

The Oral Health of 6-9 Year Old American Indian and Alaska Native Children in the Portland Area Compared to IHS Overall, the General U.S. Population and Healthy People 2020 Targets

Data from the IHS Oral Health Survey of AI/AN Elementary School Children, 2011-2012

In the Portland Area:

- Almost 9 out of 10 (87%) AI/AN children between 6-9 years of age in the Portland Area had a history of decay in their primary or permanent teeth, compared to 83% of all children screened by IHS and 45% of children in the general U.S. population. The Healthy People (HP) 2020 target is 49%.
- Almost half of 6-9 year-old AI/AN children (47%) in the Portland Area had untreated decay. This compares to 47% of all children screened by IHS, 17% of 6-9 year-old children in the general U.S. population and a HP 2020 target of 26%.
- Almost 4 out of 10 AI/AN children (36%) in the Portland Area had at least one dental sealant on a permanent tooth compared to 49% of all children screened by IHS, 32% of the general U.S. population and a HP 2020 target of 28%.

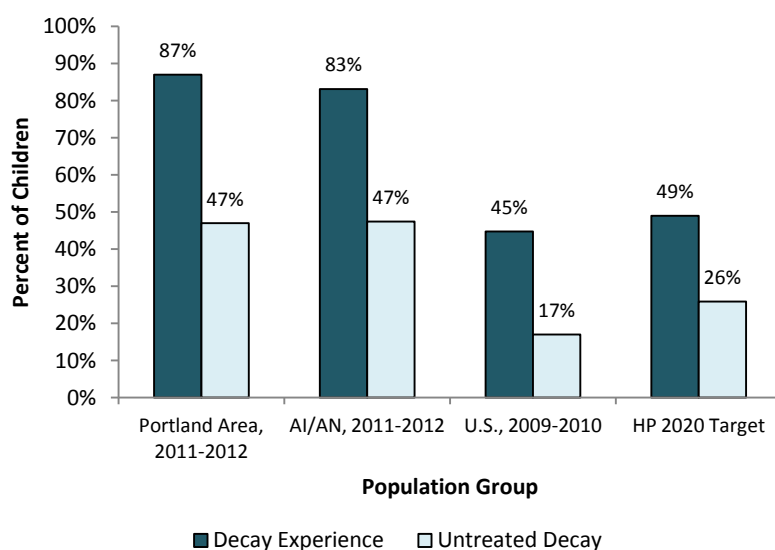
Data Sources:

1. The IHS 2011-2012 Oral Health Survey of AI/AN Elementary School Children
2. National Health and Nutrition Examination Survey (NHANES), 2009-2010

Good oral health is important to a child's social, physical and mental development. Even though tooth decay can be prevented, most American Indian and Alaska Native (AI/AN) children still get cavities. To assess the current oral health status of AI/AN elementary school children, the Indian Health Service (IHS) coordinated a nationwide oral health survey of AI/AN children in kindergarten, first, second and third grade. A total of 15,611 AI/AN children were screened at 186 schools in 19 states during the 2011-2012 school year, of which 12,511 were 6-9 years of age. In the Portland Area 792 children 6-9 years of age were screened. This is the largest number of 6-9 year olds ever screened by IHS and Tribal programs. The sampling frame for the survey consisted of all schools with Bureau of Indian Education (BIE) oversight as well as public and private schools where a large portion of the students are AI/AN. This data brief presents information on the prevalence of tooth decay in the primary and permanent teeth of AI/AN children 6-9 years of age compared to the general U.S. population and the targets for Healthy People 2020. It also describes the prevalence of dental sealants, a plastic-like coating applied to the chewing surfaces of children's teeth to prevent tooth decay.

Prevalence of decay experience and untreated decay.

Figure 1. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth of AI/AN children in the Portland Area compared to IHS overall, the general U.S. population and the Healthy People 2020 target, 6-9 year olds



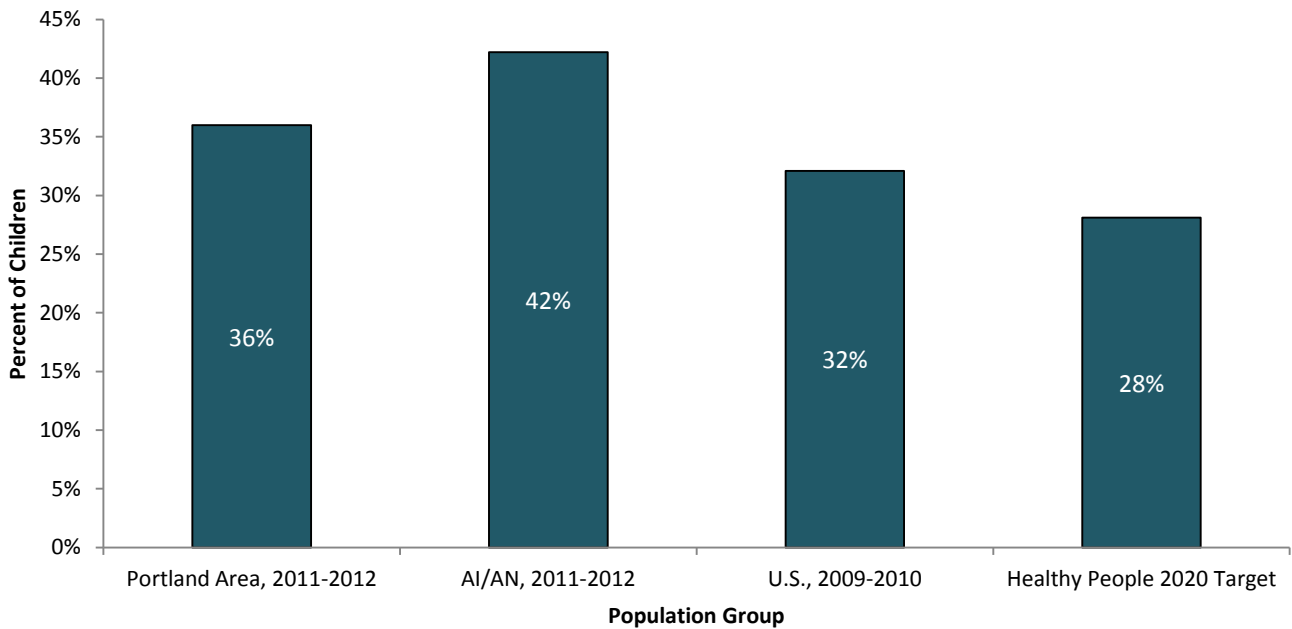
Decay experience means that a child has had tooth decay in the primary (baby) and/or permanent (adult) teeth in his or her lifetime. Decay experience can be past (fillings, crowns, or teeth that have been extracted because of decay) or present (untreated tooth decay or cavities). In 2011-2012, almost all (87%) of the AI/AN children 6-9 years of age in the Portland Area attending BIE or public and private schools where a large portion of the students are AI/AN had decay experience; compared to 83% for all AI/AN children screened by IHS and 45% of the general U.S. population of the same age (NHANES, 2009-2010). The Healthy People 2020 target for decay experience in 6-9 year olds is 49%.

Left untreated, tooth decay can have serious consequences, including needless pain and suffering, difficulty chewing (which compromises children’s nutrition and can slow their development), difficulty speaking and lost days in school. Almost half of 6-9 year-old AI/AN children in the Portland Area (47%) had untreated decay. This compares to 47% for all children screened by IHS and 17% of 6-9 year-old children in the general U.S. population of the same age (NHANES, 2009-2010) and a Healthy People 2020 target of 26%.

Prevalence of dental sealants.

Dental sealants are thin plastic coatings that are applied to the grooves on the chewing surfaces of the back teeth to protect them from tooth decay. Most tooth decay in children occurs on these surfaces. Sealants protect the chewing surfaces from tooth decay by keeping germs and food particles out of these grooves. About 36% of AI/AN children 6-9 years of age in the Portland Area had at least one dental sealant; compared to 42% of all children screened by IHS and 32% of the general U.S. population of the same age (NHANES, 2009-2010). The Healthy People 2020 target for dental sealants in 6-9 year olds is 28%.

Figure 2. Prevalence of dental sealants in the permanent teeth of AI/AN children in the Portland Area compared to IHS overall, the general U.S. population and the Healthy People 2020 target, 6-9 years of age



Data source and methods.

In 2010, the IHS implemented an oral health surveillance system that to date has collected oral health status data for preschool and elementary school children. This data brief is based on data from the 2011-2012 IHS oral health surveillance survey of AI/AN children in kindergarten, first, second and third grade (K-3rd). Data from the National Center for Education Statistics (www.nces.ed.gov) were used to develop the sampling frame for the survey. All schools overseen by the Bureau of Indian Education (BIE) plus public and private schools where at least 50% of the enrolled children were AI/AN ($\geq 40\%$ for schools in the California and Oklahoma City Areas) were included in the sampling frame; representing approximately 34% of all AI/AN children in BIE, public and private schools. The sampling frame was stratified by IHS Area and schools were sorted within each Area based on type (BIE, public, private) and/or state. A total of 241 schools in 21 states were selected of which 186 in 19 states participated (school participation rate=76%, school and child participation rate=54%).

The following information was collected for each child: grade, age, sex, tooth specific caries and sealant status plus treatment urgency. We used the *Basic Screening Survey* clinical indicator definitions and data collection protocols.¹ Race was recorded as AI/AN or other. Only children classified as AI/AN were included in the analyses.

Examiners included dentists, dental hygienists and dental therapists employed by IHS or tribal programs. Examiners were required to view an examiner training webinar; no formal calibration was undertaken and examiner reliability was not assessed. Screenings were completed in schools using dental mirrors and an external light source. Examiners collected data using paper forms which were mailed to a central location. All statistical analyses were performed with SAS software (Version 9.3; SAS Institute Inc., Cary, NC). Sample weights were used to produce population estimates based on selection probabilities. It should be noted that the survey design was based on grade rather than age, therefore, children between 6-9 years of age in the participating schools were not screened if they were in grades other than K-3rd. Because 9 year olds may be in 4th grade, the survey underrepresented 9 year old children.

Definitions.

Untreated decay: Describes dental cavities or tooth decay that have not received appropriate treatment.

Decay experience: Refers to having untreated decay or a dental filling, crown, or other type of restorative dental material. Also includes teeth that were extracted because of tooth decay.

Dental sealants: Describes plastic-like coatings applied to the chewing surfaces of back teeth. The applied sealant resin bonds into the grooves of teeth to form a protective physical barrier.

¹ Association of State and Territorial Dental Directors. Basic screening surveys: an approach to monitoring community oral health. (WWW document). URL: <http://www.astdd.org/basic-screening-survey-tool/> (accessed on August 1, 2011).

Data tables.

Table 1. Number and percent of 6-9 year old AI/AN children screened by selected characteristics, 2011-2012

	IHS Overall		Portland Area	
	Number	Percent	Number	Percent
Age				
6 years	3,586	28.7	246	31.1
7 years	3,703	29.6	227	28.7
8 years	3,562	28.5	238	30.17
9 years	1,660	13.3	81	10.2
Sex				
Female	6,175	49.4	390	49.2
Male	6,200	49.6	390	49.2
Unknown	136	1.1	12	1.5

Table 2. Prevalence of decay experience and untreated tooth decay in the primary and permanent teeth and prevalence of dental sealants on permanent teeth among AI/AN children aged 6-9 years by IHS Area, 2011-2012

IHS Area	Number Screened	Decay Experience			Untreated Decay			Dental Sealants		
		Percent	95% CI		Percent	95% CI		Percent	95% CI	
Aberdeen	1,944	86.4	82.9	90.0	58.1	52.7	63.5	41.2	34.0	48.4
Alaska	966	93.8	90.3	97.3	59.2	51.6	66.9	41.9	31.2	52.7
Albuquerque	1,278	90.0	87.1	92.9	44.2	38.3	50.1	49.4	41.4	57.3
Bemidji	1,604	82.4	75.6	89.1	53.6	45.0	62.2	36.1	28.1	44.1
Billings	2,209	86.3	82.7	90.0	48.3	40.8	55.8	36.1	28.8	43.5
California	324	82.5	73.9	91.1	56.9	46.8	66.9	33.2	14.3	52.0
Nashville	1,032	80.8	76.8	84.7	46.5	38.2	54.7	45.6	39.7	51.6
Navajo	667	91.6	88.5	94.7	55.5	42.6	68.4	54.8	38.1	71.6
Oklahoma City	1,159	61.1	54.1	68.1	24.2	17.0	31.4	24.9	14.0	35.8
Phoenix	338	95.6	91.8	99.4	51.3	40.3	62.3	58.4	32.2	84.5
Portland	792	86.7	81.6	91.8	46.7	38.4	55.0	35.7	25.6	45.8
Tucson	198	82.0	78.2	85.8	61.6	52.0	71.2	59.4	31.7	87.1
IHS Total	12,511	83.1	81.0	85.1	47.4	43.4	51.4	42.1	36.7	47.5

Table 3. Percent of children screened with decay experience, untreated tooth decay in the primary and permanent teeth and percent with dental sealants on permanent teeth among AI/AN children aged 6-9 years by site, 2011-2012

Tribe, Service Unit or Clinic	Number Screened	Decay Experience	Untreated Decay	Dental Sealants
Colville Service Unit	84	79.8%	38.1%	17.9%
LaPush Dental Clinic	25	96.0%	56.0%	36.0%
Lummi Dental	62	93.5%	53.2%	27.4%
Quinault/Taholah	41	97.6%	70.7%	24.4%
Sophie Trettevik	76	86.8%	48.7%	55.3%
Takopid Health Center	227	81.5%	36.1%	41.9%
Warm Springs	218	87.6%	45.4%	42.2%
Yakama	59	76.3%	30.5%	57.6%

Table 4. Percent of children screened with decay experience, untreated tooth decay in the primary and permanent teeth and percent with dental sealants on permanent teeth among AI/AN children aged 6-9 years by school, 2011-2012

School	City	State	Number Screened	Decay Experience	Untreated Decay	Dental Sealants
Warm Springs Elementary	Warm Springs	OR	218	87.6%	45.4%	42.2%
Lummi Nation Elementary	Bellingham	WA	62	93.5%	53.2%	27.4%
Harrah Elementary	Harrah	WA	59	76.3%	30.5%	57.6%
Quileute Tribal School	LaPush	WA	25	96.0%	56.0%	36.0%
Neah Bay Elementary	Neah Bay	WA	76	86.8%	48.7%	55.3%
Nespelem Elementary	Nespelem	WA	38	78.9%	39.5%	13.2%
Pascal Sherman Indian	Omak	WA	46	80.4%	37.0%	21.7%
Chief Leschi Elementary	Puyallup	WA	227	81.5%	36.1%	41.9%
Taholah Elementary	Taholah	WA	41	97.6%	70.7%	24.4%