



## Prevention of ECC (Early Childhood Caries)



**Dr Angela Gilhespie**  
BSc, BDS  
Paediatric dentist and  
author of "The ABC's of  
Children's teeth –  
a 21st Century guide for  
parents"  
Co-ordinator of "Teeth for  
Life Dental Initiative"

ECC is now a world-wide epidemic with reports of  $\geq 50\%$  of children under 6yrs of age in the USA and UK suffering from the disease. It is, in fact, the main reason for children needing general anaesthesia in hospital as most of these children cannot cope with invasive dental treatment in the dentist's chair. The tragedy is that this disease is totally preventable: there's no need for this suffering or costly procedures.

So why does this situation exist? Parents wait until dental disease becomes end-stage. They wait for a toothache or a visible cavity before they seek dental care.

The time has come to change the paradigm from 'drill & fill' dentistry to prevention of the disease as a priority. The responsibility for empowering parents in dental prevention must move to where it should always have been: the healthcare professionals in the perinatal arena. Childbirth educators and ante- and post-natal sisters are the medical professionals most trusted by moms for guidance. After all, they are there right from the start.

### **The 'Teeth for Life Dental Initiative'**

'The Teeth for Life Dental Initiative' is a model for the implementation of dental prevention from pregnancy. Studies have shown that oral health promotion programmes, initiated during the mother's pregnancy and the child's first year, are successful in reducing ECC. One study<sup>1</sup> achieved this through repeated rounds of written anticipatory advice. Just think what could be achieved if this could be combined with verbal contact and hands-on



**What is the most common infectious disease of childhood? Tooth decay!  
Can it be prevented? Yes, with your help it can!**

demonstration? Add to this dental products which target the pathogenic bacteria which cause ECC and finally, refer the child for a dental check-up by one year of age. In this way, ECC can be eliminated.

### **Oral health during pregnancy**

For prevention to be effective, it must begin during pregnancy. Baby's teeth start to develop from six weeks' gestation; permanent teeth commence development from six months in-utero. A recent study<sup>2</sup> showed the importance of vitamin D in normal tooth development. Vitamin D deficiency during pregnancy predisposes children to malformed enamel, a risk factor for ECC. Maternal illnesses, including endocrine diseases (e.g. hypothyroidism and diabetes) during pregnancy can have a similar negative effect.

Pregnant moms must be urged to seek a dentist or oral hygienist especially if they are not regular attendees. Research<sup>3</sup> has found a link between pregnant moms with gum disease and an increased risk for pre-term births and low birth-weight babies.

Recent research has shown that the baby's mouth is colonized after birth by bacteria, mostly from the mother.<sup>4</sup> If the mother harbours pathogenic strains of decay-causing bacteria, these are passed directly to the infant. Studies<sup>5</sup> show the main culprit for ECC, namely *Streptococcus mutans*, is present in the baby's mouth from 3 months of age, long before teeth begin to erupt (usually by 6 months). Studies<sup>6</sup> have also shown how Xylitol can be effective in reducing the mother-to-child transmission. It is recommended that pregnant women should start using a Xylitol gel during their last trimester.

### **Oral Healthcare for babies**

Mouth bacteria thrive soon after birth, therefore it is important to start oral cleaning from day one. After each main feed the baby's mouth should be wiped with a sponge-gauze square, moist with sterile or cooled boiled water. Xylitol gel should be applied to the sponge.

Later, a silicone finger brush can be used, even before the teeth appear; this makes the introduction of a regular baby toothbrush easier. A fluoride-containing toothpaste is contra-indicated in children under one year of age and should be applied to the teeth only on the advice of a dentist up to the age of 6 years.<sup>7</sup> Up to the age of six children do not have a well-developed swallowing reflex; they are unable to control rinsing or spitting. Ingested fluoride can result in a malformed

enamel (fluorosis) of the permanent teeth. The main effect of fluoride is topical which is why a fluoride varnish, applied by a dentist,<sup>8</sup> is advised.

Xylitol has been shown in studies,<sup>9</sup> when given 3-5 times daily, to reduce plaque bacteria by  $\geq 50\%$ . This is higher than can be achieved with conventional brushing and flossing. Xylitol given to babies has been shown to reduce ECC significantly.<sup>10</sup> Therefore, Xylitol is recommended to be used as a 'toothpaste'. ECC is a bacterial disease mediated through diet. ECC used to be called 'baby bottle syndrome' as most cases were caused by acid drinks, mostly fruit juices, left in the mouth for prolonged periods. Parent education on the dangers of acid- and sugar-containing foods is an ongoing priority. Again, the ante- and post-natal sisters are the best people to advise parents.

### *First dental check-up*

A child should be referred to a dental practice by one year of age for a 'caries risk assessment'. 'High risk' children, particularly premature and ill babies, require more intensive dental prevention. Most tooth decay takes place in the fissures (developmental grooves on molars) and a dentist or oral hygienist can protect these vulnerable areas from decay.

**In conclusion**, let me leave you with the words of the Lorax by Dr Seuss:  
"Unless someone like you cares a whole awful lot, it's not going to get better. It's not!"

Painful, infected teeth in children have an impact on their physical, emotional and psychological health. It is not acceptable in the 21st century, the age of information. Clinic sisters have the power to educate parents and prevent ECC.



*Baby's mouth being wiped with a wet sponge-gauze.*

For more information on the 'The Teeth for Life Dental Initiative' e-mail: [info@teethforlife.co.za](mailto:info@teethforlife.co.za) or go to [www.teethforlife.co.za](http://www.teethforlife.co.za).

### *References*

1. Lucey, S.M. 'Oral health promotion initiated during pregnancy successful in reducing early childhood caries' Community Dent Oral Epidemiol 2008. August: 36(4): 335-46.
2. Schroth, R. 2009. 'Prenatal Vitamin D linked to children's dental health'. JCDA Vol.74.
3. Offenbacher, S et al. 1996 'Periodontal infection as a possible risk factor in pre-term low birth weight'. J. Periodontal 67: 1103-1113.
4. Caufield, P.W. et al. 'Initial acquisition of mutans streptococcus by infants: evidence for a discrete window of infectivity'. J. Dent. Res. 1993; 72: 37-45.
5. Cephas, K.D. et al. 'Comparative Analysis of Salivary bacterial microbiome diversity in edentulous infants and their mothers'. (2011) PLOS One 6(8).
6. Soderling, E. et al. 'Influence of maternal Xylitol consumption on acquisition of mutans streptococcus by infants'. J Dent. Res. 2000; 79: 882-887.
7. Cochrane Library: <http://www.cochrane.org> Glenny, Anne-Marie et al. BDJ 208, 102 (2010).
8. Adair, S. M. 'Evidence-based use of fluoride in contemporary Pediatric Dental Practice'. Pediatr. Dent. 2006-28(2) 133-142.
9. Scheinin, A. Makinen, K.K. 'Turku Sugar Studies'. Acta Odontol Scand. 1975; 33: 1-349.
10. Zhan, L. 'Xylitol reduces caries in babies'. IADR. 89th General Session 2011.