ORAL HEALTH
The prevention and treatment of oral disease and injury as well as the maintenance of health.

Burt and Ecklund. Dentistry, Dental Practice and the Community, Sixth ed. Elsevier Saunders St. Louis, Missouri 2005

ORAL HEALTH
Americans made about 500 million visits to dentists, and an estimated $98.6 billion was spent on dental services.

Source: ADA 2007

TOOTH DECAY (CARIES)

Dental caries is an infectious, transmissible disease in which bacterial by-products (i.e., acids) dissolve the hard surfaces of teeth. Dental caries can result in loss of tooth structure, pain, and tooth loss and can progress to acute systemic infection. www.nationalhealth.org/solutions/caries

**TOOTH DECAY: CHILDREN**

*80% of tooth decay is found in 25% of children.*

*Asian and Pacific Islanders suffer the most tooth decay, followed by Hispanics, African-Americans and white children.*

---

**TOOTH DECAY**

*Dental caries (tooth decay) is the single most common chronic childhood disease – 5 times more common than asthma and 7 times more common than hay fever.*

---

**TOOTH DECAY: CHILDREN**

More than 50% of 5- to 9-year-old children have at least one cavity or filling, and that proportion increases to 78% among 17-year-olds.

---

**UNTREATED CARIES PREVALENCE BY GENDER AND AGE GROUP**

---

**TRUE OR FALSE**

No one has ever died from a toothache?
BOY DIES DUE TO DENTAL INFECTION

ORAL HEALTH IN NEBRASKA

1. Needs
2. Resources
3. Strategies

NEBRASKA POPULATION

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Birth – 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>140,538</td>
<td>5325</td>
</tr>
<tr>
<td></td>
<td>325,853</td>
<td>2568</td>
</tr>
<tr>
<td></td>
<td>232,134</td>
<td>275</td>
</tr>
</tbody>
</table>

NEBRASKA POPULATION | Seniors, Others 65+ | 232,134 |

OPEN-MOUTH SURVEY

ORAL HEALTH STATUS NEBRASKA CHILDREN

Open Mouth Survey 3rd Grade School Children 2004/2005 School Year NHHS/CDC

<table>
<thead>
<tr>
<th>Oral Health Status</th>
<th>Caucasian (n=1,701)</th>
<th>African American (n=124)</th>
<th>Hispanic (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries free</td>
<td>42.9 (37.9-47.6)</td>
<td>33.8 (25.0-42.6)</td>
<td>24.6 (17.4-31.3)</td>
</tr>
<tr>
<td>Caries experience</td>
<td>52.4 (46.2-61.1)</td>
<td>66.2 (57.4-75.0)</td>
<td>75.4 (68.2-82.6)</td>
</tr>
<tr>
<td>Untreated decay</td>
<td>46.2 (41.7-50.7)</td>
<td>46.6 (38.4-54.8)</td>
<td>32.9 (25.5-42.4)</td>
</tr>
<tr>
<td>Rampant caries (+ teeth with caries experience)</td>
<td>13.2 (9.8-16.8)</td>
<td>27.1 (17.8-36.3)</td>
<td>29.8 (22.6-37.0)</td>
</tr>
<tr>
<td>Needing treatment</td>
<td>14.9 (11.8-17.9)</td>
<td>18.1 (11.6-24.6)</td>
<td>23.5 (16.2-30.9)</td>
</tr>
</tbody>
</table>

*Data are weighted for non-participation and non-response
**The range of values in which the true population value will be found (95% probability)

ORAL HEALTH STATUS

<table>
<thead>
<tr>
<th>Oral Health Status</th>
<th>Caucasian (n=1,701)</th>
<th>African American (n=124)</th>
<th>Hispanic (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries free</td>
<td>42.9 (37.9-47.6)</td>
<td>33.8 (25.0-42.6)</td>
<td>24.6 (17.4-31.3)</td>
</tr>
<tr>
<td>Caries experience</td>
<td>52.4 (46.2-61.1)</td>
<td>66.2 (57.4-75.0)</td>
<td>75.4 (68.2-82.6)</td>
</tr>
<tr>
<td>Untreated decay</td>
<td>46.2 (41.7-50.7)</td>
<td>46.6 (38.4-54.8)</td>
<td>32.9 (25.5-42.4)</td>
</tr>
<tr>
<td>Rampant caries (+ teeth with caries experience)</td>
<td>13.2 (9.8-16.8)</td>
<td>27.1 (17.8-36.3)</td>
<td>29.8 (22.6-37.0)</td>
</tr>
<tr>
<td>Needing treatment</td>
<td>14.9 (11.8-17.9)</td>
<td>18.1 (11.6-24.6)</td>
<td>23.5 (16.2-30.9)</td>
</tr>
</tbody>
</table>

*Data are weighted for non-participation and non-response
**The range of values in which the true population value will be found (95% probability)
STATEWIDE CARIES EXPERIENCE

UNTREATED DENTAL DISEASE

ORAL HEALTH STATUS

NEBRASKA ORAL HEALTH NEEDS

ORAL HEALTH IN NEBRASKA
### RESOURCES
- Workforce
- Dental spending
- Safety net

### TOTAL NUMBER OF NEBRASKA ACTIVELY PRACTICING DENTISTS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increase/Decrease</strong></td>
<td>950</td>
<td>975</td>
<td>1000</td>
<td>1025</td>
<td>1050</td>
<td>85</td>
<td>89</td>
<td>91</td>
<td>93</td>
<td>1</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Nebraska Actively Practicing Dentists by Dental Specialty

<table>
<thead>
<tr>
<th>Dental Specialty</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>794</td>
<td>81.0</td>
</tr>
<tr>
<td>Oral Maxillofacial Surgery</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>Oral Pathology</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Oral Surgery</td>
<td>29</td>
<td>3.0</td>
</tr>
<tr>
<td>Orthodontic</td>
<td>55</td>
<td>5.6</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>14</td>
<td>1.4</td>
</tr>
<tr>
<td>Periodontics</td>
<td>30</td>
<td>3.1</td>
</tr>
<tr>
<td>Prosthodontic</td>
<td>22</td>
<td>2.2</td>
</tr>
<tr>
<td>Public Health</td>
<td>3</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>980</td>
<td>100</td>
</tr>
</tbody>
</table>

### State-Designated Dental Shortage Area

**Pediatric and Oral Surgery**

Source: UNMC Health Professions Tracking Center, Dental Survey, 2001

Source: Nebraska Department of Health and Human Services, Office of Dental Health

Legend:
- Light Green: Excess
- Dark Green: Shortage
- Pink: Critical Shortage
- White: No Data

Source: Nebraska Department of Health and Human Services, Office of Dental Health, 2007
NEBRASKA DENTISTS

67% of all Nebraska dentists are UNMC graduates
86% of all rural dentists are UNMC graduates

ACCESS TO DENTAL CARE IN NEBRASKA

Visits to a dentist during the past year among those aged 18 years and older
70.4%

ACCESS TO DENTAL CARE NATIONALLY

Visits to a dentist during the past year among those aged 18 years and older
68.5%

TRUE OR FALSE

There are more dental hygienists in Nebraska than dentists?

Number of Active Dental Professionals, Nebraska 2007

Dentist(1) 1,011
Dental Hygienist(2) 1,027
Total 2,038

NATIONAL DENTAL SPENDING 2015

Source: U.S. Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group
Nationally, fewer than 1 in 5 children in Medicaid obtain dental care.
In Nebraska, about 1 in 2 children in Medicaid obtain dental care.

SAFETY NET DENTAL RESOURCES

Dental Schools
Community Health Centers
County/District Health Depts.
Local programs

DENTAL SCHOOLS IN NEBRASKA

UNMC College of Dentistry
Creighton School of Dentistry
Vermillion
Council Bluffs
Lincoln
Hastings
Cheyenne

DENTAL HYGIENE SCHOOLS IN THE REGION

DENTAL HYGIENE SCHOOLS IN THE REGION

NEBRASKA'S FEDERALLY QUALIFIED HEALTH CENTERS (FQHC) 2011

KRT
Gering
Columbus
Charles Drew
One World
Lincoln
Chadron (Satellite)
Norfolk
Columbus
NEBRASKA LOCAL PUBLIC HEALTH DEPARTMENTS UNDER THE HEALTH CARE FUNDING ACT (LB692)

VOLUNTEER DENTISTRY

RESOURCES

ORAL HEALTH IN NEBRASKA

QUESTIONS

http://www.esstd.org/basicscreeningsurveytool/children
Dental Screening

Dental Screening Supplies

- Tongue depressors (to retract tongue and cheeks)
- Light source: Either a bagged flashlight or penlight (and batteries)
- Latex-free gloves
- Gauze
- Toothpicks, cotton-tipped applicators or new toothbrushes (to remove blood from biting surfaces of teeth)
- Trash bags/trash can
- Soap and water or waterless hand cleaner
- Surface disinfectant
- Paper towels
- Forms for documentation
- Ink pen

Dental Screening Table Setup

1. Paper towel(s) on top of your work table/area.
2. Hand disinfectant.
3. Latex-free gloves.
4. Gauze.
5. Tongue depressors.
6. Toothpicks, cotton-tipped applicators or toothbrushes.
7. Bagged flashlight or penlight.
8. Bagged ink pen.

Principles of Infection Control: No Anticipated Examiner Contact

I. Take action to stay healthy

A. Protective coverings
   - 1. Gloves Optional
   - 2. Facial protection Optional
   - 3. Protective clothing Optional

B. Avoid injuries
   - 1. Handling sharps Not anticipated
   - 2. Written policy available on site

II. Avoid contact with blood

A. Control of contamination with blood not anticipated
B. Waste handling follow state and local regulations

IV. Make instruments and equipment safe for use

A. Instruments Single-use tongue blade, dental mirror, dispersed; penlight, penlight
B. Covered surfaces Change coverings as necessary
C. Uncovered surfaces Clean as necessary


Parent Notification of Screening Results

Dear Parent or Guardian:

There has been an oral health screening today. The results of the screening are listed below. Since this was only a screening, your child should still have a regular dental check-up with a dentist. No dental x-rays were taken today.

Your child’s oral health screening results:

- No obvious need for dental treatment at this time.
- Please see a dentist for regular dental check-ups.
- Early dental care is needed. Please call your dentist and make an appointment soon.

The problem found in your child’s mouth needs immediate attention. Please call your dentist right away.

F. Kim, DMD
Parent Notification of Screening Results

Screening Results

Child's Name: ____________________________

Dear Parent or Guardian,

Your child has received a dental screening at school today. The results of the screening indicate that:

☐ Your child has no obvious dental problems.
☐ Your child should be evaluated for preventive care (cleaning) or sealants.
☐ Your child appears to have some dental problems and should see a dentist.

Please make an appointment at your earliest convenience so that your child can receive a complete examination. Your dentist will determine, what, if any, treatment is needed.

☐ Your child appears to have an URGENT dental need. Please contact a dentist as soon as possible for a complete examination.

A screening is not a comprehensive clinical examination. No x-rays were taken and the screening does not replace an in-office dental examination by your family dentist. All children need to have regular dental care by a dental professional.

DENTAL SCREENINGS SEEK TO MINIMIZE THE CHANCE THE WORST OUTCOME WILL OCCUR

DENTAL SCREENING

Dental Screening

DENTAL SCREENING

Dental Screening
DENTAL SCREENING

Case A

DENTAL SCREENING

Case B

DENTAL SCREENING

Case C

QUESTIONS

DENTAL HEALTH IN NEBRASKA

1. Needs
2. Resources
3. Strategies

HEALTH PROMOTION

Includes the integration of:
Social
Mental
Emotional
Spiritual
Physical
HEALTH PROMOTION = EDUCATION + PREVENTION

“The process of enabling people to increase control over, and to improve their health.”

HEALTH EDUCATION

“Any combination of learning opportunities designed to facilitate voluntary adaptations of behavior that are conducive to health.”

Burt and Ecklund, Dentistry, Dental Practice and the Community, Sixth ed. Elsevier Saunders St. Louis, Missouri 2005

HEALTH EDUCATION

- Participant involvement
- Compatible with culture
- Science/evidence based

BANDURA’S SOCIAL LEARNING THEORY:

* People learn by observing
* Learning can occur without a change in behavior
* Cognition plays a large role in learning. (Awareness and expectations of future reinforcements or punishments influence behavior)

HEALTH EDUCATION

- Health message interpreted through “filters”
- Successful education maximizes self-involvement
- Mass media effective in simple/consistent messages
- Health professionals need to accept not all people share their values on health
- Dental health education improves knowledge but has no direct effect on caries experience

DENTAL HEALTH EDUCATION

- Improves knowledge
- Has positive but temporary effect on plaque levels
- Has no discernible effect on caries experience

HEALTH PROMOTION = EDUCATION + PREVENTION

“the process of enabling people to increase control over, and to improve their health.”


CARIES PREVENTION

Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States, MMWR August 17, 2001 / 50(RR14);1-42 Centers for Disease Control and Prevention

FLUORIDE

Single most effective and efficient means of preventing dental caries regardless of age, race, or income.

CDC FLUORIDE REPORT 2001

Fluoride works primarily after teeth have erupted, especially when small amounts are maintained constantly in the mouth, specifically in dental plaque and saliva.

FLUORIDE

Water fluoridation
Fluoride toothpaste
Fluoride varnish
Fluoride rinses
Fluoride supplements

WATER FLUORIDATION IN NEBRASKA

Approximately 70% of all people served by public water systems.

GOOGLE: My Water’s Fluoride
HOW MUCH FLUORIDE IS NEEDED?

Community water needs 0.7 parts per million

National Research Council (NRC) Report on Fluoride in Drinking Water

THREE FLUORIDE COMPOUNDS USED FOR FLUORIDATION (NATIONAL BOARDS)

Hydrofluorsilicic acid (liquid) easy to add to water
Sodium silicofluoride (solid)
Sodium fluoride (solid)

FLUORIDE INTAKE

Air: 0.04mg/day
Food and beverages:
1 to 3 mg/day in fluoridated areas, decreasing to 1.0mg/day or less in a non-fluoridated areas.
Water: For most people, water and other beverages provide 75% of fluoride intake, whether or not the drinking water is fluoridated.

CDC Morbidity and Mortality Weekly Report (MMWR) August 17, 2001 / 50(RR14);1-42

TRUE OR FALSE

The more fluoride a child receives, the better.

WATER FLUORIDATION: CARIES

Caries experience of children in a fluoridated area is 20-35% less than non-fluoridated.
Adults – Over a lifetime, fluoridation has been estimated to reduce coronal and root caries by about 20-40%.
Seniors - experience 17-35% less root caries in fluoridated areas compared to non-fluoridated areas.

WATER FLUORIDATION: HALO EFFECT

Secondary exposure to fluoridated water in processed foods and beverages.
In some non-fluoridated areas ingestion can be significant.
**FLUORIDE EXPOSURE**

Critical period for the development of fluorosis in the maxillary permanent central incisors is 22 months and extends for periods up to several years after that for later developing teeth.

**WATER FLUORIDATION ENDORSEMENT**

American Medical Association
American Nurses Association
American Hospital Association
American Dental Association
Institute of Medicine
National Institute of Health
U.S. Department of Veterans Affairs
Center’s for Disease Control and Prevention


**FLUORIDE VARNISH**

Applied 2 x a year. For high risk populations is applied 3-4 x a year.

- Less time
- Less patient discomfort
- Greater patient acceptance

**SELF-APPLIED FLUORIDES – PUBLIC HEALTH PROGRAMS**

Individualized gel-tray applications: to customize a tray and supervise the application of the daily fluoride, it works well, but is not cost effective.

Supervised Brushing Programs: Neutral Sodium Fluoride was used .5-1% once every 2 months

**FLUORIDE EXPOSURE**

CDC recommendations:

- Frequent use of small amounts of fluoride for all ages
- Judicious use of fluoride supplements
- Parental monitoring of fluoride intake for children < 6 years
- Fluoride concentration labeling on bottled water products
- Education for health professionals and the public, as well as further research
**Sealants**
- Invented in 1955
- Introduced in 1967
- Marketed in 1971

**Dental Sealants Retention Rates**
- 92-96% After 1 yr.
- 67-82% After 5 yrs.
- 50-70% After 10 yrs.


**2020 Objective**
28% of 8-14 year-olds should have pit & fissure sealants on one or more permanent molar teeth

**2020 Objective**
28% of 8-14 year-olds should have pit & fissure sealants on one or more permanent molar teeth

**TRUE OR FALSE**
A sealant is 100% effective in preventing caries on top of the teeth if properly placed?

**Effectiveness**
Sealants are 100% effective in preventing disease when properly placed.
Sealants

Pit-and-fissure sealants are underused, particularly among those at high risk of experiencing caries; that population includes children in lower-income and certain racial and ethnic groups.


Results

A one-time dental sealant program will reduce caries by 52% after 15 years.

Sealant Conclusions

- Excellent means to prevent decay.
- More sealants need to be provided for at risk populations.

CONCLUSION

Oral Health Promotion and disease prevention require education and appropriate use of prevention modalities.

HEALTH PROMOTION CONCLUSIONS

Although education efforts result in minimal long term effects, they are necessary. Prevention efforts are more effective than education. Prevention efforts should be targeted to those populations/individuals at risk. Prevention efforts include the appropriate use of fluorides and sealants.

ORAL HEALTH IN NEBRASKA

Means bringing together

- Needs
- Resources
- Strategies