

# 2014-2015 School Health Dental Screening Surveillance Report



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## EXECUTIVE SUMMARY

The Centers for Disease Control and Prevention (CDC) report “tooth decay is one of the most common chronic conditions of childhood in the United States. Untreated tooth decay can cause pain and infections that may lead to problems with eating, speaking, playing and learning.” (CDC Children’s Oral Health [http://www.cdc.gov/OralHealth/children\\_adults/child.htm](http://www.cdc.gov/OralHealth/children_adults/child.htm) )

In school year 2014-2015, Nebraska schools were invited by the Department of Health and Human Services (DHHS) School Health Program to voluntarily report dental screening data on students in grades 1, 4, 7, and 10. In response, reports were received reflecting dental screening status on a total convenience sample of 10,042 students from 89 schools across the State representing 11% of the total membership of those four grades combined. Schools from 31 of the 93 Nebraska counties participated.

The 2014-2015 Dental Screening Surveillance included two primary objectives:

1. Measure participation of schools that are providing required dental screening;
2. Assess dental health status among a convenience sample of Nebraska school children.

Schools were instructed to use categories of 0-1-2 to define dental screening results. A result of 0 means no dental irregularities were noted. A result of 1 means observable irregularities of the teeth were noted in one or two areas. A result of 2 means observable irregularities of the teeth were noted in three or more areas. Previous (filled) carries were not included in the count of irregularities.

The School Health Dental Screening Surveillance Project helps monitor trends in children's dental health and helps guide schools and communities in dental health policy development, by requesting data in regular intervals every three years.

Findings include:

- Compared to the 2011-2012 Dental Health Survey in which data was collected from 9,154 students from 101 schools, the 2014-2015 Dental Health Survey collected data from 10,042 students from 89 schools across the state.
- School health dental screeners included school nurses – registered nurses and licensed practical nurses, dentists, dental hygienists, student dental hygienists and other unlicensed assistive personnel.
- 7% of students in the sample had some degree of dental concerns and 1.4% had severe dental concerns.
- Race and ethnicity were not reported on 17% of the sample.

## INTRODUCTION

Dental decay is five times as prevalent as asthma. School nurses see firsthand the implications of dental health on children's learning, growing and developing as well as the social impacts that dental health can have on children. From pain and distraction, missed school days as well as eating and speaking, all of these factors play a role in the child's performance in the classroom. (Jessie Buerlein, MSW – (2010) Promoting Children's Oral Health A Role for School Nurses in Prevention, Education, and Coordination. <http://nas.sagepub.com/content/25/1/26.full>

“Students with very good or excellent dental health had better attendance and better classroom performance than peers with poorer dental health.”

(Jolene Bertness, M.ED., Katrina Holt, M.P.H., M.S., R.D. Promoting Oral Health in Schools, A Resource Guide, Second Edition; (2013) National Maternal & Child Oral Health Resource Center <http://mchoralhealth.org/PDFs/resguideschooloh.pdf>

“It has been shown that poor oral health has a significant impact on overall general health. Children who suffer from dental-related illness may have trouble focusing and learning in school. Children may have frequent absences from school, failure to thrive physically, reduced self-esteem, and speech development problems due to dental decay, infection, and tooth loss. Information collected from school oral health screenings yields valuable information revealing rates of untreated dental needs, urgent care needs, previous treatment received and whether sealants have been placed on a child's teeth.” (“EXECUTIVE SUMMARY“ An Analysis of Oral Health Screening Data Collected by the Kansas Department of Health and Environment for School Year 2008-2009 on Children K-12 in Kansas”; A Practicum Report by Caron Shipley RDH, BSDH

[http://www.kdheks.gov/ohi/download/screening\\_program/EXECUTIVE\\_SUMMARY.pdf](http://www.kdheks.gov/ohi/download/screening_program/EXECUTIVE_SUMMARY.pdf)

“Dental health has a major effect on children's health, education and well-being. Research shows that kids who do not receive dental care miss a significant number of school days, use expensive emergency room services more often and face worsened job prospects as adults, compared with their peers who do receive care.”

“Oral health is related to well-being and quality of life as measured along functional, psychosocial, and economic dimensions. Diet, nutrition, sleep, psychological status, social interaction, school, and work are affected by impaired oral and craniofacial health.”

“Cultural values influence oral and craniofacial health and well-being and can play an important role in care utilization practices and in perpetuating acceptable oral health and facial norms.

Oral and craniofacial diseases and their treatment place a burden on society in the form of lost days and years of productive work. Acute dental conditions contribute to a range of problems for employed adults, including restricted activity, bed days, and work loss, and school loss for children. In addition, conditions such as oral and pharyngeal cancers contribute to premature death and can be measured by years of life lost.”

Retrieved 12/4/2015 from the PEW Charitable Trusts, "The State of Children's Dental Health" (2011) at <http://www.pewtrusts.org/en/research-and-analysis/reports/0001/01/01/the-state-of-childrens-dental-health>

This is the second iteration of the Dental Screening Surveillance and the fifth annual iteration of the School Health Data Project. It was conducted and reported as a collaborative activity between the School Health Program in Lifespan Health Services, the Office of Oral Health and Dentistry in the Health Promotion Unit, and the College of Public Health at the University of Nebraska Medical Center.

## **METHODS**

All schools were asked to voluntarily report de-identified dental screening data on individual students in the 1st, 4th, 7th, and 10th grades during the 2014-2015 school year. Multiple communications from the DHHS School Health Program Manager were used to encourage schools to participate, and support with technical assistance for the submission of dental screening data was provided.

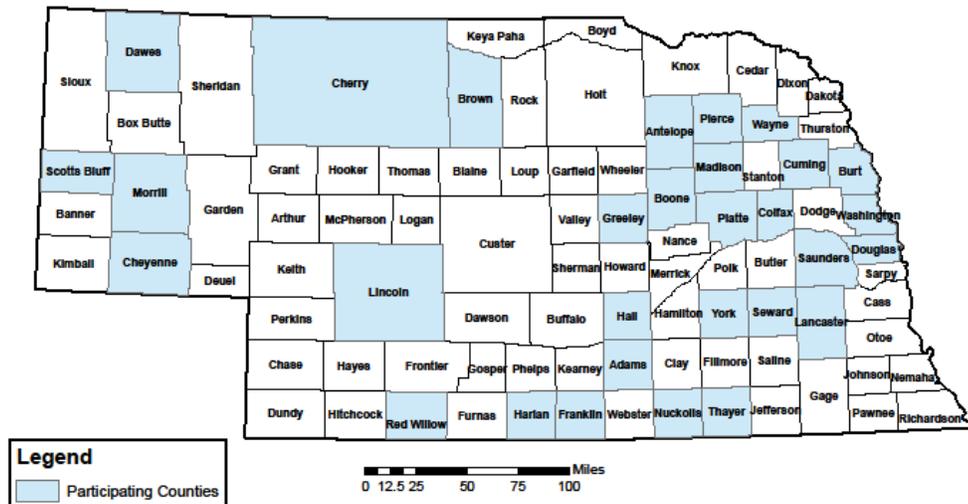
Individual-level screening results were requested using 0-1-2 codes as defined in the School Health Screening, Physical Examination, and Visual Evaluation Regulation (173 NAC 7.7) in which, 0 = no obvious dental health irregularities. 1 = dental irregularities observed in 1 or 2 areas. 2 = dental health irregularities observed in 3 or more areas, or any urgent irregularities.

The data collection form used for this project represents a modified version of the Centers for Disease Control and Prevention (CDC) Children's BMI Tool for Schools which has been used in a school health program data projects since 2010-2011. The original CDC tool is an Excel spreadsheet intended for use by school and other professionals who want to compute Body Mass Index (BMI)-for-age for a group of up to 2,000 students. For the Dental Screening Survey the tool was modified to collect information on the dental status of students in Nebraska. Modifications included the dental screening scoring as well as race, ethnicity, school name, school city and county, and contact information. The tool provides a school level summary of students' dental health status and graphs dental health status categories by sex and grade once all data are entered.

Data results were submitted electronically through a secure email to the DHHS SharePoint Library. In making this analysis of results available, no individual-level data are reported. No school-specific data are reported. Aggregate results only for the entire sample are reported. The map below has participating counties highlighted.

## Nebraska School Health Program Participants

2014 - 2015 School Year



Source: DHHS, Carol Tucker, School Health Program Manager, carol.tucker@nebraska.gov - 2014 - 2015 School Year

Cartography: Thomas Rauner, PCO Director, DHHS Office of Rural Health, thomas.rauner@nebraska.gov, 402-471-0148

### LIMITATIONS

This data surveillance project involves voluntary submission of data by schools and although one-third of Nebraska counties participated, it does not give a complete picture of the state of dental health in Nebraska students. Some school districts have a policy against releasing any student-related data. Some schools did not have access to provide their data electronically. The survey shows 8.5% of parents of students with positive dental screening results were notified. The survey yields no indication of whether referrals were made by school nurses. There was no indication as to whether dental issues were verified or addressed by a dental professional, but this data was not specifically requested nor is it mandated by the School Health Screening

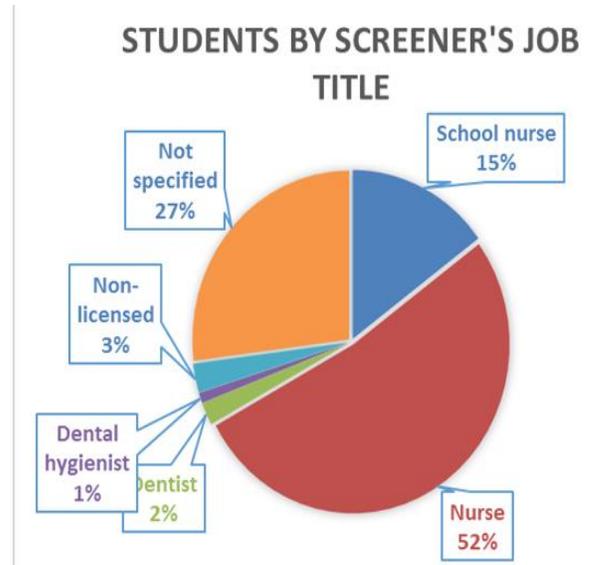
### RESULTS:

Convenience sampling was used to collect information from 10,042 students from 89 schools across the State. Data presented in this report is not randomly selected, so it is not generalizable to all Nebraska students. Thirty-one of 93 Nebraska counties participated.

In the previous 2011-2012 School Health Dental Health Screening Data project, the Regulations were not mandatory and schools did utilize a variety of persons to do school health dental screenings. This included unlicensed persons, nurses, dentists and dental hygienists. No requirement was in place to

assure competency of the screener to perform the dental health screenings. Some schools used the 0-1-2 results format as the current regulations require. Some schools used a pass/didn't pass format and some schools did not do the dental health screenings at all.

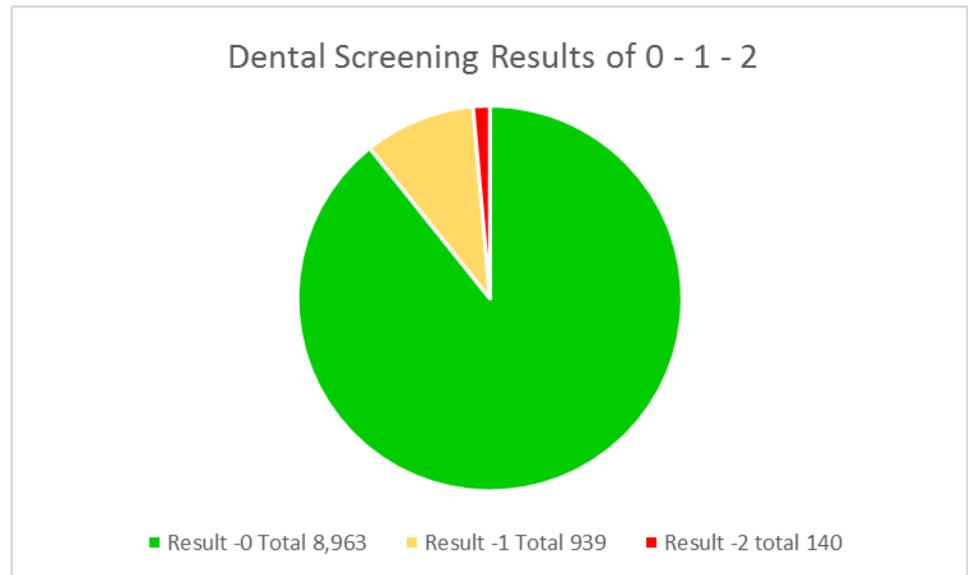
The School Health Screening Regulations became mandatory in the 2014-2015 school year and allow a variety of persons to do dental health screening after competency to perform the screenings is established. Licensed healthcare screenings professionals qualified to perform dental health include the Nebraska credentialed RN, LPN, PA, APRN-NP, PA, MD or DO, Dentist, and Dental Hygienist. The unlicensed person may perform dental screening after being determined competent to do so by one of these licensed healthcare professionals within the previous three years or with direct supervision from a licensed health care professional while screening. The chart to the right shows the dental screenings done according to the screener's title. The majority of dental health screenings are done by nurses or specifically school nurses.



Source: 2014-2015 NE School Health Dental Screening Surveillance Report DHHS School Health Program

**Dental problems by screening results:**

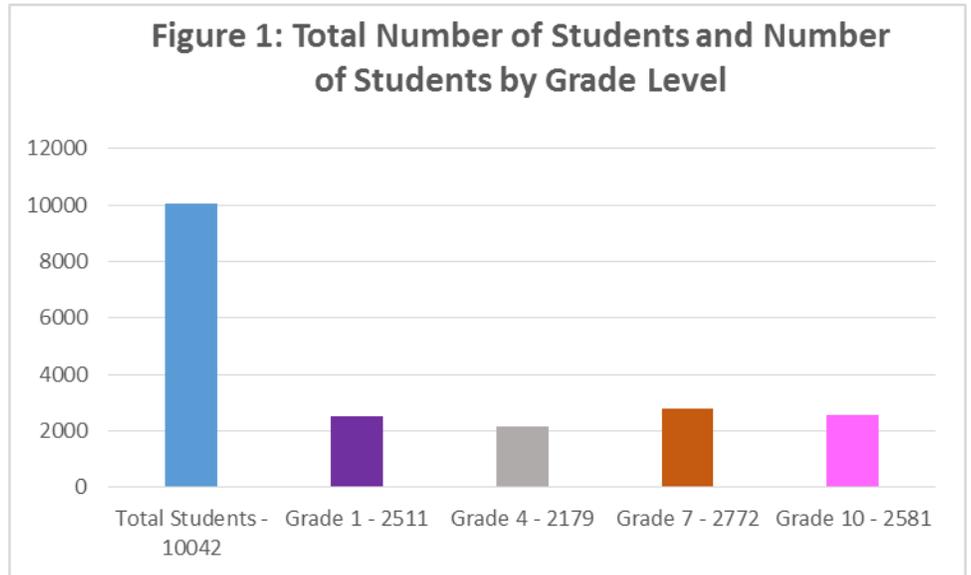
A total of 10,042 students were screened. 8,963 students had a result of 0 - no obvious dental health irregularities. 939 students had a result of 1 - dental irregularities observed in 1 or 2 areas. 140 students had a result of 2, with dental health irregularities observed in 3 or more areas, or any urgent irregularities.



Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

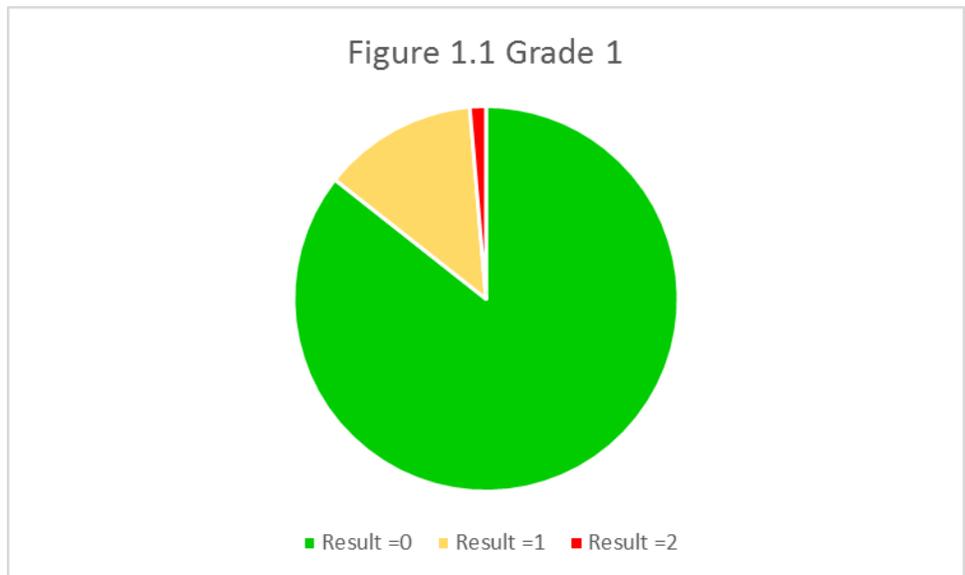
**Dental problems disparities:**

As shown in Figure 1, the number of students total and by grade level are represented. The blue bar represents the number of grade level of students in our sample (10,042); red bars show grade level percent of students who had dental problems in one or two areas (839 students); the purple bar represents the number of students in 1<sup>st</sup> Grade (2511); the red bar represents the number of students in 4<sup>th</sup> Grade (2179); the gold bar represents the number of students in 7<sup>th</sup> Grade (2772); and the green bar represents the number of students in 10<sup>th</sup> Grade (2581)



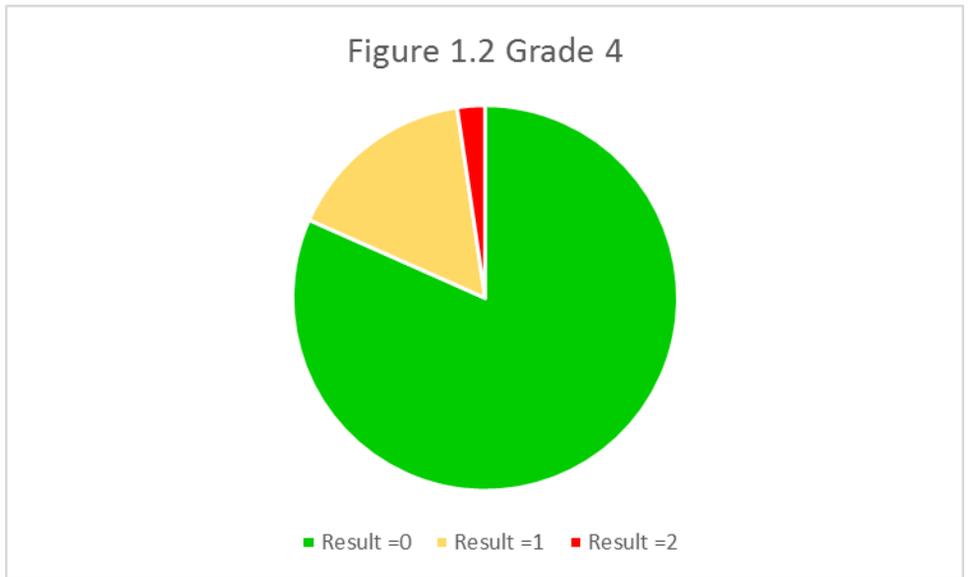
Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

Figure 1.1 represents the number of 1<sup>st</sup> Grade students with a screening result of 0 - no obvious dental health irregularities; with a screening result of 1 - dental irregularities observed in 1 or 2 areas; and a screening result of 2, with dental health irregularities observed in 3 or more areas, or any urgent irregularities.



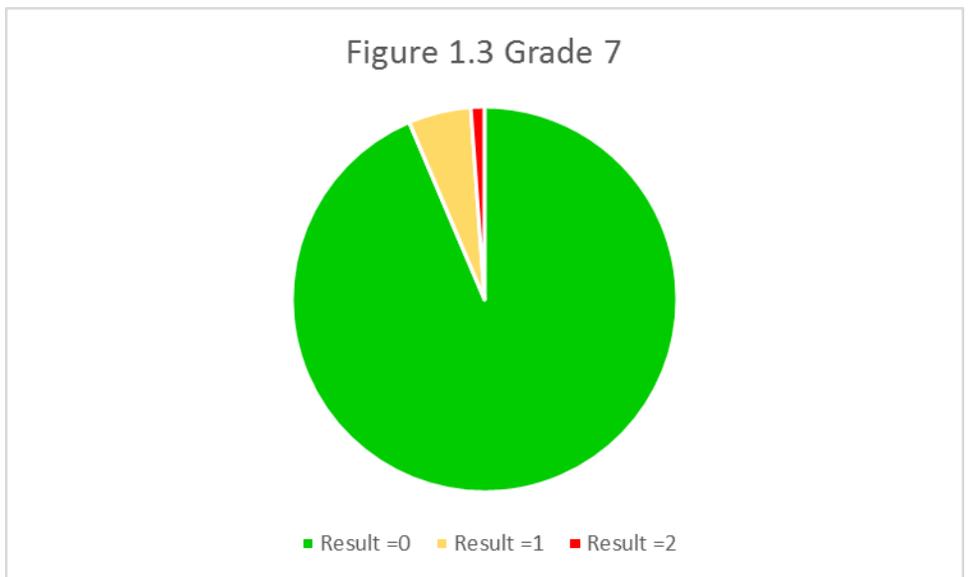
Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

Figure 1.2 represents the number of 4<sup>th</sup> Grade students with a screening result of 0 - no obvious dental health irregularities; with a screening result of 1 - dental irregularities observed in 1 or 2 areas; and a screening result of 2, with dental health irregularities observed in 3 or more areas, or any urgent irregularities.



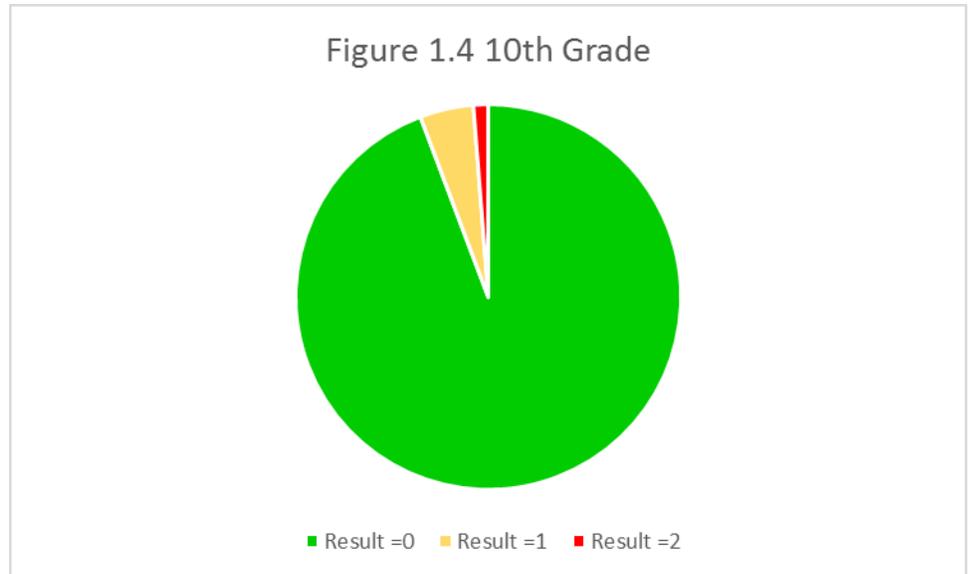
Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

Figure 1.3 represents the number of 7<sup>th</sup> Grade students with a screening result of 0 - no obvious dental health irregularities; with a screening result of 1 - dental irregularities observed in 1 or 2 areas; and a screening result of 2, with dental health irregularities observed in 3 or more areas, or any urgent irregularities.



Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

Figure 1.4 represents the number of 10th Grade students with a screening result of 0 - no obvious dental health irregularities; with a screening result of 1 - dental irregularities observed in 1 or 2 areas; and a screening result of 2, with dental health irregularities observed in 3 or more areas, or any urgent irregularities.



Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

### Characteristics of respondents:

As shown in Table 1, students in the sample are nearly equally distributed in every grade level (25.0% of students from Grade 1, 21.7% from Grade 4, 27.6% from Grade 7, and 25.7% from Grade 10). There are more male students than females (51.1% vs. 48.9%). 18.4% of students were reported as Hispanic. The majority are reported are not Hispanic (58.2% vs. 18.4%). Non-Hispanic White students dominated our survey (63.9% of our sample are White), while the race information from 17.0% of students was not reported.

Only 15.8% of students reported whether they have a dentist (14.7% Yes vs. 1.1% No), with 43.3% unknown and 40.9% missing. It was reported that 8.5% of parents were informed of the dental screening results. This is close to the 8.4% of students found to have dental concerns. Only three students furnished a health provider statement compared to the reported 1596 (15.9%) students who did not. Regarding dental health status, 7.0% of students had problems in one or two areas, while 1.4% had problems in three or more areas or any urgent problem.

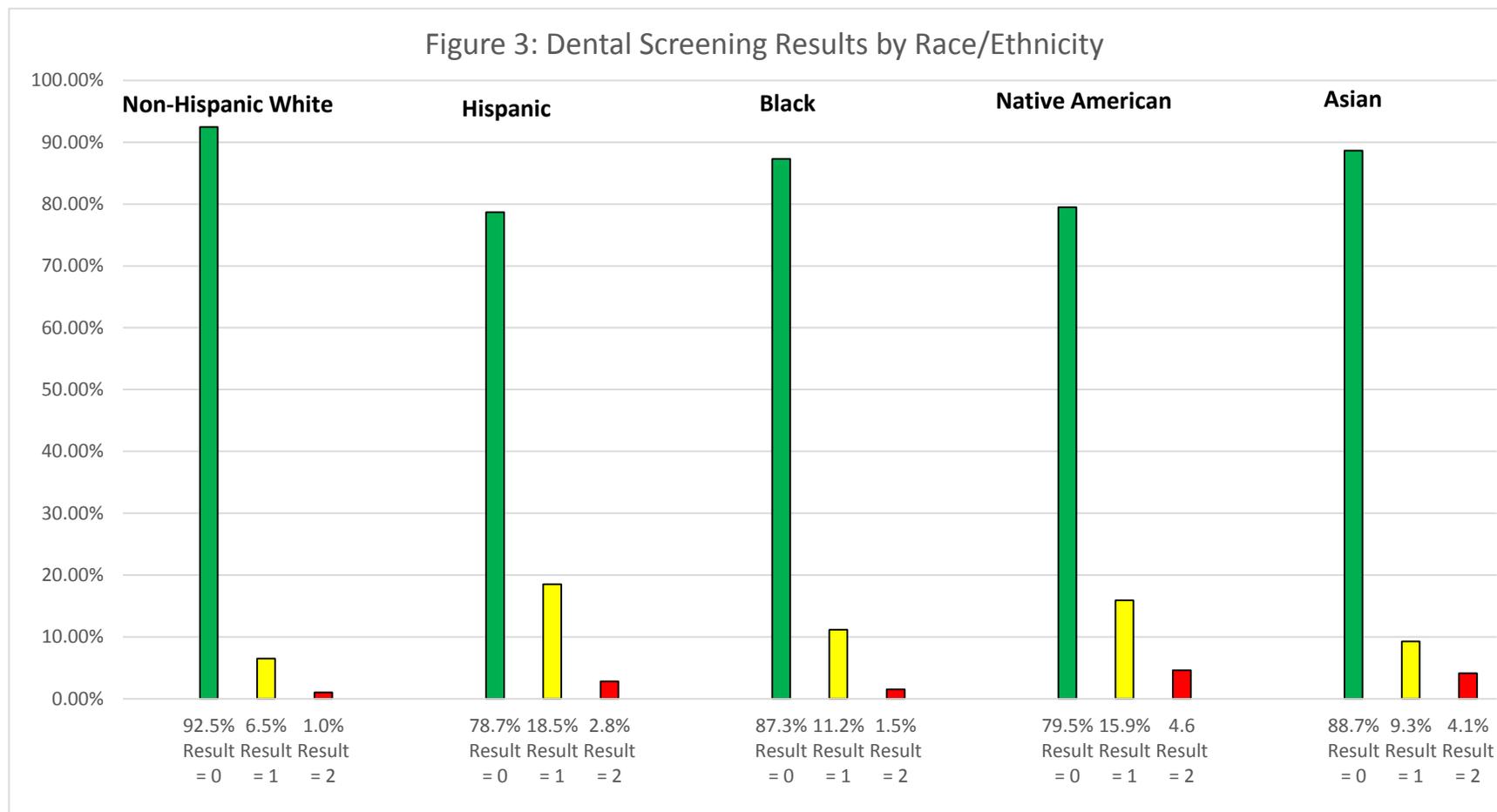
**Table 1 Characteristics of participants**

Explanatory Variables	Category	Number	Percentage (%)
<b>Grade level</b>	1	2509	25.0
	4	2182	21.7
	7	2772	27.6
	10	2579	25.7
	Missing	2	0.0
<b>Gender</b>	Female	4911	48.9
	Male	5129	51.1
	Missing	4	0.0
<b>Hispanic</b>	Yes	1852	18.4
	No	5847	58.2
	Unknown	315	3.1
	Missing	2030	20.2
<b>Race</b>	White	6421	63.9
	Hispanic	1220	12.1
	Black	197	2.0
	American Indian	195	1.9
	Asian	97	1.0
	Pacific Islander	2	0.0
	Other	205	2.0
	Unknown	505	5.0
	Missing	1202	12.0
<b>Child reporting dental pain on day of screening</b>	Yes	28	0.3
	No	5011	49.9
	Unknown	1643	16.4
	Missing	3362	33.5
<b>Child has dentist</b>	Yes	1473	14.7
	No	114	1.1
	Unknown	4350	43.3
	Missing	4107	40.9
<b>Parents informed</b>	Yes	852	8.5
	No	4286	42.7
	Unknown	215	2.1
	Missing	4691	46.7
<b>Health provider statement received</b>	Yes	3	0.0
	No	1596	15.9
	Unknown	2000	19.9
	Missing	6445	64.2
<b>Dental health status</b>	No obvious dental problems	8900	88.6
	Problems in one or two areas	699	7.0
	Problems in three or more areas	140	1.4
	or any urgent problem		
	No report of dental status	305	3.0

Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

63.9 % of students were reported as Non-Hispanic White with 49.8% having a screening result of 1 and 47.1% having a screening result of 2.

Figure 3 shows the dental screening results by race/ethnicity. Race/ethnicity was not reported on seventeen percent of students screened. Non-Hispanic White students had the highest percentage of no dental problems noted. Hispanic students had the lowest percentage of no dental problems noted. Non-Hispanic White students had the lowest percentage of a dental screening report of 2. Native American students had the highest percentage of a dental screening report of 2.



Source: 2014-2015 NE School Health Dental Screening Surveillance Report, NE DHHS School Health Program

## DISCUSSION

This is the second iteration of the School Health Dental Screening Data Project. The first iteration was conducted in the 2011-2012 school year. School health dental screenings are now mandated in schools whereas they were not mandated in the 2011-2012 school year. Schools continue to use a variety of screeners to perform the dental health screening including registered nurses, licensed practical nurses, dentists, dental hygienists, unlicensed assistive personnel including nursing students and hygienist students who have been assessed for competency by a licensed healthcare professional.

The overall finding of this dental surveillance project was that 839 (7.0% of students) had problems in one or two areas, while 140 (1.4% of students) had problems in three or more areas or any urgent problem. School health dental screenings are part of the mandatory School Health Screening Regulations because dental health concerns can impact overall health, learning and a student's socialization.

Students in the selected grades were asked about dental pain or discomfort on the day of the dental health screening. Only 28 students (0.3% overall) reported pain on the day of the screening. This number may have been impacted by the age of the child and their comprehension of the question.

Students may have multiple barriers to accessing dental care including availability of dental professionals in their area of residence (see map of Actively Practicing General Dentists on page 12), transportation, financial issues including health insurance coverage or meeting co-pays, fear of dental care or a negative experience receiving dental care. Another barrier for students to access dental care is a lack of awareness of the need by the student's parent/guardian. For students who are eligible for Medicaid, some providers do not accept Medicaid or are limiting the number of Medicaid clients they take. Students with barriers to dental health often have the worst dental health.

Schools have an opportunity to reinforce dental hygiene practices and observe dental health of students by doing the mandated school health dental screenings. Schools can help students and their families learn what dental hygiene practices are recommended such as brushing teeth for two minutes twice a day, flossing, staying hydrated and seeking dental exams twice a year. Schools know the culture of students attending their school and can develop dental health messages that are appropriate for each student's culture and language needs. Through school health dental screenings, schools can help students and families be aware of the need for further evaluation of dental health as well as teaching students and families the signs and symptoms of oral infections and how to respond when an oral infection is suspected.



## **CONCLUSIONS**

Schools in one third of Nebraska counties participated in the surveillance project and these counties are located across the state. Based on finding of this convenience sample survey, approximately 7-8.5% of the participating schools' student population may have dental needs.

## **RECOMMENDATIONS**

School health dental screening data will be collected again in the 2017-2018 school year.

- Continue to mandate screener competency for performing school health dental screenings.
- Encourage schools to promote good dental hygiene practices among students as it relates to school health dental screening to help decrease the percentage of students with noted dental disease.
- Improve collection of race and ethnicity data.
- Request number of referrals made by nurses and the result of the referral.

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