# **Nebraska** State Oral Health Surveillance System Report, 2011-2020



DEPT. OF HEALTH AND HUMAN SERVICES

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#### **List of Abbreviations:**

ASTDD Association of State and Territorial Dental Directors

BSS Basic Screening Survey

BRFSS Behavioral Risk Factor Surveillance System
CDC Centers for Disease Control and Prevention

CHIP Children's Health Insurance Program

CMS-416 Centers for Medicare and Medicaid Services Annual Report

CSTE Council of State and Territorial Epidemiologists

FQHC Federally Qualified Health Center

HCAN Health Center Association of Nebraska

HDD Hospital Discharge Data HP 2020 Healthy People 2020

HRSA Health Resources and Services Administration

ICD International Statistical Classification of Diseases (ICD – 9, ICD – 10 codes).

LHD Local Health Department

MCAH Maternal Child Adolescent Health
NBDR Nebraska Birth Defects Registry

NCR Nebraska Cancer Registry

NDE Nebraska Department of Education

NE CCCP Nebraska Comprehensive Cancer Control Program

NE-OHS Nebraska Oral Health Surveillance System

NHANES National Health and Nutrition Examination Survey

NE MLTC Nebraska Medicaid and Long Term Care
NOHSS National Oral Health Surveillance System
NOHWS Nebraska Oral Health Workforce Surveys
NSCH National Survey of Children's Health
OMB Office of Management and Budget

OOHD Office of Management and Budget
OOHD Office of Oral Health and Dentistry

PRAMS Pregnancy Risk Assessment Monitoring System

TFN Tobacco Free Nebraska
UDS Uniform Data System

WFRS Water Fluoridation Reporting System
YRBSS Youth Risk Behavioral Surveillance Survey

YTS Youth Tobacco Survey

## About the Nebraska Oral Health Surveillance System (NE-OHSS) Indicators

The Nebraska Office of Oral Health and Dentistry has outlined the framework needed to monitor dental disease in the 2018 Nebraska State Oral Health Surveillance Plan. A total of 53 NE-OHSS indicators have been identified which are prioritized into Tier 1, Tier 2, or Tier 3 categories and arranged by indicator group and the criteria below. The indicator language follows the guidelines of the State - Based Oral Health Surveillance Systems Conceptual Framework set by CSTE and ASTDD. Tier 1 indicators will be prioritized first for data collection and analyses. Tier 2 and Tier 3 indicators will be collected as time and resources allow. Tier 1 (in red) has 9 indicators which are selected based on the Nebraska Healthy People 2020 objectives, National Oral Health Surveillance System (NOHSS) indicators and indicators related to Office of Oral Health and Dentistry's priorities and the State Health Improvement Plan (SHIP). Tier 2 (in blue) has a total of 27 indicators based on U.S. Healthy People 2020 objectives and NOHSS indicators recommended by ASTDD and CSTE that do not fit into Tier 1. Lastly, Tier 3 (in green) has 17 remaining indicators that were identified as being important for surveillance but do not fit into the list of Tier 1 or 2. Nebraska counties identified as Urban (metro areas) are selected using OMB designations: Cass, Dakota, Dixon, Douglas, Lancaster, Sarpy, Saunders, Seward and Washington. This dental surveillance report contains no identifiable personal or individual site-location information.

Table 1: Tier 1 (Priority) Nebraska Oral Health Indicators by Data Source Monitored by NE-OHSS

NE Objective	US HP2020 Objective	Indicator Group	Indicator Topic	Indicator Measure	Data Source
OH-1	OH-7	Access to Care	Dental Visit	Percentage of adults aged 18 and over who visited a dentist or dental clinic for any reason in past year	BRFSS
OH-4	OH-8		Preventive Services	Percentage of low-income children and youth under age 18 who received any preventive dental service during the past year through the Medicaid EPSDT benefit	CMS-416
OH-9	OH-11		Receipt of oral health services at health centers	Percentage of total patients who receive oral health services at Federally Qualified Health Centers each year	UDS/ HCAN
OH-2	OH-4.1	Oral Health Outcomes	Tooth Loss	Percentage of adults aged 45-64 years who have ever had a permanent tooth extracted due to tooth decay or gum disease	BRFSS
OH-3	OH-4.2		Tooth Loss	Percentage of adults aged 65-74 years who have had all permanent teeth extracted due to tooth decay or gum disease	BRFSS

OH-5	OH-1.2		Dental Caries Experience	Percentage of 3 <sup>rd</sup> grade students with dental caries experience (treated or untreated)	BSS
OH-6	OH-2.2		Untreated Dental Decay	Percentage of 3 <sup>rd</sup> grade students with untreated tooth decay	BSS
OH-7	OH-12.2		Dental Sealants	Percentage of 3 <sup>rd</sup> grade students with dental sealants on at least one permanent tooth	BSS
OH-8	OH-13	Community Intervention	Fluoridation Status	Percentage of population served by community water systems with optimally fluoridated water	WFRS

Table 2: Tier 2 (Recommended) Oral Health Indicators by Data Sources Monitored by NE-OHSS

US HP2020	Indicator group	Indicator topic	Indicator measure	Data Source
OH-7	Access to Care	Preventive Services	Percentage of preventive dental visit among children aged 1-17 years	NSCH
OH-7		Preventive Services	Percentage of dental visit among children aged 1-17 Years	NSCH
OH-7		Dental Visit	Percentage of adolescents in grades 9-13 making dental visits	YRBSS
OH-8		Preventive Services	Percentage of children aged 1-20 years enrolled in Medicaid or CHIP Medicaid Expansion with any dental service	CMS- 416
D-8		Dental Visit	Percentage of adults aged ≥18 years with diabetes making dental visit(s)	BRFSS
OH-1.1	Oral Health Outcomes	Dental Caries Experience	Percentage of children aged 3-5 years attending Head Start with dental caries experience	BSS
OH-1.1; OH-1.2		Dental Caries Experience	Percentage of children attending Kindergarten with dental caries experience	BSS
OH-2.1		Untreated Dental Decay	Percentage of children aged 3-5 years attending Head Start with untreated dental caries	BSS
OH-2.1; OH-2.2		Untreated Dental Decay	Percentage of children attending Kindergarten with untreated dental caries	BSS

OH-3.2,		Untreated Dental	Percentage of adults aged ≥65 years residing	BSS
OH-3.3		Decay	in long-term care or skilled nursing facilities with untreated dental caries	
OH-3.2, OH-3.3		Dental Caries Experience	Percentage of adults aged ≥65 years attending congregate meal sites with untreated dental caries	BSS
OH-4		Tooth Loss	Percentage of adults aged ≥65 years with six or more teeth lost	BRFSS
OH-8		Dental Visit	Percentage of 3 <sup>rd</sup> grade children with urgent dental treatment need	BSS
N/A*		Dental Visit	Percentage of children aged 3-5 years attending Head Start with urgent dental treatment need	BSS
N/A*		Dental Visit	Percentage of children attending Kindergarten with urgent dental treatment need	BSS
N/A*		Dental Visit	Percentage of adults aged ≥65 years residing in long-term care or skilled nursing facilities with urgent dental treatment need	BSS
N/A*		Dental Visit	Percentage of adults aged ≥65 Years attending congregate meal sites with urgent dental treatment need	BSS
OH-12.2		Dental Sealants	Percentage of 3 <sup>rd</sup> grade children who have received dental sealants on one or more of their permanent first molar teeth	BSS
OH-12.2		Dental Sealants	Percentage of children aged 6-9 years enrolled in Medicaid or CHIP Medicaid Expansion using dental sealants	CMS- 416
OH-12.3		Dental Sealants	Percentage of children aged 10-14 years enrolled in Medicaid or CHIP Medicaid expansion using dental sealant(s)	CMS- 416
C-6		Oral and Pharyngeal Cancers	Mortality from invasive cancer of the oral cavity or pharynx	NCR
C-6		Oral and Pharyngeal Cancers	Incidence of invasive cancer of the oral cavity or pharynx	NCR
OH-9.1	Community Intervention	School-based centers with oral health component	Percentage of school-based health centers that provide dental sealants	OOHD

OH-9.2		School-based centers with oral health component	Percentage of school-based health centers that provide dental care	OOHD
OH-9.3		School-based centers with oral health component	Percentage of school-based health centers that provide topical fluoride	OOHD
OH-10	Infrastructure	Oral Health Programs	Percentage of local health departments and Federally Qualified Health Centers that have an oral health program	HCAN and OOHD
OH-17		Oral Health Programs	Percentage of health agencies that have a dental public health program directed by a dental professional with public health training	OOHD; ASTDD Annual Synopsis

<sup>\*</sup>Some NOHSS indicators do not have a corresponding US HP 2020 Objective.

Table 3: Tier 3 (Optional) Oral Health Indicators Monitored by Additional Data Sources

Indicator group	Indicator topic	Indicator measure	Data Source
	Teeth cleaning	Percentage of women who had their teeth cleaned before most recent pregnancy	PRAMS
Access to care	Teeth cleaning	Percentage of women who had their teeth cleaned during most recent pregnancy	PRAMS
	Teeth cleaning	Percentage of adults residents who had their teeth cleaned in the past year by a dentist/dental hygienist	BRFSS (State Added)
	Dental Visit	Percentage of adults aged ≥65 years with urgent dental treatment need	BSS
	Dental Visit	Number of patients and visits to hospital-based emergency departments for dental conditions	HDD/BRFSS (State Added)
Oral Health Outcome	Craniofacial Services	Number of infants born with cleft lip/cleft palate	NBDR
	Tobacco use	Percentage of youth have ever used chewing tobacco, snuff or dip	YTS
	Tobacco use	Percentage of youth have ever used chewing tobacco, snuff or dip in the past 30 days	YTS

	Tobacco use	Percentage of youth who have ever smoked cigarettes	YTS & YBRSS
	Tobacco use	Percentage of youth who have ever smoked cigarettes in the past 30 days	YTS
	Dental Workforce	Percentage of practicing dentists who work part-time	NOHWS/HPTS
	Dental Workforce	Percentage of practicing dentists who plan to retire in one to five years	NOHWS/HPTS
	Dental Workforce	Percentage of practicing dentists who accept any and all Medicaid patients	NOHWS/HPTS/ NE MLTC
Infrastructure	Dental Workforce	Number of full-time equivalent (FTE) licensed practicing dentists	NOHWS/DHHS Licensure
	Dental Workforce	Number of full-time equivalent (FTE) licensed practicing dental hygienists	NOHWS/DHHS Licensure
	Dental Workforce	Number of licensed practicing dental hygienists with Public Health Authorization	NOHWS/HPTS
	Dental Workforce	Number of full-time equivalent (FTE) certified dental assistants	NOHWS/DHHS Licensure

Data from 43 of the 53 oral health indictors have been recorded in this surveillance report and can be studied for trend analysis. For ease of interpretation, the following indicator data tables have been further broken down into the following categories: Pregnant Women, Infants, School Children, Children & Adolescents, Adults, Cancer Patients, Medicaid, Workforce, Community Water Fluoridation, Infrastructure and Access.

Description of Indicator	Source (Frequency of Data Availability)	Tier	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Pregnant women												
Teeth Cleaning Among Women Before Pregnancy	PRAMS	3		54.8%	55.5%	56.7%	54.4%	45.7%	44.1%	44.3%	49.1%	
Teeth Cleaning Among Women During Pregnancy	(Annual)	3	52.0%	62.2%	60.6%	62.0%	56.9%	51.9%	52.6%	48.1%	55.3%	
Infants												
Infants born with cleft lip alone	Birth Defects	3	9	13	10	12	13	15	16	25	21	
Infants born with cleft palate alone	Registry*	3	8	14	13	14	15	22	14	26	27	
Infants born with Cleft lip and cleft palate	(Annual)	3	16	17	17	18	10	19	18	28	26	
School Children												
Dental Caries Experience Among 3rd Grade Children		1					63.9%					
Dental Caries Experience Among 3rd Grade Rural Children							81.4%					
Dental Caries Experience Among 3rd Grade Urban Children							54.6%					
Untreated Dental Caries Among 3rd Grade Children	Basic	1					32.0%					
Untreated Dental Caries Among 3rd Grade Rural Children	Screening Survey						53.5%					
Untreated Dental Caries Among 3rd Grade Urban Children	(every 5 years)						20.7%					
Dental Sealant Among Children 3rd Grade Children	, .	1					56.2%					
Dental Sealant Among Children 3rd Grade Rural Children							48.6%					
Dental Sealant Among Children 3rd Grade Urban Children							60.3%					

<sup>\*</sup>Please Note: the birth defects program switched from ICD 9 to ICD 10 in 2016, and no comparison can be made with the current data for cleft lip, cleft palate and both cleft lip and palate before 2016. Also, prior to 2016, if a cleft lip was associated with a syndrome (such as Downs) it was excluded.

No survey conducted this year		Questio	n was not	asked		[	Dat	a not yet a	available			
Description of Indicator	Source (Frequency of Data Availability)	Tier	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
School Children (continued)												
Dental Caries Experience Among Children Aged 3-5 Years in Head Start		2					46.2%					
Untreated dental caries among Children Aged 3-5 Years in Head Start	Basic	2					29.5%					
Children Aged 3-5 Years in Head Start with urgent dental needs	Screening Survey	2					2.8%					
Dental Caries Experience Among Children Attending Kindergarten	(every 5 years)	2										
Untreated Dental Caries Among Children Attending Kindergarten		2										

3.2%

2

3<sup>rd</sup> grade Children with urgent dental needs

Description of Indicator	Source (Frequency of Data Availability)	Tier	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Children and Adolescents												
Preventive Dental Visit Among Children Aged 1-17 Years	NSCH (every year	2	77.2%					78.7%	83.2%	74.0%	80.1%	
Dental Visit Among Children Aged 1-17 Years	starting 2016)	2	77.5%					81.2%	85.4%	76.4%	80.6%	
Adolescents												
Youth have ever used chewing tobacco, snuff or dip		3			15.0%		13.0%		12.0%		7.3%	
Youth have ever used chewing tobacco, snuff or dip in the past 30 days	Youth Tobacco	3			7.0%		6.0%		5.0%		3.3%	
Youth who have ever smoked cigarettes	Survey* (2-3 years)	3			35.0%		29.0%		24.0%		17.2%	
Youth who have ever smoked cigarettes in the past 30 days	(2 3 years)	3			12.0%		9.0%		7.0%		6.1%	
Dental Visit Among Adolescents in Grades 9-12	YRBSS (Odd years)	2	75.1%		74.8%		75.2%		79.2%		77.4%	
Adults												
Dental Visit Among Adults Aged ≥18 Years		1		67.6%		66.4%		68.7%		67.7%		
Tooth Loss Among Adults Aged 45-64 Years		1		47.7%		45.9%		45.1%		44.8%		
All Teeth Lost Among Adults Aged 65-74 Years		1		11.3%		10.9%		10.4%		9.3%		
Dental Visit Among Adults Aged ≥18 Years with Diabetes	BRFSS (Even years)	2		67.6%		62.6%		65.0%		64.1%		
Six or More Teeth Lost Among Adults Aged ≥65 Years		2		47.2%		47.5%		45.3%		44.3%		
Teeth Cleaning Among Adults in the past year by dentist/dental hygienist		3						67.4%		65.8%		

<sup>\*</sup>Please Note: the YTS data included in this current report now aligns with the data released from the Tobacco Free Nebraska Program.

Description of Indicator	Source (Frequency of Data Availability)	Tier	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cancer												
Incidence of Invasive Cancer of the Oral Cavity or Pharynx	Nebraska Cancer	2	250	208	251	254	270	280	309	301	Don	ding
Mortality from Invasive Cancer of the Oral Cavity or Pharynx	Registry (Annual)	2	61	47	29	50	59	55	57	66	Pen	ding
Medicaid												
Preventive Dental Service for Children Aged 1-18 Years Enrolled in Medicaid or CHIP Medicaid Expansion		1	45.3%	46.5%	49.6%	51.9%	51.2%	51.9%	51.9%	51.3%	48.5%	40.9%
Any Dental Service for Children Aged 1-20 Years Enrolled in Medicaid or CHIP Medicaid Expansion	CMS-416	2	47.8%	48.7%	52.5%	54.1%	53.3%	53.9%	54.1%	53.2%	50.7%	42.5%
Dental Sealant Use Among Children Aged 6-9 Years Enrolled in Medicaid or CHIP Medicaid Expansion	(Annual)	2	20.5%	20.7%	22.1%	23.8%	22.6%	23.8%	23.8%	22.1%	22.5%	15.3%
Dental Sealant Use Among Children Aged 10-14 Years Enrolled in Medicaid or CHIP Medicaid Expansion		2	17.9%	17.9%	19.3%	22.0%	21.4%	22.0%	22.0%	18.0%	17.7%	12.3%

Description of Indicator	Source (Frequency of Data Availability)	Tier	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Workforce												
Practicing dentists who work part-time in NE as primary practice location (<40 hours)		3	532	545	560	553	540	551	555	544	516	504
Practicing dentists who plan to retire in one to five years		3							11.8%			
Practicing dentists who accept any and all Medicaid patients *		3		1542	1478	1283	1190	1166	1042	806	785	653
Full-time equivalent (FTE) licensed practicing dentists	HPTS, OOHD  NE MLTC  (Annual)	3	498	489	490	509	521	530	515	565	553	550
Full-time equivalent (FTE) licensed practicing dental hygienists	(Aimuai)	3	1186	1263	1271	1359	1355	1448	1423	1509	1492	1567
Practicing Dental Hygienists with Public Health Authorization		3	60	72	77	86	108	134	117	110	123	128

<sup>\*</sup>Please Note: the Medicaid dentist counts in this report have now been updated to align with NE MLTC logic reporting.

No survey conducted this year	Question was not asked		Data not yet available
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Description of Indicator	Source (Frequency of Data Availability)	Tier	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Community Water Fluoridation												
Population Served by Community Water Fluoridation	NE WFRS	1	71.8%	71.6%	71.5%	71.5%	71.5%	72.8%	73.4%	73.3%	72.6%	73.0%
Infrastructure and Access												
Population Receiving Oral Health Services at Federally Qualified Health Centers	HCAN	1	30.3%	32.1%	28.7%	27.8%	27.2%	28.3%	28.9%	28.7%	25.6%	20.3%
Local health departments that have an oral health program		2		52.8%			36.8%	36.8%	63.2%	63.2%	73.7%	68.4%
Federally Qualified Health Centers that have an oral health program		2	85.7%	85.7%	85.7%	85.7%	100%	100%	100%	100%	100%	100%
Health agencies that have a dental public health program directed by a dental professional with public health training	OOHD, ASTDD Annual Synopsis	2	2	1	1	1	0	1	2	2	2	2
Number of Nebraskans visiting the hospital-based emergency departments for non-traumatic dental conditions	HDD* (includes ICD -10 codes)	3	4,747	5,055	5,263	4,983	4,275	4,198	4550	4511	4197	
Number of visits to the hospital-based emergency departments for non-traumatic dental conditions	HDD* (includes ICD -10 codes)	3	8,420	8,205	8,687	8,751	8,213	7,290	7934	7671	7152	

<sup>\*</sup>Please Note: for HDD, prior to 2016, ICD 9 codes were used and post 2016, ICD 10 codes were used. SAS codes were also modified based on the ICD codes to capture all the records of emergency department visits with non-traumatic dental conditions.

#### Nebraska Oral Health Surveillance Findings: (Follows NE OH Objective List)

#### Results of Nebraska Oral Health Objectives (Tier 1) Compared To National Estimates:

- **OH-1**: In 2018, 67.7% of Nebraskans aged 18 years or older made an annual dental visit. This is close to the 2018 national average of 68.7%. Data source: CDC-BRFSS.
- **OH-4**: In 2019, 48.5% of Nebraska low-income children aged 1-18 received a preventive dental service through the Medicaid or CHIP Expansion program. This is slightly below the 2019 national average of 49.1% for children aged 1-20. Data source: Medicaid.Gov. In 2020, the Nebraska rate dropped to 40.9%...possibly due to COVID effects.
- **OH-9**: In 2019, 25.6% of Nebraska patients received oral health services at FQHCs. This rate was higher than the 2015 national average of 21.4%. Data source: UDS. In 2020, the NE rate dropped to 20.3%...possibly due to COVID restriction of access effects.
- **OH-2**: In 2018, 44.8% of Nebraska Adults age 45-64 years had any permanent teeth extracted due to tooth decay or gum disease. This is lower than the 2013-2016 national average of 71.7%. Data source: NHANES.
- **OH-3**: In 2018, 9.3% of Nebraska Adults age 65-74 had lost all-natural teeth due to tooth decay or gum disease. This is lower than the 2013-2016 national rate of 12.5%. Data source: NHANES
- **OH- 5**: In 2015-2016, 63.9% of Nebraska 3<sup>rd</sup> grade children had dental caries experience, as determined by the Basic Screening Survey of Young Children, (age 6-9). This is higher than the 2011-2016 national rate of 59.5%. Data source: NHANES. Significantly, NE rural children had higher rates than urban children (81.4% compared to 54.6%). The next NE Oral Health Survey of young children will be scheduled for 2021-2022.
- **OH- 6**: In 2015-2016, 32.0% of Nebraska 3<sup>rd</sup> grade children had untreated dental caries, as determined by the Basic Screening Survey of Young Children, (age 6-9). This is higher than the 2011-2016 national rate of 19.9%. Data source: NHANES. NE rural children had higher rates than urban children (53.3% to 20.7%).
- **OH-7**: In 2015-2016, 56.2% of Nebraska 3<sup>rd</sup> grade children had dental sealants as determined by the Basic Screening Survey of Young Children, (age 6-9). This is higher than the 2011-2016 national average of 41.5%. Data source: NHANES. NE rural children have lower rates than urban children (48.6% to 60.3%).
- **OH-8:** In 2020, 73.0% of NE population was served by community water systems with optimally fluoridated drinking water. This is the same as the 2018 national average of 73.0%. Data source: WFRS.

#### Significant Trends of Other NE-OHSS Indicators:

- The percent of youth, who have used chewing tobacco, snuff or dip has decreased form 15% in 2013 to 7.3% in 2019. This reduction may be partially explained by a recent increase in the use of electronic cigarettes and vaping.
- Reported oral cancer is rising, possibly due to an increased older adult pop'l and more cancer screenings by dentists.
- Dental Sealant use among Medicaid/CHIP children age 6-9 dropped from 22.5% in 2019 to 15.3% in 2020. It also dropped in children age 10-14 from 17.7% in 2019 to 12.3% in 2020...possibly due to COVID dental access effects.
- The number of dentists who accept Medicaid patients has dropped 42.3% from #1542 in 2012 to #653 in 2020. This number needs to increase if Nebraska hopes to improve access to care for underserved populations
- The number of FTE licensed NE dentists has increased from #498 in 2011 to #550 in 2020. The number of FTE NE dental hygienists has increased from #1186 in 2011 to #1567 in 2020.
- The number of Dental Hygienists with a Public Health Authorization has increased from #60 in 2011 to #128 in 2020.
- Percent of NE LHDs with oral health programs increased from 52.8% in 2012 to 73.7% in 2019.
- Number of dental patients/visits to Hospital Emergency Rooms remained consistent from 2015 to 2020.

### Recommendations for Nebraska Oral Health Improvement: Dr. Charles F. Craft State Dental Health Director

This report re-enforces the need to increase NE dental disease education/prevention services across the lifespan and throughout the state to reduce decay rates and the disparity between urban and rural residents. Recently, COVID-19 limited access to these critical preventive services. The negative effects began to show up in 2020 data and may become even more pronounced in 2021. This could have long-term consequences in terms of increased dental disease, higher treatment needs/costs and poorer overall oral health outcomes. To help the state align with future HP 2030 national objectives, Nebraska should increase the number of Medicaid providers, expand the utilization of Public Health Hygienists and support more community dental disease prevention programs can that reach underserved populations.