INFANT ORAL HEALTH
and how to use
FLUORIDE VARNISH

Infant Oral Health Material Developed by:
J. Douglass BDS, DDS  H. Silk MD  A. Douglass MD
of the University of Connecticut in cooperation with
Connecticut Department of Public Health

Fluoride Varnish Material Developed by:
J. Douglass BDS, DDS
With assistance from:
A. Douglass MD  B. Katechia BDS, MS  A. Wilson DDS, MPH,

Funding: CT Health Foundation; Children’s Fund of CT;
CT Department of Social Services; CT Department of Public Health
Disclosure Statement

The developers and presenters of this presentation do not have any financial interest/arrangement with any organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

Donated Materials

The following manufacturers and distributors have donated fluoride varnish samples that will be shown during the presentation:

Ultradent (manufacturer)
Schein (distributor)
LEARNING OBJECTIVES

By the end of this presentation you will:

- Recognize dental decay and its sequellae
- Understand the etiology of dental decay
- Be able to screen children for dental decay
- Be able to educate parents about how to prevent dental decay
- Be able to understand when and how to use fluoride varnish to prevent dental decay
- Know when to refer children to the dentist
- Be familiar with the new state wide programs to recruit dental providers for young children
DENTAL DECAY AND ITS SEQUELLAE
EARLY CHILDHOOD CARIES (ECC)

- Severe tooth decay affecting young children
- Affects teeth that erupt first and are least protected by saliva
- Bacteria are the causative agent
- Formerly called:
  - baby bottle tooth decay
  - nursing caries
WHITE SPOTS: THE EARLY STAGE OF ECC
WHITE SPOTS PROGRESS TO BROWN AREAS
EARLY AGGRESSIVE ECC

10-mth-old

14-mth-old

18-mth-old

20-mth-old
SEVERE ECC LEADS TO...

- Pain
- Spread of Infection
- Increased risk of dental decay later in life
- Impaired chewing & nutrition
- Expensive and costly dental treatment
PREVALENCE OF DENTAL DECAY

- Dental caries is the most common chronic childhood disease
  - 6% of 1-yr-olds
  - 22% of 2-yr-olds
  - 35% of 3-yr-olds

- Asthma
  - 12% of 1-5-yr-olds

- 80% of disease clusters in 20% of children
  - Risk assessment is essential
ETIOLOGY OF DENTAL DECAY
HOW DOES DECAY DEVELOP?

BACTERIA break down SUGAR into acid which eats away the TOOTH.
After sugar intake, produced acids persist for 20-40 minutes.

Frequency of sugar ingestion is more important than quantity.
Problems with Bottles and “Sippy Cups”

Both cause decay through:
- Ad lib feeding
- Bedtime use
- Sweetened contents

Also beware of sweetened pacifiers
Dental decay can begin as soon as teeth erupt

- Incisors - 6 months
- 1st molars - 1st year
- 2nd molars - 2nd year

ECC affects upper incisors then 1st molars then 2nd molars
Dental Developmental Defects

- Dental developmental defects increase risk of ECC
- 20-40% of children have defects
- Increase incidence:
  - premature infants
  - lower SES groups
  - certain minority groups
- Defects may look like early cavities
Mutans streptococci are obtained from mother

Mothers with high bacteria levels have:
- High levels of decay
- Poor oral hygiene
- High frequency of sugar intake

Both bacteria and diet habits are passed onto the child
PREVENTION
OF
DENTAL DECAY
INFANT FEEDING
Healthy Feeding Habits

- Breast feeding is best
- Always hold the infant when bottle feeding
- No propping of bottle in crib
- Only formula or breast milk in the bottle
TODDLER FEEDING

Drinks

- Sugar free drinks
- Only milk or water between meals
- No ad lib drinks in sippy cups
- Fruit juice causes cavities; restrict to meal times
TODDLER FEEDING
Solid Foods

- Limit number of eating occasions
- Sugar free snacks
- Regular meals and snacks; no grazing
FLUORIDE
Topical and Systemic
Fluoride: Action Mechanisms

- Naturally occurring mineral present in water and food
- Reduces caries by 30%
- Systemic – lesser effect
  - Fluoride incorporated into developing enamel structure which decreases its solubility
- Topical – main effect
  - Inhibits bacterial action
  - Prevents demineralization
  - Promotes remineralization
Systemic Fluoride

- Children should receive systemic fluoride via water fluoridation or systemic supplements from 6 mths of age
- Optimal water fluoridation is 1ppm
- Most municipal water suppliers can tell you the fluoride level of their water
- Well water should be tested for fluoride content as levels vary
- Modifying variables to fluoride intake:
  - Water filters
  - Bottled water and other drinks
- If water is fluoridated do not supplement even if using alternative food or water sources
Fluoride Rx

Rx
Name: _________________ Date:_____
Address:__________________________

Fluoride 0.25mg/0.5ml sol. Sugar free.
Disp: 50ml
Sig: Give 0.5 ml daily
Swish and swallow
Do not give with milk or formula

Rx
Name: _________________ Date:_____
Address:__________________________

Fluoride 0.5mg chewable tabs. Sugar free
Disp: 100 tabs
Sig: Chew, swish & swallow 1 tab daily
Do not give with milk

No Ca Containing Foods

Level of fluoride in water

<table>
<thead>
<tr>
<th>Patient’s age</th>
<th>&lt; 0.3ppm</th>
<th>0.3-0.6ppm</th>
<th>&gt;0.6ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mths – 3 yrs</td>
<td>0.25mg</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3 yrs - 6 yrs</td>
<td>0.50mg</td>
<td>0.25mg</td>
<td>0</td>
</tr>
<tr>
<td>6 yrs – 16 yrs</td>
<td>1.00mg</td>
<td>0.50mg</td>
<td>0</td>
</tr>
</tbody>
</table>
Use a soft nylon toothbrush with a small *smear* of fluoridated toothpaste.

- 1000 ppm fluoride
- Spit out. Don’t rinse.
- Nothing to eat or drink after brushing at night
- Nighttime is most important time to brush
ORAL HYGIENE

- Children should lie in adult’s lap or stand in front of adult, both facing same direction
- Clearly demonstrate brushing technique
TOPICAL FLUORIDE
Fluoride Varnish

- In office application of high F product
- Twice per year
- Start when teeth erupt
- Varnish remains on teeth for several hours
- Decreases caries about 30%
Fluoride Varnish Preparations
0.25ml unidose 5% NaF (2.26% F)

<table>
<thead>
<tr>
<th>Product</th>
<th>Manufacturer</th>
<th>Price per dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>CavityShield</td>
<td>OMNII</td>
<td>$1.00</td>
</tr>
<tr>
<td>Vanish</td>
<td>OMNII</td>
<td>$2.40</td>
</tr>
<tr>
<td>Enamel Pro Varnish</td>
<td>Primier</td>
<td>$1.80</td>
</tr>
<tr>
<td>Duraflor</td>
<td>Medicom</td>
<td>$1.20</td>
</tr>
</tbody>
</table>
Fluoride Varnish Preparations
0.25ml unidose 5% NaF (2.26% F)

- All Solutions
  Dentsply
  $1.70 per dose

- Flor-Opal
  Ultradent
  $2.00 per dose
FLUORIDE VARNISH APPLICATION

- Use knee to knee or exam table position
- Wipe off plaque and dry teeth with gauze
- Apply Fluoride varnish, coating all surfaces
- Avoid hard food and hot drinks
- Do not brush teeth until following morning
Chronic Excessive Fluoride: Fluorosis

For low risk infants consider:

- Non-fluoridated toothpaste until age 2 or 3
- Lowering systemic supplements
- Discuss risk/benefits with parents

Fluoride >0.06 mg/kg per day
Acute Excessive Fluoride

- < 5mg/kg F ion
  - Nausea and vomiting

- > 5mg/kg F ion
  - Hypocalcemia
  - Tetany, ↓ cardiac contractility, arrhythmias, cardiac arrest, respiratory arrest

Treatment

- Oral calcium (milk 1-2 glasses) and antacids to bind fluoride and decrease corrosive effects on GI tract
- Cardiac and vital sign monitoring
- Monitor calcium, magnesium, and potassium levels
- IV calcium and magnesium to correct serum deficits
Fluoride Toxicity

Age: 18-mth-old
Weight: 10 kg
Toxic dose: 50 mg
Fluorosis risk: >0.6mg / day
When to Establish a Dental Home

“At risk” children should have their first dental visit by their first birthday.
Dental Screening, Preventive Counseling and Fluoride Varnish Application
# Risk Based Care

<table>
<thead>
<tr>
<th></th>
<th>Low Caries Risk</th>
<th>Moderate Caries Risk</th>
<th>High Caries Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No caries risk factors noted</td>
<td>One risk factor present from moderate category</td>
<td>Multiple moderate risk factors and at least one high risk factor</td>
</tr>
<tr>
<td>Moderate Risk Factors:</td>
<td>Lower SES</td>
<td>Poor access to health care</td>
<td>Plaque on teeth</td>
</tr>
<tr>
<td></td>
<td>Family members have cavities</td>
<td>Family members have cavities</td>
<td>Presence of white spots or cavities</td>
</tr>
<tr>
<td></td>
<td>Diet – 2 or more sugar drinks/snacks between meals</td>
<td>Diet - sleeping with bottle/breast</td>
<td>Suboptimal fluoride exposure</td>
</tr>
<tr>
<td></td>
<td>Special health care needs</td>
<td>Special health care needs</td>
<td>Special health care needs</td>
</tr>
<tr>
<td></td>
<td>Developmental tooth defects</td>
<td>Developmental tooth defects</td>
<td>Developmental tooth defects</td>
</tr>
<tr>
<td>Preventive Strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic Fluoride</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Topical Fluoride:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluoridate toothpaste</td>
<td>YES</td>
<td>YES</td>
<td>YES (↑ frequency)</td>
</tr>
<tr>
<td>Fluoride Varnish</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>OHI/Diet Counselling</td>
<td>As needed</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Dental Home by Age 1</td>
<td>As needed</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
Dental Screening

- Lap-to-lap
- Examination table

Wipe teeth with gauze to remove plaque before examining
Dental Screening

Check child’s mouth for:

- Appropriate tooth eruption sequence
- Presence of dental developmental defects
- Presence of caries
- Oral hygiene status

Healthy Teeth free of White Spots or Cavities
Determine Risk

Moderate and High Risk should receive:

- Detailed diet counseling
- Systemic fluoride assessment and Rx as appropriate
- Oral hygiene instruction and use fluoride toothpaste
- Referral for age one dental visit
- Fluoride varnish
**SCREENING DOCUMENTATION & REFERRAL**

- Provide immediate dental referral if multiple risk factors or problems present.

<table>
<thead>
<tr>
<th>Description</th>
<th>Yes / No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries or defects</td>
<td>yes / no</td>
</tr>
<tr>
<td>High caries risk</td>
<td>yes / no</td>
</tr>
<tr>
<td>Dental visit in last 6 mths</td>
<td>yes / no</td>
</tr>
<tr>
<td>FL varnish applied</td>
<td>yes / no</td>
</tr>
<tr>
<td>Systemic FL assessed</td>
<td>yes / no</td>
</tr>
<tr>
<td>OH and diet instruction</td>
<td>yes / no</td>
</tr>
<tr>
<td>Dental provider</td>
<td>___________</td>
</tr>
</tbody>
</table>
Medicaid Billing for Fluoride Varnish

- CMS 1500 billing form
- Exam: Code D0145 ($25)
- Fl Varnish: Code D1206 ($20)
  - Exam can be billed without Fl varnish
  - Fl varnish cannot be billed without exam
  - Fl varnish can be delivered on subsequent date to exam but must appear on same billing sheet
- 6 mths to 40 mths of age
- Comprises:
  - Oral evaluation with documentation of findings
  - Diet counseling
  - Oral hygiene instruction
  - Systemic fluoride Rx (if required)
  - Fluoride varnish (if required)
  - Referral to dental provider (if required)
# Anticipatory Guidance

## Well Child Care Visit

<table>
<thead>
<tr>
<th>4 mths</th>
<th>6 mths</th>
<th>12 mths</th>
<th>18 mths</th>
<th>24 mths</th>
</tr>
</thead>
<tbody>
<tr>
<td>No bottle propping</td>
<td>No bottle propping</td>
<td>Discard bottle</td>
<td>Discard bottle</td>
<td>Healthy snacks</td>
</tr>
<tr>
<td>Determine H₂O F</td>
<td>Introduce cup</td>
<td>Toothbrushing</td>
<td>Healthy snacks</td>
<td>H₂O F level</td>
</tr>
<tr>
<td>Toothbrushing</td>
<td>H₂O F level</td>
<td>Fluoride Rx</td>
<td>H₂O F level</td>
<td>Fluoride Rx</td>
</tr>
<tr>
<td>H₂O F level</td>
<td>Fluoride Rx</td>
<td>Caries/defects y/n</td>
<td>Fluoride Rx</td>
<td>Caries/defects y/n</td>
</tr>
<tr>
<td>Fluoride Rx</td>
<td>Caries/defects y/n</td>
<td>Oral hygiene good/poor</td>
<td>Oral hygiene good/poor</td>
<td>Oral hygiene good/poor</td>
</tr>
<tr>
<td>Caries/defects y/n</td>
<td>Oral hygiene good/poor</td>
<td>Schedule 1st dental visit</td>
<td>Dental visit in last 6 mo</td>
<td>Dental visit in last 6 mo</td>
</tr>
<tr>
<td>Oral hygiene good/poor</td>
<td>Schedule 1st dental visit</td>
<td>FL varnish</td>
<td>FL varnish</td>
<td>FL varnish</td>
</tr>
<tr>
<td>FL varnish</td>
<td>FL varnish</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Role of Office Staff

- Front Desk Staff
  - For all children over age 1, ask parent if child has seen a dentist in the last 6 months
  - If needed, provide parents with list of local dental providers (see next slides)
  - Keep oral health posters prominent and visible

- RNs, (R)MAs, LPNs
  - For all children over age 6 months, ask parents if they are brushing their child’s teeth
  - Provide oral hygiene instruction
  - Point out oral health poster for parent to read or use as conversation tool
  - Use chart stamp (see package) to record their answer and make primary care provider aware
Finding a Dental Home

“Home By One”
- Developing systems of care between WIC, physicians and dentists to ensure oral health is managed as part of overall health
- Recruiting and training dentists to provide dental homes to infants

“AAPD Head Start Dental Home Initiative”
- Joint project to address oral health care crisis for children in Head Start
- Recruiting dentists to work with local programs to provide dental homes
Resources

- **Benecare** (Medicaid Dental Vendor)
  - Patient assistance line to locate dentist *(866) 420-2924*
- **Home by One**
  - Tracey Andrews RDH, BS (DPH)
  - *(860) 509-8146* [tracey.andrews@ct.gov](mailto:tracey.andrews@ct.gov)
  - Will actively help locate dental providers
- **AAPD Head Start Initiative**
  - Doug Keck DMD (AAPD)
  - [dougkeck@earthlink.net](mailto:dougkeck@earthlink.net)
  - Can provide information on the program and activities in your area
- **Web site**
  - [http://oralhealth.uchc.edu](http://oralhealth.uchc.edu)
  - Videos
  - Slides
  - Patient education posters
  - Physician pocket card and PDA application
Dental caries develops in the presence of teeth, bacteria and sugars.

Prevention by non-dental professionals targets:

- Feeding practices
- Oral hygiene
- Systemic and Topical Fluoride
- Assessment of risk factors

Dental screening by non-dental professionals must occur at every well child visit

First dental visit by first birthday

Fluoride varnish for moderate and high risk infants can help decrease caries