

Ontario Association of Public Health Dentistry Position Statement on Infant Feeding and Oral Health

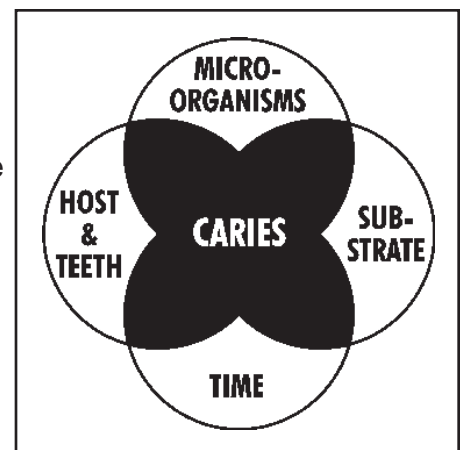
The primary dentition is important for a child's health and well being. Some of the functions of the first teeth include: initiating the digestion of food, preserving adequate spacing for secondary teeth, assisting in the development of early speech, and contributing to the development of appearance, healthy social skills and confidence (1).

Dental decay in the primary dentition is one of the most common diseases of childhood. A particular pattern of tooth decay found in the primary dentition is more common than other preventable childhood illnesses such as rubella, mumps and measles (2,3). This form of decay is known as Early Childhood Tooth Decay (ECTD) or Early Childhood Caries (ECC), while earlier literature refers to it as Baby Bottle Syndrome, Infant Feeding Caries or Nursing Bottle Syndrome. The condition ranges in severity from involvement of only the maxillary anterior teeth to rampant decay throughout the mouth. Early childhood tooth decay can affect a child's ability to sleep, concentrate and eat as well as his or her appearance. The development of the permanent teeth may also be influenced. This condition is costly to treat, both in financial and emotional terms, for the parent and child (1,2,3,4).

Early childhood tooth decay has a complex multi-factorial etiology with confounding factors including but not limited to infant feeding practices, health beliefs, dental knowledge, diet, socioeconomic status, health care delivery system and ethnicity (5). The relationship between infant feeding practices and ECTD is not as clearly understood as was once believed. Some studies find that inappropriate infant feeding practices such as prolonged bottle feeding beyond one year of age, putting an infant to sleep at naptime or bedtime with a bottle, sweetening the contents of an infant's bottle, allowing a child to sip all day from a bottle or sip cup containing anything other than water, as well breastfeeding beyond the age of one year when other contributing factors exist, have all been associated with the development of ECTD. Other studies provide conflicting results (5-13). Although the literature is non-conclusive there is agreement that while ECTD occurs most frequently in bottle fed infants and children, breastfeeding does not ensure immunity to tooth decay.

Tooth decay in babies, children and adults is largely preventable. It is a multifactorial disease in which there is an interplay of three principal factors: the host (primarily the saliva and teeth), the oral flora (type of bacteria found in the mouth), and the substrate or diet. In addition a fourth factor, time, must be considered in any discussion of the etiology of tooth decay. Diagrammatically, these factors can be portrayed as four overlapping factors (14). For decay to occur, conditions within each of these factors must be favorable - a susceptible host, a cariogenic oral flora, and a suitable substrate that must be present for a sufficient length of time.

Conversely, prevention of tooth decay is based upon attempts to increase the resistance of the host (fluoride therapy, occlusal sealants); to lower the numbers of microorganisms in contact with the tooth (plaque control, avoiding cross-contamination); to modify the substrate (selecting non-cariogenic food stuffs); and to reduce the time that the substrate is in the mouth (limiting the frequency of intake). The longer that bacteria have access to the substrate and the longer the bacteria adhere to the teeth, the greater the chances of tooth decay developing (14).



Education is the key to preventing the occurrence of ECTD. All new parents, regardless of feeding method, should be advised of the factors associated with the development of tooth decay and how to modify them to reduce the risk for their child. Bottle feeding and breastfeeding can present risks for ECTD under certain conditions. Emphasis should be placed on:

- **The importance of the maintenance of good oral hygiene practices for the child**

Risk of tooth decay can be greatly reduced through plaque control. Daily mouth cleaning should begin at birth, before teeth appear. Wipe the baby's gums, roof of mouth and insides of cheeks with a clean, soft, damp cloth or finger brush. When the first teeth appear, brush them gently with a small soft bristled toothbrush following each feeding, or at least twice a day. Toothpaste is not recommended until the child is old enough to spit it out. When fluoride toothpaste is introduced, a crosswise smear on the toothbrush is enough.

- **Avoiding cross-contamination through good personal oral hygiene of parent and caregiver**

At birth, babies do not have decay-causing bacteria in their mouths. These bacteria are passed from parents to babies through activities such as sharing utensils. The more bacteria the parent has in their mouths the more chance that bacteria will be passed on to the child. To reduce this risk, parents and caregivers should practice good oral hygiene by brushing their teeth at least twice per day and by visiting the dentist regularly.

- **The time factor**

The longer the tooth is exposed to a potentially cariogenic substrate the greater the risk for tooth decay. The time factor is affected not only by how often a child is fed (frequency) but also the total time the feedings occur.

After the first tooth has erupted, infants should not be allowed to retain the nipple (bottle or breast) in their mouth for extended periods of time when they are not actively drinking. When a child falls asleep while feeding on any liquid other than water, the liquid pools in the mouth bathing the teeth in the cariogenic substrate. Continuous use of a bedtime bottle or continuous sucking on a bottle or soother dipped in syrup or honey during the day greatly increases the risk of tooth decay.

The process of breastfeeding offers added protection against tooth decay. The position of the tongue (it surrounds the nipple) and the location of the nipple in the mouth (back of mouth with milk going directly down the throat) protects the teeth while the infant or child is actively breastfeeding. Of course if the child falls asleep and the nipple remains in the mouth with milk pooling for a prolonged period of time the protection is lost.

- **Oral health awareness - Lifting the Lip**

Parents should regularly check their child's teeth by lifting the upper lip and looking for any discolouration or unusual appearance of the upper teeth. If anything looks unusual they should consult a dental professional.

- **Establish healthy eating habits early**

Feeding (bottle or breast) should not be offered to manipulate or control childhood behaviours to the exclusion of other parenting techniques. Treats and rewards do not have to be sweet. When old enough, encourage the baby to use a cup for drinks rather than a bottle.

The Infant Feeding and Oral Health policy statement has been developed by the Ontario Association of Public Health Dentistry (OAPHD) in consultation with the Ontario Public Health Association (OPHA) Breastfeeding Promotion Working Group to provide health professionals with evidence-based guidelines for the preparation and delivery of oral health information for expectant and new parents.

The OAPHD concurs with the World Health Organization recommendation that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Breastfeeding in conjunction with appropriate daily oral health care provide for optimal infant health.

References

1. Valaitis, R., Hesch, R., Passarelli, C., Sheehan, D., Sinton, J. A Systematic Review of the Relationship Between Breastfeeding and Early Childhood Caries. *Canadian Journal of Public Health* 2000;91(6): 411-417
2. Abbey P. A case-control study to determine the risk factors, markers and determinants for the development of nursing caries. MSc Thesis. University of Toronto, Faculty of Dentistry, 1998
3. Locker, D., Matear, D. Oral disorders, systemic health, well-being and the quality of life - A summary of recent research evidence. Community Health Services Research Unit, Faculty of Dentistry, University of Toronto
4. Toronto Public Health. Study on Early Childhood Tooth Decay Final Report, December 5 2000
5. Peressini S. Early Childhood Tooth Decay: Literature Review and Survey of Community Based Programs in Canada, November 30, 2000
6. Dini, E., Holt, R., Bedi, R. Caries and its association with infant feeding and oral health-related behaviours in 3-4 year old Brazilian children. *Community Dental Oral Epidemiology* 2000; 28: 241-8
7. Erickson P., Mazhari, E. Investigation of the role of human breast milk in caries development. *Pediatric Dentistry* 21:2, 1999
8. Roberts G., Cleaton-Jones P., Fatti L., Richardson R., Hargreaves J., Williams S., Lucas S., Patterns of breast and bottle feeding and their association with dental caries in 1 to 4 year old South African children. A case control study of children with nursing caries. *Community Dental Health* 1994;11:38-41
9. Rugg-Gunn A., Roberts G., Wright W. Effect of human milk on plaque pH in situ and enamel dissolution in vitro compared with bovine milk, lactose and sucrose. *Caries Research* 1985;19:327-334
10. Weerheijm K., Uyttendaele-Speybrouck B., Euwe H., Groen H. Prolonged Demand Breast-Feeding and Nursing Caries. *Caries Research* 1998;32:46-50
11. Mattos-Graner R., Zelante F., Line R., Mayer M., Association between caries prevalence and clinical, microbiological and dietary variables in 1.0 to 2.5 year-old Brazilian children. *Caries Research* 1998;32:319-232
12. Weinstein, P. Research Recommendations; Pleas for Enhanced Research Efforts to Impact the Epidemic of Dental Disease in Infants. *Journal of Public Health Dentistry* 1996 Vol.56 No.1:55-59
13. Milnes A. Description and Epidemiology of Nursing Caries. *Journal of Public Health Dentistry* 1996;Vol.56,No.1:38-50
14. Newbrun E. Cariology Third Edition. Quintessence Publishing Co. Inc 1989; Chapter 2: 29