July 2016

Center for Rural Health
University of North Dakota
School of Medicine & Health Sciences

Fact Sheet

Social Factors Affecting Pediatric Oral Health in North Dakota

This fact sheet is Number 5 in a series of analyses regarding oral health in North Dakota.

National and state based research has found that children who drink soda or sugary drinks daily have a statistically ($p \leq 0.05$) higher prevalence of tooth decay than their peers who do not consume sugary drinks daily.[1] Untreated decay is statistically more prevalent among North Dakota adolescents who:

- Have never been to the dentist
- Do not regularly brush their teeth
- Drink soda or sugary beverages daily

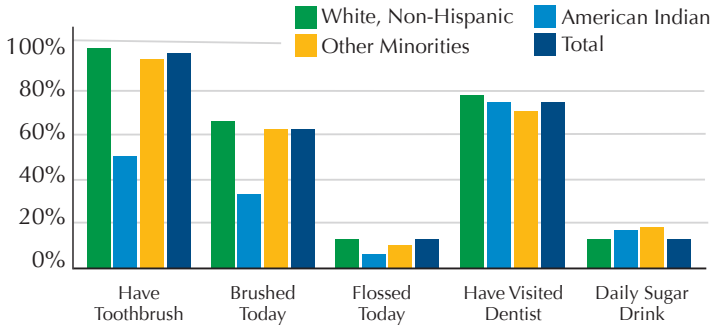
These adolescents also report a statistically significant lower prevalence of protective dental sealants; rampant decay; and, a need for early and urgent dental care.

This fact sheet identifies youth in North Dakota who do, and do not, have the appropriate knowledge and resources necessary to practice good oral hygiene. Identified are disparities among: frequency of brushing; consumption of sugary beverages; and, access to oral health care supplies. For more information on the State's rates of pediatric tooth decay, prevalence of sealants, and other oral health outcomes, see fact sheet number four, *Pediatric Oral Health Disparities in North Dakota at* ruralhealth.und.edu/pdf/north-dakota-pediatric-oral-health-disparities.pdf.

Third Grade Students in North Dakota

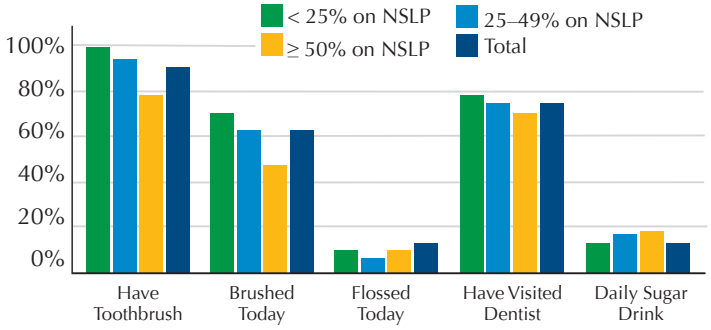
In 2015, the North Dakota Department of Health's screening survey identified roughly 93% of all third grade students in North Dakota had a toothbrush at home. While 96% of all non-Hispanic White third grade students have a toothbrush, the same is true for only 49% of their American Indian peers. See Figure 1. As a result, only 32% of American Indian youth had brushed their teeth on the day of assessment compared to 66% of non-Hispanic White adolescents.

Figure 1. Pediatric Oral Health Predictors by Race: ND Third Grade Students



Likewise, children attending lower income schools (≥50% of children eligible for the National School Lunch Program (NSLP) are less likely to have access to a toothbrush and subsequently, less likely to have brushed (48%) on the day of assessment than students attending schools with <50% of children eligible for the NSLP. See Figure 2.

Figure 2. Pediatric Oral Health Predictors by NSLP Status: ND Third Grade Students



Though not statistically significant, rural adolescents are slightly less likely than their urban peers to brush their teeth, to have been to the dentist, or to own a toothbrush. Several years of data are available through the North Dakota Department of Health. However, comparisons cannot be made because of changes in the survey methodology. Though trends are not presented, it is imperative to note that over time, American Indian, other racial minorities, and lower income students have always reported poorer oral health predictors than non-Hispanic White, and higher income adolescents.

Middle School Students in North Dakota

Among North Dakota's middle school students, American Indian and other minority adolescents are less likely than their non-Hispanic White peers to have brushed their teeth seven days in the last week. See Figure 3. They are also more likely to have consumed a sugary drink two, three, and four times a day. See Figure 4.

Figure 3. Frequency of Brushing among ND Middle School Students by Race

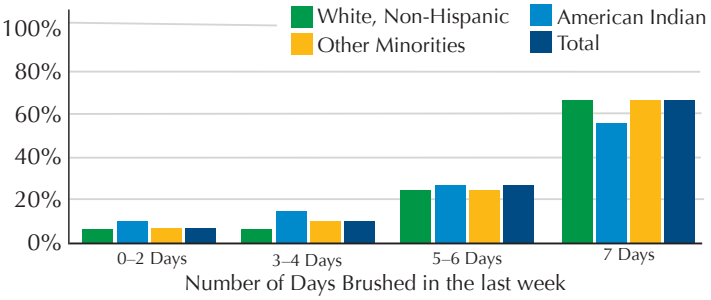
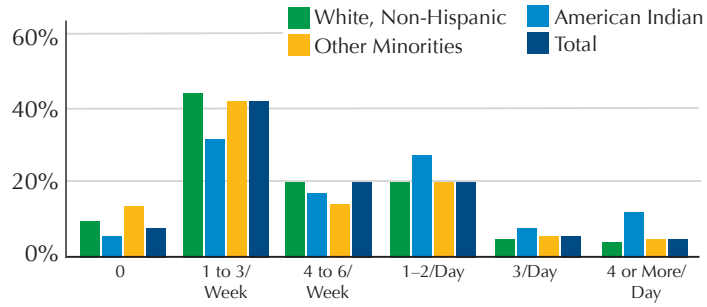


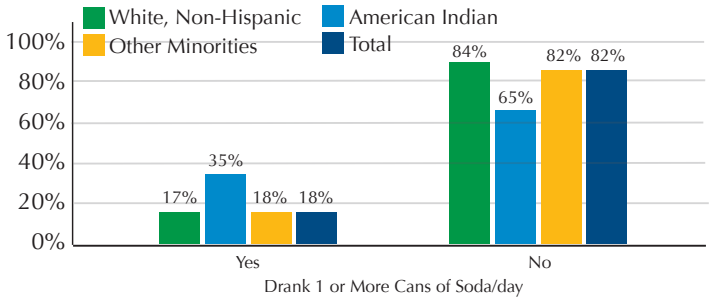
Figure 4. Sugary Drink Consumption Rates of ND Middle School Students by Race



High School Students in North Dakota

High school students in North Dakota are more likely to brush their teeth seven days a week (71%) than are middle school students (65%). American Indians are still less likely to brush daily (65%) than their non-Hispanic White peers (72%). However, this disparity is not as great among high school students as it is among third grade and middle school youth. American Indian high school students in North Dakota are far more likely to consume multiple cans of soda, or sugary drinks, than their non-Hispanic White peers, placing them at a much higher risk of tooth decay. See Figure 5.

Figure 5. Percent of ND High School Students Drinking 1 or More Cans of Soda/day by Race



Conclusions

Tooth decay (cavities) is one of the most common chronic childhood conditions in the United States. Untreated tooth decay can cause pain and infections that may lead to problems with eating, speaking, playing, and learning.[2] There are several contributing factors that lead a child to develop tooth decay, some of which include infrequent brushing, not flossing, consuming sugary drinks or soda, not visiting a dentist annually, and not having access to oral hygiene products like a toothbrush or toothpaste.

In North Dakota, American Indian adolescents are significantly more likely to present with these poor oral health predicators than their non-Hispanic White peers. Rural are at a greater disadvantage than urban, but not significantly. Finally, students who attend schools with a larger percentage of the population participating in the NSLP are less likely to have a toothbrush and less likely to have brushed on the day of assessment.

Recommendations

Daily brushing was low overall among North Dakota middle school students (65%) and slowly improved with age. There is need to educate youth on the importance of daily oral health care, with special attention paid to educating American Indian and low income youth. However, without access to oral hygiene supplies, American Indian adolescents cannot improve their brushing or flossing rates. Education must also focus on the risk factors for tooth decay, including consumption of soda and sugary drinks. This rate of consumption also places American Indian youth at a higher-risk for obesity and diabetes.

Two other effective methods for preventing decay include application of fluoride varnish and dental sealants. Though a reimbursable service, fluoride varnish is not being applied to even at-risk patients in the primary care setting. See *Fluoride Varnish Application in Primary Care Settings* fact sheet at ruralhealth.und.edu/pdf/fluoride-varnish-application-primary-care.pdf. Primary care providers should take an active role in the prevention of tooth decay among the youngest and most at-risk pediatric patients.

In 2015-16, 3,124 students in North Dakota saw a public health hygienist though the Seal!ND program; 1,495 of those students received dental sealants. If North Dakota's goal is to improve the oral health of it's youth, this program requires additional funding and more significant support and workforce from local dental clinics in order to reach a larger number of students. If resources remain limited, programs and efforts like Seal!ND should focus on providing preventive care to those pediatric populations at high-risk of decay: American Indian; other minority; and, low-income.

Data

Data were provided by the North Dakota Department of Health, taken from the Basic Screening Survey of Third Grade Children, 2014-2015. Middle school and high school data were taken from the Youth Risk Behavior Surveillance System, 2007-2015. Figures represent 2015 data.

1. North Dakota Department of Health. Basic screening survey for third grade children. 2014-2015.
2. Centers for Disease Control and Prevention. Children's oral health. http://www.cdc.gov/oralhealth/children_adults/child.htm#1.

For more information

Visit the CRH webpage for additional oral health publications and information. ruralhealth.und.edu/what-we-do/oral-health

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