SMILE SURVEY 2005

THE ORAL HEALTH OF WASHINGTON'S CHILDREN

MARCH 2006

- PUBLIC HEALTH -

ALWAYS WORKING FOR A SAFER AND HEALTHIER WASHINGTON

Smile Survey 2005 Report

March 2006

Division of Community and Family Health
Office of Maternal and Child Health
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SUMMARY

During the 2004-2005 school year, the Washington State Department of Health MCH Oral Health Program conducted a statewide oral health survey of two different groups: 2nd and 3rd grade children enrolled in Washington's public elementary schools, and low-income preschool children enrolled in Head Start and ECEAP. In addition, the Indian Health Service collected information on Native American children living in or near tribal communities.

Dentists and dental hygienists, who attended a one day training session, screened the children using gloves, a disposable dental mirror and penlight. Screenings were completed at 66 randomly selected elementary schools and 39 randomly selected Head Start/ECEAP sites. For the elementary school survey, 79 percent of all enrolled 2nd and 3rd grade students were screened while 83 percent of the children enrolled at the selected preschool sites were screened. A total of 8,925 children were screened.

Key Findings

- Dental decay continues to be a significant public health problem for Washington's children.
  - 45 percent of low-income preschool children and 59 percent of elementary school children have decay experience (cavities and/or fillings)
- During the last decade, the prevalence of dental decay in the permanent teeth along with the prevalence of rampant decay (more than 7 decays) has continued to increase among elementary school children.
- Washington has met the Healthy People 2010 objective for reducing the prevalence of untreated tooth decay among elementary school children, except for minority kids. Compared to other states, Washington has a lower prevalence of untreated decay among both elementary school and Head Start children. However, many children in Washington still do not get the dental care they need.
  - 1 out of 4 low-income preschool children and 1 out of 5 elementary school children have untreated tooth decay.
  - Among elementary school children whose parents do not speak English, almost 1 out of 3 have untreated tooth decay
  - Almost 5 percent of low-income preschool children and 3 percent of elementary school children need urgent dental care because of pain or infection
- There are significant oral health disparities in Washington with minority, low-income, and non-English speaking children having the highest levels of dental decay, rampant decay, untreated decay, and urgent need for dental care and the lowest level of dental sealants. Only white non-Hispanic children had a significant decrease in need for dental care.
- More than half of the children in Washington do not have dental sealants, a well accepted clinical intervention to prevent tooth decay on molar teeth. Access to preventive dental sealants had increased substantially from 1994 to 2000, but the prevalence of sealants did not remain stable during the last 5 years.

Implications for Oral Health Programs in Washington State

The results from the Smile Survey show that in 2005 Washington State is doing better at treating dental disease but not at preventing it when compared to 5 years ago. At the same time, oral health disparities still persist in our state, which defies the Healthy People 2010 national health objectives that aim to eliminate health disparities among the different segments of the population.

The observed decrease in untreated disease in our state represents a step towards the right direction in terms of improved access to dental care, but it is also important to notice that this improvement in access refers mostly to White Non-Hispanic children. Therefore, it is important that oral health programs take this information into consideration and make an effort to reach more minority children. Partnerships among programs would allow for the opportunity to share and learn from others' experiences and build a forefront to address and solve this service gap.

The increase in dental decay indicates that more needs to be done in terms of preventive measures for tooth decay. This increase in disease could be a consequence of many factors, such as higher consumption of sugar, lack of awareness about how to promote and maintain personal oral health, lack of access to effective public health preventive measures (sealants, water fluoridation, etc.), and lack of dental insurance. Work on these areas requires attention from existing oral health programs and would also benefit from mutual partnerships.

Given that tooth decay is a completely preventable disease, it is important that sincere efforts be combined in order to decrease, or even eliminate, tooth decay in our State. Our children deserve to live healthy and happy lives without the unnecessary pain and discomfort caused by dental disease.

Introduction

This document presents the results of *Smile Survey 2005* – an oral health survey of Washington's preschool and elementary school children. The data are presented for two general population groups; (1) second and third grade children in Washington's public elementary schools and (2) low-income preschool children enrolled in Head Start and ECEAP programs. In addition, the Indian Health Service collaborated with the Department of Health to simultaneously collect information on a third population group – Native American children in Head Start, 2nd grade and 3rd grade living in or near tribal communities.

The Importance of Oral Health

Tooth decay is the single most common chronic disease of childhood, five times more common than asthma.[1] It is probably the most widespread disease known to man. Tooth decay is an infectious disease process caused by oral bacteria affecting both children and adults. Tooth decay is also a chronic disease because it is affected by the interaction of genetic, environmental, and lifestyle factors. [2]

Tooth decay affects more than half of all children by the third grade; by the time children finish high school, almost 80% have decay.[3] In 1996, children between 5 to 17 years of age missed 1,611,000 school days due to acute dental problems – an average of 3.1 days per 100 students.[4] Many do not consider tooth decay to be a serious problem, yet if left untreated, tooth decay can lead to difficulty in speaking, chewing, and swallowing, increased cost of care, loss of self-esteem, needless pain, difficulties in learning at school, and lost work and school days.

While the prevalence and severity of tooth decay has declined among U.S. school-aged children, it remains a significant problem – particularly for certain racial and ethnic groups and low-income children.[5] By recognizing and understanding the oral health needs of Washington's children, policies can be initiated and advanced to ensure that all of our children receive the oral health care they need.

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1 Edelstein B, Douglass C. Dispelling the cavity free myth. Public Health Reports 1995, 110:522-30.

2 Fejerskov, O. Changing paradigms in concepts on dental caries: consequences for oral health care. Caries Res 2004, 38(3):182-191.

3 National Center for Health Statistics. National Health and Nutrition Examination Survey III, 1988-94. Hyattsville, MD: Centers for Disease Control and Prevention, unpublished data.

4 National Center for Health Statistics. Current estimates from the National Health Interview Survey, 1996 (Vital and Health Statistics; Series 10, Data from the National Health Survey; no. 200). Hyattsville, MD, 1996.

5 Vargas CM, Crall JJ, Schneider DA. Sociodemographic distribution of pediatric dental caries, NHANES III, 1988-1994. J Am Dent Assoc 1998,129:1229-38.

The Oral Health of Elementary School Children

Methods

Sampling: An electronic data file of all elementary schools in Washington was obtained from the Office of Superintendent of Public Instruction (OSPI). The data file, which was for the 2003-2004 school year, contained the following information for each school – district, county, total enrollment, 2nd and 3rd grade enrollment, and percent of children participating in the free or reduced price lunch program. All schools with at least 25 children in second and/or third grade were included in the sampling frame (1,059 schools and 142,504 students). Implicit stratification by percent of children eligible for the free or reduced price lunch (FRL) program was used to select a probability sample of 67 schools. Selecting a sample using implicit stratification assures that the sample is representative of the state's schools in terms of free/reduced lunch participation. If a school refused to participate, a replacement school within the same sampling strata was randomly selected. If the sample school plus two replacement schools refused to participate, no data were collected in that sampling stratum. Of the 67 stratums, data is available for 66.

Data Management and Analysis: Data entry and analysis was completed using Epi Info Version 3.2.2. Epi Info is a public access software program developed and supported by the Centers for Disease Control and Prevention. The data were adjusted for non-response within each school. For the non-response sampling weight, the number of children enrolled in each school was divided by the number of children screened. Unless otherwise noted, all of the data presented in this report have been adjusted for non-response (Epi Info Complex Sampling, weight variable = weight, primary sampling unit = school name).

Screening Methods: Each school was allowed to determine the type of parental consent to be used – positive or passive. If passive consent was used, all children in second and third grade were screened; unless they returned a consent form specifically requesting that they not take part in the survey. If positive consent was used, only those children that returned a positive consent form were screened. Of the 66 participating schools, 59 used passive and 7 used positive consent. Dentists and dental hygienists completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Director's publication *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* were used. The screeners attended a full-day training session which included a didactic review of the diagnostic criteria along with a hands-on calibration session.

Information on age and language spoken at home was obtained from the child while gender and race were determined by the screener. Schools were asked to provide information on each child's eligibility for the free or reduced price meal program (FRL). Some schools, however, opted not to provide this information. In 10 schools, the school provided a list of students eligible for the FRL program and the screener coded these students as eligible for FRL and all other children as unknown FRL status. The dataset was recoded with "unknown" changed to "not eligible" in these 10 schools.

Results

Of the 67 selected schools, 66 agreed to participate in the oral health survey. There were 9,209 children enrolled in the participating schools with 7,291 children screened; a 79 percent response rate. In terms of eligibility for the free and/or reduced price meal program, the participating schools did not differ substantially from either the 67 schools in the original sample or the 1,059 schools in the sampling frame. In addition, the racial/ethnic distribution of children participating in *Smile Survey 2005* is similar to the distribution among all 2nd and 3rd grade children in Washington. Refer to Tables 1.1 and 1.2.

The children screened ranged in age from 6-11 years with the majority (98.3%) being 7-9 years of age. Half of the children were male, 71 percent were white non-Hispanic, 6 percent were African-American, 14 percent were Hispanic, and 86 percent were from English speaking families. Refer to Table 1.3.

Fifty-nine percent of the children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth and 20 percent had untreated decay at the time of the screening.[6] Eighteen percent of the children needed dental treatment including 3 percent in need of urgent dental care because of pain or infection. Children with a history of decay on seven or more teeth are considered to have rampant decay. About 21 percent of the 2nd and 3rd grade children in Washington had rampant decay. Refer to Table 1.4.

Forty-five percent of the children screened had a dental sealant on at least one permanent molar. Dental sealants provide an effective way to prevent decay on the chewing surfaces of molars (back teeth), which are most vulnerable to decay. A clear resin is used to cover the "pits and fissures" on the top of the teeth so that cavity-causing bacteria cannot reach areas that are difficult to clean and for fluoride to penetrate. Refer to Table 1.4.

There was no difference between 2nd and 3rd grade children in terms of decay experience, untreated decay, or rampant decay. Third grade children did, however, have a significantly higher prevalence of dental sealants (50% vs. 39%). Refer to Table 1.5.

In Washington's 2nd and 3rd grade children, decay is largely limited to the primary teeth. Forty-one percent of the children screened had no decay experience, 37 percent had decay experience in their primary teeth only, while 22 percent had decay experience in their permanent teeth.? Refer to Table 1.6.

Impact of Race and Ethnicity

Table 1.7 compares the oral health of white non-Hispanic children with African American, Hispanic, Asian and Native American children. Compared to white and African American children, Hispanic, Asian and Native American children have a significantly higher prevalence of decay experience plus a significantly higher prevalence of dental treatment

[6] The percent of children with untreated decay is assumed to be an under estimation because radiographs (x-rays) were not taken.

needs. African American, Hispanic and Asian children tended to have a lower prevalence of dental sealants, but the difference was not statistically different.

In Table 1.8, African American, Hispanic, Asian and Native American children were combined into one category (minority). Compared to white non-Hispanic children, minority children have a higher prevalence of decay experience, untreated decay, rampant caries, and dental treatment needs but a lower prevalence of dental sealants.

Impact of Language Spoken at Home

At the time of the screening, each child was asked what language their family usually speaks at home with the responses categorized as English, Spanish or other language. Compared to children from English speaking families, children from non-English speaking families had a significantly higher prevalence of decay experience, untreated decay, rampant decay and dental treatment needs but a lower prevalence of dental sealants. Refer to Table 1.9.

Impact of Socioeconomic Status

Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2004-2005 school year, annual family income for a family of four could not exceed $34,873.[7] Information on a child's participation in the FRL program was obtained from the school; however, some schools opted not to provide this information. Since individual level FRL participation is missing for 8 percent of the children, this following information should be viewed with caution.

Compared to children not eligible for the FRL program, children eligible for the FRL program had a significantly higher prevalence of untreated decay, rampant decay and dental treatment needs. Refer to Table 1.10.

Combined Impact of Race/Ethnicity, Language, and Socioeconomic Status

In the children screened, race/ethnicity, language and socioeconomic status are highly correlated. For example, 99 percent of the white non-Hispanic children are from English speaking families while only 56 percent of the minority children speak English at home. Of the low-income children who are eligible for the FRL program, 54 percent are white non-Hispanic compared to 83 percent of the children not eligible for the FRL program.

Tables 1.11-1.16 present univariate and multivariate logistic regression models for history of dental decay, untreated dental decay and dental sealants controlling for race/ethnicity, language spoken at home, and eligibility for the FRL program. Adding socioeconomic status to the model reduces the impact of race/ethnicity on oral health status, although it remains a significant factor.

[7] U.S. Department of Agriculture, Child Nutrition Programs, School Lunch Program, Income Eligibility Guidelines SY 2004-2005, http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs04-05.pdf.

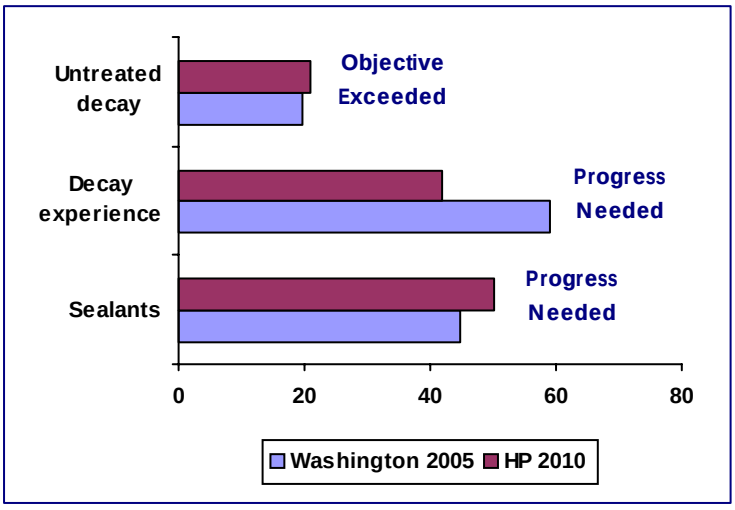
Comparison to Healthy People 2010 Objectives

The National Oral Health Objectives for the Year 2010 (Healthy People 2010) outline several oral health status objectives for young children. For six- to eight-year-old children there are three primary oral health status objectives:

- To decrease the proportion of children who have experienced dental caries in permanent or primary teeth to 42 percent.
- To decrease the proportion of children with untreated dental caries in permanent or primary teeth to 21 percent.
- To increase the proportion of eight-year-olds receiving protective sealing of the occlusal surfaces of permanent molar teeth to 50 percent.

It should be noted that the *Smile Survey 2005* was not designed to be representative of 6-8 year old children; with the majority of children screened being 7-9 years of age.

- Fifty-nine percent of the Washington's children had experienced dental decay, which is substantially higher than the HP2010 objective of 42 percent.
- Twenty percent of Washington's children had untreated caries compared to the HP2010 objective of 21 percent.
- And 45 percent of Washington's eight-year-olds had dental sealants compared to the HP2010 objective of 50 percent.



Oral Health Trends Over Time

Smile Survey 2005 is the third look at the oral health of elementary school children in Washington State; with previous surveys in 1994 and 2000. While the same diagnostic criteria were used in each of the three surveys, sampling methods and type of consent varied. *Smile Survey 1994* was based on a random sample of schools in targeted high-risk counties while *Smile Surveys 2000 and 2005* were based on a random sample of schools from the entire state. *Smile Survey 1994* screened only second grade children while *Smile Surveys 2000 and 2005* screened both second and third grade children. Passive consent was the predominate consent used in 1994 and 2005 while positive consent was used in 2000.

As the demographics of Washington State have changed, so have the demographics of the children screened during the Smile Surveys. Each year, the proportion of minority children screened has increased. Because of the different sampling strategies, type of

consent and the different ethnic makeup, comparisons between the three surveys should be viewed with caution. In 1994 and 2000, the data were not adjusted for non-response. For this reason, the 2005 data used in this comparison is also not adjusted for non-response; making the confidence intervals smaller.

Between 1994 and 2000 there was a significant increase in the prevalence of decay experience, rampant decay, untreated decay and dental sealants. This trend continued into 2005 for both decay experience in the permanent dentition and the prevalence of rampant decay. The good news is that the prevalence of untreated decay declined slightly between 2000 and 2005. Unfortunately, the trend in increasing sealant prevalence noted between 1994 and 2000 did not continue into 2005. Refer to Table 1.17.

To help control for the racial and ethnic differences between the three samples, the data were stratified by race and ethnicity (Table 1.18). Between 2000 and 2005 both white non-Hispanic and minority children had a significant increase in the prevalence of decay experience in their permanent dentition and both groups had an increase in the prevalence of rampant decay. Only white non-Hispanic children, however, had a significant decrease in the proportion needing dental care.

Table 1.19 compares the oral health of both 2nd and 3rd grade children in 2000 and 2005. During this 5-year period the prevalence of decay experience in the permanent dentition and the prevalence of rampant decay (or a history of) have both increased while the proportion of children needing care has decreased. Although not statistically significant, the prevalence of dental sealants has declined. Washington State is the first state where this declining trend has been observed.

Comparison to Other States

Figures 1-3 compare the oral health of Washington's third grade children with the oral health of children from several other states. Each of the states represented in the figures gathered oral health status information using the same protocols as Washington. While the prevalence of caries experience in Washington is similar to other states, the prevalence of untreated decay is substantially lower in Washington – with only Nebraska and Vermont having a lower prevalence. The prevalence of dental sealants is higher in Washington than many other states.

The Oral Health of Low-Income Preschool Children

Methods

Sampling: An electronic data file of all Head Start and ECEAP programs in Washington was developed by the Washington State Department of Health. The data file, which was for the 2003-2004 school year, contained the following information for each program – site name, program type (ECEAP, Head Start, and Early Head Start), contact information, and funded enrollment. A random sample of 39 Head Start/ECEAP sites was selected from the 494 sites in Washington.

Data Management and Analysis: Data entry and analysis was completed using Epi Info Version 3.2.2. Epi Info is a public access software program developed and supported by the Centers for Disease Control and Prevention. Because the response rates were consistently high across all of the preschool sites, the data were not adjusted for non-response.

Screening Methods: All children enrolled and present on the day of the screening were examined unless a parent/guardian returned a consent form specifically requesting that the child not take part in the survey. Dentists and dental hygienists completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Director's publication *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* were used. The screeners attended a full-day training session which included a didactic review of the diagnostic criteria along with a hands-on calibration session.

Information on age and language spoken at home was obtained from the child and/or teacher while gender and race were determined by the screener.

Results

The 39 preschool sites had a total enrollment of 1,433 children of which 1,182 children were screened; an 83 percent response rate. Refer to Table 2.1.

The children screened ranged in age from 1-6 years with the majority being 3-5 years of age. Half of the children (50%) were male, 66 percent spoke English at home and 27 percent spoke Spanish at home. Forty-three percent were white non-Hispanic while 31% were Hispanic. Refer to Table 2.2.

The following results are restricted to the 1,173 children between 3-5 years of age. Forty-five percent of the children screened had decay experience (untreated decay or fillings) and 25 percent had untreated decay at the time of the screening.[8] About 22 percent of the children needed dental treatment including 5 percent in need of urgent dental care because of pain or infection. Children with a history of decay on seven or more teeth are considered to have rampant decay. About 15 percent of the Head Start/ECEAP children in Washington had rampant decay, 18 percent had early childhood caries and 23 percent had incipient dental decay (white spot lesions). Refer to Table 2.3.

[8] The percent of children with untreated decay is assumed to be an under estimation because radiographs (x-rays) were not taken.

Impact of Race and Ethnicity

Table 2.5 compares the oral health of white non-Hispanic children with African American, Hispanic, Asian and Native American children. Compared to white children, Hispanic and Native American children have a significantly higher prevalence of decay experience. The prevalence of untreated decay, rampant decay, and early childhood caries is higher among Native American children compared to their white counterparts.

In Table 2.6, African American, Hispanic, Asian and Native American children were combined into one category (minority). Compared to white non-Hispanic children, minority children have a higher prevalence of decay experience, untreated decay, early childhood caries, and incipient dental decay.

Impact of Language Spoken at Home

At the time of the screening, the child's teacher was asked what language the child's family usually speaks at home with the responses categorized as English, Spanish or other language. For low-income children enrolled in Head Start and ECEAP, language spoken at home was not significantly associated with oral health status. Refer to Table 2.7.

Comparison to Healthy People 2010 Objectives

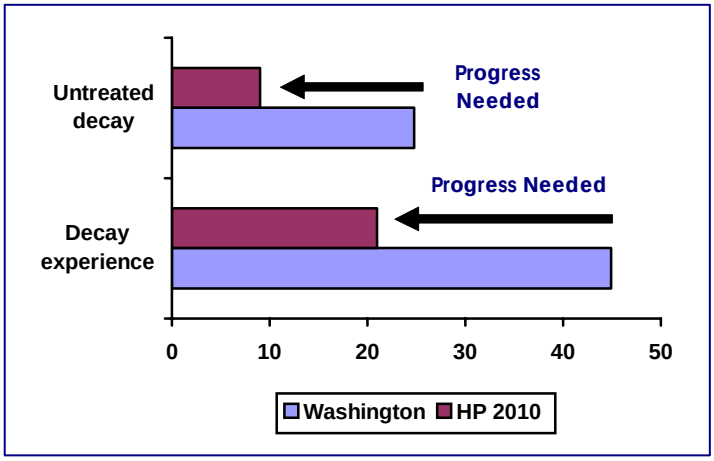
The National Oral Health Objectives for the Year 2010 (Healthy People 2010) outline several oral health status objectives for preschool children. For two- to four-year-old children there are two primary oral health status objectives:

- To decrease the proportion of young children with dental caries experience in their primary teeth to 11 percent.

- To decrease the proportion of young children with untreated dental caries in their primary teeth to 9 percent.

It should be noted that the *Smile Survey 2005* was not designed to be representative of all 2-4 year old children; with the majority of Washington's low-income preschool children screened being 3-5 years of age.

- Forty-five percent of Washington's Head Start/ECEAP enrollees had experienced dental decay – substantially higher than the HP2010 objective of 11 percent.
- Twenty-five percent of Washington's low-income preschool children had untreated caries compared to the HP2010 objective of 9 percent.



Oral Health Trends Over Time

Smile Survey 2005 is the third look at the oral health of low-income preschool children in Washington State; with previous surveys in 1994 and 2000. While the same diagnostic criteria were used in each of the three surveys, sampling methods varied. *Smile Survey 1994* was based on a random sample of Head Start/ECEAP sites in targeted high-risk counties while *Smile Survey 2005* was based on a random sample of Head Start/ECEAP sites from the entire state. In 2000, the sampling frame for the preschool portion of *Smile Survey* was a random selection of Early Start, rather than Head Start, sites. For this reason, the number of Head Start children screened in 2000 is substantially lower than in 1994 and 2000.

Over the last 10 years, there has been a continuing increase in the percent of Washington's low-income preschool children with decay experience – increasing from 38% in 1994 to 45% in 2000. The good news is that the percent of children needing urgent dental care because of pain or infection has declined. Refer to Table 2.8.

Comparison to Other States

In recent years, Massachusetts, Colorado and Nevada have completed statewide oral health surveys of Head Start children. Figure 4 compares the oral health of Washington's low-income preschool children with the oral health of similar children in MS, CO and NV. Each of these states gathered oral health status information using the same protocols as Washington. While the prevalence of decay experience in Washington's preschool children is higher than Colorado or Massachusetts, Washington has the lowest prevalence of untreated decay, mostly in reference to white, non-Hispanic children.

Native American Head Start & Elementary School Children

Methods

During the 2004-2005 school year, the Washington State Department of Health conducted *Smile Survey 2005* – a statewide oral health survey of low-income preschool and elementary school children. To obtain similar information for American Indian and Alaska Native (AI/AN) children, Indian Health Service and tribal dental clinics completed dental screenings in tribal Head Start programs and elementary schools in tribal communities throughout Washington. Screenings were completed at 6 Head Start sites and 9 elementary schools. For the elementary school portion, children in 2nd and 3rd grade were invited to participate. The screenings were completed using gloves, a disposable dental mirror and penlight. A total of 142 Head Start children and 310 elementary school students were screened.

Results – Elementary School Children

The children screened ranged in age from 6-10 years with the majority (96.1%) being 7-9 years of age. Slightly less than half of the children were male and 59 percent were in second grade. Refer to Table 3.1.

Eighty-seven percent of the Native American children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth and 55 percent had untreated decay at the time of the screening. Fifty-six percent of the children needed dental treatment including 8 percent in need of urgent dental care because of pain or infection. Children with a history of decay on seven or more teeth are considered to have rampant decay. About 29 percent of the Native American 2nd and 3rd grade children in Washington had rampant decay and 50 percent had a dental sealant on at least one permanent molar. Refer to Table 3.2.

Almost 41 percent of the Native American children screened had already experienced decay in their permanent dentition. Refer to Table 3.3

Results – Head Start Children

The children screened ranged in age from 3-6 years with the majority being 3-5 years of age. About 45 percent were male. Refer to Table 3.1.

The following results are restricted to the 139 children between 3-5 years of age. Seventy-eight percent of the children screened had decay experience (untreated decay or fillings) and 48 percent had untreated decay at the time of the screening. About 47 percent of the children needed dental treatment including 15 percent in need of urgent dental care because of pain or infection. Children with a history of decay on seven or more teeth are considered to have rampant decay. About 35 percent of the Native American Head Start children in Washington had rampant decay, 40 percent had early childhood caries and 5 percent had incipient dental decay (white spot lesions). Refer to Table 3.4.

Comparison to Statewide Sample

Figure 5 compares the prevalence of decay experience and untreated decay between the children screened by IHS and Tribal dental programs and all children screened in Washington. For both the Head Start and elementary school children, the prevalence of disease is much higher in the Native American children. Native American children also have a substantially higher prevalence of rampant decay, early childhood caries, and urgent treatment needs.

Figures

Figure 1
Prevalence of Decay Experience in 3rd Grade Children
Washington Compared to Other States with Similar Data

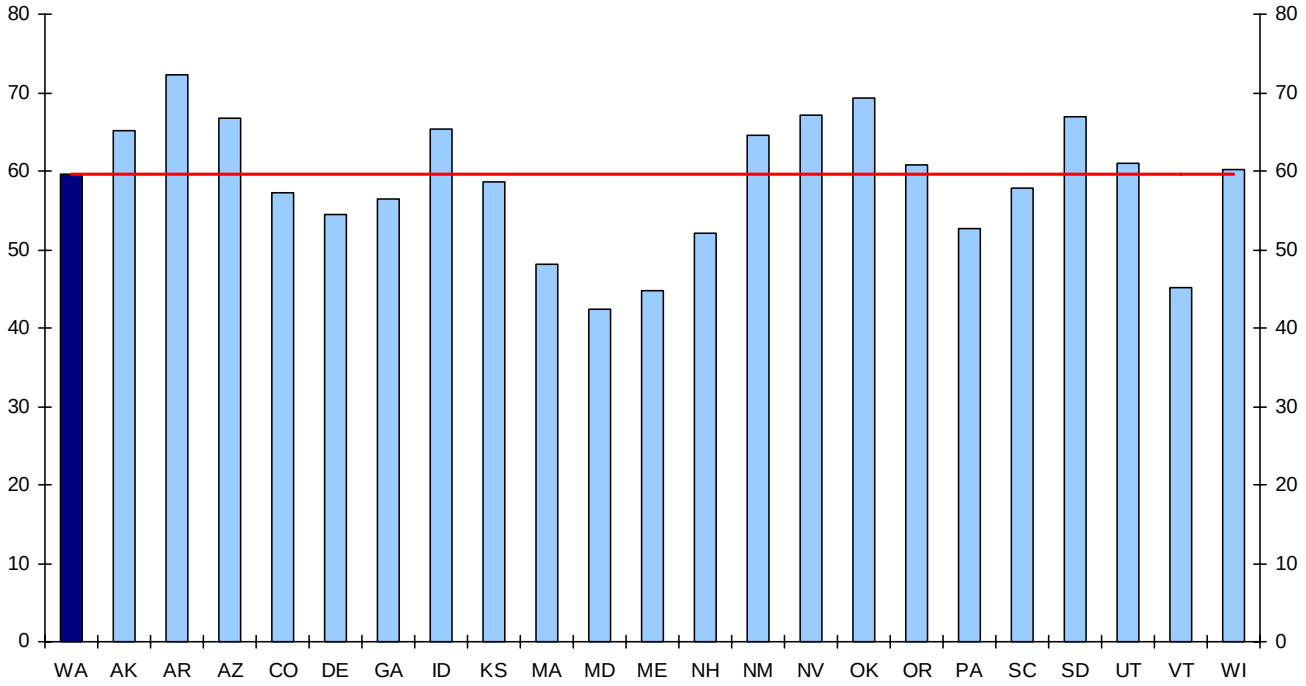


Figure 2
Prevalence of Untreated Decay in 3rd Grade Children
Washington Compared to Other States with Similar Data

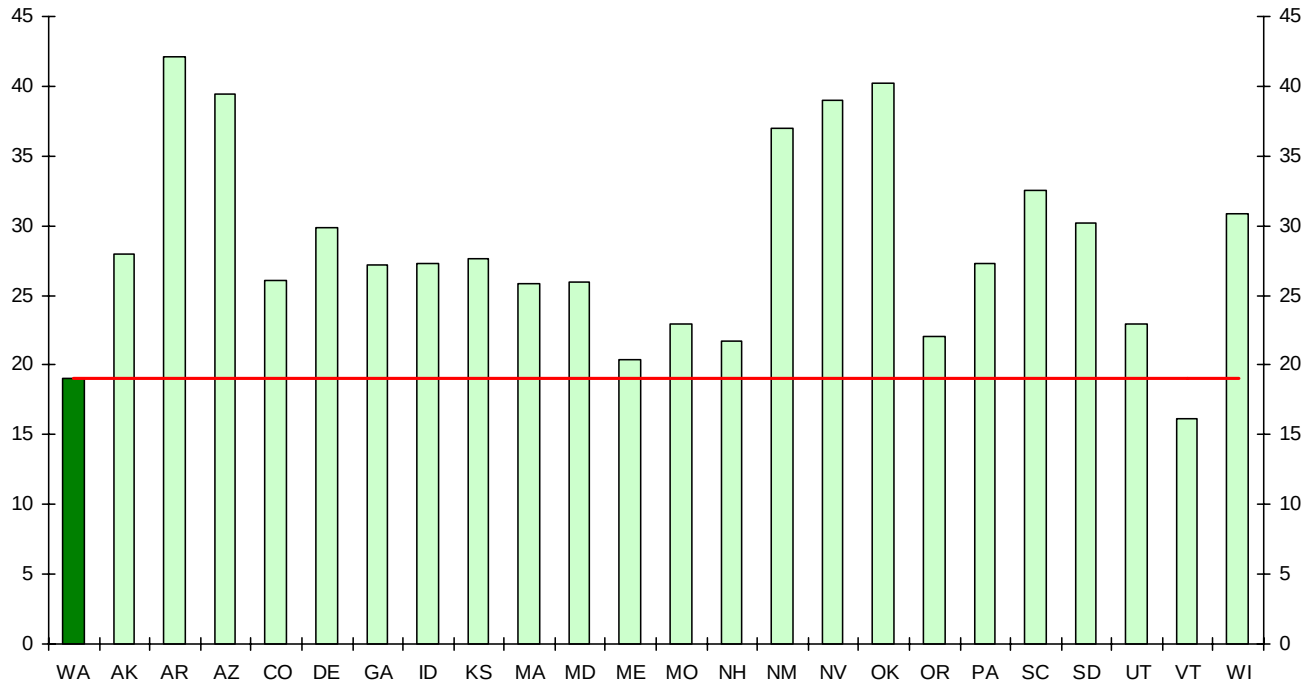


Figure 3
Prevalence of Dental Sealants in 3rd Grade Children
Washington Compared to Other States with Similar Data

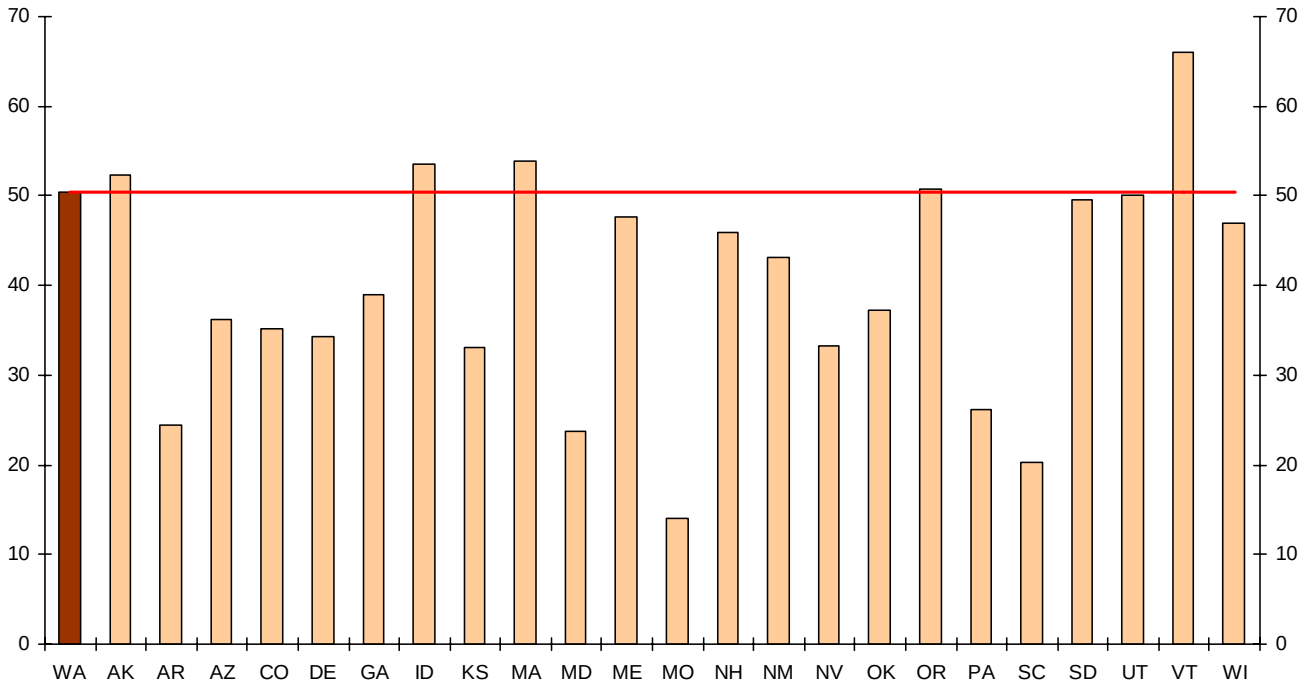


Figure 4
Prevalence of Decay Experience and Untreated Decay in Head Start Children
Washington Compared to Other States with Similar Data

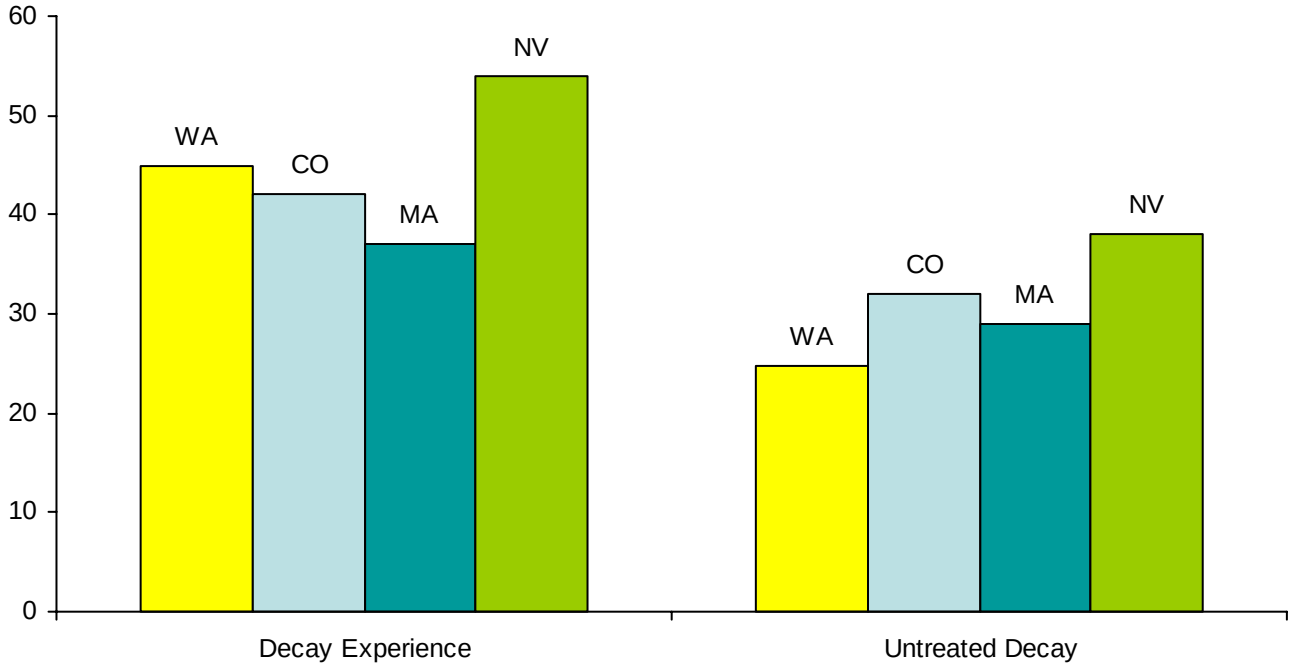
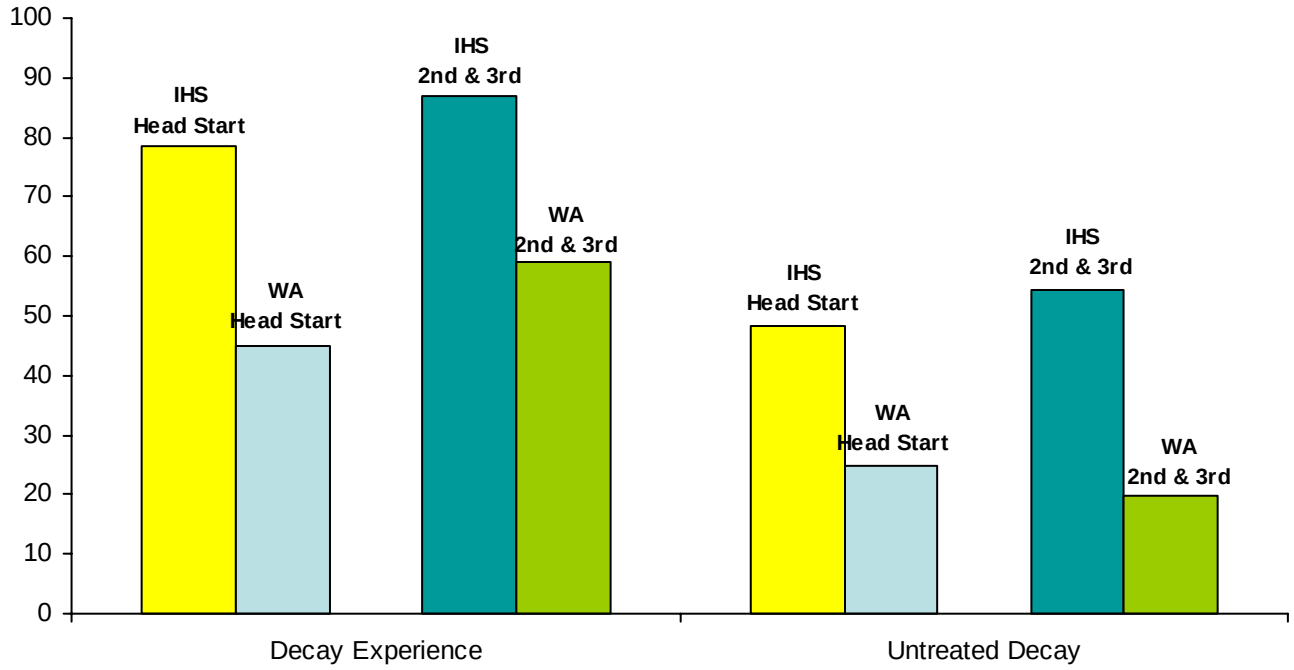


Figure 5
Prevalence of Decay Experience and Untreated Decay in Head Start and Elementary Children
IHS/Tribal Sample Compared to Washington State Sample



Data Tables

Table 1.1
Elementary School Participation in Smile Survey 2005

	Number of Schools	Number Enrolled	Number Screened	Response Rate
Sample Schools	67	9,416	7,291	77.4%
Participating Schools	66	9,209	7,291	79.2%

Source: The number of children enrolled in each participating schools was obtained from the school on the day of the screening. The enrollment figure for the non-participating school was obtained from the Washington Office of Superintendent of Public Instruction (OSPI).

Table 1.2
Enrollment and Free/Reduced Price Lunch Program Participation in all Washington Elementary Schools in Sampling Frame, Sample Schools and Participating Schools

	2nd & 3rd Grade Enrollment	Percent on FRL	Percent White	Percent Hispanic	Percent African-American	Percent Other Race
WA Schools in Sampling Frame (n=1,059)	142,504	40.1%	69%	14%	6%	11%
Sample Schools (n=67)	9,416	37.6%				
Participating Schools (n=66)	9,209	38.3%				
Children Screened (n=7,291)			71%	14%	6%	9%

Source: The number of children enrolled in each participating schools was obtained from the school on the day of the screening. The enrollment figure for all other schools was obtained from Washington OSPI (2003-2004 School Year). Note – information on number of students on the FRL program was not available for 44 schools.

Table 1.3
Age, Grade, Gender, Eligibility for the Free or Reduced Price Meal Program, Language Spoken at Home, and Race/Ethnicity of Children Screened
Not Adjusted for Non-Response

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean (Standard Deviation)	7,291	8.14 (0.75)
Range		6-11 years
Grade		
% 2nd	7,291	50.2
% 3rd		49.8
Gender		
% Male	7,281	50.5
% Female		49.5
Free/Reduced Lunch Eligibility*		
% Not eligible	6,656	61.9
% Eligible		38.1
Language Spoken at Home		
% English	7,276	86.4
% Spanish		9.0
% Other		4.6
Race/Ethnicity+		
% White		70.8
% African American		6.4
% Hispanic	7,252	13.5
% Asian		6.2
% American Indian/Alaska Native		1.8
% Other		1.2

***** Schools were asked to provide information on FRL lunch eligibility for each child. Some schools opted not to provide this information; therefore, this information should be viewed with caution.

\+ Race/ethnicity was determined by the screener.

Table 1.4
Oral Health Status of Washington's 2nd and 3rd Grade Children
Adjusted for Non-Response

	Number Screened	Percent	95% CI
% caries free	7,289	41.0	37.9 – 44.2
% with caries experience – primary and/or permanent teeth	7,289	59.0	55.8 – 62.1
% with caries experience – permanent teeth	7,289	22.2	18.0 – 26.5
% with treated decay	7,290	50.4	47.7 – 53.1
% with untreated decay	7,289	19.7	17.6 – 21.9
% with rampant caries	7,288	21.2	18.2 – 24.2
% with dental sealants	7,290	44.8	41.6 – 48.1
Treatment Need			
% with no obvious problem	7,289	82.0	78.6 – 85.3
% needing early dental care		14.8	11.6 – 18.0
% needing urgent dental care		3.2	2.3 – 4.2

Table 1.5
Oral Health Status of Washington's 2nd and 3rd Grade Children Stratified by Grade
Adjusted for Non-Response

	2nd Grade			3rd Grade		
	Number	Percent	95% CI	Number	Percent	95% CI
% caries free	3,657	41.8	38.3-45.3	3,632	40.3	27.2-43.4
% with caries experience – primary and/or permanent teeth	3,657	58.2	54.7-61.7	3,632	59.7	56.6-62.8
% with caries experience – permanent teeth	3,657	20.7	16.4-25.0	3,632	23.8	19.0-28.6
% with treated decay	3,657	48.7	45.6-51.8	3,633	52.1	49.2-54.9
% with untreated decay	3,657	20.4	18.0-22.7	3,632	19.1	16.7-21.5
% with rampant caries	3,657	21.3	18.1-24.4	3,631	21.2	17.8-24.5
% with dental sealants	3,657	39.3	35.3-43.3	3,633	50.4	46.8-54.1
Treatment Need						
% with no obvious problem	3,657	80.9	76.8-84.9	3,632	83.0	80.0-86.1
% needing early dental care		15.8	12.0-19.7		13.8	11.0-16.5
% needing urgent dental care		3.3	2.3-4.3		3.2	2.2-4.2

Table 1.6
Distribution of Treated Decay, Untreated Decay and Caries Experience Among the Primary & Permanent Dentitions (2nd & 3rd Grade Children) Adjusted for Non-Response

	Percent of Children
Treated Decay	
No treated decay	49.6
Primary teeth only	33.7
Primary and permanent teeth	15.2
Permanent teeth only	1.5
Untreated Decay	
No untreated decay	80.3
Primary teeth only	11.8
Primary and permanent teeth	5.6
Permanent teeth only	2.3
Caries Experience	
No caries experience (caries free)	41.0
Primary teeth only	36.7
Primary and permanent teeth	20.1
Permanent teeth only	2.2

Table 1.7
Oral Health Status of Washington's 2nd and 3rd Grade Children Stratified by Race/Ethnicity
Percent of Children (95% Confidence Interval) – Adjusted for Non-Response

Variable	White (n=5,135)	African American (n=462)	Hispanic (n=981)	Asian (n=451)	Native American (n=133)
% with caries experience – primary and/or perm	55.0 (51.3-58.6)	59.5 (53.5-65.4)	72.2 (68.1-76.2)	67.9 (63.3-72.4)	77.3 (68.9-85.7)
% with caries experience – permanent teeth	19.7 (15.5-23.9)	26.7 (18.4-35.0)	29.7 (23.4-36.0)	27.6 (18.0-37.2)	28.4 (20.3-36.5)
% with untreated decay	16.3 (14.1-18.5)	24.5 (20.1-28.9)	29.5 (25.7-33.2)	27.3 (23.0-31.5)	37.0 (23.6-50.5)
% with rampant caries	17.9 (15.4-20.5)	18.4 (13.2-23.6)	33.5 (28.2-38.9)	25.9 (19.3-32.5)	41.8 (16.8-66.9)
% with dental sealants	47.1 (43.6-50.5)	40.5 (34.8-46.2)	38.7 (32.9-44.5)	38.8 (32.5-45.2)	47.6 (36.3-59.0)
% needing treatment	15.2 (11.1-19.2)	19.2 (14.7-23.6)	27.0 (23.1-30.8)	25.1 (20.7-29.5)	34.6 (19.8-49.4)
% needing urgent treatment	2.4 (1.7-3.2)	3.3 (0.9-5.7)	6.2 (4.3-8.1)	5.3 (2.5-8.0)	6.2 (0.4-12.0)

Table 1.8
Oral Health Status of Washington's 2nd and 3rd Grade Children
Stratified by Race/Ethnicity
Adjusted for Non-Response

Variable	White Non-Hispanic (n=5,135)		Minority (2,117)	
	Percent	95% CI	Percent	95% CI
% with caries experience – primary and/or perm	55.0	51.3 – 58.6	68.7	65.4 – 72.1
% with caries experience – permanent teeth	19.7	15.5 – 23.9	28.5	22.5 – 34.5
% with untreated decay	16.3	14.1 – 18.5	28.3	25.5 – 31.0
% with rampant caries	17.9	15.4 – 20.5	29.1	24.2 – 34.1
% with dental sealants	47.1	43.6 – 50.5	39.5	35.0 – 44.0
% needing treatment	15.2	11.1 – 19.2	25.1	22.0 – 28.2
% needing urgent treatment	2.4	1.7 – 3.2	5.3	3.7 – 6.9

Table 1.9
Oral Health Status of Washington's 2nd and 3rd Grade Children
Stratified by Language Spoken at Home
Adjusted for Non-Response

Variable	English (n=6,290)		Other Language (986)	
	Percent	95% CI	Percent	95% CI
% with caries experience – primary and/or perm	56.7	53.3 – 60.0	73.6	70.0 – 77.2
% with caries experience – permanent teeth	21.3	16.9 – 25.7	27.9	19.7 – 36.0
% with untreated decay	18.0	15.9 -20.1	30.8	26.8 – 34.7
% with rampant caries	19.4	16.5 – 22.3	33.0	26.7 – 39.2
% with dental sealants	46.0	42.7 – 49.3	37.8	32.6 – 43.0
% needing treatment	16.3	12.6 -20.0	29.0	25.3 – 32.6
% needing urgent treatment	2.7	1.8 – 3.5	6.9	3.9 – 9.9

Table 1.10
Oral Health Status of Washington's 2nd and 3rd Grade Children
Stratified by Eligibility for the FRL Program
Adjusted for Non-Response

Variable	Not Eligible (n=4,118)		Eligible (2,538)	
	Percent	95% CI	Percent	95% CI
% with caries experience – primary and/or perm	50.8	47.3 – 54.3	70.5	67.9 – 73.2
% with caries experience – permanent teeth	19.3	14.4 – 24.2	27.2	22.2 – 32.2
% with untreated decay	14.6	12.4 – 16.8	26.6	23.1 – 30.0
% with rampant caries	15.8	13.1 – 18.5	29.1	24.5 – 33.7
% with dental sealants	47.8	43.7 – 52.0	42.8	38.8 – 46.8
% needing treatment	13.5	9.2 – 17.8	23.6	19.9 – 27.3
% needing urgent treatment	2.3	1.4 – 3.1	5.3	3.6 – 6.9

Table 1.11
Odds for Having a History of Dental Decay (Untreated Decay and/or Fillings)
Adjusted for Non-Response

Variable	Univariate Models			Multivariate Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Black	1.20	1.01 – 1.43	0.036	0.94	0.78-1.12	0.489
Hispanic	2.12	1.86 – 2.43	<0.001	1.42	1.15-1.76	0.001
Asian	1.73	1.44 – 2.08	<0.001	1.31	1.06-1.62	0.013
Native American	2.79	1.96 – 3.98	<0.001	1.85	1.21-2.83	0.004
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Spanish	2.20	1.87 – 2.59	<0.001	1.31	1.00-1.73	0.051
Other	2.00	1.61 – 2.48	<0.001	1.54	1.18-2.00	0.001
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	2.32	2.11 – 2.54	<0.001	2.07	1.87-2.28	<0.001

* Variables in multivariate model: race/ethnicity, language spoken at home, eligibility for FRL program

Table 1.12
Odds for Having a History of Dental Decay (Untreated Decay and/or Fillings)
Adjusted for Non-Response

Variable	Univariate Models			Multivariate Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Other Race or Hispanic	1.80	1.64 – 1.98	<0.001	1.22	1.08-1.38	0.002
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Other	2.13	1.86 – 2.43	<0.001	1.55	1.30-1.85	<0.001
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	2.32	2.11 – 2.54	<0.001	2.06	1.87-2.27	<0.001

* Variables in multivariate model: race/ethnicity, language spoken at home, eligibility for FRL program

Table 1.13
Odds for Having Untreated Dental Decay
Adjusted for Non-Response

Variable	Univariate Models			Multivariate Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Black	1.67	1.37 – 2.04	<0.001	1.34	1.08-1.65	0.007
Hispanic	2.15	1.87 – 2.47	<0.001	1.26	0.99-1.60	0.062
Asian	1.93	1.59 – 2.34	<0.001	1.61	1.27-2.04	<0.001
Native American	3.02	2.21 – 4.13	<0.001	1.70	1.14-2.53	0.010
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Spanish	2.17	1.86 – 2.54	<0.001	1.57	1.19-2.08	0.002
Other	1.77	1.42 – 2.19	<0.001	1.16	0.88-1.53	0.283
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	2.11	1.89 – 2.36	<0.001	1.82	1.62-2.05	<0.001

* Variables in multivariate model: race/ethnicity, language spoken at home, eligibility for FRL program

Table 1.14
Odds for Having Untreated Dental Decay
Adjusted for Non-Response

Variable	Univariate Models			Multivariate Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Other Race or Hispanic	2.03	1.82 – 2.26	<0.001	1.41	1.23-1.63	<0.001
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Other	2.03	1.77 – 2.31	<0.001	1.35	1.13-1.61	0.001
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	2.11	1.89 – 2.36	<0.001	1.82	1.62-2.04	<0.001

* Variables in multivariate model: race/ethnicity, language spoken at home, eligibility for FRL program

Table 1.15
Odds for Having Dental Sealants
Adjusted for Non-Response

Variable	Univariate Models			Multivariate Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Black	0.77	0.65 – 0.91	0.002	0.77	0.67-0.98	0.004
Hispanic	0.71	0.63 – 0.80	<0.001	0.92	0.82-1.25	0.427
Asian	0.71	0.60 – 0.85	0.002	0.68	0.56-0.87	<0.001
Native American	1.02	0.76 – 1.38	0.877	1.08	0.77-1.61	0.666
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Spanish	0.65	0.56 – 0.76	<0.001	0.76	0.59-0.97	0.029
Other	0.83	0.69 – 1.01	0.068	1.15	0.90-1.47	0.260
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	0.82	0.75 – 0.89	<0.001	0.88	0.80-0.96	0.007

* Variables in multivariate model: race/ethnicity, language spoken at home, eligibility for FRL program

Table 1.16
Odds for Having Dental Sealants
Adjusted for Non-Response

Variable	Univariate Models			Multivariate Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Other Race or Hispanic	0.73	0.67 – 0.80	<0.001	0.79	0.71-0.89	<0.001
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Other	0.71	0.63 – 0.81	<0.001	0.91	0.78-1.07	0.261
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	0.82	0.75 – 0.89	<0.001	0.89	0.81-0.97	0.011

* Variables in multivariate model: race/ethnicity, language spoken at home, eligibility for FRL program

Table 1.17
The Oral Health Status of Washington's 2nd Grade Students in 1994, 2000 and 2005
Proportion (95% Confidence Interval)
Not Adjusted for Non-Response

	Smile Survey 1994 n=4,691	Smile Survey 2000 n=1,377	Smile Survey 2005 n=3,657
% white non-Hispanic	79.0	72.4	70.8
% with caries experience – primary and permanent teeth	46.0 (44.5-47.4)	54.6 (52.2-57.4)	58.3 (56.7-59.9)
% with caries experience – permanent teeth only	6.2 (5.6-7.0)	13.0 (11.2-14.7)	20.6 (19.3-21.9)
% with rampant caries	10.9 (10.0-11.8)	15.8 (13.8-17.7)	21.4 (20.1-22.8)
% with untreated decay	16.9 (15.8-18.0)	21.6 (19.5-23.9)	20.5 (19.2-21.9)
% needing treatment	16.6 (15.5-17.7)	22.7 (20.5-24.9)	19.1 (17.8-20.4)
% needing urgent treatment	2.2 (1.8-2.6)	4.0 (3.0-5.1)	3.3 (2.8-4.0)
% with sealants	19.2 (18.0-20.3)	40.7 (38.0-43.2)	38.9 (37.3-40.5)

NOTE: The data presented in this table are ***not adjusted*** for non-response.

Table 1.18
The Oral Health of Washington's 2nd Grade Students in 1994, 2000 and 2005 Stratified by Race
Proportion (95% Confidence Interval)
Not Adjusted for Non-Response

	White Non-Hispanic			Non-White and/or Hispanic		
	1994 n=3,662	2000 n=969	2005 n=2,578	1994 n=973	2000 n=375	2005 n=1,063
% with caries experience – primary and permanent teeth	43.5 (41.9-45.1)	50.2 (47.0-53.3)	53.7 (51.8-55.6)	54.8 (51.6-57.9)	65.9 (61.1-70.7)	69.3 (66.4-72.1)
% with caries experience – permanent teeth only	6.6 (5.8-7.4)	12.2 (10.1-14.2)	18.5 (17.0-20.0)	5.0 (3.7-6.4)	15.5 (11.8-19.1)	25.7 (23.1-28.4)
% with rampant caries	9.8 (8.9-10.8)	14.3 (12.1-16.6)	17.8 (16.3-19.3)	15.0 (12.8-17.2)	19.2 (15.2-23.2)	29.9 (27.2-32.8)
% with untreated decay	14.9 (13.7-16.0)	18.6 (16.1-21.0)	16.9 (15.5-18.4)	24.5 (21.7-27.2)	29.1 (24.5-33.7)	29.4 (26.6-32.2)
% needing treatment	14.6 (13.5-15.8)	20.0 (17.5-22.5)	15.7 (14.4-17.2)	23.8 (21.2-26.5)	29.1 (24.5-33.7)	27.1 (24.5-29.9)
% needing urgent treatment	1.9 (1.5-2.4)	3.1 (0.6-4.2)	2.3 (1.8-3.0)	3.3 (2.2-4.4)	6.7 (4.1-9.2)	5.8 (4.5-7.5)
% with sealants	20.6 (19.2-21.9)	42.1 (39.0-45.2)	41.2 (39.3-43.1)	14.1 (11.9-16.3)	38.1 (33.2-43.1)	33.5 (30.7-36.5)

NOTE: The data presented in this table are ***not adjusted*** for non-response.

Table 1.19
The Oral Health of Washington's 2nd and 3rd Grade Students 2000 and 2005
Proportion (95% Confidence Interval)
Not Adjusted for Non-Response

	Smile Survey 2000 n=2,699	Smile Survey 2005 n=7,291
Percent with caries experience – primary and/or permanent teeth	55.6 (53.7-57.4)	59.0 (57.9 – 60.1)
Percent with caries experience – permanent teeth	15.3 (14.0-16.8)	22.1 (21.1 – 23.0)
Percent with rampant caries (or a history of)	15.2 (13.9-16.7)	21.6 (20.6 – 22.5)
Percent with untreated decay	20.9 (19.4-22.5)	19.8 (18.9 – 20.8)
Percent needing treatment	21.5 (20.0-23.1)	18.0 (17.1 – 18.9)
Percent needing urgent treatment	3.5 (2.8-4.2)	3.3 (2.9 – 3.7)
Percent with sealants	47.2 (45.3-49.1)	44.6 (43.4 – 45.7)

Table 2.1
Head Start and ECEAP Participation in Smile Survey 2005

	Number of Sites	Enrollment	Number Screened	Response Rate
All Head Start & ECEAP Sites in Washington	494	17,828	NA	NA
Participating Sites	39	1,433	1,182	82.5%

Source: Washington Department of Health

Table 2.2
Age, Gender, Language Spoken at Home, and Race/Ethnicity of Head Start/ECEAP Children
Not Adjusted for Non-Response

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean (Standard Deviation)	1,182	4.13 (0.65)
Range		1-6 years
Gender		
% Male	1,181	50.2
% Female		49.8
Language Spoken at Home*		
% English	1,180	66.3
% Spanish		27.3
% Other		6.4
Race/Ethnicity+		
% White		42.5
% African American		10.9
% Hispanic	1,175	31.0
% Asian		4.3
% American Indian/Alaska Native		6.3
% Other		5.0

* Language spoken at home was obtained from the teacher
\+ Race/ethnicity was determined by the screener or obtained from the teacher

Table 2.3
Oral Health Status of Washington's Head Start and ECEAP Children

	All Children			3-5 Year Olds Only		
	Number	Percent	95% CI	Number	Percent	95% CI
% caries free	1,181	55.1	52.2-58.0	1,172	54.9	52.0-57.7
% with caries experience	1,181	44.9	42.0-47.8	1,172	45.1	42.3-48.0
% with treated decay	1,181	26.5	24.0-29.1	1,172	26.6	24.1-29.3
% with untreated decay	1,180	24.8	22.4-27.4	1,171	25.0	22.6-27.6
% with rampant decay (or a history of)	1,182	15.3	13.3-17.5	1,173	15.3	13.4-17.6
% with early childhood cavities	1,132	17.7	15.5-20.0	1,123	17.7	15.6-20.1
% with white spot lesions	1,132	22.9	20.5-25.5	1,123	22.9	20.5-25.5
Treatment Need						
% with no obvious problem	1,182	78.5	76.0-80.8	1,173	78.5	76.0-80.8
% needing early dental care		17.0	14.9-19.3		17.0	14.9-19.3
% needing urgent dental care		4.5	3.4-5.9		4.5	3.4-5.9

Table 2.4
Distribution of Treated and Untreated Decay among Head Start/ECEAP Children
Number of Children (Percent of Total)

Treated Decay	Untreated Decay	
	No Untreated Decay	Untreated Decay
No Treated Decay	651 (55.2%)	216 (18.3%)
Treated Decay	236 (20.0%)	76 (6.4%)

Table 2.5
Oral Health Status of Washington's Head Start and ECEAP Children Stratified by Race/Ethnicity
Percent of Children (95% Confidence Interval)

Variable	White (n=499)	African American (n=128)	Hispanic (n=364)	Asian (n=51)	Native American (n=74)
% with caries experience	38.7 (34.4-43.1)	40.6 (32.0-49.7)	52.3 (47.1-57.6)	41.2 (27.6-55.8)	63.5 (51.5-74.4)
% with untreated decay	20.8 (17.4-24.7)	25.8 (18.5-34.3)	27.8 (23.3-32.8)	27.5 (15.9-41.7)	37.8 (26.8-49.9)
% with rampant caries	13.6 (10.8-17.0)	12.5 (7.3-19.5)	16.5 (12.9-20.8)	11.8 (4.4-23.9)	31.1 (20.8-42.9)
% with ECC	13.1 (10.3-16.6)	10.2 (5.6-16.9)	19.8 (15.8-24.5)	25.5 (14.3-39.6)	41.9 (30.5-53.9)
% with white spots	18.4 (15.1-22.3)	22.8 (15.9-31.1)	32.9 (28.0-38.2)	31.4 (19.1-45.9)	5.4 (1.5-13.3)
% needing treatment	18.2 (15.0-22.0)	18.0 (11.7-25.7)	23.6 (19.4-28.4)	23.5 (12.8-37.5)	39.2 (28.0-51.2)
% needing urgent treatment	3.4 (2.1-5.5)	3.1 (0.9-7.8)	4.9 (3.0-7.8)	5.9 (1.2-16.2)	6.8 (2.2-15.1)

Table 2.6
Oral Health Status of Washington's Head Start and ECEAP Children Stratified by Race/Ethnicity

Variable	White Non-Hispanic (n=499)		Minority (n=676)	
	Percent	95% CI	Percent	95% CI
% with caries experience	38.7	34.4-43.1	49.5	45.6-53.3
% with untreated decay	20.8	17.4-24.7	27.9	24.6-31.5
% with rampant caries	13.6	10.8-17.0	16.4	13.8-19.5
% with ECC	13.1	10.3-16.6	20.8	17.8-24.2
% with white spots	18.4	15.1-22.3	26.0	22.7-29.6
% needing treatment	18.2	15.0-22.0	23.8	20.7-27.2
% needing urgent treatment	3.4	2.1-5.5	5.2	3.7-7.2

Table 2.7
Oral Health Status of Washington's Head Start and ECEAP Children Stratified by Language

Variable	English (n=782)		Other Language (398)	
	Percent	95% CI	Percent	95% CI
% with caries experience	42.1	38.6-45.6	50.1	45.1-55.1
% with untreated decay	23.5	20.6-26.7	27.0	22.8-31.7
% with rampant caries	14.5	12.1-17.2	16.6	13.1-20.7
% with ECC	16.1	13.6-18.9	20.4	16.5-24.9
% with white spots	19.0	16.3-22.0	30.2	25.7-35.2
% needing treatment	20.6	17.8-23.6	22.9	18.9-27.4
% needing urgent treatment	4.3	3.1-6.1	4.3	2.6-6.9

Table 2.8
The Oral Health Status of Washington's Low-Income Preschool Children in 1994, 2000 and 2005
Proportion (95% Confidence Interval)
Not Adjusted for Non-Response

	3-5 Year Old Children Only		
	Smile Survey 1994 N=1,070	**Smile Survey 2000 N=311**	**Smile Survey 2005 n=1,173**
% white non-Hispanic	65.7	65.6	42.5
% with caries experience	38.3 (35.4-41.2)	41.5 (36.0-47.0)	45.1 (42.3-48.0)
% with rampant caries (or a history of)	11.2 (9.3-13.1)	16.4 (12.3-20.5)	15.3 (13.4-17.6)
% with untreated decay	20.7 (18.3-23.2)	26.7 (21.8-31.6)	25.0 (22.6-27.6)
% needing treatment	21.1 (18.7-23.6)	28.9 (23.9-34.0)	21.5 (19.2-24.0)
% needing urgent treatment	7.2 (5.6-8.7)	5.5 (2.9-8.0)	4.5 (3.4-5.9)

NOTE: The data presented in this table are ***not adjusted*** for non-response.

Table 3.1
Demographics of Native American Children Screened by IHS and/or Tribal Dental Programs

Oral Health Measure	Head Start	Elementary Schools
Number of children screened	142	310
Age		
Mean age (standard deviation)	4.03 (0.77)	8.18 (0.78)
Age range	3-6 years	6-10 years
Gender		
Male (%)	44.6	46.1
Female (%)	55.4	53.9
Grade		
2nd Grade (%)		59.2
3rd Grade (%)		40.8

Table 3.2
The Oral Health of Native American 2nd and 3rd Grade Children in Washington State

Oral Health Measure	Percent of Children
% with decay experience – primary and permanent teeth	86.8
% with decay experience – permanent teeth	40.6
% with treated decay	70.3
% with untreated decay	54.5
% with rampant decay	29.0
% with dental sealants	
2nd and 3rd grade	49.7
3rd grade only	56.3
Treatment Need	
% with no obvious problem	44.5
% needing early dental care	47.4
% needing urgent dental care	8.1

NOTE: The Indian Health Service sample was a convenience sample of tribal communities rather than a random sample from all communities. For this reason, confidence intervals have not been generated.

Table 3.3
Distribution of Treated Decay, Untreated Decay and Caries Experience Among the Primary & Permanent Dentitions for Native American 2nd & 3rd Grade Children

	Percent of Children
Treated Decay	
No treated decay	29.7
Primary teeth only	46.8
Primary and permanent teeth	21.0
Permanent teeth only	2.6
Untreated Decay	
No untreated decay	45.5
Primary teeth only	32.6
Primary and permanent teeth	13.9
Permanent teeth only	8.1
Caries Experience	
No caries experience (caries free)	13.2
Primary teeth only	46.1
Primary and permanent teeth	37.4
Permanent teeth only	3.2

Table 3.4
The Oral Health of Native American Head Start Children in Washington State

Oral Health Measure	All Head Start Children (n=142)	3-5 Year Olds Only (n=139)
% caries free	21.1	21.6
% with caries experience	78.9	78.4
% with treated decay	47.2	47.5
% with untreated decay	48.6	48.2
% with rampant caries	33.8	34.5
% with ECC	40.1	40.3
% with white spot lesions	5.6	5.0
Treatment Need		
% with no obvious problem	52.8	53.2
% needing early dental care	32.4	31.7
% needing urgent dental care	14.8	15.1

Table 3.5
Oral Health Status of Tribal Head Start and Elementary School Children in 2000 and 2005

Oral Health Status Variable	Head Start		2nd & 3rd Grade	
	2000 n=149	2005 n=139	2000 n=293	2005 n=310
% with decay experience	75.2	78.4	83.6	86.8
% with untreated decay	55.4	48.2	51.5	54.5
% with rampant decay	33.5	34.5	37.5	29.0
% needing treatment	53.0	46.8	51.0	55.5
% with sealants			43.8	56.3
% with ECC	38.9	40.3		
% with white spot lesions	11.6	5.0		

APPENDIX 1

Sampling Strata, Schools, County, Class of School, and Percent of Students in School that Participate in the Free or Reduced School Lunch Program*

Sampling Strata	School	County	City	F/R Lunch %
1	Cooper Elementary	Spokane	Spokane	63.0
2	Vista Elementary	Benton	Kennewick	43.1
3	Jason Lee Elementary	Benton	Richland	32.7
4	Manson Elementary	Chelan	Manson	80.2
5	Lewis And Clark Elementary	Chelan	Wenatchee	71.6
6	Glenwood Heights Primary	Clark	Vancouver	24.6
7	Touchet Elementary	Walla Walla	Touchet	49.0
8	Dorothy Fox Elementary	Clark	Camas	14.3
9	Edwin Markham Elementary	Franklin	Pasco	44.6
10	Connell Elementary	Franklin	Connell	64.2
11	Mesa Elementary	Franklin	Mesa	66.5
12	Robert Gray Elementary	Grays Harbor	Aberdeen	78.0
13	A J West Elementary	Grays Harbor	Aberdeen	82.0
14	Olympic View Elementary	Island	Oak Harbor	46.8
15	Kokanee Elementary	King	Woodinville	9.3
16	John Rogers Elementary	King	Seattle	17.7
17	Pathfinder K-8	King	Seattle	27.6
18	Arbor Heights Elementary	King	Seattle	31.4
19	Stevens Elementary	King	Seattle	35.4
20	Wing Luke Elementary	King	Seattle	58.5
21	Graham Hill Elementary	King	Seattle	59.7
22	Martin Luther King Elementary	King	Seattle	73.5
23	Rainier View Elementary	King	Seattle	75.7
24	Brigadoon Elementary	King	Federal Way	31.9
25	Mirror Lake Elementary	King	Federal Way	50.3
26	MISSING STRATA			0.3
27	Renton Park Elementary	King	Renton	33.7
28	Vinland Elementary	Kitsap	Poulsbo	16.5
29	Yacolt Primary	Clark	Yacolt	36.6
30	Pioneer Elementary	Snohomish	Arlington	NA
31	Seattle Hill Elementary	Snohomish	Everett	5.5
32	Columbia Elementary	Walla Walla	Burbank	38.3
33	Quilcene Elementary	Jefferson	Quilcene	40.9
34	Panther Lake Elementary	King	Kent	53.6
35	East Ridge Elementary	King	Woodinville	3.3
36	Silver Firs Elementary	Snohomish	Everett	8.2
37	Meridian Park Elementary	King	Seattle	20.7
38	View Ridge Elementary	Kitsap	Bremerton	42.0
39	Armin Jahr Elementary	Kitsap	Bremerton	55.3
40	Mullenix Ridge Elementary	Kitsap	Port Orchard	18.9
41	Collins Elementary	Pierce	Spanaway	38.8
42	Mt. Stuart Elementary	Kittitas	Ellensburg	56.4
43	Hood Canal Elementary	Mason	Shelton	70.2
44	Robert E Lee Elementary	Douglas	East Wenatchee	52.3
45	Edward Zeiger Elementary	Pierce	Puallup	25.6
46	Maplewood Elementary	Pierce	Puyallup	26.7
47	Dutch Hill Elementary	Snohomish	Snohomish	10.8
48	Badger Mountain Elementary	Benton	Richland	13.9
49	Neah Bay Elementary	Clallam	Neah Bay	72.2
50	Midway Elementary	Spokane	Colbert	13.1

Sampling Strata	School	County	City	F/R Lunch %
51	Sherwood Elementary	Snohomish	Edmonds	15.4
52	Central Avenue Elementary	Pierce	Tacoma	49.4
53	Pioneer Valley Elementary	Pierce	Spanaway	19.8
54	Island View Elementary	Skagit	Anacortes	45.8
55	Woodside Elementary	Snohomish	Everett	21.8
56	Captain Strong Elementary	Clark	Battle Ground	30.5
57	Cougar Creek Elementary	Snohomish	Lakewood	NA
58	Mountain Way Elementary	Snohomish	Granite Falls	28.9
59	Meadow Ridge Elementary	Spokane	Mead	22.6
60	Freeman Elementary	Spokane	Rockford	23.8
61	Windsor Elementary	Spokane	Spokane	40.3
62	Valley Elementary	Stevens	Valley	61.9
63	Yelm Prairie Elementary	Thurston	Yelm	39.5
64	Prospect Point Elementary	Walla Walla	Walla Walla	34.7
65	Green Park Elementary	Walla Walla	Walla Walla	67.9
66	Garfield Elementary	Yakima	Yakima	93.1
67	Kirkwood Elementary	Yakima	Toppenish	88.8

* For this table, the percent of children on the FRL program is based on the data from Washington OSPI (2003-2004 School Year) that was used in the sample selection process.

APPENDIX 2

Sampling Strata, Participating Schools, 2nd and 3rd Grade Enrollment, Number Screened, Response Rates, and Weights

Strata	School	2nd & 3rd Grade Enrollment	Number Screened	Response Rate	Weight
1	Cooper Elementary	162	115	71.0%	1.4087
2	Vista Elementary	126	98	77.8%	1.2857
3	Jason Lee Elementary	240	212	88.3%	1.1321
4	Manson Elementary	96	36	37.5%	2.6667
5	Lewis And Clark Elementary	129	107	82.9%	1.2056
6	Glenwood Heights Primary	284	261	91.9%	1.0881
7	Touchet Elementary	42	34	81.0%	1.2353
8	Dorothy Fox Elementary	229	200	87.3%	1.1450
9	Edwin Markham Elementary	101	83	82.2%	1.2169
10	Connell Elementary	134	114	85.1%	1.1754
11	Mesa Elementary	42	37	88.1%	1.1351
12	Robert Gray Elementary	108	106	98.1%	1.0189
13	A J West Elementary	123	100	81.3%	1.2300
14	Olympic View Elementary	138	115	83.3%	1.2000
15	Kokanee Elementary	126	87	69.0%	1.4483
16	John Rogers Elementary	83	63	75.9%	1.3175
17	Pathfinder K-8	76	70	92.1%	1.0857
18	Arbor Heights Elementary	145	102	70.3%	1.4216
19	Stevens Elementary	93	66	71.0%	1.4091
20	Wing Luke Elementary	86	64	74.4%	1.3438
21	Graham Hill Elementary	123	83	67.5%	1.4819
22	Martin Luther King Elementary	42	36	85.7%	1.1667
23	Rainier View Elementary	80	46	57.5%	1.7391
24	Brigadoon Elementary	130	123	94.6%	1.0569
25	Mirror Lake Elementary	147	111	75.5%	1.3243
26	MISSING STRATA				
27	Renton Park Elementary	154	122	79.2%	1.2623
28	Vinland Elementary	180	136	75.6%	1.3235
29	Yacolt Primary	287	112	39.0%	2.5625
30	Pioneer Elementary	177	60	33.9%	2.9500
31	Seattle Hill Elementary	213	175	82.2%	1.2171
32	Columbia Elementary	134	110	82.1%	1.2182
33	Quilcene Elementary	35	22	62.9%	1.5909
34	Panther Lake Elementary	140	99	70.7%	1.4141
35	East Ridge Elementary	148	119	80.4%	1.2437
36	Silver Firs Elementary	166	145	87.3%	1.1448
37	Meridian Park Elementary	135	132	97.8%	1.0227
38	View Ridge Elementary	139	114	82.0%	1.2193
39	Armin Jahr Elementary	156	139	89.1%	1.1223
40	Mullenix Ridge Elementary	159	110	69.2%	1.4455
41	Collins Elementary	128	90	70.3%	1.4222
42	Mt. Stuart Elementary	139	109	78.4%	1.2752
43	Hood Canal Elementary	40	26	65.0%	1.5385
44	Robert E Lee Elementary	150	134	89.3%	1.1194
45	Edward Zeiger Elementary	181	144	79.6%	1.2569
46	Maplewood Elementary	52	45	86.5%	1.1556
47	Dutch Hill Elementary	138	121	87.7%	1.1405
48	Badger Mountain Elementary	208	181	87.0%	1.1492
49	Neah Bay Elementary	54	46	85.2%	1.1739
50	Midway Elementary	184	158	85.9%	1.1646

Strata	School	2nd & 3rd Grade Enrollment	Number Screened	Response Rate	Weight
51	Sherwood Elementary	106	81	76.4%	1.3086
52	Central Avenue Elementary	120	106	88.3%	1.1321
53	Pioneer Valley Elementary	224	188	83.9%	1.1915
54	Island View Elementary	104	81	77.9%	1.2840
55	Woodside Elementary	189	168	88.9%	1.1250
56	Captain Strong Elementary	267	229	85.8%	1.1659
57	Cougar Creek Elementary	137	120	87.6%	1.1417
58	Mountain Way Elementary	266	225	84.6%	1.1822
59	Meadow Ridge Elementary	149	81	54.4%	1.8395
60	Freeman Elementary	112	106	94.6%	1.0566
61	Windsor Elementary	91	86	94.5%	1.0581
62	Valley Elementary	38	33	86.8%	1.1515
63	Yelm Prairie Elementary	198	146	73.7%	1.3562
64	Prospect Point Elementary	184	152	82.6%	1.2105
65	Green Park Elementary	136	124	91.2%	1.0968
66	Garfield Elementary	146	137	93.8%	1.0657
67	Kirkwood Elementary	160	110	68.8%	1.4545

APPENDIX 3
Data Tables Not Adjusted For Non-Response

Table A3-1
Age, Grade, Gender, Eligibility for the Free or Reduced Price Meal Program, Language Spoken at Home, and Race/Ethnicity of Children Screened
Not Adjusted For Non-Response

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean (Standard Deviation)	7,291	8.14 (0.75)
Range		6-11 years
Grade		
% 2nd	7,291	50.2
% 3rd		49.8
Gender		
% Male	7,281	50.5
% Female		49.5
Free/Reduced Lunch Eligibility*		
% Not eligible	5,962	57.4
% Eligible		42.6
Language Spoken at Home		
% English	7,276	86.4
% Spanish		9.0
% Other		4.6
Race/Ethnicity+		
% White		70.8
% African American		6.4
% Hispanic	7,252	13.5
% Asian		6.2
% American Indian/Alaska Native		1.8
% Other		1.2

***** Schools were asked to provide information on FRL lunch eligibility for each child. Some schools opted not to provide this information; therefore, this information should be viewed with caution.

\+ Race/ethnicity was determined by the screener.

Table A3-2
Oral Health Status of Washington's 2nd and 3rd Grade Children
Not Adjusted For Non-Response

	Number Screened	Percent	95% CI
% caries free	7,289	41.0	39.9 – 42.1
% with caries experience	7,289	59.0	57.9 – 60.1
% with treated decay	7,290	50.4	49.3 – 51.6
% with untreated decay	7,289	19.8	18.9 – 20.8
% with rampant caries	7,288	21.6	20.6 – 22.5
% with dental sealants	7,290	44.6	43.4 – 45.7
Treatment Need			
% with no obvious problem	7,289	82.0	81.1 – 82.9
% needing early dental care		14.7	13.9 – 15.5
% needing urgent dental care		3.3	2.9 – 3.7

Table A3-3
Oral Health Status of Washington's 2nd and 3rd Grade Children Stratified by Grade
Not Adjusted For Non-Response

Variable	2nd Grade			3rd Grade		
	Number	Percent	95% CI	Number	Percent	95% CI
% caries free	3,657	41.7	40.1-43.3	3,632	40.3	38.7-41.9
% with caries experience	3,657	58.3	56.7-59.9	3,632	59.7	58.1-61.3
% with treated decay	3,657	48.7	47.0-50.3	3,633	52.2	50.5-53.8
% with untreated decay	3,657	20.5	19.2-21.9	3,632	19.1	17.8-20.4
% with rampant caries	3,657	21.4	20.1-22.8	3,631	21.7	20.4-23.1
% with dental sealants	3,657	38.9	37.3-40.5	3,633	50.3	48.6-51.9
Treatment Need						
% with no obvious problem	3,657	80.9	79.6-82.2	3,632	83.1	81.9-84.3
% needing early dental care		15.8	14.6-17.0		13.6	12.5-14.7
% needing urgent dental care		3.3	2.8-4.0		3.3	2.7-3.9

Table A3-4
Distribution of Treated Decay, Untreated Decay and Caries Experience Among the Primary & Permanent Dentitions (2nd & 3rd Grade Children) Not Adjusted For Non-Response

	Percent of Children
Treated Decay	
No treated decay	49.6
Primary teeth only	33.8
Primary and permanent teeth	15.1
Permanent teeth only	1.5
Untreated Decay	
No untreated decay	80.2
Primary teeth only	11.9
Primary and permanent teeth	5.5
Permanent teeth only	2.4
Caries Experience	
No caries experience (caries free)	41.0
Primary teeth only	36.9
Primary and permanent teeth	19.9
Permanent teeth only	2.2

Table A3-5
Oral Health Status of Washington's 2nd and 3rd Grade Children Stratified by Race/Ethnicity
Percent of Children (95% Confidence Interval)
Not Adjusted For Non-Response

Variable	White (n=5,135)	African American (n=462)	Hispanic (n=981)	Asian (n=451)	Native American (n=133)
% with caries experience	55.0 (53.6-56.3)	60.0 (55.3-64.4)	72.3 (69.3-75.0)	67.6 (63.1-71.9)	77.4 (69.4-84.2)
% with untreated decay	16.4 (15.4-17.5)	24.9 (21.1-29.1)	29.3 (26.4-32.2)	27.1 (23.1-31.4)	36.8 (28.6-45.6)
% with rampant caries	18.2 (17.2-19.3)	18.8 (15.4-22.8)	34.4 (31.4-37.5)	26.2 (22.2-30.5)	39.8 (31.5-48.7)
% with dental sealants	46.8 (45.4-48.2)	40.0 (35.6-44.7)	38.3 (35.2-41.4)	39.0 (34.5-43.7)	48.1 (39.4-56.9)
% needing treatment	15.1 (14.2-16.1)	19.3 (15.8-23.2)	26.9 (24.2-29.9)	24.6 (20.8-28.9)	34.6 (26.6-43.3)

Table A3-6
Oral Health Status of Washington's 2nd and 3rd Grade Children
Stratified by Race/Ethnicity
Not Adjusted For Non-Response

Variable	White Non-Hispanic (n=5,135)		Minority (2,117)	
	Percent	95% CI	Percent	95% CI
% with caries experience	55.0	53.6 - 56.3	68.9	66.9 - 70.9
% with untreated decay	16.4	15.4 - 17.5	28.2	26.3 - 30.2
% with rampant caries	18.2	17.2 - 19.3	29.5	27.6 - 31.5
% with dental sealants	46.8	45.4 - 48.2	39.2	37.1 - 41.3
% needing treatment	15.1	14.2 - 16.1	25.0	23.2 - 26.9

Table A3-7
Oral Health Status of Washington's 2nd and 3rd Grade Children
Stratified by Language Spoken at Home
Not Adjusted For Non-Response

Variable	English (n=6,290)		Other Language (986)	
	Percent	95% CI	Percent	95% CI
% with caries experience	56.7	55.4 - 57.9	73.7	70.8 - 76.4
% with untreated decay	18.1	17.2 - 19.1	30.7	27.9 - 33.7
% with rampant caries	19.7	18.7 - 20.7	33.5	30.6 - 36.6
% with dental sealants	45.8	44.6 - 47.1	37.0	33.9 - 40.1
% needing treatment	16.2	15.3 - 17.2	28.9	26.1 - 31.9

Table A3-8
Oral Health Status of Washington's 2nd and 3rd Grade Children
Stratified by Eligibility for the FRL Program
Not Adjusted For Non-Response

Variable	Not Eligible (n=3,424)		Eligible (2,538)	
	Percent	95% CI	Percent	95% CI
% with caries experience	52.0	50.3 - 53.6	70.5	68.7 - 72.3
% with untreated decay	13.6	12.5 - 14.8	27.2	25.5 - 29.0
% with rampant caries	13.2	12.1 - 14.4	30.0	28.2 - 31.8
% with dental sealants	50.5	48.8 - 52.2	42.2	40.3 - 44.2
% needing treatment	13.6	12.4 - 14.8	24.1	22.4 - 25.8

Table A3-9
Odds for Having a History of Dental Decay (Untreated Decay and/or Fillings)
Not Adjusted For Non-Response

Variable	Univariate Models		
	Odds Ratio	95% CI	P-Value
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Black	1.23	1.01 – 1.49	0.039
Hispanic	2.14	1.84 – 2.48	<0.001
Asian	1.71	1.40 – 2.10	<0.001
Native American	2.81	1.87 – 4.24	<0.001
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Other Race or Hispanic	1.82	1.63 – 2.02	<0.001
Language Spoken at Home			
English (reference)	--	--	--
Spanish	2.21	1.83 – 2.65	<0.001
Other	2.03	1.59 – 2.60	<0.001
Language Spoken at Home			
English (reference)	--	--	--
Other	2.15	1.85 – 2.50	<0.001
Eligibility for FRL Program			
Not Eligible (reference)	--	--	--
Eligible	2.21	1.98 – 2.47	<0.001

Table A3-10
Odds for Having Untreated Dental Decay
Not Adjusted For Non-Response

Variable	Univariate Models		
	Odds Ratio	95% CI	P-Value
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Black	1.68	1.35 – 2.11	<0.001
Hispanic	2.10	1.80 – 2.46	<0.001
Asian	1.88	1.51 – 2.35	<0.001
Native American	2.96	2.07 – 4.25	<0.001
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Other Race or Hispanic	1.99	1.77 – 2.25	<0.001
Language Spoken at Home			
English (reference)	--	--	--
Spanish	2.16	1.81 – 2.58	<0.001
Other	1.73	1.35 – 2.22	<0.001
Language Spoken at Home			
English (reference)	--	--	--
Other	2.01	1.73 – 2.33	<0.001
Eligibility for FRL Program			
Not Eligible (reference)	--	--	--
Eligible	2.37	2.08 – 2.70	<0.001

Table A3-11
Odds for Having Dental Sealants
Not Adjusted For Non-Response

Variable	Univariate Models		
	Odds Ratio	95% CI	P-Value
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Black	0.76	0.63 – 0.92	0.006
Hispanic	0.71	0.61 – 0.81	<0.001
Asian	0.73	0.60 – 0.89	0.002
Native American	1.06	0.75 – 1.49	0.759
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Other Race or Hispanic	0.73	0.66 – 0.81	<0.001
Language Spoken at Home			
English (reference)	--	--	--
Spanish	0.64	0.54 – 0.75	<0.001
Other	0.82	0.65 – 1.02	0.076
Language Spoken at Home			
English (reference)	--	--	--
Other	0.69	0.60 – 0.80	<0.001
Eligibility for FRL Program			
Not Eligible (reference)	--	--	--
Eligible	0.71	0.65 – 0.79	<0.001

Table A3-12
Odds for Having a History of Dental Decay and Untreated Dental Decay
Multivariate Models
Not Adjusted For Non-Response

Variable	Multivariate Models (Race/Ethnicity, Language and FRL)					
	History of Dental Decay			Untreated Dental Decay		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Black	0.86	0.69-1.08	0.190	1.18	0.91-1.52	0.211
Hispanic	1.44	1.11-1.87	0.006	1.10	0.82-1.47	0.528
Asian	1.24	0.95-1.61	0.107	1.40	1.05-1.88	0.023
Native American	1.72	1.04-2.86	0.035	1.41	0.86-2.31	0.172
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Spanish	1.25	0.91-1.72	0.167	1.58	1.14-2.19	0.007
Other	1.50	1.09-2.06	0.012	1.17	0.84-1.63	0.355
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	1.98	1.76-2.23	<0.001	2.11	1.83-2.42	<0.001

Table A3-13
Odds for Having Dental Sealants – Multivariate Model
Not Adjusted For Non-Response

Variable	Multivariate Model (Race/Ethnicity, Language and FRL)		
	Has Dental Sealants		
	Odds Ratio	95% CI	P-Value
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Black	0.82	0.66-1.01	0.064
Hispanic	1.05	0.83-1.33	0.684
Asian	0.73	0.56-0.94	0.014
Native American	1.19	0.77-1.84	0.440
Language Spoken at Home			
English (reference)	--	--	--
Spanish	0.67	0.50-0.90	0.007
Other	1.06	0.80-1.42	0.674
Eligibility for FRL Program			
Not Eligible (reference)	--	--	--
Eligible	0.77	0.69-0.86	<0.001

Table A3-14
Odds for Having a History of Dental Decay and Untreated Dental Decay
Multivariate Models
Not Adjusted For Non-Response

Variable	Multivariate Models (Race/Ethnicity, Language and FRL)					
	History of Dental Decay			Untreated Dental Decay		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Race/Ethnicity						
White non-Hispanic (reference)	--	--	--	--	--	--
Other Race or Hispanic	1.17	1.00-1.35	0.044	1.23	1.03-1.46	0.020
Language Spoken at Home						
English (reference)	--	--	--	--	--	--
Other	1.55	1.26-1.90	<0.001	1.36	1.11-1.68	0.004
Eligibility for FRL Program						
Not Eligible (reference)	--	--	--	--	--	--
Eligible	1.97	1.76-2.22	<0.001	2.10	1.83-2.42	<0.001

Table A3-15
Odds for Having Dental Sealants – Multivariate Model
Not Adjusted For Non-Response

Variable	Multivariate Model (Race/Ethnicity, Language and FRL)		
	Has Dental Sealants		
	Odds Ratio	95% CI	P-Value
Race/Ethnicity			
White non-Hispanic (reference)	--	--	--
Other Race or Hispanic	0.87	0.76-1.01	0.059
Language Spoken at Home			
English (reference)	--	--	--
Other	0.84	0.69-1.01	0.061
Eligibility for FRL Program			
Not Eligible (reference)	--	--	--
Eligible	0.77	0.69-0.86	<0.001

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