



Early Childhood caries

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The term early childhood caries was adopted by the center for disease control and prevention workshop to better reflect the complex etiologic factors associated with the disease.

Definition of ECC

- The presence of one or more decayed (non-cavitated or cavitated), missing (due to caries) or filled tooth surfaces in any primary tooth surfaces up until 71 months of age

6 years *Drury et al*

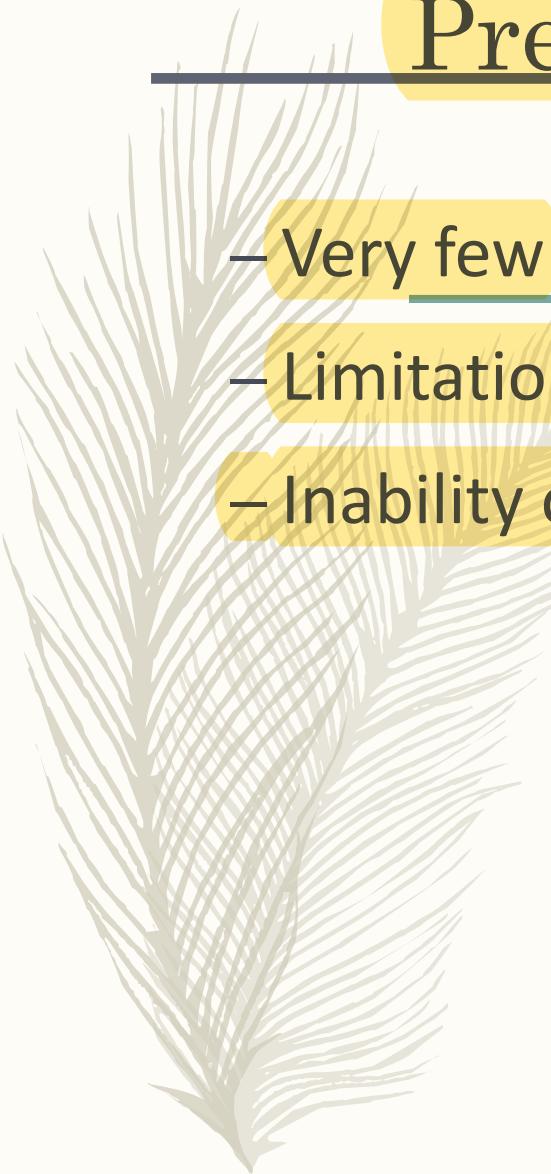
Terminology

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- Nursing bottle caries
 - Baby bottle tooth decay
 - Anterior deciduous decay

Change in nomenclature to ECC since
poor feeding practices alone are not
sufficient to cause carious lesions

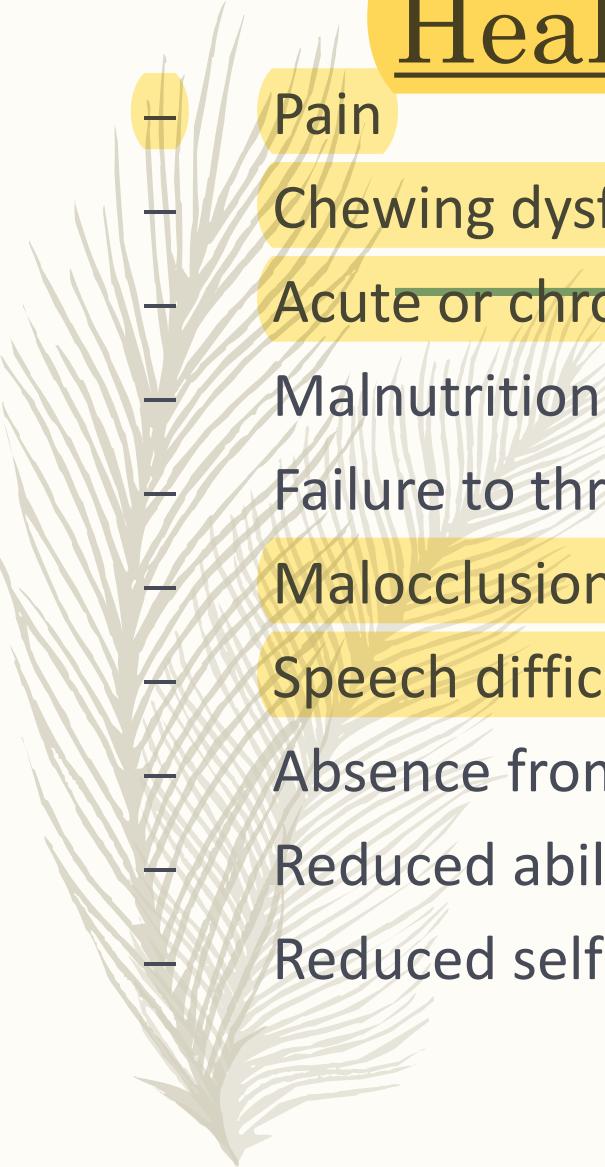
Prevalence

- Very few large epidemiological studies
- Limitations in accessing this group
- Inability of some dentists to examine



ECC: Lifestyle Disease

- Many social factors are now implicated in the aetiology of ECC:
 - Ethnicity
 - Family Status / marriage status (parents)
 - Maternal age
 - Child order in the family
 - Annual family income
 - Mother's education level
- ECC is a **preventable disease**



Health Impact of ECC

- Pain
- Chewing dysfunction
- Acute or chronic infection
- Malnutrition
- Failure to thrive
- Malocclusion
- Speech difficulties
- Absence from pre-school
- Reduced ability to learn and concentrate
- Reduced self-esteem

Family dynamics and ECC

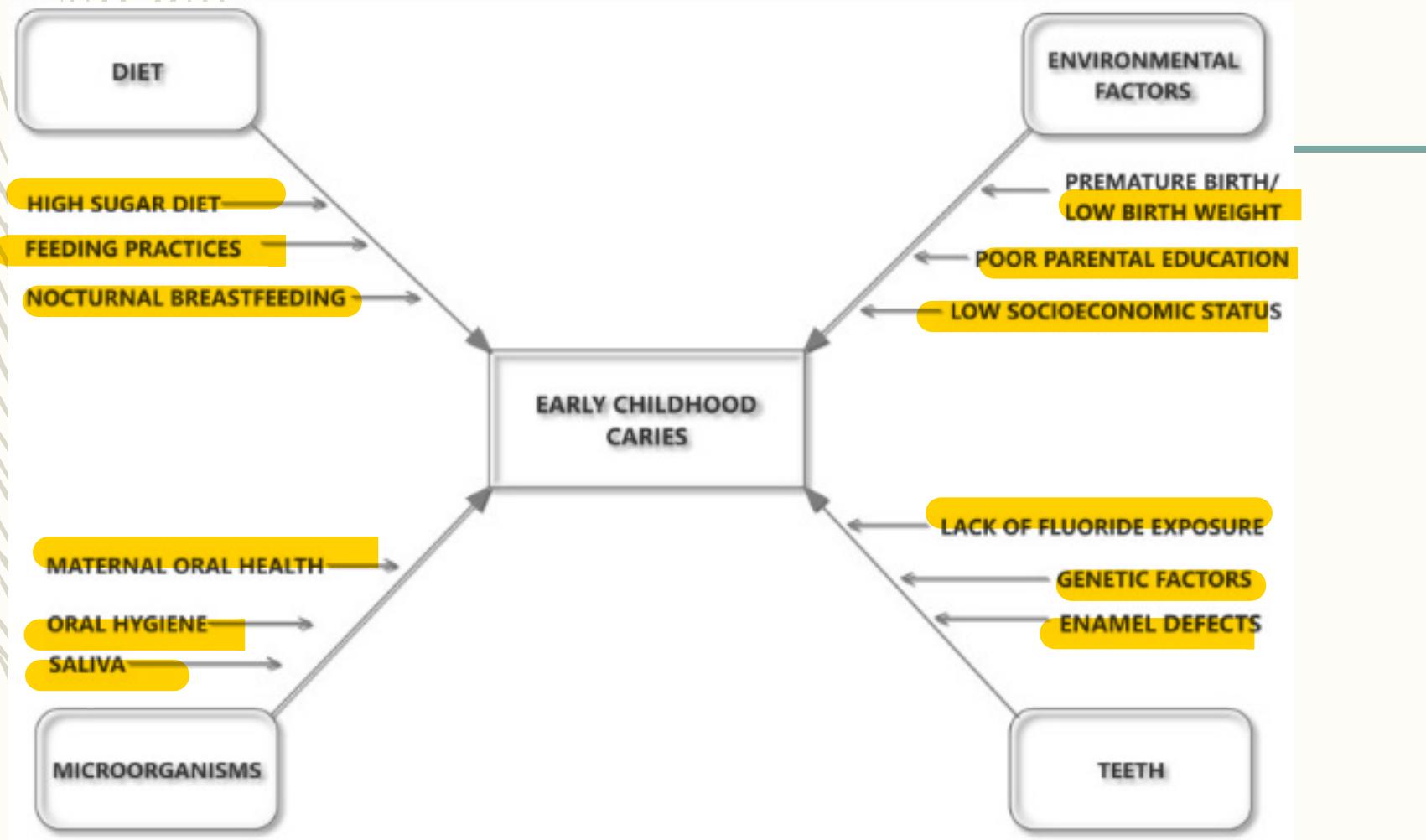
- ECC occurs in all socioeconomic groups
- Children who are ill or restless sleepers may be pacified with a bottle containing sugar
- Often mothers can't say “no!”

“but *they won't drink anything else*”

Aetiology of ECC

- Dental caries: “infectious and transmissible disease”
(Keyes) strongly modified by diet
- Depends on
 - Bacteria (Mutans streptococci)
 - Substrate (fermentable CHO)
 - Host (tooth, saliva)
 - Time (nocturnal bottle use, daytime bottle use, frequent snacking)

The influence of host–microbe–diet interactions in the etiology and pathogenesis of early childhood caries



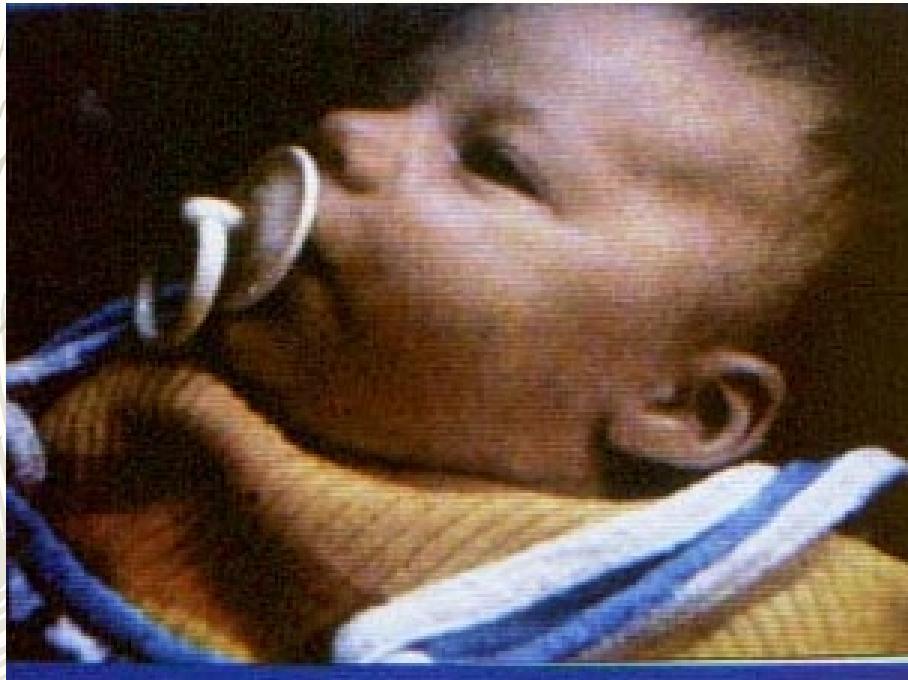
Dietary causes of ECC

- High risk dietary practices in early childhood
- Prolonged night-time bottle feeding
- On-demand breast feeding after 1 yr age
- Frequent snacking on sugary foods
- Frequent daytime sipping through bottle

Bottle containing soft drinks /fruit juice



Pacifier coated with sugar

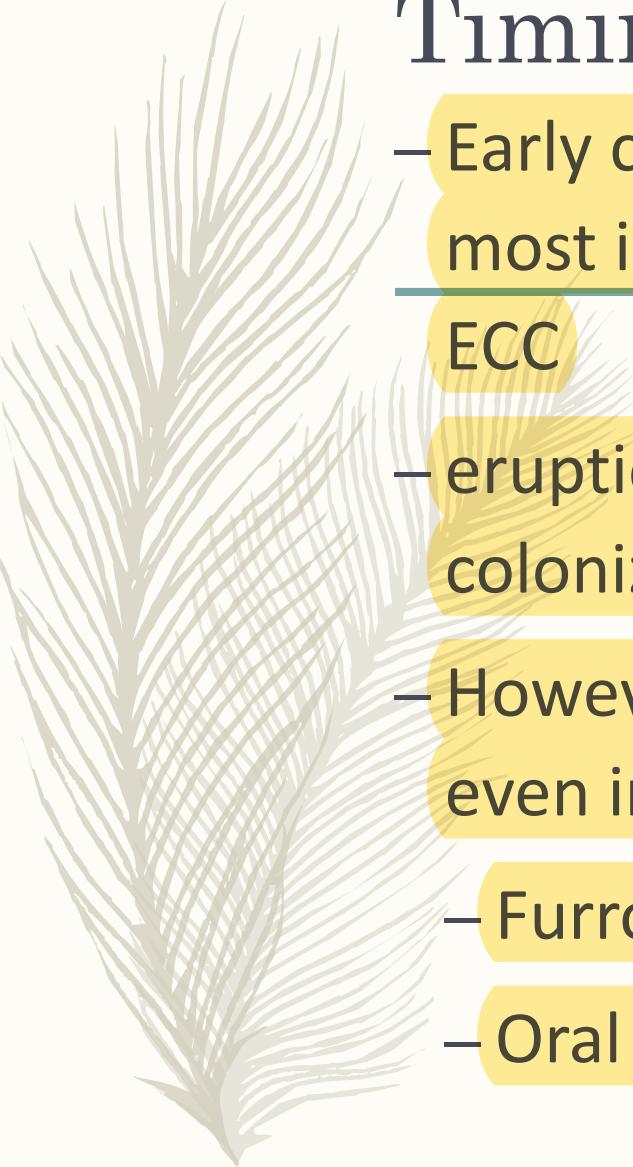


Nocturnal bottle feeding

- When child laid to rest with bottle or breast, nipple rests against the palate and tongue covers the lower incisors
- As the child becomes sleepy, saliva flow and swallow reflex reduced
- Sugar remains stagnant around the neck of the teeth
- There is a constant supply of CHO and reduced saliva defenses

Microbial Factors

- Acquisition of Mutans Streptococci
- Mode of transmission: vertical (maternal) or horizontal (peers)
- Age of acquisition (colonized)
 - *Before 2 yrs age, 89% develop caries (dmft=5)*
 - *> 2yrs age, 25% develop caries (dmft=0.3)*



Timing of infection

- Early colonization of MS probably the most important risk factor for developing **ECC**
- eruption of primary molars required for colonization
- However recent studies have found MS even in pre-dentate infants
 - Furrows of tongue
 - Oral developmental nodules (Bohn's)

Acquisition of MS

- Colonization in pre-dentate children is most closely associated with maternal factors
 - High MS levels
 - Active caries
 - Poor OH
 - Low socioeconomic status
 - Low levels of education

Host factors

- Saliva
- Tooth maturation & developmental defects

Clinical features

1. Seen in infants and preschool children
2. Intra oral decay pattern

Maxillary – incisors, canines & first molar

Mandibular – canines & first molar

3. Mandibular incisors are not affected
4. Demineralization at the neck of the maxillary incisors is first seen.
5. The lesion progresses to grind the neck of the tooth
6. Advanced cases only the root stump is left

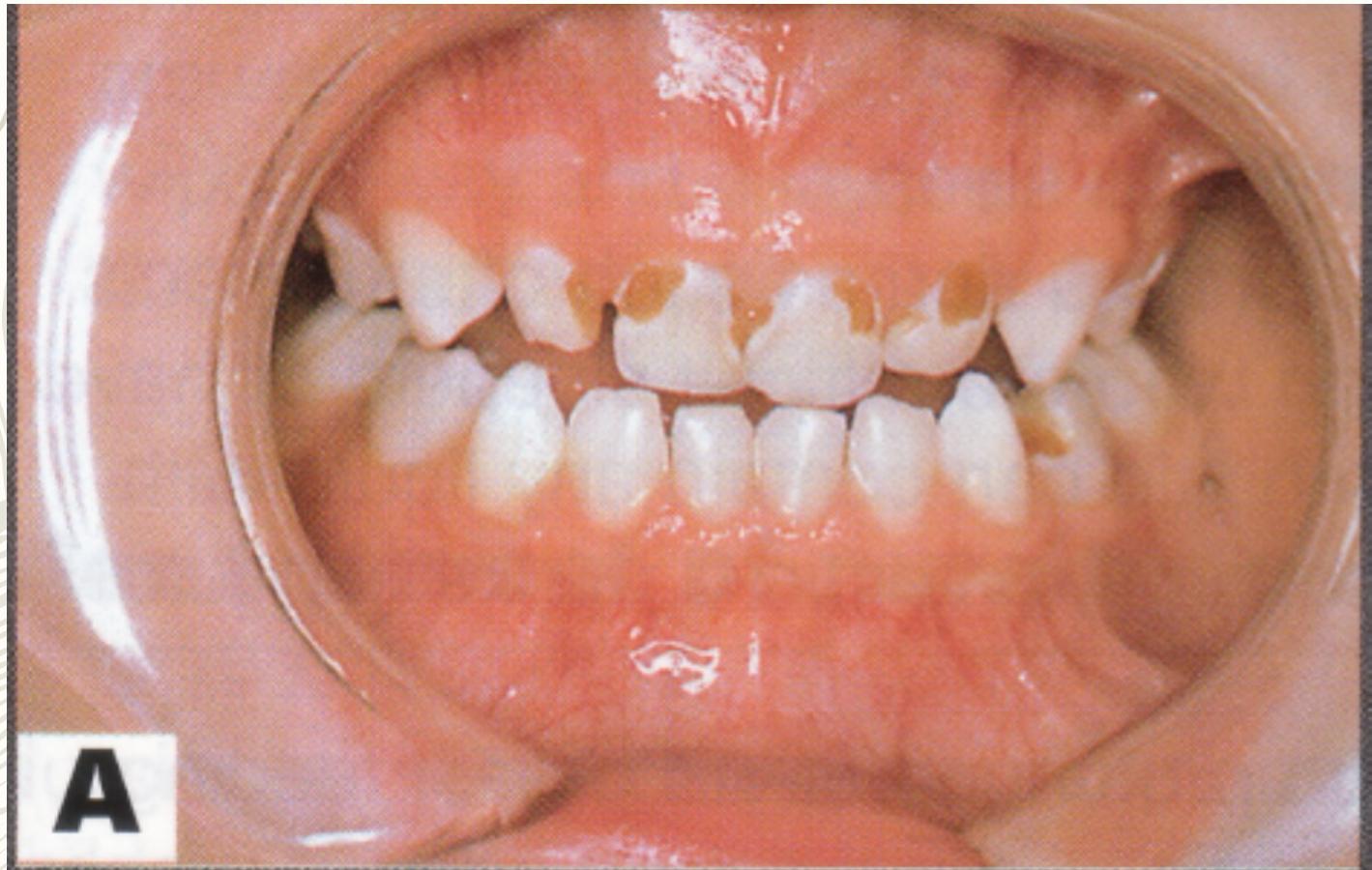
ECC



ECC



ECC



Mild to Moderate

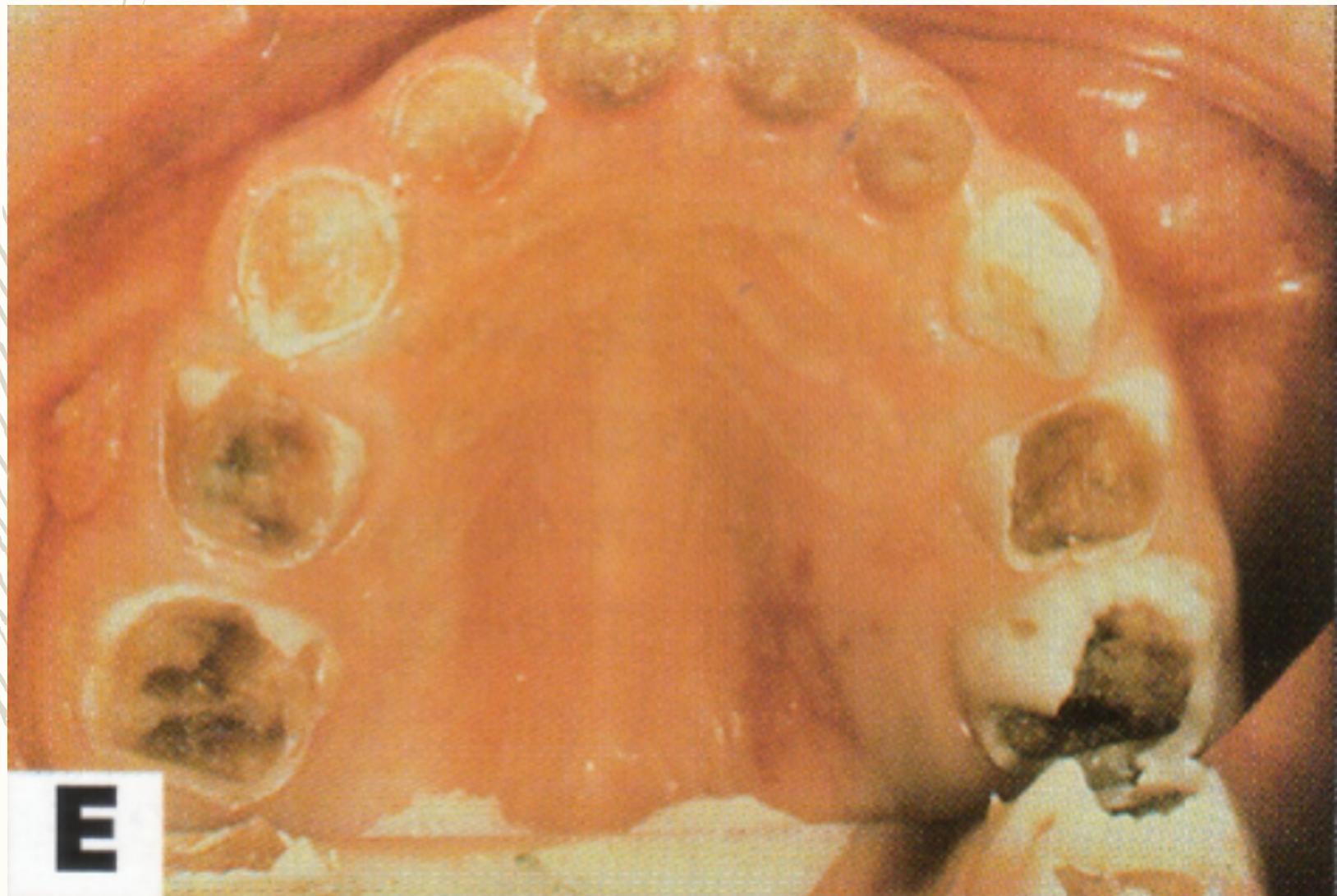


C

Advanced case



Severe Caries



Clinical appearance of Rampant caries



Explanation for caries

Reasons for unique distribution of caries

1. Chronology of primary tooth eruption
2. Duration of the deleterious habit
3. Muscular pattern of infant sucking



Caries Risk Assessment

- Most important risk factor for future caries development is **current caries experience**
- 2 or more active carious lesions, child is at high risk

Salivary proteins and microbiota as biomarkers for early childhood caries risk assessment

Ref: [Int J Oral Sci](#). 2017 Nov; 9(11): e1.

- High caries prevalence was associated with higher levels of mutans streptococci, *C. albicans* and *Prevotella* spp., and salivary proteins, including IgA, IgG, histatin peptides, in saliva compared with caries-free individuals.
- Hence serve as biomarkers for children at high risk of ECC. Which is not only critical for early diagnosis but also important for preventing and treating the disease.



Management of ECC

- Identifying cause and discontinuation of habit, dietary advice
- Parental instructions on Oral hygiene for child
- Decide whether to treat or refer to paediatric dentist

Management of non cavitated lesions

- The application of casein phosphor peptide (CPP) could stabilize the calcium and phosphate thereby preserving them in an amorphous or soluble form known as amorphous calcium phosphate (ACP).
- CPP–ACP complexes can prevent tooth demineralization and improve enamel remineralization and enhance fluoride activity.
- Hence, the application of CPP–ACP-based compounds helps in the prevention of dental caries

Ref: Zhou C, Zhang D, Bai Y, Li S. J Dent. 2014 Jan; 42(1):21-9



Management of ECC

- Reinforce good oral hygiene
- Diet counselling -supportive advice rather than blaming, give options
- Professional fluoride applications
- Temporization?
- If referral for GA indicated, consider waiting lists in public system



Treatment of ECC under GA

- Treatment needs to be well planned and take into consideration future caries risk
- Aims is to provide definitive, long term treatment in order to avoid repeat GA
- Follow up protocol & timing for reviews for preventive measures must be arranged with the child's parents

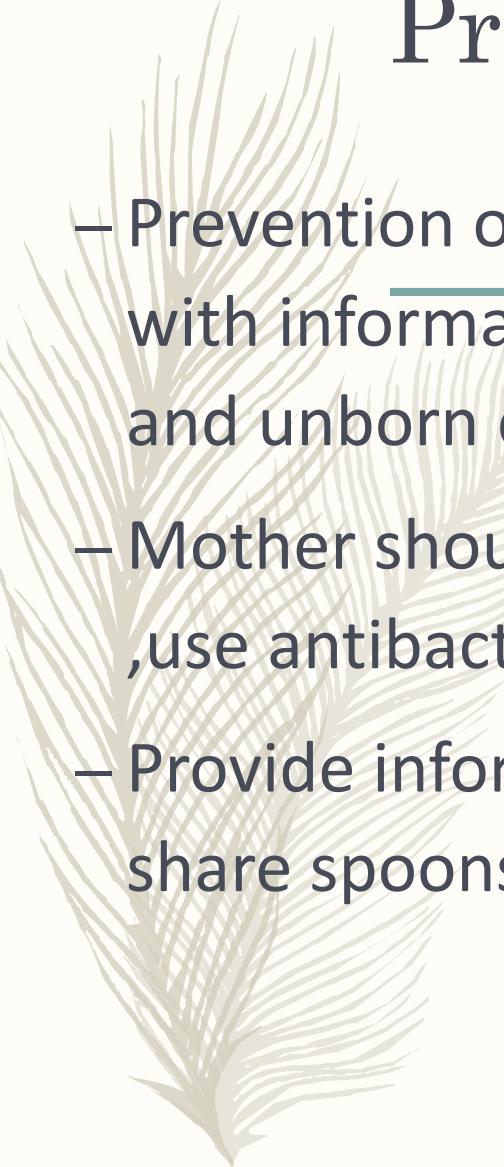
Treatment of ECC by general dentist

- For children able to be managed in the dental chair (LA, RA). The dentist need to be competent in and know indications for:
 - Pulp therapy
 - Restorative options
 - Extraction

Prevention

Strategies for prevention

1. Parent questioned
2. Parent education
3. Feed the infant while held
4. Stop bottle at night
5. Burp the infant after feeding
6. Clean the teeth after each feed
7. Delay the primary infection

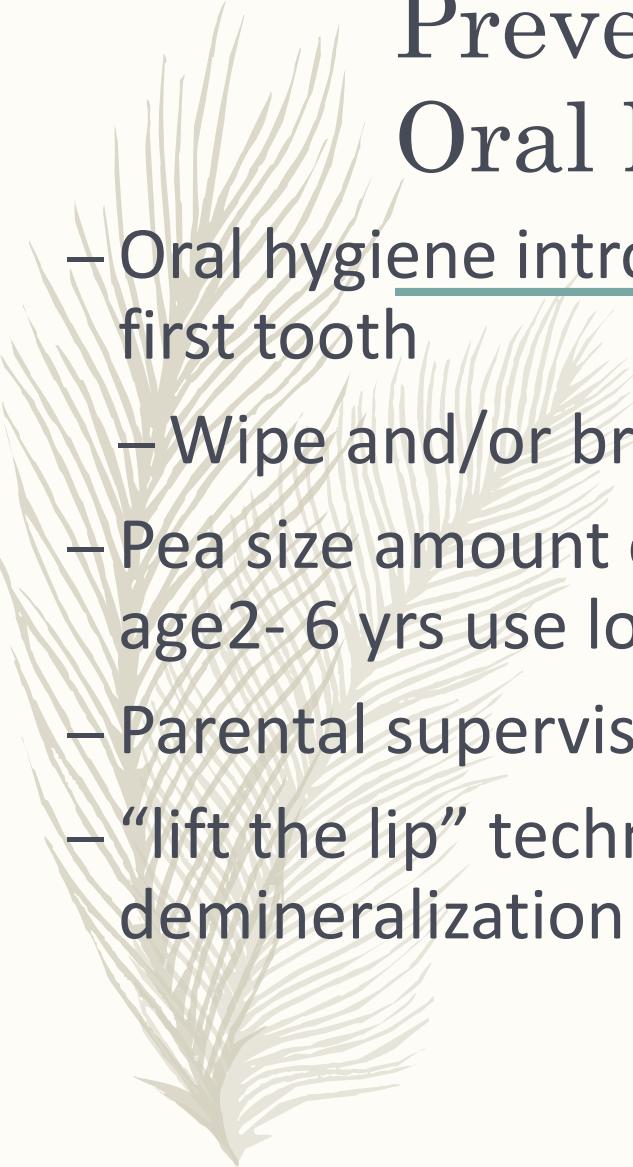


Prevention of ECC

- Prevention of ECC ideally begins in pre-natal period with information on diet and oral hygiene for mother and unborn child
- Mother should have her own dental disease treated ,use antibacterial mouthrinse if high levels MS
- Provide information on transmission of MS (e.g don't share spoons, lick dummies)

Prevention of ECC: dietary guidelines

- No bottle containing sugar of any kind at bed time
- Breast feeding “at will” should be avoided after first tooth starts to erupt
- Children encouraged to drink from a cup as they approach their first birthday
- Avoid prolonged sipping of any beverage containing sugar from bottles, trainer cups
- Encourage regular meals rather than “grazing”
- Suggest reasonable alternatives



Prevention of ECC

Oral hygiene guidelines

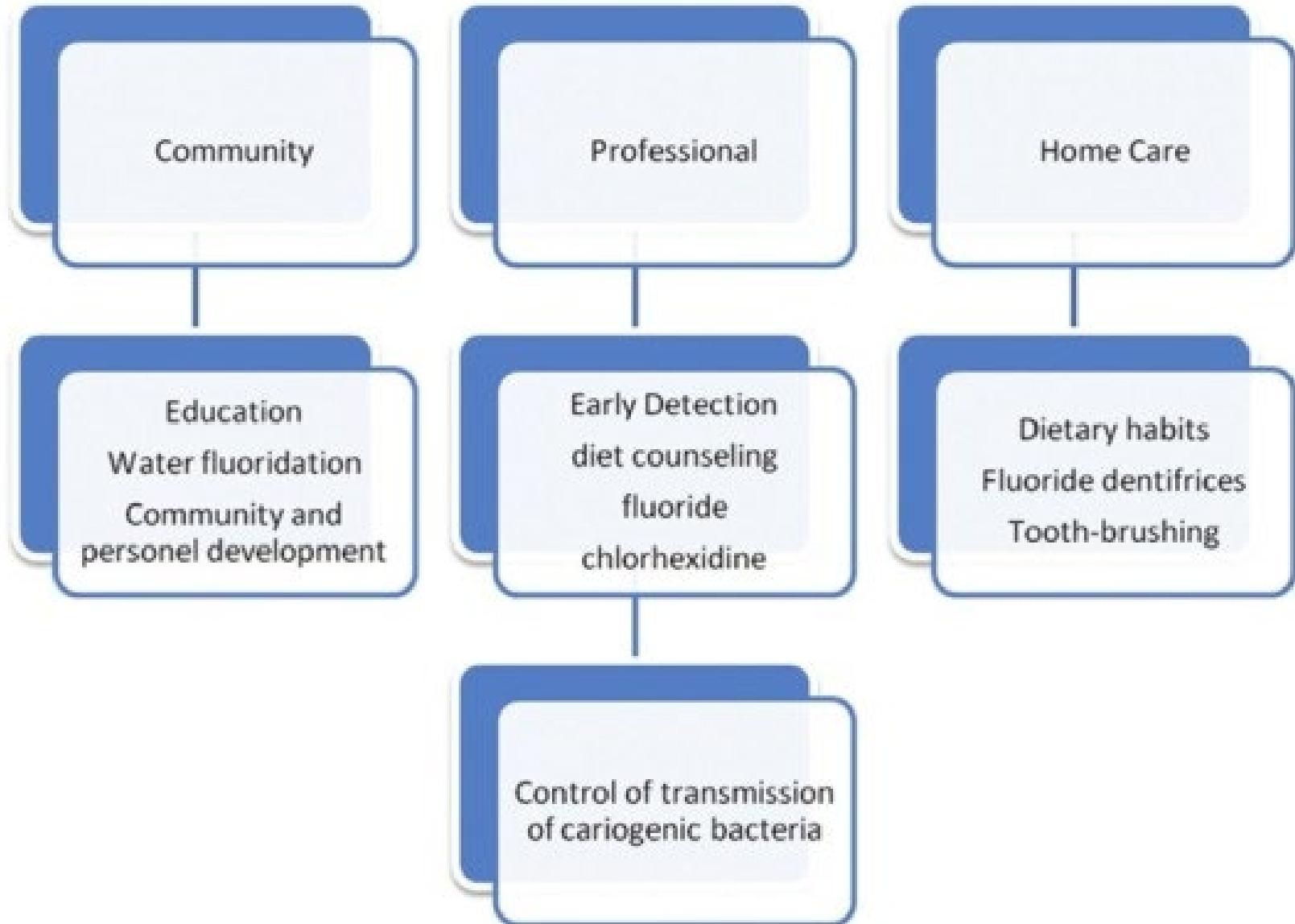
- Oral hygiene introduction at the sign of eruption of first tooth
 - Wipe and/or brush teeth and gums
 - Pea size amount of F-toothpaste on brush (from what age 2- 6 yrs use low concentration F 400-500ppmF)
 - Parental supervision until child can spit
 - “lift the lip” technique- to check for signs of demineralization on maxillary anterior teeth regularly



Prevention of ECC: Suggestions

- Parents informed about prevention of ECC in conjunction with other well-baby services (e.g early childhood centres)
- First dental visit could be combined with immunization dates
- Other health care workers trained in
 - identifying signs of ECC
 - Providing information

Summary of Prevention



Educational intervention strategies

1. Dentist patient approach
2. Dentist community approach
3. Media
4. Training of health workers

Early Screening for ECC and its important

- First dental visit at or before 6 months

- To reinforce good oral hygiene and dietary practices to parent
- To identify children “at risk” of ECC
- To plan preventive strategies (remineralising treatments & recall time)
- To address the problem early



Summary

- Prevalence of ECC is increasing in most parts in this region...
- Management depends on severity
- Dentists play an important role in prevention

A polar bear is standing on a large, light-colored rock in a zoo enclosure. The bear is facing towards the right of the frame. In the background, there are more rocks and some green trees. The lighting suggests it might be late afternoon or early evening.

Thank you