SMILE SURVEY 2015-2016
A Report on the Oral Health of Washington’s Children

Washington State Board of Health
August 9, 2017
Washington State Department of Early Learning

Washington Dental Service Foundation

Community Advocates for Oral Health

OSPI: Office of Superintendent of Public Instruction
Tooth Decay: No Minor Occurrence

- Tooth decay is a preventable condition, yet it is the most widespread chronic disease in children.
- If left untreated, can lead to chronic pain and infection, difficulty speaking, chewing, swallowing; sleep and behavior problems; loss of self-esteem; difficulty learning; and missed school days.
- Like any chronic disease, once established, dental caries must be “managed.”
State Board of Health Recommended Strategies to Improve Oral Health for WA Residents

- **Goals:**
  - Promote Strategies consistent with Healthy People 2020
  - Reduce oral health disparities
  - Guide WSBOH rule and policy development
  - Provide leadership on PH policies: Oral Health Promotion; Prevention, Early Intervention, and Treatment of Oral Disease
State Board of Health Recommended Strategies to Improve Oral Health for WA Residents

- Health Systems
- Community Water Fluoridation
- Sealant Programs
- Interprofessional Collaboration
- Oral Health Literacy
- Surveillance
- Work Force
Smile Survey - Background

- Fifth Smile Survey for Washington State

- 2014-2015 and 2015-2016 school years

- Trained, calibrated, licensed dental examiners

- Kindergarten, second and third grade elementary children; and Head Start/EC-EAP preschool children, age 3-5
Participants
2015-16 Smile Survey (statewide)

- **13,509** elementary students in kindergarten, second, and third grades
  - **76** elementary schools across the state
- **1,479** Head Start/Early Childhood Education and Assistance Program (EC EAP)
  - **47** Head Start/EC EAP preschool sites across the state
Overview

- Basic survey indicators and definitions
- Findings:
  - Overview: Head Start & ECEAP preschool findings
  - Overview: Kindergarten findings
  - Overview: Third grade findings
  - Disparity findings by income, language, race/ethnicity (2nd/3rd grade)
- Summary of Findings
Basic Survey Indicators: Definitions

- **Caries Experience**: Any treated or untreated decay
- **Untreated Decay**: Obvious, cavitated lesions only
- **Treatment Need**: Urgency of need for care
- **Rampant Decay**: 7 or more teeth ever having decay
- **Dental Sealants (Kinder, Second, Third Grades)**
Smile Survey 2015-16: Demographic Data

- Grade, age, sex (M/F)
- Language spoken in the home
- Race/Ethnicity:
  - White; Black/African American; Hispanic; Asian; American Indian/Alaskan Native (AI/AN); Pacific Islander; Multi-racial
- National School Lunch Program (NSLP) status as a measure of income (Free and reduced lunch)
2015-16 Smile Survey: Head Start/EC EAP Pre-school Children
Figure 18: Caries Experience, All Teeth
Head Start/ECEAP Preschoolers

Percent of Children

Healthy People 2020 goal of 30 percent

*National average is specific to low-income 3- to 5-year-olds; while Healthy People 2020 goal is for all 3- to 5-year-olds regardless of family income level.
Figure 17: Untreated Decay
Head Start/ECEAP Preschoolers

Percent of Children

2005 2010 2015–2016 2012 National Average*

Healthy People 2020 goal of 21 percent

*National average is specific to low-income 3- to 5-year-olds while Healthy People 2020 goal is for all 3- to 5-year-olds regardless of family income level.
Disparity by Race: Decay Experience

Figure 19: Caries Experience
Head Start/ECEAP Preschoolers by Race/Ethnicity
(2015/2016 WA Smile Survey)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percent of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al/AN*</td>
<td>66</td>
</tr>
<tr>
<td>Asian*</td>
<td>59</td>
</tr>
<tr>
<td>Hispanic</td>
<td>52</td>
</tr>
<tr>
<td>Black*</td>
<td>33</td>
</tr>
<tr>
<td>White*</td>
<td>41</td>
</tr>
<tr>
<td>WA State</td>
<td>45</td>
</tr>
</tbody>
</table>

*Non-Hispanic

Al/AN = American Indian/Alaska Native
Disparity by Race: AI/AN & White Children

Figure 20: Selected Oral Health Indicators
Head Start/ECEAP Preschool by Race/Ethnicity (Non-Hispanic American Indian/Alaska Native and Non-Hispanic White) (2015-2016 WA Smile Survey)

- **Caries Experience**
  - White: 41%
  - American Indian/Alaska Native: 66%

- **Untreated Decay**
  - White: 17%
  - American Indian/Alaska Native: 38%

- **Rampant Caries**
  - White: 17%
  - American Indian/Alaska Native: 34%

- **White Spots**
  - White: 19%
  - American Indian/Alaska Native: 53%
Elementary School Findings
Figure 9: Caries Experience, Any Teeth
Kindergarten, 2nd and 3rd Grades
(2015–2016 WA Smile Survey)
2015-16 Findings: Healthy People 2020
6-9 year-olds

Figure 1: Oral Health Indicators and HP 2020 Goals
School Children 6-9 Years of Age (2015-2016 WA Smile Survey)

Caries Experience

- Washington 2015–2016: 49%
- Healthy People 2020 Target: 49%

Dental Sealants

- Washington 2015–2016: 44%
- Healthy People 2020 Target: 28%

Untreated Decay

- Washington 2015–2016: 13%
- Healthy People 2020 Target: 26%
Figure 5: Dental Sealants, ≥ 1 Molar Kindergarten Students by Year (2010 and 2015–2016 WA Smile Survey)
2015-16 Smile Survey: Third Grade
Figure 2: Caries Experience
3rd Grade Students by Survey Year

<table>
<thead>
<tr>
<th>Year</th>
<th>All Teeth</th>
<th>Permanent Teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>60</td>
<td>24</td>
</tr>
<tr>
<td>2010</td>
<td>58</td>
<td>15</td>
</tr>
<tr>
<td>2015–2016</td>
<td>53</td>
<td>13</td>
</tr>
</tbody>
</table>

Legend:
- All Teeth
- Permanent Teeth
Figure 3: Untreated Decay

- **2005**: 19%
- **2010**: 15%
- **2015–2016**: 12%
- **National Average**: 17%

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Healthy People 2020 goal of 26 percent
Figure 4: Dental Sealant Placement, ≥ 1 Molar
3rd Grade Children by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>50</td>
</tr>
<tr>
<td>2010</td>
<td>51</td>
</tr>
<tr>
<td>2015-2016</td>
<td>54</td>
</tr>
<tr>
<td>National Average</td>
<td>32</td>
</tr>
</tbody>
</table>

Healthy People 2020 goal of 28 percent
Disparity: When a health outcome is seen to be greater or lesser between populations

Equity:
  - Equal does not always mean equitable
Washington State Smile Survey 2015-16
Disparity Findings

- **Income**
  - Based on National School Lunch Program (NSLP) status as reported by the School District Nutrition Program Managers

- **Language Spoken @ Home**
  - “English” or “Other language”

- **Race/Ethnicity**
  - Each group is compared with White, non-Hispanic children
3rd Grade Findings: Disparities by Income

Figure 10: Third Grade Oral Health Indicators
By NSLP Eligibility as Proxy for Household Income
(2015-2016 WA Smile Survey)

<table>
<thead>
<tr>
<th>Category</th>
<th>Eligible for NSLP</th>
<th>Non-Eligible for NSLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries Experience All Teeth</td>
<td>68</td>
<td>41</td>
</tr>
<tr>
<td>Caries Experience Permanent Teeth</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Untreated Decay</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Rampant Decay</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Treatment Needed</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>
Findings: Dental Sealant Equity by Income

**Figure 6: Dental Sealants, ≥ 1 Molar**
Combined 2nd and 3rd Grades by NSLP Eligibility as Proxy for Household Income Status (2015–2016 WA Smile Survey)

<table>
<thead>
<tr>
<th>Percent of Children</th>
<th>Not Eligible for NSLP</th>
<th>Eligible for NSLP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>53</td>
</tr>
</tbody>
</table>
## Findings: Disparity by Language

Based on primary language spoken in the home

<table>
<thead>
<tr>
<th>Primary Language spoken at home (3rd grade)</th>
<th>English (%)</th>
<th>Other Language (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries-any teeth</td>
<td>49</td>
<td>67*</td>
</tr>
<tr>
<td>Caries-perm teeth</td>
<td>11</td>
<td>21*</td>
</tr>
<tr>
<td>Rampant decay</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Untreated</td>
<td>11</td>
<td>17*</td>
</tr>
<tr>
<td>Treatment needed</td>
<td>10</td>
<td>16*</td>
</tr>
<tr>
<td>Sealants</td>
<td>54</td>
<td>58</td>
</tr>
</tbody>
</table>
Figure 15: Dental Indicators
Third Grade Students by Language Spoken at Home
(2015-2016 WA Smile Survey)

<table>
<thead>
<tr>
<th>Category</th>
<th>English</th>
<th>Other Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries Experience All Teeth</td>
<td>49</td>
<td>67</td>
</tr>
<tr>
<td>Caries Experience Permanent Teeth</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>Untreated Decay</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Rampant Decay</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Treatment Needed</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Dental Sealants</td>
<td>54</td>
<td>58</td>
</tr>
</tbody>
</table>
Findings: Disparity by Race/Ethnicity
Second and Third Grades (n=9072)

- Second and third grade data were combined to provide a larger sample
- White, non-Hispanic children are the basis for comparison
Figure 11: Caries Experience, All Teeth
Combined 2nd and 3rd Grades by Race/Ethnicity
(2015–2016 WA Smile Survey)

- White* 45
- Black* 51
- Hispanic 71
- AI/AN* 67
- NHOPI* 75
- Asian* 48
- WA State 52

Percent of Children

(AI/AN = American Indian/Alaska Native, NHOPI = Native Hawaiian or Other Pacific Islander)

--- Healthy People 2020 goal of 52 percent

*Non-Hispanic
Figure 12: Caries Experience, Permanent Teeth
Combined 2nd and 3rd Grades by Race/Ethnicity
(2015–2016 WA Smile Survey)

White* 9
Hispanic 16
Asian* 8
Black* 10
Al/AN* 31
NHOPI* 26
WA St 11

(AI/AN = American Indian/Alaska Native, NHOPI = Native Hawaiian or Other Pacific Islander)
*Non-Hispanic
Figure 13: Rampant Caries, 7+ Teeth
Combined 2nd and 3rd Grades by Race/Ethnicity
(2015/2016 WA Smile Survey)

- White* 15
- Hispanic 29
- Asian* 15
- Black* 14
- AI/AN* 37
- NHOPi* 32
- WA State 18

Percent of Children

(AI/AN = American Indian/Alaska Native, NHOPi = Native Hawaiian or Other Pacific Islander)
*Non-Hispanic
Figure 14: Untreated Decay, All Teeth
Combined 2nd and 3rd Grades by Race/Ethnicity
(2015/2016 WA Smile Survey)

White* 10
Hispanic 15
Asian* 16
Black* 18
AI/AN* 19
NHOPI* 26
WA St 12

Percent of Children

(AI/AN = American Indian/Alaska Native, NHOPI = Native Hawaiian or Other Pacific Islander)
*Non-Hispanic
Smile Survey 2015-2016: Disparity by Race/Ethnicity
Hispanic/Latino children
(as compared with white children, in grades 2/3)

- Much higher rate of dental sealant placement
  - (61% vs 48%)

- Much higher rate of caries experience
  - (71% vs 45%)

- Much higher rate of permanent teeth affected
  - (16% vs 9%)

- Nearly twice the rate of rampant decay
  - (29% vs 15%)

- Higher rates of early/urgent treatment need
  - (13% vs 9%)
Figure 8: Dental Sealants on $\geq 1$ Molar
2nd and 3rd Grades Combined non-Hispanic White and Hispanic (2015/2016 WA Smile Survey)
Smile Survey 2015-2016: Disparity by Race/Ethnicity
AI/AN children
(as compared with white children, in grades 2/3)

- Much higher caries experience rates
  - (67% vs 45%)

- **Four times** the number of permanent teeth affected
  - (31% vs 9%)

- **Twice** the rate of untreated decay
  - (19% vs 10%)

- **Two-and-a-half times** the rate of rampant decay
  - (37% vs 15%)

- **More than twice** the rate of treatment need
  - (19% vs 9%)
Smile Survey 2015-16: Disparity by Race/Ethnicity
Pacific Islander children

- Much higher caries experience
  - (75% vs 45%)

- **More than three times** the rate of **permanent teeth** affected
  - (26% vs 9%)

- **More than two-and-a-half times** the rate of **untreated decay**
  - (27% vs 10%)

- **More than double** the rate of **rampant decay**
  - (32% vs 15%)

- **Nearly three times** the rate of **treatment need**
  - (26% vs 9%)
Smile Survey 2015-16: Disparity by Race/Ethnicity
African American and Asian Children

Compared with white children in 2nd and 3rd grades:

- **Black children**
  - Have 18% untreated tooth decay vs 10% for White
    (80 Percent higher rate)

- **Asian children**
  - Have 17% untreated tooth decay vs 10% for White
    (70 percent higher rate)
Smile Survey 2015-16: Disparity by Race/Ethnicity
Dental Sealants Grades 2/3

- Hispanic: 61% (CI=55-66)
- Pacific Islander: 49% (CI=35-63)
- White: 48% (CI=42-54)
- Asian: 46% (CI=37-54)
- Black/African American: 42% (CI=36-49)
- AI/AN: 39% (CI=27-52)

(CI= 95% Confidence Interval)
In Summary: Successes

- **Dental sealant use** is far exceeding HP 2020 targets **and is equitable** (by income, language, and race/ethnicity).

- Rates of **untreated decay** are very low overall, and far better than the HP 2020 targets.

- **Treatment needed** for low-income preschoolers is still much lower than 2005.

- **Decay experience** appears to be trending downward.
In Summary: Challenges

- **Tooth decay** is still a **significant issue** for all children in Washington:
  - Four in ten kindergarten and low-income preschoolers
  - More than half of second and third graders
    (>144,000 7-9 year-olds across the state affected)

- Large disparities persist for lower income children and for children of color

- We have a lot of work to do
Questions or Comments
Office of Healthy and Safe Communities

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