

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

REDUCING ORAL DISEASE AMONG PRESCHOOL CHILDREN THROUGH
IMPLEMENTATION OF NUTRITION AND DENTAL HYGIENE EDUCATION TO
PARENTS AND CHILDREN

A graduate project submitted in partial fulfillment of the requirements for the degree of
Master of Science in Family and Consumer Sciences

by

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DEDICATION

This graduate project is dedicated to:

Aymer Sabogal and Fanny Valencia, my parents, for giving me life, unconditional love and endless support to make my dreams into a reality. Grateful to my parents for showing me that with God, hard work, and dedication anything is possible. The completion of this graduate project would not have been possible without them two.

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ABSTRACT

REDUCING ORAL DISEASE AMONG PRESCHOOL CHILDREN THROUGH IMPLEMENTATION OF NUTRITION AND DENTAL HYGIENE EDUCATION TO PARENTS AND CHILDREN

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Dental caries remains the most prevalent, yet the most preventable chronic childhood disease in the world. Dental caries has been and continues to be a major health concern worldwide. The present work proposes a curriculum that is aimed at educating parents and preschool age children on how to reduce the risk of childhood caries by improving their nutrition and dental hygiene. This curriculum consists of three lessons for the children and four lessons for the parents. The first three lessons for both the parents and children contain the same topics: instruction on oral hygiene, appropriate timeframes for visits to the dentist, and nutritional information to reduce consumption of sugary foods and drinks. The additional fourth lesson discusses pregnancy and oral health, with the goal of educating parents before the child is born. A panel of 3 experts was selected to review the curriculum and their recommendations gave it further substance. We believe education to be a crucial factor in the improvement of oral health behaviors, knowledge,

and self-efficacy of parents and children. Programs such as this may ultimately reduce oral disease among preschool children.

CHAPTER I

INTRODUCTION

Despite the advance in oral health, the global problem of childhood caries still persists; poor oral health continues to be seen among children worldwide. Dental caries is referred to as the burden to dental disease that rapidly progresses, and that impacts the general health and quality of life of the child, and leads to childhood distress.

(Department of Health and Human Services [DHHS], 2000; Colak, Dulgerguil, Dalli, & Hamidi, 2013). There are countless contributing factors to childhood caries, many of which are preventable, such as poor oral hygiene and nutrition. These factors have been seen throughout literature as two of the main risk factors associated with caries (Harris, Nicoll, Adair, & Pine, 2004; Dental Health Foundation Ireland, 2014). Educating parents and children about proper nutrition and oral hygiene can possibly serve as a tool to help reduce the risks of poor oral health among children in the United States.

Statement of The Problem

Dental caries remains the most prevalent, yet the most preventable chronic childhood disease in the world. Dental caries has been and continues to be a major health concern, worldwide.

Purpose

The purpose of this project was to design a curriculum that is aimed at educating parents and children on how to reduce the risk of childhood caries through proper nutrition and dental hygiene. This intervention is expected to help improve oral health

behaviors, knowledge, and self-efficacy of parents and children. Programs such as this may ultimately serve as a tool to help reduce oral disease among preschool children.

Definitions

1. **Cariostatic:** Tending to inhibit the formation of cavities. (Merriam Webster, 2014).
2. **Chronic Disease:** Chronic disease has been defined as illness that is prolonged in duration, does not often resolve spontaneously, and is rarely cured completely. Chronic diseases are complex and varied in terms of their nature, how they are caused and the extent of their impact on the community (Australian Government Department of Health, 2012) .
3. **Cytokines:** Any class of immunoregulatory proteins that are secreted by cells, especially of the immune system (Eustice, 2014).
4. **Dental home:** The ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated, and family-centered way (American Academy Pediatric Dentistry [AAPD], 2012).
5. **Dental Decay (AKA dental caries):** The disease known as caries or cavities, which is the instruction of your tooth enamel, the hard outer layer of your teeth (Eakle & Sather, 2014).
6. **Dentin:** The tissue that is calcified and consists of tiny tubules or tubes. It is the second layer of the tooth and is normally covered by enamel and covers the pulp, making up the majority of the tooth's structure (Watson, 2014).

7. **Dental Plaque:** A thin, invisible film of sticky bacteria and other material that covers all the surfaces of your teeth (Eakle & Freeborn, 2014).
8. **Dental Pulp:** The soft tissue inside the tooth that contains nerves, blood vessels, and connective tissue (Stanford Children's Health, 2014).
9. **Early Childhood Caries (ECC):** Refers to the presence of one or more decayed or missing teeth due to caries, or filled tooth surfaces in any primary tooth of a child 71 months of age or younger. Also known as baby bottle mouth and nursing bottle syndrome (Association of State & Territorial Dental Directors [ASTDD], 2011).
10. **Enamel:** The first layer of tooth that is visible in the mouth, a porous calcified substance made from crystalline calcium phosphate. Enamel appears to be a soft beige to white color, yet it is semi-translucent, allowing the color of the dentin layer to penetrate through. Enamel is also the hardest substance in the body (Watson, 2009).
11. **Good Oral Health:** A state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity. Risk factors for oral diseases include unhealthy diet, tobacco use, harmful alcohol use, and poor oral hygiene (WHO, 2012).
12. **Glucocorticoid:** A hormone that predominantly affects the metabolism of carbohydrates, as it stimulates gluconeogenesis and glycogenesis (Kufe, et al., 2003).

13. **Insulin:** An essential hormone produced by the pancreas, its main role is to control glucose levels in our bodies (Norman, 2014).
14. **Nursing Caries:** A form of tooth decay that is caused by children sleeping with bottles. Also called baby bottle or nursing bottle tooth decay. It is caused when a child goes to bed with a bottle filled with milk or juice. It usually affects children between the ages of one to two years. Breastfed infants who fall asleep while breastfeeding are also at risk (Bass & Eakle 2014).
15. **Primary teeth:** The first teeth which are shed and replaced by permanent teeth. The first primary tooth comes in at about 6 months of age and the 20th and last primary tooth erupts at around 2 ½ years of age. The primary teeth are replaced beginning usually at about age 6. Also called baby teeth, milk teeth, temporary teeth or deciduous teeth (MedNet, 2013).
16. **Root:** The part of the tooth that secures it into the jaw (Stanford Children's Health, 2014).

Assumptions

This project was developed based upon the following assumptions:

- The target audience can understand, speak and write English.
- The participants are interested in preventing caries and oral diseases in their children.
- Participants are attending voluntarily.

Limitations

This project will be implemented to preschool children in the San Fernando Valley, therefore, some limitations do exist.

- The target population is limited to children living in San Fernando Valley, thus the findings cannot be generalized.
- The curriculum is only geared towards English speaking individuals.
- The curriculum was designed for parents and not educators, which may hinder its usefulness for educating other health professionals.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to provide a review of current research on oral disease in children to better understand the health burden it places on society. This review intends to show the urgency to raise awareness, as advocated here through the parent and child curriculum. This chapter will specifically examine research relating to the prevalence of childhood caries, its negative effects, its contributing factors and current interventions against it.

Prevalence of Dental Disease Among Children

Dental decay, also known as dental caries, is a public health challenge that the nation and the world face. Sixty-to-ninety percent of children worldwide have dental cavities (World Health Organization [WHO], 2012). Although childhood caries is a largely preventable disease, in the United States it remains the most prevalent chronic childhood disease of children aged 6-to-11 years (Center for Disease Control and Prevention [CDC], 2013). According to a 2007 report from the Centers for Disease Control and Prevention, The number of childhood caries has increased for preschoolers and toddlers, from 24 percent to 28 percent between 1994 and 2004 (Dye et al., 2007). Early childhood caries, or ECC, affects approximately 300,000 U.S. children under the age of 6 (American Academy of Pediatrics Dentistry, n.d.).

The National Health and Nutrition Examination Services (NHANES) reported that, from 1999 to 2004, 33.3 percent of children in the U.S. aged 3-to-5 years, and 54.4 percent of children aged 6-to-9 years had dental caries in at least one primary tooth. Furthermore, 23.8 percent of children aged 3-to-5 years and 28.8 percent of children aged

6-to-9 years had untreated dental decay in at least one primary tooth. From 2005 to 2008 a slight decrease in the percentage of untreated dental disease was noted; untreated dental decay went down to 20.4 percent among children aged 5-to-11 years (Dye, Li, & Beltran-Aguilar, 2012).

Similar percentages were seen among children in Australia. During 2005 approximately 37 percent of 4-year old children experienced dental decay in at least one primary tooth, and the average number of teeth undergoing decay, being filled or missing was 1.84, of which 84% were untreated caries (Ha, Roberts-Thomson, & Armfield, 2011).

In a study done in Colombo, Sri Lanka, results showed that ECC was highly prevalent and severe in children 1-to-2 years old. Additionally, 95% of the ECC seen among the children was untreated. This reveals a dire need to increase awareness regarding ECC among the community and to establish prevention programs to control caries among children (Prasanna, Sanjeewa, Shanika, Priyaka, & Lushanika, 2011).

In addition to oral disease being a burden at a national and international level, oral health disparities exist among children in the United States. ECC is mostly concentrated among economically disadvantaged children and children of certain ethnic groups, such as Mexican Americans and Native Americans (AAPD, n.d; WHO, 2003). Furthermore, approximately 80 percent of all chronic tooth decay is found in just 25 percent of the children, and the majority of these children come from primarily low-income families (Dye et al., 2007). Furthermore, 25 percent of children and adolescents living in poverty had untreated dental caries, compared with 12 percent among those whose income is at 200% of the federal poverty level or higher (Dye, Li, & Beltran-Aguilar, 2012). This is common in California as well; children of color and of lower income have a higher risk

of decay and untreated dental disease (Mouradian, Huebner, Ramos-Gomez & Slavkin, 2007).

The Effects of Dental Diseases

Good oral health is key to overall well-being. The significance of oral health status is illustrated by the noted co-occurrence of poor oral health status and systemic diseases, such as diabetes (DHHS, 2000). Tilg and Moschen (2008) show that the correlation that exists between diabetes and oral health, specifically periodontitis, results from the production of pro-inflammatory cytokines in inflamed oral tissue, which antagonize insulin. Moreover, growing evidence associates periodontal (gum) disease with various chronic diseases, including heart disease, diabetes, and stroke (DHHS, 2013).

Children with untreated early childhood caries (ECC) are at risk of permanently damaging their teeth; this lack of treatment can have a lasting effect on their overall health (Colak, Dulgerguil, Dalli, & Hamidi, 2013). When ECC and dental disease go untreated, adverse health affects increase, and quality of life (QOL) decreases significantly. Some consequences of untreated dental caries include severe pain, sleep deprivation, poor academic performance, and lack of social activities (Division of Oral Health, 2002).

Oral Health Impact on Nutritional Intake

Poor oral health and ECC can significantly impact overall nutrition. For example, pain from inflammation leads to poor dietary intake, and, as a consequence, children may lose weight, have smaller head circumference, and poorer overall growth (DHHS, 2000). Sheiham (2006) describes how untreated nursing caries may also contribute to failure to thrive (FTT), as it may compromise an infant's nutritional intake. Sheiham (2006)

suggests that dental caries and poor growth in children may be a result of reduced food intake, disturbed sleep, which may affect the production of glucosteroids, and inflammation, negatively affecting metabolic pathways.

Clarke et al. (2006) examined the nutritional status of children 2-to-6 years of age experiencing severe early childhood caries (S-ECC). Clinical measurements were used to detect malnutrition. Blood tests revealed low albumin levels, and very low levels of hemoglobin and serum ferritin, indicative of malnutrition. This suggests that children experiencing S-ECC may be at risk for malnutrition, and more specifically for iron deficiency anemia. This may be a cause for great concern, since iron deficiency has been found to affect physical growth and development, as well as behavior.

Oral Health Impact on Academic Performance

Oral health status may also affect children's academic performance. Numerous studies have shown a positive correlation between cognitive development and health, as well as between academic performance and oral health. Seirawan, Faust and Mulligan, (2012) conducted a study that measured the impact of oral health on academic achievement. Their study included 1,495 disadvantaged elementary and high school students attending various schools in Los Angeles County, California; they found that children who experienced dental pain (i.e. toothaches) were four times more likely to have a lower grade point average. Likewise, Blumenshine, Vann, Glizlice, and Lee (2008) conducted a study with 2,871 school age children, to examine the health factors associated with poor academic performance. The researchers found that children who have both poor general and oral health have a greater likelihood of doing poorly at school.

Most importantly, these findings suggest the improvement of children's dental health, may improve their educational experience as well.

Contributing Factors of Dental Diseases among Children

Dental decay is a disease whose multiple factors are related to lifestyle. In order to improve children's oral health it is crucial to understand the role of diet, eating behavior, and their environment, even before the child is born. The greatest risk factors for developing tooth decay among children include dental plaque and dental demineralization caused by poor nutrition and or lack of proper oral hygiene. Besides these two commonly explored factors, a less well-known factor exists even prior to birth. Silverman, Douglass, and Graham (2013) have shown that the risk of caries may increase in infants of expectant mothers who have poor oral hygiene during and after their pregnancy, and who practice inadequate forms of early feeding, such as allowing the infant and or toddler who sleep with a bottle filled with formula, or allowing the child to breastfeed at-will throughout the night. Consequently, it is rather obvious that caries in primary dentition should be prevented. Masood, Yusof, Hassan, & Jaafar (2012) corroborate this by showing that having caries in primary teeth is the most powerful predictor of future dental caries, and this further demonstrates the dire need for oral health education even before the child is born.

Dietary Sugars and Dental Disease

It is well established that a direct causal relationship exists between dental caries and intake of dietary sugars. After extensive review of current research and of the evidence linking dietary factors to the risk of cavities, a WHO expert panel confirmed the role of excessive sugar consumption as a cause of dental caries (WHO, 2003). Numerous

other studies have found the same link between dietary sugars and the risk of dental caries. According to Lee and Messer (2010), frequent consumption of sweetened drinks and sweet treats is associated significantly with the risk of caries among children. More specifically, this study found that, over a 12-month period, caries in children was primarily associated with frequent consumption of sugary drinks, and less-than-optimal fluoride exposure; It was also found that over a 24-month period, caries was mainly associated with frequent consumption of sweet treats, evening sweet drinks, irregular dental care and enamel demineralization. Researchers concluded that a poor diet, a diet high in sugary foods, empty high calorie/low nutrient dense food, contributes significantly to caries formation. Further evidence of the direct effect dietary sugar has on caries comes from a study done by Declerck and colleagues (2008). The results of their study demonstrated that the prevalence of caries among preschool children was associated with the consumption of sugary beverages, of drinks consumed in between meals or at night. This further demonstrates that consumption of sugar, the amount, timing and frequency are all factors significantly related to childhood caries.

Poor Nutrition and Dental Disease

Sugar not only affects the occurrence of caries and dental disease, but it also affects nutrition. A diet high in sugary foods takes away appetite for nutritious foods, so it reduces its consumption. Aside from ECC being associated with poor feeding practices, and increased intake in simple sugars, it is also associated with malnutrition. Nunn et al. (2009), intending to better understand how a high quality diet can affect ECC, examined the relationship between the prevalence of ECC in children 2 to 5 years old and the quality of their diet. The healthy eating index (HEI) developed by the United States

Department of Agriculture (USDA) and the third national health and nutrition examination survey (NHANES III) was utilized for assessing and measuring diet quality. Their findings demonstrated that children with an overall healthy diet were about 44 percent less likely to have Severe ECC (S-ECC) than children who had poor eating habits. Besides that, there was a reduced prevalence of ECC among the children that had increased intakes of fruit, dairy and cholesterol. In summary, dietary habits may serve as a predictor of S-ECC, and as suggested by the American Academy of Pediatric Dentistry, it is crucial to promote the adoption of a balanced and diverse diet to nourish and reduce caries in infants (AAPD, 2011).

Pregnancy and Dental Disease

In order to decrease the likelihood of the infant or toddler developing ECC in the beginning years of their life, the expectant mother must maintain good oral health. The expectant mother that practices good oral hygiene will not only enhance the prevention of ECC, but also the overall health of the child since poor oral health during pregnancy has been associated with premature births and low birth weight (DHHS, 2013).

Soon after the baby is born and tooth eruption occurs in the infant, he or she runs the risk of developing ECC. If this occurs, ECC then progresses rapidly and has detrimental effects on primary dentition. For this reason, prevention and management of ECC should begin early and be treated quickly, as this problem manifests in children at 2 years of age.

Feldens, Giugliani, Vigo and Vitolo, (2010a) examined the relation between the prevalence of S-ECC in 4 year old children and feeding practices during his or her first year of age. The authors identified the following factors to be associated with ECC:

frequent nighttime feeding, breastfeeding more than 7 times per day after 12 months, breastfeeding ad libitum, and inadequate oral hygiene. These findings were further validated in another study by Feldens and colleagues (2010b), who suggested that healthy early childhood feeding practices decrease the occurrence of caries in children. Such practices are exemplified as decreased use of nighttime bottle, delayed introduction of sugar and of foods high in sugar to a 1 year old, and decreased salivary contact between infant and mother. In short, healthier feeding practices will minimize the risk of ECC, and may contribute to the improvement of the general health of infants and children.

It is thus evident that, during pregnancy, it is of utmost importance for the expectant mother to be well informed on the importance of good oral hygiene, and of healthy early feeding practices. More specifically, expectant mothers need to have access to caries-preventative instructions and dietary recommendations before they give birth or before their child is 12 months of age. In an effort to promote good health for all infants and children, the AAPD and the Academy of Nutrition and Dietetics (AND), support and encourage the following: educate the public on the association of caries and frequent consumption of carbohydrates, provide nutrition counseling for all health providers that work with children, and make nutrition labels consumer friendly for beverage and food manufacturers (AAPD, 2012).

Interventions to Reduce Early Childhood Caries Epidemic

According to Phipps, Ricks, Manz, and Blahut (2012) the best way to improve the oral health status of children, is through early prevention and intervention-education from the prenatal stages and extending through the beginning years of life and beyond. This conclusion was derived from a study done on two ethnic groups with relatively high risk

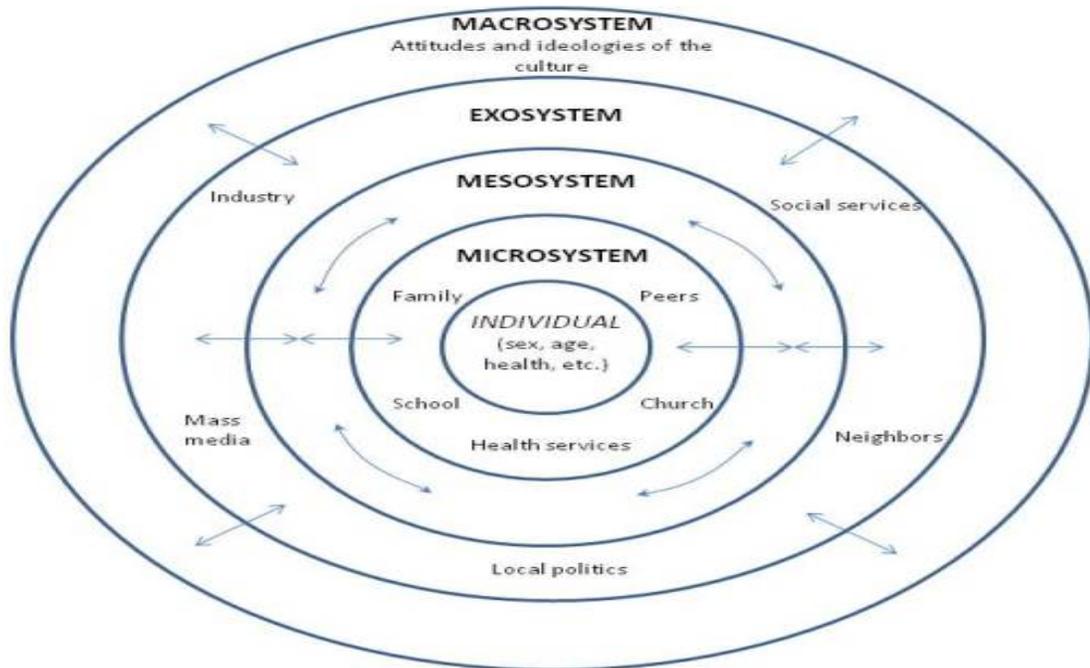
of caries in the United States; Alaskan native (AN) and American Indian children (AIC). In addition to the positive impact of early intervention, the effectiveness of educational nutrition programs has also been demonstrated to affect the reduction of ECC. According to Plutzer & Spencer (2008) anticipatory guidance provided during the mother's pregnancy, and during the child's first year of life reduces the risk of S-ECC in children. Likewise, a randomized study done in Brazil found that providing nutritional advice on a monthly basis, and intervening during the first year of life, reduces the occurrence of cavities and the severity of caries at 4 years of age. More specifically, Feldens et al. (2010) found that such monthly advice reduced the incidence of caries by 22 percent and the severity of caries by 32 percent. The nutrition education used in the study was based on the "Ten Steps for Healthy Feeding", a Brazilian health policy utilized for primary care based on the WHO guidelines.

First 5LA (F5LA) and Early Head Start (EHS) are two existing child advocacy organizations based in Los Angeles, California, that promote good oral health in order to improve the overall health of underserved children ages 0-to-5. Although these two organizations have contributed to caries reduction in underserved children, in a study conducted by Modifi and colleagues (2009) results showed that there was lack of continuity in preventative oral health information and thus at times the information was misleading and frustrating for parents. This demonstrates the importance to provide consistency in oral health education, and to not only educate parents, but health care providers as well.

Oral Disease and the Human Ecological Theory (HET)

Oral disease among children is a multi-factorial problem, there is not one factor causing it. To understand how these factors interact and have an effect on the child's oral health, it is important to study the Human Ecological Theory (HET) by Bronfenbrenner. Bronfenbrenner's theory (1979) argues that human development could only be understood by studying the ecological system in which the individual grows (Cole & Gauvain, 2004). This system consists of five ecological subsystems that guide human growth in which an individual interacts, and develops. The five environmental systems are depicted in Figure 1 and explained below:

Figure 1- Bronfenbrenner's Human Ecological Model



The HET is comprised of several aspects that allow us to see the big picture, where a great number of factors influence children's health.

- **Microsystem:** is the immediate environment, which directly impacts the development of the child. Including: parents, teachers, pediatrician, pediatric dentist and other peers.
- **Mesosystem:** refers to the interconnection between the inner and the outer systems; for example between the family and mass media.
- **Exosystem:** among others it includes the social and political systems.
- **Macrosystem:** refers to the outer layer of the child's environment; the culture in which the child lives in.
- **Chronosystem:** represents the events that take place over the child's life course.

Using this model, optimal oral health for all American children requires raising awareness and causing changes in those subsystems that influence children's health, specifically parents, caregivers, health care professionals, schools, governmental agencies and more. Lisagor (2007) using Bronfenbrenner's model set the stage for what can be implied with the current curriculum.- Given the many factors it is important to know which subsystem has the greatest influence. I personally believe that working from the ground up, in the microsystem, will lead to changes in the macrosystem. Thus, educating the family about oral health and nutrition seems to establish a strong foundation that can potentially cause greater changes in the society.

Within the microsystem the child, family, and peers must be educated on the importance of good oral health; primary health care providers need to take part in the dissemination of this information, as poor health affects the child developmentally. Mouradian and colleagues (2007) make three essential suggestions at the individual and family level. First, it is essential to have primary medical care and oral health combined.

Secondly they suggest that oral health and nutrition education be provided on a routinely basis. Lastly, they also consider important that oral health education be incorporated into standard prenatal care, including information about oral health of mother and infant.

In the child's mesosystem, oral health education provided to parents will contribute to ECC reduction, as parental beliefs and family and cultural beliefs are essential in monitoring oral health behavior and likelihood of caries developing in their child (Pine et al, 2004).

Within the macrosystem level, policies need to be modified, in order to include oral health standards to existing standards of family attributes that have an effect on the health and safety of the child, and the need to unite with other health services to establish integrated dental and medical programs in communities most in need (Mouradian, Huebner, Ramos-Gomez & Slavkin, 2007). And government agencies should also further regulate industrial practices.

In the exosystem of the child, the industries and mass media need to see ECC as a health priority and collaborate in communicating this to the public. Lastly, at the chronosystem level, the child and family will receive education that may have a positive influence on their health and for the rest of their lives.

The strategy of providing access to dental care alone has not succeeded in closing the gap, in decreasing oral health disparities among disadvantaged groups such as poor children and of color (Mouradian, Huebner, Ramos-Gomez & Slavkin, 2007). To improve children's health status, dental education needs to be provided to parents and caregivers, prevention programs need to be developed, and pediatricians and other

primary child-care clinicians need to work in collaboration in the detection and control of childhood caries at an early age (Tomar & Reeves, 2009).

The general health of children is threatened by the ECC epidemic and so is their lifelong health. The most encouraging aspect of this crisis is that it is preventable. This further demonstrates the need for early education intervention, as it is key to prevent caries (American Academy of Pediatric Dentistry, 2012). Having an oral health based curriculum such as proposed by this project could serve as a component of the collaborative structure that will help improve the oral health status of all children.

CHAPTER III

METHODOLOGY

Oral disease in children is a national and international health challenge. Children's overall health is jeopardized when parents do not realize how close its relationship is with oral health. In order to prevent and reduce childhood caries, it is essential that those who are closest to children, especially parents and caregivers, and even children themselves, understand the relationship between oral health and overall health. Oral health and nutrition education for parents and children can lead to increased awareness on this relationship and ultimately prevent childhood caries. Education, being part of the microsystem that influences a child's life, plays a key role in the prevention and reduction of dental caries and oral disease in children. It is here where I believe the foundational solution lies. The presently proposed curriculum "Let's Keep Kids Nourished and Cavity Free", is motivated by the crucial goal of reducing childhood caries.

The curriculum consists of three lessons for the children (Appendices A-M) and four lessons for the parents (Appendices N-AA). The first three lessons for both the parents and children contain the same topics: cavity formation, cavity prevention, and oral hygiene and nutrition. The purpose of the repetition of topics is to reinforce the message offered from both the child and parents' perspectives. The curriculum was primarily developed for implementation in the Los Angeles area of the San Fernando Valley - at daycares and preschools, First 5 LA facilities, pediatric dental offices, and even community institutions, such as the YMCA.

The following sections will address the development, delivery, and evaluation of the curriculum in greater detail.

Curriculum Development

The choice of content for Lesson 1, “Keeping Our Kids Nourished and Cavity Free” (Appendix A), was based on what the risk factors are that contribute to early childhood caries, and built upon previous oral health curriculums for parents and children (Lee and Messer, 2010; Plutzer & Spencer, 2008). The topics selected for each lesson plan cover the primary ECC risk factors, proper dental hygiene and adequate nutrition for both children and parents, including for both pre- and post-natal mothers. The aim was to develop an effective curriculum by educating parents and children, as studies have demonstrated that oral health education is most efficient when provided to both the child and caregiver (Tomar & Reeves, 2009). The children’s curriculum was initially developed for a First 5 LA train the trainer program. As the curriculum was not carried out, it was utilized as the foundation for the children’s curriculum. The curriculum was modified and further built upon to meet the target population needs.

Children’s Curriculum

For the children’s curriculum, Lesson 1, “A Healthy Mouth is a Clean Mouth—Let’s Brush!” (Appendix A) was created with the purpose of introducing the program, sparking children’s interest in learning about oral health, and providing a foundation on which the subsequent lessons build. Specifically, Lesson 1 covers the main functions of teeth, explains what a cavity is, and provides ways to prevent caries. The prevention component is based on two practical and useful concepts: proper tooth brushing and teeth-friendly-foods and drinks. It also includes activity sheets (Appendices B-E).

Lesson 2, “The Dentist Is My Pal: Help Kids Become more Comfortable with the Dentist” (Appendix F), reiterates the importance of healthy teeth, and discusses the key role the dentist plays in maintaining healthy teeth. The purpose of this lesson is to familiarize children with the dentist, so as to reduce fear of the dentist and encourage dental check ups. Lecture 2 first explains the role of the dentist and then discusses what a dental visit entails.

Lesson 3, “Keeping Teeth Bright and Healthy: Foods for Healthy Teeth” (Appendix J) introduces “anytime foods” and “sometimes foods”, which concludes the program. In an effort to simplify and bring to life the effect healthy foods and not-so-healthy foods have on the body, foods were grouped into two categories along with their effect on the body. “ Anytime foods” represent the foods that are good for teeth, which provide energy to play, learn and grow. And “Sometimes foods” are the foods that should be consumed less frequently - or avoided, as they are known to increase the risk of cavities.

The main goal of all three lessons for children and parents is for the families to begin to understand the importance of good oral health and good overall health and to understand that oral well being is possible with daily tooth-brushing, dental checkups and healthy eating habits.

Existing curricula served as the foundation and inspiration for the lesson plans created in this project: “Smile Starts!” (American Dental Association, 2005), “Cavity Free Kids: Oral Health for Children in Child Care” (Delta Dental, Washington Dental Services, 2006), “Open Wide and Trek Inside” (National Institute of Health, 2000), “Preventative Oral Care for Ugandan Youth” (Eckersley& Shipley, 2011), “The Smile

Guide Dental Health Series- Dental Care for the Early Years: 0-5 years” (United Learning, 2002). Handouts were obtained from websites such as the American Dental Association, Sesame Street- Healthy Teeth, Healthy Me, National Institute of Dental and Craniofacial Research, Women Infant and Children, and Alameda County Public Health Department.

Parents’ Curriculum

The parents’ curriculum was developed with the intention of educating parents or caregivers about the importance of good oral health and adequate nutrition, specifically at an early age. The parents curriculum includes 4 lesson plans; the first three lessons cover the same topics as the children’s curriculum: instruction on oral hygiene, appropriate timeframes for visits to the dentist, and nutritional information to reduce consumption of sugary foods and drinks. The additional fourth lesson discusses pregnancy and oral health, with the goal of educating parents before the child is born.

Lesson 1, “ Keep our Kids Nourished and Cavity Free” (Appendix N) introduces the topics that are covered in lessons 1-4, and provides the framework for the lessons that follow. The aims of the first lecture are to introduce the ECC problem that continues to affect children, to increase awareness among parents and caregivers of the relationship between oral health and general health, and to provide practical and developmentally appropriate solutions to this epidemic. Lesson 1 begins with a discussion of the prevalence of ECC and of its negative health effects. This is then followed by simple suggestions for parents for how to prevent ECC. This is done to motivate parents to play an active role, as parents play a vital role in the disease prevention.

Lesson 2, “the Dentist is my Pal” (Appendix S), explains what a dental home is and why each child needs to have one. This lesson also provides tips to help children overcome the fear of the dentist. The objective in this lesson is to familiarize parents with the idea of children going to the dentist.

Lesson 3, “Food for Bright Teeth and a Healthy Smile” (Appendix V) contains the nutrition component of the curriculum, explaining the importance of a good diet, especially during the first year of a child’s life, and the role a good diet plays in the child’s overall health and development. In addition, this lesson discusses current nutritional issues (e.g over-consumption of soda and highly processed foods), while encouraging healthy dietary habits. The main purpose of this lesson is to persuade parents to think of nourishing their children, rather than filling them with less healthy food.

Lesson 4, “ Pregnancy and Oral Health- Healthy Teeth, Healthy Infant” (Appendix AA) covers the importance of oral health during pregnancy, its consequences on the infant, prevention of oral discomfort, and dental care for the baby. The lesson objective is to inform expectant mothers about the potential consequences that both mother and child can experience as a result of poor dietary and oral hygiene practices in both prenatal and postnatal phases.

The parents’ curriculum was also adapted from various curricula. These include “A Bright, Healthy Smile” (Colgate, n.d.); “Bright Smiles from the Very Beginning” (Colgate, 2010); “a Mighty Mouth” Infant curriculum (Dental Health Foundation, 2006); “Oral Health Care During Pregnancy: a Resource Guide” by Bertness and Holt (2012). And from the cited curricula that also inspired the children’s curriculum. The handouts were obtained from: “A Bright, Healthy Smile” (Colgate, n.d.); “Kid-friendly Veggies

and Fruits” (USDA, 2011), “Cut Back on your Kids Sweet Treats” (USDA, 2011), and “Healthy Eating for Preschoolers” by the USDA (2012).

Curriculum Delivery

The “Keep our Kids Nourished and Cavity Free” curriculum for children is a 3-week curriculum, during which a weekly lesson (Lesson 1, 2, or 3) (Appendix A, F, and J) is to be presented on the same day each week for 3 consecutive weeks. Each lesson is planned to last approximately 30-45 minutes. The curriculum is age-appropriate, designed for children ages 0-to-5 years and is culturally sensitive for children living in Los Angeles. The lessons are to be taught utilizing the “tell, show, do” teaching technique, where an idea is presented with a small amount of information, and made clear and vivid so that the learners can express the concept in their own words. In addition to the interactive lecture, each lesson is accompanied with a short educational video clip from Sesame Street (Sesame Workshop, 2011), with props and educational activities (Appendix A-M).

The “Keep our Kids Nourished and Cavity Free” curriculum for parents is taught similarly to the children’s curriculum; the 4 lessons are taught throughout 4 consecutive weeks and each lesson plan last about 30-to-45 minutes (Appendix N, S, V, AA). Each lesson (Lesson 1, 2, 3, or 4) is to be presented at the same time and day each week, in the morning before school or after school, at a time most feasible with parents’ schedule. The main difference in the dissemination of this curriculum from the children’s curriculum is that the lectures for parents are presented as a PowerPoint (PPT) presentation. This requires time for set-up and the proper equipment, including a projector, projector screen, and laptop. If equipment is not available, the lessons can be

taught with the PPT handouts instead. The parents' lessons are to be taught in a discussion manner, where parents are provided with a question or concept applicable to their lifestyle and pertaining to a subject in the lesson plan. Parents are encouraged to participate in sharing their beliefs or current practices and then discuss these among the group, while the instructor guides the discussion. In addition to the PPT, for further reinforcement, all four lessons are accompanied by a short video and/or handouts pertaining to the topic discussed. The goal is to empower parents with knowledge to make them feel capable of making necessary changes, and at the same time motivate them to do this for their children's health. The aim is to teach these two sets of curricula that are designed for early intervention tools for parents, caregivers and children, in the hopes of preventing tooth decay and establishing good oral health practices that last a lifetime.

Formative Evaluation

A formative evaluation was completed by a panel of experts who were selected to review the curriculum.

Expert Panelists

The three expert panelists were contacted by the author via email, and each agreed to review the curriculum presented in the project. They were asked to evaluate the lessons and supplement materials, based on their knowledge and content area expertise.

All members are professors at California State University Northridge; two of the panel members hold an Ed.D degree and the third member has a MS degree. All three panel members are registered dietitians with ample nutrition knowledge, and have a vast experience working with children. Most importantly, one of the experts, in addition to

having nutrition knowledge also has extensive dental knowledge, and is experienced in teaching dental education to children. The panelists are all white, non-Hispanic females within the ages of 35-to-65 and older range. All experts in education and have between 15-40+ years of teaching experience.

Expert Evaluation Procedures

On May 21st, 2014, each of the panelists was provided with an introduction to the complete series of curricula, the children's lessons and parent's lessons. Each panelist was provided with two evaluation forms. Panelists were given approximately two weeks to return the completed evaluation forms. The completed evaluation forms were received through e-mail.

Expert Evaluation Measurements

The formative evaluation (Appendix EE) asked general information about the evaluator, about the children's lessons, and about the parents' lessons. In addition to the demographic information, it included a total of 9 questions, 5 yes-or-no questions related to the lesson the content, organization, and supplemental material for each of the lessons. This was followed by a few multiple-choice questions related to determining the likelihood of utilizing the curriculum and in grading of the curriculum. And the last two questions of the survey were open-ended questions that geared toward obtaining feedback for improving the curricula.

CHAPTER IV

RESULTS

Chapter IV presents the results from the formative review. The purpose of this project was to design a curriculum that is aimed at educating children and parents on nutrition and dental hygiene, with the ultimate goal of helping to prevent and reduce oral diseases in children. The initial curricula for children, lessons 1-3 (Appendix A, F, J) and for parents, lessons 1-4 (Appendix N, S, V, AA) were modified to improve the curricula. Adjustments were based off recommendations made by the expert panel. These recommendations and other results were obtained from the formative evaluation survey, which will be discussed in detail below.

Results from the Evaluation by Experts

Following are the responses, comments and recommendations obtained from Part 2-A of the formative evaluation survey of the children's curriculum.

All three experts agreed that the curriculum topics were researched thoroughly and were well presented in a clear and organized manner. In addition, the content of the curriculum was found to be age-appropriate, suitable for children ages 3-5 years old. The supplemental materials, such as handouts, activities and video clips utilized for each of the children's lessons, were also found to support the curriculum appropriately. None of the evaluators saw the need for the addition of other topics to the current curriculum.

The reviewers were asked how likely they were to utilize this curriculum, two panel members responded "very likely" and the third panelist responded "neutral." For the open-ended response questions that asked for suggestions to improve the curriculum, one reviewer was very satisfied with the curriculum and did not have any further

suggestions. The second reviewer greatly approved of the curriculum. The only comment was on a few spelling errors, which were immediately corrected. The third evaluator noticed a discrepancy in the concluding paragraph for Lesson 3: The summary section included a summary statement that belonged in Lesson 4 of the parents' curriculum. This was also taken into account and modifications were made to Lesson 3. The numeric rating of the value of the curriculum was 9.3, on a scale of 1 - 10 (with 10 being the highest)

Following are the responses, comments and recommendations obtained from Part 2-B, the parents' formative evaluation survey. All three experts agreed that the parents' curriculum topics were researched thoroughly and that the content was presented in a clear and organized manner. Furthermore, they found the content covered in lessons 1-through-4 to be appropriate and relevant to parents of preschool children. In addition, the supplemental material utilized such as handouts for all the parents' lessons were found to appropriately support the curriculum. One comment: "I really like your handouts. Lots of variety!"

The evaluators did not see the need to add any other topics to the current curriculum. When experts were asked how likely they were to utilize this curriculum, two panel members responded "very likely" and one commented that she would implement the curriculum if she had the opportunity. All would recommend it to others. The third expert panelist responded "neutral." In the open-ended response section, reviewers were asked for suggestions to improve the curriculum. One reviewer was very content and did not have any suggestions. Another reviewer noted that the length of the PowerPoints were "a bit too lengthy-too many words on the slide and too technical". This

recommendation was taken into account, and lesson plans with too many specific details were modified. Under the any further suggestions open-ended question, one of the panelist wrote, “You have done an excellent job”; another one emphasized how she liked the wide variety of handouts provided, as well as the variety of teaching methods. This same reviewer believed that 45 minutes may be too long for parents, however, stated “depending on the setting, it may be successful”. Furthermore, she noted that, “it is a wonderful and flexible curriculum with lots of good and very useful information (lots of “how to” and “what to expect” that I think is very valuable).” The overall rate given to best rate the curriculum, with 10 being the highest and 1 being the lowest was 10, 10 and 8, giving the curriculum an average of 9.3 just like the children’s curriculum.

The recommendations were implemented and the curricula were further improved. The finalized curriculum for both the children and parents is now more practical, and engaging through the simplification of terminology and concepts, and shorter in length (30-45 minutes) lessons. In addition, the curricula contain all the necessary elements to be successful in accomplishing its purpose. Each lesson plan contains learning objectives, a behavior change objective, a clear and concise introduction, interactive learning activities, a summary closure and student assessment. These improved curricula will be instrumental in the success of the implementation of the children and parents curriculum, and in achieving the main goal of this project, which is to reduce oral disease in preschool age children through good oral hygiene and dietary habits.

CHAPTER V

DISCUSSION

The purpose of this project was to design an oral health and nutrition education curriculum for parents and preschool age children living in San Fernando Valley and surrounding areas, within the city of Los Angeles. The curriculum was developed to address the vital necessity to reduce oral diseases in children, specifically childhood caries, as this global epidemic still persists. The aim of “Let’s Keep Kids Nourished and Cavity Free” was to encourage healthy dietary habits and good dental hygiene practices among children, through parent and child education, and ultimately to contribute to the prevention and reduction of childhood caries along with its negative health effects.

Tomar and Reeves (2009) concluded that in order to improve children’s oral health status, prevention programs, based on dental education programs designed for parents and caregivers, must be developed. The oral-health curriculum presently proposed, “Let’s Keep Kids Nourished and Cavity Free” targets this specific need. The basis of the curriculum designed for parents is oral health education, specifically cavity formation and prevention through dental hygiene and nutrition.

In addition, Lalic et al. (2013) found that parental behavior is a highly significant predictor of children’s oral health, consequently both parents and children should be provided with oral health education. As parents set the background for children’s knowledge and behavior related to oral health, through parent and child education as it has been done in these curricula, children’s oral health knowledge and behavior have the potential of improving.

Phipps, Ricks, Manz, and Blahut (2012) and Plutzer and Spencer (2008) concluded that prevention and intervention education provided from the prenatal stages and extending through the beginning years of life improves the oral health status of children and reduces the risk of S-ECC. Plutzer & Spencer (2008) specifically found that oral health information provided during pregnancy was successful at reducing the prevalence of S-ECC. Furthermore researchers Phipps, Ricks, Manz & Blahut (2012) agreed that the best way to improve ECC is through early intervention. Lesson plan 4 of the parents' curriculum "Pregnancy and Oral Health-Healthy teeth, Healthy Infant" takes the early prevention approach by providing guidance to expectant mothers.

Furthermore, Masood, Yusof, Hassan, and Jaafar found that having caries in primary teeth is the most powerful predictor of future dental caries (2012). In specific, this 5-year retrospective study found that children that presented with cavities at 6-years old developed cavities at 12-years old. The presence of cavities at an early age showed to be related to the incidence of future caries. If children and parents are provided with oral health education, then caries in permanent teeth may potentially be reduced as well as the likelihood of caries later in life. Children need to be approached during their developmental years, as these are important stages in life when oral health behavior, beliefs and attitudes develop (WHO, 2003). The children's and parents' curricula does just that, it aims to instill good dietary habits and oral hygiene practice at an early age.

Researchers, (Lee & Messer, 2010; Declerck & colleagues, 2008; Mobley, Marshall, Milgrom, & Coldwell, 2009) concluded that the most significant dietary factors related to childhood caries are the amount, timing and frequency of sugar consumption. The content and lesson plans of the curriculum also intended to address these findings.

Lesson 3 of the children's curriculum explains the relationship between the consumption of beverages and foods high in sugar, their exposure on teeth and cavity formation. Furthermore, lesson 1 of the parent's curriculum explains the relationship of sugar consumption and cavity formation, and provides ways to reduce the consumption of such foods and drinks and of the duration of sugar in teeth.

Recommendations for Further Research

Implementing this curriculum over the long term, and evaluating its effectiveness are essential for determining whether or not the curriculum has achieved the purpose of helping to prevent and reduce caries in children. Further research is recommended to assess the relationship between parents' and children's knowledge on oral hygiene and nutrition, and tracking via a longitudinal study the number of cavities that develop in children over the long term to help determine the effectiveness of this type of intervention. This will further contribute to the improvement and efficacy of the curriculum and possibly expand the number of beneficiaries in the reduction of childhood caries.

An additional recommendation is for research to be done on how encourage other health professionals to be a part of this type of program to help reduce ECC. Through increased collaboration among all health professionals, the teams can contribute to the improvement of oral health, as it is an integral part of overall health. This could be accomplished by making the necessary modifications on the parents' curriculum and by covering topics that pertain to health professionals. This will give versatility to the curriculum, increase its usefulness, and most importantly close the gap between oral health knowledge and health advocates for children. Such effort is needed as it has

demonstrated that it can achieve a reduction on the burden of cavities and of related diseases among children (Goldfield & Kilpatrick, 2007).

Limitations

There are, of course, some limitations to the curriculum. The main limitation is that the effectiveness of the curriculum was not assessed. The second limitation is that the curriculum was designed to mainly target children living in Los Angeles, specifically in San Fernando Valley. Thus, once this curriculum is evaluated, the results will not yet be generalizable. Another limitation is that the curriculum is only available in English. As such, it excludes parents and children who are monolingual in a non-English language within the greater Los Angeles metropolitan area. Lastly, the curriculum was designed for parents and not educators, which may hinder its usefulness for educating other health professionals.

Implications

Despite these limitations, the “Let’s Keep Our Kids Nourished and Cavity Free” curriculum has the potential to provide valuable information on nutrition and oral hygiene to parents and children, and serve as a tool for helping to affect and decrease ECC.

While this project can be beneficial to preschool age children and to their parents who live in Los Angeles County, it can serve as the building block for other programs in similar urban areas throughout California. It can be further projected that other communities that have similar dietary and oral health issues can also benefit from it.

Conclusion

Dental disease is the most prevalent, yet preventable chronic disease in children. Despite the improvements in oral health knowledge and treatment, disparities and

inequities remain. Oral disease continues to affect children, their families and whole societies. This curriculum focused on two main risk factors: poor dietary habits and poor oral hygiene. The purpose of this project was to design a curriculum aimed at educating parents and children on how to reduce the risk of childhood caries through proper nutrition and dental hygiene. This type of intervention may help to improve oral health behaviors, knowledge, and self-efficacy of parents and children. Programs such as this may ultimately reduce oral disease among preschool children.

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APPENDIX A

Children Lesson Plan 1

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum for Kids, Ages 0-5 Years*

Lesson Plan: Lesson 1: *A Healthy Mouth is a Clean Mouth – Let's Brush!*

Learning Objectives:

1. Students will be able to recognize that our teeth serve many purposes.
2. Students will learn how cavities are formed and how tooth brushing prevents cavities.
3. Students will be able to communicate what teeth are used for and how to take care of them.

Behavior Change

1. Students will increase their knowledge on dental hygiene by applying what they learned in class at home.

Objective:

Total Time: 30-45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> • Introduce the program and topic of the first lecture: a Healthy Mouth is a Clean Mouth –Let's Brush! • Explain the program, the objective of the program and how long it will be. 	
Learning Activities: 45 minutes	<ul style="list-style-type: none"> • Explain the 3 main functions of teeth; chew, talk, and smile. • Ask the students to bite into an apple without using their teeth-explain how the motion of chewing into an apple uses teeth. • Ask the students to say “thirty-three thirsty thieves” without letting the tongue touch the teeth-explain how teeth are needed to talk. • Demonstrate how teeth are needed to smile, but not to frown. • Show a short clip of the Sesame Street DVD ~ 2 minutes (this DVD will be provided to all caregivers). 	<ul style="list-style-type: none"> • Use a real apple/fake apple or pretend • Sesame Street DVD, Chapter 2 (~2 minutes) with captain ultra-mega smile man

Let's Keep our Kids Nourished and Cavity Free program:
Week 1 of 3: *A Healthy Mouth is a Clean Mouth – Let's Brush!*

Source: Colgate- Bright Smiles, Bright Futures Colgate;
Sesame Street- Healthy Teeth, Healthy Me!

	<ul style="list-style-type: none"> • Discuss key points of the video, reiterate tiny teeth do big jobs! • Explain what a cavity is and why cavities need to be prevented- pass out “How Does a Cavity Develop” handout • Ask the students how they prevent cavities at home. • Explain when and how often teeth need to be brushed. • Explain that eating and drinking healthy foods is another way to keep their teeth healthy-discuss healthy choices; “anytime” and “sometime” foods. • Show the second clip of the Sesame Street video (~2 minutes) on eating healthy and then pass out the coloring handout. • Demonstrate to students how to brush their teeth step-by-step. Distribute “Brushing Guide” handout. • Optional: If each child has their own toothbrush – tour the brushing location where the toothbrushes are stored. See sample tooth brush protocol below. • Sing the tooth brushing song while the students use their own toothbrush or with prop toothbrush and a dental model (students take turns if only one model is available). 	<ul style="list-style-type: none"> • “How Does a Cavity Develop?” handout • “The Tooth Book”, by Dr. Seuss (if available) • Other “teeth toys” such as stuffed animals, games, that have teeth showing, etc. • Sesame Street DVD, Chapter 7 (~2.5 minutes) • Color Handout “Finders Keepers” • “Brushing Guide” Handouts • Prop tooth brush, Dental model, if possible a real toothbrush • “Tooth Brushing” song.
<p>Summary Closure: 5 minutes</p>	<ul style="list-style-type: none"> • Summarize the role of a dentist, and of what going to the dentist consists of with the help of the children. • Let the children know that they are teachers and they too can teach their parents, siblings and friends. Encourage them to take the good habits from child-care to home. • Remind children to use the ADA Oral Care Calendar handout at home. 	<ul style="list-style-type: none"> • Sesame Street Super Brushing Zone door hanger

Student assessment: 5 minutes	<ul style="list-style-type: none"> • Ask the participants to share one thing that they have learned from the lesson. 	
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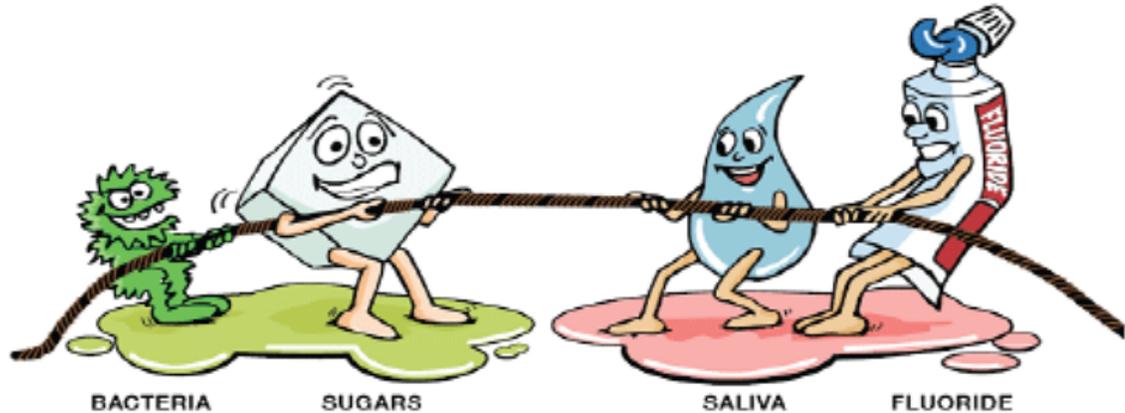
* Sample tooth brush protocol for storage and logistics (adapted from Delta Dental's EPIC Head Start in Yakima, Washington)

1. Distribute brushes and tour brushing location with toothbrush holders.
2. Each child shall have his/her own toothbrush, clearly identified with his/her name. Sharpie markers work great for writing child's name on brush!
3. Sharing or borrowing of toothbrush is not allowed.
4. To avoid cross-contamination, a pea-sized dab of fluoridated toothpaste shall be placed on the edge of a separate paper cup or paper plate for each child. Paste is then scooped up with toothbrush.
5. Rinse toothbrushes after use, let air dry and then store so they cannot touch or drip on each other.
6. Toothbrushes shall be replaced at least every 3 months or more often if contaminated with another brush, used by another child, a child has a severe virus, or by any other means.

Note: Preschoolers may not have the dexterity to make "circles" as they brush. Gentle "scrubs" are fine. The important concept to teach is that they brush every day and follow a pattern so all sides of all teeth are brushed and none are missed.

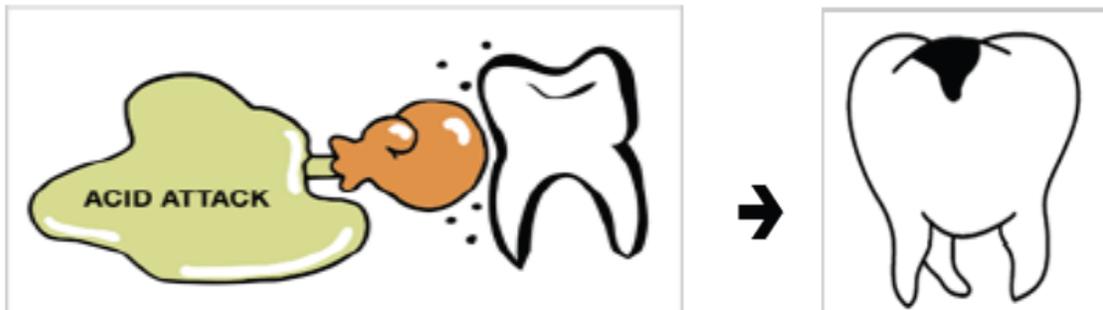
As you teach children to brush, use the words, "small circles" or "gentle scrubbing". Heavy-handed scrubbing can injure the gum tissue or tooth structure.

How Does a Cavity Develop???



One team is dental plaque—a sticky, colorless film of bacteria—Plus food or drinks that contain bacteria. Sugar is used to produce acids and these acids begin to eat away at the tooth's hard outer surface.

The other team is the minerals in our saliva, plus toothpaste. This team helps protect and maintain teeth healthy.



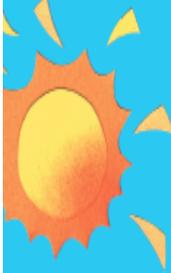
When dental plaque wins—acid attacks the teeth a cavity is formed.

Finders Keepers

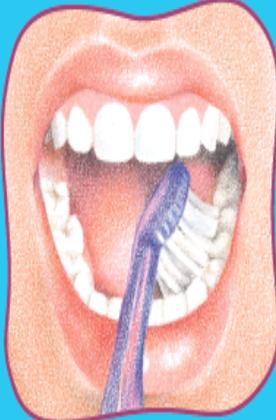
Color the things that help you keep your mouth healthy.



B is for Brushing



outside



inside



top



bottom



tongue



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2003 Colgate-Palmolive Company, New York, NY

**healthy
teeth,
healthy
me**

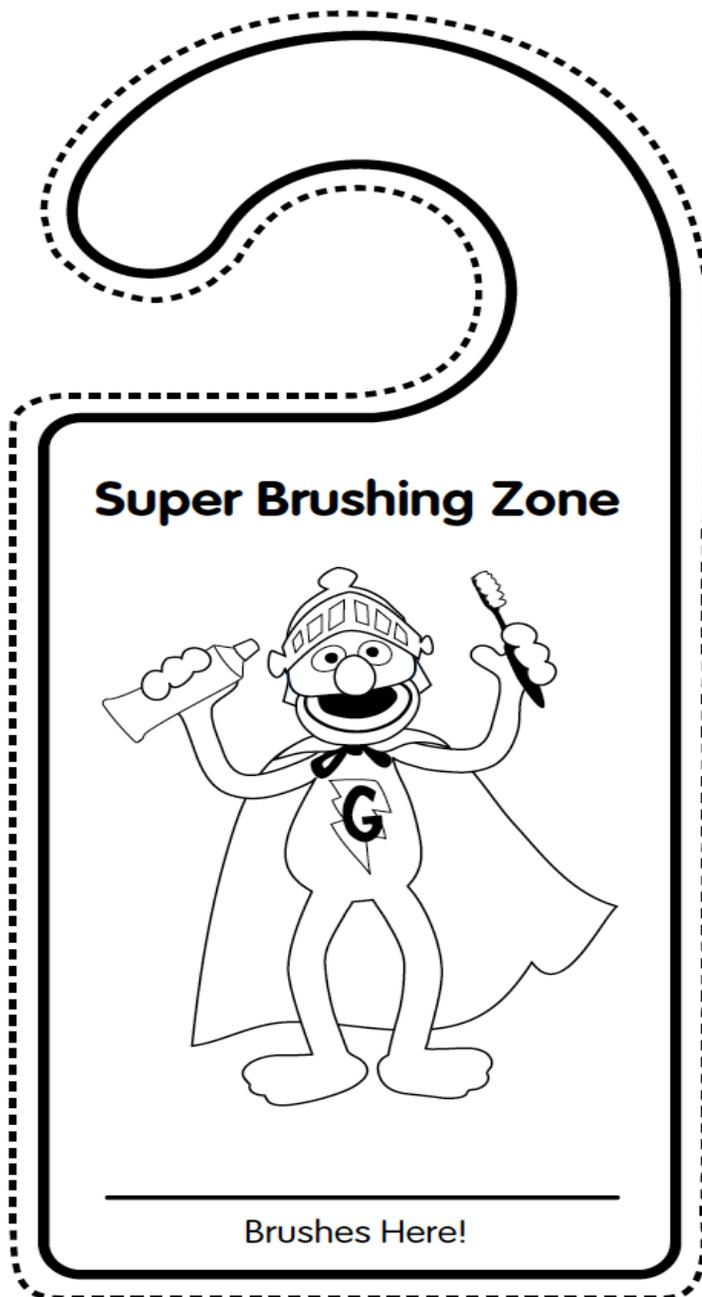
Super Brushing Zone

Create a Super Brushing Zone at home! Your child can color this door hanger and write his name at the bottom. Cut along the dotted line and place the hanger on the bathroom door.

Happy brushing!



Visit us at www.sesamestreet.org/teeth



APPENDIX F

Children Lesson Plan 2

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum for Kids, Ages 0-5 Years*

Lesson Plan: Lesson 2: *The Dentist is my Pal: Help Kids Become Comfortable*

Learning Objectives: 1. Students will be able to recognize that dentists play a crucial role in maintaining healthy teeth.
2. Students will learn about the dentist and why it is important to have their mouths checked every 6 months (at least once a year).

Behavior Change Objective: 1. Students will feel more comfortable with their first visit and routine dental visit through practice.

Total Time: 30-45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> • Introduce the topic of the lecture: The Dentist is my Pal • Ask students of the way they keep their teeth clean and healthy; tooth brushing, flossing, eating healthy, dental check up • Ask the students how they feel when their teeth are fresh and clean; Good, happy.. • Ask students if they know what dentist do; Introduce the dentist as a friendly doctor that helps take care of their teeth to keep them strong and healthy 	
Learning Activities: 45 minutes	<ul style="list-style-type: none"> • Show Chapter 4 & 5 of the Sesame Street DVD-At the dentist • Discuss the interesting things observed in the video; the dental office, dentist and children getting a dental check-up. • Explain to the students the usual steps taken at the dental office using “Visiting the Dentist 1-2-3” handout. First, you sit on a big chair, have pictures taken of your teeth, and secondly, your teeth are tickled and checked with a special brush. • Distribute The ADA “Visiting the Dentist” coloring sheet. 	<ul style="list-style-type: none"> • Sesame Street DVD, Chapter 4 & 5- At the dentist (~3 minutes) • “Visiting the Dentist 1-2-3” handout

	<ul style="list-style-type: none"> • Ask the students if they have been to the dentist before. For those that have, ask if they would like to share what they like about visiting the dentist. • Role Play; carry out the roles of the dentist, dental nurse, patient and receptionist. Use classroom tables and chairs to set up the waiting room and dentist office. • Reiterate why it is important to go to the dentist; dentists fix teeth, and stop cavities from growing bigger. • Explain when and how often children must go to the dentist to maintain healthy, strong teeth- twice a year, every 6 months. 	<ul style="list-style-type: none"> • “Visiting the Dentist” color activity sheet
Summary Closure: 5 minutes	<ul style="list-style-type: none"> • Summarize the role of the dentist, and of what going to the dentist consists of. • Let the children know that they are teachers and they too can teach their parents, siblings and friends. Encourage them to take the good habits from child-care to home. • Remind children to use the ADA Oral Care Calendar handout at home. 	<ul style="list-style-type: none"> • ADA Oral Care Calendar-Handout
Student assessment: 5 minutes	<ul style="list-style-type: none"> • Ask the participants to share one thing that they have learned from the lesson. 	

*Choose the method that will work best for you and the students: a visit to the dentist or inviting the local pediatric dentist to talk to the children on oral health, are both comparable activities to this lesson plan.

Visiting the Dentist



1



The first step of your dental visit you sit in a big, comfortable chair, and have pictures (x-rays) taken of your teeth.

2



During your checkup, your dentist will look at your teeth and gums to check for any problems. The dentist also wants to make sure your teeth are developing properly as you grow.

3



At the end of the dental check up, your teeth are sparkling clean and polished!
Healthy teeth mean happy kids!

Visiting the Dentist



APPENDIX I



Oral Care Calendar

Put a happy face in the box when you brush twice each day.



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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APPENDIX J

Children Lesson Plan 3

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum for Kids, Ages 0-5 Years*

Lesson Plan: Lesson 3: *Keeping Teeth Bright and Healthy: Foods for Healthy Teeth*

- Learning Objectives:**
1. Students will be able to recognize anytime and sometimes foods.
 2. Students will understand how they can keep their mouths healthy by what they eat.
 3. Students will be able to identify what foods are best for their overall oral health

Behavior Change Objective: 1. Students will increase their knowledge on healthy eating habits by applying what they learned at home.

Total Time: 30-45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> • Introduce the topic of the lecture: Keeping Teeth Bright and Healthy; Foods for Healthy Teeth • Ask the students if they know of any healthy foods for their teeth? • Ask the students if they have had a vegetable or fruit today? 	
Learning Activities: 45 minutes	<ul style="list-style-type: none"> • Discuss some happy teeth foods/anytime foods and provide examples; fruits, veggies, cheese, yogurt and grains. • Explain to students that anytime foods are also the foods that provide the most energy needed to play, learn and grow. Explain/demonstrate how a person feels after eating a healthy meals vs. a heavy meal. • Discuss some sad teeth foods (high sugar foods)/ sometimes foods, such as: lollipops, hard candies, mints, cookies, cakes, pies, breads, muffins, potato chips, French fries and soft drinks. • Pass out “Good for Teeth” handout. After the students are finished with the activity, ask them why they think some of these foods are good for teeth. 	<ul style="list-style-type: none"> • Demonstrate these foods with plastic food models and my plate. • Activity “Good for Teeth” handout

	<ul style="list-style-type: none"> • Ask the students what their favorite drink is? Discuss good beverage choices, such as water and milk. Explain how our body is made up of mostly water and of the need to replenish our bodies. • Distribute the “Rethink your Drink”- explain why too much sugar is harmful to our body and specifically our teeth. • Hand out “Help out the Otter” handout • Explain how “sometimes foods” give cavities- The longer foods or beverages high in sugar are present in the mouth with bacteria the longer the teeth are exposed to acid which creates a hole (ouchy!) in the tooth. • Explain how “anytime foods” prevent cavities-because most of these foods are crunchy they help scrub teeth and make them stronger. • Summarize the lecture by asking the students to share their collage. Allow the students to describe each collage (anytime foods and sometimes foods). 	<ul style="list-style-type: none"> • “Rethink your Drink” handout • Activity: “Help the Otter” If available put the exact tsp of sugar in an empty clear soda bottle. • Collage Activity: Cut pictures of a variety of foods from a magazine and make two collages as follows: anytime foods and sometimes foods.
Summary Closure: 5 minutes	<ul style="list-style-type: none"> • Reiterate choosing nutritious foods helps promote good oral health and brushing their teeth every morning and night helps prevent sometimes foods from sticking directly to teeth, and from causing a cavity (hole). • Remind the children to share what they learned with their parents, siblings and friends, as they, too, are teachers. 	
Student assessment: 5 minutes	<ul style="list-style-type: none"> • Ask the students if they are tracking the times they brush their teeth on the oral health calendar. • Ask the students what they have learned from today’s lecture and what they will share with their parents and siblings. 	

APPENDIX K

Name: _____

Good For Teeth?

Instructions: Draw a circle around the things that help your teeth stay strong and healthy.



"Too much sugar can hurt our teeth, and make us act all crazy. Too much can ruin our energy, and make us tired and lazy."

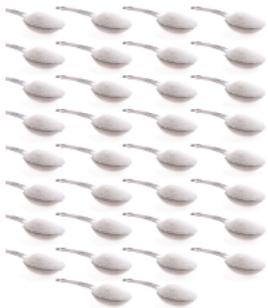
Answer Key: Grapes, Carrot, Glass of Water, Milk, Tooth Brush & Tooth Paste



REthink YOUR Drink

38

teaspoons *of* sugar
Fountain Drink (Pepsi)
44 oz



13

teaspoons *of* sugar
Energy Drink
16 oz



8

teaspoons *of* sugar
Sports Drink
20 oz



12

teaspoons *of* sugar
Orange Soda
12 oz



4

teaspoons *of* sugar
Juice Drink
6 oz



California WIC Program, California Department of Public Health
This is attractive in an equal opportunity provider.

Edmund G. Brown Jr., Governor, State of California
Diana Dockery, Secretary, California Health and Human Services Agency

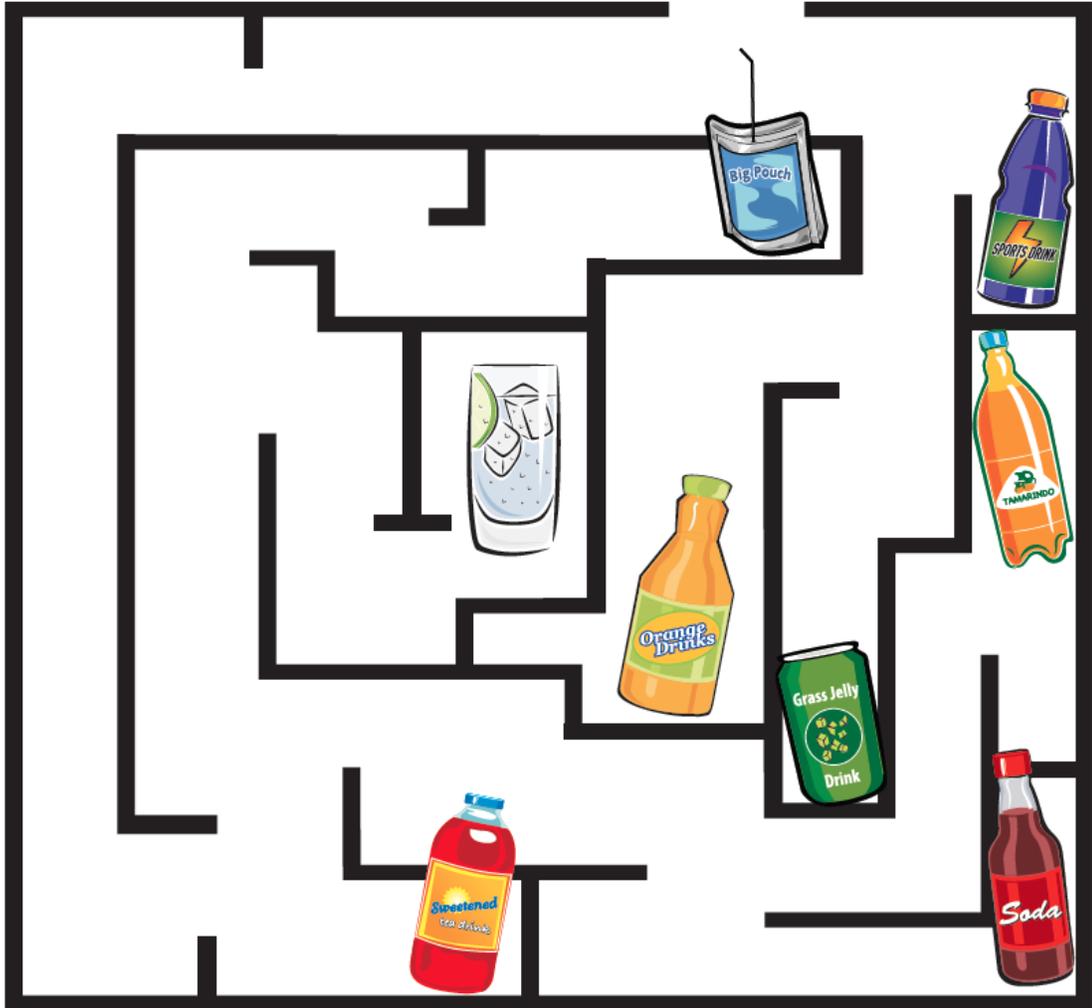


APPENDIX M

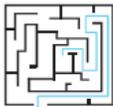
Name: _____

Help the Otter!

Instructions: Can you help the Otter find something good to drink? Draw a line from the Otter to the cool, refreshing glass of water!



“Drink water!” Said the Otter! It’s clean and fresh and cool!
Drink water when you’re thirsty! That’s the Otter Rule!



Answer Key:



Bay Area Nutrition & Physical Activity Collaborative

APPENDIX N

Parents Lesson Plan 1

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum For Parents*

Lesson Plan: Lesson 1: *Keep our Kids Nourished and Cavity Free*

- Learning Objectives:**
1. Participants will understand the impact tooth decay has in preschool children.
 2. Participants will learn the function of teeth and about the importance of healthy teeth.
 3. Participants will learn about cavity formation and on how to prevent cavities.

Behavior Change 1. Participants will increase their knowledge on the importance of healthy teeth by applying what they learned in class at home with their children.

Total Time: 45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> • Introduce the program, purpose and the topic of the first lecture: Keep our Kids Nourished and Cavity Free! • Welcome parents-Ask parents to introduce themselves and tell us their child's name and age and what they hope to get out of the program (If there are more than 10 participants, instead, ask general questions to get to know them better and establish rapport. 	<ul style="list-style-type: none"> • PPT-Lesson 1; computer, projector • Sesame Street "Healthy Teeth, Healthy Me" DVD
Learning Activities: 45 minutes	<ul style="list-style-type: none"> • Say: We are here today because we care about our children's health and well-being. • As the Surgeon General declared: "oral health is essential to the general health and well-being of all Americans". • Explain what is currently occurring; increase of tooth decay in children. Ask participants to suggest some reasons why they think this is a problem. • Discuss topic and explain the chart, "% of Children Who Experience Decay by Age" explain what the numbers mean. • Explain the function of teeth and gums and demonstrate each bullet point; 	<ul style="list-style-type: none"> • Slide 1: "Tooth Decay in Children" • Slide 2: "% of Children Who Experience Decay by Age" • Slide 2 "Why are Healthy Teeth Important"

	<ul style="list-style-type: none"> • Eat, chew, swallow-talk about how we need our teeth to eat an apple. • Speak-both baby and adult teeth are important for helping children to speak properly and form sounds. Ask participants to try pronouncing thirty-three-thirsty-thieves with their lips over their teeth. • Self-esteem- a healthy and bright smile can enhance appearance and increase confidence. Show how teeth are needed to smile. • School readiness-oral health is an integral part of overall health, when a child is not healthy, this affects their ability to learn and develop. • Pass out: All About Baby Teeth Handout. Go over handout. • Show a short clip of the Sesame Street DVD, approximately 2 minutes (this DVD will be provided to all the participants). • Discuss key points of the video- reiterate tiny teeth do big jobs! Ask participants what they think of captain ultra mega smile man. • Ask participants to suggest some of the negative effects of tooth decay. Go over slide 6 in the ppt: • Explain how tooth decay hinders nutritional intake and leads to chronic inflammation, thus, ultimately affects growth. • Explain the graph “Untreated Caries Prevalence by Gender and Age Group” specifically focus on children ages 2-8. • Explain the Venn diagram- how a cavity is formed; sugar in food feed the bacteria growing in plaque, which ultimately creates acid. This acid causes tooth decay and leads to gum disease. Explain tooth anatomy and what each stage means; white spots-early stages, brown spots-advanced progression & black- total decay. Emphasize that children have thinner enamel, thus are prone to developing caries. • Show Video: http://www.youtube.com/watch?v=kBJQE5U8pCg • Explain that caries is preventable- go over slide 12. Provide tips such as; choose a soft bristle toothbrush and encourage family to brush along with the children to make it a fun and a family activity, and limit 	<ul style="list-style-type: none"> • All About Baby Teeth handout • Sesame Street DVD, Chapter 2 (2 minutes) with captain ultra-mega smile man • “Negative Effects of Tooth Decay” slide 6. • “Untreated Caries Prevalence by Gender and Age Group” slide 7 • Cavity formation Venn diagram, Slide 8 &9 • Show Video on how cavities occur in teeth • “What can you Do
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	<p>sugary foods and if you do have them, do so with a meal instead of as a snack, the extra saliva produced during a meal helps rinse food from the mouth. Tooth brushing doesn't actually prevent caries. But it will help protect against cavities or against decay/caries. Provide handout.</p> <ul style="list-style-type: none"> • Explain and Discuss Dr. Price quote "when our bodies are not properly nourished, our teeth are the first part of our body to noticeably be affected". Show the second clip of the Sesame Street video on eating healthy. • Review key Messages 	<p>as a Parent" Slide 12</p> <ul style="list-style-type: none"> • Bright Smiles Bright Futures-Oral Care at Home Handout • "The Enormous Impact Nutrition has on Health" slide 14 • Sesame Street DVD, Chapter 7 (2.5 minutes) • "Key Message" Slide 15
Summary Closure: 5 minutes	<ul style="list-style-type: none"> • Summarize the lesson with the help of the participants by asking them to share something they learned. • Pass out: Your Child's Bright Smile Parent Take Home Handout 	<ul style="list-style-type: none"> • Your Child's Bright Smile -Handout
Student assessment: 5 minutes	<ul style="list-style-type: none"> • Ask the participants what is one thing they will do/change after today's lecture (allow enough time for most of the class to participate) 	

APPENDIX O

Parents Lesson Plan 1 PPT

Keep our Kids Nourished and Cavity Free



Luisa Sabogal, R.D.
CSUN graduate student

Today's Topics

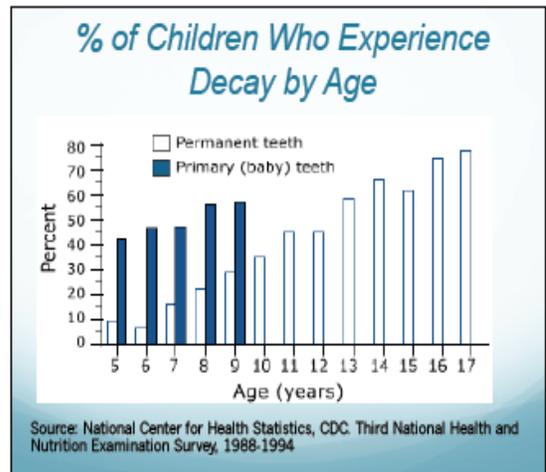
- **Tooth decay in preschool children**
 - Impact on children
- **The importance of healthy teeth**
 - The function of teeth
- **Tooth decay**
 - How cavities are formed
- **How to prevent cavities**
 - Diet & Oral Hygiene



Tooth Decay in Children



- As the Surgeon General declared: "oral health is essential to the general health and well-being of all Americans". (DHHS, 2000)
- One important emerging oral health issue is the increase of tooth decay in preschool children (CDC).
- Tooth Decay is the most common chronic infectious disease of childhood.
- Currently 37% of children entering kindergarden have already been affected by tooth decay.



Why are Healthy Teeth and Gums Important?

Oral health is essential to overall health:

- To eat; chew, swallow, taste..
- To speak
- For facial expressions
- Self-esteem
- School readiness



* Healthy Teeth, Healthy Me Video with Captain Ultra Mega Smile Man

Negative Effects of Tooth Decay

Untreated decay affects a child's:

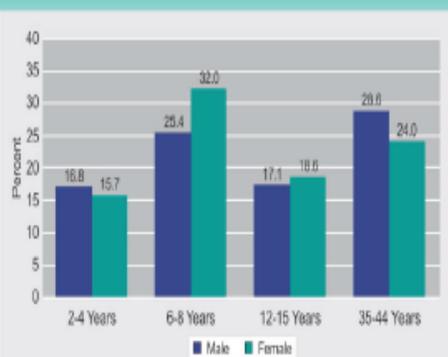
- Nutritional intake, hinders the intake of important nutrients leading to poor growth, and low body weight.
- Quality of life; school absence, sleep patterns, speech, smile less, reduce play time with other children.

Oral diseases share risk factors with other chronic diseases and conditions

- Heart disease, cancer, strokes, diabetes, and obesity
- Childhood obesity; increased risk for obesity and dental caries in children from the consumption of soft drinks (2004, American Academy of Pediatrics)

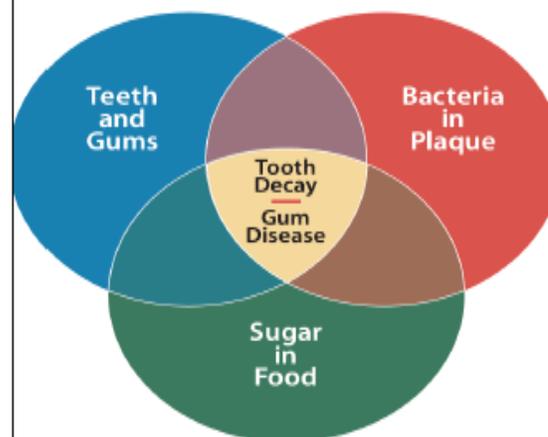


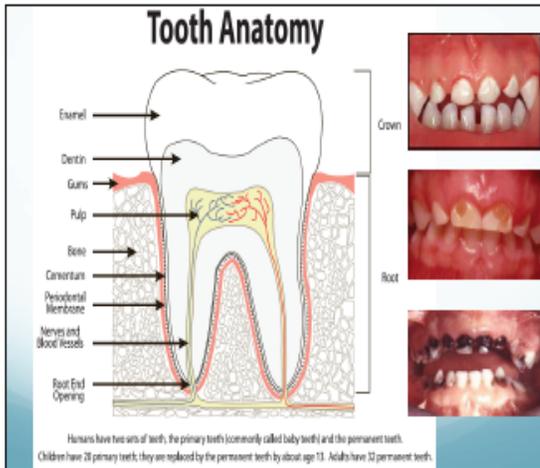
Untreated caries prevalence by gender and age group



Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

Cavity Formation Venn Diagram





How Cavities Occur in Teeth

- <http://www.youtube.com/watch?v=kBJQE5U8pCg>

Dental Disease is Preventable

- During the preschool years, your child is learning oral health habits that can help his/her smile last a LIFETIME!
- As a parent, you are the best role model for brushing and helping your child understand how to take care of his/her teeth.

What Can you Do as a Parent

Be a role model for healthy teeth and gums:

1. Brush your child's teeth thoroughly with toothpaste twice a day, especially after eating breakfast and before bedtime.
2. Encourage healthy nutrition options-Limit the number of times your child eats snacks per day
3. Eat a well-balanced meal that limits starchy, sugary foods
4. Visit a Pediatric or general dentist twice a year

Build habits for a lifetime!

How to Brush your Child's Teeth

Top Toothbrushing Tips to share with kids

- **Brush away plaque!** Brush all surfaces of the teeth: top, bottom, front, back, inside and outside. Make sure to brush the tongue, too!
- **Take care of your baby teeth.** They save space for permanent teeth and help them come in straight. Brushing them thoroughly is important!
- **Brush wa-a-ay in the back.** Make sure to reach all of your teeth, including those at the very back. This is where the six-year-molars will come in – your first adult tooth!



The Enormous Impact Nutrition has on Dental Health

- "When our bodies are not properly nourished, our teeth are the first part of our body to noticeably be affected" Dr. Weston A. Price
- Nutrition in infancy and early childhood is the foundation in the development of life-long health.
- Choosing healthy foods helps to develop, grow and protect your child's teeth.
- Some sweets do more damage than others:
 - Goey, gummy candy, chewy sweets..

My message to you...

- The information covered indicates that treating dental caries in pre-school children would increase growth rates and the quality of life of children.



- Let's intervene early to reduce the incidence of dental decay.
- Let's create healthy dietary practices from the beginning, as opposed to trying to modify unhealthy ones later

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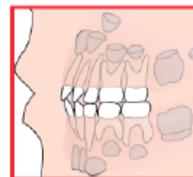
All About Baby Teeth

By the time they are in preschool, most children will have 20 baby (primary) teeth — ten teeth on the top, and ten on the bottom. Monitor the care of your child's baby teeth to set your child on the path of good oral health for a lifetime!

Why Baby Teeth Are Important

Even though baby teeth will be replaced by permanent teeth they are a very important part of your child's healthy development. Baby teeth:

- Save space** for permanent teeth, helping them grow in healthy and straight, allowing them to move directly into the space being saved by the primary teeth!
- Help children **form sounds and words**. If a child loses baby teeth prematurely to dental disease or trauma, speech could be affected.
- Round out the shape** of the face. This helps your child smile and promotes positive **self-esteem**.



Talk to your child about how terrific and proud a bright, healthy smile can make a person feel!

About Early Childhood Cavities

There is a dental disease called Early Childhood Caries (Cavities) that can affect young children. It is caused when sugary liquid surrounds the teeth too often.

- Early Childhood Caries can lead to pain and severe cavities in a child's baby teeth. However, the good news is that these cavities are **preventable**.
- Don't let your child drink sugary liquids or eat sweets continuously throughout the day. Instead, encourage your child to drink plain water and limit the number of times he/she eats snacks.

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Good oral health is as important for baby teeth as it is for permanent teeth! By helping your child learn to take care of his/her teeth now, you can help make sure your child has a healthy smile that lasts a lifetime.

- As your child grows, there are easy actions you can take at home every day to help protect your child's teeth and gums.
- Oral health is a key element of your child's overall health. Read on for need-to-know information to help keep your child's teeth safe and healthy for years to come!



Be a Role Model

As a parent, YOU are your child's best teacher! Your positive approach can put your child on a path toward a bright smile for a lifetime.



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Oral Care at Home

One of the most important facts about cavities is that they are **preventable**. You can protect your child's teeth and fight cavities every day!

Toothbrushing is Important

- Brush your child's teeth thoroughly with fluoride toothpaste at least twice a day.
 - After eating breakfast
 - Before bedtime
 - After taking sweet liquid medicines, as many contain sugar
- Use a pea-sized amount of toothpaste, and make sure that your child spits it out (and does not swallow it).
- Change your child's toothbrush every 3 months, or when it becomes "shaggy."



Flossing Your Child's Teeth

- It's important to floss your child's teeth daily once the baby teeth are touching each other.
- Flossing removes the "plaque" from between teeth that brushing may miss.



APPENDIX S

Parents Lesson Plan 2

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum For Parents*

Lesson Plan: Lesson 2: *The Dentist is my Pal*

Learning Objectives: 1. Participants will be able to recognize that dentists play a crucial role in maintaining healthy teeth and in having a dental home.
2. Participants will learn how to prevent caries; have dental check ups every 6 months (at least once a year) and maintain good daily dental hygiene.

Behavior Change: 1. Participants will feel more comfortable with a routine dental visit by learning the importance a dentist.

Total Time: 30-45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> Welcome back participants to “Let’s keep our Kids Nourished and Cavity Free!” Program. Before starting class ask participants to share one thing that they applied in the past week from lesson 1, and whether it was easy or difficult. Introduce the topic of the lecture: The Dentist is my Pal Ask participants at what age they think their child should see a dentist. 	<ul style="list-style-type: none"> Set-up PPT-Lesson 2; computer, projector Sesame Street “Healthy Teeth, Healthy Me” DVD
Learning Activities: 45 minutes	<ul style="list-style-type: none"> Discuss the American dental association (ADA) and American (AAPD) recommend a dental check-up within 6 months of when a child’s tooth first erupts, but no later than a child’s 1st birthday. Explain what a dental home is and why it’s important for children to have one. Explain the bar graph; the lack of children with a dental home among children in California- 17% of the kindergarten children screened had never been to a dentist; and a surprising 5.5% of the 3rd grade children had never been to a dentist Demonstrate to participants how to explain to their children that dentists help take care of their teeth to keep them strong and healthy. 	<ul style="list-style-type: none"> Slide 3: 1st Dental Visit Slide 4: Dental home Slide 5: 17% of children had never been to the dentist. Slide 6: Tips to Help Kids Overcome Fear

	<p>The earlier a child visits the dentist, the better- start at age 1 or when the first tooth is visible as it will make it easier for you and the dentist.</p> <ul style="list-style-type: none"> • Play Sesame Street video, Chapter 4 & 5 “at the Dentist” • Discuss the video and how to explain to children the process; the usual steps taken at the dental office; First, you sit on a big chair, have pictures taken of your teeth, and secondly, your teeth are tickled and checked with a special brush. • Discuss Dental Hygiene Tips, remind participants to let their children pick their supplies. A colorful toothbrush may make all the difference in persuading your child to brush her/his teeth. • Acid softens our enamel such that if we brush right away we can actually brush away some of our teeth. • Ask the participants if they have been to the dentist before. For those that have, ask if they would like to share what their child likes about visiting the dentist. • Discuss proper use of fluoride and remind participants to the use of toothpaste anytime before 2 years of age should be consulted with a physician or dentist. • Reiterate why it is important to have a dental home. • Explain when and how often children must go to the dentist to maintain healthy, strong teeth. 	<p>of the Dentist.</p> <ul style="list-style-type: none"> • Sesame Street DVD, Chapter 4 & 5- At the dentist (~ 3 minutes) • Slide 8: Dental Hygiene Tips • Slide 9: Proper use of fluoride.
<p>Summary Closure: 5 minutes</p>	<ul style="list-style-type: none"> • Summarize the importance of a dental home-the need to acclimate your children to the dentist at an early age, and the need prevent and treat if necessary. • Encourage participants to make an appointment with a pediatric dentist if they don't already have one, and to develop good habits for their children from a young age. • Pass out: Visiting the Dentist • Distribute the Elmo's Teeth Chart calendar so that participants and their children can use them at home. 	<ul style="list-style-type: none"> • Sesame Street DVD contains a calendar • Pass out: Visiting the Dentist

Student assessment: 5 minutes	<ul style="list-style-type: none"> Ask the participants what they have learned from today's lecture (allow enough time for most of the class to participate) 	
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**Choose the method that will work best for you and the students: a visit to the dentist or inviting the local pediatric dentist to talk to the children on oral health, are both comparable activities to this lesson plan.*

APPENDIX T

Parents Lesson Plan 2 PPT

The Dentist is my Pal



Luisa Sabogal, R.D.
CSUN graduate student

Today's Topics



- **First Dental Visit**
 - Dental Home
- **How to Introduce the Dentist to your Child**
 - "Sesame Street DVD" Chapter 4 & 5
- **Dental Hygiene Tips**
 - Fluoride
- **The role of a Pediatric dentist**
 - Presented by Dr. Yee

1st Dental Visit



- 1 in four children in California have never seen the dentist.
- Many California children are strangers to the dentist's chair.
- The ADA and AAPD recommend a dental check-up within 6 months of when a child's tooth first erupts, but no later than a child's 1st birthday.

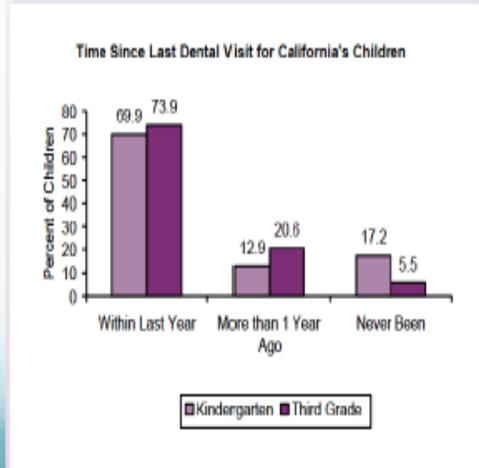


Dental Home



- Taking your child to the dentist twice a year is necessary
 - Keeps teeth healthy and promotes excellent oral hygiene habits
- Ideally, every child should have a dental home
 - **Dental Home:** having a dentist that provides comprehensive oral health care, individualized preventative programs, and helps the mother or father understand issues of growth and development.

17% of Kindergarten Children had Never been to a Dentist



Tips to Help Kids Overcome Fear of the Dentist



1. Introduce the dentist as a friendly doctor
2. Start young
 1. Keep it simple- Don't use words like, shot, hurt or pain. Use phrases like "strong, healthy teeth"
3. Role play- or watch the "Healthy Teeth, Healthy Me" Video
4. Avoid bribery- This will increase apprehension and send the wrong message.

Healthy Teeth. Healthy Me



Dental Hygiene Tips



- Let your toddler pick the supplies.
 - Take a spin: your toddler might enjoy the novelty of brushing with a battery-powered toothbrush.
 - Choose toothbrushes with soft bristles
 - Replace your child's toothbrush when the bristles on the brush become worn or every 2 to 3 months.
 - Do not share your toothbrush.
- Start using floss on your child's teeth as soon as any two teeth touch.
- Remember to mouthwash with water after eating acidic foods.
 - Never brush right after having a sour fruit. Wait about 30 minutes.

Proper Use of Fluoride



- Too much or too little fluoride can negatively impact a child's oral health
- Fluoride works great for prevention of tooth decay.
 - 1. reduces solubility of enamel in acid, 2. reduces plaque organisms to act on the enamel, 3. Promotes the re-mineralization of tooth enamel that have been demineralized by acids.
- Fluoride of varying amounts can be found in: formula, bottled or filtered water and dental products.
- According to the ADA, toothpaste should not be use before 2 years of age
 - About the size of a fingernail on a child's little finger is sufficient.

Special Visit

Dr. X will cover: (optional-only use if dentist can come by)

- Difference between a general and a pediatric dentist
- The role of a pediatric dentist
- What to expect at the dentist office & much more.



Take Home Message

- Acclimate your child to the dental office at an early age.
- Treatment is good. Prevention is better. Early prevention is best.
- Thank you!



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Visiting the Dentist

Regular dental checkups are a critical part of oral health. The dentist is your child's lifelong partner in oral health. Do not wait until your child is in pain! Instead, visit the dentist regularly to prevent problems.

At the Dental Visit

The dentist and dental hygienist will check your child's gums and teeth and answer any questions. They may:

- Clean and polish the teeth.
- Apply fluoride treatments (put gel or varnish on teeth).
- Take x-rays of teeth or jaw if necessary.
- Floss the teeth once your child's baby teeth are touching each other.
- Provide health education for you and your child.

Dental Visit Checklist

- Talk to your dentist about **fluoride** – especially if your water is not fluoridated. If your child does not drink fluoridated water, the dentist may prescribe fluoride drops.
- Ask about the use of “**antimicrobials**” for your child. These can help prevent tooth decay and may be recommended for some children.
- If your child sucks his/her thumb, ask about strategies to wean your child of this habit.
- Explore dental sealants for your child's 6-year-molars once they come in.



Be sure that *you* visit the dentist regularly, too, and *never* let your child hear you express a fear of the dentist. Instead, let your child know that the dentist is a “partner” in oral health. Consider a fun family tradition to follow after regular checkups — such as an outing to the park or the movies!

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APPENDIX V

Parents Lesson Plan 3

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum For Parents*

Lesson Plan: Lesson 3: *Foods for Bright Teeth and a Healthy Smile*

- Learning Objectives:**
1. Participants will be able to understand that good nutrition is essential at an early age, as it helps children grow properly and have good overall health
 2. Participants will learn to choose foods and drinks that are tooth-friendly
 3. Participants will learn to substitute sugary food and drinks for healthier snack options

Behavior Change 1. Participants will feel more comfortable substituting empty calorie foods for nutritious foods.

Total Time: 30-45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> • Welcome back participants to “Let’s keep our Kids Nourished and Cavity Free!” Program. Before starting class ask participants to share one thing that they applied in the past week from lesson 2, and whether it was easy or difficult. • Introduce the topic of the lecture: Foods for Bright Teeth and a Healthy Smile. 	<ul style="list-style-type: none"> • PPT-Lesson 3; computer, projector • Sesame Street “Healthy Teeth, Healthy Me” DVD
Learning Activities: 45 minutes	<ul style="list-style-type: none"> • Explain the importance of a good diet during the first year of a child’s life, how it plays an important role in their health and development. • Discuss grow spurts- the need for calcium, protein and nutrient rich foods. • Explain that just like good nutrition is needed for the rest of the body, the teeth, bones and the soft tissues of the mouth need a well-balanced diet as well. • Discuss what is happening today: 6% of 8-year-olds consume soft drinks. Explain how high levels of soda and other energy-dense foods (highly processed foods) have shown to: Reduce salivary flow (due to the caffeine present in soda), and how it makes children vulnerable to 	<ul style="list-style-type: none"> • Slide 3: Children’s Nutrition • Slide 4: Children’s Nutrition Today

	<p>protein deficient malnutrition- malnutrition due to inadequate protein intake. As children get full of empty calorie foods with little to no nutrition, and miss out from appropriate nutrition. Provide examples of empty calorie foods.</p> <ul style="list-style-type: none"> • Ask participants to share some healthier drink options or what they currently provide their children. • Discuss <i>Re-think your Drink!</i> Slide. Ask parents if they are surprised to see the amount of sugar present in each drink. Let them know that this is one of the reasons we need to be informed and be careful with such drinks. • Explain slide 6-how many calories we are supposed to have in a day and why soda fills us up (It's 280 calories and mostly sugar!). Then, ask how many calories are in water. • Discuss processed foods that need to be limited. Explain how saliva and drinking water washes away sugar present on the teeth and that's why it is recommended after having sugary treats. • Pass out: Cut back on your kids's sweet treats. Go over handout • Ask participants if they are comfortable reading food labels. For practicality, focus on the ingredient list and how products high in sugar will be within the first 3 ingredients. This will help as harmful sugars hidden in food and drinks are not easy to identify. • Discuss healthier snack options. Ask participants some of their favorite snacks. Provide healthier alternatives if not available on the slide. • Ask parents if they have picky eaters at home. And if they know how many times a new food needs to be tried before knowing whether you like it. 20 times. Show video: http://www.healthychildren.org/English/healthy-living/nutrition/Pages/Picky-Eaters.aspx • Encourage participant to have a bowl of fruit on the center table and 	<ul style="list-style-type: none"> • Slide 5&6: Re-think your drink • Slide 7: limit processed foods. • Pass out: Cut back on your Kids's Sweet Treats-handout • Slide 8: Read Food Labels. • Slide 9: Healthier Snack Options • Slide 10: Picky Eaters.
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Summary Closure: 5 minutes	<ul style="list-style-type: none"> • Summarize the nutrition lesson by emphasizing key points from the “Take Home Message” slide. • Pass out: Healthy Eating for Preschoolers. Go over handout. 	<ul style="list-style-type: none"> • Slide 20: Take Home Message • Pass out: Healthy Eating for Preschoolers
Student assessment: 5 minutes	<ul style="list-style-type: none"> • Ask the participants what they have learned from today’s lecture and if they have any questions (allow enough time for most of the class to participate) 	

APPENDIX W

Parents Lesson Plan 3 PPT

Foods for Bright Teeth and a Healthy Smile



Luisa Sabogal, R.D.
CSUN graduate student

Today's Topics



- Children's Nutrition
- Children's Nutrition Today
- Rethink your Drink & Processed Foods
- Healthy Eating for Preschoolers
- What is a well-balanced Diet?
 - Vegetables, fruits, grains, dairy, protein
- Family Dinner



Children's Nutrition

- During the first years of your child's life, diet plays an important role in their health and development.
- Toddlers and preschoolers grow in spurts and their appetites come and go in spurts.
 - There is a need to offer healthful selection, so that they will obtain what they need
- Good diet is essential for a child's growth and development
 - Like the rest of the body, the teeth, bones and the soft tissues of the mouth need a well-balanced diet.

Children's Nutrition Today

- 56% of 8-year-olds consume soft drinks
- High levels of soda and other energy-dense foods have shown to:
 - Reduce saliva
 - Children may be missing valuable nutrients if their energy intake is made up of high carbohydrate, and highly processed foods.

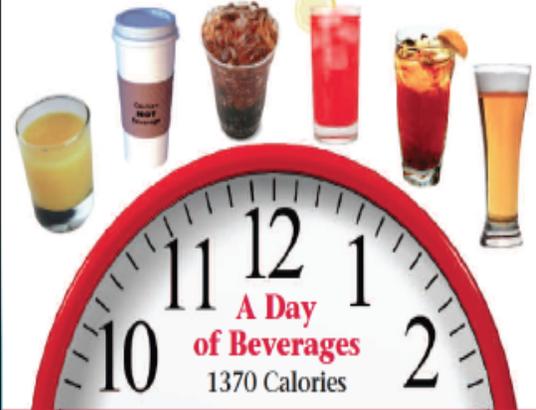


Rethink your Drink

- Diet coke takes the title for softening teeth the quickest.
- There is a link between the consumption of Sugar sweetened beverages and obesity.



110 calories:	400 calories:	280 calories:	230 calories:	200 calories:	150 calories:
orange juice (8 oz.)	mocha (medium)	regular cola (20 oz.)	fruit drink (16 oz.)	sweet tea (16 oz.)	beer (12 oz.)

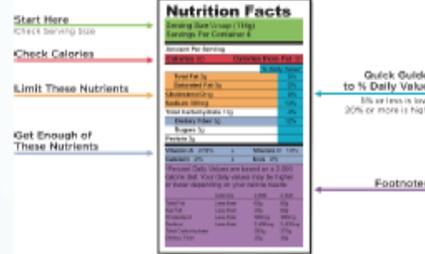


Limit Processed Foods

- Avoid/limit these foods
 - Cookies, sweet rolls, dried figs, granola bars, jelly beans, doughnuts, potato chips, pretzels and raisins.
- Limit the fruit juice to 4 oz per day
- Serve sugary or starchy foods with a meal rather than as a snack
 - Drinking fluids and saliva



Read Food Labels



Avoid products where sugar is in the top 3 ingredients.

- Sugar has many names like refined sugar, fructose, corn syrup, nutritive sweetener, sucrose, lactose, honey, natural sweetener, glucose, dextrose, molasses or malt.

Healthier Snack Options:



- Unsweetened cereals
- Unbuttered popcorn
- Baked tortilla chips
- Low salt pretzels
- Plain crackers

Healthy Eating for Preschoolers

- Offer a variety of healthy foods
 - Be patient, new foods take time.
- Picky eaters
 - <http://www.healthychildren.org/English/healthy-living/nutrition/Pages/Picky-Eaters.aspx>



What is a Well Balanced Diet?

- Eat the five major groups:
 - Vegetables
 - Fruits
 - Breads, cereals and other grain products
 - Milk, cheese and yogurt
 - Meat, poultry, fish and alternates
 - Beans peas, eggs and nuts



Vegetables

- Foods rich in calcium, Vitamin C and Vitamin D helps teeth and gums to grow and stay healthy.
 - Vegetables and fruits
- Celery, carrots, turnips, broccoli, cauliflower and green peppers, cherry tomatoes..
 - low on calories, even large portions will not exceed calories





Fruits

- Foods rich in calcium, Vitamin C and Vitamin D helps teeth and gums to grow and stay healthy.
- Choose fruits from different color groups
 - Red, blue/purple, orange/yellow, green and white
 - Fruits such as apples, oranges, pears, bananas, cantaloupe, pineapple, kiwi fruit, strawberries, mangos and peaches

Breads

- Aim for whole grains; breads, rice, tortillas, pasta
- Crunchy foods such as toast, crackers, and dry cereal with no sugar added



LOOK FOR THE FOLLOWING...

CEREAL

- 200 or fewer calories per serving
- 6 or fewer grams of sugar per serving
- At least 3 grams dietary fiber per serving

BAR

- 200 or fewer calories per bar
- 5 or fewer grams of sugar per 100 calories
- At least 3 grams dietary fiber per bar



Protein/Meat

- Aim for less saturated protein
- Adequate consumption of protein rich foods (meat, beans, dairy products) is very important
 - Rich in minerals like iron and zinc



Dairy

- Aim for low-fat dairy products
- Low-fat milk, soymilk, yogurt fruit flavored, cheese and rice or almond milk.
 - Protein rich, excellent sources of calcium. Great snack options.



Healthy, on-the-Go Snacks

Vegetables: Choose prepackaged, pre-cut vegetables	Grains: Choose high-fiber unsweetened cereal, whole grain bagels, whole wheat bread, rice cakes, Whole grain crackers, and baked chips	CARROTS VS. REGULAR CHIPS 
Fruit: Choose fresh fruit, and frozen fruit.	Protein: Choose bean dip, chickpea spread (hummus), peanut butter (any nut butter).	GRAPES VS. HONEY BUN 
Dairy: Choose low-fat milk, low-fat yogurt, low-fat cottage cheese, string cheese, low-fat pudding		APPLE VS. CANDY BAR 
		MILK VS. SHERBET 
		CHEESE VS. PREZZI 

Per snack: Combine a carbohydrate, protein and fat
Remember to plan ahead!



Family Dinner

- Research shows that when younger kids frequently eat dinner with their families, they are less likely to be overweight.
 - When families dine together, they tend to eat more vegetables and fruits – fewer fried foods, soda, and foods with trans fats.
 - Have better school grades, and are more likely to stay away from drugs.

Family meals are for nourishment, comfort, and support!

Family Dinner



- Cook together
- Eat together
- Talk together

Take Home Message

Focus on how each meal can nourish your children rather than just simply fill their stomach to alleviate hunger.

- Drink more water and milk
- Eat balanced meals
- Make meal time family time



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10 tips
Nutrition
Education Series

cut back on your kid's sweet treats



10 tips to decrease added sugars

Limit the amount of foods and beverages with added sugars your kids eat and drink. If you don't buy them, your kids won't get them very often. Sweet treats and sugary drinks have a lot of calories but few nutrients. Most added sugars come from sodas, sports drinks, energy drinks, juice drinks, cakes, cookies, ice cream, candy, and other desserts.

1 serve small portions
It's not necessary to get rid of all sweets and desserts. Show kids that a small amount of treats can go a long way. Use smaller bowls and plates for these foods. Have them share a candy bar or split a large cupcake.

2 sip smarter
Soda and other sweet drinks contain a lot of sugar and are high in calories. Offer water, 100% juice, or fat-free milk when kids are thirsty.



3 use the check-out lane that does not display candy
Most grocery stores will have a candy-free check-out lane to help moms out. Waiting in a store line makes it easy for children to ask for the candy that is right in front of their faces to tempt them.

4 choose not to offer sweets as rewards
By offering food as a reward for good behavior, children learn to think that some foods are better than other foods. Reward your child with kind words and comforting hugs, or give them non-food items, like stickers, to make them feel special.

5 make fruit the everyday dessert
Serve baked apples, pears, or enjoy a fruit salad. Or, serve yummy frozen juice bars (100% juice) instead of high-calorie desserts.



6 make food fun
Sugary foods that are marketed to kids are advertised as "fun foods." Make nutritious foods fun by preparing them with your child's help and being creative together. Create a smiley face with sliced bananas and raisins. Cut fruit into fun and easy shapes with cookie cutters.

7 encourage kids to invent new snacks
Make your own snack mixes from dry whole-grain cereal, dried fruit, and unsalted nuts or seeds. Provide the ingredients and allow kids to choose what they want in their "new" snack.



8 play detective in the cereal aisle
Show kids how to find the amount of total sugars in various cereals. Challenge them to compare cereals they like and select the one with the lowest amount of sugar.

9 make treats "treats," not everyday foods
Treats are great once in a while. Just don't make treat foods an everyday thing. Limit sweet treats to special occasions.

10 if kids don't eat their meal, they don't need sweet "extras"
Keep in mind that candy or cookies should not replace foods that are not eaten at meal time.

**10
tips**
Nutrition
Education Series

kid-friendly veggies and fruits



10 tips for making healthy foods more fun for children

Encourage children to eat vegetables and fruits by making it fun. Provide healthy ingredients and let kids help with preparation, based on their age and skills. Kids may try foods they avoided in the past if they helped make them.

1 smoothie creations

Blend fat-free or low-fat yogurt or milk with fruit pieces and crushed ice. Use fresh, frozen, canned, and even overripe fruits. Try bananas, berries, peaches, and/or pineapple. If you freeze the fruit first, you can even skip the ice!



2 delicious dippers

Kids love to dip their foods. Whip up a quick dip for veggies with yogurt and seasonings such as herbs or garlic. Serve with raw vegetables like broccoli, carrots, or cauliflower. Fruit chunks go great with a yogurt and cinnamon or vanilla dip.



3 caterpillar kabobs

Assemble chunks of melon, apple, orange, and pear on skewers for a fruity kabob. For a raw veggie version, use vegetables like zucchini, cucumber, squash, sweet peppers, or tomatoes.

4 personalized pizzas

Set up a pizza-making station in the kitchen. Use whole-wheat English muffins, bagels, or pita bread as the crust. Have tomato sauce, low-fat cheese, and cut-up vegetables or fruits for toppings. Let kids choose their own favorites. Then pop the pizzas into the oven to warm.

5 fruity peanut butterfly

Start with carrot sticks or celery for the body. Attach wings made of thinly sliced apples with peanut butter and decorate with halved grapes or dried fruit.

6 frosty fruits

Frozen treats are bound to be popular in the warm months. Just put fresh fruits such as melon chunks in the freezer (rinse first). Make "popsicles" by inserting sticks into peeled bananas and freezing.

7 bugs on a log

Use celery, cucumber, or carrot sticks as the log and add peanut butter. Top with dried fruit such as raisins, cranberries, or cherries, depending on what bugs you want!

8 homemade trail mix

Skip the pre-made trail mix and make your own. Use your favorite nuts and dried fruits, such as unsalted peanuts, cashews, walnuts, or sunflower seeds mixed with dried apples, pineapple, cherries, apricots, or raisins. Add whole-grain cereals to the mix, too.



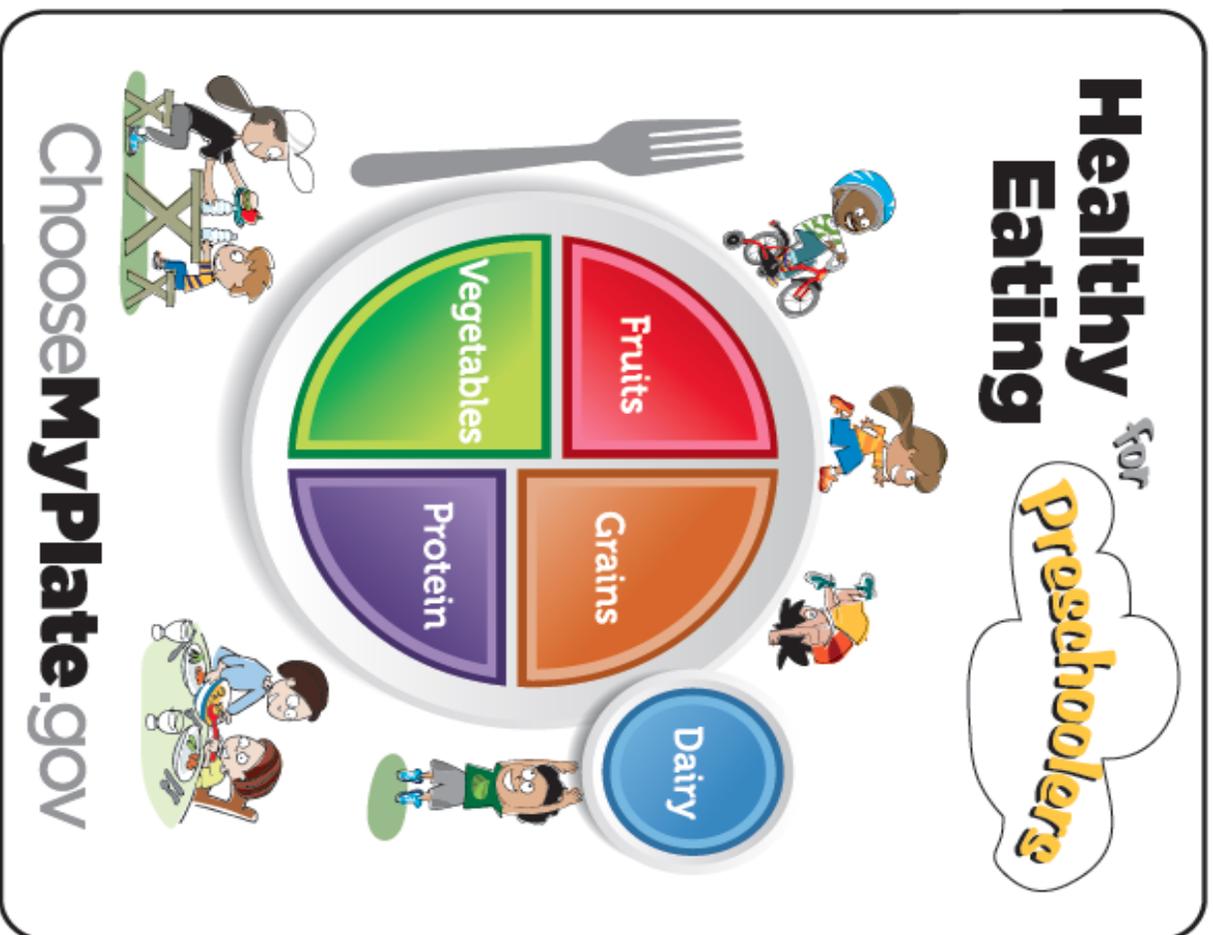
9 potato person

Decorate half a baked potato. Use sliced cherry tomatoes, peas, and low-fat cheese on the potato to make a funny face.

10 put kids in charge

Ask your child to name new veggie or fruit creations. Let them arrange raw veggies or fruits into a fun shape or design.





Get your child on the path to healthy eating.



Focus on the meal and each other.

Your child learns by watching you. Children are likely to copy your table manners, your likes and dislikes, and your willingness to try new foods.

Offer a variety of healthy foods.

Let your child choose how much to eat. Children are more likely to enjoy a food when eating it is their own choice.

Be patient with your child.

Sometimes new foods take time. Give children a taste at first and be patient with them. Offer new foods many times.

Let your children serve themselves.

Teach your children to take small amounts at first. Let them know they can get more if they are still hungry.

Cook together.

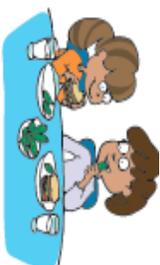
Eat together.

Talk together.

Make meal time family time.



Healthy ^{for} Preschoolers Daily Food Plan



Use this Plan as a general guide.

● These food plans are based on average needs. Do not be concerned if your child does not eat the exact amounts suggested. Your child may need more or less than average. For example, Food needs increase during growth spurts.

● Children's appetites vary from day to day. Some days they may eat less than these amounts; other days they may want more. Offer these amounts and let your child decide how much to eat.

Food group	2 year olds	3 year olds	4 and 5 year olds	What counts as:
Fruits 	1 cup	1 - 1½ cups	1 - 1½ cups	½ cup of fruit? ½ cup mashed, sliced, or chopped fruit ½ cup 100% fruit juice ½ medium banana 4-5 large strawberries
Vegetables 	1 cup	1½ cups	1½ - 2 cups	½ cup of veggies? ½ cup mashed, sliced, or chopped vegetables 1 cup raw leafy greens ½ cup vegetable juice 1 small ear of corn
Grains Make half your grains whole 	3 ounces	4 - 5 ounces	4 - 5 ounces	1 ounce of grains? 1 slice bread 1 cup ready-to-eat cereal flakes ½ cup cooked rice or pasta 1 tortilla (6" across)
Protein Foods 	2 ounces	3 - 4 ounces	3 - 5 ounces	1 ounce of protein foods? 1 ounce cooked meat, poultry, or seafood 1 egg 1 Tablespoon peanut butter ¼ cup cooked beans or peas (kidney, pinto, lentils)
Dairy Choose low-fat or fat-free 	2 cups	2 cups	2½ cups	½ cup of dairy? ½ cup milk 4 ounces yogurt ¾ ounce cheese 1 string cheese

Some foods are easy for your child to choke on while eating. Skip hard, small, whole foods, such as popcorn, nuts, seeds, and hard candy. Cut up foods such as hot dogs, grapes, and raw carrots into pieces smaller than the size of your child's throat—about the size of a nickel.

There are many ways to divide the Daily Food Plan into meals and snacks. View the Meal and Snack Patterns and Ideas to see how these amounts might look on your preschooler's plate at www.choosemyplate.gov/preschoolers.html.



APPENDIX AA

Parents Lesson Plan 4

*Let's Keep our Kids Nourished and Cavity Free!
Curriculum For Parents*

Lesson Plan: Lesson 4: *Pregnancy & Oral Health- Healthy Teeth, Healthy Infant*

Learning Objectives:

1. Participants will identify potential oral health problems caused by poor oral hygiene and hormonal changes during pregnancy and will learn to prevent such problems by eating healthy foods and practicing good oral hygiene.
2. Participants will be able to identify what foods are best for their overall oral health.
3. Participants will be able to care for their baby’s gums and teeth.

Behavior Change 1. Participants will increase tooth brushing to twice a day, and improve nutrition by increasing vegetable and fruit consumption.

Objective:

Total Time: 30- 45 minutes

METHODS	LESSON CONTENT	MATERIALS
Introduction: 5 minutes	<ul style="list-style-type: none"> • Introduce the topic of the lesson: Pregnancy and Oral Health- Healthy Teeth, Healthy Infant • Ask the participants if they know why good oral health is important during pregnancy? And they have heard of lose a tooth for every pregnancy? 	<ul style="list-style-type: none"> • PPT presentation
Learning Activities: 45 minutes	<ul style="list-style-type: none"> • Explain that there are many changes going on in the body to support the pregnancy and the mouth is no exception. • Discuss the causes for dental health problems during pregnancy and how oral hygiene can prevent such problems. <ol style="list-style-type: none"> 1. Increase of hormone levels during pregnancy can cause gum sensitivity and can lead to gingivitis, inflammation of the gums 2. Vomiting during pregnancy can increase the acidity of the mouth by exposing the teeth to stomach (gastric) acid. 	<ul style="list-style-type: none"> • Slide #3 “Why is Oral Health Important During Pregnancy?”

	<p>3. Increase grazing and cravings for sugary foods, such as: hard candies, cookies, pies, breads and muffins can also increase mouth acidity and risk of tooth decay.</p> <ul style="list-style-type: none"> • Explain how taking care of their teeth is one of the many ways they can care for their unborn child, as it is just as important as eating healthy and taking prenatal vitamins. And how untreated pregnancy gingivitis may be the cause of early birth or low birth-weight babies. • Ask participants of some of the ways they can prevent dental problems? • Discuss the many ways to maintain healthy teeth throughout pregnancy. Pass out “Oral Health Pregnancy” Handout. <ol style="list-style-type: none"> 1. Brush teeth and tongue properly, with fluoride toothpaste at least twice a day to remove plaque and bacteria. Floss teeth once a day. 2. Choose healthy food and drinks; avoid foods and drinks with added sugar, such as soda, juice, punch, cookies, and candy. Eat healthy foods, including fresh fruits and vegetables for ultimate oral and overall health. Discuss other benefits of eating healthy. 3. Visit the dentist for regular check ups and cleanings. Reiterate that it is safe to go to the dentist while they are pregnant. <ul style="list-style-type: none"> • Explain the importance of taking care of their infant’s teeth as well. Discuss early childhood caries (ECC), also known as nursing caries, or baby bottle tooth decay, a severe form of tooth decay, which affects an infant’s teeth, especially the top front teeth. This develops from exposure to sugars present in milk, juice and other sweetened beverages and from not practicing oral hygiene. • Ask participants if they know of ways to prevent ECC? • Show TV ad on healthy teeth • Pass out brochure “Two Healthy Smiles Tips to Keep you and your Baby Healthy” • Explain that baby teeth save space for the permanent teeth, helps form 	<ul style="list-style-type: none"> • Activity: “Tips for Good Oral Health During Pregnancy” Handout • PPT: slide #4 & #5 “What can you do During this Time to Help your Baby develop Strong Teeth?” • Play TV ad: http://healthyteethhealthkids.org/tv-ad/ • Pass out: Two
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	<p>sounds, and round out the shape of the face.</p> <ul style="list-style-type: none"> • Discuss ways baby’s can have a mouth free of bacteria: <ol style="list-style-type: none"> 1. Clean baby’s gums before teeth come in. Once teeth come in, brush twice a day, every day, especially before bed. Demonstrate the wiping out the baby’s mouth with a soft cloth using a doll. 2. First dentist visit should be by first birthday 3. Do not lay baby down with a bottle at nap time or at night, as saliva production decreases rapidly. 4. Give the child milk or water; do not give drinks with added sugar, such as soda, juice, or punch. • To avoid spreading germs that can cause cavities (transmission of cavity causing bacteria). Do not share food, spoons, or forks. 	<p>Healthy Smiles- Tips to Keep you and your Baby Healthy” Brochure</p> <ul style="list-style-type: none"> • Demonstrate the wiping out the baby’s mouth with a soft cloth using a doll.
<p>Summary Closure: 5 minutes</p>	<ul style="list-style-type: none"> • Summarize the lesson by repeating that the health of the mom’s mouth can affect the baby. Developing good habits by mothers and children will reduce early childhood cavities. • Reiterate choosing nutritious foods helps promote good oral health • Remind the moms to share what they learned with other moms and their friends, as they, too, are teachers. 	
<p>Student assessment: 5 minutes</p>	<ul style="list-style-type: none"> • Ask the participants to share one thing that they have learned from the lesson. 	

APPENDIX BB

Parents Lesson Plan 4 PPT

Pregnancy and Oral Health

Healthy Teeth, Healthy Infant



Luisa Sabogal, R.D.
CSUN graduate student

Today's Topics



- Why is oral health care important during pregnancy?
- What can you do during this time to help your baby develop strong teeth?
- Good oral health during pregnancy
- What is ECC?
- Reduce ECC
- Key Message

Why is oral health care important during pregnancy?



- Increase in hormone (estrogen and progesterone) levels may lead to dental problems such as periodontal disease
 - Gingivitis if untreated may even be the cause for low birth babies.
- Nausea and vomiting may increase the acidity in the mouth and lead to cavities
- Increased eating of foods and drinks with added sugars will increase plaque
- Studies have shown that the bacteria responsible for tooth decay are passed from the mother to the child.
- Baby's teeth begin to develop about three months into pregnancy.

What can you do during this time to help your baby develop strong teeth?

- Take care of your own teeth is a way to care for your unborn child's teeth.
- Eat a variety of nutritious and non-cariogenic foods; vegetables, fruits,
- Visit the dentist twice a year
- Take prenatal vitamins



Good Oral Health During Pregnancy



- Good oral hygiene practices; brushing twice a day and flossing
- Choose healthy food and drinks
- Visit dentist for regular check up and cleanings
- Women with vomiting and nausea, rinse with a cup of water containing a teaspoon of baking soda, as it neutralizes stomach acid.

What is ECC?



- ECC- early childhood caries, aka nursing caries, or baby bottle tooth decay, is a severe form of tooth decay.
 - Usually affects the infants two front teeth.
- ECC develops from the sugar present in milk, juice, and sweetened beverages
- Children's medicine can have high sugar content as well
- Totally preventable and should not occur

Reduce ECC



- Clean baby's gums before teeth come in.
 - Wipe baby's gums with soft cloth after eating
- Visit dentist by first birthday
- No bottle in bed
- Give milk or water
- Avoid spreading germs
 - Do not share food, spoons, or forks
 - Do not cool the soup by blowing directly on the baby's spoon or kiss him/her directly on the mouth during the first year of life

Nutrition for Healthy Teeth



Key Message

- Good oral health is essential for the overall health of the pregnant woman and the child
- Prevention of oral diseases is highly beneficial
- Healthy mothers, healthy babies; good oral health for two



Thanks Mom!



THANKS DAD

- <http://healthyteethhealthykids.org/tv-ad/>

References

- Oral Health From Pregnancy through the Toddler Years
Colgate-Bright Smiles, Bright Futures
- <http://www.colgate.com/app/CP/US/EN/OC/Information/Articles/Oral-and-Dental-Health-at-Any-Age/Adults/Oral-Health-and-Pregnancy/article/Pregnancy-Prenatal-Care-and-Oral-Health.cvsp>
- http://www.cdafoundation.org/portals/0/pdfs/poh_guidelines.pdf
- <http://healthyteethhealthykids.org/>
- <http://www.webmd.com/oral-health/dental-care-pregnancy>

Tips for Good Oral Health During Pregnancy

Below are tips for taking care of your oral health while you are pregnant. Getting oral health care, practicing good oral hygiene, eating healthy foods, and practicing other healthy behaviors will help keep you and your baby healthy. Delaying necessary treatment for dental problems could result in significant risk to you and your baby (for example, a bad tooth infection in your mouth could spread throughout your body).

Get Oral Health Care

- Taking care of your mouth while you are pregnant is important for you and your baby. Changes to your body when you are pregnant can make your gums sore or puffy and can make them bleed. This problem is called *gingivitis* (inflammation of the gums). If gingivitis is not treated, it may lead to more serious periodontal (gum) disease. This disease can lead to tooth loss.
- Oral health care, including use of X-rays, pain medication, and local anesthesia, is safe throughout pregnancy.
- Get oral health treatment, as recommended by an oral health professional, before delivery.
- If your last dental visit took place more than 6 months ago or if you have any oral health problems or concerns, schedule a dental appointment as soon as possible.
- Tell the dental office that you are pregnant and your due date. This information will help the dental team provide the best care for you.

Practice Good Oral Hygiene

- Brush your teeth with fluoridated toothpaste twice a day. Replace your toothbrush every 3 or 4 months, or more often if the bristles are frayed. Do not share your toothbrush. Clean between teeth daily with floss or an interdental cleaner.
- Rinse every night with an over-the-counter fluoridated, alcohol-free mouthrinse.



- After eating, chew xylitol-containing gum or use other xylitol-containing products, such as mints, which can help reduce bacteria that can cause tooth decay.
- If you vomit, rinse your mouth with a teaspoon of baking soda in a cup of water to stop acid from attacking your teeth.

Eat Healthy Foods

- Eat a variety of healthy foods, such as fruits; vegetables; whole-grain products like cereals, bread, or crackers; and dairy products like milk, cheese, cottage cheese, or unsweetened yogurt. Meats, fish, chicken, eggs, beans, and nuts are also good choices.
- Eat fewer foods high in sugar like candy, cookies, cake, and dried fruit, and drink fewer beverages high in sugar like juice, fruit-flavored drinks, or pop (soda).
- For snacks, choose foods low in sugar, such as fruits, vegetables, cheese, and unsweetened yogurt.
- To help choose foods low in sugar, read food labels.
- If you have problems with nausea, try eating small amounts of healthy foods throughout the day.
- Drink water or milk instead of juice, fruit-flavored drinks, or pop (soda).

- Drink water throughout the day, especially between meals and snacks. Drink fluoridated water (via a community fluoridated water source) or, if you prefer bottled water, drink water that contains fluoride.
- To reduce the risk of birth defects, get 600 micrograms of folic acid each day throughout your pregnancy. Take a dietary supplement of folic acid and eat foods high in folate and foods fortified with folic acid. Examples of these foods include
 - Asparagus, broccoli, and green leafy vegetables, such as lettuce and spinach
 - Legumes (beans, peas, lentils)
 - Papaya, oranges, strawberries, cantaloupe, and bananas
 - Grain products fortified with folic acid (breads, cereals, cornmeal, flour, pasta, white rice)

Practice Other Healthy Behaviors

- Attend prenatal classes.
- Stop any use of tobacco products and recreational drugs. Avoid secondhand smoke.
- Stop any consumption of alcoholic beverages.

After Your Baby Is Born

- Continue taking care of your mouth after your baby is born. Keep getting oral health care, practicing good oral hygiene, eating healthy foods, and practicing other healthy behaviors.
- Take care of your baby's gums and teeth, feed your baby healthy foods (exclusive breastfeeding for at least 4 months, but ideally for 6 months), and take your baby to the dentist by age 1.
- Ask your baby's pediatric health professional to check your baby's mouth (conduct an oral health risk assessment) starting at age 6 months, and to provide a referral to a dentist for urgent oral health care.

Resource

A Healthy Smile for Your Baby: Tips to Keep Your Baby Healthy (brochures in English and Spanish) produced by the National Maternal and Child Oral Health Resource Center. <http://www.mchoralhealth.org/materials/consumerbrochures.html>.

Resources

Cavity Keep Away (brochure and poster in English and Spanish) produced by the California Dental Association Foundation. <http://www.cdafoundation.org/Learn/EducationTraining/PerinatalOralHealthEducation/PatientEducationMaterial.aspx>.

Dental Care Before, During, and After Pregnancy (handout) produced by the South Carolina Department of Health and Environmental Control, Division of Oral Health. <http://www.scdhec.gov/administration/library/CR-009602.pdf>.

For the Dental Patient: Oral Health During Pregnancy—What to Expect When Expecting (handout) produced by the American Dental Association. <http://www.ada.org/993.aspx>.

Good Oral Health for Two (handout) produced by the Northeast Center for Healthy Communities, Greater Lawrence Family Health Center. http://www.mchoralhealth.org/pdfs/goodoralhealthfortwo_eng.pdf (English), http://www.mchoralhealth.org/pdfs/goodoralhealthfortwo_sp.pdf (Spanish).

Healthy Smiles for Two (brochure) produced by the South Dakota Department of Health, Oral Health Program. http://doh.sd.gov/OralHealth/PDF/SmilesforTwo_Brochure.pdf.

Nothing But the Tooth (video) produced by the Texas Department of State Health Services, Nutrition Services Section and Texas Oral Health Coalition. <http://www.youtube.com/watch?v=4m41tR3s9sE> (English), <http://www.youtube.com/watch?v=vuYTLjXG-do> (Spanish).

Patient Education Tools (articles in Chinese, English, Hmong, Russian, Spanish, and Vietnamese) produced by the California Dental Association. http://www.cda.org/page/patient_education_tools.

Pregnancy and Dental Care (poster and wallet card) produced by the New York State Department of Health. <http://www.health.state.ny.us/prevention/dental/publications.htm>.

text4baby (mobile information service) produced by the National Healthy Mothers, Healthy Babies Coalition. <http://www.text4baby.org>.

Two Healthy Smiles: Tips to Keep You and Your Baby Healthy (brochures) produced by the National Maternal and Child Oral Health Resource Center. <http://www.mchoralhealth.org/PDFs/pregnancybrochure.pdf> (English) and http://www.mchoralhealth.org/PDFs/pregnancybrochure_sp.pdf (Spanish).

Finding a Dentist

- <http://www.ada.org/ada/findadentist/advancedsearch.aspx>
- <http://www.knowyourteeth.com/findadentist>

Finding Low-Cost Dental Care

- <http://www.nidcr.nih.gov/FindingDentalCare/ReducedCost/FLCDC.htm>

Finding Dental Insurance Coverage

- <https://www.healthcare.gov>

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After Your Baby Is Born

After your baby is born, it is important for you to keep brushing with toothpaste. You also need to floss, eat healthy foods, and get dental care. When your mouth is healthy, your baby is more likely to have a healthy mouth, too.

Care for Your Baby's Gums and Teeth

- Breast milk is best! Breastfeed your baby for 6 months or longer if you can.
- Germs can pass from your mouth to your baby's mouth. Use a different spoon to taste your baby's food. Clean your baby's pacifier with water. Do not use your mouth to clean it.
- Clean your baby's gums after every feeding even before her first teeth come in. Use a clean, damp washcloth or a toothbrush with soft bristles and a small head made for babies.
- When your baby gets his first tooth (usually around 6 to 10 months), begin brushing his teeth with toothpaste with fluoride twice a day. Use a small smear of toothpaste.
- Do not put your baby to sleep with a bottle filled with breast milk, formula, juice, or sugary drinks like fruit-flavored drinks or pop (soda).
- Take your baby to the dentist by the time she is 1 year old to have her teeth and gums checked.



Resources

Finding a Dentist

- <http://www.aapd.org/finddentist>
- <http://www.sds.org/sds/finddentist/advancedsearch.aspx>
- <http://www.knowyourtech.com/finddentist>

Finding Low-Cost Dental Care

- <http://www.nidcr.nih.gov/FindingDentalCare/ReducedCost/FLCDC.htm>

Finding Health Insurance Coverage

- <http://www.coverageforall.org>

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Two Healthy Smiles

Tips to Keep You and Your Baby Healthy

Taking care of your mouth while you are pregnant is important for you and your baby. Brushing, flossing, eating healthy foods, and getting dental checkups and treatment will help keep you and your baby healthy.



Changes to your body when you are pregnant can make your gums sore, puffy, and red if you do not brush and floss every day. This problem is called gingivitis (gin-gih-vi-tis). If gingivitis is not treated, it may lead to periodontal (pear-ee-oh-don-tuh) disease. This disease can cause tooth loss.

After your baby is born, take care of your baby's gums and teeth too.

Give your baby a healthy start! Here are tips to keep you and your baby's teeth and gums healthy.



While You Are Pregnant

Brush and Floss

- To prevent or control tooth decay, brush your teeth with a soft toothbrush and toothpaste with fluoride (floor-ide) twice a day.
- Floss once a day before bedtime.
- If you cannot brush your teeth because you feel sick, rinse your mouth with water or a mouth rinse that has fluoride.
- If you vomit, rinse your mouth with water.

Eat Healthy Foods

- Eat fruits, vegetables, whole-grain products like bread or crackers, and dairy products like milk, yogurt, or cheese. Lean meats, fish, chicken, eggs, beans, and nuts are also good choices. Eat foods that have sugar at mealtimes only.
- Drink water or low-fat milk instead of juice, fruit-flavored drinks, or pop (soda).
- Drink water at least a few times a day, especially between meals and snacks.
- Eat fewer sweets like candy, cookies, or cake. Drink fewer sugary drinks like fruit-flavored drinks or pop (soda). Eat sweets or drink sugary drinks at mealtimes only.
- Look for products, like chewing gum or mints, that contain xylitol (zy-lit-tohl).

Get Dental Care

- Get a dental checkup. It is safe to have dental care when you are pregnant. Do not put it off until after you have the baby.
- Tell the dental office staff that you are pregnant and your due date. This will help the dental team keep you comfortable.
- The dental team may recommend rinses with fluoride or chewing gum with xylitol, which can help reduce bacteria that can cause tooth decay and gingivitis.
- Talk to your doctor if you need help getting dental care or making an appointment.



APPENDIX EE

Formative Evaluation Survey

Part 1: General Information

Please choose the best answer for each question/statement.

1. Please indicate your gender.

Female Male Prefer not to answer

2. Which range includes your age:

18-24 25-34 35-44 45-54 55-64 65 or older

3. Please specify your ethnicity:

White, non Hispanic Hispanic or Latino Black or African American

Asian/Pacific Islander Native American Other: _____

4. Please indicate the highest level of education you have completed:

PhD EdD PhD Candidate MS/MS Other: _____

5. Please indicate your area(s) of expertise:

Education Health Curriculum Children Other: _____

6. Do you have any experience teaching?

Yes No

If yes, how long? _____

7. Do you have any experience working with children 0-5 years of age?

Yes No

Formative Evaluation Survey

Part 2-A: Kids Curriculum Evaluation

Please choose the best answer for each question/statement.

1. Do you find the curriculum topics researched and well presented?

Yes No

2. Do you find the curriculum content clear and organized?

Yes No

3. Do you find the content to be appropriate for preschool children (3-5y/o)?

Yes No

4. Do you find the lessons handouts supported the curriculum appropriately?

Yes No

5. Do you have any suggestions for other topics?

Yes No

If yes, what topics do you suggest?

6. How likely are you to utilize this curriculum:

Very Likely Likely Neutral Unlikely Very Unlikely

7. Please select the number that best rates the curriculum, with 10 being the

highest: 1 2 3 4 5 6 7 8 9 10

8. If dissatisfied, please provide feedback on how it could be improved.

9. Do you have any other suggestions for improving the curriculum?

Formative Evaluation Survey

Part 2-B: Parents Curriculum Evaluation

Please choose the best answer for each question/statement.

1. Do you find the curriculum topics researched and well presented?

Yes No

2. Do you find the curriculum content clear and organized?

Yes No

3. Do you find the content to be appropriate for parents of preschool children?

Yes No

4. Do you find the lessons handouts supported the curriculum appropriately?

Yes No

5. Do you have any suggestions for other topics?

Yes No

If yes, what topics do you suggest?

6. How likely are you to utilize this curriculum:

Very Likely Likely Neutral Unlikely Very Unlikely

7. Please select the number that best rates the curriculum, with 10 being the

highest: 1 2 3 4 5 6 7 8 9 10

8. If dissatisfied, please provide feedback on how it could be improved

9. Do you have any other suggestions for improving the curriculum?
