Caries Management Course
Module: Topical Fluorides

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Look for the blue underline reference links to click during the presentation!

Caries Management Plan

Data Collection
Interview
Clinical Exam

Risk Assessment
Risk Level

Treatment
Restorative
Fluoride
Self Management
Diet
Oral Hygiene
Prescriptions

Follow-Up
Reminders
Recall Appt

Topical Fluorides in Caries Prevention for 0-5
Fluoride Mechanism

• Reduces enamel solubility
• Promotes remineralization of enamel, and may arrest or reverse early caries
• Inhibits the growth of cariogenic organisms, thus decreasing acid production
• Concentrated in dental plaque
• Primarily topical even when given systemically

How much Toothpaste?

Under age of 2 'smear'
Age 2-5 'pea-size'

For Moderate and High Risk per AAPD Guidelines. Fluoride Toothpaste under 2 years of Age recommended over Fluoride Drops per Dr. Jones (this is a non-evidence based recommendation based on the topical mechanism of fluoride)

Acute Exposure

• Overexposure is still a concern related to fluoride acute toxicity, since the ‘Probable Toxic Dose’ is 5 mg/kg.
• Approximately 30,000 calls to US poison control centers concerning acute exposures in children are made each year

Acute Exposure

• A 25 lbs child who ingests ~2 oz of fluoride toothpaste is at risk of acute exposure to OTC 1100 ppm toothpaste.
• Serious issues are rare but GI issues remain a risk.

• Reference Link: Acute Toxicity
Varnish: 5% NaF

- Studies* have shown that 2-4 per yearly applications can significantly reduce Early Childhood Caries.

- Reference Link: Varnish Caries Preventions

- Remember 5% NaF is approved as a ‘cavity liner and for hypersensitivity’ NOT for caries prevention.

- Practitioners are allowed to use non-FDA approved methods for the benefit of a patient.

Reference Link: Varnish ‘off-label’

Maxillary Anteriors

- Maxillary anterior teeth benefit from fluoride varnish more than pit and fissure surfaces in preschool children.

Reference Link: Region Specific Benefits

Varnish: 5% NaF

- Healthcare professional application
- Over 20x the F as OTC toothpaste
- 22600 ppm versus 1100 ppm

- Can perform a ‘Toothbrush Prophy’ prior to application to remove gross plaque levels but this may not be mandatory for a clinical benefit
Varnish: 5% NaF

- Dry Teeth with Gauze (2x2)
- Apply to lower arch first (reduces saliva contact)
- Even across all the tooth and surfaces

Varnish: thinner is better

If you place thick layers, then the varnish may get abraded away before full local fluoride delivery.

Greater Fluoride Release when you spread over a greater surface area.

Allergies?

- Rosin (colophonium) is the natural resin in varnish. It is extracted from pine stump wood not living trees.
- I am unaware of any confirmed cases of allergies related to fluoride varnish (pine nuts-which are actually seeds).
- Although rare, children with allergies to Rosin and pine nuts are considered at risk for cross-allergy. It is best to have that as a question on a medical history.
- It is best to order from one manufacturer and get a statement from that manufacturer.
**Extras?**

- Addition of TCP (Tricalcium Phosphate) or Xylitol not proven beneficial.

**Caries Management: High Risk (0-5 yrs)**

- **ANTICIPATORY GUIDANCE**
  - Child
    - 3 month recall *(insurance may not cover)*
    - F varnish every 3 month *(insurance may not cover)*
    - X-ray every 6-12 month *(insurance may not cover)*
    - Sealants on primary teeth for deep fissures *(insurance may not cover)*
      - Not a viable option for a busy practice

Reference Link: Disease Management Initiatives

**Varnish Recommendations**

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Age</th>
<th>Varnish Application</th>
<th>Professional Topical Fluoride Application</th>
<th>Use Professional Judgment</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>&lt;6 years</td>
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<td>6-18 years</td>
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<tr>
<td>Moderate</td>
<td>&lt;6 years</td>
<td>Varnish application 6 month interval</td>
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</tbody>
</table>

**Prophy**

- There is likely little benefit in performing a professional coronal prophylaxis (aka Prophy) prior to varnish application for efficacy.

- Reference Link: ADA recommendations
  - And look up at ADA.org the full report
Brush-on Gel Options

• Just For Kids™ 0.4% Stannous Fluoride (SnF₂) Brush-On Gel Used 1 x day is one of the only additional therapies available.

Brush-on Gel Options

• Just For Kids™ 0.4% Stannous Fluoride (SnF₂) used once a day does not reduce plaque levels.

Brush-on Gel Options

• It does not inhibit any particular bacteria within the plaque.

Reference Link: SnF₂ Effect on Plaque

Brush-on Gel Options

• The stannous ion is Latin for the metal ion tin.
• Sounds better right?
• Questions remain about exposure to the metal tin over long periods. Very small levels. No conclusive evidence.
• Proof as an effective therapy for high risk children is inconclusive
Topical Fluorides in Caries Prevention for 6-18 years old

Two Professional Options

• 5% NaF Varnish
  or
• 1.23% acidulated phosphate fluoride (APF) topical gel for at least four minutes

• And look up at ADA.org the full report

Moderate/High Risk Children

For >6 years old
Moderate Risk or above: Can add OTC 0.05% NaF rinse

Limited Data for the success of this therapy but is a common practice to prescribe

Reference Link: Prevention of White Spots

Orthodontic Patients are almost a completely different subset of patients. One intervention alone is probably not enough to prevent white spot lesions.
For >6 years old
ADA Council on Scientific Affairs recommends a prescription based
0.2% Sodium fluoride mouth rinse for children who are aged six or
over.
Daily or once/week application

Go to ADA.org to view the full report of these recommendations

Moderate/High Risk Children

For >12 years old
For High Risk: Can add a 5000 ppm F

Two Choices:
1) After Brushing Gel (for example, Prevident 5000)
2) Toothpaste-abrasive particles added (for example, Prevident 5000 plus)

High Risk Children

1.1% Sodium Fluoride (5000 ppm F) Rx Only

A Proven Benefit:
1) For Teenagers with irregular brushing frequency
Affects both the number of new lesions
Prevents enamel lesions from progressing into DENTIN

Reference Link: 5000 ppm and Lesions

High Risk Children

Conclusion
Topical Fluorides continue to provide the
greatest anti-caries benefit of available therapeutics.

Both Professional and Home Use remain viable options for
Moderate to High Risk Children