

# **Children's Teeth Care to Prevent Early Childhood Caries**

**“CTC to prevent ECC”**

March 30, 2022

Ann Paul Augustine

Wajeaha Khan

Saba Raza

Kaley Dignard

Lamia Ahmed

Ana Kobiashvili

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## **Introduction:**

Nutrition is an essential and an inevitable component for the adequate development of the body and brain during the early years of childhood. As healthcare providers, we are all aware that excess of any nutrient or deficiency in the other can lead to the development of many serious health conditions. However, there is another dimension to the diet, namely the duration, frequency and type of the diet that can adversely affect the primary teeth of infants and toddlers. As every tooth erupts into the oral cavity, prolonged exposure to milk in infants and highly fermentable carbohydrates in the later stages of childhood may increase the risk of infants and toddlers to a severe form of disease called Early Childhood Caries (ECC). According to the AAPD, early childhood caries is defined as the presence of 1 or more decayed or missing teeth or filled tooth surfaces in any primary tooth in a child 71 months of age or younger.<sup>3</sup>

ECC is a form of dental decay that mainly develops on the surfaces of the tooth that are at low risk for caries, especially the front teeth. Due to the rapidly progressive and painful nature of ECC, treatment measures are often invasive which can require the patient undergoing general anesthesia because of the inability of the babies and preschool children to cooperate at that age.<sup>1</sup> The lack of awareness surrounding the fact that severe decay on the baby teeth have a negative impact towards the development of permanent teeth is a contributing factor to why most parents deliver insufficient dental care to their children. Two major contributing factors of ECC are the irregular food consumption patterns and vertical transmission of disease causing bacteria from the mothers mouth to enter into the child's mouth. Therefore, through education of expectant mothers about the risk factors and consequences of ECC, we can avoid its occurrence to a large extent.

According to the third National Health and Nutrition Examination Survey in the United States, the dental decay in children aged 2-5 years has increased by 3% between 1999 and 2004.<sup>3</sup> This can be attributed to factors such as race, ethnicity and financial ability. It is important to understand the key to preventing ECC is through education and proper motivation of the pregnant population.

**Assessment:**

The target population are infants to children 5 years of age. This is the population that is most susceptible to developing Early Childhood Caries. Given the age of these children, in order for them to be protected from the various risk factors of developing decay, educating their mothers would be an effective method of prevention. In order for the child to be protected from caries, the mother's oral health must also be taken into consideration to avoid vertical transmission. The child's diet and oral home care is supervised which means it is directly correlated to the mother's knowledge and interest in oral health.

The literature states, one of the major contributing factors for the high prevalence of ECC is the lack of parental education.<sup>3</sup> In order to determine the oral self care of new and expecting mother's, we conducted a questionnaire to analyze their daily oral habits regarding themselves and their child. We had a total of 14 responses to our questionnaire. Of those responses, 50% of women did not receive a dental cleaning since they've been pregnant and 50% also had crowns and fillings present in their mouth. 78.6% had teeth extracted due to decay and 57.1% felt sensitivity to hot, cold, and/or sweets on their teeth when they ate or drank. Out of the women who answered the supplemental questions which were targeted towards their children, 28.6% of women agreed to have given their children a bottle after they've gone to sleep (either nap time or bedtime). 78.6% of women having their teeth extracted due to decay is alarming because it gives

insight to the daily dietary and oral hygiene habits of the mothers. Their high intake of carbohydrates and insufficient oral hygiene are most likely the contributing factors leading to their tooth loss. This also raises the concern of the bacteria present in the mothers mouth. If she has an increase of gram negative bacteria, the chances of vertical transmission of disease causing bacteria increases.

As stated in the literature, “The ultimate goal of oral health education is to prevent disease, its motivation is to encourage basic leadership for oral health reviews and to motivate proper decisions for such behaviors.”<sup>1</sup> Therefore, instead of educating children directly, we are choosing to improve the knowledge of their mothers hence benefiting our target demographic.

### **Planning:**

In order to ensure the delivery of our group’s initiative to meet the need for education and awareness regarding ECC in pregnant women within the community, we planned our visit to Greenpoint YMCA Early Childhood Center in Brooklyn, NY. Our objective was to educate our target population who are expectant mothers by addressing the risks of ECC and providing recommendations for preventive maneuvers using evidence-based studies. Our main goal was to conduct parent-centered counseling to guide pregnant mothers in developing an effective oral health care plan for their infants. The reason we selected expectant mothers to be our target audience is because mothers are considered the “primary caretaker” of a child. The guidelines published in the American Academy of Pediatric Dentistry, states that, “mothers' poor oral health is associated with the poor oral health of their offspring”,<sup>2</sup> which implies the fact that the perinatal period is a critical period to incorporate guidance regarding the dietary and personal oral health behaviors of expectant mothers which in turn will show the meaningful improvements in the oral health and overall well-being of their infant children.

In order to successfully deliver our educational services while engaging our audience, we presented and provided specially designed educational materials which would be the best way to proceed with our goals. The educational materials included an instructional presentation with two one-minute informative videos, an anticipatory at-home oral health care brochure, along with a take-home baby oral health starter kit. The first video was a visual representation of the occurrence of ECC in the form of “baby bottle rot”. The second video took place in the pediatric dental office of Skeena Haider DDS, where Dr. Haider explains the importance of routine dental check-ups. The starter kit contained one individually wrapped gauze stick for infant gingival cleaning, one infant (6 months and up) toothbrush, one child toothbrush (4 years and up), one fluoridated children’s toothpaste and one individually wrapped children’s flosser. During our presentation each member took turns educating and informing our audience on the importance of oral health in children, and we made sure to answer any questions.

### **Implementation:**

During our visit to Greenpoint YMCA Early Childhood Center we educated the expecting mothers on three important risk factors that can contribute to ECC namely vertical transmission, bottle habits, OHI at home, and the importance of taking the child to the dentist at a young age. We started the presentation by asking our participants four “yes” or “no” ice breaker questions. We then explained to the expectant mothers what ECC was, and how they, as the primary caregivers, play a huge role in the prevention of ECC.

We then educated the participants on vertical transmission. We taught them that sharing saliva from the mother, or any caregiver, that contains a cariogenic bacteria called *Streptococcus mutans* can infect their child’s mouth. The best way to prevent this is to discourage the participants in sharing any utensils with the baby while feeding them, to not put food in the

baby's mouth that has been pre-chewed by the mom, dad or caregiver and to not blow on hot food to cool it rather let the food cool down to room temperature before giving it to their baby. We also taught them to never clean the child's pacifier by putting it in their own mouth and then placing it in the child's mouth.

The second topic that we discussed were bottle habits and OHI at home. We educated the participants on bottle feeding and breastfeeding at night. Especially with the child having erupted teeth, we advised that bottle feeding after the child is asleep is potentially harmful to the oral health and the newly erupted teeth. This also goes for breast feeding through the night, as this is a common practice amongst many mothers who breastfeed across different cultures and backgrounds. We advised them that if bottle feeding or breast feeding while sleeping cannot be avoided, then there are some alternatives. They can give the baby water in a bottle after the nighttime feed, or introduce the child to a pacifier, so that a clean sterile pacifier can be given in place of the bottle to soothe the baby. We also advised that the ideal age to wean a child off the bottle is one year. We taught the expectant mothers to always brush and clean the mouth of their infant twenty minutes after breakfast, and then again before bed.

We discussed bottle rot with the participants and shared some images with them of what that can look like along with the negative effects that bottle rot (rampant ECC) can have on young children. ECC can potentiate extraction of teeth which can directly affect eating habits, speech and may cause other developmental delays. We also educated all the mothers about how trauma or severe decay to the primary dentition has an affect on the developing permanent teeth. In addition to that, we shared pictures of what the beginning stages of demineralization can look like and advised them to prioritize giving their children water instead of juice.

Lastly, we discussed with the participants the importance of dental visits. The first visit should be no later than six months after the eruption of the first tooth or when the child turns one (whichever comes first). We concluded our educational presentation by going over the items of the goodie bag, and briefly explaining how to use each item. We went over the brochure and all the information that was presented within, such as suggested juice intake table, a table on the quantity and when to start using fluoridated toothpaste and simple DO's and DON'Ts that are applicable for the stop of vertical transmission. We offered guidance on how to begin brushing and how to motivate the child to be compliant with brushing by talking positively about the process and making it fun for the child.

Overall, we feel that the expecting mothers were very involved with the presentation, and they were very interested and seemed open minded to the information that we presented. Most of the participants did not know a lot of the information presented such as vertical transmission and that ECC can affect the primary dentition as well as the developing permanent dentition. When we had the Q&A portion of the presentation, quite a few expecting mothers expressed concern about not giving their child a bottle at night after they went to sleep because they felt they would not get enough nutrition. We anticipated that cultural bias surrounding the advice given would hinder the health promotion. We know that we presented a lot of information at once and we are hopeful the participants will keep the brochure we provided them, and will refer to it as needed.

### **Evaluation:**

During the implementation portion of our presentation, we presented to a group of expecting mothers. There were a total of 25 participants. We started the presentation with some ice breaker questions to gauge the group's current knowledge of ECC. Throughout the presentation we provided the parents with specific information and tools to help educate them on



ECC prevention. We gave each parent a goodie bag along with a brochure that contained guidelines, tips, and instructions for home care. Each topic that was introduced (discussion of vertical transmission, OHI, nutritional guidance, and the importance of dental visits), was discussed in detail regarding its importance, along with ways to prevent ECC. We also utilized visual tools such as images and 2 educational videos.

Overall, our presentation as a whole was a success. Out of the 25 parents that attended, only 7 parents raised their hands showing that they had some knowledge of what Early Childhood Caries was. After conducting our presentation, we then provided a survey that asked on a scale of 1-5 (1 being 'uncertain' to 5 being 'certain') how well their understanding of ECC has developed, along with whether or not they will refer to the brochure we provided. The results came back as 19 parents out of 25 provided a score of 5, and the remaining 6 provided a score of 3 or 4. The latter had some questions and concerns about a lack of nutrition for their baby if they did not provide them with a bottle at night. Also, 21 out of 25 parents stated that they will refer to the brochure for future reference. This means that 76% of parents that attended our presentation developed a good understanding of ECC and 84% of the parents will use our brochure for future reference.

### **Conclusion:**

Entering this project, we knew that we could come across cultural bias surrounding the night time feeding habits of infants. Breastfeeding and nighttime feeding is common among many cultures and backgrounds, but it is also a major contributing factor to ECC. Even with some of the pushback that we received from a few of the participants, we hope that our health education initiative was enough to motivate health promotion in some of those participants.

## References

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