Geriatric Oral Health:
The Family Physicians Role

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For more than 35 years, Dr. Deutchman has been involved in rural medical practice or teaching. In 2000, he received the American Academy of Family Physicians’ (AAFP’s) Exemplary Teaching Award for Full-Time Faculty. He has experience performing and teaching maternity care, ultrasonography, and other clinical procedures in ambulatory and hospital settings. He is founding director of the University of Colorado School of Medicine’s rural track for students who are planning a career in rural medical practice. In addition to his focus on rural physician workforce development, Dr. Deutchman is engaged in interdisciplinary training and is a co-author of Smiles for Life: A National Oral Health Curriculum.

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Dr. Sievers earned her medical degree from the University of Missouri in Columbia, and completed her residency in family medicine with the University of Missouri in Kansas City. Her medical practice responsibilities include full-spectrum family medicine care at St. Mary’s Medical Center in Grand Junction, Colorado. In addition, she teaches full-spectrum family medicine, including inpatient and outpatient services, obstetrics, and pediatrics. Dr. Sievers serves on the national Smiles for Life committee, which helps bring dental education and training to family physicians. She also serves as a deputy editor for the Family Physicians Inquiries Network’s Help Desk Answers.

Learning Objectives
1. Identify the elements of a complete and accurate oral assessment of elderly patients.
2. Identify and manage common oral conditions in the elderly.
3. Recognize oral-systemic relationships in the elderly.
4. Implement effective oral preventive measures for the elderly and their caregivers.
Audience Engagement System

Why Oral Health Matters
- Teeth are connected to the rest of the body
- Poor oral health affects systemic health
- Systemic health, in turn, affects oral health
- Medications we prescribe can affect oral health
- Oral disease is preventable!

But...Dentists!
- Only 43% of elders visit the dentist!
  - Medicare does not provide coverage for oral health services
  - Many people lose their dental insurance when they retire
  - People on a fixed income may have trouble paying for dental care

Increasing Burden of Disease
- Dentists are taking a more conservative approach to dental care
  - Fewer extractions, more preventive care
- Water fluoridation has had a big impact on dental health
- Complete tooth loss has declined from 50% to 18% in the past 60 years

Increasing Burden of Disease
- Older adults are developing caries and gum disease at rates equivalent to those in children
- 70% of adults over 65 have periodontal disease
- 32% of elders have dental caries
- 23% of elders have severe periodontal disease

AES Poll Question
Which one of the following statements is true?
- a. Dental implants are a good choice for patients with poorly controlled diabetes and tooth loss, to avoid the risks associated with dentures.
- b. Dentures can be made to fit over implants to improve their retention.
- c. Bridges should be regularly removed and cleaned to prevent oral pain.
- d. Patients taking oral or IV bisphosphonates for osteoporosis can have dental implants placed.
The following slides on the oral exam are used, with permission, from the Smiles for Life National Oral Health Curriculum

**Nursing Facilities**

- 1.25 million elders reside in nursing facilities
- Medicare and Medicaid require oral health assessment and care for residents
- 70-90% of residents cannot brush their own teeth or care for dentures
- Oral care is not consistently delivered
- Only 16% receive any oral care, and average brushing time is 16 seconds

- Education of nursing staff is critical

**The Assessment**

- Assess symptoms suggestive of oral problems
- Examine:
  - Face and lips
  - Teeth, gums, and dentures including level of hygiene
  - Mucosal surfaces and saliva, including soft and hard palate
  - Lateral borders and undersurface of the tongue
  - Posterior pharynx
- Palpate:
  - Neck, temporomandibular joint, and floor of the mouth
- Identify abnormal lesions
- Offer anticipatory guidance

**Dental Pain**

- Communicating pain is difficult for patients with disabilities
- Signs of pain may be vague and poorly localized
- Include dental origin in the differential diagnosis of head and neck pain
  - Behavioral signs
  - Putting at face
  - Not eating
  - Agitation
- Physical signs
  - Cheek or gum swelling
  - Broken, decayed or loose teeth
  - Ulcerations

**Face and Lips**

- Examine face with lips at rest
- Identify any facial deformity, skin or peri-oral lesions
- Squamous cell carcinoma of lip is common and may present as dry, scaly, or ulcerated non-healing lesion
- Creasing of facial skin at lip corners often due to tooth loss may predispose patient to angular cheilitis

**Gums and Teeth**

- Remove dentures
- Assess for
  - Caries and root caries
  - Gingivitis and periodontal disease
  - Hygiene status

- Extensive caries
- Extensive plaque and periodontal disease
- Root Caries
Age-Related Changes

- **Gingival Recession** resulting in root surface exposure (Photo: Jan McEwen, DDS)
- **Worn incisal edges and yellowing** (Photo: UKCD)
- **Dark Staining** (Photo: Robert Henry, DMD, MPH)
- **Tobacco Staining** (Photo: Robert Henry, DMD, MPH)

Tobacco Staining

Implants

- Implants are surgically placed into the jaw and then usually crowned.
- Implants are also used to retain dentures in patients who are edentulous. Dentures can be made to fit over two to four implants in the upper or lower jaw to enhance denture retention and stability.
- Placing dental implants is likely straightforward for patients with a healthy mouth, a history of good oral hygiene, and few medical problems.
- Patients with decreased jaw bone mass (osteoporosis, low hanging maxillary sinus, or bone resorption), diffuse caries, or difficulty with hygiene due to co-morbidities may not be good candidates.
- Implant placement is contraindicated in patients who have received IV bisphosphonates. Poorly controlled diabetes or serious bleeding disorders are also a concern. (Photo: Ingeborg De Kok, DDS)

Dentures and Bridges

- Removable dentures may be “complete” (replace all teeth) or “partial” (replace some teeth)
- Remove for the examination and assess for:
  - Fit and comfort
  - Broken areas or missing prosthetic teeth
- Fixed bridges replace one or more teeth. The bridge is connected to adjacent healthy teeth using a crown.
- A bridge cannot be removed (Photos: Robert Henry, DMD, MPH)

Mucosa

- Aging results in thinning of oral mucosa and decreased elasticity
- Mucosa should appear wet and glistening
- Dry mucosa interferes with denture retention and increases risk of caries
- Pay particular attention to mucosa under dentures

Denture Problems

- **Ulcerated mucosa from denture irritation**
  - Ill-fitting dentures
  - Poor hygiene
  - Dentures left in too long
- **Angular cheilitis**
  - Common when old dentures have insufficient vertical height
  - Assess dentures and need for rework or relin
  - Treat with topical antifungals for 2 weeks
  - Biopsy if non-healing

Tongue

- **Normal**
- **Dry and fissured**
- **Lingual varicosities** (Photos: Robert Henry, DMD, MPH)

Age-Related Changes

- Fissuring, mucosal thinning and sublingual varicosities
  - Although number of taste buds decreases with aging, decreased taste sensitivity is more due to smoking, drugs and dry mouth

Examination

- Must grasp tip of tongue with gauze to pull forward and up
- Inspect lateral margins and undersurface where pathological changes often occur
**Denture Stomatitis**

- **Symptoms**
  - Erythema of palate with cobblestoning
  - Often asymptomatic
- **Etiology**
  - Complex and multifactorial, esp Candida
  - Most common risk factor is continuous denture wearing
  - Other risk factors:
    - Xerostomia
    - Diabetes or immunosuppression
    - Nutritional deficiencies
- **Treatment**
  - Treat mouth with topical antifungals for 2 weeks
  - Soak dentures in chlorhexidine or nystatin
  - Dentures out of mouth for at least 8 hrs nightly

**Denture Care**

- Overnight, saliva decreases and bacterial counts increase. As a result, continuous denture wear may lead to denture stomatitis, redness, and irritation in the palatal tissue.
- Poor hygiene of dentures also contributes to denture stomatitis. Plaque and calculus collect on dentures just as on natural teeth.
  - **Dentures should be:**
    - Removed at night to let oral tissues rest
    - Brushed with liquid hand soap, dishwashing liquid, or denture cleaning paste—avoid using regular toothpaste
    - Soaked overnight in a cup of water or denture cleaner

**Caries: Etiology & Symptoms**

- **Etiology**
  - Dietary carbohydrates are metabolized by bacteria into acids resulting in destruction of tooth structure
  - Root caries is common in the elderly
    - Gingival recession exposes susceptible root surfaces
    - Root caries progresses rapidly
- **Symptoms**
  - Mild disease asymptomatic
  - Pain
  - Cellulitis
  - Abscess

**Caries: Risks**

- **Risk factors**
  - High bacterial counts
  - Frequent consumption of sugar-containing foods
  - Inadequate fluoride
  - Low socio-economic status
  - Physical disabilities and dementia
    - Brushing and other oral hygiene activities become more difficult
  - Existing restorations or appliances
  - Xerostomia
  - Medication
    - Decrease salivary flow
    - May contain high levels of sucrose

**Gingivitis**

- **Symptoms**
  - Tenderness
  - Erythema
  - Bleeding gums
- **Etiology**
  - Plaque buildup
  - Changes in hormone levels
  - Oral foreign bodies
  - Gum inflammation but no destruction of periodontal ligament or bone
- **Treatment**
  - Good home hygiene
  - Regular dental visits

**Periodontitis**

- **Etiology**
  - Chronic plaque exposure causes inflammation which leads to
    - Destruction of periodontal ligament
    - Loss of supporting bone
    - Tooth loosening and loss
- **Treatment**
  - Good oral hygiene and regular dental visits
  - Cessation of tobacco and other irritants such as cannabis
  - Dental referral for deep root scaling
  - Oral antibiotics and topical solutions such as chlorhexidine
  - Caution: Chlorhexidine may stain teeth yellow to brown, alters taste temporarily, increase deposition of calculus (tartar), and the taste may be unpalatable.
AES Poll Question
Which one of the following statements about oral lesions is false?

a. Leukoplakia and erythroplakia are both premalignant lesions.
b. Alcohol, tobacco, and HPV are all risk factors for oral cancer.
c. Oral cancer has a 90% 5 year survival rate.
d. All unexplained white lesions present in the mouth for more than 2 weeks should be biopsied.

Leukoplakia and Erythroplakia

- **Etiology**
  - Premalignant
- **Symptoms**
  - Subtle white or red patch
  - May progress to elevated plaques that ulcerate
- **Treatment**
  - All unexplained white lesions persisting for more than 2 weeks should be biopsied
  - Dysplastic lesions should be removed

Oral Cancer: Epidemiology

- **Prevalence**
  - Ninth most common cancer
  - Seven times more likely in the elderly
  - Rising incidence in African American males
- **Epidemiology**
  - Alcohol and tobacco
  - Human Papilloma Virus, HPV 16
  - Sunlight (lip cancer)
  - Betel nuts
- **Symptoms**
  - Red or white patches persisting beyond 2 weeks
  - Ulcers that are non-healing or bleed easily
  - Masses

Oral Cancer: Treatment

- **Treatment**
  - Biopsy of suspicious lesions
  - Guided by clinical staging.
  - May involve surgical resection, lymph node dissection, radiation, or chemotherapy
  - 50% 5 year survival rate

Oral-Systemic Link

- “The mouth reflects general health and well-being”
- “Oral health is integral to general health”
  - Surgeon General's Report 2010

AES Poll Question
Which one of the following statements is false?

a. Oral care interventions can lead to a 90% reduction in ventilator associated pneumonia
b. Patients with poorly controlled diabetes are 3 times more likely to develop gingivitis and periodontitis
b. The incidence of periodontitis increases after menopause, and hormone replacement therapy reduces this incidence.
d. Treatment of periodontitis can reduce the risk of cardiovascular disease and cerebrovascular disease
Direct Bacterial Extension

- Untreated oral infection can spread and lead to
  - Intraoral abscess
  - Sinusitis
  - Facial cellulitis
  - Bacteremia and sepsis

Aspiration pneumonia

- Pathogens can easily travel between the mouth and the lungs
  - Particularly a risk in hospitalized and bedridden patients
- Oral care interventions led to a 90% reduction in ventilator associated pneumonia
- Oral hygiene strategies in nursing homes also help reduce the risk of pneumonia

Diabetes

- Patients with poorly controlled diabetes are 3x more likely to develop gingivitis and periodontitis
- Patients whose periodontal disease is treated can have an improvement in their HbA1C up to 0.29%
- Diabetes can cause reduced salivation, leading to dental caries
- Diabetic neuropathy can worsen taste and smell, and cause a burning mouth syndrome

Cardiovascular disease

- There is an association between coronary artery disease and periodontal disease, but not a causative relationship
- Both share elevated CRP levels, and inflammatory cytokines play a role in both disease processes
- Treatment of periodontal disease has not been shown to reduce cardiovascular risk

Cerebrovascular disease

- There is also an association between cerebrovascular disease and periodontal disease (not a causative relationship)
- Patients who have experienced a stroke are at higher risk for caries and periodontal disease due to
  - Oral sensory and motor deficits
  - Poor tongue function and lip seal
  - Dysphagia
  - Reduced oral clearance of foods and increased food packing
  - Reduced dexterity negatively affecting ability to perform oral hygiene

Osteoporosis

- Osteoporosis can cause weakness in the bones that support the teeth
- Bisphosphonates have been linked to osteonecrosis of the jaw
  - Risk is low, but increases for higher-dose bisphosphonates
  - Consider dental evaluation before starting a bisphosphonate
Menopause

- Periodontitis increases after menopause
- Hormone replacement therapy appears to be protective
- Clinicians should be aware that peri- and post-menopausal women need to be more vigilant about oral hygiene

Rheumatoid arthritis

- Periodontal disease is more common in patients with RA, and treatment of periodontal disease leads to reduction in some markers of RA (ESR, TNF-α, and DAS scores)
- Inflammation from RA may involve TMJ, affecting chewing and eating
- Diminished salivary output (Sjogren’s Syndrome) leads to xerostomia and caries
- Reduced dexterity negatively affects ability to perform oral hygiene

All-cause mortality

- Complete edentulism prior to age 65 is associated with a 1.5x increased risk of death from all causes

AES Poll Question

Which of the following categories of medications commonly prescribed in the elderly does not contribute to xerostomia?

a. Steroids
b. Diuretics
c. SSRIs
d. Antihistamines

Oral Effects of Medications

- Xerostomia
- Stomatitis/mucositis
  - Chemotherapy/radiation therapy
- Candidiasis
  - Steroids
- Gingival Hyperplasia
  - Phenytoin
  - Methotrexate
  - Calcium channel blockers

Xerostomia

- Sensation of dry mouth due to decreased salivary flow
- Medications are the most common cause
  - Antihypertensives
  - Diuretics
  - Antihistamines
  - Antidepressants
- Other common causes are rheumatic disease and radiation therapy
- Significantly increases the risk of caries and periodontal disease
Management of Xerostomia

- Avoid inciting medications
- Avoid alcohol, caffeine, and smoking
- Avoid sugary drinks and candies
- Take frequent sips of water, especially with eating
- Try salivary substitutes, or sugar-free gum or candy
- Increase focus on oral hygiene

Prevention of Oral Disease

- **Patient steps**
  - Maintain good oral hygiene
  - Keep dentures clean
  - Avoid sugary snacks and drinks
  - Avoid alcohol and tobacco
  - Use fluoridated toothpaste
- **Clinician steps**
  - Encourage regular dental visits
  - Assist patients in accessing care
  - Minimize medications with oral effects
  - Consider concentrated fluoride toothpastes (1.1% sodium fluoride) for patients at high caries risk

Oral Hygiene in the Elderly

- **Oral Hygiene**
  - Brush at least twice a day with a soft toothbrush
  - Focus on the area where the tooth meets the gum
  - Use a good quality electric toothbrush for best results
  - Floss regularly
- **Challenges**
  - Many elderly patients have problems maintaining their own oral hygiene, including those who have:
    - Strokes
    - Arthritis
    - Dementia
  - Assistive devices and guidance should be considered for patients and caregivers

Specialized Hygiene Aids

- **For patients with compromised dexterity**
  - Toothbrushes with enlarged handles for easier gripping
  - Toothbrushes that brush multiple surfaces at once
  - Flossing aids
  - Tongue scraper for hairy tongue

- **For patients unable to brush their own teeth or who cannot cooperate**
  - Collis Curve™ or Surround™ toothbrushes
  - Flossing aids
  - Mouth props (purchase or tape gauze around a bite stick)
  - Caregivers will find it easier to stand behind patient when assisting with brushing
Dependent Care
Implementing oral hygiene protocols in nursing facilities and dependent care settings
- Staff are educated about the importance of oral care
- Designated oral hygiene aides are trained
- Oral assessment is performed
- Supplies are available
- Daily care is documented
- Oral care occurs with limited interruptions
- Online resources are available for providing oral health education for nursing staff.

Working with Caregivers
- Caregivers can be overwhelmed with care needs for disabled patients
- Oral health may seem like just one more thing they have to do

AES Poll Question
Which one of the following statements is true?
(a) Most major dental procedures cannot be performed in a patient with an INR higher than 2.0.
(b) Patients with prosthetic hips or knees do not need antibiotic prophylaxis prior to dental procedures.
(c) Patients with AV hemodialysis shunts do not need antibiotic prophylaxis prior to dental procedures.
(d) Peri-operative heparin should not be used to bridge anticoagulation in patients whose anticoagulants must be discontinued prior to dental surgery.

Collaboration with dental professionals
- Consider standardized communication form
- Patients particularly in need of collaboration
  - Medically complex patients
  - Patients on anticoagulation
  - Patients in need of antibiotic prophylaxis

Anticoagulation
- Thromboembolism in patients whose anticoagulation is discontinued is 3 times more likely than major bleeding in patients whose anticoagulation is continued
- Most major dental procedures can be performed with an INR of 2.5 or less
- If a patient is having a dental procedure where anticoagulation must be discontinued, consider transition to peri-operative heparin
- Communication is key!

Antibiotic prophylaxis
- Conditions requiring prophylaxis before dental procedures
  - Prosthetic heart valves
  - Previous history of endocarditis
  - Unrepaired congenital heart disease
  - Post-transplant valvulopathy
  - Vascular grafts <6 months old
  - AV hemodialysis shunts
  - Some neurosurgical shunts
  - Indwelling vascular catheters
Practice Recommendations

• Perform an oral health assessment on your geriatric patients.
• Think about effects on oral health before prescribing medications, and counsel patients on how these medications might affect their oral health.
• Communicate regularly with local oral health professionals, especially in the case of medically complex patients.

References

1) Smiles for Life oral health curriculum – www.smilesforlifeoralhealth.org