# OHEP: An Oral Health Education Program for Mothers of Newborns

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## ABSTRACT

**Introduction**: The purposes of the study were to determine (a) the knowledge base of mothers of newborns on oral health for newborns and young infants and (b) the effectiveness of an oral health education program provided to mothers of newborns prior to discharge from the postpartum unit.

**Methods**: Ninety-four mothers of healthy newborns on a postpartum unit were randomized to the treatment or control group. A pretest was administered to each mother to assess the mother's knowledge of infant oral health. The treatment intervention was a DVD designed collaboratively by an interprofessional team of nurse practitioners and dental faculty to educate the mothers on oral health care for their newborns. The control intervention was a DVD on newborn nutrition. All participants received routine newborn nursery discharge instructions by the postpartum nurses and physicians. Follow-up appointments were scheduled 6 and 12 months later for administration of the posttest to the mothers and for oral health assessments of the infants.

**Results**: Pretest questionnaire results revealed that most mothers lacked knowledge about oral health care for infants and young children, especially concerning vertical

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transmission of streptococcus mutans through food-sharing practices. In addition, 28.4% of the mothers were not aware of the benefits of fluoride as a prevention strategy for dental caries. A significant no-show rate for the planned follow-up visits in the dental clinic hindered our plans to evaluate the effectiveness of the oral health educational program on prevention of dental white spots or decay when the study infants were 6 and 12 months old, respectively.

**Discussion:** The knowledge deficit of mothers of newborns regarding oral health care for infants may be one of the contributing factors to the high prevalence rate of dental caries in children younger than 71 months. An oral health educational program provided to mothers on the postpartum unit prior to discharge from the hospital may help increase mothers' knowledge about oral health care and prevention of dental caries in infants and young children. J Pediatr Health Care. (2015) *29*, 181-190.

## KEY WORDS

Infant teeth, oral health, oral health knowledge, dental caries, early childhood caries

Early childhood caries (ECC) is defined as the presence of one or more decayed (noncavitated or cavitated), missing (due to decay), or filled tooth surface in any primary tooth in a child younger than 71 months (American Academy of Pediatric Dentistry [AAPD], 2008). ECC is the most prevalent unmet health care need for children younger than 71 months (National Center for Health Statistics, Centers for Disease Control and Prevention, 2011; Newacheck, Hughes, Hung, Wong, & Stoddard, 2000; U.S. Department of Health and Human Services, 2000). Socioeconomic status also plays a critical role in the prevalence of dental caries. Data from the 2009-2010 National Health and Nutrition Examination Survey (NHANES; National Center for Health Statistics, Centers for Disease Control and Prevention, 2009) revealed that approximately one in four children (14%) aged 3 to 5 years living at the poverty level had untreated dental caries, which was a significantly higher rate of dental caries than in children living above the poverty level. The survey data further revealed that 19% of non-Hispanic Black children aged 3 to 5 years and 26% of Hispanic children aged 6 to 9 years had untreated dental caries when compared with non-Hispanic White children aged 3 to 5 years (11%) and 6 to 9 years (14%; Dye, Xianfen, & Thornton-Evans, 2012). Marrs, Trumbley, and Malik (2011) further reported that children from lower socioeconomic groups with low maternal education have a higher incidence of ECC and that Mexican American children have the highest rate of ECC. Thus, health disparities continue to play a major role in the prevalence of ECC. Healthy People 2020 includes the following objectives for oral health in children: (a) reduce the proportion of children aged 3 to 5 years who have dental caries in primary teeth; (b) reduce the proportion of children aged 3 to 5 years who have untreated dental caries in primary teeth; (c) increase the proportion of children who use the oral health care system within a 12-month time frame; and (d) increase the proportion of low-income children who receive oral health care within a 12-month time frame (U.S. Department of Health and Human Services, 2012).

To effectually meet the Healthy People 2020 oral health goals, innovative interprofessional approaches to oral health care must be designed, implemented, and evaluated for short and long-term oral health care outcomes and cost-effectiveness. The purposes of this study were to determine the oral health knowledge base of mothers of newborns; to determine the impact of OHEP, an oral health education program for mother of newborns; and to determine the impact of the OHEP program on the oral health status of infants at ages 6 and 12 months. This article describes the design, implementation, and results of this experimental study.

## BACKGROUND

Oral health education for mothers of newborns is an essential component in strategies that address prevention of ECC. Clinical evidence has succinctly demonstrated the relationship between the transmission of the maternal cariogenic bacteria, streptococcus mutans, and streptococcus sobrinus to infants and young children via the exchange of maternal saliva (Murphy & Rew, 2009). These cariogenic bacteria are transferred from mother to infant and young children most often as a result of maternal feeding practices, such as sharing food and utensils. The incidence of ECC in young children also increases when the mother has untreated dental caries and shares food with the infant and child (George et al., 2011).

Oral health education for mothers of newborns is an essential component in strategies that address prevention of ECC.

Food and drinks—even formula, milk, breast milk, and juice—play a critical role in the development of "white spots" and dental caries in primary teeth. "White spots" are defined as areas of demineralization on the tooth enamel and represent the earliest evidence of tooth decay (AAPD, 2013). Infants who fall asleep with a bottle of formula or sweetened drinks or with a sweetened pacifier and toddlers who walk around with a bottle or Sippy cup all day are at increased risk for the development of dental caries (Murphy & Rew, 2009). Foods that stick to the teeth, such as sticky candies, and some nutritious foods, such as bananas and raisins, also place children at an increased risk of developing dental caries if vigilant oral health practices are not part of daily at-home oral health hygiene practices.