

Introduction

Dental caries are among the most common chronic childhood diseases. The Centers for Disease Control (CDC) reports that dental caries has increased dramatically over the past decade in children of 2 to 5 years old. The literature reveals that children are often not accepted into dental practices until 3 years of age. The American Academy of Pediatrics suggests a child's first dental visit should take place no later than 1 year of age. The First Smiles Program was developed for a study as a 4 hour CE course which focused on infant/toddler oral health needs, promotion, and disease prevention. It was conducted to increase access by educating members of the dental team on the importance of identifying children with early childhood caries (ECC), and to promote a dental visit by age 1 in their practice. Even though anticipatory guidance was given to parents prior to participating in the First Smiles Program, the study showed that not all of the current recommendations by the AAPD were being utilized. One area that needed improvement was parents being informed of the link between sippy cup use and ECC in young children. Early childhood dental caries causes pain, impaired growth, missed school days, and negative effects on the quality of life making it critical to educate parents on how it can be prevented. By the end of the CE course, the responses of the participants proved that their knowledge expanded as well as increased their comfort of examining young children.

Besides a parent's issue of locating a dentist who will treat their young child, another problem may be the parent not seeking care in the first place. Parents may not bring their child to the dentist based on their own bad experiences or if they are financially unstable. Children living in poverty are more likely to suffer with dental caries compared to those with higher income. There is greater likelihood their disease will also remain untreated. As stated by the Surgeon General, disease burden continues plaguing underserved, minority and socioeconomically

disadvantaged populations. With the high cost of dental care, it is challenging for a parent to receive proper services for their child. According to The Journal of Dental Hygiene, hospitals in the state of Florida experienced more than 115,000 emergency department visits in 2010 for dental-related problems that were largely preventable and resulted in total charges exceeding \$88 million. Dental plaque is the main etiology for dental caries and effective plaque control may reduce the risk for dental caries in children. A pilot study was done which tested The Toothbrush Project, an education program provided to children from low-income families in grades 1 and 2. The study was designed to find out if there were significant differences in plaque control among participants who received an educational program with an opportunity to practice the oral health skills, an educational program alone, and no oral health education at all. The largest improvement in plaque scores occurred in the school that received the educational intervention. An interesting feature in this study was the addition of the pre-pasted toothbrush placed on the cafeteria trays to encourage brushing after meals. These children were able to practice and maintain their brushing skills explaining why they were most successful in decreasing their plaque scores.

If children are visiting their dentist by age 1 as recommended, they are entitled to receive early interventions. If early interventions are not implemented, a childhood of dental caries can lead to a lifetime of dental issues. Sealants are an effective preventative tool for dental caries and many studies confirm the efficiency of sealants and the cost/benefit ratios. A short report illustrated simple actions, such as sealants, can be done by dental professionals working in public and community health settings to improve oral health care outcomes. Education of the public is a critical component to increasing access of oral health care, especially for this young age group. Parents need to be informed of the importance of early oral health care and the positive effects it

will have on their child. Reinforcing oral health knowledge and proper habits through public health programs in youth is a substantial approach to enhance and better our nation's dental health prognosis.

Assessment

The target population of our program includes second grade students of a New York public school that are meeting academic standards. This group consists of ages seven to eight years old, both genders, and all races/ethnicities. There was no screening conducted within this program which did not allow the detection of the severity and extent of present disease. The diversity of our target population presents a challenge in determining their oral health status due to unknown basic dental knowledge and habits. However, research supports that regardless of the ethnic and cultural diversity of this age group, it is recommended to provide oral health education and interventions to promote a lifetime of proper oral habits. According to *Independent Analysis: Efficacy of Sealants Used in a Public Health Program*: "A childhood of dental issues can lead to a lifetime of oral health problems, if early interventions are not implemented."

With this age population there are many health concerns and challenges that need to be addressed, however, lack of oral health education is a critical issue that is commonly overlooked. For example, parents may not be aware that an increase in sugar consumption can increase the risk of developing caries. This age group consumes extensive amounts of sugars without realizing the harmful manifestations that will present in the oral cavity, or the habits that may develop for the rest of their lives. Educating is one of the most important duties of dental hygienists. It is necessary to exercise this role in order to obtain a knowledgeable population to prevent future oral diseases. Besides the necessity of awareness, a dental hygienist has another

crucial role in assuring that the patients are implementing healthy oral habits and seeking professional dental care. Not only are parents or caregivers in need of this education, but the children need to be aware and educated on proper oral hygiene in order to ensure the implementation of this knowledge.

The published literature stated above also indicates that all public health program participants and families should be educated about nutrition, dental caries prevention, brushing, flossing, sealants and fluoride. Dental hygienists may fulfill all of the preventative strategies through collaborating with a Community Public Health Department. According to the article Independent Analysis: Efficacy of Sealants Used in a Public Health Program: “Over 50 million school hours are lost yearly because of childhood dental issues.” This collaboration will help avoid the loss of school hours missed due to childhood dental issues that may be essential to a child’s academic status.

Planning

The goal of this program is to reinforce oral health and positive habits in the pediatric population through education and awareness. Given that the population between the ages of seven to eight years old is diverse in terms of their dental knowledge and habits, this program is designed to teach basic dental knowledge that may foster the development of good oral hygiene habits. One of the goals in this program includes familiarizing this population with the dental office environment and personnel, including dental equipment and common procedures that may be provided to that population. It is important that children feel familiar and have an idea of what to expect when visiting a dental office in order to remain tranquil, trusting, and comfortable. It is also essential to discuss the different stages of dentitions and rapid changes in the oral cavity that occur at these ages. The shedding of the primary teeth and the eruption of the permanent teeth is

a period that may be intimidating for many children. Teaching children of what is to be expected during this period may provide a relief of many concerns and allow this period to be much more pleasant. It is important for this age group to be able to distinguish between proper nutrition and malnutrition, not only to benefit their general health, but for the management of the oral health as well, since improper nutrition may be linked to multiple oral conditions. Our main goal is to explain that the prevention of oral diseases and promotion of oral health is achieved through a combination of an at-home daily oral hygiene regimen that includes mechanical plaque removal, interdental care and rinsing, as well as the incorporation of professional preventative services.

According to the Center for Disease Control, the determined primary risk this population is facing is the increasing incidence of dental decay development. As dental professionals we must target this concern and provide the utmost care and supervision to lower the risk of developing dental decay. We strive to emphasize the importance of creating proper oral hygiene habits at home by show-tell-do technique. We will discuss the basic understanding of caries prevention, formation, consequences and its treatment. This program will raise awareness of professional dental hygiene preventative services such as sealants and fluoride treatments. We will also incorporate the different methods of providing fluoride and recommend that parents take the initiative to verify with their dentists if their child receives sufficient fluoride or to determine if there is a need for a fluoride supplement.

Based on assessment findings, the type of health promotion/education program that should be developed is a program that will emphasize on the benefits and importance of oral health and to elucidate the recommended implementation. Since our target population includes individuals that may learn best through different methods we have decided to incorporate multiple approaches. Therefore, we have created a program that will contain a visual

presentation as well as listening skills and reading comprehension. Educating children in a school setting is a great way to include these elements through a slideshow lecture presentation with props and instructions on oral hygiene care. This is a good way to engage the population in exercising and gaining knowledge on oral health. Other alternative programs include interactive sessions with dental professionals or teachers. For example, in the above article stated previously, a study was done to test if a tooth brushing education program would impact the oral hygiene of low income students. Pre-pasted tooth brushes were placed on each individual's cafeteria tray in hopes that this would send a message of the importance of brushing after eating, as well as extensive oral hygiene instructions. As a result, the findings concluded that "intensive tooth brushing instructions, particularly when accompanied by daily distribution of free pre-pasted toothbrushes may lead to improved oral hygiene..." This is one great way to introduce a dental hygiene public health program into a school. Other programs include implementing dental preventative services to this population by providing simple procedures such as sealants. Regardless of what program is implemented, multiple attempts and methods are required to fulfill the lack of education and lack of preventive care that exists among the pediatric population of our nation.

Implementation

On Monday March 7th, 2016 our group presented "Reinforcing Oral Health and Positive Habits to the Pediatric Population" to two classes of the second grade at Public School 177 The Marlboro located at 346 Avenue P in Brooklyn, NY 11204. Our presentation was executed using a variety of teaching techniques that built upon the student's prior knowledge of dental terms and nutrition. We reached the goals of this program by instructing the students using an approach

aimed at keeping their attention through multimedia. We used a PowerPoint presentation with pictures and text, assessed learning verbally and with an in-class worksheet, demonstrated brushing on a typodont, and assigned homework handouts. During the two sessions, we emphasized the importance of starting a proper oral hygiene regimen at a young age.

The PowerPoint presentation included 19 slides that covered the following topics: the importance of teeth in daily life, primary and permanent dentitions, basic hygiene routine, tooth brushing instruction, toothpaste placement, dental plaque, cavities and their formation, sealants, nutrition, the dental team, office and visits, fluoride, and the dental regimen at home. This presentation included educational photographs and cartoons to engage students. These graphics kept the children's attention and made the presentation more interesting and fun for them.

It was necessary to educate the students on the importance of keeping their teeth healthy. We emphasized the three core steps; brushing, flossing and rinsing and explained the differences between each dentition. We asked the students questions about the number of primary teeth versus permanent teeth. Many students did not know that they have two sets of teeth and reasons why we lose them. We explained that we could lose our teeth due to normal shedding or disease. The children in this age group are currently experiencing the mixed dentition stage and understand that losing deciduous teeth is a normal occurrence in order for the adult teeth to erupt. Our group also touched upon the roles of different teeth. For example, we informed the students how the back teeth are wider for crushing and chewing food, whereas the front teeth are for ripping and tearing.

At the 2nd grade learning level, children are easily distracted and it is challenging to hold their attention for an extended time. Throughout the presentation, we asked the students questions to ensure the students were absorbing the information presented. After each slide, we

reviewed the content with the class by highlighting the key concepts and reinforcing the most important aspects. Repetition of important dental vocabulary was used to help students retain this information. Volunteers from the class participated and shared what they thought the dental hygienist wore at work, and demonstrated proper tooth brushing. We gave them the chance to try on personal protective equipment such as a dental mask, nitrile gloves, and protective eyewear. We made sure that every student in the room had a chance to use a toothbrush to brush the teeth on the typodont.

We used three in-class handouts and three homework assignments as tools to accomplish the goals and objectives we set for this presentation. The students were broken up into groups of five, led by each team member that worked independently with their group to complete the worksheets. The first handout addressed the technology that can be found in the dental operator and students were asked to recall the function of each object. This worksheet prepared the students for what they will encounter on their next visit to the dentist. The second handout asked the students to draw the correct pea sized amount of toothpaste on each toothbrush. This worksheet helped the students visualize what a pea size amount looks like. The third in-class hand out consisted of a series of different foods. The objective was to eliminate the foods that are bad for the teeth and to color the foods that were good for the teeth. This worksheet emphasized on the link between proper nutrition and the health of our teeth. While in these groups, the students were also asked to demonstrate the proper tooth brushing technique for their age group using the typodont. The Fones tooth brushing technique was taught in a tell-show-do manner. Students learned that it is important to brush the tops, sides, and insides of their teeth two times a day. It was also enforced that professional care is recommended two times per year to sustain a healthy oral environment. Preventative measures such as the placement of sealants and the

different fluoride applications were discussed and it was recommended to seek evaluation for such measures. This presentation was beneficial to the children since it illustrated the importance of oral health and its connection to general well-being, the appropriate oral hygiene regimen, and lastly to instill an appreciation of the dental field.

Evaluation

The importance of the health promotion/education program is to ensure that children between the ages of seven and eight are able to take home a positive message about oral healthcare. In order to assess the children's learning experience, rigorous analysis of the completed or ongoing activities that determine the children's accountability, effectiveness and efficiency must be addressed. Creating a lesson with the inclusion of a pre and post evaluation component is ideal to facilitate the focus on familiarizing our audience with new data. A simple way that we were able to pre-evaluate the children's prior knowledge on oral healthcare is through the icebreaker questions before presenting the educational lesson. We provided the children with basic introduction questions about their daily homecare such as how many times a day do they brush their teeth and for how long they brush for. We were also able to evaluate the children's knowledge on healthy food choices with a simple quiz of spotting the healthy snacks. We provided the children with a mixture of visuals/photos of healthy and poor snacks to allow volunteers to come up to the board and participate by selecting which snack they believed was the healthy choice for their teeth. We found that many of the children believed that some of their everyday snacks were thought to be healthy such as chocolate milk and apple juice. Once we were able to address the topics in which the children were less knowledgeable in, we were able to implement the correct ideas and habits that they should realize and execute in their daily lifestyle such as avoiding high concentrations of sugar. Once implementation was completed, we

were able to post-evaluate their understanding of all the new ideas that were presented through the lecture. Post-evaluation was accomplished through a series of fun worksheets that required the educational lesson to comprehend. A food group worksheet was administered that helped us evaluate the children's nutritional goals by coloring the right/healthy food choices and crossing out the poor food choices. Other handouts aided in the use of new vocabulary words that were introduced in the lesson such as fluoride, sealant, cavity, and plaque. The fun exercises of fill in the blanks and find the "secret word" cross-word aided in assessing the children's recollection of the definitions and meanings of the vocabulary words they might hear in a dental setting. The number of right answers the children were able to accomplish on their worksheet aided in the measurement of effectiveness of the oral healthcare educational program. Another measure of evaluation that we incorporated was a verbal assessment achieved by randomly selecting students to answer review questions. If there was an inability to answer a question, other students were encouraged to participate and assist. The program's success cannot fully be determined unless there is a follow up visit to evaluate the incorporation of the interventions that were taught during the initial visit. However, the program was a success in that the children were highly responsive, intrigued, and were able to learn about basic oral healthcare. Basic oral healthcare goals that were accomplished were the three main steps of daily oral hygiene (brush, floss, and rinse), choosing foods with minimal sugar and eating them with their meals, and dental armamentarium with what is to be expected at a dental visit. After the learning experience the children were able to point out and distinguish poor oral healthcare habits they may have witnessed at home, but also were excited to educate their loved ones with their improved knowledge of healthy smiles.

Conclusion

The “Reinforcing Oral Health and Positive Habits in the Pediatric Population” program was created to provide a general understanding of the dental field and its importance to a healthy life. Our main goal was to explain that the prevention of oral diseases and promotion of oral health is achieved through a combination of an at-home daily oral hygiene regimen that includes mechanical plaque removal, interdental care and rinsing, as well as the incorporation of professional preventative services. We reached our goal through the combination of different teaching methodologies. Our evaluation confirmed that this program was successful in achieving our objectives. Public health programs give the opportunity to health care professionals to provide services for the betterment of the community.

References

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