Smiles for Life: Ensuring Oral Health Across the Lifespan

This Chapter Lecture Series is supported by a grant from the National Interprofessional Initiative on Oral Health

Program Objectives
At the conclusion of the program, participants will be able to:
1. Discuss the importance of oral health care as an integral component of PA practice.
2. Demonstrate knowledge of oral disease and prevention.
3. Discuss routine counseling for dental problems across the lifespan.
4. Discuss interventions that prevent and treat oral disease.
5. Describe reimbursement policies for oral health services.
6. Implement the Smiles for Life curriculum to improve oral health care for patients.

Faculty Disclosure Information
It is the policy of the American Academy of Physician Assistants to require the disclosure of the existence of any significant financial interest or any other relationship a faculty member has with the commercial interest of any commercial product discussed in an educational presentation. The participating faculty reported the following:
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Off-Label Discussion: There are no references to unlabelled/unapproved uses of products in this program.

Disclaimer: The opinions and comments expressed by faculty and other experts, whose input is included in this program, are their own.
Pre-test

1. What is the most common chronic disease of childhood?
   - Asthma
   - Ear infections
   - Dental caries
   - Depression

Pre-test

2. During a well-child visit, you tell a child's parent that to do an adequate job, children should have help brushing their teeth until what age?
   - Three
   - Four
   - Five
   - Six

Pre-test

3. What is the function of the periodontal ligament?
   - Attach the tooth to the alveolar bone
   - Carry blood to the root of the tooth
   - Bond the enamel of the tooth to the dentin
   - Bond the pulp of the tooth to the dentin
4. What part of the oral cavity is considered an area that is at risk for oral cancer yet is often neglected during an examination?
   - Roof of the mouth
   - Surface of the tongue
   - Lateral aspect of the tongue
   - Anterior gums

5. Which chronic condition can be made particularly worse by dental disease?
   - Hypertension
   - Diabetes
   - Hypercholesterolemia
   - Asthma

6. What potential complication of pregnancy is associated with dental disease?
   - Postpartum hemorrhage
   - Macrosomia
   - Preterm Delivery
   - Perinatal infection
Why Now?

Institute of Medicine Reports 2011

Medical-Dental Collaboration

- Oral health training for medical providers will increase referral to dentists
- Expanded medical knowledge for dental providers will increase referral to medical providers

Misperceptions of the General Public

- “They’re just baby teeth”
- “Bring him in when he’s 4 years old and can sit still”
- “My 3-year old brushes his own teeth”
- “Fluoride is dangerous”
- “You lose a tooth for each pregnancy”
- “Dentures are just a part of getting old”
The Smiles For Life Curriculum

**Modules:**

1. Oral-Systemic Connection
2. Child Oral Health
3. Adult Oral Health
4. Acute Dental Problems
5. Oral Health in Pregnancy
6. Fluoride Varnish
7. The Oral Examination
8. Geriatric Oral Health

(2011)

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Caries Etiology Triad - How decay occurs

Oral bacteria (*s. mutans*) break down dietary sugars into acids which break down the tooth

- Oral bacteria ferment sugars, producing acids that persist for 20-40 minutes after sugar ingestion
- Oral acids demineralize tooth enamel
- Remineralization occurs when acid is buffered
- How often sugars are ingested is more important than how much sugar is ingested

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Dietary Influences

- Bottle
- Breakfast
- Snack
- Sippy cup
- Snack
- Lunch
Cariogenicity of Foods

- Highly cariogenic:
  - Sweet sticky foods

- Less or minimally cariogenic:
  - Whole grain or non-carbohydrates (meat, nuts)

A Review Common Oral Diseases Across the Lifespan

- Early childhood caries (ECC)
- Adult caries
- Gingivitis
- Periodontal disease
- Pregnancy complications
- Geriatrics
- Oral Systemic Connection

Prevalence of Early Childhood Caries (ECC)

- ECC is a public health crisis!
- Prevalence:
  - 5% of all U.S. children
  - 30-50% of low income children
- 80% of decay occurs in 20% of children
- Most common chronic disease in children
  - 5 times more common than asthma
Early Childhood Caries (ECC)

- Leads to tooth loss and/or infection
- Can be vertically transmitted
- Sequelae:
  - Pain: Impaired chewing and nutrition; school/work absences
  - Infection
  - Increased caries in permanent dentition
  - Extensive and expensive dental work

Is Preventable!

White Spots: The Early Stage of Caries

Photos: Joanna Douglass BDS DDS

White Spots, then Brown Cavitations

Photos: Joanna Douglass BDS DDS
Advanced Caries

Brushing Techniques
(kids need help until age 6)

Knee to Knee Exam
Don’t Forget About Fluoride!

- **Topical (greater effect)**
  - Inhibits demineralization
  - Promotes remineralization
  - Produces anti-bacterial activity
  - Also effective in older adults

- **Systemic (lesser effect)**
  - Reduces enamel solubility by incorporation into its structure

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Well-child Visit Frequency-Opportunity to Talk About Oral Health

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Oral health-Adults
Oral Disease in Adults - Gingivitis

- Mildest form of gum disease
  - Mild gum swelling, tenderness, erythema
  - Gums bleed during brushing
  - Can occur acutely with foreign body
  - Reversible!

- Etiologies
  - Plaque
  - Pregnancy
  - Disease
  - Trauma

Oral Disease in Adults - Periodontitis

- More severe than gingivitis
- Infection and inflammation induce loss of bone and tooth attachment
- Periodontal ligament is attacked

Periodontitis - continued

- Can start in teen years
- Present in 50% of adults
- Smoking is a major risk
- Prevention:
  - good oral hygiene
  - brushing and flossing
  - avoid tobacco
Oral Cancer

- Two precursors
  - Erythroplakia
  - Leukoplakia
- Risk Factors
  - ETOH
  - Tobacco
- Most Common Location
  - Lateral Aspect of the Tongue

Precursors

- Erythroplakia
- Leukoplakia

Oral Exam

- Examine the anterior surfaces of the teeth for discoloration, caries, trauma, and heavy plaque.
- Inspect the teeth with mouth closed and open noting occlusion, missing, damaged, or decayed teeth.
Oral Exam

- Instruct patients to open their mouths wide to inspect the inner (lingual) aspect of the upper (maxillary) teeth and the molars.
- Use a mouth mirror to help view the inner (lingual) aspect of the teeth and a retractor to help view the molars.
- If you do not have a mirror, you must either advise patients to tilt their heads back or lower your head to see properly.
- Repeat the procedure to examine lingual aspects of the lower teeth and molars.

A mirror helps to view lingual surface
Lingual upper teeth
Lingual lower teeth

Mark Deitchman, MD

Oral Health - Pregnancy
Oral Health in Pregnancy

- Gingivitis is common in pregnancy
  - Postulated caused by increase in hormones
  - Usually resolves after birth
  - Pyogenic granulomas common
- Periodontal disease is associated with adverse pregnancy outcomes
  - Inflammatory response may cause the following:
    - Pre term birth
    - Low birth weight

Oral Health in Pregnancy

- Treatment during pregnancy is safe, but both medical and dental providers may be reluctant to treat
  - Avoid 1st and 3rd trimester
  - Xrays safe-But double shield
  - Urgent care can be done at anytime
- The best way to improve infant oral health is to improve maternal oral health:
  - *S. mutans* vertically transmitted
  - Mother’s oral health practices and diet influence child practices

Oral Health - Geriatrics
Geriatric Considerations

- The geriatric population is growing and has increasing oral health needs
- 70% of seniors lack dental insurance
- Dental health is often neglected
- Oral health behaviors are associated with longevity
- Mortality increases linearly with tooth loss
- Medications may have negative oral consequences which should be monitored and minimized whenever possible
- Quality of life and chronic disease management of elders are improved with attention to their oral health
- Osteonecrosis of the Jaws

Changes of Normal Aging

- Plaque and gingivitis develop more rapidly in older adults than younger cohorts
- Common medical conditions may interfere with ability to cleanse teeth and oral cavity
  - Dementia
  - Osteoarthritis
  - Visual impairment
  - Stroke
- Tendency to xerostomia even without medications

Iatrogenic Xerostomia

- Decreased saliva promotes periodontal disease
- Many medications reduce salivary flow:
  - steroids
  - antihistamines
  - diuretics
  - antihypertensives
  - anticholinergics
  - antidepressants
Dentures

- Good fit essential but may be difficult to achieve and maintain
- Monitor for damage to plates and rough areas
- Should be removed for oral cavity exam at least 1/yr or when dental problems suspected
- Must be removed, brushed with denture cleanser (not toothpaste) and placed in water overnight

Is there an Oral-Systemic Connection?

- Good evidence for oral/systemic link
  - Infective endocarditis (8% of cases)
  - Prosthetic device infection
  - Diabetes
- Emerging evidence for oral/systemic link
  - Obesity
  - Coronary artery disease
  - Lower respiratory disease
  - Adverse pregnancy outcome
    - Preterm birth and low birth weight
    - Preeclampsia

How are the Two Connected?

- Dental plaque is a polymicrobial biofilm that may contain up to 500 species of bacteria.
- Bacteria can produce toxins that damage gum tissue.
- Neutrophils attack the bacteria, and when there is gum damage, the immune system sends in macrophages to clean up cellular debris and dead and dying neutrophils.
- The macrophages secrete inflammatory mediators such as fatty acids, interleukin 1, and tumor necrosis factor alpha that can circulate beyond the oral cavity.
- It is this inflammatory cascade and the potential systemic spread of proinflammatory mediators that is being studied to explain the observed link between oral disease and a wide range of systemic diseases
Diabetes & Glycemic Control

- Poor glycemic control is associated with a threefold increased risk of having periodontitis in diabetics versus controls.
- Diabetics with good glycemic control have no significant increased risk of periodontal disease.
- Chronic infection (like periodontal disease) worsens glucose control.
- Treatment of periodontal disease results in a 10–20% improvement in glycemic control.

The Opportunity

- Most children have access to primary care
  - 89% of poor children have a usual source of medical care
  - Primary care providers have regular, consistent contact with children for checkups and immunizations
- Adults with many chronic diseases see medical providers frequently-can discuss oral health during these exams
- Principles of risk assessment, screening and behavior change counseling are fundamental to primary care clinicians

Medical Setting Opportunities

<table>
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<tr>
<th>Infants &amp; Children</th>
<th>Pregnancy</th>
<th>Adults</th>
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<tbody>
<tr>
<td>Risk assessment</td>
<td>Diet</td>
<td>Diet</td>
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<td>Oral hygiene</td>
<td>Oral hygiene</td>
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<td></td>
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<td>Screening and counseling</td>
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<td>Parental care</td>
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<td>Periodontal Dz Self-care</td>
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<td>Treatment and referral</td>
<td>Fluoride Dental visit</td>
<td>Rinses Xylitol Dental visit</td>
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Oral Health Provider Education

- Awareness of the oral-systemic connection
- Importance of anticipatory guidance re: diet and oral hygiene
- Risk assessment
  - Diet
  - Oral hygiene
  - Oral cancer
  - S. mutans
  - Xerostomia

Education - continued

- Identification of:
  - Periodontal disease and referral
  - Oral cancers including sites often neglected by medical providers
  - Acute problem/trauma
  - Need for referral

Reimbursement

- Medicaid in most states now pays medical providers for child oral health services
  - Exam, risk assessment and guidance
  - Fluoride varnish application
  - Must be combined with well-child exam in CO
- Next steps:
  - Adult oral health benefits for Medicaid?
  - Affordable dental insurance
States with Medicaid Funding for PA Oral Health Screening and Fluoride Varnish

www.Smilesforlifeoralhealth.org

Modules
- Each designed to take about 45 minutes
- Can be completed online and followed by a test
- Certificate of completion issued
- Free CME
- Can also be downloaded
- Speaker notes

Other Resources
- Videos
  - Knee-to-knee exam
  - Fluoride varnish
  - Brushing a child’s teeth
- Posters
- Pocket cards
- Learning objectives
- Curriculum implementation guide
- Test questions
Take Home Points

- Early childhood caries is an infectious, vertically-transmitted, preventable disease.
- Oral health and systemic health are related across the lifespan.
- Primary care providers are well-positioned to help patients improve their oral health through guidance, screening and referral.
- The Smiles for Life National Oral Health Curriculum can improve knowledge and skills in oral health.

**Mission**

Engage primary care clinicians to be:

- Alert to their patient’s oral health needs
- Ready and willing to deliver oral health preventive services
- Effective at partnering with dental specialists and other primary care providers to promote oral health through patient-centered collaborative care

**Post-test**

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