Oral health and hygiene: Teaching proper brushing for children with special needs

 Location: East River Child Development Center

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 **Introduction**

Based on the American Health Association children with special needs (disabilities) are defined by children that are unable to function at full capacity mentally, physically, and socially. Children with these types of reduction in capacity tend to have multiple issues. Depending on the severity of their disability their needs may vary. Disabilities may be developmental such as down syndrome, autism, cerebral palsy, vision impairment and more. According to the WHO, estimates 10- 12% of the world population have disabilities. The number of children in the US with developmental disabilities is 1 in 6, meaning about 17% of the population. With this kind of number, millions of children in the US require special education and treatment according to their needs.

This leads to the general oral health of children with developmental disabilities tending to be poor compared to their non-disable counterparts(1). The level of poor oral health depends on the child’s disability and socioeconomic status. Children with Down syndrome tend to have higher numbers of missing teeth due to teeth not developing(1). While children with severe mental retardation or severe behavioral issues have very poor hygiene. Children with motor issues like cerebral palsy will have difficulty maintaining proper hygiene.

 The socioeconomic status of the child dictates the access to care and the level of education of the parent. Children that come from lower socioeconomic class tend to have poor oral hygiene, higher rates of early childhood caries. These higher rates of poor oral health are due to the parents’ lack of education which tends to be higher in lower socioeconomic classes(2). Not only do parents have less education on proper oral hygiene they also might lack access to proper oral health care because they cannot afford treatment. Parents from higher socioeconomics can afford proper treatment for their conditions and can afford a caregiver to help with the needs of the child.

**Assessment**

 Our target population is children with special needs between the ages of 2 and 5. Our project location is East River Child Developmental Center. This is a private non-for profit educational facility for kids with communication and learning delays. East river child development center is an example of a location in which people within the community can place their child and receive special services for their child at an early age(1). It is a place in which they welcome activities that will enrich the students while making modifications according to the children needs (3). Based on the current literature present we anticipated that the students would have poor oral hygiene.

 According to the journal article “[Oral Health Status of Disabled Individuals Oral Health Status of Disabled Individuals Attending Special Schools](https://www.thieme-connect.com/products/ejournals/abstract/10.1055/s-0039-1697854).” Individuals with disabilities have poor oral health and a higher prevalence of oral diseases, such as dental caries, missing teeth, periodontal disease, prolonged retention of primary teeth, malocclusion and supernumerary teeth. The study evaluated the oral health status of 136 individuals ages 2-26 at several special education schools (1). Prior to assessment they acquired consent from the participant’s parents. Once consent was obtained from their parents, the researchers began examining the participants at the school .

The researchers used visual inspection with the help of a flashlight, disposable dental mirror and explorer. Silness & Löe biofilm and plaque index was utilized to determine the thickness of the biofilm at the gingival area of participants’ teeth(1). The plaque score and the total number of decayed and missing teeth were recorded and analyzed for each participant. The participants were divided into groups according to their disabilities. The group with the highest score for plaque,dmft and DMFT were those with more severe levels of disabilities like down syndrome. We used this study and other current literature as a model to device a service learning program at East River Child Development Center(4).

  **Planning**

We wanted to model our program like the one that was done in the study mentioned in the previous section. Our objective was to keep the activities according to the children's capability. Since our target population were young and had learning disabilities our objective was to teach them how to brush their teeth properly. We wanted to keep the activities simple and short because we had a limited amount of time with the children .

We spoke with the program director and asked her what kind of activities best work with the children. We were informed that fun engaging activities would work best with the children. With this information we planned on using visual aids such as a typodont, stuffed animals, and a short power point would be good tools to help with teaching the children.We wanted to use disclosing solution to detect the level of biofilm on children's teeth and to show the kids what biofilm (plaque) looks like on the teeth.

In preparation for our visit we brought small stuffed animals (teddy bears), individual toothbrushes, mirrors, gloves, a typodont and a big toothbrush. These were going to be used as visual aids for the childrens. The plan was to show them how to brush using the circular method which is the simplest technique that the children could do. We wanted to use all of the materials but there was a possibility that the children might not be cooperative to let us put the disclosing solution in their mouth. So the teddy bears would be used for the kids to practice on. We also plan on splitting the group so that there are two students for every 10-12 children. We also planned on getting the faculty such as the teachers to help with showing the kids how to brush.

**Implementation**

 Since the children are so young visual aids were used to help them better understand. We had pictures of a child’s teeth. One that was seen without oral biofilm and caries and another one that depicted a child’s teeth with lots of oral biofilm and caries. On the visual aid we also had smiley faces and sad faces on them. Happy faces were drawn on the board with the healthy teeth and sad faces were drawn on the board with the caries and oral biofilm. This helped the children see what would be considered good or bad.

 After asking the children simple questions about the boards we then went on to explain the movement of how they should brush their teeth. We had stuffed animals that could open their mouth and also typodont of teeth. We first showed the children the motion of the toothbrush in the air (circular motions). Then after we showed the circular movements on the stuffed animals and on the typodonts. We then gave each child a stuffed animal and a toothbrush so they could practice on. Afterwards we broke up into smaller groups with the help of the teachers. We then showed the children how to brush their teeth on the stuffed animal and typodont again (repetition helps with remembering). Then we made each child do the circular motions on the stuffed animal’s teeth and on the typodont. They went over it about three times each. As they were brushing the teeth we gave them positive feedback and helped them if they had any trouble.

**Evaluation**

The goal for this project was to teach the children how to brush their teeth properly. This was accomplished by using visuals such as our powerpoints and through interactive activities. We accomplished that by using the stuffed animals and the toothbrushes. In order to evaluate the childrens’ skills was to first show them and then let them try on their own. By letting the kids practice on the stuffed animals we were able to determine if they understood what we demonstrated.Unfortunately we were unable to use the disclosing solution since we did not have a place in which all the kids could rinse. So we couldn’t determine whether the children were removing the biofilm. The only thing we could evaluate was whether they were doing the correct technique.

 Since the learning project was a one time event we could not come again and see whether the students would continue to use the correct technique. If we could revisit and use the disclosing solution on the children we could have determined their plaque score during the first visit and follow up with another plaque score that way we could measure the effectiveness of our service learning project. Next time we will create a pamphlet for the parents so that the parents can learn the correct way and help their children.

**Conclusion**

 Working with children with special needs was a very different and interesting experience. Children with special needs cannot function mentally, physically, and socially like other children and require special care. Therefore, we needed a different and more simple way of educating them on dental care. We had to make our presentation and photos as simple and easy to understand as possible. We also had to make sure to have lots of colorful, large, photos and less words to help the children understand and keep their interest on the topic. Additionally, we made sure that we “show” more than we talk so that the children understand better.

 When showing them the proper way to brush their teeth, we chose the easiest method- the circular method. This method is recommended for children, physically handicapped, and people who lack dexterity. It was an easy method for the children to learn and implement. Using teddy bears to show the children how to brush was a very good idea because the stuffed animal caught the children's attention and made them more interested in what we were teaching them. Furthermore, children understand better with repetition, so we had to repeat what we say and do several times until we made sure they have understood properly.

 The Service Learning Project has provided us with an opportunity to provide community service to a group of children, while gaining field experience. This opportunity has also helped us understand how it is like working with disabled children. It also helped prepare us for any disabled children patients that we will encounter in the future. Additionally, we are able to understand and know how to properly educate patients with a disability. Overall, this project was a very helpful opportunity for us students and great service for the wonderful children we worked with.

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