INFANT ORAL HEALTH

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Are dental caries still a problem?

- Most prevalent infectious disease of nation’s children

- More than 40% of children have caries by the time they reach kindergarten

- NHANES III found a 15.2% increase in dental caries in children age 2-6 versus the 1988-1994 baseline.
Figure 4.1

Dental caries is one of the most common diseases among 5- to 17-year-olds

- Caries: 58.6%
- Asthma: 11.1%
- Hay fever: 8.0%
- Chronic bronchitis: 4.2%

Percentage of children and adolescents aged 5 to 17

Note: Data include decayed or filled primary and/or decayed, filled, or missing permanent teeth. Asthma, chronic bronchitis, and hay fever based on report of household respondent about the sampled 5- to 17-year-olds.
Source: NCHS 1996.
Reported prevalence of ECC in 172 studies (1982–2007)

Percent of children with ECC


Berg J, Slayton R. Early Childhood Oral Health
ECC experience among Arizona children (ages birth to five by race/ethnicity)

Percent with ECC

Less than 1 1-year-olds 2-year-olds 3-year-olds 4-year-olds

Native American
Black
Hispanic
White
Overall prevalence
What is life like for this child?

Pictures compliments of Dr. Claudia Cavallino
Consequences to the Child

- In a study of patients who present with pain:
  - 86% reported caries interfered with ability to eat
  - 50% reported interference with child’s ability to sleep
  - 32% reported interference with child’s ability to participate in school activities

- Edelstein et al, 2006
Financial Cost – Restorative Procedures

- 2,100 Medicaid-covered children received dental treatment under general anesthesia in Louisiana in a one-year period
  - 60 percent of these children being 3 years or younger.
  - $1,508 per admission

Financial Cost – Facial Cellulitis

- Average cost of care across five children’s hospitals for a single admission for odontogenic infection was $3,223

For Want of a Dentist

- Preventive oral care: $100 every six months
- Extraction of an infected tooth: $80
- Emergency room care: $1500
- Intensive care costs for complication meningitis: $250,000
- Loss of Deamonte Driver’s life: ???
Almost entirely preventable!!
Infant Oral Health

- True prevention
- Proactive, not reactive
- Promotes lifelong healthy habits
- Prevents pain and suffering
- Cost effective
Why Infants?

- Among 1 year olds, between 36,000 and 62,000 toddlers have experience tooth decay
  - Kaste et al, 1999
Early Childhood Caries

- Particularly virulent form of caries beginning soon after tooth eruption, developing on smooth surfaces, progressing rapidly and having a lasting detrimental impact on the dentition
  - Guideline on Infant Oral Health Care, 2010-2011
Understanding the etiology of dental caries is the key to prevention!

- Bacteria
- Fermentable Carbohydrates
- Surface for Colonization

Caries
Bacteria

Surface for Colonization

Fermentable Carbohydrates

Caries
Bacteria

- *Mutans streptococci* primary bacteria
- Transmitted vertically
- Typically from mother
- Colonize as soon as teeth are present (sometimes earlier)
Bacteria: Prevention Strategy

- Reduce Bacterial load!
- Dental care for expectant mothers
- Oral hygiene for mothers
- Avoid saliva sharing behavior
- Tooth brushing by parents for baby should start as soon as the first teeth erupt
Bacteria

Surface for Colonization

Fermentable Carbohydrates

Caries
Surface for Colonization: Prevention Strategies

- Appropriate fluoride use promotes remineralization of tooth structure
- Drink optimally fluoridated water
- All children can brush with fluoride toothpaste twice a day
Toothpaste Recommendations

Too much toothpaste! This is more like it…

“smear”
At age 0 month -3 years.

“pea-size”
At an age when child can expectorate.


Slide compliments of Kim Nguyen
# Fluoride Supplements

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt;0.3 ppm F</th>
<th>0.3-0.6 ppm F</th>
<th>&gt;0.6 ppm F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth-6 months</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6 mo-3 years</td>
<td>0.25 mg</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-6 years</td>
<td>0.50 mg</td>
<td>0.25 mg</td>
<td>0</td>
</tr>
<tr>
<td>6 y up to at least 16 years</td>
<td>1.00 mg</td>
<td>0.50 mg</td>
<td>0</td>
</tr>
</tbody>
</table>

Caries

- Bacteria
- Surface for Colonization
- Fermentable Carbohydrates
Fermentable Carbohydrates

- Almost all smooth surface dental caries is due to inappropriate liquid carbohydrate consumption!!!
- Frequent night time bottle feeding, ad libitum breast-feeding, and extended use of sippy cup are associated with ECC
<table>
<thead>
<tr>
<th>12 ounces of</th>
<th>Coca-Cola</th>
<th>Orange Juice</th>
<th>Apple Juice</th>
<th>Cherry Juice</th>
<th>Grape Juice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total carbohydrates</td>
<td>40 g</td>
<td>39 g</td>
<td>42 g</td>
<td>49.5 g</td>
<td>60 g</td>
</tr>
<tr>
<td>Carbs from sugar</td>
<td>40 g</td>
<td>33 g</td>
<td>39 g</td>
<td>37.5 g</td>
<td>58.5 g</td>
</tr>
<tr>
<td>Sugar (teaspoons)</td>
<td>10 tsp</td>
<td>8 tsp</td>
<td>10 tsp</td>
<td>9 tsp</td>
<td>15 tsp</td>
</tr>
<tr>
<td>Calories</td>
<td>145</td>
<td>165</td>
<td>165</td>
<td>210</td>
<td>240</td>
</tr>
</tbody>
</table>
I have 9.5 teaspoons of sugar!

I have 9.3 teaspoons of sugar!

I have 11 teaspoons of sugar!!!!
The AAP recommends children 1-6 years of age consume no more than 4-6 ounces of fruit juice per day, from a cup, and as part of a meal of snack!

Fermentable Carbohydrates: Prevention Strategies

- Infants should not be put to sleep with a bottle containing fermentable carbohydrates.
- *Ad libitum* breast feeding should be avoided after the first primary tooth begins to erupt and other carbohydrates are introduced.
- Parents should be encouraged to have infants drink from a cup as they approach their first birthday.
- Infants should be weaned from the bottle at 12-14 months of age.
- Repetitive consumption of any liquid containing fermentable carbohydrates from a bottle or no-spill training cup should be avoided.
- Between meal snacks and prolonged exposures to foods and juice or other beverages containing fermentable carbohydrates should be avoided.

AAPD Policy on ECC: Classifications, Consequences, and Preventive Strategies.
Water is the best drink for teeth!!

Anything other than water should be with meals only!
Caries is…

 Essentially a behavioral disease

 Essentially preventable

• Berg JH, Slayton RL. Early Childhood Oral Health
Risk Assessment
Who is high risk?

- History
  - Mothers and siblings with caries
  - Parent caregiver has low socioeconomic status
  - Child has >3 between meal sugar containing snacks or beverages
  - Child is put to bed with a bottle with fermentable carbohydrates
  - Child has special health care needs
  - Child is a recent immigrant
Who is high risk?

- Clinical findings
  - Child has plaque on teeth
  - Child has white spot lesions
  - Child has visible cavities or fillings
Teething

- Usually no problems
- Possible Symptoms
  - Biting
  - Drooling
  - Irritability
  - MILD temperature elevation
- Rule out potential illness
- Palliative Treatment
  - ↑ Fluid consumption
  - nonaspirin analgesic
  - cold and pressure teething rings

Why Physicians?
Age 1 Dental Visit

- Prevention
- Health Monitoring
  - Anticipatory Guidance
- Treatment or Referral
- Emergency
- For Health and Harm
Dental Home

- The dental home is the ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated, and family-centered way. Establishment of a dental home begins no later than 12 months of age and includes referral to dental specialists when appropriate.” (AAPD Definition)
Why Early Visits?

- Prevent
- Treat chemotherapeutically
- Treat with minimally invasive dentistry
COST EFFECTIVENESS

- Children who had their 1st preventive visit by age 1 were more likely to have subsequent preventive visits and less likely to have subsequent restorative or emergency visits.

- Children who had their 1st preventive visit after age 2 were more likely to have subsequent restorative and emergency visits.

Don't you wish you could send him to his dental home???
Prevention of Dental Caries: Special Needs Patients

- Sickle Cell Anemia
- Cardiac Abnormalities
- Hemophilia
- Cancer
- Developmental Delays

- The earlier the referral, the better for the child!!
Resources

- Find multiple pediatric dentists in your area with a variety of insurances
- A Pediatric Dentist should:
  - See children of all ages
  - See Medically Compromised and Special Patients
  - Have a variety of behavior management techniques – Nitrous Oxide, Sedation, OR
  - See Emergencies/Trauma

www.aapd.org
Pediatric Dentistry Resources at LSU School of Dentistry

- LSU Pediatric Dental Resident always on call at Children’s Hospital
  - Hospital Operator
    -504-896-9511

- LSU Pediatric Dental Clinic
  - At LSU School of Dentistry
    - 504-941-8201
  - At Children’s Hospital
    - 504-896-1337
Thank you for helping us take the BEST care of children!