Oral Health Surveillance Plan 2011 – 2020
Revision #2: 2022-2030
March 8, 2021

Indian Health Service Division of Oral Health

Timothy L. Ricks, DMD, MPH, IHS Oral Health Surveillance Coordinator

Internal Reviewers:
Timothy L. Lozon, DDS, Director, IHS Division of Oral Health
Nathan Mork, DDS, MPH, Surveillance Co-Consultant, IHS Division of Oral Health

Internal Reviewers:
Kathy Phipps, DrPH, Epidemiologist, Association of State & Territorial Dental Directors
Gina O. Thornton-Evans, DDS, MPH, Dental Officer, CDC Division of Oral Health
Timothy J. Iafolla, CMC, MPH, Chief, Program Analysis and Reports Branch, NIDCR

Summary of 2010-2021 Surveillance Activities

The IHS Division of Oral Health has conducted eight surveys since the inception of this oral health surveillance plan in 2010. Each survey used the Basic Screening Survey (BSS) instrument (https://www.astdd.org/basic-screening-survey-tool/) as the tool to conduct community-based, clinic-based, and school-based surveys. The original time frames and methodologies had to be changed as each survey was being planned to meet the needs of the Agency (see tables 2-4, pages 5-7 of the original plan). All of the IHS surveillance reports are public facing on the IHS Dental Portal at www.ihs.gov/doh.

In 2010, the first national oral health survey since the 1998-1999 IHS Oral Health Status Survey was completed. This survey of 8,461 American Indian/Alaska Native (AI/AN) children ages 1 to 5 years was the largest sample size ever for this age group, four times the size of the 1999 survey. This survey highlighted the continued significance of early childhood caries in AI/AN children, noting that about 54% of AI/AN children 1 to 5 years of age had suffered from dental caries. The original intention of this survey was to serve as a baseline for the IHS Early Childhood Caries (ECC) Collaborative, a seven-year initiative that ran from 2010 to 2017 involving multiple dental and non-dental collaborations aimed at reducing ECC. Because of the data arising from this baseline report – particularly the fact that by age 2, 44% of AI/AN children already had caries experience, and that as many as 44% of AI/AN children under 6 years of age needed early or urgent dental care – the IHS was able to modify the ECC Collaborative to put increase emphasis on access to preventive dental services before the age of 2 (and later adopting a "first tooth, first exam" motto) and promoting the use of interim therapeutic restorations to reduce the need for more invasive restorative care.

The second round of national oral health surveys conducted in the 2011-2012 school year, targeted 6-9 year-old AI/AN children, a key group surveyed in 1999 and an age group included in the Healthy People 2020 oral health objectives. This survey showed that 83% of AI/AN children 6-9 years of age had caries experience, almost double (45%) that of the general U.S. population. In addition, 47% had untreated decay, but on the positive side, 42% had at least one dental sealant on a permanent molar, higher than the 32% national average. In 2013, a third national survey was conducted, this time on 13-15 year-old AI/AN youth. Unlike the first two surveys, both of which were entirely community-based, this survey used two methodologies, with 2,033 youth surveyed in IHS and tribal dental clinics and another 1,897 surveyed in schools. Like the 6-9 year-old survey, this age range was chosen because it matched a Healthy People 2020 age group (OH 1.3 and 2.3). This survey, too, showed the huge disparities in dental disease between AI/ANs and the general population, with AI/AN youth having three to five times the untreated decay rate as the general U.S. population (38% of students and 53% of dental clinic patients vs. 11% of 13-15 year-olds in the general U.S. population).

In 2014, the fourth national survey was conducted, this time as a mid-ECC Collaborative progress report for 1-5 year-old children. Screening even more than the initial 2010 survey with 11,873 screened, this survey continued to show the significant disparities of dental caries in AI/AN children compared to the rest of the U.S. But more importantly, when comparing programs that participated in both the 2010 and 2014 surveys, the 2014 survey showed a reduction in caries prevalence across all age groups compared to the 2010 survey, including a 7% drop in caries experience in 1 and 2 year-olds. Although, these differences were not statistically significant on a national scale the 2014 survey results marked the first time in the history of the IHS that there was demonstrated reductions in ECC.

In 2015, departing from the community-based methodology altogether, the IHS surveyed AI/AN adult dental patients treated in IHS and tribal programs. This survey of 11,462 adults 35 years of age and over was more than double the sample size of the 1999 oral health status survey. Like previous surveys, this survey demonstrated huge disparities in the AI/AN population including AI/AN adults having more than twice the untreated decay rate as the general U.S. population and nearly twice the rate of severe periodontal disease. This survey also asked patients to assess their own oral health and compared that to data from the National Health and Nutrition Examination Survey, showing that more than twice as many AI/AN adults reported toothaches and food avoidance due to dental pain as the general U.S. population. Finally, this survey looked at the proportion of adults with a functional dentition, comparing results to the 1999 and the previous IHS oral health status survey in 1984; the proportion of older AI/AN adults (over 55 years of age) maintaining a functional dentition (20+ teeth) increased from 28% in 1984 to 61% in 2015, significantly reducing the gap between AI/AN adults and the general U.S. population where the national data from the National Health and Nutrition Examination Survey (NHANES) showed that in the report period of 2009 through 2014, 67% of older adults maintained a functional dentition (J Am Dent Assoc. 2019 Jan;150(1):9-23.e3. Epub 2018 Nov 29**).**

In 2016, the IHS embarked on a sixth national survey, focusing on the 6-9 year-old age group again. The reasons for re-surveying this group included both keeping up with the oral health status of this age group every five years (the previous survey of this age group was 2011-12) and in assessing changes due to efforts of the IHS Division of Oral Health over the years in providing seed funding as part of the Oral Health Promotion/Disease Prevention Funding Initiative, a program that funds 5-10 IHS and tribal programs annually and which usually targets school-age children. While this survey of 4,833 6-9 year-old AI/AN children continued to highlight disparities in disease compared to the general U.S. population, it also demonstrated the first reported decrease (statistically significant) in both caries experience and untreated dental caries: compared to the 1999 IHS survey, there was a 5% drop in dental caries experience and a 26% drop in untreated dental caries.

The seventh IHS oral health survey was conducted in 2018 and 2019 on 1-5 year-old children, a final report of the IHC ECC Collaborative which officially ended in 2017, and a follow-up to the

2010 and 2014 oral health surveys. With 9,275 children surveyed, and comparing just the 53 service units that participated in the 2010, 2014 and the 2018-19 surveys, this survey showed a 5% reduction (from 54.7% to 52.0%) in caries experience and a 14% reduction (from 39.1% to 33.7%) in untreated decay from 2010 to 2018-19, the latter marking the first statistically significant reduction ever reported for this age group and re-confirming the 2014 oral health survey results. In addition, three of the most populous IHS regions or "Areas," – Navajo (four states in the Four Corners area), Oklahoma City (Oklahoma, Texas, and Kansas), and Phoenix (Utah, Nevada, and Arizona) – all showed significant reductions in ECC prevalence of 24% (Navajo), 45% (Oklahoma City), and 25% (Phoenix). The national drops in ECC were attributed to the concentrated efforts of the ECC Collaborative that resulted – from 2010 to 2017 – in a 22.4% increase in access to dental care for 1-5 year-old AI/AN children, a 115.0% increase in fluoride varnish applications (including a 335.4% increase in applications by non-dental providers), a 64.7% increase in dental sealants, and a 232.4% increase in the number of glass ionomer interim therapeutic restorations.

The eighth and last oral health survey was conduct in 2019 on 5,223 13-15 year-old AI/AN youth, the largest-ever sample size of this age group. Following the trends of the 2016-17 and the 2018 oral health surveys, this survey not only continued to highlight the oral health disparities between AI/ANs but also compared disease rates to previous surveys of this age group. Subsequently, the survey showed a 10% reduction in caries experience from 1999 to 2019 (83.6% to 75.4%) and a 30% reduction in untreated decay from 1999 to 2019 (64.0% to 45.0%), and the IHS has attributed these successes also to improved prevention services in school-aged children as overall access to dental care across the IHS system hasn't changed significantly in over two decades.

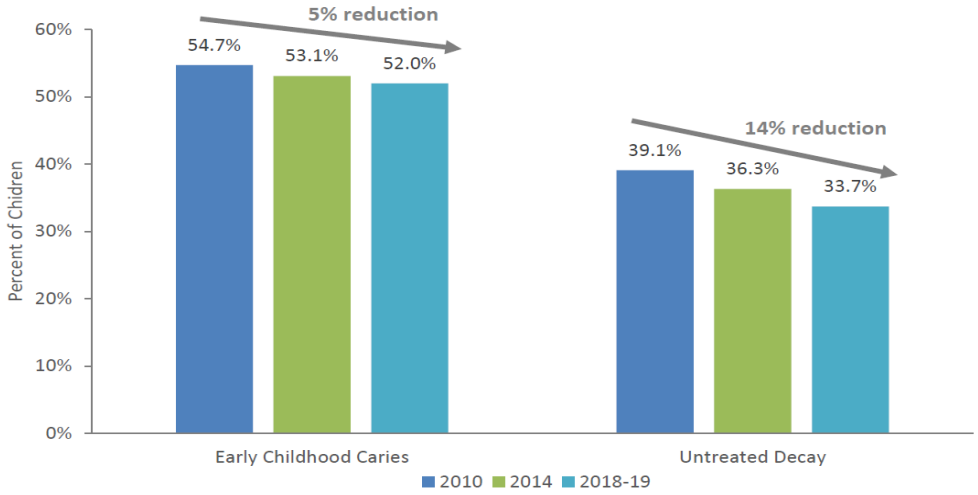
In 2020 a follow-up survey on the 2015 adult oral health survey was scheduled, focusing specifically on older AI/AN adults over the age of 55 years. However, due to COVID-19 and the resulting discontinuation of all but emergency dental care in many IHS and tribal clinics, this survey was cancelled.

Key Findings: Surveillance Graphs across AI/AN Age Groups

Preschool children 1-5 years of age:

Phipps KR, Ricks TL, Mork NP, and Lozon TL. The oral health of American Indian and Alaska Native children aged 1-5 years: results of the 2018-19 IHS oral health survey. Indian Health Service data brief. Rockville, MD: Indian Health Service. 2019. Available at: https://www.ihs.gov/doh/documents/surveillance/2018-19%20Data%20Brief%20of%201-5%20Year-Old%20AI-AN%20Preschool%20Children.pdf

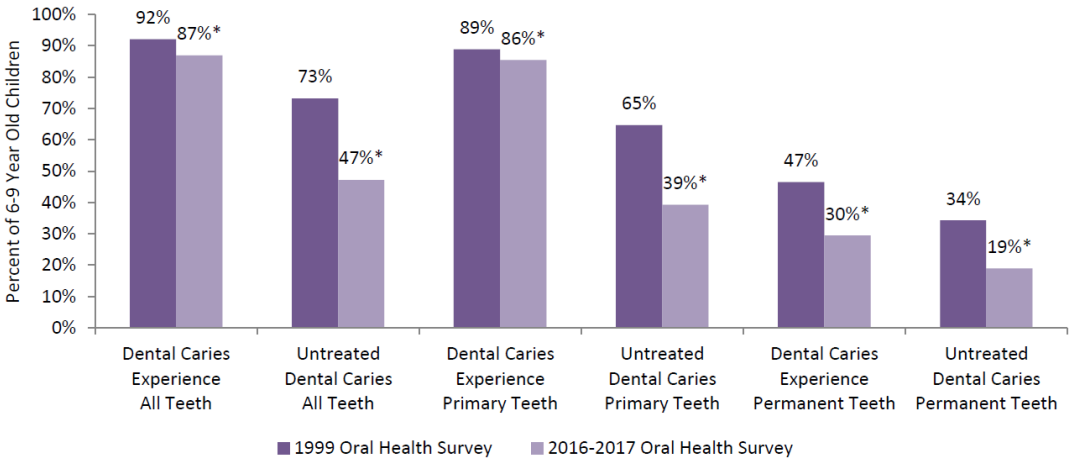
Figure 1. Prevalence of early childhood caries and untreated decay in AI/AN children 1-5 years of age at the 53 service units that participated in the 2010, 2014 and 2018-19 IHS oral health surveys



Schoolchildren 6 to 9 years of age:

Phipps KR and Ricks TL. The oral health of American Indian and Alaska Native children aged 6-9 years: results of the 2016-2017 IHS oral health survey. Indian Health Service data brief. Rockville, MD: Indian Health Service. 2017. Available at: https://www.ihs.gov/doh/documents/Data%20Brief%20IHS%206-9%20Year%20Olds%2003-30-2017.pdf

Figure 5: Percent of AI/AN dental clinic patients aged 6-9 years with dental caries experience and untreated dental caries, 1999 vs. 2016-2017

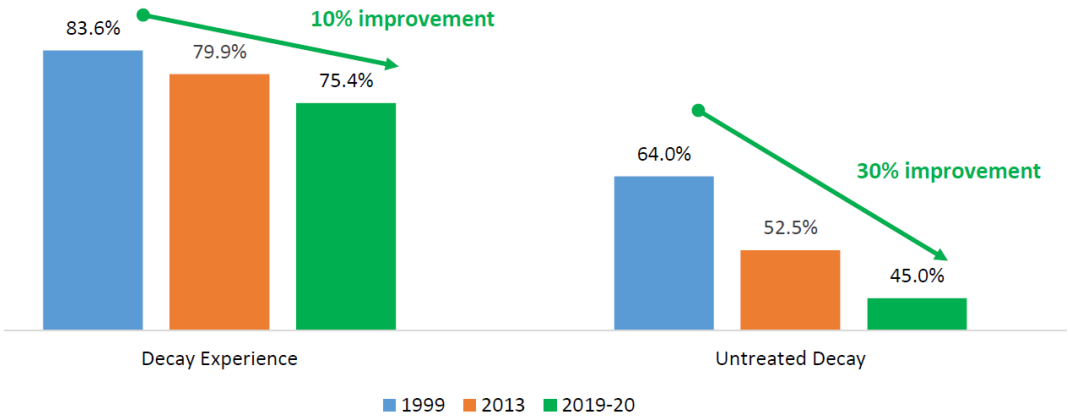


Data Sources: 1999 (secondary analysis) and 2016-2017 IHS oral health surveys of AI/AN dental clinic patients
**Significantly different than 1999, p<0.05*

Youth 13-15 years of age:

Phipps KR, Ricks TL, Mork NP, and Lozon TL. The oral health of 13-15 year old American Indian and Alaska Native dental clinic patients – a follow-up report to the 2013 survey. Indian Health Service data brief. Rockville, MD: Indian Health Service. 2020. Available at: https://www.ihs.gov/doh/documents/surveillance/IHS_Data_Brief_Oral_Health_13-15_Year_Old_Follow-Up_to_2013_Survey.pdf

Figure 1: Percentage of AI/AN Adolescent Dental Clinic Patients with Decay Experience & Untreated Dental Decay by Survey Year, 1999, 2013, and 2019-2020



Adults 35 years of age and older:

Phipps KR and Ricks TL. The oral health of American Indian and Alaska Native adult dental patients: results of the 2015 IHS oral health survey. Indian Health Service data brief. Rockville, MD: Indian Health Service. 2016. Available at: https://www.ihs.gov/doh/documents/IHS_Data_Brief_March_2016_Oral_Health%20Survey_35_plus.pdf

Figure 6: Percent of AI/AN Dental Patients with Untreated Decay by Age Group and Survey Year, 1999 and 2015

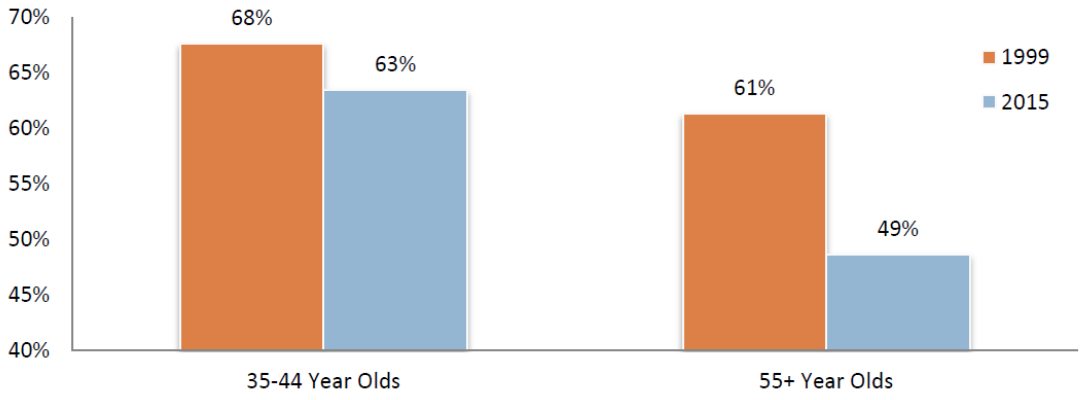


Figure 7: Percent of AI/AN Dental Patients with Deep Periodontal Pockets (CPI=4) by Age Group and Survey Year, 1999 vs. 2015

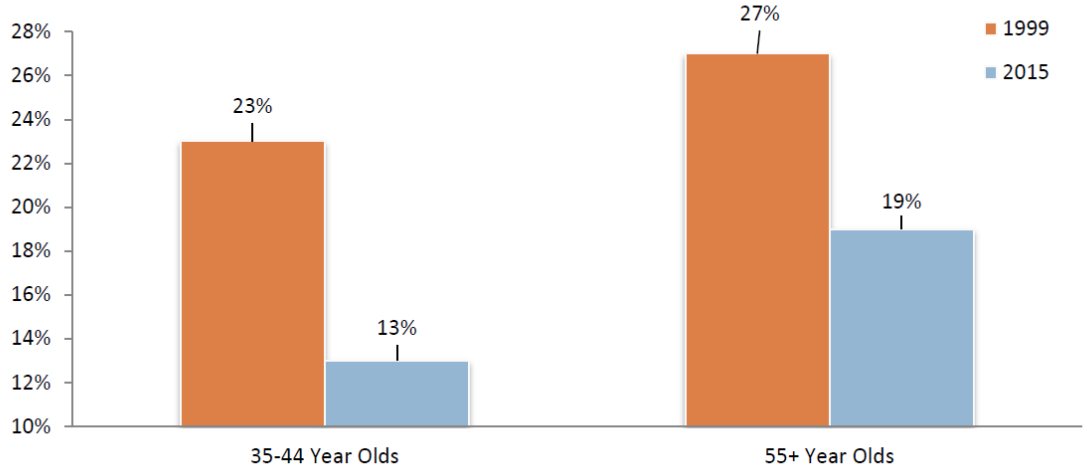
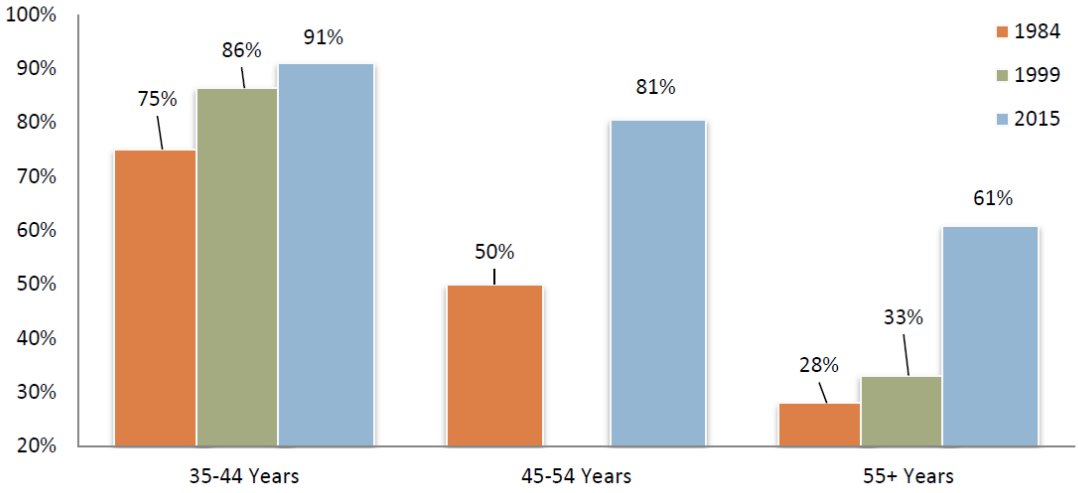


Figure 8: Percent of AI/AN Dental Patients with 20+ Teeth by Age and Survey Year



Revised Timeline & Methodology

Based on revised Healthy People oral health objectives (www.healthypeople.gov), and the continuing need to be able to compare to previous surveys, the revised survey timeline for eight years is as follows:

a. Fall 2021 – Spring 2022: Oral Health Survey of AI/AN Adults 35 Years and Over
   i. *Time period since last survey of this age group*: 7 years (2015)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 3,000 – 5,000
   iv. *Survey Setting*: Clinic only
   v. *Survey Tool*: IHS Electronic Dental Record or paper form
   vi. *Area-Specific Information Available*: No

b. Fall 2022: Oral Health Survey of 1-5 year-old AI/AN Preschool Children
   i. *Time period since last survey of this age group*: 5 years (2018)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 7,500 – 10,000
   iv. *Survey Setting*: Community (Head Start, Daycare)
   v. *Survey Tool*: Basic Screening Survey paper form
   vi. *Area-Specific Information Available*: No

c. Fall 2023 – Spring 2024: Oral Health Survey of 6-9 year-old AI/AN Children
   i. *Time period since last survey of this age group*: 7 years (2016-17)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 5,000 – 7,500
   iv. *Survey Setting*: Clinic and Community (Schools)
   v. *Survey Tool*: Basic Screening Survey paper form
   vi. *Area-Specific Information Available*: No

d. Fall 2024 – Spring 2025: Oral Health Survey of 13-15 year-old AI/AN Youth
   i. *Time period since last survey of this age group*: 6 years (2019)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 1,200 – 1,500
   iv. *Survey Setting*: Clinic and Community (Schools)
   v. *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
   vi. *Area-Specific Information Available*: No

e. Fall 2026 – Spring 2027: Oral Health Survey of AI/AN Adults 35 Years and Over
   i. *Time period since last survey of this age group*: 5 years (2022)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 3,000 – 5,000
   iv. *Survey Setting*: Clinic only
   v. *Survey Tool*: IHS Electronic Dental Record or paper form

vi. *Area-Specific Information Available*: No

f. Fall 2027: Oral Health Survey of 1-5 year-old AI/AN Preschool Children
   i. *Time period since last survey of this age group*: 5 years (2022)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 7,500 – 10,000
   iv. *Survey Setting*: Community (Head Start, Daycare)
   v. *Survey Tool*: Basic Screening Survey paper form
   vi. *Area-Specific Information Available*: No

g. Fall 2028 – Spring 2029: Oral Health Survey of 6-9 year-old AI/AN Children
   i. *Time period since last survey of this age group*: 5 years (2024)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 5,000 – 7,500
   iv. *Survey Setting*: Clinic and Community (Schools)
   v. *Survey Tool*: Basic Screening Survey paper form
   vi. *Area-Specific Information Available*: No

h. Fall 2029 – Spring 2030: Oral Health Survey of 13-15 year-old AI/AN Youth
   i. *Time period since last survey of this age group*: 5 years (2025)
   ii. *Methodology*: random sample of patients, IHS aggregate information only
   iii. *Estimated Sample Size*: 1,200 – 1,500
   iv. *Survey Setting*: Clinic and Community (Schools)
   v. *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
   vi. *Area-Specific Information Available*: No

This plan will be reviewed annually and is subject to change based on the priorities of the IHS Division of Oral Health.