Preventive Dental Materials

- Tooth Paste
- Mouth Washes
- Fluorides
- Sealants
- Mouth guards

Preventive Materials

1. Fluoride gels, foam and varnish:
   - Used for remineralisation of decalcified enamel and incipient caries.
2. Sealants:
   - Indicated for preventing and arresting incipient lesions.
   - Available as clear or white, filled or unfilled, containing Fluoride or not.

Tooth Paste

Components/composition

1. Colloidal binding agents - Na Alginate, methyl cellulose
   Function: prevent separation of the components in the tube during storage.
2. Humectants (moistens or dilutes) - glycerin
   Function: reduces water loss by evaporation.
3. Preservatives
4. Flavoring agents
5. Abrasives - Ca carbonate, hydrated silica, Ca pyrophosphate, Na bicarbonate
   Function: removal of plaque, stains, calculus.
6. Detergents - Na laurylsulphate
   Function: used to reduce surface tension and enhance the removal of debris from the tooth surface.
7. Therapeutic agents - Stannous Fl
   Function: increased uptake of Fl ion leading to increased resistance of Fluorapatite to acid demin

Mouth Washes

1. Active agent - anti-caries, antimicrobial
2. Solution - water, alcohol - preservative
3. Surfactant - Na laurylsulphate
   - ph 3.4 - 6.6
   - Ethanol 0-27%
   - carcinogenic effects
   - staining
**Fluorides**

Gels, Foams, Rinses, Varnishes  
APF gel - 2% NaF, 0.34%HF, 0.98% Phosphate  
- 4 min application is optimal  
- No eating or drinking for 1hr post application  
- Applied twice a year

**Fluoride Supplements**

- Prior to recommending supplementary fluoride, the fluoride content of the child’s total water intake must be determined.

**ADA-Recommended Supplemental Fluoride Dosage Schedule**

<table>
<thead>
<tr>
<th>Age of Child</th>
<th>Water Fluoride Concentration (parts per million)</th>
<th>Less Than 0.3</th>
<th>Between 0.3 - 0.6</th>
<th>Greater Than 0.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to 6 months</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6 months to 2 years</td>
<td>0.25 mg liquid drops</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3 to 6 years</td>
<td>0.5 mg drops or tablet</td>
<td>0.25 mg</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6 to 16 years</td>
<td>1.00 mg</td>
<td>0.5 mg</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Question**

1. A 5 yr old pt lives in an area with .75 ppm fluoride. What is the recommended F supplement in this case? NDB-87

**Fluoride Supplements**

- Forms  
  - Drops  
  - Chewable Tablets  
  - Tablets  
- In combination with vitamins  
- Dosages  
  - 0.25 mg  
  - 0.5 mg  
  - 1.0 mg
Fluoride Varnishes
- 5% NaF
- Long History in Europe
- Excellent Clinical Effectiveness
- 0.1% Difluorosilane
  - Durafluor, Omnifluor, etc.
- Easy to Use: Paint THIN Layer on Dry Teeth
- 24 Hour Slight Yellowing

Topical Fluoride
- 20% to 40% caries reduction
- Professionally applied
- Over-the-counter rinses
- Prescription rinses and gels
- Dentifrices

Fluorosis

Question
- A child spends his first seven years in a community in a temperate zone, water supply contains 3 ppm flouride, mottling will develop in which teeth? NDB'87

NDB Excerpts
- F inhibits glucosyltransferase. Strep mutans uses this to produce dextran to attach to teeth.
- F1 prevents smooth surface caries NOT pit and fissure caries....Sealants prevent pit and fissure C.
- Toxic flouride dose =5mg/kg.
- Lethal dose=20mg/kg.
- Antidote-milk and antacids containing calcium.

NDB Excerpts
- Flourides affect the tooth in the following manner:
  - Chemically reacts with hydroxyapatite crystals to replace the hydroxyl ions,
  - Only effects the outer layers of enamel...makes the apatite crystals more resistant to acid...Increases remineralization.
  - Total reduction of smooth surface caries by flouride ~ 75-90%. (systemic 30%, topical30%, occlusal sealants-30%).
Pit and Fissure Caries

Dental Sealants

- Noninvasive procedure
- Preventive
- Seals deep, narrow grooves

Occlusal vs. Proximal Caries in the USA


Dental Sealants

K.-D. Hellwege: Die Praxis der zahnmedizinischen Prophylaxe
Hülthig Verlag Heidelberg, 1991
Glass Ionomer cements

- Fluorosilicate glass powder (base) combined with a water soluble polymer (acid)
  e.g. - Ketac cement
- Resin-modified glass ionomer cements: are glass ionomers with a light polymerised resin component.
  e.g. - Vitrebon and Vitremer

Resin-modified glass ionomers

Advantages:
1. Increased mechanical properties
2. Physiochemically bonds to tooth structure
3. Biocompatible, moisture forgiving
4. Similar coefficient of thermal expansion as dentin therefore a good dentin replacement material. (sandwich technique)
5. Ion lechability - Fluoride release (anticariogenic action)
6. Minimal polymerization shrinkage

Mouthguards

- Stock, custom made
- Technique - Place a polyvinyl polyethylene thermoplastic sheet over the model on a vacuform. Trim to fit.
Thank you!

Recommended reading…
“Craig”
Dental Decks