

## **Guidelines on Prevention of Early Childhood Caries: An EAPD Policy Document**

Approved by the EAPD Board November 2008.

### **Introduction**

Early childhood caries (ECC) is a public health problem with biological, social and behavioural determinants. A common definition is “the occurrence of any sign of dental caries on any tooth surface during the first 3 years of life” [Ismail, 1998]. A decade ago, an international expert conference on the aetiology, prevention and treatment of ECC was held in Bethesda, Maryland which resulted in proceedings published in *Community Dentistry and Oral Epidemiology* in 1998. The preventive aspects were covered after a systematic search for literature and approximately 130 papers were reviewed [Ismail, 1998]. At that time, no well-conducted clinical trials on the prevention of ECC were identified. The recommendations for the various preventive measures were therefore based on poor scientific evidence but nevertheless advocated because they were likely of some benefit in the prevention of ECC. The only method that firmly could be excluded was prenatal fluoride supplements. Along with the increasing awareness and knowledge in evidence-based dentistry (EBD), a number of systematic reviews on caries-preventive methods have become available from different national Health Technology Assessment Agencies. One important argument for EBD is that systematic reviews of literature should form the basis for treatment recommendations and thus, several evidence-based recommendations and national guidelines on prevention of dental caries in preschool children have been presented in recent years [USPSTF, 2004; SIGN, 2005; AAPD, 2006]. The present recommendations are based on evidence from original studies evaluating preventive measures implemented before the age of three years as well as findings from recent systematic reviews [Gussy et al., 2006; Ammeli et al., 2007; Twetman, 2008].

### **Grades of recommendation**

For the grading of the clinical recommendations given to various preventive measures, the A-D classification suggested by The Scottish Intercollegiate Guidelines Network (SIGN; [www.sign.ac.uk](http://www.sign.ac.uk)) was used:

A = At least one meta-analysis, systematic review of RCTs, or RCTs rated with very low risk of bias and directly applicable to the target population; *or*

A body of evidence consisting of RCTs rated with low risk of bias, directly applicable to the target population, and demonstrating overall consistency of results.

B = A body of evidence including high quality case-control or cohort studies with a very low risk of confounding or bias, directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from RCTs with very low to high risk of bias.

C = A body of evidence including well-conducted case-control or cohort studies, directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from high quality case-control or cohort studies with a very low risk of confounding or bias.

D = Evidence from non-analytical studies (case reports, case series) and expert opinions; *or*

Extrapolated evidence from case control or cohort studies with a high risk of confounding or bias.

The grade of recommendation relates to the strength of the evidence on which the recommendation is based and it does not reflect the clinical importance of the recommendation. It should be underlined that lack of evidence certainly not is equal to lack of effect.

### **Clinical recommendations**

The clinical recommendations that are based on best available evidence are:

- ***Oral health assessments with counselling at regularly scheduled visits during the first year of life are an important strategy to prevent ECC (grade C).***  
**Comment:** There is some evidence suggesting that potentially effective interventions should occur in the first 2 years of a child's life [Gussy et al., 2006]. There is little evidence that counselling of parents on diet and oral hygiene results in less caries but chair-side person-to-person information seems to be more effective than community campaigns and traditional health education [Kay and Locker, 1996; USPSTF, 2004]. In low-income, immigrant and high-caries populations, outreach health activities and interactive advice such as home visits and motivational interviewing has been shown to reduce the prevalence of ECC [Kowash et al., 2000; Weinstein et al., 2006; Feldens et al., 2007]
- ***Children's teeth should be brushed daily with a smear of fluoride toothpaste as soon as they erupt (grade B).***  
**Comment:** Both reviews of Twetman [2008] and Ammari et al. [2007] conclude that fluoride-based interventions exhibit best available evidence for ECC prevention. The use of fluoride toothpaste is the most cost-effective fluoride homecare measure and there is strong evidence for a dose-response relationship [Marinho et al., 2003; Twetman et al., 2003]. The majority of the studies in the latter reviews related however to the young permanent dentition and this evidence have been extrapolated to the primary teeth of infants. Three community-based trials of supervised brushing with fluoride toothpaste in China have displayed a consistent caries reduction in preschool children [Schwartz et al., 1998; You et al., 2002; Rong et al., 2003]. There is no evidence of a caries-preventive effect from low-fluoride toothpastes [Ammari et al., 2003; Twetman et al., 2003]
- ***Professional applications of fluoride varnish are recommended at least twice yearly in groups or individuals at risk (grade B).***  
**Comment:** There is good evidence for a caries-preventive effect of topical applications of fluoride varnish in the primary dentition [Marinho et al., 2002; Peterson et al., 2004; ADA, 2006]. Furthermore, fluoride varnish has emerged as an effective professional practiced-based measure for ECC prevention in infants with high caries-risk [Weintraub et al., 2006].
- ***Parents of infants and toddlers should be encouraged to reduce behaviours that promote the early transmission of mutans streptococci (grade C).***  
**Comment:** There is limited evidence suggesting that maternal use of xylitol-containing chewing gums during the period of primary teeth eruption (6-20 months) may prevent caries in the primary dentition [Isokangas et al., 2000; Thorild et al., 2006]. There is some support that dental care and preventive programs targeted for prospecting mothers may improve the dental health of their offspring's [Günay et al., 1998; Gomez et al., 2001;].
- ***Frequent intake of sweet drinks and on demand feeding with sweetened baby bottles should be discouraged, especially at nighttime (grade C)***  
**Comment:** This recommendation is based on "common sense" from the etiologic role of sugar in ECC [Tinanoff and Palmer, 2000; Hallet and O'Rourke, 2006] rather than findings from controlled interventions. However, the studies by Kowash et al. [2000] and Feldens et al. [2007] indicate that the sugar habits can be improved in groups of disadvantaged children.

## **Acknowledgement**

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