CLINICAL PEDIATRIC DENTISTRY I
DSV 441

EARLY CHILDHOOD CARIES

(DENTISTRY FOR THE CHILD AND ADOLESCENT, 8\ED
McDonald, Avery Dean, 2005; Chapter 10, pages 209-217 (only))

Sunday lecture 9\12\2012
1:00 pm-2:00 pm
clinic: 2:00pm- 5:00pm

Attendance sheets are signed at the beginning of each lecture and clinical sessions.
EARLY CHILDHOOD CAREIES (ECC)

SPECIFIC OBJECTIVES:

The student should:

1. Have a thorough knowledge of the carious process and what factors affect demineralization and remineralization.

2. Know the anatomical and age factors that affect caries activity in children.

3. Be able to integrate caries risk assessment concepts in developing treatment plans.

Dental caries: is a common chronic infectious transmissible disease resulting from tooth-adherent specific bacteria, primarily mutans streptococci (MS) that metabolize sugars to produce acid which, over time, demineralizes tooth structure.

Diann Bomkamp, RDH, BSDH, Missouri
Early Childhood Caries
ECC

Tooth decay is the single most common chronic childhood disease
5 times more common than asthma
4 times more common than early childhood obesity
and 20 times more common than diabetes
What are early childhood caries?

The disease of ECC

- is the presence of one or more decayed (non-cavitated or cavitated lesions),
- missing (due to caries),
- or filled tooth surfaces,
- in any primary tooth of a child 71 months of age (6 Years) or younger.
What are severe early childhood caries?

Severe early childhood caries (S-ECC) is:

- In children younger than 3 years of age, any sign of smooth-surface caries is indicative of severe early childhood caries (S-ECC).

- From ages 3 through 5, 1 or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a decayed, missing, or filled score of ≥4 (age 3), ≥5 (age 4), or ≥6 (age 5) surfaces also constitutes S-ECC.
Healthy primary (baby) teeth
Moderate Decay
Moderate to severe decay
Severe (rampant) decay
Why Is This Baby Smiling?

She's smiling because she's happy! She is safe from early childhood caries.
Early Childhood Caries

- The following slides show the progression of Early Childhood Caries.
Healthy Teeth

No Decay.

Front

Rear
Early Decay

Front

Rear
Early Childhood Caries-ECC

Initial lesions—white demineralization
(Reversible)

Late stage lesions—moderate to severe enamel and dentin destruction
Severe ECC
Early Childhood Caries

Early childhood caries may cause:

- Pain
- Many cavities
- Crooked permanent teeth
- Ear and speech problems
- Possible emotional problems
Attacks Infant
Early Stage TBTS
Early Childhood Caries - ECC

- Infectious
- Transmissible
- Diet Dependent
- Fluoride Mediated
- Reversible
Transmitted mainly from mother or primary caregiver to infant

Window of infectivity is first 2 years of life

Earlier child colonized, the higher the risk of caries
ECC Causes - Bacteria

Passed from caregiver to child

- food/drink
- utensils
- toothbrushes
- Blowing on or prechewing food

More likely if mother has Decay Early spread increases decay risk
Oral Bacteria
Diet Dependent

- Caries is promoted by carbohydrates, which break down to acid.
- Acid causes demineralization of enamel.
- Frequent snacking promotes 20 minute acid attacks.
- Foods with complex carbohydrates (breads, cereals, pastas) are major sources of “hidden” sugars.
- High sugar content in sodas, Kool-aid, Hi-C, Snapple etc.
ECC Causes - Diet

Food type

- Starchy foods
- Added or natural sugar
- Pacifier dipped in sweetener
- Liquid medicine
Feeding Habits that contribute to ECC

• Bottles and sippy cups with fruit juice, soft drinks, powdered sweetened drinks, formula, or milk

• Sticky foods like raisins/fruit leather (roll-ups), and suckers

• Bottles at bedtime or nap time not containing water

• Dipping pacifier in sugary substances
ECC Causes - Time

Frequency and length of feeding

- Bedtime bottle
- “At will” nighttime nursing
- “Carry along” bottle or no-spill training cup
- Frequent snacking
Not Just What We Eat, But How

- Acids produced by bacteria after sugar intake persist for 20 to 40 minutes.
- Number of times sugar is ingestion is more important than quantity.
Demineralization
AAP Recommendations for an Oral Health Risk Assessment

Assess mothers’/caregiver’s oral health.

Assess oral health risk of infants and children.

Assess child’s exposure to fluoride.

Recognize signs and symptoms of caries.

Provide anticipatory guidance including oral hygiene instructions (brush/floss).

Make timely referral to a dental home.
High-Risk Groups for ECC

- Children with special health care needs
- Children from low socioeconomic
- Children that lack topical or systemic fluoride
- Children with poor dietary and feeding habits
- Children whose caregivers and/or siblings have caries
- Children with visible caries, white spots, plaque, or decay
Professionally Applied Topical Fluorides (PATFs)
Includes gels, foams, in office rinses and varnishes

- Safe, effective, easy to apply
- Promotes remineralization of enamel, arrest and/or reverse early caries
- Decreases enamel solubility
- Inhibits the growth of cariogenic organisms, thus decreasing acid production
Why recommend a fluoride varnish?

To prevent dental caries and in many cases reverse early dental caries

- Baby teeth are in a child’s mouth until about age 11 or 12
- No dental cleaning necessary prior to application
- No special equipment
- Quick, easy to apply (2 minutes)
- Sustainable service
How does the varnish work?

• The lacquer-based product adheres to the dental enamel forming a depot from which fluoride is slowly released

• Making the tooth more resistant to acid dissolution

• Saliva actually sets the varnish
In a study of children ages 3–5 enrolled in Head Start, among the children with active dental caries who received fluoride varnish application, 81 percent of the active caries became inactive after 9 months, compared with 38 percent in children who did not receive fluoride varnish application.
Advantages fluoride varnish:

- Easy to apply
- Teeth do not need professional prophylaxis
- Children can eat and drink following applications
- Potential ingestion of fluoride is low
- Prevents ECC
Positioning Child for Oral Examination

- Position the child in the caregiver’s lap facing the caregiver.
- Sit with knees touching the knees of caregiver.
- Lower the child’s head onto your lap.
- Lift the lip to inspect the teeth and soft tissue.
What to Look For:

Lift the lip to inspect soft tissue and teeth.

Assess for:
- Presence of plaque
- Presence of white spots or dental decay
- Presence of tooth defects (enamel)
- Presence of dental crowding
- Presence of saliva
Visual dental abscesses require immediate treatment/referral:
Applying Fluoride Varnish:
Care giver instructions:

1. Child can eat and drink normally for the rest of the day
2. Teeth will look dull, but will be back to normal once varnish is removed
3. Brush the varnish off the next day
4. Varnish is applied every 3 to 6 months depending on moderate to high risk status
5. Referral to a dental home
### Provide recommendations on tooth brushing:

<table>
<thead>
<tr>
<th>Age</th>
<th>Tooth brushing Recommendations (CDC, 2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td>~ Clean teeth with soft toothbrush 2x day</td>
</tr>
<tr>
<td>1–2 years</td>
<td>~ Parent performs brushing 2x day</td>
</tr>
<tr>
<td>2–6 years</td>
<td>~ Pea-sized amount of fluoride-containing toothpaste 2x/day</td>
</tr>
<tr>
<td></td>
<td>~ Parent performs or supervises</td>
</tr>
<tr>
<td>&gt; 6 years</td>
<td>~ Brush with fluoridated toothpaste 2x/day</td>
</tr>
</tbody>
</table>
Xylitol gum or mints used 4 times a day may prevent transmission of cariogenic bacteria

* Helps reduce the development of dental caries
* A “sugar” that bacteria can’t use easily
* Resists fermentation by mouth bacteria
* Reduces plaque formation
* Increases salivary flow to aid in the repair of damaged tooth enamel
# Recommended Fluoride Supplement Schedule

<table>
<thead>
<tr>
<th>Age</th>
<th>Fluoride Concentration in Community Drinking Water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;0.3 ppm</td>
</tr>
<tr>
<td>0–6 months</td>
<td>None</td>
</tr>
<tr>
<td>6 mo–3 yrs</td>
<td>0.25 mg/day</td>
</tr>
<tr>
<td>3 yrs–6 yrs</td>
<td>0.50 mg/day</td>
</tr>
<tr>
<td>6 yrs–16 yrs</td>
<td>1.0 mg/day</td>
</tr>
</tbody>
</table>

MMWR: Recommendations for Using Fluoride to Prevent and Control Dental Caries in the US: [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm).
The AAPD recommends that the following “Get it Done in Year One” Check list to keep infant mouths healthy and prevent infection:

• Clean infants’ mouths and gums regularly with a soft infant toothbrush or cloth and water. Once baby teeth appear, brush them at least twice daily with an age-appropriate sized toothbrush and a “smear” of fluoridated toothpaste.

• Give children older than six months fluoride supplements if their drinking water does not contain enough fluoride. (Fluoride supplementation in infants has been shown to reduce tooth decay by as much as 50 percent).

• Wean infants from the bottle by 12-14 months of age. Have infants drink from a cup as they approach their first birthday.

• Visit the pediatric dentist before children’s first birthday and twice annually following the first appointment.

• Avoid at-will breast feeding after the first baby tooth appears and other foods are introduced.
Results of ECC

Pain and infection

Difficulty eating and sleeping

Affects nutrition and growth
Results of ECC
ECC Prevention

Diet

Reduce bacteria

Oral hygiene

Treat mother

Protect the teeth

Regular dental visits
ECC Prevention – Diet & Time

Watch sugar/starch exposure

Limit night beverages

Provide healthy snacks

Avoid pacifier dipping

Wean from bottle/breast by one year

Ask for sugar-free medication
ECC Prevention – Reduce Bacteria

Check mother’s (or primary caregiver’s) oral health

- Treat decay
- Xylitol gum or mints

No saliva-sharing activities
ECC Prevention – Reduce Bacteria
ECC Prevention – Reduce Bacteria
ECC Prevention – Protect Tooth

Fluoridated water

Fluoride drops?

Fluoride toothpaste
    Only use before age 2 if no fluoride in water, or baby has ECC
    Only use a tiny smear across width of brush

Repair hypoplasias (enamel defects)
ECC Prevention - Dental Visits

12 months old or 6 months after 1st tooth
Early morning appointment
Build excitement
Be calm
How can I keep my baby safe from early childhood caries?

Keep your and your family’s teeth and mouth healthy. In this way everyone who is near your baby can help to keep him/her safe from baby bottle tooth decay.
If my baby loves the bottle, how can I take it away?

Try these ideas to make it a little easier:

Use a plain-looking bottle for feeding: one that doesn't catch Baby's eye.

Baby can learn to prefer a bright, pretty cup to the bottle. By the time he is a year old, he will not need to drink from a bottle. So, you can throw or give away his bottles when he turns one year old.

Try to spend a few minutes of quiet time with your baby before bedtime, so she is calm and feels loved.
Thank You