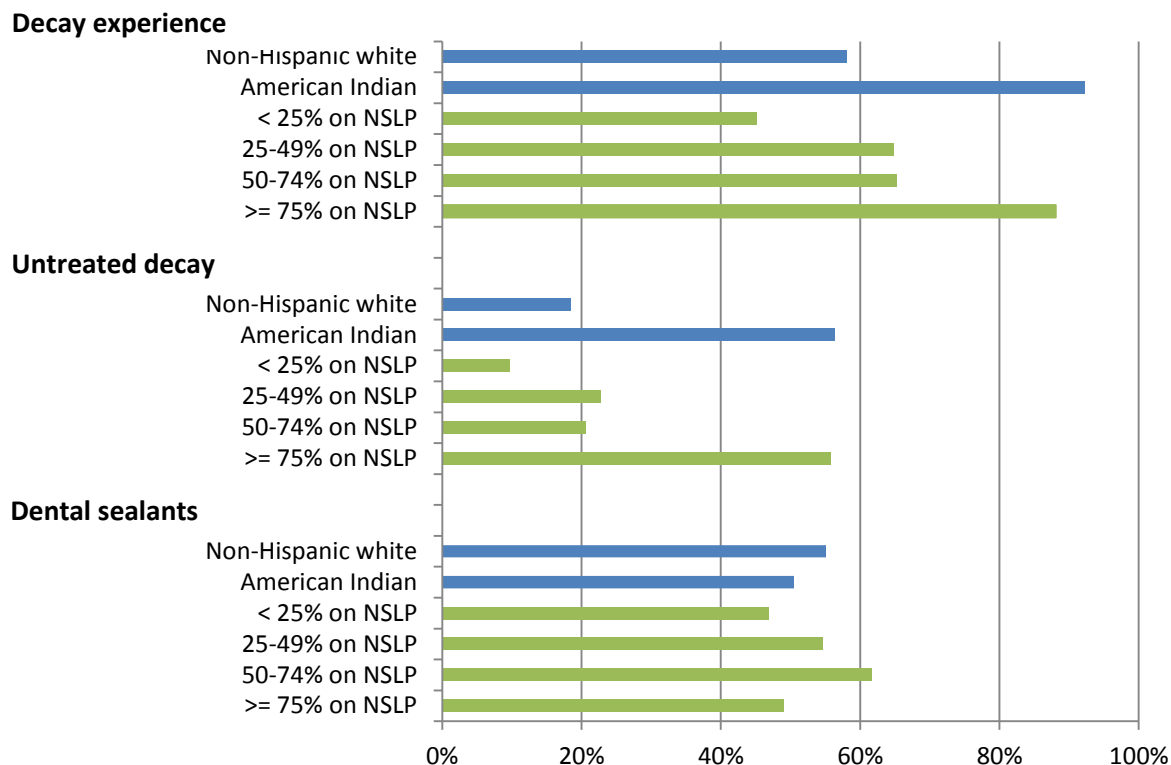
Table 1. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth and prevalence of dental sealants on permanent molar teeth among Montana’s third grade children by selected characteristics, 2014

Characteristic	Decay Experience			Untreated Decay			Dental Sealants		
	Percent	Lower CL [†]	Upper CL [‡]	Percent	Lower CL [†]	Upper CL [‡]	Percent	Lower CL [†]	Upper CL [‡]
All 3 rd grade children (n=1,862)	64.8	59.6	69.9	23.8	18.4	29.2	55.2	49.4	61.1
Race/ethnicity									
White non-Hispanic (n=1,191)	58.1	53.1	63.1	18.5	12.9	24.1	55.1	48.3	62.0
American Indian (n=255)	92.3	88.5	96.1	56.4	45.7	67.2	50.5	39.7	61.3
Other minorities (n=68)	68.7	53.4	84.0	31.7	17.7	45.7	44.0	29.1	58.9
Percent eligible for NSLP									
< 25% eligible (n=262)	45.2	36.8	53.6	9.7	6.9	12.5	46.9	31.1	62.8
25-49% eligible (n=848)	64.8	58.3	71.2	22.8	15.8	29.8	54.7	45.2	64.3
50-74% eligible (n=535)	65.2	58.9	71.5	20.6	14.7	26.4	61.6	53.8	69.4
≥ 75% eligible (n=217)	88.1	76.4	99.8	55.8	41.0	70.7	49.0	39.3	58.7

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

⁵ To be eligible for the NSLP children must be from a household with an income below 185% of the federal poverty level.

Figure 3. Prevalence of decay experience, untreated tooth decay and dental sealants among Montana’s third grade children by race/ethnicity and percent of children in a school eligible for the national school lunch program (NSLP), 2014



Conclusion

The data represented in this data brief indicate that Montana children receive preventive dental sealants more often than the general U.S. population of third grade children; however, Montana children exhibit a higher prevalence of dental decay. Montana’s American Indian and low-income children have an increased prevalence of dental decay when compared to the general 3rd grade population.

Recommendations

The Montana Oral Health Program mission is to improve the oral health of Montanans through prevention and education. A primary focus should be creating programs that target high-risk populations during pregnancy and early childhood to prevent the transmission of decay-causing bacteria from caregivers to children and foster community-based preventive strategies such as exposure to topical fluoride. For high-risk populations this can be accomplished by engaging dental and primary care providers in preventive care programming offered through the Montana Medicaid Program, such as the Access to Baby and Child Dentistry (ABCD) program. By initiating preventive dental care at an early age and providing parental education, we can reduce the prevalence of disease and reduce the cost of care.