Diagnosis and Treatment of Dental Complaints in Primary Care

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Objectives:
› Outline significance of oral health & oral disease in primary care.
› Review dental anatomy.
› Evaluate impact of medication & disease on oral health.
› Describe appropriate diagnosis and treatment of common dental complaints in primary & urgent care.

Introduction
› Although oral health has improved, significant oral disease and health disparities remain
› The first Surgeon General’s report on oral health in America described dental disease as a “silent epidemic.” In 2000
› Oral health is a priority in Healthy People 2020 with 17 oral health objectives
› In spite of these efforts, 20% of adult patients have untreated dental decay and dental caries are common chronic diseases in children (Dye, Tan, Smith, Lewis, Iannelli & Thornton-Evans et al., 2007)
› Oral health is often taken for granted but it is an essential part of every day lives.
› Good oral health enhances our ability to speak, smile, smell, taste, touch, chew, swallow and convey our feelings through facial expressions.
› Oral diseases which range from cavities to oral cancer cause pain and disability for millions of Americans.
› Tooth decay is a problem for many adults, and adults and children of some racial and ethnic groups experience more untreated decay (CDC, 2001).
Vulnerable and underserved populations face persistent and systematic barriers to assessing oral health care.

Barriers are numerous and complex and include social, cultural, economic, structural, and geographic areas.

For example:
- In 2008, 4.6 million children did not obtain needed dental care because their families could not afford it.
- In 2011, there were 33.3 million underserved persons living in Dental Health Professional Shortage Areas.
- In 2006, only 18 percent of retired individuals had dental coverage (IOM, 2011).

Institute of Medicine
• Convened an ad hoc, consensus committee on oral health (2009).
• Committee reviewed current policies, barriers, health initiatives and ways to improve access.
• Report is referred to as the New Oral Health Initiative (NOHI).
• One of the 10 organizing principles is to enhance the role of non-dental health professionals.

Primary Care Providers Role in Oral Health
- Caregiver education: A good source of reference material is www.medlineplus.gov, the consumer side of PubMed from the National Library of Medicine.
- Clinical findings: Visible plaque on teeth, gingivitis (red, swollen gums), demineralized enamel (white spot lesions on teeth), enamel defects (e.g., hypercalcification, deep pits and fissures) (Milgrom, Chi, Tut, Draye, & Acker, 2013).
- Anticipatory guidance: Toothbrushing techniques, toothpaste, xylitol gum and syrup, chlorhexidine oral rinse.
- Oral examinations: Systematically inspect oral mucosa, saliva and teeth using an intraoral mirror.
- Medicaid programs are beginning to reimburse PCPs for preventative dental services.
- Application of fluoride varnish: Early white spot lesions in primary and permanent teeth can be remineralized using fluoride varnish.
- Polyvinylpyrrolidone iodine can be applied to teeth before the application of fluoride varnish for an additive effect to depress tooth decaying bacteria.
- Optimize the fluoride of communal water supplies (Milgrom, Chi, Tut, Draye, & Acker, 2013).
- Institute of Medicine
- Medicaid programs are beginning to reimburse PCPs for preventative dental services.
Oral Health Complications

› Adverse health outcomes
  - Low self esteem
  - Pregnancy outcomes
  - Risk of myocardial infarction
  - Diabetes complications
  - Respiratory complications
  - Erectile complications

(Clark et al., 2010; Idzik & Krauss, 2013)

Disease Impact on Oral Health & NP Role

› Diabetes: blood sugar control & meticulous oral hygiene
› HIV: subtle oral changes refer to dentist or oral surgeon with expertise in care of patients with HIV
› Eating disorders: behavioral health counseling
› Sjogren’s Syndrome: supportive measures
› Substance Abuse: behavioral health counseling
› Cancer: NIDCR offers several suggestions for preventions

(Dent et al., 2010; Idzik & Krauss, 2013)

Dental Anatomy

› Accurate descriptions
› Names of different types
  - 8 kinds
  - 32 teeth
    - 20 deciduous: A-T
    - Permanent dentition
      - 4 premolars
      - 4 second premolars
      - 4 third molars

(Clark et al., 2010; Idzik & Krauss, 2013)
Medication Effects

- Psychotropics
  - may cause behavior not conductive to good oral hygiene
- ACE's, CCB's, NSAID's, Decongestants
  - Xerostomia
- Clindamycin, Lasix, NSAID's, Sulfonamides, Phenytoin
  - erythema multiforme, lichenoid lesions, or aphthous ulcers
- Tetracyclines
  - Alter tissue pigmentation
- Bisphosphonate, most severe side effect
  - Bisphosphonate-associated osteonecrosis of the jaw

Medication Effects & NP Role

- Behavior not conductive to oral hygiene
  - Reinforce regular brushing, flossing, mouth rinses, and regular dental evaluation & cleaning
  - Oral Mucosa
    - Regularly evaluate oral mucosa
    - Modify medication if appropriate
    - Treat symptoms with topical preparations of corticosteroids & anesthetics
- Serious side effects
  - Aware of potential complications
  - Counsel
  - Evaluate
  - Appropriate referral

Oral Pain

- NSAID
- Opioids
- Oil of Cloves (Eugenol)
**Antibiotic Choices**

- Selection is based on organisms that colonize teeth, gums & mucous membranes:
  - Streptococcus & Anaerobes
  - Penicillin VK, 25–50 mg/kg/day, divided four times daily
  - Amoxicillin, 35–50 mg/kg/day, divided three times daily
  - Amoxicillin-clavulanate, 35–50 mg/kg/day of the amoxicillin component, divided three times daily

- For penicillin allergic patients use:
  - Clindamycin, 10–25 mg/kg/day, divided three times daily

- For severe infections consider broad spectrum agents:
  - Amoxicillin-sulbactam
  - Cefotaxime
  - Ceftazidime
  - Piperacillin-tazobactam
  - Imipenem-claustatin

**Dental Caries**

- Early stages causes no pain
- Pain ensues once caries has reached the pulp (pulpitis)
  - Visible holes
  - Pain after consumption of food or drink:
    - Sweet, hot, cold

**Management:**
- Regular dental check up
- Referral to dentist for fillings

**Antibiotic Choices (Clark et al., 2010)**

**Ludwig's Angina**
FACIAL CELLULITIS
PERIAPICAL ABSCESS
APICAL PERIODONTITIS
PULPITIS
CAVITY

**Dental Caries (Clark et al., 2010; Idzik & Krauss, 2013)**
### Pulpitis

- **Reversible**
  - Triggered by offending stimulus
  - Last a few seconds
- **Irreversible**
  - Persistent
  - Poorly localized

Management: dental referral for filling
Management: pain control (NSAID's), dental referral for root canal or extraction

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### Apical Periodontitis

- **Apex inflammation**
  - Result of a severely inflamed pulp that has become necrotic
  - Tapping teeth with instrument helps in identifying diseased tooth

Management: pain control (NSAID's), urgent dental referral for root canal or extraction
  - Antibiotics are not necessary unless cellulitis
  - Patient education spreading signs of infection

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### Apical Abscess

- **Apical periodontitis**
  - Abscess, adjacent to the affected tooth fluctuant buccal or palatal swelling

Management: NSAIDS & referral to dentist or oral surgeon
  - Patient without comorbidities, oral antibiotics usually not necessary for well-localized abscess
  - Surrounding cellulitis, diabetes, neutropenia, malignancy, or use of corticosteroids - antibiotic is prescribed
  - **Treatment of choice:** Penicillin or penicillin-based antibiotic; PCN allergy prescribe clindamycin
**Facial Cellulitis**

- Pain, often with fever
- Facial swelling
- Patients with severe infection may exhibit:
  - Swelling involving orbit or deep spaces of the neck
  - Trismus and dysphagia
  - Unstable vital signs and other evidence of invasive infection

**Management:** Localized cellulitis in compliant patients:
- Outpatient oral antibiotics & analgesics
- Prompt dental referral
- Severe cellulitis involving deep facial spaces or with sepsis:
  - Hospitalize with surgical consultation
  - CT imaging to rule out deep space involvement
  - IV antibiotics and appropriate analgesics
- Extraction or root canal

**Ludwig’s Angina**

- Submandibular cellulitis arising from a dental infection of 1 of the lower molars
- Proclivity to obstruct patient airway
- Clinical feature (woody tongue):
  - Elevation, posterior enlargement

**Management:** Urgent transport via EMS to nearest ED
- Co-administration of IV steroid and IV antibiotic (high dose penicillin-based) facilitates rapid penetration of antibiotic into infected fascial spaces
- Hospitalization
  - I & D
  - Tracheostomy
  - Surgical intervention
  - CT scan with contrast

**Pericoronitis**

- Inflammation of tissue surrounding a partially erupted tooth
- Frequently seen with third molars (wisdom teeth)
- Pain, gum swelling, and inability to bite down on the affected side.

**Management:** mild cases
- Irrigation under the flap
- Cellulitis
  - treated with antibiotics
  - administer analgesics as needed
- Recurrent cases may need removal of tooth or gum flap
**Dental Trauma**

- Fractures - Ellis Classification System
  - Class I: marginal tooth & no visible displacement
  - Class II: fracture of enamel + dentin + cementum without visible displacement
  - Class III: exposed pulp + root canal

- Concussion
  - Tenderness to tooth but no obvious mobility
  - Pain management, soft diet, dental referral

- Luxation
  - Subluxation: tooth mobility without dislodgement, treatment same as concussion
  - Extrusive: partial or complete tooth displacement, dental evaluation & referral in 24 hrs.
  - Intrusive: "jammed" up & into socket, immediate oral & maxillofacial surgeon

- Avulsion
  - Total displacement of tooth from socket, reimplantation in 2-3 hrs, transport medium saliva, milk, sterile saline

**Dental Resources**

- Local federally qualified health centers (limited funding)
- Dental vans that can go to schools to provide preventative and restorative care
- Primary care providers:
  - Conduct patient-specific oral health risk assessments on all patients
  - Perform oral health evaluations linking patient history, risk assessment, and clinical presentation
  - Implement appropriate patient-centered preventative oral health interventions and strategies
  - Provide targeted patient education on the importance of oral health

**Conclusion**

- NP’s in primary care & urgent care regularly encounter an array of patients with dental complaints.
- NP’s should have basic understanding of dental anatomy, disease processes and medication to better diagnose patients with dental complaints.
- NP’s should be able to recognize red flags and make appropriate referrals.
References


