Preventive Dentistry

Putting ourselves out of business

Why Prevention

Caries is the most common chronic disease
and is almost entirely preventable

What is Prevention

- Diet modification
- Fluoride
- Plaque removal
- Fissure sealants
- Antimicrobials

Diet Modification

- Link between fermentable carbohydrates and caries is well established
    - My favourite are the Turku sugar studies
        - Began with feeding sugar to orphans but has developed into a series of studies confirming the effects of sugar but also the benefits of some sugar substitutes such as xylitol
            - Alternative and non nutritive sweeteners can have a positive effect on caries rates.

They are kids
they have to have candy!

- Good evidence in the end the amount of sugar isn't anywhere near as important as frequency.
  - Get out your cariology notes and review the Stephan curve and think about how you would explain it to a parent.
  - Kids who tend to get cavities tend to be the grazers
    - This includes beverages containing sugar which are also often acidic and so add erosion in on top of cariogenic
      - Think of the child who is constantly carrying the bottle of milk or juice.

They are kids
they have to have candy!

- So the good news is kids can have candy in a dentally responsible way. Don’t get me started on the childhood obesity problem
- Candy is saved for desert with meals and if brushing can’t happen after meals try and rinse down as much of the carbohydrate as we can with a drink of water

Diet Infants and Toddlers

- Nothing in bottles but milk (animal or breast) or water
- Never be put to bed with a bottle
    - If they currently are they can transition away from by progressively watering down the milk over a month or so till nothing but water in the bottle
- Transition to tippy cup close to one
    - Nothing but water in the tippy cup. Other beverages in a regular glass so they are consumed at one time.

Diet Young Children

- Group carbohydrate exposure into as few times a day as possible
  - Limit snacks or low carbohydrate snacks such cheese and vegetables.
  - Parents often think crackers are good as they are low sugar. They are high in carbohydrates and can be retained in the mouth for a long time
    - Bits of cracker between the cheek and teeth for hours

Diet Modification

- Achieving dietary change is difficult
- Advice needs to be individualized, practical and realistic
- Compliance depends on parental and child motivation
- Should not be all negative but should identify positive alternatives. Examples include swapping out high carbohydrate snacks for low ones

Fluoride

- Incorporated into the tooth structure it converts hydroxyapatite to fluoroapatite which has a lower pH of solubility.
- Exposure through professional application of gels and varnishes, drinking water and supplemental therapy such as drops, tablets, lozenges.
    - Halo effect of people in areas of non fluoridated water still get fluoride from drinks and foods produced with fluoridated water

Fluoride

- Level of water fluoridation in Winnipeg is 0.7 ppm
    - Recommended levels of fluoridation for drinking water vary with climate
- Supplementation begins with water levels below 0.3 ppm after the age of 6 months and below 0.6 ppm after age 3.
    - Do not assume that because a patient is on well water that they are not getting fluoride. The original link between fluoride and caries was noted in areas of high natural occurrence in well water.

Fluoride

- Risks of too much fluoride prenatal to age of 8
  - Mild fluorosis will appear as white spots on the teeth
    - Effects up to 25% of some populations
  - With increasing severity the spots start becoming increasingly brown
  - Is an cosmetic concern more than a structural or functional issue
  - Anything beyond very mild fluorosis is unlikely at recommended levels.

Plaque Removal

- Home oral hygiene instructions are age specific and need to be tailored to individual families
  - We tell parents the bed time brushing is the most important. This is true as it overnight salivary flows drop. It need not necessarily be at bed time and is often better accepted if not part of the bed time preparations. The difference between a child an and adult is children don’t want to go to sleep. The last brushing of the day needs to be once they are no longer having anything to eat and will only be drinking water.
  - Consistency is an important part of getting children to accept brushing. Same place same time everyday. Hard when parents live separately and share custody. Cool parent doesn’t make them brush.

Plaque Removal

- Parents need to understand brushing teeth well is harder than tying shoes. If you are lucky they will scrub the front teeth well but to get everything an adult needs to help. This may be required till age 6 and beyond.

Plaque Removal
Infants (0-1)

- Plaque removal should begin at the eruption of the first tooth
- Infant sized tooth brushes and tooth brushes that fit over the adults finger are available but often a face cloth works just as well.
- Toothpaste is not recommend

Plaque Removal
Toddlers (1-3)

- Children this age have difficulties spitting so minimal amount of fluoridated toothpaste is recommended. Grain of rice to small pea.
- At this age the child is playing with the brush and after they are done the caregiver needs to brush.
- If child objects to the flavour of the toothpaste its better to do a good job of brushing without than a poor job with. Mechanically breaking up the plaque is the goal.

Plaque Removal
Preschoolers (3-6)

- Still the responsibility of the parent to brush
  - Common for parents to blame their children in this age group for their poor dietary habits and lack of brushing. Ya no don’t think so.
- Should be able to spit but still doesn’t need more than a small pea size of toothpaste

Plaque Removal
School age (6+)

- Some children are ready to transition to self care with active supervision of parents.
- With eruption of permanent teeth oral hygiene takes on greater importance. Becomes more difficult as arch length increases. Often newly erupted teeth have odd rotations and such which make it harder to keep clean.
- Introduction of dental appliances and orthodontics are also points where home care should be reviewed.

Flossing

- Can begin anytime after contacts have closed.

Sealants

A poorly placed sealant is worse than no sealant at all.

If the sealant is leaking, has voids or incomplete coverage we can create areas that are difficult to maintain and keep clean.

Sealants

- Provide excellent protection of occlusal surfaces of posterior teeth and lingual pits of anterior teeth.
- 40% of decay is occlusal decay
- That rises to 90% in fluoridated areas
- Risk factors change throughout life.
  - A child who had parents who were diligent in providing and supervising home care might benefit from sealants when they move away from home for University.
  - An adult who has had a stroke and has difficulties with dexterity.

Sealants

- Refer back to your second year lectures and handbook regarding application techniques.
    - If I’m supervising you do a sealant in the clinic I want to see you make an effort to get the sealant back off with an explorer once its been placed. If it comes off with a explorer it was going to leak

Sealants

- Should be seen as a continuum from observing to sealant to preventive resin restoration to restoration.
- Like any other material you use in your practice understand proper application, benefits and limitations.

Antimicrobials

- Chlorhexidine is rarely called for in children and not at all in younger children. Will occasionally see it in special needs cases but there is no evidence that it reduces the incidence of caries or periodontal disease. There are no extensive studies of its use on children I could find.

- Xylitol is a naturally occurring sweetener with 40% fewer calories but similar sweetness as sucrose. Used in gums and some baked goods it reduces the growth of S. Mutans. It can in higher quantities cause flatulence, diarrhea and gastrointestinal discomfort. At this point is only recommend for ages 4 and up.