

# Perinatal Oral Health Care and Xylitol Use in Caries Prevention



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# References

## AAPD Guidelines

- Perinatal oral health care
- Xylitol in caries prevention
- Caries-risk assessment and management for infant children and adolescents

# Definition

## Perinatal

- Is the period around the time of birth
- Beginning with the completion of the 20-28<sup>th</sup> week of gestation and ending 1-4 weeks after birth

# Early Childhood Caries

- Although decrease in caries prevalence, caries in 2-5 year olds has increased
- ECC is the most common chronic childhood disease in the US
- Prevention is effective and more cost-effective

# Why perinatal?

- Link between periodontal disease and adverse outcomes in pregnancy
  - Preterm deliveries
  - Low birth weight
- High levels of cariogenic bacteria in mother → at higher risk of transferring cariogenic bacteria to their child

# Goal of perinatal oral health care

- To lower the number of **cariogenic bacteria** in expectant mother's mouth so that MS colonization of the infant can be delayed as long as possible
- Delivery of **educational information** and **preventive** therapies to parents can reduce the incidence of **ECC** and improve the oral health of their children

# Dental caries

Common chronic **infectious transmissible** disease resulting from **tooth-adherent specific bacteria**, (MS), that metabolize **sugar** to produce acid which over time demineralizes the tooth structure

# Caries etiology

Parents must be aware of the fact that  
caries is 'infectious'



# MS colonization

- Bacteria colonization of an infant may occur from birth
- Significant colonization occurs after dental eruption as teeth provide non-shedding tooth surfaces for adherence
- Other surfaces may harbor MS (tongue)

# Vertical Transmission

- Genotypes of MS in infants appear identical to those in mothers (24 to 100%)
- Related to several factors
  - Magnitude of the inoculum
  - Frequency of inoculation
  - Maternal salivary MS levels
  - Mother's oral hygiene
  - Periodontal disease
  - Snack frequency
  - Socioeconomic status

# How?



# Horizontal transmission

- Transmission between members of a group such as siblings
- Children with severe ECC – non-maternal MS genotypes were identified in the majority (74%) of children

# Recommendations for Perinatal Health Care

- Caries risk assessment
- Anticipatory guidance
- Preventive strategies
- Therapeutic interventions

# Goal of Caries Risk Assessment

- to prevent the disease by identifying and minimizing **causative factors**
  - Microbial burden
  - Dietary habits
  - Plaque accumulation
- to optimize **protective factors**
  - Fluoride exposure
  - Oral hygiene
  - Fissure sealants

# Caries risk assessment

- **Biological**
  - Mother/caregiver
  - Low socioeconomic status
  - Snacks
- **Protective factors**
  - Fluoride
  - Regular dental care
- **Clinical findings**
  - White spot lesions
  - Cavities/fillings
  - Plaque

# Recommendations for Perinatal Health Care

- Caries risk assessment
- Anticipatory guidance
- Preventive strategies
- Therapeutic interventions



# Anticipatory guidance

- For mother or other caregivers
- Modification of mother's oral hygiene and diet
- Use topical fluorides/chlorhexidine

# Recommendations for Perinatal Health Care

- Caries risk assessment
- Anticipatory guidance
- Preventive strategies
- Therapeutic interventions

# Preventive Strategies: Recommendations

- Oral health education
- Oral hygiene
- Diet
- Fluoride
- Professional oral health care

# Oral health education

- Self-care
- Future child care
- Early intervention and counseling from all health care providers (physicians, dentists, nurses)

# Oral hygiene

- Toothbrushing with fluoridated toothpaste and flossing → reduce bacteria plaque levels
- Periodontal disease link to pregnancy outcomes

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# Morning sickness

- Frequent vomiting → rinse with water with tspn of baking soda can help reduce erosion
- Reduce caries risk → F toothpaste, chewing sugarless and xylitol-containing gum, eating small amount of nutritious food throughout the day

# Diet

- Healthy diet
- Food cravings may lead to consumption of foods that increase mother's caries risk
- Education regarding limiting direct transmission (sharing utensils)

# Fluoride

- Toothpaste
- Rinse





# Professional Health Care

- Removal of active caries and restoration → helps suppress maternal MS reservoirs → minimize the transfer of MS reservoirs to infant
- Second trimester is the safest time for treatment
- Dental treatment can be accomplished safely at any time in pregnancy

# Xylitol chewing gum

- Chewing (at least 2 or 3 times a day) by mother has a significant impact on mother-child transmission of MS and decreasing the child's caries rate



# Xylitol

- Naturally occurring 5-carbon sugar
- Has properties that reduce levels of MS in plaque and saliva
  - Disrupts the energy production process in MS → cell death
  - Xylitol users → MS strains with lower adherence and decreased virulence (less acid production)

# Evidence

- 3 week or more consumption by children → short and long-term reduction in salivary and plaque MS levels
- Some studies did not show long-term reduction
- Other studies have shown reduction of MS for up to 5 years after cessation of xylitol

# AAPD Recommendation

- Moderate-high caries-risk patients
- Reassess caries risk every 6 months

# Dosage

- Total daily dosages of 3 to 8 grams for adequate clinical effect
- Delivery methods – gum, syrup, lozenges
- Dosing frequency – minimum of 2 times/day

# Gum

AAPD does not recommend use of xylitol chewing gum, mints or hard candy by children less than 4 years of age due to risk of **choking**

# Syrup

- 3-8 grams/day in divided doses
- Reduced caries by 50-70% in children 15 to 25 months of age



# Other

- Energy bars and food
- Oral hygiene products (rinses, gels, floss, wipes)
- Toothpaste – 5% formulations have shown reduced MS levels – still not available

# Side effects

- Safe if in therapeutic doses
- At high doses – osmotic diarrhea and gas
- Subside once xylitol consumption is stopped
- To minimize gas and diarrhea, xylitol should be introduced slowly, over a week to acclimate the body to the polyol



# Cochrane Review

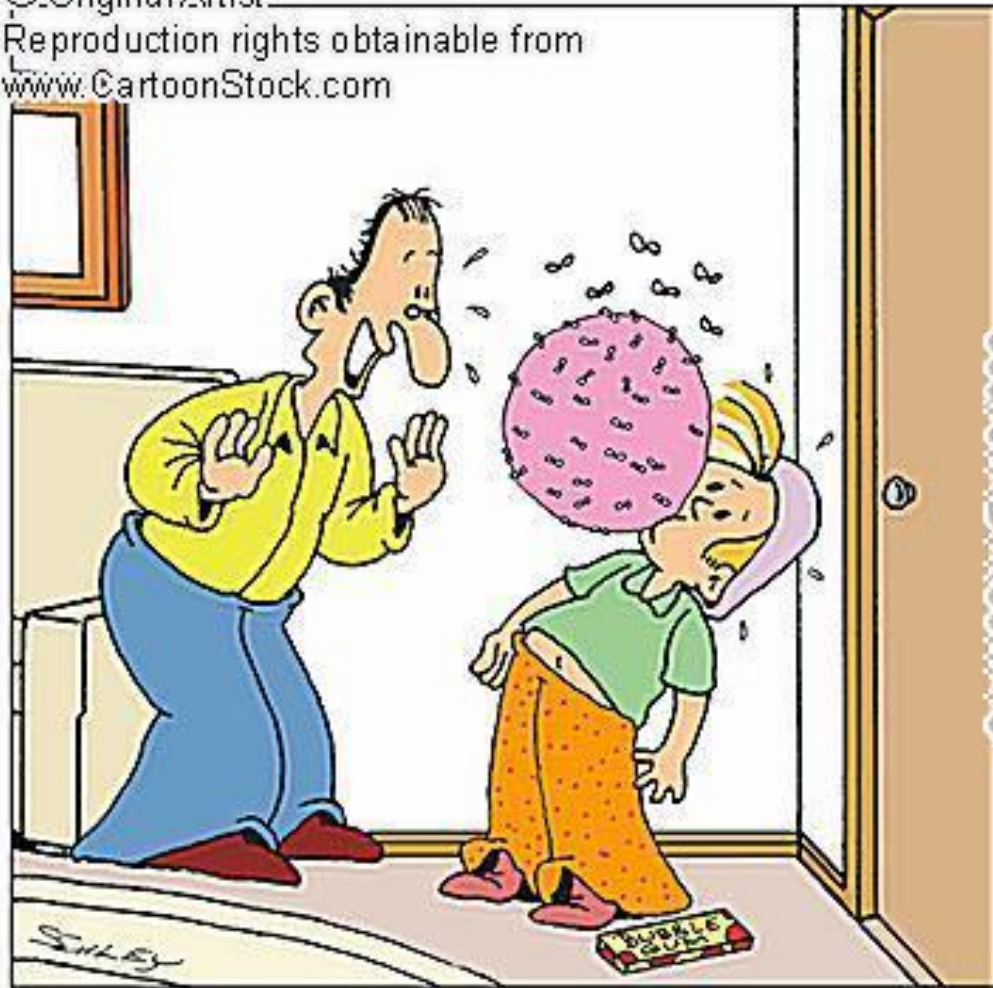
Xylitol-containing products for preventing dental caries in children and adults (Riley et al., 2015)

We found some **low quality evidence** to suggest that fluoride toothpaste containing xylitol may be more effective than fluoride-only toothpaste for preventing caries in the permanent teeth of children.

The remaining evidence we found is of **low to very low quality** and is insufficient to determine whether any other xylitol-containing products can prevent caries in infants, older children, or adults.

# Thank you

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Great, Shannon! Don't move! This is the best  
flycatcher we've ever had!