Oral Disease Burden in Alaska: An overview of oral disease in Alaska, workforce issues and dental access – Healthy Alaskans 2010 mid-course review

Alaska Oral Health Work Group
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Division of Public Health
Section of Women’s, Children’s & Family Health
What we are going to try to accomplish!
ORAL DISEASE BURDEN

- Tooth decay (caries) and periodontal disease (pyrea)
- Oral Cancer – benign tumors
- Temporomandibular Joint Disorder – myofacial pain
- Injuries
- Congenital - cleft lip/palate

**Risk Factors:** Diet (e.g., soda); Tobacco and alcohol use; Chemo/radiotherapy; medications that decrease saliva flow

**Preventive Approaches:** Water Fluoridation and Sealants

**Dental Access Issues**

**Workforce Issues**
Dental Decay (Caries) –– Significance

**Children:**
- 52 million school hours missed nationally
- Speech Development
- Ability to learn – behavior management
- Pain
- Cost – Early Childhood Caries

**Adults:**
- Missed work (Pain and Infection)
- Employability and employment advancement
- Coverage Issues
Third Graders – Summary Results

Percent with Specific Dental Experiences

- Caries Experience, Alaska Total: 65.1%
- Untreated Caries, Alaska Total: 28.0%
- Dental Sealants Present, Alaska Total: 52.4%
Third Graders – Caries Experience

Percent with Caries Experience by Race/Ethnicity

- National Baseline: 52.0%
- Alaska Total: 65.1%
- American Indian/Alaska Native: 87.3%
- White: 54.7%
- Black/African American: 53.7%
- Hispanic/Latino: 51.0%
- Native Hawaiian/Pacific Islander: 85.7%

Healthy People 2010 Goal (6-8 year olds): 42%
Third Graders – Untreated Caries

Percent with Untreated Caries by Race/Ethnicity

- National Baseline: 29.0%
- Alaska Total: 28.0%
- American Indian/Alaska Native: 43.5%
- White: 18.6%
- Black/African American: 29.6%
- Hispanic/Latino: 30.0%
- Native Hawaiian/Pacific Islander: 52.4%

Healthy People 2010 Goal (6-8 year olds): 21%
Dental Sealants
Third Graders – Dental Sealants

Percent with Dental Sealants by Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>National Baseline</td>
<td>23.0</td>
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<tr>
<td>Alaska Total</td>
<td>52.4</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>67.8</td>
</tr>
<tr>
<td>White</td>
<td>51.0</td>
</tr>
<tr>
<td>Black/African American Native</td>
<td>29.6</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>42.0</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Healthy People 2010 Goal

Legend:
- % with Dental Sealants Present
- Healthy People 2010 Goal
Third Graders – Caries Experience by Regions

Percent with Caries Experience by Region

- Alaska Total
- Region 1–Anchorage & Vicinity
- Region 2–Gulf Coast
- Region 3–Southeast
- Region 4–Rural Alaska
- Region 5–Fairbanks & Vicinity

Percentage:
- Alaska Total: 65.1%
- Region 1–Anchorage & Vicinity: 55.6%
- Region 2–Gulf Coast: 68.5%
- Region 3–Southeast: 73.1%
- Region 4–Rural Alaska: 87.0%
- Region 5–Fairbanks & Vicinity: 62.7%
Third Graders: Untreated Caries by Region

Percent with Untreated Caries by Region

- Alaska Total: 28.0%
- Region 1—Anchorage & Vicinity: 20.4%
- Region 2—Gulf Coast: 34.9%
- Region 3—Southeast: 33.3%
- Region 4—Rural Alaska: 43.1%
- Region 5—Fairbanks & Vicinity: 26.5%
Third Graders – Sealants by Region

Percent with Sealant Utilization by Region

- Alaska Total: 52.4%
- Region 1–Anchorage & Vicinity: 45.7%
- Region 2–Gulf Coast: 52.1%
- Region 3–Southeast: 47.3%
- Region 4–Rural Alaska: 73.1%
- Region 5–Fairbanks & Vicinity: 52.4%
Third Graders: Medicaid/Denali KidCare

Percent of Medicaid/Denali Kid Care Patients with Specific Dental Experiences by Race

- % with Caries Experience: 91.4% (American Indian/Alaska Native), 63.6% (White)
- % with Untreated Caries: 50.8% (American Indian/Alaska Native), 15.2% (White)
- % with Dental Sealants Present: 66.4% (American Indian/Alaska Native), 44.4% (White)
Assessment Follow-Up

- Quadrants with untreated caries
- Sealant evaluation – cost effectiveness
- Increase urban sample size in future assessment(s)
- Current project for kindergarteners and children enrolled in Head Start – early 2006
- Strengths/weakness of surveillance method
Caries Indicators Among Alaska Native Dental Patients by Age

- Children 2-5 Years: 77.4%
- Children 6-14 Years: 64.9%
- Adolescents 15-19 Years: 88.5%
- Dentate Adults 35-44 Years: 56.7%
- Elders 55+ Years: 50.8%

- Caries Experience
- Untreated Caries
Caries Severity – Alaska Natives

**Age:**

2-5: 59.7% Severe ECC; dmft 5.17; dmfs 13.27

6-14: dmft 4.50; DMFT 2.60; DMFS 4.56

15-19: DMFT 6.63; DMFS 12.44

35-44: DMFT 16.59; DMFS 49.68; 24% have 28 teeth

55 & Older: 1.4% have 28 teeth; 28.4% have 20 teeth; 26.3% have no teeth
Tooth Loss – Adults 18+

Tooth Loss Due to Caries or Periodontal Disease - Adults (BRFSS, 2004)

- Lost 1 to 5 teeth: 57
- Lost 6 or more teeth: 27
- Lost all teeth: 11
- Lost no teeth: 4

Legend:
- Lost 1 to 5 teeth
- Lost 6 or more teeth
- Lost all teeth
- Lost no teeth
Tooth Loss – Seniors (65+)

Tooth Loss Due to Caries or Periodontal Disease - Adults Aged 65+ (BRFSS, 2004)
Tooth Loss – Education Level

Tooth Loss Due to Caries or Periodontal Disease by Education Level (BRFSS, 2004)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Percentage with any tooth loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>43</td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td>63</td>
</tr>
<tr>
<td>High school diploma or GED</td>
<td>52</td>
</tr>
<tr>
<td>Some post high school</td>
<td>40</td>
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<tr>
<td>College graduate</td>
<td>32</td>
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</tbody>
</table>
Tooth Loss – Income Level

Tooth Loss Due to Caries or Periodontal Disease by Income Level (BRFSS, 2004)

Percentage with any tooth loss

- Total: 43%
- Less than $15,000: 67%
- $15,000 - $24,999: 52%
- $25,000 - $34,999: 38%
- $35,000 - $49,999: 45%
- $50,000 or more: 38%
Tooth Loss – Age Group

Tooth Loss Due to Caries or Periodontal Disease by Age Group (BRFSS, 2004)

Percentage with any tooth loss

- Total: 43
- 18-24: 19
- 25-34: 27
- 35-44: 39
- 45-54: 64
- 55-64: 74
- 65 & Over: 74
Tooth Loss Due to Caries or Periodontal Disease

Adults Age 35-44 with No Tooth Loss by Year

Healthy People 2010 Goal 42%

Edentulous Seniors

Edentulous Adults Age 65+ by Year

Percentage with total tooth loss during time peri.

Healthy People 2010 Goal: 20%

1995: 25
1999: 27
2002: 24
2004: 23

National Baseline for adults, NHIS 1997
Periodontal Disease

- Receding gums
- Inflamed gums
- Plaque
Periodontal Disease

HP2010: Reduce destructive periodontal disease from 22% (1988-94 NHANES) to 14% (Adults 35-44)

Significance:
Can lead to tooth mobility and eventual tooth loss
Risk factor for aspiration pneumonia in the frail elderly
Links with adverse birth outcomes (e.g., pre-term births)
Links with cardiovascular disease
Tobacco use counts for more than half of all cases

Alaska Native 35-44: 37.4% LOA > 5mm; PPD 6mm 9.2%
55+ : 68.9% LOA > 5mm; PPD 6mm 4.1%
Oral Cancer
Oral Cancer - Leukoplakia
Basal Cell – U/V Exposure
Oral Cancer - Detection

Localized Oral Cavity & Pharynx Cancer for Alaska by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage with localized oral cavity &amp; pharynx cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>30</td>
</tr>
<tr>
<td>1997</td>
<td>33</td>
</tr>
<tr>
<td>1998</td>
<td>23</td>
</tr>
<tr>
<td>1999</td>
<td>29</td>
</tr>
<tr>
<td>2000</td>
<td>34</td>
</tr>
<tr>
<td>2001</td>
<td>40</td>
</tr>
</tbody>
</table>

Healthy People 2010 Goal
## Oral Cancer – Incidence (2001)

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>AK Total</th>
<th>White AK</th>
<th>Native AK</th>
<th>Male AK</th>
<th>Female AK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate</td>
<td>10.3</td>
<td>9.9</td>
<td>9.5</td>
<td>14.9</td>
<td>12.5</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Mortality Rate for Alaska in 2001 was 4.8 per 100,000 (2.7 US, 2001)

Rates are per 100,000 population adjusted to the 2000 standard U.S. population.

**Source:** Alaska Cancer Registry computer records as of November 2004

**HP2010:** Adults aged 40 & Older that report on oral cancer exam in the past 12 months (2007 or 2008 BRFSS)
Community Water Fluoridation
Community Water Fluoridation

Proportion of Alaskans Served by Community Water Systems with Optimally Fluoridated Water

- 1993: 47%
- 2000: 43%
- 2004: 58%

Healthy People 2000 Goal: 75%
Dental Access

Any Dental Service (HP2010 Indicator)

Preventive or Routine Dental Visit (cleaning)

Medicaid Utilization: Children enrolled in Medicaid/Denali KidCare

Sources: Adult visits (BRFSS)
Medicaid (CMS 416 Reports)

Note: HP2010 Indicator for LTC Residents (Senior Assessment) – 25% for Any Dental Visit
Dental Access – Any Dental Service (BRFSS, Adults)
HP2010 Target – 56% in the last year

Adult Dental Access – Any Dental Visit by Year and Native Status

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Total</th>
<th>Non-Native</th>
<th>Native</th>
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<tr>
<td>Less than one year</td>
<td>68</td>
<td>70</td>
<td>61</td>
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<tr>
<td>1 year to less than 2 years</td>
<td>14</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>2 years to less than 5 years</td>
<td>9</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>5 years or more</td>
<td>9</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

Percentage with dental visit during time period.
Dental Access – Any Dental Service (BRFSS, Adults)
HP2010 Target – 56% in the last year

Adult Dental Access – Any Dental Visit by Year and Gender

Percentage with dental visit during time period

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
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</thead>
<tbody>
<tr>
<td>Less than one year</td>
<td>68</td>
<td>65</td>
<td>71</td>
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<tr>
<td>1 year to less than 2 years</td>
<td>14</td>
<td>15</td>
<td>13</td>
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<tr>
<td>2 years to less than 5 years</td>
<td>9</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>5 years or more</td>
<td>9</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>
Dental Access – Any Dental Service (BRFSS, Adults)
HP2010 Target – 56% in the last year

![Chart showing dental access by education level and time since last dental visit.](chart.png)
Dental Access – Any Dental Service (BRFSS, Adults)
HP2010 Target – 56% in the last year

2004 Adult Dental Access – Any Dental Visit by Income Level

- Time since last dental visit:
  - <1 Yr
  - 1 to <2 years
  - 2 to <5 years
  - 5+ Years

- Percentage with dental visit during time period:

  - <$15,000: 54%
  - $15k-24,999: 58%
  - $25k-34,999: 57%
  - $35k-49,999: 69%
  - $50,000+: 79%

- Income levels:
  - <$15,000
  - $15k-24,999
  - $25k-34,999
  - $35k-49,999
  - $50,000+
Dental Access – Medicaid (FFY2004) HP2010 Target for Preventive Visit – 57%

Percent of children receiving dental services by age & type of service

Alaska Total | 3-20 | Total | <1 | 1-2 | 3-5 | 6-9 | 10-14 | 15-18 | 19-20
---|---|---|---|---|---|---|---|---|---
Any dental service | 37.9 | 45.1 | 36.3 | 20.6 | 24.9 | 41.9 | 52.0 | 48.9 | 43.5 | 32.6 | 28.0 | 23.5 | 16.9
Dental preventative services | 0.5 | 0.1 | 0.1 | 6.2 | 3.3 | 19.3 | 26.1 | 26.1 | 28.0 | 12.5 | 16.9 |
Dental treatment services | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
Dental Access – Medicaid (FFY2004)  
Title XIX v. Title XXI

Percent of children receiving services by age group & Medicaid/SCHIP

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Title XIX &amp; XXI</th>
<th>Title XIX</th>
<th>Title XXI</th>
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</thead>
<tbody>
<tr>
<td>Alaska Total</td>
<td>37.9</td>
<td>49.4</td>
<td>52.8</td>
</tr>
<tr>
<td>3-20 Total</td>
<td>42.0</td>
<td>45.1</td>
<td>52.8</td>
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<tr>
<td>&lt;1</td>
<td>1.2</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>1-2</td>
<td>13.6</td>
<td>11.0</td>
<td>10.0</td>
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<td>3-5</td>
<td>40.5</td>
<td>41.9</td>
<td>46.6</td>
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<td>49.8</td>
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<td>10-14</td>
<td>48.9</td>
<td>46.8</td>
<td>54.6</td>
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<tr>
<td>15-18</td>
<td>43.5</td>
<td>41.4</td>
<td></td>
</tr>
<tr>
<td>19-20</td>
<td>23.5</td>
<td></td>
<td></td>
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</tbody>
</table>
Medicaid Utilization Trends
FFY1997 - 2004

Medicaid Dental Utilization, Children Aged 1-20 Enrolled in Medicaid by Federal Fiscal Year 1999-2004

- Any Dental Service
- Preventative Dental Service
- Dental Treatment Service
Medicaid Title XIX Trends

Medicaid Dental Utilization of Any Dental Service,
Children Aged 1-20 Enrolled in Medicaid by Federal Fiscal Year

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>31.4</td>
<td>31.2</td>
<td>33.1</td>
<td>32.4</td>
<td>31.4</td>
<td>32.5</td>
<td>36.1</td>
<td>34.7</td>
<td>38.7</td>
<td>37.2</td>
<td>37.9</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>40.5</td>
<td>39.9</td>
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Percentage

Title XIX
Medicaid Total
Infrastructure and Workforce – *Healthy People 2010*

21-13: Increase school-based health centers with an oral health component

21-14: Increase local and community-based health centers with an oral health component

21-15: Increase states with system to record and refer infants with cleft/lip palate and other craniofacial deformities

21-16: Increase states with an oral and craniofacial health surveillance system

21-17: Increase the number of tribal, state and local health agencies that serve >250,000 that have an effective dental health program w/ a dental professional with public health training
Dental Workforce
Dental Workforce - Alaska

- 1995: 447 Dentists; 381 Dental Hygienists
- 2005: 563 Dentists; 465 Dental Hygienists
- 490 In-state; 425 General Practitioners
- Medicaid (FY2005): 459 enrolled; 341 active; 230 with > $10,000 in paid claims
- Community Health Centers
- Pediatric residency program (SCF/ANMC)
- Dental Health Aides
Medicaid Dental Participation

<table>
<thead>
<tr>
<th>Category</th>
<th>All Dentists</th>
<th>Alaska Dentists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled</td>
<td>459</td>
<td>422</td>
</tr>
<tr>
<td>Active</td>
<td>341</td>
<td>316</td>
</tr>
<tr>
<td>$10,000 or more in paid claims</td>
<td>230</td>
<td>227</td>
</tr>
</tbody>
</table>
Significant Medicaid Dental Providers

Medicaid - Significant Dental Providers

Paid Dental Claims

Number of Dentists

- General Dentists
- Pediatric Dentists

$10,000 - 24,999
$50,000 - 74,999
$100,000 or more
Figure 1. Age Distribution of Alaska Dentists* licensed as of March 1, 2001 (active status)

Data Source: Occupational Licensure Database

*Excludes dentists with out of state addresses on licence
Dental Workforce

Table 1:

<table>
<thead>
<tr>
<th>Year</th>
<th>Dentists per 100,000 U.S. Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>59.5</td>
</tr>
<tr>
<td>1960</td>
<td>59.5</td>
</tr>
<tr>
<td>1970</td>
<td>59.5</td>
</tr>
<tr>
<td>1980</td>
<td>59.5</td>
</tr>
<tr>
<td>1990</td>
<td>52.7</td>
</tr>
<tr>
<td>2000</td>
<td>52.7</td>
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<tr>
<td>2010</td>
<td>52.7</td>
</tr>
<tr>
<td>2020</td>
<td>52.7</td>
</tr>
</tbody>
</table>

Source: Bureau of Health Professions, Health Resources and Services Administration, Department of Health and Human Services. Data from the Eighth Report to Congress 1991 and subsequent reports.
Dental Workforce
Other Factors Influencing Workforce

Positive Influence on Access

- Community Health Center expansions
- ANMC/SCF Pediatric Dental Residency Program
- Alternative Providers – DHA/T
- SCHIP (Title XXI) Medicaid Expansion for Children
Dental Workforce
Other Factors Influencing Workforce

Negative Influence on Access

- Alaska – geography, weather, size of communities, and transportation costs
- Coverage (Medicare – Private Insurance)
- Medicaid Reimbursement – Adult Medicaid
- CHC/Tribal Recruitment/Retention/Sustainability
- Aging workforce – reduced practice hours (3-4 day work-week) & graduation rates not replacing retirees
- Efficiency Issues – expanded duty/group practice
- Cosmetic Dentistry and Related Training Issues
- Medicaid Reform – EPSDT/Dental Coverage
Oral Clefts (cleft lip w/ or w/o cleft palate)

Prevalence per 10,000 Live Births

- Overall
- Alaska Native
- Non-Native
Oral Clefts – By Region

- Anchorage/ Mat-Su: 29.6
- Gulf Coast: 26.4
- Interior: 26.9
- Northern: 53.3
- Southeast: 18.1
- Southwest: 33.8

Prevalence per 10,000 Live Births
Other Oral Health Issues

- Injuries and mouth-guard use
- Temporomandibular Joint Disorder
- Myofacial Pain Syndrome
- Tobacco Cessation
- Dentistry – Primary Care Provider
- Infectious Disease Model v. Surgical Model
SUMMARY

- **At Risk Populations** – low income children and adults; racial/ethnic minorities and seniors (CSHCN – Individuals w/ Disabilities)
- **Unmet Needs**: Untreated caries – missing teeth
- **Preventive Approaches**: Water fluoridation, fluorides and sealants
- **Risk Factors**: Diet, oral hygiene, caregiver oral health, tobacco/alcohol use, medication and/or treatment affect on saliva
- **Workforce** – Age, Availability, Practice Hours, and Health Care Costs
- **Next Step**: State Oral Health Plan - Wednesday
Questions
Thank You!

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