RISK ASSESSMENT

The primary thrust of early risk assessment is to screen for parent-infant groups who are at risk of ECC and would benefit from aggressive intervention.

The ultimate goal of early assessment is the timely delivery of educational information to populations at high risk of caries to avoid the need for later surgical intervention.

RISK FACTORS... JUST TO NAME A FEW

- Age at eruption of first tooth
- Country of birth
- Education of primary caregiver
- Family revenue
- Tooth brushing frequency
- Use of dental floss
- Fluoride supplements
- Consumption of fluoride water
- Use of nighttime bottle and contents of bottle
- Previous Caries experience
- Closed interproximal contacts

RISK FACTORS BY AGE

Younger children (0-3 YEARS)
- Sweetened beverages
- Poor oral hygiene
- Immigration status
- Perinatal events
- Maternal factors

Mixed dentition
- Fluoride exposure
- Country of birth
- Urbanization / Socioeconomic background

Older children
- Past caries experience; particularly smooth surface and first primary molars
- Pit and fissure anatomy
- Decalcification

RISK FACTORS BY AGE

(Wandera et al. 2000)

(ST. BARNABAS HOSPITAL)

Stacey Lubetsky DMD

RISK ASSESSMENT

(Wandera et al. 2000)

(Wandera et al. 2000)
RISK FACTORS BY AGE
(Wandera et al. 2000)

- Results: active caries was the discernable factor between at risk and low risk
decalcification, diet, oral hygiene, medical history played a marginally significant role (multifactorial)

LOW SOCIOECONOMIC AREAS
(Ismail 2003)

- Lack of access to care
- Poor nutrition
- More fatalistic health beliefs
- (treat only when symptomatic)
- More tangible — high incidence of dental defects, enamel defects may result from — systemic, genetic, environmental factors such as prematurity, low birth weight, infections, malnutrition or metabolic disorders—many of which have a higher incidence in low socioeconomic families.

RISK FACTOR WITHIN HISPANTIC FAMILIES
(Huntington et al., 2002)

- Insurance status
- Father’s education
- Family income
- Dental visits by the mother and father
- Supervision of brushing
- Child’s frequency of brushing
- Child’s habit of feeding while sleeping
- The presence or absence of ECC in one sibling was independent of ECC in another sibling

MEDICAID ELIGIBLE CHILDREN
(Edelstein, CDHP 2002)

- have twice the numbers of decayed teeth and twice the number of visits for pain relief but fewer total dental visits compared to children from families with higher incomes.
- fewer preventive visits for services such as sealants increase the burden of disease in lower income children.

MORE RISK FACTORS

- more than 40% of children have caries by the time they reach kindergarten
- low socioeconomic status, low education level, consumes sugar foods (32% more likely to have caries by the age of three)

3 COMPONENTS OF CARIES RISK ASSESSMENT

- clinical conditions
- environmental conditions
- general health conditions

AAPD caries risk assessment tool
AAPD reference manual
### Clinical Conditions

<table>
<thead>
<tr>
<th>LOW RISK</th>
<th>MODERATE</th>
<th>HIGH RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>no carious teeth in past 24 months</td>
<td>carious teeth in past 24 months</td>
<td>carious teeth in past 12 months</td>
</tr>
<tr>
<td>no enamel demineralization</td>
<td>1 area of enamel demineralization (white spot)</td>
<td>more than 1 area of enamel demineralization, or 1 white spot, Enamel Hypoplasia</td>
</tr>
<tr>
<td>no visible plaque, no gingivitis</td>
<td>gingivitis</td>
<td>visible plaque on anterior teeth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>radiographic enamel caries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>high SM, or orthodontic appliances</td>
</tr>
</tbody>
</table>

*AAAP Caries Risk Assessment Tool (CAT)

### Environmental Conditions

<table>
<thead>
<tr>
<th>LOW RISK</th>
<th>MODERATE</th>
<th>HIGH RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>optimal systemic and topical fluoride exposure</td>
<td>suboptimal systemic fluoride exposure with optimal topical</td>
<td>suboptimal topical fluoride exposures</td>
</tr>
<tr>
<td>consumption of simple sugars or foods strongly associated with caries—primarily at mealtimes</td>
<td>occasions between meal exposures to simple sugars or food strongly associated to caries</td>
<td>frequent (&gt;3) between meal exposures to simple sugars strongly associated with caries</td>
</tr>
<tr>
<td>high caregiver socioeconomic status</td>
<td>midlevel caregiver socioeconomic status (eligible for SCHP)</td>
<td>low-level caregiver socioeconomic status (Medicaid)</td>
</tr>
<tr>
<td>regular use of dental care in a dental home</td>
<td>irregular use of dental services</td>
<td>no usual source of dental care</td>
</tr>
</tbody>
</table>

*AAAP Caries Risk Assessment Tool (CAT)

### General Health Conditions

<table>
<thead>
<tr>
<th>LOW RISK</th>
<th>MODERATE</th>
<th>HIGH RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>children with special health care needs</td>
<td>conditions impairing saliva composition/flow</td>
<td></td>
</tr>
</tbody>
</table>

*AAAP Caries Risk Assessment Tool (CAT)

### Fluoride

- Flu acts mostly **topically** during the remineralization process, posteruptively
- Flu effects glycolytic pathway of microorganisms—reducing acid production and interfering with Carbohydrate metabolism
- Flu reduces caries prevalence by 20-40%

### Sources of Fluoride

- Community Water
- Infant Formula
- Bottled water
- Processed foods
- Flu toothpaste
- Flu supplements
- Rinses and gels

### Fluoride Adequacy

**What to address**

- Daily Flu exposure?
  - Water
  - Flu supplements
  - Monitored use of Flu toothpaste (not more than a lateral smear)
  - Both are effective primary preventive procedures

**What to ask**

- Main water source child is drinking from?
  - City water (unfiltered, Brita/Pur filter)
  - City water (filtered, reverse osmosis)
  - Well water
  - Bottled water
- Fluoride level in child’s drinking water?
- Flu supplements? Dose? Frequency?
- Flu toothpaste daily? Once in awhile? Not yet? If yes, amount on toothbrush?
**Fluoride supplement schedule**

<table>
<thead>
<tr>
<th>Age of Child</th>
<th>Fluoride Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to 6 months</td>
<td>&lt; 0.3 ppm</td>
</tr>
<tr>
<td>6 months to 3 years</td>
<td>0.1 to 0.3 ppm</td>
</tr>
<tr>
<td>3 years to 6 years</td>
<td>0.3 to 0.5 ppm</td>
</tr>
<tr>
<td>6 years to 16 years</td>
<td>0.5 to 1.0 ppm</td>
</tr>
</tbody>
</table>

**Fluoride supplements**

- **Poly-Vi-Flor**: 0.25 mg drops
- **Poly-Vi-Flor** .25, .5, 1mg chewables
- **Poly-Vi-Flor** with FE
- **Colgate Luride** drops and tabs (vanilla, grape, cherry)

**Calculations - Convert from ppm to mg F ion/ml**

**Step 1**
Convert % to milligrams F ion (NaF)

0.05% \( \times 0.45 = 0.0220 \) mg F ion

**Step 2**
Convert % F ion to ppm

0.0220% \( \times 10^4 = 220 \) ppm F ion

**Convert from ppm to mg F ion/ml**

- **Step 3**: Convert ppm F ion to mg/mL

\[
*** \text{ppm} = \frac{mg}{L} ***
\]

220 ppm F ion = 220 mg/L

We want denominator to be mL, so with stoichiometry...

\[
220 \text{ mg} \times \frac{1 \text{ L}}{1000 \text{ mL}} = 0.222 \text{ mg/mL}
\]

**Stannous Fluoride**

- **Convert % to milligrams F ion (SnF)**

0.4% \( \times 0.25 = 0.1 \) mg F ion

**Step 1**
Convert % SnF to ppm

0.1% \( \times 10^4 = 1000 \) ppm F ion
Toxicity

- Probable Toxic Dose: 5-8 mg F/kg
- Certain Lethal Toxic Dose: 32-64 mg F/kg
- Symptoms of OD: GI, CNS, death within 4 hrs
- Tx: <8 mg F/kg: milk; observe 6 hrs; refer if symptoms appear
  .... > 8 mg F/kg induce vomiting, followed with milk; refer (NO IPECAC)

SHOULD BE REFERRED AT 6 months and no later than 12 months

- children with special health care needs
- children of mothers with a high caries rate
- children with a demonstrable caries, plaque, demineralization and/or staining
- children who sleep with a bottle or breastfeed throughout the night
- later-born offspring
- children in families of low socioeconomic status

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

PERIODICITY OF SUBSEQUENT RECALLS

Who made the decision that people should visit the dentist twice a year?

* Based on evaluation and history
* Assess the patient’s risk for oral disease and need for follow-up

THE DENTAL HOME

- an accurate risk assessment of dental disease
- an individualized preventive dental health program based on risk assessment
- anticipatory guidance about growth and development (teething, digit sucking, feeding practices)
- a plan for emergency dental trauma
- information about proper care of the child’s teeth and gingival tissues

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

THE DENTAL HOME-DIET

GOOD SNACKS
- Popcorn
- Celery, cucumbers
- Cheese
- Apples
- Bananas
- Hard boiled eggs
- Oranges

BAD SNACKS
- Sticky, sweet or starchy
- Cookies
- Cake
- Candy
- Chips

*AAPD-Oral Health Risk Assessment Timing and Establishment of the Dental Home
ANTICIPATORY GUIDANCE / PARENT EDUCATION

- Oral hygiene: The parent should be instructed to brush thoroughly twice daily (morning and evening) and to floss daily.
- Diet: The parent should be instructed to consume fruit juices only at meals and to avoid all carbonated beverages during the first 30 months of the infant’s life.
- Meals with carbohydrate exposures should not exceed fluoride exposures.
- Fluoride: The parent should be instructed to use a fluoride toothpaste approved by the ADA and rinse every night with an alcohol-free over-the-counter mouth rinse with 0.05% sodium fluoride.

GENERAL ANTICIPATORY GUIDANCE

0 to 3 years of age

- Oral hygiene: The parent should begin to brush the child’s teeth as soon as they erupt (twice daily/morning and night) and floss between the teeth as soon as the teeth are in contact.
- Diet: After the eruption of the first tooth, the parent should provide fruit juices only at meals and fruits during meal time only. Carbonated beverages should be excluded from their diets. Infants should not be placed in bed with a bottle containing anything other than water. Ideally, infants should have their mouths cleansed with a damp cloth after feedings.
- Fluoride: All children should have optimal exposure to topical and systemic fluoride. Caution should be exercised in the administration of all fluoride containing products. The specific considerations for fluoride administration should be tailored to the individual’s needs.

REACHING OUT TO THE 0-3 YEAR POPULATION

- Pediatricians, Ob-Gyn, other medical specialists
- Prenatal and Parenting Classes
- WIC/Head Start, Day Care Centers
- Within your own practice

THANK YOU!!!

REFERENCES

- Bright Smile Bright Futures 2003
- Nainar, SM., Longitudinal Analysis of Dental Services provided to Urban Low Income (Medicaid) Preschool Children Seeking Initial Dental Care, Journal of Dentistry for Children 65:5 May 1998