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**Public Health Service Learning Field Project, Spring 2019**

**Reinforcing Oral Health Education and Positive Habits in Pre-School Children At East River Child Development Center**

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**1.Introduction.**

 By age three, most children typically already have a full set of primary teeth. All kids develop differently, but the eruption pattern usually is approximately the same, and by 36 months, all 20 teeth are usually present in the oral cavity.

 Primary teeth play a very important part in a child’s health and development, as they help and assist in chewing, speaking, smiling, maintaining vertical dimension. They also provide space in the jaws for future permanent teeth (Baby Teeth. Mouth Healthy TM). Cariogenic bacteria can be transferred from primary to permanent teeth, therefore undermining future oral health of a child.

 Tooth decay is a common, chronic disease in childhood and a public health problem worldwide, even though it is quite preventable (Burkhart N.W, and Martins Lemos L.V..F, Myaki S.I, Figueiredo Walter L.R de, Cilense Zuanon A.C.). Dental professionals, such as dental hygienists, and even dental hygiene students, can provide educational home care services, encouraging development of correct skills, such as correct brushing techniques, and positive oral care habits in children and their caregivers. Some researchers report adverse effects children bring on to themselves if not supervised, not properly taught, and exercising bad brushing techniques. Examples of potential damage by children can be recession caused by excessive pressure applied against the gums with manual and especially electric toothbrushes. Some kids may use a superfluous amount of toothpaste, and fail to rinse, and this can cause toxic fluoride effect or tissue (oral and lip) irritation. Nancy W. Burkhart, EdD, BSDH argues that parents’ role in developing oral care skills in children is crucial, and as much important as the role of a dental professional.

 Goals of oral care education for children are: to decrease caries and decay rate, tailor instructions for each target group taking into account their behavior, cognitive abilities, and needs, create and foster positive associations with the dental care environment (dentists and hygiene appointments).

**2. Assessment**

 East River Child Developmental Center in Lower Manhattan – is a non-profit, family-centered, community-based preschool program. They offer educational and therapeutic services to children with special needs between the ages of 2 and 5 (taken from the program web-site). As already mentioned above, early childhood caries, as well as dental pain can significantly impair growth, decrease weight gain, and have negative effects on speech, appearance, self-esteem, school performance, and quality of life (Chou R, Cantor A, Zakher B, Mitchell JP, Pappas M.)

 Studies show that 30% of all dental decay happens in the deciduous dentition (Dinea S.D, Domnariu C.D.) The risk of dental caries and gingivitis in kids with autistic spectrum disorder even higher due to their improper oral care techniques, and difficulties in managing these children (Shree P.C, Rakshagan V, Dhanraj S, Jain A.R.). In addition children with ASD may have damaging oral habits, such as tongue thrusting, bruxism, or lip biting. Although most of the studies don’t confirm higher prevalence of periodontal disease and caries in children with diagnosed ASD comparatively to those without ASD, some studies still report an increased prevalence of caries susceptibility among autistic children due to increased consumption of sweet food and soft drinks, as well as due to pouching of food caused by decreased ability to chew. Therefore, according to the literature, the group of 24 kids, 3-5 y.o, which we were supposed to see and educate in the center would have even higher needs in oral care, and their oral status would be expected somewhat lower than average. It is important to mention that not only oral

hygiene and diet, but also living conditions, water fluoridation, social factors can significantly influence children’s’ oral health. It is also shown in studies that (Mandić J, Jovanović S, Mandinić Z, et al.) children with different developmental disorders may have lower learning abilities, and may be less receptive to educational instructions.

**3. Planning**

 Planning is considered the most important stage in the program development. At the most basic level, program planning is a process that is designed to address questions such as “What is needed?” and “How will the needs be addressed?”. Since in our project the target population were children, we had to plan appropriate techniques to be able to convey our objectives. Prior to selecting methods of toothbrush instructions and activities, we contacted Ms. Conley (center coordinator) and gathered some additional information about level of children’s development and activities that they would enjoy doing and will be able to participate. Her directions helped us to understand the specificity of the target audience and select the best strategies in order to achieve our goals and objectives for the program. Ms. Conley gladly shared with us the fact that children love hands on activities, therefore anything that would include arts and crafts would be interesting and interacting.

 We came up with many different ideas, such as: drawing a big mouth on the whatman paper and have the children glue the teeth according to the numbers. Secondly, we wanted to emphasize the importance of removing bugs from teeth with paper brush. In that way we can remind children that brushing is not just a fun game but necessary for life skill. The last activity but not least was the demonstration of toothbrushing on the typodonts after the educational video “ Tooth Brushing Song by Blippi”.

 We wanted children to have positive memories and at the same time to learn about the importance of oral care and proper tooth brushing technique.

**4.Implementation**

The goal of our educational program was to provide toothbrushing instructions to children in East River Child Development Center. The objective of this activity was to observe at least 80% of children to participate in oral hygiene instructions activities and skills demonstration exercises. Based on the findings from the research published by Sorata Coelho (Professor of Pediatric Dentistry at the University of Brasília)“ Effectiveness of Teaching Methods for Toothbrushing in Preschool Children”: “ Effective plaque removal instruction can be taught is an **active part** of oral hygiene education”. By words “**active part**” Prof. Coelho implied active participant of the process, therefore we decided that the best way to teach children how to brush teeth is by giving them hands on experience. According to DDS FACD Robert L. Jacobson article published in “Dentistry IQ” journal : “Children might not want to learn how to brush their teeth, but they will want to play games. Is the end result of playing the game is a development of 5good brushing methods and a creation of a habit through regular gameplay, then the learning goals have been met”. Another evidence that was used to support the idea of using game activities to instruct children on tooth brushing was revealed during investigation of article“

 Using games as an educational tool provides opportunities for deeper learning” by cognitive psychologist R.F Mackay. “ Games help us to develop non-cognitive skills which fundamental and require discipline by making it easier for perception”. That is why, during the program implementation following activities were used:

1)“Put the teeth in correct order. ”(arts and crafts)

2) “Brush off teeth bugs with toothbrush”(arts and crafts)

3) “Show me how you brush” (demonstration exercise)

4) Video “ Tooth Brushing Song by Blippi”

 Materials for the activity were selected according to safety guidelines for managing pediatric population. Paper drawn posters and cut paper objects resembling teeth , toothbrushes and teeth bugs. Upon completion of the program goodie bags with toothbrushes and toothbrushing related color ins were distributed to the coordinator of the class.

**5.Evaluation**

To examine effectiveness of the program and interventions we observed brushing technique which children demonstrated during games and activities. Based on the observations majority of children were performing horizontal tooth brushing method with moderate amount of pressure. In order to improve perception ability and increase retention of the information of the children we suggest providing program on oral hygiene on the 6 month intervals if possible Program accomplished it’s objectives to observe at least 80% of children participating in oral hygiene instructions activities and skills demonstration exercises.

 Several complications arose during program implementation,which luckily we were able to solve on the spot. It was hard to get everyone’s attention in the beginning of the presentation, because kids just back from playground and were very excited. Fortunately enough, we predicted that this difficulty might be encountered, therefore we prepared the action plan ahead of time. We started counting till 20 out loud together. This attention getter exercise allowed us to focus their attention on us and things that we were about to show.

 The success of the arts and crafts activity was primarily dictated by the fact, that children knew how to match numbers on the board and were willing to take turns during the game. We received a good advice from Ms. Conley (director of the center) in regards to activities for children.

 The best feedback we received for demonstration video with tooth brushing instructions and demonstrations on typodont , therefore we arrived at the conclusion that children were good visual learners and enjoyed suggested activities.

**6.Conclusion**

 Tooth brushing is the most common method of achieving and maintaining good oral hygiene. It is extremely important to educate children and parents about proper brushing technique and frequency, since the ability of children to comply to oral hygiene regimen depends on the physical and neurological development, the caregiver remains in charge of successful plaque removal. However oral health care awareness among the children should be always promoted. Like any other skill that child learns throughout the lifetime, brushing requires training. The objective of our program was not only instruct children on proper brushing technique, but also examine current knowledge of children about oral health. Unfortunately oral health of children is often neglected, therefore early childhood caries precipitates.

 Most dental programs are provided in schools and consist of a single lecture and demonstration, although such instruction-only programs are not sufficient in promoting the cleanliness of children’s teeth. It can also be assumed that parents will teach their children how to brush, or assist them in doing so, although there is no clear indication whether or not this occurs. Therefore the only way for us to reach out to these children is currently a community service. We highly appreciated given opportunity to present our program in East River Child Development Center, because it was favorable and positive learning experience which puts a solid foundation of relationships between health care providers and East River Child Development Center. By delivering this program we established professional association with the center and therefore created the platform for future cooperation.

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