Pediatric Oral Health

Melinda B. Clark MD, FAAP
Women and Children’s Hospital, 2013

Disclosure

- No relevant financial relationships with manufacturers of any commercial products to be discussed
- Do intend to discuss an unapproved use of a commercial product

Goals and Objectives

- Emphasize the impact of oral health on the overall well-being of children
- Explain the infectious and transmissible nature of early childhood caries (ECC) and consequences of untreated caries.
- List risk factors for ECC and prevention methods.
- Review the AAP Oral Health Guidelines and recommendations for anticipatory guidance and referral.
- Discuss factors that may impede a child’s access to dental care
- Review oral health resources available to primary care providers
- Discuss integration of oral health prevention into the medical home.

Why Oral Health?

- Surgeon General’s report on oral health
  - “Silent Epidemic”
  - Prevalence: most common unmet health need
  - Effects of oral disease on health
  - Access to care
  - Cost
  - Oral health disease is largely preventable

The Big Picture

“You are not healthy without good oral health…”

David Satcher, Surgeon General 2000

Why Us?

- Prevention is the focus of primary care
  - ECC is a preventable disease
- Medical care is frequent in early childhood
  - 10 visits by 2 years
- ECC is a “family problem”
  - Behavior, diet, culture, socioeconomic, environment
- Oral health links to systemic disease
  - Pregnancy, diabetes, heart disease
- Dental community is overloaded and decreasing in capacity
  - Only 3% of practicing dentists are pediatric dentists
  - 25% of poor children do not see a dentist by age 5
Why is this so important?

- 50 million Americans live in rural or poor areas where dentists do not practice
- Only 43% of elderly visit the dentist
- 25% of poor children do not see a dentist by age 5
- Only 34% of pregnant women visit the dentist
- Preventable dental conditions were the primary reason for 830,590 ED visits (2009)

The Medical Home is often the Dental Home!

The Disconnect

- Children are 2.5 times more likely to lack dental coverage than medical coverage
- > 50% of primary care providers have little or no oral health training
- Little communication and cooperation between medical and dental providers

Medical Prevention Paradigm

- Repair & Rehab
- Disease Suppression
- Anticipatory Guidance
- Primary Prevention

Pediatric community response

- Bright Futures
- AAP Top 3 pillars 2007
  - Oral Health Initiative
- “Into the Mouths of Babes”
  - North Carolina, statewide Medicaid program initiated in 2000
- Practice Guidelines
- Training programs
Since 2000

- 2001 American Academy of Pediatrics Section on Oral Health
- 2003 Society of Teachers in Family Medicine: Smiles for Life
- 2006 NY DPH: Oral Health During Pregnancy and Early Childhood
- 2008 AAP Policy Statement
- 2009 American Dental Association: Access to Care Summit
- 2010 Dept. of Health and Human Services: Oral Health Initiative
- 2010 Physician Assistants Leadership Summit on Oral Health
- 2011 Healthy People 2020: Oral Health = Leading Health Indicators
- 2011 Institute of Medicine and Health Resources & Service Admin HRSA: Advancing Oral Health in America
- 2011 Assn. of American Medical Colleges: Oral Health Curriculum
- 2012 Physician Assistant Education Association’s (PAEA) Annual Forum – focus was oral health

**AMERICAN ACADEMY OF PEDIATRICS**

**POLICY STATEMENT**

**Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children**

**Section on Pediatric Dentistry**

**Oral Health Risk Assessment Timing and Establishment of the Dental Home**

**ABSTRACT.** Early childhood dental caries has been reported by the Centers for Disease Control and Prevention to be perhaps the most prevalent infectious disease of our nation’s children. Early childhood dental caries occurs in all racial and socioeconomic groups, however, it tends to be more prevalent in low-income children, in whom it occurs in epidemic proportions. Dental caries results from an overgrowth of specific organisms that are a part of normally occurring human flora. Human dental flora is site specific, and an infant is not colonized until the eruption of the primary dentition at approximately 6 to 30 months of age. The most likely source of inoculation of an infant’s dental flora is the mother or another intimate care provider, through shared utensils, etc. Decreasing the level of cariogenic organisms in the mother’s dental flora at the time of colonization can significantly impact the child’s predisposition to caries. To prevent caries in children, high-risk individuals must be identified at an early age (preferably high-risk mothers during prenatal care), and aggressive strategies should be adopted, including anticipatory guidance, behavior modifications oral hygiene and feeding practices, and establishment of a dental home by 1 year of age for children deemed at risk.

**Routine Visits**

- Oral Health Risk Assessment
  - AAP policy 2003: “Every child should begin to receive oral health risk assessments by 6 months of age...”
- Anticipatory guidance - diet, hygiene
- Referral to a dental home
  - High-risk infants should be referred for establishment of a dental home no later than 6 months after the first tooth erupts or by 12 months of age.
  - "Ideal approach" to early childhood caries (ECC) prevention is early establishment of a dental home

**Caries rates**

- ~ 50% of 5-9 year olds
- 78% of 17 year-olds
- 85% of adults
- Most common chronic disease of childhood
  - 5x more common than asthma

**Early Childhood Caries (ECC)**

- Affects children under age 5
- Destroys tooth structure
- Infectious and transmissible
- Previously called “Baby Bottle Tooth Decay” or “Nursing Caries”
- Affected by oral and dietary habits

**Improve access**

- Access concerns:
  - Insufficient # of dentists
  - Age of patient: <3 years
  - No insurance
- Patient and Family Concerns
  - Motivation, priorities, transportation
- Cost
  - Early referral decreases dental expenditures per child
- NYS Dental Foundation
- Community health workers and case managers
**Epidemic of ECC**

- ECC Prevalence
  - ~25% of all U.S. children
  - 30-50% of children in low income pop
  - ~70% in some Hispanic and Native American populations
- 80% of decay occurs in 20% of children

**Pathogenesis of Caries**

- **Pathogens**
  - S. mutans primary
  - S. sobrinus, Lactobacillus, Actinomyces
- Streptococci mutans is vertically transmitted from the primary caregiver
  - Usually mother (71%)

**Teeth**

**Bacteria**

**Just a spoonful of Sugar...**

How often sugar is ingested is more important than how much sugar is ingested at once.

- Enamel demineralizes and remineralizes
- Acids produced by oral bacteria persist for 20-40 minutes
- Frequent sugar intake allows demineralization to predominate
**ECC Risk Factors**
- SES and cultural factors
- Enamel defects
- Caries in child, siblings or caretakers
- Feeding habits:
  - Frequent feeding and snacks
  - Prolonged exposure to sugary beverages
  - Coating pacifiers with sweeteners
- Poor oral hygiene
- Inadequate fluoride
- Chronic medical conditions and/or medications
  - Decreased saliva production
  - GERD: Increases enamel erosion

**ECC**
- ECC can begin when teeth first erupt
- Affects teeth that erupt first and are least protected by saliva
  - Upper incisors
  - First molars
  - Second molars
- ECC rarely affects lower incisors
- Canines less affected

**ECC stages**
- Consequences of ECC
  - Pain
  - Difficulty sleeping
  - Tooth loss
  - Impaired chewing and nutrition
  - Below average weight gain
  - Infection
  - Poor self esteem
  - School/work absences:
    - 51 million school hours per year
    - Missed learning opportunities
  - Future dental work
    - Pain and $$$
  - Increased caries in permanent dentition

**PREVENTION**
- Tooth brushing
- Dietary counseling
- Delay Colonization
- Dental sealants
- Fluoride
- Professional consultation/referral
**Brushing**
- Brush twice daily; bedtime most critical
- Brush all surfaces:
  - Lift the lip to brush the gumline
  - Brush behind the teeth
- Caregiver should brush child’s teeth until age 6 or 7
- Spit, don’t rinse
- No food or drink after brushing
- Floss: 1x/day once teeth touch

**Prevention of ECC**
- Tooth brushing
- **Dietary counseling**
- Delay Colonization
- Dental sealants
- Fluoride
- Professional consultation/referral

**Dietary Counseling**

<table>
<thead>
<tr>
<th>Eating Pattern</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent snacking: ≥2 times between meals</td>
<td>Candy, sipping juice or soft drink, graham crackers, pretzels, breakfast cereals</td>
</tr>
<tr>
<td>Sticky snacks, slowly dissolving carbohydrates</td>
<td>Raisins, dried fruits, fruit rolls, caramels, candies, peanut butter/jelly sandwich</td>
</tr>
<tr>
<td>Time of day eating occurs</td>
<td>Juice or milk before bed</td>
</tr>
</tbody>
</table>

**Fluoride**
- Systemic and topical mechanisms of action
  - Topical effect most important
- Inhibits demineralization
- Enhances remineralization*
- Inhibits bacterial metabolism
- Decreases bacterial acid production
Fluoride Sources

- Community water fluoridation
  - Initial caries reduction (1945-78): 40-60%
  - Modified reduction (1970-80’s): 15-40%
- Systemic supplements
- Toothpaste
- Topical: Rinses, varnish, gels

Community Water Fluoridation

- Optimal fluoridation of water is 0.7 ppm
- Determine your patient’s source of water
  - Health Department
  - Town Water Board
- Fluoride is added to some community water supplies
  - http://apps.nccd.cdc.gov/MWF/Index.asp
  - Well water must be tested
  - Consider filters and bottled water

NY Fluoridation

Fluoridation Percentage

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Fluoridation Percentage

0-24
25-49
50-74
75-100
>100
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Fluoride Sources

- Community water fluoridation
  - Systemic supplements
    - Allow tablet to slowly dissolve (30 sec)
    - Mixed data supporting supplementation
- Toothpaste
- Topical: Rinses, varnish, gels

Fluoride Sources

- Community water fluoridation
  - Systemic supplements
    - Fluoridated Toothpaste
      - Effective, inexpensive, high compliance
    - Topical: Rinses, varnishes, gels
      - Mouthrinses: 10 mL for 60 seconds
        - 0.05% sodium fluoride for daily home use (OTC)
        - 0.2% for weekly use (prescription, public programs)
      - Not for children less than 6 years of age
      - Gels, foams
      - Varnish
Dental Update: Fluoride Varnish Applications Covered for Children up to Seven Years of Age

- October 1, 2009
- Maximum of four (4) annual fluoride varnish applications covered for children from birth until 7 years of age
- Physicians, Dentists, and Nurse Practitioners treating Medicaid fee-for-service beneficiaries will be reimbursed up to $30.00 per application.
- Procedure code “D1206” should be used by all Provider types
- www.health.state.ny.us/health_care/medicaid/program/update/2009/2009-09.htm#den

Fluoride Varnish

- Topical 5% sodium fluoride lacquer professionally applied on any erupted tooth; 2.5-5 mg dose
- Resin slowly releases fluoride over 1 to 7 days (versus 10-15 minutes for gels/foams)
- Helps prevent new cavities from forming and slows progression of carious lesions in the primary teeth
- Over 110 studies and 40 clinical trials have documented effectiveness
- No clinical trials completed in the United States; so the FDA has not yet approved fluoride varnish for caries prevention (is FDA approved as a cavity liner, root desensitizer)

Safety

- No acute toxic effects
- Plasma levels
  - Small rise in plasma fluoride levels
  - Comparable to ingesting a 1 mg fluoride tablet or brushing with a fluoridated dentifrice
  - Use sparingly to prevent children from swallowing excess product during application
- Contraindications:
  - Ulcerative gingivitis/stomatitis, open lesions
  - Allergy to colophony/rosin*
  - Allergy to pine or pine nuts*
- 3 cases in literature: 1 contact dermatitis and 2 stomatitis

Fluoride Varnish

- Strengthens teeth and reduces decay an average of 40%
- Caries reduction range 30-63.2%
- Dose responsive, effectiveness enhanced by counseling
- Greatest effect when applied before onset of detectable caries
- Slows progression of shallow carious lesions in the primary teeth
- Can be used on any erupted tooth

What does this entail?

- Oral Health Risk Assessment
  - AAP policy 2003: “Every child should begin to receive oral health risk assessments by 6 months of age…”
  - Anticipatory guidance
  - Fluoride Varnish if high risk
  - Referral to a dental home
  - Document
High Risk

- MCHB Expert Panel, 2007
- Low-income children
  - Qualify for Head Start, WIC, National School Lunch Program, Medicaid, SCHIP
- Children with Special Health Care Needs
- CAT
- AAP Risk Groups
- AAP Risk Assessment Tool

Risk Groups for Dental Caries

- Children with special health care needs
- Children of mothers (caretakers) with high caries rate
- Later-order offspring
- Children in families of low socioeconomic status
- Children who sleep with a bottle or breastfeed throughout the night
- Children with demonstrable caries, demineralization, plaque, or staining

Rapid Checklist

Parent factors:
- Caregiver’s oral health
- Does pt have a dental home?

Child factors:
- Caries
- White spots
- Plaque
- Swollen gums
- Night feedings
- Frequent snacking/ juice drinking
- Medicaid eligible
- Special health care need

Action:
- Education
- Referral to a dental home

White “incipient” lesions
Routine Visits
- Oral Health Risk Assessment
- Anticipatory guidance - diet, hygiene
- Fluoride Varnish (if high risk)
- Referral to a dental home
  - High-risk infants should be referred for establishment of a dental home no later than 6 months after the first tooth erupts or 12 months of age
  - “Ideal approach” to ECC prevention is early establishment of a dental home
- Document

Barriers
- Time
  - Fast
  - Important: Most common chronic disease
- Disinterest
  - Immediate and future impact of neglect
  - Obesity message and caries nutrition messages parallel
- Someone else’s job
  - Bright Futures, AAP
- Not getting paid
- Start billing
- Will it matter?
  - Burden of disease and relative impact of interventions
  - Families do not want to hear it - messaging

Billing
- OH assessment, anticipatory guidance, and fluoride varnish application
  - Rate: $30 per application
  - 4 times/year birth to age 7
  - High-risk children
  - Did not specify provider education required, prior approval NOT required.
  - Code: D1206 with V modifier
    - V07.31 (prophylactic fluoride administration)
    - 521.00 (dental caries)

Messages
- Discuss oral health early and often
- Discuss the bacteria, not just the hygiene
  - Cannot just treat holes, infection still present
    - Analogy to stopping abx course early
      - Just a matter of “slime + time”
  - Address the “baby teeth don’t matter” myth
  - Shift blame to something evil we can target
- Healthy eating
  - Choose foods that look like something found in nature
- Concentrate on a single change each visit

Moving Beyond “Our Offices”
- Medical and dental sitting on Head Start, WIC, school health committees
- Work together on water fluoridation campaigns
- State Task Force; State Oral Health Plans
- Teaching oral health through media messages, social marketing
Work synergistically

- Support cross-pollination of ideas:
  - Dental supporting fluoride varnish done by medical providers
  - Medical supporting dental doing oral cancer screens, blood pressure monitoring, nutrition advice
  - More inter-professional health in schools/residencies

Resources

- AAP Children’s Oral Health Home: [www2.aap.org](http://www2.aap.org)
- Protecting All Children’s Teeth (PACT): [www.aap.org/commpeds/dochs/oralhealth/pact.cfm](http://www.aap.org/commpeds/dochs/oralhealth/pact.cfm)
- Fluoride Information on the American Dental Association website: [www.ada.org/public/topics/fluoride/index.cfm#overview](http://www.ada.org/public/topics/fluoride/index.cfm#overview)
- A Health Professional’s Guide to Pediatric Oral Health Management: [www.mchoralhealth.org/PediatricOH/index.cfm](http://www.mchoralhealth.org/PediatricOH/index.cfm)
- Bright Futures in Practice: Oral Health Pocket Guide: Casamassimo and Holt (eds); 2004

Questions?