Oklahoma Oral Health Needs Assessment 2023

Third Grade Children

Oklahoma State Department of Health

Dental Health Service

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Background and Purpose

The University of Oklahoma Hudson College of Public Health, in collaboration with the Oklahoma State Department of Health, conducted an oral health needs assessment among third grade children in the state of Oklahoma. A similar needs assessment has been conducted for nine of the last twenty years. The purpose of this needs assessment was to produce statewide estimates of dental health status indicators. The oral screening included an assessment of the prevalence of protective sealants, untreated cavities, other caries experience, missing teeth, and need for dental treatment.

Several major surveys have been performed to determine the prevalence of oral disease in the United States. However, prior to 2003, data specific to Oklahoma third grade children had not been available. Data on the percentage of Oklahoma children with sealants and caries are needed to make decisions guiding dental public health policy in this state. Data are reported to the National Oral Health Surveillance System (NOHSS), a collaborative effort between the Centers for Disease Control and Prevention's (CDC) Division of Oral Health and the Association of State and Territorial Dental Directors (ASTDD). In addition, these data are needed for reporting purposes to federal agencies, specifically the Title V Maternal and Child Health Block Grant. One of the national performance measures required for federal reporting is the percentage of third grade children who have received protective sealants on at least one permanent molar tooth.

Data from the National Health and Nutrition Examination Survey 2015-2016 reported the prevalence of total caries (untreated and treated) was 46% and untreated caries was 13% among youth aged 2–19 years.[1] Dental sealants protect vulnerable sites on the tooth. Targeting dental sealants to those children at greatest risk for decay is cost-effective. Although dental sealants in conjunction with water fluoridation have the potential to

significantly prevent decay among children, to date, sealants have been underutilized.[2]

Research Design

This cross-sectional design included a random sample of third grade students in Oklahoma and direct observation of dental caries and sealants by Oklahoma licensed and registered dental hygienists. The protocol for data collection and calibration training was guided by recommendations of the Association of State and Territorial Dental Directors (ASTDD) in their publication "Basic Screening Survey for Children Planning and Implementation Tool Kit (rev. 2022)." The oral health needs assessment was conducted during the 2022-2023 school year. This study was submitted to and approved by the Oklahoma State Department of Health Institutional Review Board (IRB) (#02-15).

Sample

A list of Oklahoma public schools was acquired from the Oklahoma State Department of Education (OSDE) and a list of Oklahoma private schools was acquired from the National Center for Education Statistics (NCES) in March of 2022. All schools with one or more third grade classrooms and at least five third grade students were retained for this study. Approximately 950 public and private schools with at least one third-grade classroom were included in the sampling frame.

To derive statewide and regional estimates, Oklahoma was divided into six regions: Northeast (NE), Northwest (NW), Southeast (SE), Southwest (SW), Oklahoma County, and Tulsa County. The numerical breakdown for each region consisted of 21 counties in the NE region, 18 counties in the NW region, 23 counties in the SE region, 13 counties in the SW region, and one county each for both Oklahoma and Tulsa counties, representing the two metropolitan areas.

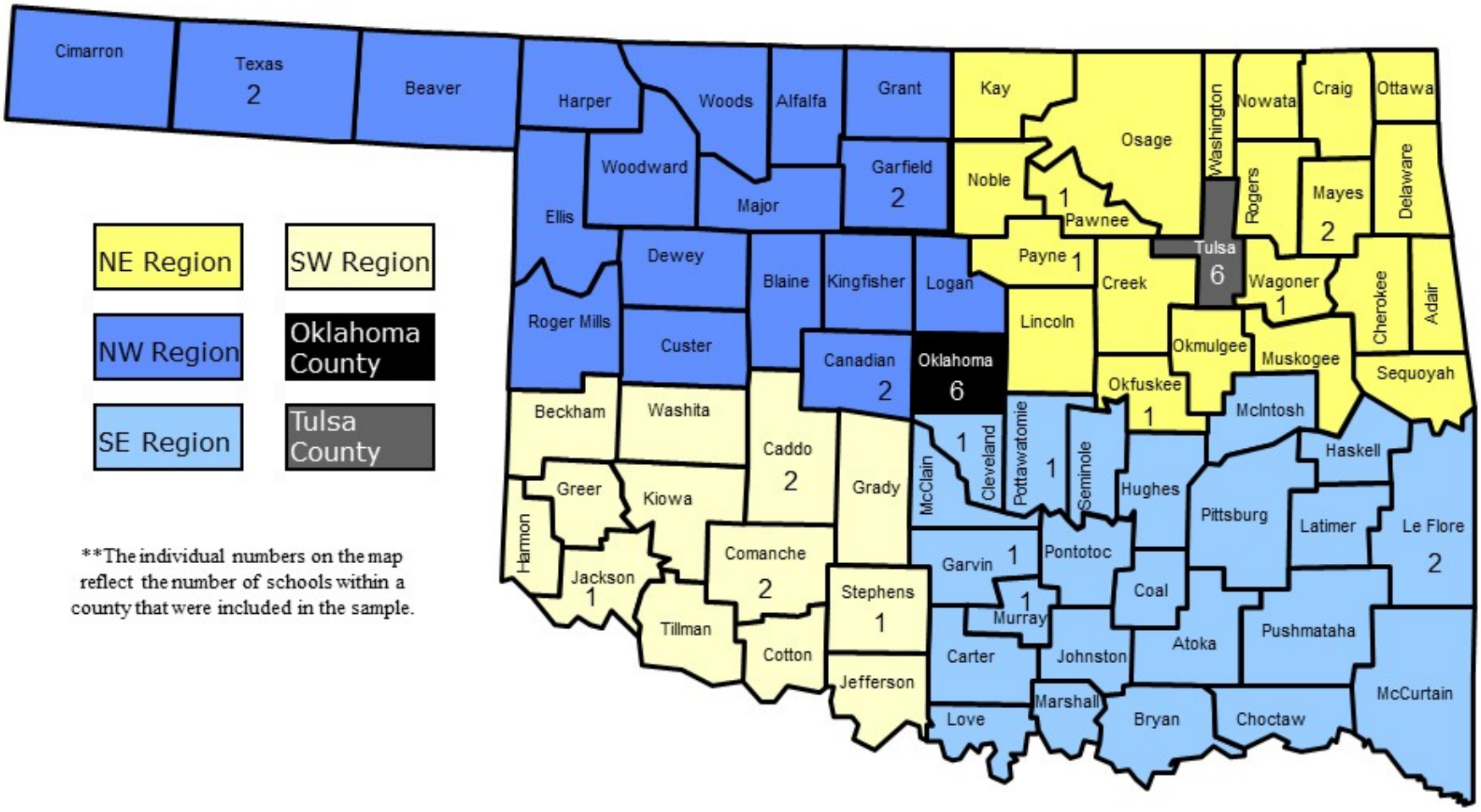
Based on power analyses, approximately 600 students were needed statewide, 100 in each region, to produce estimates with reasonable precision. To accommodate this sample size, six schools from each region were selected to participate, for a total of 36 schools statewide. The sampling frame of all schools was stratified by region, and a six-school-per-region random sample was selected using SAS SurveySelect. Each school had an equal probability of being included in the sample.

The six schools sampled from each region were asked to participate in the study. A descriptive letter about the study was mailed to the school, along with a return postcard signifying agreement to participate (Appendix A). If a school did not respond to the initial request, many additional attempts were made to obtain school consent. These included, but were not limited to, at least three follow-up calls, an additional letter, and e-mails. If a school refused to participate or did not respond within a reasonable time, a replacement school was selected that matched the original school by region, county, class size, and/or percent of students eligible for free and reduced priced meals. This sample replacement strategy led to a final sample of 36 participating schools.

After a school consented to the screenings, a list of all third-grade teachers was constructed for each school. Screenings were completed for all third-grade classrooms at each participating school.

The following map describes the regions sampled, and the county location of each school included in the needs assessment.

2022-2023 Oklahoma Oral Health Needs Assessment (schools sampled by region)



**The individual numbers on the map reflect the number of schools within a county that were included in the sample.

Consent

Active or passive parental consent, as well as student assent, were obtained for this needs assessment (Appendix B). IRB-approved parental consent forms were sent to the schools at least one week before the scheduled screening with the dental hygienists, to allow both parents and students to have access to the information needed to make an informed decision about the screenings. These parental consent forms included why the study was being done; how many students were taking part in the study; a description of the study; how long the child would be in the study; the risks, benefits, and options of the study; confidentiality of the study; the child's rights as a participant of the study; and pertinent contact information. Voluntary student participation was also emphasized in this form.

Data Collection

An oral health screening form was created to record all data (Appendix C). Teachers were asked to complete the information regarding school and student demographics, including each child's age, gender, race, and ethnicity. Gender was coded as M or F, corresponding to male or female, respectively. Race was coded as W for whites, B for blacks or African Americans, NA for Native Americans, A for Asians, and O for any other race, including those with multiple racial backgrounds. Ethnicity was coded as H for Hispanic origin, N for not Hispanic origin and U for unknown ethnic origin. Although names were collected to facilitate the screening process, names were separated from the data immediately following the screening so that all results would remain confidential.

Six dental hygienists (KL, CB, AC, JH, VC, and LC) performed the screenings. The dental screenings usually took place within the classroom setting, with the dental hygienists checking one child at a time. The

screenings were conducted with non-latex dental exam gloves, an artificial light, and disposable dental mirrors.

Dental hygienists were responsible for completing the oral health results for each participating student, according to preset and calibrated criteria established by the ASTDD and the Oklahoma State Department of Health. For decayed teeth, these criteria consisted of all cavitations, occlusal discolorations, and interproximal shadows. For missing teeth, these criteria weighed the following variables simultaneously: age of the child, normal exfoliation ages for primary teeth, and normal eruption ages for permanent teeth. For filled teeth, all amalgams, composites, and stainless-steel crowns were classified as "filled." For sealants, any clear or tooth-colored resin on occlusal surfaces of permanent teeth was counted, resulting in a range of 0 to 4 sealants. Additionally, primary teeth were distinguished from permanent teeth by distinct anatomical differences and were noted accordingly. For each student, the total number of decayed teeth, missing teeth, filled teeth, or teeth with sealants was recorded.

Results for each child were sent home on a form filled in by the dental hygienist who visited the school (Appendix D). Results consisted of a checked box for the appropriate outcome, indicating whether the child had no dental problems observed, had some dental problems that needed attention soon, or had problems that needed attention immediately. All participating and non-participating children in the classroom received a toothbrush. An oral health educational program about the importance of oral hygiene, healthy diets, and regular dental visits was delivered to each classroom. In many of the classrooms, this information was delivered by 'Captain Supertooth,' the Delta Dental of Oklahoma Foundation's costumed 'superhero.'

Data Entry and Analysis

All data were entered in Microsoft Access. After validation of data entry for accuracy, data were summarized and analyzed, and reports were prepared using SAS version 9.4 (Carey, NC). The reports included total number of sampled students per region; total estimated third graders in the state and per region (based on the data obtained from OSDE and NCES); total schools in the state and per region; total students with at least one tooth with caries per region; total number of teeth with caries per region; caries percentages per region; sealant percentages for the state and per region; percentage of each region sampled; and the percentage of the total state population sampled. Frequency and mean procedures in SAS were used to generate statewide and regional estimates.

Weighted Analyses Methods

All results were weighted to account for the variation in the number of schools per region. These weights were the inverse of the probability of a school selection within region such that each school represented a specific number of schools in their region. Estimation of the weighted state population values was performed using the SAS survey analysis method PROC SurveyMeans. Weighted proportions and means plus 95% confidence intervals (95% CI) were produced.

Confidentiality

All data were stored in a password protected computer file. Signed parental consent forms, assent forms, and de-identified data entry forms were stored in locking file cabinets, accessible only to project staff. Only group data were analyzed, and no names will be used in any publication resulting from this needs assessment.

Results

A total of 1,686 third-grade students participated in the oral needs assessment from across Oklahoma during the 2022-2023 school year. The overall participation rate was 74.7%, up from the 2015-2016 participation rate of 66.8%. When compared to the 42% participation rate obtained using only active consent forms during the 2012-2013 screening, this rate reflects a nearly 80% increase. Both the number of students screened, and participation rates varied by region (Table 1). Schools in the NW region of the state had the highest participation rates (81.3%) followed closely by the SE and SW regions (78.8% and 78.4% respectively). Oklahoma County had the lowest rate of participation (67.0%). The SW region, with 200 students screened from six schools, had the fewest number of students screened. Oklahoma County, with 390 students from six schools, had the most students screened.

Table 1. Participating Schools, by region

Region	School	# Parental Consents	# Screened	Participation Rate
NE	A (N=75)	52	52	69.3%
	B (N=95)	75	75	78.9%
	C (N=16)	13	13	81.3%
	D (N=117)	83	83	70.9%
	E (N=19)	5	5	26.3%
	F (N=34)	26	26	76.5%
	Total (N=356)	*254*	*254*	*71.3%*
NW	A (N=15)	12	12	80.0%
	B (N=26)	25	25	96.2%
	C (N=16)	14	14	87.5%
	D (N=51)	46	46	90.2%
	E (N=10)	8	8	80.0%
	F (N=214)	165	165	77.1%
	Total (N=332)	*270*	*270*	*81.3%*
SE	A (N=75)	60	60	80.0%
	B (N=36)	29	29	80.6%
	C (N=54)	49	49	90.7%
	D (N=35)	23	23	65.7%
	E (N=54)	40	40	74.1%
	F (N=20)	15	15	75.0%
	Total (N=274)	*216*	*216*	*78.8%*
SW	A (N=15)	14	14	93.3%
	B (N=98)	79	79	80.6%
	C (N=78)	54	54	69.2%
	D (N=34)	25	25	73.5%
	E (N=6)	5	5	83.3%
	F (N=24)	23	23	95.8%
	Total (N=255)	*200*	*200*	*78.4%*
OK County	A (N=85)	64	64	75.3%
	B (N=115)	92	92	80.0%
	C (N=104)	85	85	81.7%
	D (N=122)	87	87	71.3%
	E (N=106)	25	25	23.6%
	F (N=50)	37	37	74.0%
	Total (N=582)	*390*	*390*	*67.0%*
Tulsa County	A (N=26)	17	17	65.4%
	B (N=115)	103	103	89.6%
	C (N=135)	108	108	80.0%
	D (N=114)	72	72	63.2%
	E (N=52)	43	43	82.7%
	F (N=17)	13	13	76.5%
	Total (N=459)	*356*	*356*	*77.6%*

◇Participation rate is based on the number of parental consents divided by the total number of third grade students in the school.

Participant characteristics

Overall, the mean age for the population screened was 8.5 years, with a minimum age of 8 years and a maximum age of 11 years. The standard deviation for the group age was 0.6 years. When stratified by region, all showed a relatively similar mean age and standard deviation for the students participating in the screenings. The minimum age of students for all six regions was 8 years of age. The maximum age of students in five of the six regions was 10 years of age; one region had a student 11 years of age. Table 2 describes the demographic characteristics of participating students. A table of overall participant characteristics including the percentage with missing information is in Appendix F.

Within the demographic data, the study sample had an equal proportion of males and females represented in the study (Males=50% and Females=50%). Racial make-up for the sample seemed to follow Oklahoma population trends, but with slightly lower percentage of Whites and slightly higher percentage of Native American and Black or African American students. The percentage of White students in the sample was 64.5% (vs. 73.2% in Oklahoma population), the percentage of Black or African American students was 11.7% (vs. 7.8% in Oklahoma population), the percentage of Native American students was 16.9% (vs. 9.7% in Oklahoma population), the percentage of Asian American students in the sample was 2.2% (vs. 2.5% in Oklahoma population) and other students in the sample equaled 4.8% (data for Oklahoma is from the U.S. Census Bureau, Oklahoma QuickFacts, 2022). Teachers used the school enrollment information from the student's guardian to determine ethnicity and in this study sample, 25.2% of students were identified as having Hispanic ethnicity.

There were some regional differences in the race/ethnicity of participants. Approximately 39% of participants in the SW region were

Native American, 58% of participants in the NW region were Hispanic, and 28% of participants in the Oklahoma City region were Black. The SW region had the lowest percentage of White participants, 42%, and the NW region had the highest percentage of White participants, 73%.

Table 2. Overall participant characteristics, among non-missing data

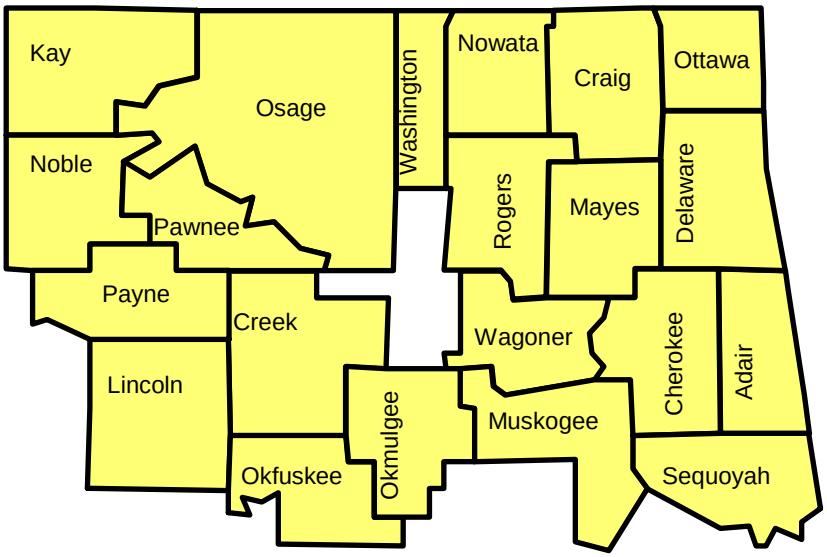
		No.	*Percent*			*No.*	*Percent*
Age	7	0	0%	**Gender**	Female	833	50.1%
	8	885	53.8%		Male	830	49.9%
	9	706	42.9%	**Race**	Asian	36	2.2%
	10	53	3.2%		Black	192	11.7%
	11	1	0.1%		Native American	277	16.9%
Ethnicity	Hispanic	419	25.2%		Other	79	4.8%
	Non-Hispanic	1130	68.1%		White	1059	64.5%
	Unknown	111	6.7%				

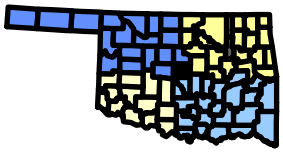
*All percentages are rounded to one decimal place; therefore, total may not add to 100%

Participant characteristics, by region

*All percentages are rounded to one decimal place; therefore, total may not add to 100%

Northeast Region





Participant Characteristics (n=254)

Age (years)

	Number	Percent
8	117	46.1%
9	128	50.4%
10	9	3.5%
11	0	0.0%
Missing	0	0.0%

Gender

	Number	Percent
Female	142	55.9%
Male	112	44.1%
Missing	0	0.0%

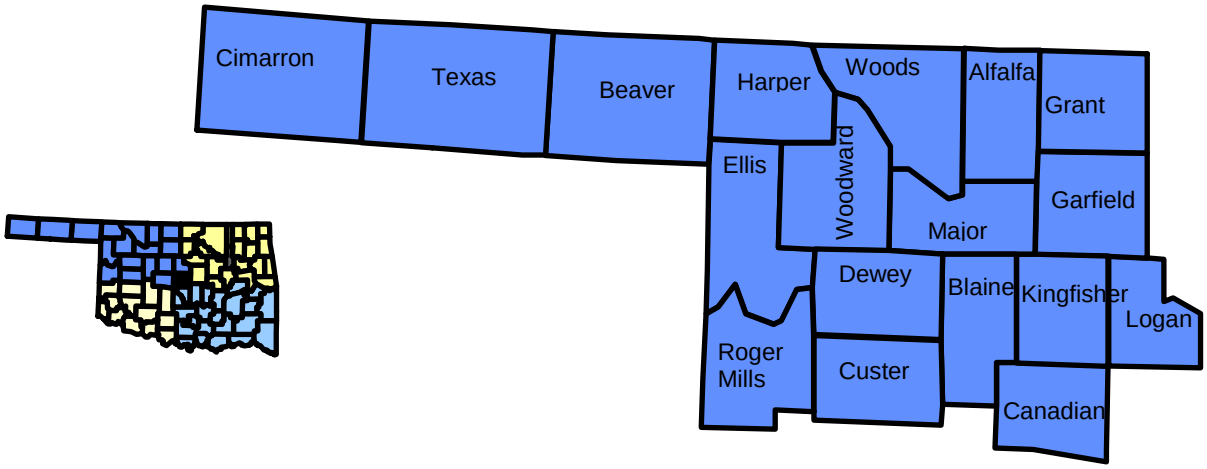
Ethnicity

	Number	Percent
Hispanic	16	6.3%
Non-Hispanic	209	82.3%
Unknown	28	11.0%
Missing	1	0.4%

Race

	Number	Percent
Asian	3	1.2%
Black	3	1.2%
Native American	72	28.3%
White	172	67.7%
Other	4	1.6%
Missing	0	0.0%

Northwest Region



Participant Characteristics (n=270)

Age (years)

	Number	Percent
8	167	61.9%
9	96	35.6%
10	7	2.6%
Missing	0	0.0%

Gender

	Number	Percent
Female	128	47.4%
Male	142	52.6%
Missing	0	0.0%

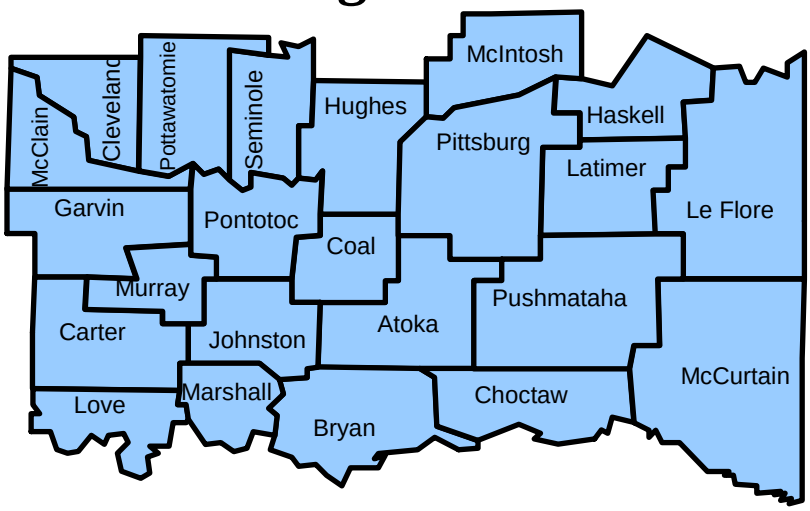
Ethnicity

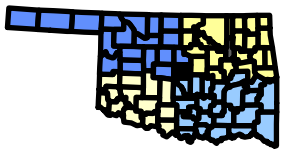
	Number	Percent
Hispanic	156	57.8%
Non-Hispanic	113	41.9%
Unknown	0	0.0%
Missing	1	0.4%

Race

	Number	Percent
Asian	6	2.2%
Black	13	4.8%
Native American	34	12.6%
White	198	73.3%
Other	17	6.3%
Missing	2	0.7%

Southeast Region





Participant Characteristics (n=216)

Age (years)

	Number	Percent
8	94	43.5%
9	108	50.0%
10	12	5.6%
11	1	0.5%
Missing	1	0.5%

Ethnicity

	Number	Percent
Hispanic	40	18.5%
Non-Hispanic	176	81.5%
Unknown	0	0.0%
Missing	0	0.0%

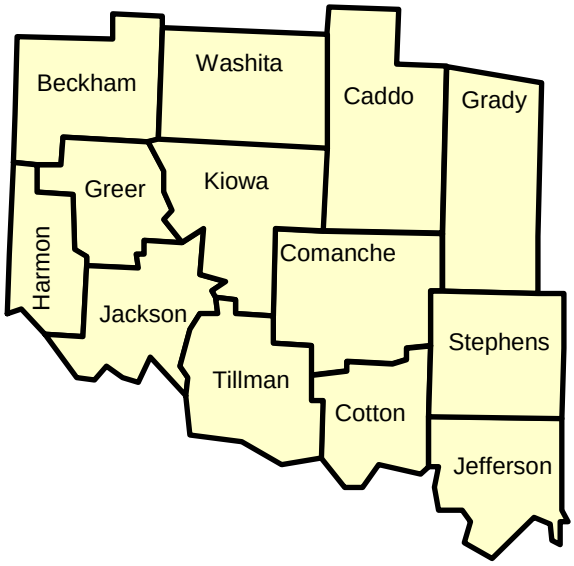
Gender

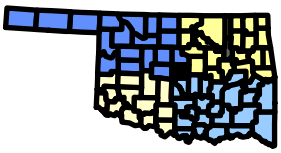
	Number	Percent
Female	117	54.2%
Male	99	45.8%

Race

	Number	Percent
Asian	12	5.6%
Black	9	4.2%
Native American	55	25.5%
White	121	56.0%
Other	3	1.4%
Missing	16	7.4%

Southwest Region





Participant Characteristics (n=200)

Age (years)

	Number	Percent
8	111	55.5%
9	80	40.0%
10	9	4.5%
11	0	0.0%
Missing	0	0.0%

Ethnicity

	Number	Percent
Hispanic	17	8.5%
Non-Hispanic	119	59.5%
Unknown	64	32.0%
Missing	0	0.0%

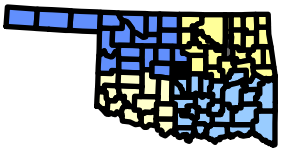
Gender

	Number	Percent
Female	90	45.0%
Male	110	55.0%
Missing	0	0.0%

Race

	Number	Percent
Asian	1	0.5%
Black	22	11.0%
Native American	77	38.5%
White	83	41.5%
Other	16	8.0%
Missing	1	0.5%

Oklahoma County Region



Participant Characteristics (n=390)

Age (years)

	Number	Percent
8	204	52.3%
9	158	40.5%
10	9	2.3%
Missing	19	4.9%

Ethnicity

	Number	Percent
Hispanic	80	20.5%
Non-Hispanic	302	77.4%
Unknown	6	1.5%
Missing	2	0.5%

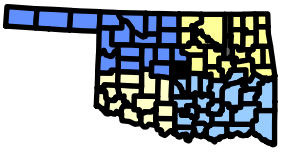
Gender

	Number	Percent
Female	201	51.6%
Male	187	47.9%
Missing	2	0.5%

Race

	Number	Percent
Asian	8	2.1%
Black	109	27.9%
Native American	13	3.3%
White	243	62.3%
Other	15	3.8%
Missing	2	0.5

Tulsa County Region



Participant Characteristics (n=356)

Age (years)

	Number	Percent
8	192	53.9%
9	136	38.2%
10	7	2.0%
Missing	21	5.9%

Ethnicity

	Number	Percent
Hispanic	110	30.9%
Non-Hispanic	211	59.3%
Unknown	13	3.7%
Missing	22	6.2%

Gender

	Number	Percent
Female	155	43.5%
Male	180	50.6%
Missing	21	5.9%

Race

	Number	Percent
Asian	6	1.7%
Black	36	10.1%
Native American	26	7.3%
White	242	68.0%
Other	24	6.7%
Missing	22	6.2%

The distribution of the sample by region is shown in Table 3. These numbers are the denominators for the various percentages presented. Oklahoma County had the largest sample size, followed by Tulsa County, NW and then NE regions. The SE and the SW regions contributed the fewest children.

Table 3. Summary of Regional and Overall Sample Size

Region	*Sample Size (n)*	*Percent*
NE	254	15.1%
NW	270	16.0%
SE	216	12.8%
SW	200	11.9%
OK County	390	23.1%
Tulsa County	356	21.1%
Total	***1686***	***100%***

Overall Results

The dental health status of third grade students in Oklahoma is described in Table 4, using weighted estimates. Less than one-quarter of third grade students have one or more permanent molar teeth with dental sealants (21.5%). The percentage of dental caries (cavities) experience is high, 66.7%. Furthermore, 26.9% of children have untreated active caries in at least one permanent or primary tooth. Active caries are observed more frequently in primary teeth (24.7%) as compared to permanent teeth (6.3%). Likewise, primary teeth are more likely to have fillings/restorations (48.5%), when compared to permanent teeth (10.2%). The prevalence of missing permanent teeth is very low (1.4%); however, 13.0% of children have one or more missing primary teeth due to decay.

Table 4. Summary of dental health status of Oklahoma third grade students, weighted estimates and 95% confidence intervals

Dental Health Status Indicator	*Prevalence*	*95% CI*
Percentage of third graders in Oklahoma with sealants on at least one permanent molar tooth	21.5%	16.4% - 26.6%
Percentage of third graders in Oklahoma with dental caries experience	66.7%	60.9% - 72.5%
Percentage of third graders in Oklahoma with untreated decay (active caries) in at least one permanent or primary tooth	26.9%	21.8% - 32.0%
Percentage of third graders in Oklahoma with untreated decay in at least one permanent tooth (active caries)	6.3%	4.0% - 8.5%
Percentage of third graders in Oklahoma with untreated decay in at least one primary tooth (active caries)	24.7%	20.0% - 29.5%
Percentage of third graders in Oklahoma with at least one missing permanent tooth	1.4%	0.6% - 2.2%
Percentage of third graders in Oklahoma with at least one missing primary tooth	13.0%	10.1% - 15.9%
Percentage of third graders in Oklahoma with at least one filled (treated/restored) permanent tooth	10.2%	6.7% - 13.6%
Percentage of third graders in Oklahoma with at least one filled (treated/restored) primary tooth	48.5%	43.0% - 54.1%

Sealants on Permanent Molar Teeth

Sealants consist of a protective coating used to protect teeth from decay. In this study, the number of sealants can range from 0 to 4 because only sealants on permanent molar teeth were assessed. Although 21.5% (weighted) of third graders in Oklahoma have sealants on one or more permanent molars, results by region are highly variable (Figure 1 and 2). Only one of the six regions has a prevalence of sealants greater than 25%, the SW with 26.9%, followed closely by Tulsa county with 24.5%. Two regions have a prevalence of sealants less than 20%, Oklahoma County with 18.1% and the SE with 18.2%. Of all students sampled, 15.1% have four molars with protective sealants. The mean number of sealants on permanent molar teeth for the students assessed equals 0.7 with a standard deviation of 1.5. This is the tenth assessment completed in the past 20

years, and the percentage of children with protective sealants has decreased from approximately 38% (2003) to approximately 22% (2023) (Figure 3).

Figure 1. Percentage of 3rd graders with sealants on at least one permanent molar tooth
Oklahoma 2022-2023

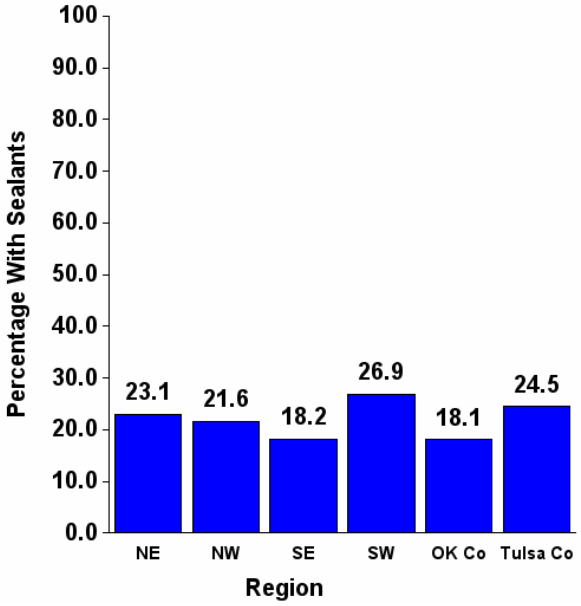


Figure 2. Percentage of 3rd graders with sealants on at least one permanent molar tooth In order from best to worst
Oklahoma 2022-2023

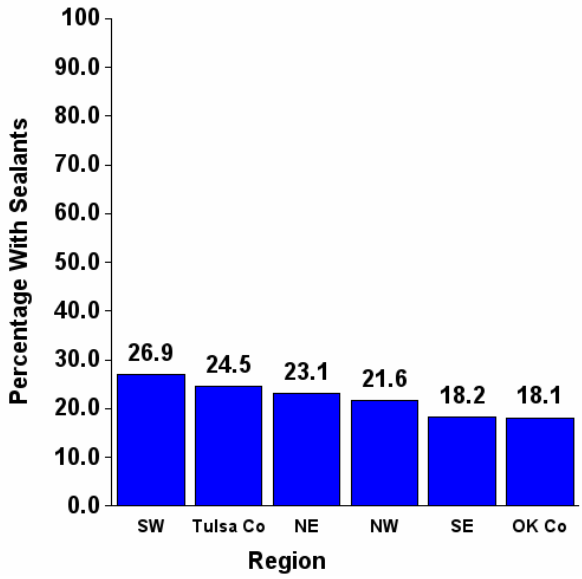
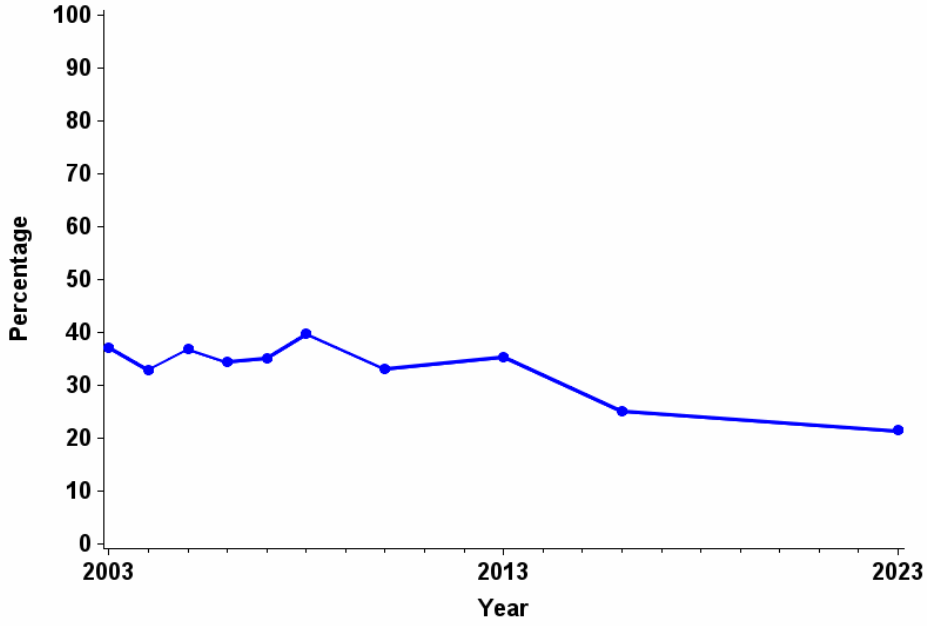


Figure 3. Weighted estimates of percentage of 3rd graders with sealants on at least one permanent molar tooth



Caries Experience and DMFT/dmft Score (total caries)

Total caries, defined as any caries experience, is calculated based on a child having at least one permanent or primary tooth decayed (untreated), missing (prematurely lost to decay), or filled (treated/restored). DMFT is an indicator that is composed of the combined measurement of decayed, missing, or filled *permanent* teeth; while the dmft indicator is composed of the combined measurement of decayed, missing, or filled *primary* teeth. These indicators are used to assess overall dental health.

Among the 1,686 third grade children examined; 4,900 teeth have been affected by decay. This results in a mean DMFT/dmft score of 2.9 teeth per child. In other words, on average, each third-grade child has approximately 2.9 teeth that are decayed or were decayed and have been treated. Additionally, survey estimates show that 66.7% of third graders in the state have caries experience, which is higher than the percentages seen in 2010 (58%) and 2013 (59.7%), but similar to 2016 (66.0%) (Figure 6). The region with the lowest prevalence of caries experience is Oklahoma County with 49.4%, while the SW region has the highest with 73.4% (Figures 4 and 5).

Figure 4. Percentage of 3rd graders with dental caries experience
Oklahoma 2022-2023

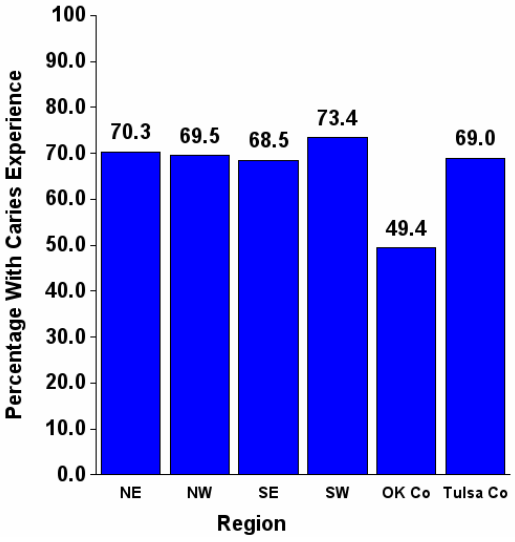


Figure 5. Percentage of 3rd graders with dental caries experience In order from best to worst
Oklahoma 2022-2023

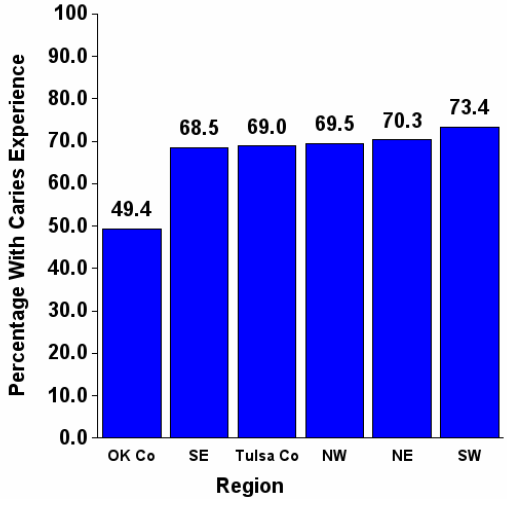
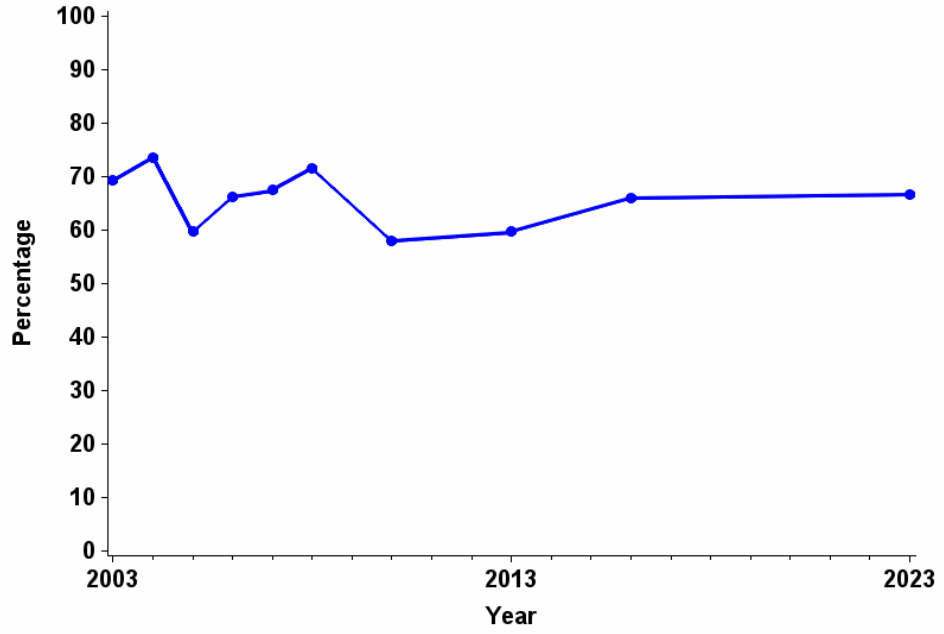


Figure 6. Weighted estimates of percentage of 3rd graders with dental caries experience



Untreated Decay in Permanent or Primary Teeth (active decay)

Another important dental health status indicator is active decay, defined as any untreated caries in at least one primary or permanent tooth. Over one-quarter (26.9%) of third grade children in Oklahoma are estimated to have untreated caries, increased from 2010, 2013, and 2016 (Figure 9). The prevalence of untreated caries is lowest in Oklahoma County (14.4%) compared with any other region (Figures 7 and 8). The highest prevalence of untreated caries is in the NE (31.9%) and the SW regions (31.8%).

Figure 7. Percentage of 3rd graders with untreated decay in permanent or primary teeth (active caries)
Oklahoma 2022-2023

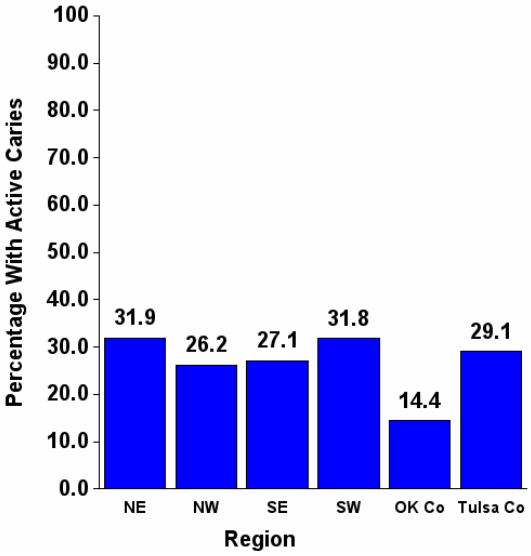


Figure 8. Percentage of 3rd graders with untreated decay in permanent or primary teeth (active caries) In order from best to worst
Oklahoma 2022-2023

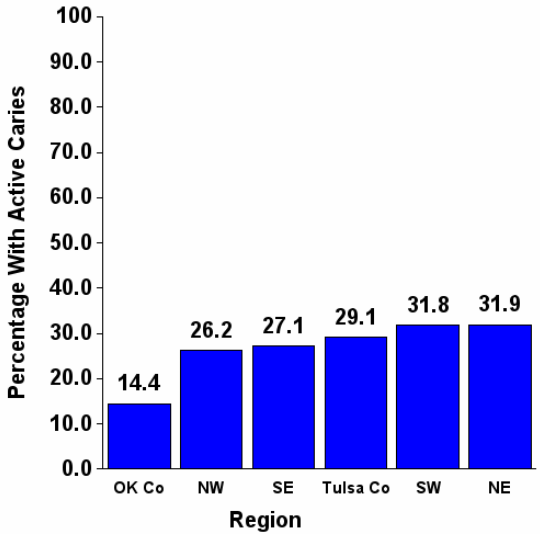
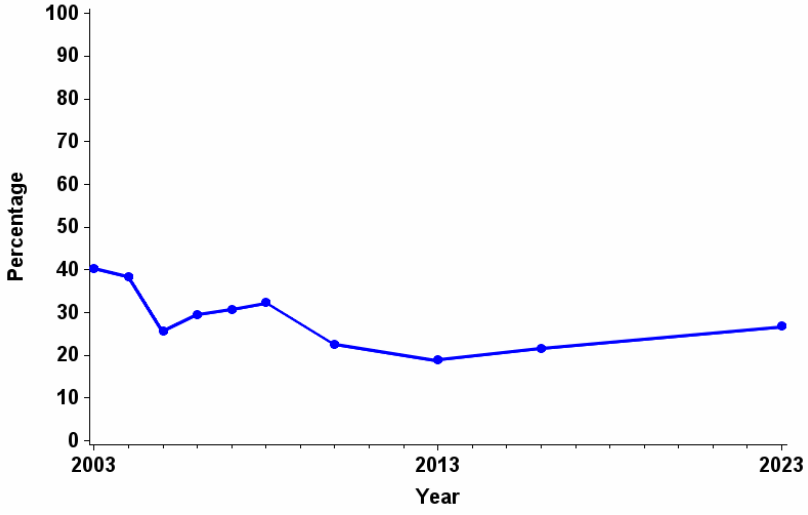


Figure 9. Weighted estimates of percentage of 3rd graders with untreated decay (active caries) in at least one permanent or primary tooth



Untreated Decay in Permanent Teeth (active decay)

Statewide, 6.3% of third graders have decayed permanent teeth (untreated active caries). Oklahoma County has the lowest prevalence of actively decayed permanent teeth (4.4%), followed closely by the NE and SE regions, both with 4.7% decay. The SE region has the highest prevalence of decay (10.6%) (Figure 10). The mean number of decayed permanent teeth for the 1,686 students is 0.1 teeth with a standard deviation of 0.5 and a range of 0 to 4 teeth. Most of the active decay is limited to one or two permanent teeth, but ten students (0.6%) were observed to have active decay in four teeth and an additional twelve students (0.7%) were observed to have active decay in three teeth. The estimated percentage of third grade children in Oklahoma with decayed permanent teeth decreased slightly from the 2016 estimate (Figure 11).

Figure 10. Percentage of 3rd graders with at leas one decayed permanent tooth (active caries)
Oklahoma 2022-2023

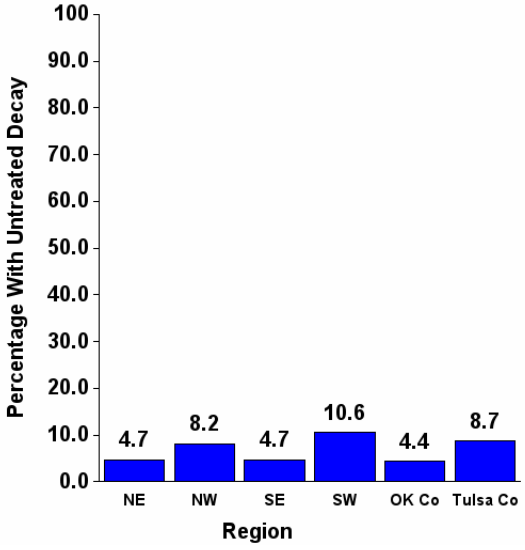
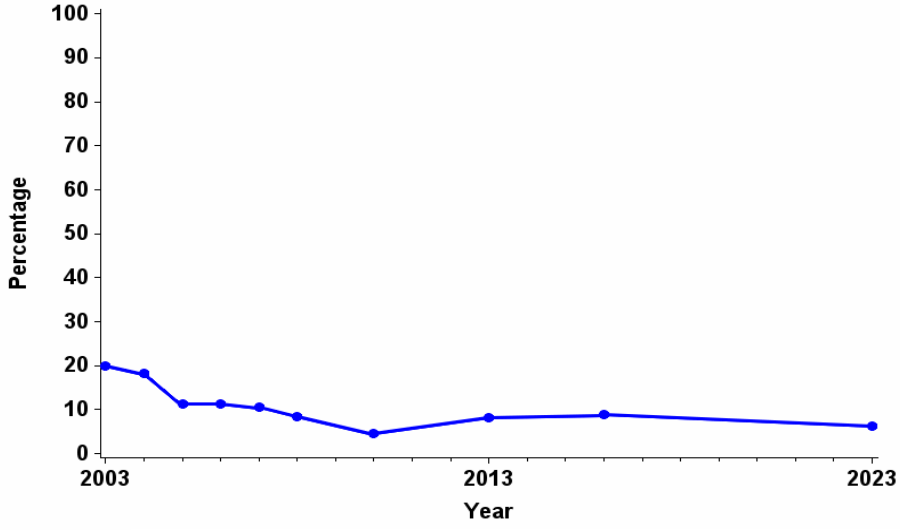


Figure 11. Weighted estimates of percentage of 3rd graders with untreated decay (active caries) in at least one permanent tooth



Untreated Decay in Primary Teeth (active decay)

For children of this age group, the frequency of active decay in primary teeth is typically much higher than it is in permanent teeth. Almost one-quarter (24.7%) of third graders have active decay in one or more primary teeth (Figure 13). Children in Oklahoma County have the lowest prevalence of active decay in primary teeth (12.6%), while children in the NE region have the highest prevalence of untreated decay in primary teeth (31.3%) (Figure 12). In this statewide sample, the mean number of decayed primary teeth is 0.6 with a standard deviation of 1.3 and a range of 0 to 9 primary teeth with active decay. Approximately eight percent (7.6%) of children have active, untreated decay in three or more primary teeth. The number of children with active untreated decay in one or more primary teeth has increased over the 2010, 2013, and 2016 estimates (Figure 13).

Figure 12. Percentage of 3rd graders with at least one decayed primary tooth (active caries)
Oklahoma 2022-2023

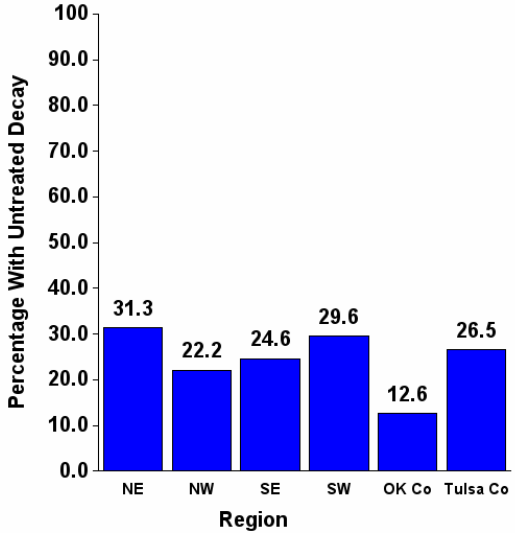
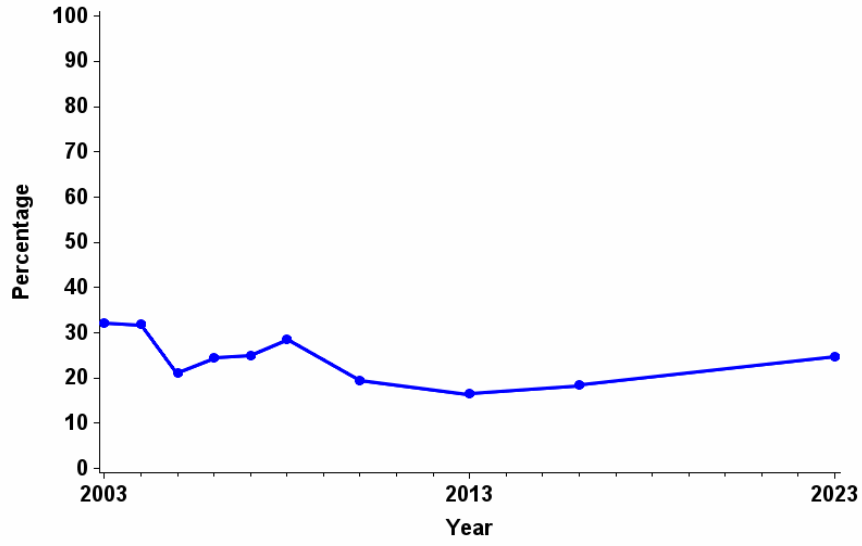


Figure 13. Weighted estimates of percentage of 3rd graders with untreated decay (active caries) in at least one primary tooth



Missing Permanent Teeth

Only 29 third grade students screened (1.4%) are missing permanent teeth due to decay with a range of 0 to 4 missing permanent teeth. Seven children from the NW region are missing one tooth and an additional three children are missing two teeth. In the SE region, two children are missing one tooth, and one child is missing four teeth. In the Oklahoma County region, three children are missing one tooth, while in the Tulsa region, ten children are missing one tooth, and three children are missing two teeth.

Missing Primary Teeth

As expected, significantly more children are missing primary teeth due to decay when compared to permanent teeth. For the entire state, 13.0% of third grade students are missing one or more primary teeth, showing an increase over the 2016 survey data (Figure 15). Regional percentages vary from 9.6% in the NE region to 18.8% in the SW region (Figure 14). For the 1,686 students surveyed, the mean number of missing primary teeth for the sample equals 0.3 with a standard deviation of 0.7 and a range of 0 to 7 missing primary teeth. While most students with missing primary teeth are missing one or two teeth, 42 students (2.5%) are missing three or more primary teeth.

Figure 14. Percentage of 3rd graders with at least one missing primary tooth
Oklahoma 2022-2023

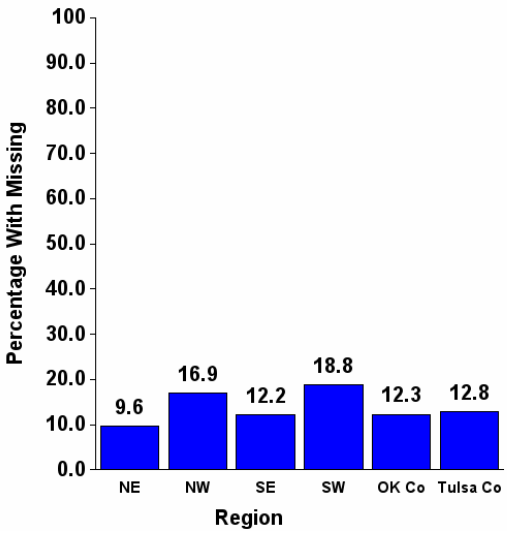
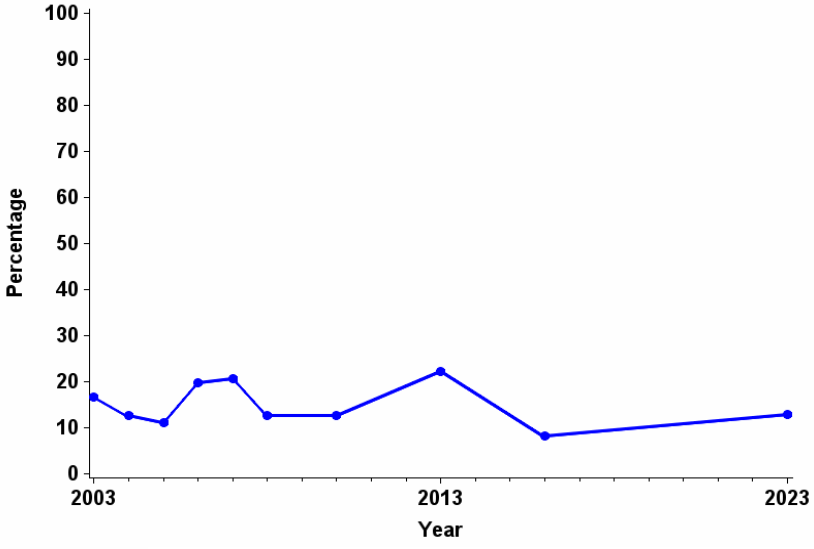


Figure 15. Weighted estimates of percentage of 3rd graders with at least one missing primary tooth



Filled (Treated/Restored) Permanent Teeth

Approximately 10.2% of third graders in Oklahoma have filled (treated/restored) cavities in one or more permanent teeth. Differences by region are observed (Figure 16). The highest percentage of filled/treated permanent teeth is observed in the NE region (18.8%), followed by the Tulsa County region at 13.3%. The lowest region is the Oklahoma County region with 3.9% of children having treated or restored cavities in permanent teeth, followed closely by the NW region at 5.5%. Among surveyed children, the mean number of filled permanent teeth for the sample is 0.2 with a standard deviation of 0.8 and a range of 0 to 8 permanent teeth treated or restored. Compared to the 2016 estimate, the estimated percentage of children in Oklahoma with filled permanent teeth has decreased during this 2022-2023 screening period (Figure 17).

Figure 16. Percentage of 3rd graders with at least one filled (treated/restored) permanent tooth
Oklahoma 2022-2023

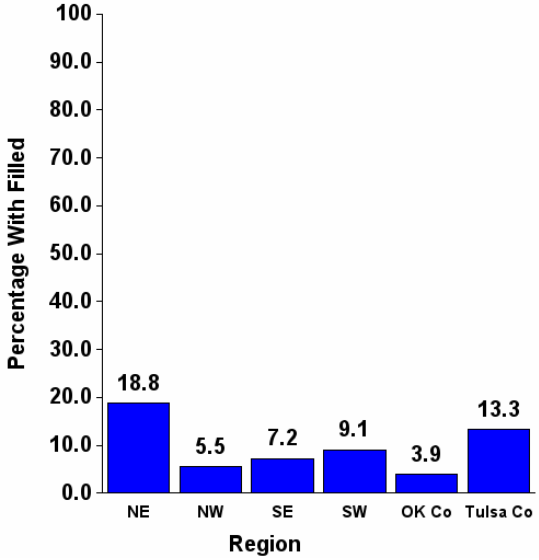
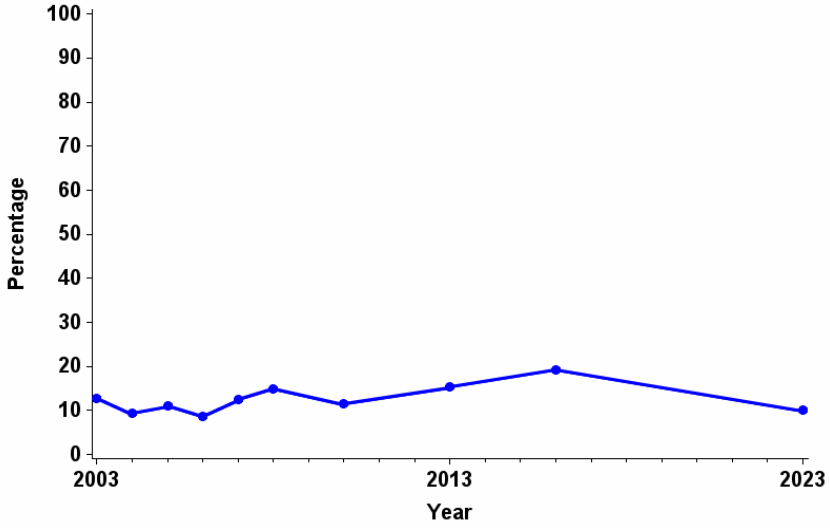


Figure 17. Weighted estimates of percentage of 3rd graders with at least one filled (treated/restored) permanent tooth



Filled (Treated/Restored) Primary Teeth

Significantly more children are observed to have filled (treated/restored) primary teeth compared to permanent teeth. Overall, 48.5% of third graders have one or more filled primary teeth. Regional proportions vary from 36.7% in the Oklahoma County region to 54.6% in the SE region (Figure 18). The mean number of filled primary teeth for the sample is 1.7 with a standard deviation of 2.5 teeth and a range of 0 to 12 filled primary teeth. About one-fifth (21.8%) of participants have four or more filled (treated/restored) primary teeth. The estimated percentage of children in Oklahoma with filled primary teeth has remained somewhat constant (between 40% and 50%) over the twenty years covered by this needs assessment (Figure 19).

Figure 18. Percentage of 3rd graders with at least one filled (treated/restored) primary tooth
Oklahoma 2022-2023

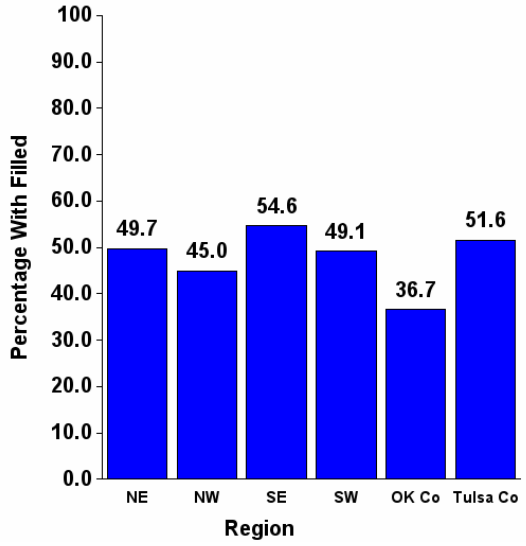
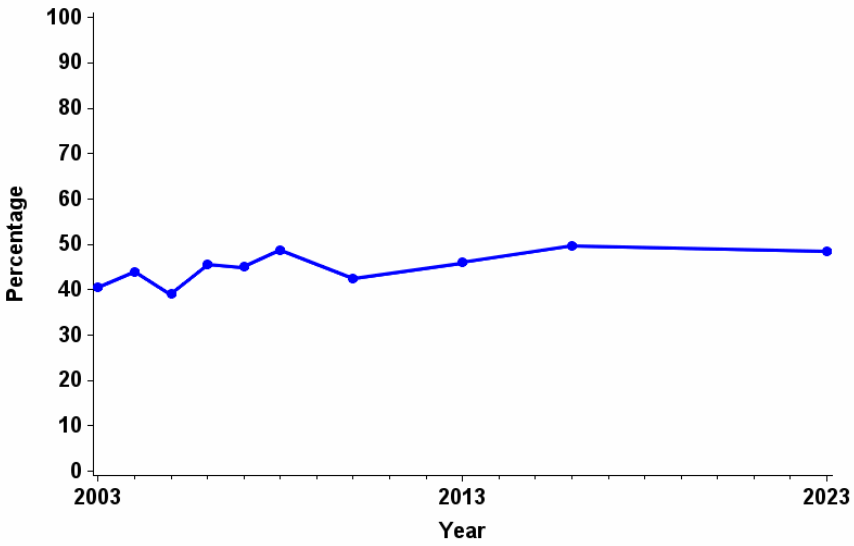


Figure 19. Weighted estimates of percentage of 3rd graders with at least one filled (treated/restored) primary tooth



Results of Screening as Determined by Dental Hygienist

Visiting dental hygienists gave each child who participated in the dental screening a form to take home indicating whether the child had dental problems that needed attention. Dental hygienists' outcomes indicated that about three quarters of the participating children (76.5%) had no dental problems, and only 3.4% of the children had dental problems that needed immediate attention (Table 5).

Table 5. Summary of dental hygienists' screening outcomes among participating Oklahoma third grade students

Screening Results	*N*	*%*
Observed no dental problems	1290	76.5
Observed dental problems that need attention soon	339	20.1
Observed dental problems that need attention immediately	57	3.4

Most regions have similar results (Table 6). The Tulsa County region has the lowest percentage of children without dental problems (66.6%), while the Oklahoma County region has the highest percentage of children without dental problems (89.0%). The highest percentage of children with dental problems needing immediate attention was the Tulsa County region (5.6%) followed closely by the NW region (5.2%). The Oklahoma County region had the lowest percentage of children with dental problems that need immediate attention (1.3%) followed closely by the SW region (1.5%).

Table 6. Percentage of participating Oklahoma third grade students by screening result and Region

	Region											
	NE		*NW*		*SE*		*SW*		*OK Co*		*Tulsa Co*	
Screening Results	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Observed no dental problems	182	71.7	187	69.3	171	79.2	166	83.0	347	89.0	237	66.6
Observed dental problems that need attention soon	67	26.4	69	25.6	35	16.2	31	15.5	38	9.7	99	27.8
Observed dental problems that need attention immediately	5	2.0	14	5.2	10	4.6	3	1.5	5	1.3	20	5.6

Discussion

Dental caries is one of the most common chronic childhood diseases. To compare the frequency of dental caries in third grade children in Oklahoma over time, this tenth needs assessment was conducted for the Oklahoma State Department of Health, Dental Health Service, by the University of Oklahoma College of Public Health, and made possible by funding from the Delta Dental of Oklahoma Foundation.

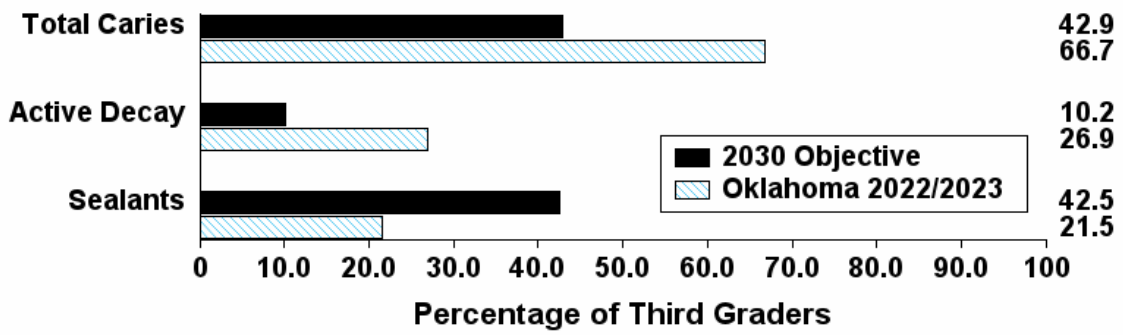
In addition, this assessment provides valuable information about the status of the dental health of children in Oklahoma, as well as the progress being made to reach the goals set by Healthy People 2030. See Figure 20 for a comparison of the results of this 2023 assessment to 'Healthy People 2030' objectives.

Led by the U.S. Department of Health and Human Services, Healthy People 2030 is a ten-year health promotion program designed to target public health priorities and improve the health of all Americans. The Healthy People 2030 objectives include several measures related to oral health in children aged three to nineteen years. The Healthy People 2030 framework was based on recommendations made by the Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2030 (Committee).[3] Progress towards the Healthy People 2030 objectives is monitored using specific, measurable objectives. These include:

- Reduce the proportion of children and adolescents with lifetime tooth decay experience in their primary or permanent teeth to 42.9%.
- Reduce the proportion of children and adolescents with active and currently untreated tooth decay in their primary or permanent teeth to 10.2%.
- Increase the proportion of children and adolescents who have received dental sealants on 1 or more of their primary or permanent molar teeth to 42.5%.

Consistent with data from the previous dental assessments, data from the 2022-2023 study of Oklahoma children indicate areas where improvements are needed to meet the Healthy People 2030 target objectives (Figure 20).

Figure 20. Oklahoma dental measures compared to Healthy People 2030 targets



The statewide prevalence for total dental caries experience in Oklahoma third graders is 66.7%, which is higher than the Healthy People 2030 objective of 42.9%. The total dental caries measure from the 2023 survey is stable compared to the previous 2016 assessment of (66.0%). The prevalence of active decay in Oklahoma (26.9%), defined as untreated caries in at least one permanent or primary tooth, is higher (worse) than the goal set by Healthy People 2030 (10.2%) and is also higher (worse) than the

2016 estimate of 21.7%. The proportion of children with protective sealants in Oklahoma (21.5%) is not yet close to the Healthy People 2030 objective of 42.5%; and is lower (worse) compared to the 2016 estimate of 25.2%.

Large regional differences are observed in the results of the oral health needs assessment. None of the regions have yet met the Healthy People 2030 objective for prevalence of total caries (42.9%), although the Oklahoma County region is closest at 50.3%. The highest percentage of third grade students with dental caries occurred in the NE region (76.0%), followed by the SW region (73.0%).

The Tulsa County, NW, and NE regions have the highest prevalence of active decay (33.7%, 33.0%, and 31.1% respectively). While the Oklahoma County region has the lowest prevalence of children with active (untreated) decay (12.8%), none of the regions have yet met the Healthy People 2030 goal of 10.2%.

Similarly, none of the regions in Oklahoma have yet met the Healthy People 2030 goal of 42.5% of students having dental sealants on at least one molar tooth. The NE region has the highest prevalence of dental sealants (29.9%), while the NW has the lowest prevalence of dental sealants at 13.7%.

Although the sample in Oklahoma was selected to ensure representation from all six regions, participation rates varied, and sample sizes were affected. The findings of this study may be impacted by selection bias, as not all schools initially contacted agreed to participate. Additionally, the final selection of schools may not provide equitable coverage of the region. Parents returned passive consent forms refusing participation in the screening for 15.6% of initially selected students, and one school requested active consent forms, and consequently had the lowest participation rate in the study. Several schools noted participation may be impacted by screenings and interventions to their schools by dental professionals from

other organizations. One school refused to participate because a professional dental organization had just come to their school to provide sealants to all third-grade students on a free basis.

Interrater reliability may have impacted the results of this study, as six dental hygienists completed student screenings. Although all dental hygienists were concurrently trained and calibrated, reducing potential misclassification bias between regions, the dental hygienists primarily screened within certain regions independently. Regional differences in results could potentially reflect mild variations in dental hygienists' classifications, rather than true differences.

References cited:

1. Prevalence of total and untreated dental caries among youth: United States, 2015-2016. Centers for Disease Control and Prevention, National Center for Health Statistics. Accessed April 27, 2023. Products - Data Briefs - Number 307 - April 2018 (cdc.gov)

2. Neidell M, Shearer B, Lamster IB. Cost-Effectiveness Analysis of Dental Sealants versus Fluoride Varnish in a School-Based Setting. Caries Res. 2016;50 Suppl 1:78-82. doi: 10.1159/000439091. Epub 2016 Apr 22. PMID: 27100884.

3. Oral Conditions. Healthy People 2030. The US Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Accessed April 27, 2023. https://health.gov/healthypeople/objectives-and-data/browse-objectives/oral-conditions

Appendices

Appendix A: Letter to school

Elementary Principal
School
1234 Primary Street
Your Town, OK Zip

Dear Principal:

The Oklahoma State Department of Health, in conjunction with OUHSC Hudson College of Public Health, has conducted a third-grade dental health screening for almost 20 years. Each time, 36 schools are randomly selected to participate in the program.

Benefits of participating in the process include:

1) Children learn about oral health as we utilize presentations and interactive learning. Learning materials can be provided in advance of the oral health presentation to allow children to develop inquisitive minds.

2) Children with parental consent are screened for dental problems and a letter is sent home with each child screened informing the parent/s of the child's current dental condition.

3) All children are given toothbrushes, even if they do not participate in the screening process.

4) Arrangements can be made through the Oklahoma Dental Foundation to schedule the ODF mobile unit to provide care for children needing treatment.

5) Information obtained through the screening process allows the state to meet national oral health benchmarks and guides programming and workforce efforts.

For the 2022-2023 school year, your school has been selected for this unique opportunity. If you would be willing to have your third-grade students participate in this screening, please complete the enclosed, self-addressed stamped postcard and include contact information for your lead third grade teacher or school nurse so we can follow up with details including parental consent slips and information to ensure maximum participation. Feel free to contact me with any questions.

Sincerely,

Jana S. Winfree, DDS, MPH | Director
Dental Health Service | Family Health
Oklahoma State Department of Health
janaw@health.ok.gov | (405) 426-8460

Return Postcard

School Name: _____

Thank you for responding. Please indicate your preference below:

❑ Yes, I'd like for our school to participate. The person to contact is _____ who can best be reached at _____.

❑ No, thank you. I do not wish for our school to participate.

❑ I would like more information. Please contact me at _____.

Appendix B – Parental consent forms

Active Consent Form- English

Dental Health Needs Assessment
PARENTAL/GUARDIAN CONSENT FORM
Lindsay Boeckman, MS, Principal Investigator

This is a dental needs assessment at your child's school. This survey involves only individuals who choose to take part in them. Please take your time to make your decision about your child's participation.

Your child is being asked to take part in this assessment because his/her school, _____, was selected to participate in a dental health needs assessment sponsored by the Oklahoma State Department of Health and directed by Lindsay Boeckman.

Why is this assessment being done?
The purpose of this assessment is to determine the level of dental health in our state. We are interested in finding out how many children have dental sealants or cavities. This information will be used to plan dental health programs throughout the state.

How many people will take part in the assessment?
About 1300 third grade students will take part in this assessment at 36 elementary schools.

What is involved in the assessment?
This assessment will be carried out at your child's school. A dentist or dental hygienist will look at your child's teeth and count the number of teeth that have cavities or fillings and see if your child has any dental sealants. If dental problems needing further attention are identified during the screening, you will be notified on a form called 'Results of Dental Health Screening', that will be sent home with your child. This screening does not take the place of regular dental check-ups with your dentist who is able to examine your child more thoroughly. It is also important to include your child even if he or she has had a recent dental check-up. Your child will participate in an educational activity promoting proper care of teeth. Your child will also be asked to give permission to participate at the time of the screening.

How long will my child be in the assessment?
The educational activities will be less than 30 minutes, and individual student screenings will take an additional 2 minutes each.

What are the risks, benefits and options of the assessment?
The risks from your child participating are no greater than what they would encounter in their regular day. Disposable mirrors and non-latex gloves will be used on each child. The results of the screening will be kept confidential, as allowed by law. You will receive the results of the dental health screening, and all students in the class will receive a toothbrush. You and your child may choose not to participate at any time.

What about confidentiality?
Efforts will be made to keep your child's information confidential. The results of your child's screening will not be linked to his/her name. Your child will not be identified by name or description in any reports or publications about this assessment.

There are organizations that may inspect and/or copy the screening records for quality assurance and data analysis. The main organization for this will be the Oklahoma State Department of Health.

What are my child's rights as a participant?
Taking part in this assessment is voluntary. Your child may choose not to take part or may leave the survey at any time

Whom do I call if I have questions or problems?
If you have any questions regarding your child's participation in this needs assessment, you may contact Lindsay Boeckman by calling 405-271-2229. For more information on your child's rights, please contact the OSDH IRB at 405-426-8030.

Signature

Please complete this form to allow your child to participate in the dental health needs assessment.

_____
Please print child's name

_____
Signature of Parent/Guardian (Date)

Active Consent Form- Spanish

Evaluación de Necesidades de Salud Dental
FORMULARIO DE CONSENTIMIENTO PATERNAL/TUTORES
Lindsay Boeckman, MS, Investigador Principal

Esta es una evaluación de necesidades dentales en la escuela de su hijo(a). Este estudio implica sólo a las personas que deciden participar en ellos. Por favor tómese el tiempo para tomar una decisión sobre la participación de su hijo(a).

Se le solicita a su hijo(a) tomar parte en esta evaluación porque su escuela, _____, ha sido seleccionada para participar en una evaluación de necesidades de salud dental patrocinado por el Departamento de Salud del Estado de Oklahoma y dirigida por Lindsay Boeckman.

¿Por qué se hace esta evaluación?
El propósito de esta evaluación es determinar el nivel de salud dental en nuestro estado. Estamos interesados en averiguar cuantos niños tienen selladores dentales o caries. Esta información será utilizada para planificar programas de salud dental en todo el estado.

¿Cuántas personas participarán en la evaluación?
Cerca de 1300 estudiantes de tercer grado participaran en 36 escuelas primarias.

¿Qué está implicado en la evaluación?
Esta evaluación será llevada a cabo en la escuela de su hijo(a). Un dentista o higienista dental mirara los dientes de su hijo(a) y contara el número de dientes que tienen caries o rellenos y ver si su niño tiene algún sellador dental. Si problemas dentales que requieren mayor atención son identificados durante la evaluación, usted será notificado en un formulario denominado "Resultados de Evaluación de Salud Dental", que será enviada a casa con su hijo(a). Esta proyección no toma el lugar de chequeos dentales regulares con su dentista que es capaz de examinar a su hijo(a) más a fondo. También es importante incluir a su hijo(a) incluso si él o ella ha tenido un chequeo dental reciente. Su hijo participara en una actividad educacional que promueve el cuidado apropiado de dientes. A su hijo(a) también se le pedirá dar permiso de participar en el momento de la proyección.

¿Cuánto tiempo estará mi hijo(a) en la evaluación?
Las actividades educativas serán de menos de 30 minutos, y proyecciones estudiantiles individuales tomaran 2 minutos adicionales cada uno.

¿Cuáles son los riesgos, beneficios y opciones de la evaluación?
Los riesgos de su hijo(a) participando en la evaluación no son mayores que lo que encontrarían en su día regular. Espejos desechables y guantes que no sean de látex serán utilizados en cada niño. Los resultados de la proyección serán confidenciales, según lo permitido por la ley. Usted recibirá los resultados de la evaluación de salud dental y todos los estudiantes en la clase recibirán un cepillo de dientes. Usted y su niño pueden elegir no participar en cualquier momento.

¿Qué sobre la confidencial?
Se realizaran esfuerzos para mantener confidencial la información de su hijo(a). Los resultados de la evaluación de su hijo(a) no estarán ligados a su nombre. Su hijo(a) no será identificado por nombre o descripción en cualquier reporte o publicación sobre esta evaluación.

Hay organizaciones que pueden inspeccionar y/o copiar los resultados de proyección para garantía de calidad y análisis de datos. La organización principal para esto será el Departamento de Salud del Estado de Oklahoma.

¿Cuáles son los derechos de mi hijo(a) como participante?
Tomar parte en esta evaluación es voluntario. Su hijo puede optar no participar o dejar la encuesta en cualquier momento.

¿A quién puedo llamar si tengo preguntas o problemas?
Si tiene alguna pregunta con respecto a la participación de su hijo(a) en esta evaluación de necesidades, usted puede ponerse en contacto con Lindsay Boeckman llamando al 405-271-2229. Para más información sobre los derechos de su hijo(a), por favor póngase en contacto con el OSDH IRB al 405-426-8030.

Firma

Por favor complete este formulario para permitir que su hijo(a) participe en la evaluación de necesidades de salud dental.

_____
Por favor imprimir nombre de niño

_____
Firma de Padres/Tutor (Fecha)

Passive Consent Form- English

Dental Health Needs Assessment
PARENTAL/GUARDIAN CONSENT FORM
Lindsay Boeckman, MS, Principal Investigator

This is a dental needs assessment at your child's school. This survey involves only individuals who choose to take part in them. Please take your time to make your decision about your child's participation.

Your child is being asked to take part in this assessment because his/her school, _____, was selected to participate in a dental health needs assessment sponsored by the Oklahoma State Department of Health and directed by Lindsay Boeckman.

Why is this assessment being done?
The purpose of this assessment is to determine the level of dental health in our state. We are interested in finding out how many children have dental sealants or cavities. This information will be used to plan dental health programs throughout the state.

How many people will take part in the assessment?
About 1300 third grade students will take part at 36 elementary schools

What is involved in the assessment?
This assessment will be carried out at your child's school. A dentist or dental hygienist will look at your child's teeth and count the number of teeth that have cavities or fillings and see if your child has any dental sealants. If dental problems needing further attention are identified during the screening, you will be, notified on a form called 'Results of Dental Health Screening', that will be sent home with your child. This screening does not take the place of regular dental check-ups with your dentist who is able to examine your child more thoroughly. It is also important to include your child even if he or she has had a recent dental check-up. Your child will participate in an educational activity promoting proper care of teeth. Your child will also be asked to give permission to participate at the time of the screening.

How long will my child be in the assessment?
The educational activities will be less than 30 minutes, and individual student screenings will take an additional 2 minutes each.

What are the risks, benefits and options of the assessment?
The risks from your child participating are no greater than what they would encounter in their regular day. Disposable mirrors and non-latex gloves will be used on each child. The results of the screening will be kept confidential, as allowed by law. You will receive the results of the dental health screening, and all students in the class will receive a toothbrush. You and your child may choose not to participate in this assessment at any time.

What about confidentiality?
Efforts will be made to keep your child's information confidential. The results of your child's screening will not be linked to his/her name. Your child will not be identified by name or description in any reports or publications about this assessment.

There are organizations that may inspect and/or copy the screening records for quality assurance and data analysis. The main organization for this will be the Oklahoma State Department of Health.

What are my child's rights as a participant?
Taking part in this assessment is voluntary. Your child may choose not to take part or may leave the survey at any time

Whom do I call if I have questions or problems?
If you have any questions regarding your child's participation in this needs assessment, you may contact Lindsay Boeckman by calling 405-271-2229. For more information on your child's rights, please contact the OSDH IRB at 405-426-8030.

Signature

If you **do not want** your child to participate, please complete this form and return it to your child's teacher.

Your child will be automatically enrolled in this assessment, unless this form is returned denying his or her participation.

_____
Please print child's name

_____
Signature of Parent/Guardian (Date)

Passive Consent Form- Spanish

Evaluación de Necesidades de Salud Dental
FORMULARIO DE CONSENTIMIENTO PATERNAL/TUTORES
Lindsay Boeckman, MS, Investigador Principal

Esta es una evaluación de necesidades dentales en la escuela de su hijo(a). Este estudio implica sólo a las personas que deciden participar en ellos. Por favor tómese el tiempo para tomar una decisión sobre la participación de su hijo(a).

Se le solicita a su hijo(a) tomar parte en esta evaluación porque su escuela, _____, ha sido seleccionada para participar en una evaluación de necesidades de salud dental patrocinado por el Departamento de Salud del Estado de Oklahoma y dirigida por Lindsay Boeckman.

¿Por qué se hace esta evaluación?
El propósito de esta evaluación es determinar el nivel de salud dental en nuestro estado. Estamos interesados en averiguar cuantos niños tienen selladores dentales o caries. Esta información será utilizada para planificar programas de salud dental en todo el estado.

¿Cuántas personas participarán en la evaluación?
Cerca de 1300 estudiantes de tercer grado participaran en 36 escuelas primarias.

¿Qué está implicado en la evaluación?
Esta evaluación será llevada a cabo en la escuela de su hijo(a). Un dentista o higienista dental mirara los dientes de su hijo(a) y contara el número de dientes que tienen caries o rellenos y ver si su niño tiene algún sellador dental. Si problemas dentales que requieren mayor atención son identificados durante la evaluación, usted será notificado en un formulario denominado "Resultados de Evaluación de Salud Dental", que será enviada a casa con su hijo(a). Esta proyección no toma el lugar de chequeos dentales regulares con su dentista que es capaz de examinar a su hijo(a) más a fondo. También es importante incluir a su hijo(a) incluso si él o ella ha tenido un chequeo dental reciente. Su hijo participara en una actividad educacional que promueve el cuidado apropiado de dientes. A su hijo(a) también se le pedirá dar permiso de participar en el momento de la proyección.

¿Cuánto tiempo estará mi hijo(a) en la evaluación?
Las actividades educativas serán de menos de 30 minutos, y proyecciones estudiantiles individuales tomaran 2 minutos adicionales cada uno.

¿Cuáles son los riesgos, beneficios y opciones de la evaluación?
Los riesgos de su hijo(a) participando en la evaluación no son mayores que lo que encontrarían en su día regular. Espejos desechables y guantes que no sean de látex serán utilizados en cada niño. Los resultados de la proyección serán confidenciales, según lo permitido por la ley. Usted recibirá los resultados de la evaluación de salud dental y todos los estudiantes en la clase recibirán un cepillo de dientes. Usted y su niño pueden elegir no participar en cualquier momento.

¿Qué sobre la confidencial?
Se realizaran esfuerzos para mantener confidencial la información de su hijo(a). Los resultados de la evaluación de su hijo(a) no estarán ligados a su nombre. Su hijo(a) no será identificado por nombre o descripción en cualquier reporte o publicación sobre esta evaluación.

Hay organizaciones que pueden inspeccionar y/o copiar los resultados de proyección para garantía de calidad y análisis de datos. La organización principal para esto será el Departamento de Salud del Estado de Oklahoma.

¿Cuáles son los derechos de mi hijo(a) como participante?
Tomar parte en esta evaluación es voluntario. Su hijo puede optar no participar o dejar la encuesta en cualquier momento.

¿A quién puedo llamar si tengo preguntas o problemas?
Si tiene alguna pregunta con respecto a la participación de su hijo(a) en esta evaluación de necesidades, usted puede ponerse en contacto con Lindsay Boeckman llamando al 405-271-2229. Para más información sobre los derechos de su hijo(a), por favor póngase en contacto con el OSDH IRB al 405-426-8030.

Firma

Si usted **no** quiere que su hijo(a) participe, por favor complete este formulario devuélvalo al profesor de su hijo(a).

Su hijo(a) será automáticamente inscrito en esta evaluación, a menos que este formulario sea devuelto negando su participación.

_____
Por favor imprimir nombre de niño

_____
Firma de Padres/Tutor (Fecha)

Appendix C – Data Collection Form

2022-2023 Dental Health Screening Form

Dental Professional: Cut off names and shred before mailing

County _____

*W=White, B=Black/African American, NA=Native American, A=Asian, O=Other

**H=Hispanic Origin, N=Not Hispanic Origin, U=Unknown

To be completed by Teacher															
	Student Demographics (for students who give Assent)					D	M	F	d	m	f		Outcome ✓		
List Each Student's Name Below	Child Assent Mark "X" for yes	Age	Gender M or F	Race *(W, B, NA, A, Other)	Ethnicity **(H, N, U)	Number Permanent Teeth Decayed	Number Permanent Teeth Missing	Number Permanent Teeth Filled	Number Primary Teeth Decayed	Number Primary Teeth Missing	Number Primary Teeth Filled	Number Sealants on Permanent Molars	No Problems	Problems/ Need Attn	Problems/ Need Immediate Attn
1															
2															
3															
4															
5															
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25															
To be completed by hygienist/dentist	School ID: _____		Total # students in classroom: _____		Total # parental consents: _____										

Appendix D – Result Form (for parents)

Results of Dental Health Screening

With your permission, _____ received a dental screening at school today. The purpose of the screening was to determine the number of children with dental sealants and to assess the oral health status of your community. The dentist or dental hygienist determined that the following conditions exist:

□ No dental problems were observed. See your dentist as he/she recommends

□ Dental problems were observed that appear to need attention. Please contact your dentist at your earliest convenience.

□ Dental problems were observed that appear to need immediate attention. Contact your dentist immediately!

Please note: This dental screening was not a complete dental examination (check-up). In many cases, cavities or other dental problems may not be detected by visual screening alone. For this reason, children should receive a thorough dental examination every six months, or as recommended by your dentist.

If you have questions or would like additional information about dental care for your child, please contact your local dentist. For information about Medicaid dental benefits, call the Oklahoma Health Care Authority at (405) 522-7300 or (800) 987-7767.

Appendix E

Summary of dental health status of Oklahoma third grade students, un-weighted prevalence rates

Dental Health Status Indicator	*Prevalence*	*95% CI*
Percentage of third graders in Oklahoma with sealants on at least one permanent molar tooth	**20.9%**	**19.0% - 22.9%**
Percentage of third graders in Oklahoma with dental caries experience	**65.8%**	**63.5% - 68.0%**
Percentage of third graders in Oklahoma with untreated decay (active caries) in at least one permanent or primary tooth	**26.3%**	**24.2% - 28.4%**
Percentage of third graders in Oklahoma with untreated decay in at least one permanent tooth (active caries)	**7.4%**	**6.2% - 8.7%**
Percentage of third graders in Oklahoma with untreated decay in at least one primary tooth (active caries)	**23.3%**	**21.3% - 25.3%**
Percentage of third graders in Oklahoma with at least one missing permanent tooth	**1.7%**	**1.1% - 2.3%**
Percentage of third graders in Oklahoma with at least one missing primary tooth	**14.7%**	**13.0% - 16.3%**
Percentage of third graders in Oklahoma with at least one filled (treated/restored) permanent tooth	**9.4%**	**8.0% - 10.8%**
Percentage of third graders in Oklahoma with at least one filled (treated/restored) primary tooth	**47.4%**	**45.0% - 49.8%**

This Appendix (E) contains *actual percentages* gathered from the students surveyed at the school sites, and represents the percentages in the sampled students. Table 4 within the body of the paper is similar, however that data are weighted, meaning it more accurately represents third grade students across the State of Oklahoma as a whole. The weighting accounts for the variation in the number of schools per region. The weights are the inverse of the probability of a school selection within the region such that each school represented a specific number of schools in their region.

The 95% confidence interval (CI) can be interpreted as: We are 95% certain that the true percentage of third graders in each category is between the percentages in the third column.

Appendix F

Overall Participant Characteristics, Including Percent Missing

		No.	*Percent*			*No.*	*Percent*
Age	7	0	0	**Gender**	Female	833	49.4%
	8	885	52.5%		Male	830	49.2%
	9	706	41.9%		Missing	23	1.4%
	10	53	3.1%	**Race**	Asian	36	2.1%
	11	1	0.1%		Black	192	11.4%
	Missing	41	2.4%		Native American	277	16.4%
Ethnicity	Hispanic	419	24.9%		Other	79	4.7%
	Non-Hispanic	1130	67.0%		White	1059	62.8%
	Unknown	111	6.6%		Missing	43	2.6
	Missing	26	1.5%				

*All percentages are rounded to one decimal place; therefore, total may not add to 100%

Appendix G

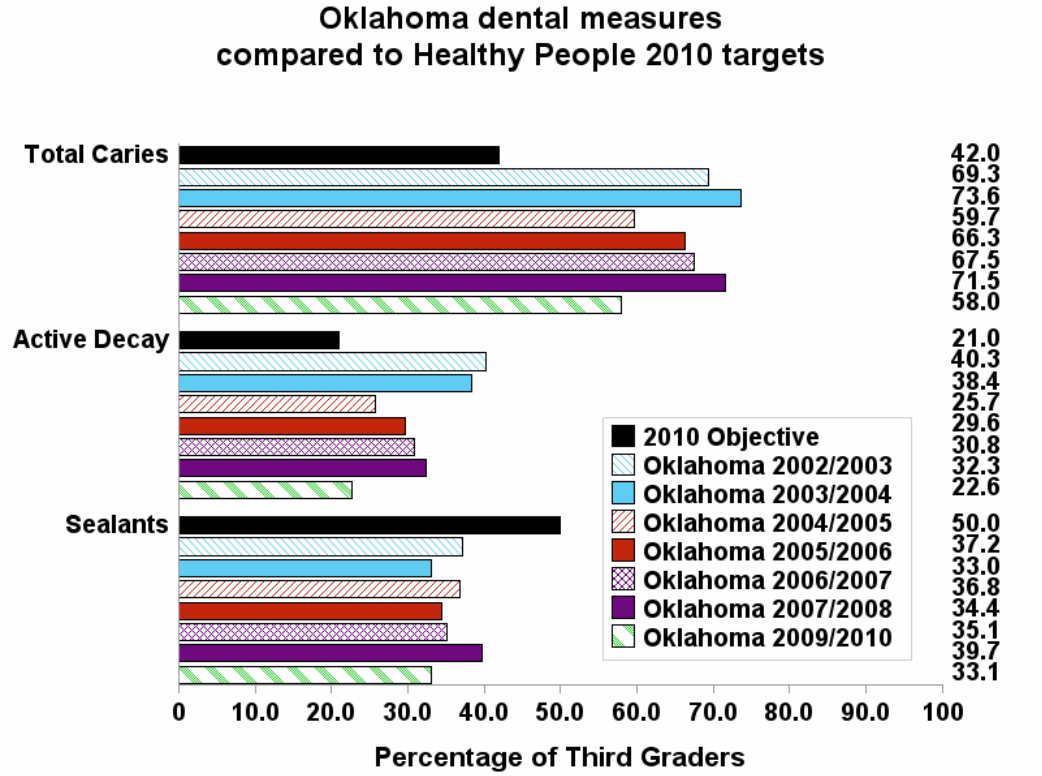
Participant Characteristics by Region

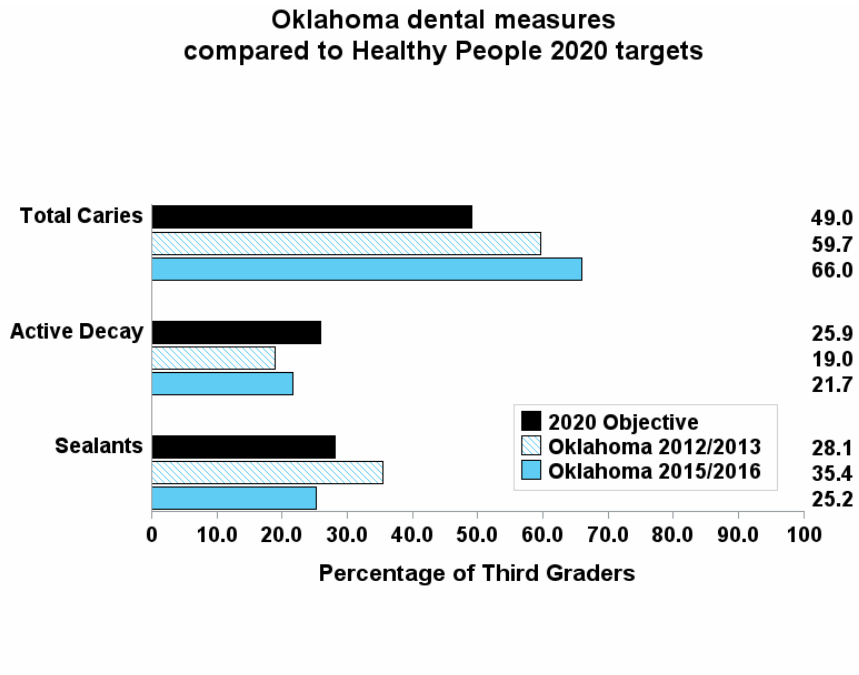
		NE		NW		SE		SW		OK Co		Tulsa Co	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Age	8	117	46.1	167	61.9	94	43.5	111	55.5	204	52.3	192	53.9
	9	128	50.4	96	35.6	108	50.0	80	40.0	158	40.5	136	38.2
	10	9	3.5	7	2.6	12	5.6	9	4.5	9	2.3	7	2.0
	11	N/A	N/A	N/A	N/A	1	0.5	N/A	N/A	N/A	N/A	N/A	N/A
	Missing	N/A	N/A	N/A	N/A	1	0.5	N/A	N/A	19	4.9	21	5.9
Gender	Female	142	55.9	128	47.4	117	54.2	90	45.0	201	51.5	155	43.5
	Male	112	44.1	142	52.6	99	45.8	110	55.0	187	47.9	180	50.6
	Missing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	0.5	21	5.9
Race	Asian	3	1.2	6	2.2	12	5.6	1	0.5	8	2.1	6	1.7
	Black	3	1.2	13	4.8	9	4.2	22	11.0	109	27.9	36	10.1
	Native American	72	28.3	34	12.6	55	25.5	77	38.5	13	3.3	26	7.3
	Other	4	1.6	17	6.3	3	1.4	16	8.0	15	3.8	24	6.7
	White	172	67.7	198	73.3	121	56.0	83	41.5	243	62.3	242	68.0
	Missing	N/A	N/A	2	0.7	16	7.4	1	0.5	2	0.5	22	6.2
Ethnicity	Hispanic	16	6.3	156	57.8	40	18.5	17	8.5	80	20.5	110	30.9
	Non-Hispanic	209	82.3	113	41.9	176	81.5	119	59.5	302	77.4	211	59.3
	Unknown	28	11.0	N/A	N/A	N/A	N/A	64	32.0	6	1.5	13	3.7
	Missing	1	0.4	1	0.4	N/A	N/A	N/A	N/A	2	0.5	22	6.2

*All percentages are rounded to one decimal place; therefore, total may not add to 100%

Appendix H

Summary of Oklahoma dental assessment results, compared to past Healthy People objectives





Dental Health Service
Oklahoma State Department of Health
123 Robert S. Kerr Avenue, Suite 1702
Oklahoma City, OK 73102-6406
405.426.8460
https://oklahoma.gov/health/services/children-family-health/dental-health-service.html

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