

**Plaque, Plaque Go Away**

**Brush Daily, Twice a Day**

(A caries prevention presentation for the younger population)

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## **Introduction**

The majority of children ages 8-9 are not well educated in oral health. Most children are never even taught how to properly brush or floss, and aren't informed on the risks of caries and what causes them to form. It is important for them to comprehend that their food choices and oral hygiene habits have a direct effect on the formation of caries. Educating children at this age during the middle of permanent tooth eruption is vital; it can save them loads of unnecessary pain and dental work, and dental trauma from seeing the dentist for root canals! Not to mention, save their teeth so they can increase tooth longevity.

A study was done where 5,217 babies were followed until they reached their fifth birthday, to observe how oral hygiene habits and sugar impacted their oral health. The results confirmed that frequent sugar intake was associated with dental decay in children under 5. Additionally, there was a direct positive correlation between the amount of dental decay with children who were free to consume sugar in unregulated amounts (minimal parental control) [1]. The results clearly emphasize how critical it is to equip the public with the necessary knowledge of oral health and provide equal awareness to children as well as parents of the severity over this issue, yet how easily caries can be prevented.

Dental caries is one of the most prevalent diseases in children around the world; about 50% of children are affected. If caries are not treated early, they can negatively impact the child's overall quality of life. Treatment of dental disease is costly and prevention is easy.[2] As student Hygienists, we have the opportunity to teach children how to effectively prevent the onset of dental disease and ensure the children have a better life.

Dental caries have certain risk factors and indicators that include: history of caries, oral hygiene, diet, and socioeconomic status.[3] These are the main factors to consider when evaluating a child's risk for caries. Taking this into consideration, we need to educate the children *and* their caregivers of the importance of their diet and oral hygiene habits.

## Assessment

The target population chosen for this project is students in third grade, ages 8-9 at P.S.217 elementary school. The goal of this Learning Service Field Project is to provide education and awareness to prevent early disease in children such as caries, and initiate building healthy habits early on in life. We chose elementary-aged children, because at this stage, a child is capable of understanding that they can make choices and can maintain their own routine, (like brushing their teeth before heading to school). It is the perfect opportunity to educate this young population about their teeth, especially because they are in the middle of the mixed dentition period.

According to Niche, the residents of Midwood have a median income of \$61,518 and 24% of the population holds bachelor degrees.[4] An astonishing 73% of the population is Caucasian, 11% Asian, 7% Hispanic, and 6% African American.[4] Despite the median salary, one-quarter of residents make a maximum income of \$25,000 or less, and, 13% of the community has less than a highschool diploma.[4] This can pose a problem for children if families do not have access to health care services, including dental care. These two populations are at increased risks of disease because of their socioeconomic status, and our uncertainty of their awareness of the importance of oral health.

A child's health can be directly impacted by their parent's socioeconomic status and to some degree, their own daily habits. To understand the children's current level of oral health awareness, we verbally asked 4 questions, and students raised their hands in order to participate. The results were as follows:

1. 100% of students had previously visited the Dentist.

2. 85% of students brush their teeth daily.
3. 60% did not know how long they were brushing for.
4. 70% did not know what was the cause of cavities.

After this simple assessment, we concluded that we would like to emphasize consistency in home care routine and healthy food choices.

## **Planning**

In order to reduce caries risks among the elementary school children, improving their oral hygiene care at home is a staple. To do this, we are going to demonstrate what plaque, its effects on the dentition, and lastly, teach effective tooth brushing techniques. Our plan is to raise interest in a “controlled” sugar intake diet and keep teeth healthy by minimizing caries risk. The ice-breaker technique is a significant part of the introduction to peak the attention of the children as well as build trust to increase the chances of honest responses. To start off our presentation, the ice-breaker technique will be used by asking kids simple questions: “ Who brushes their teeth? Who visits the dentist regularly? Who drinks soda every day?” The children are encouraged to raise their hands to answer and in that way be open to further education.

Next, a goodie bag is to be distributed which contains a toothbrush, a mirror, a 2 minute sand clock, disclosing tablets and a xylitol loli-pop. We will use the disclosing tablet to calculate each child’s plaque score and demonstrate the results after instructing children to smile in their personal mirrors. After the children are able to visually see the plaque, we explain what it is and why it is still visible on their teeth after they told us earlier that they brushed before coming to class today. This helps raise awareness of having the proper diet and lower sugar intake.

The next step is to teach that brushing teeth is an important step in “erasing” all the bacteria on their teeth. We plan to demonstrate a Youtube video that explains plaque and demonstrates an effective tooth brushing technique. We will use the Tell-Show-Do technique when demonstrating the proper brushing technique. Children tend to anticipate information better if both verbal and visual demonstration are included. After the video, we will demonstrate the toothbrushing technique on a typodont and then ask children to brush their teeth in the same way, monitoring them to ensure they are doing so correctly.

Finally, the last step in achieving our goal to reduce caries risk is teaching why sugar is bad for our teeth. The “Happy Tooth, Sad Tooth” activity is an interactive way to teach children about healthy food choices by having them practice picking which healthy or unhealthy food choices match to the either the happy or sad tooth. After all the activities are completed, a questionnaire is distributed to evaluate the productivity of the lesson and the knowledge understood by the children. Another questionnaire is to be sent via email to parents to evaluate if home care instructions were followed up.



## Implementation

We introduced ourselves, told the kids what a dental hygienist does and asked them a couple of questions about their own homecare routine and previous dental experiences. It was imperative to use the “tell, show, do” approach, which is the best method to accomplish our main goal of educating kids about proper homecare and healthy food choices.

The first objective was to explain to the kids what dental plaque was and show them how it looks in their own mouths. Next, we distributed disclosing solution tablets, hand mirrors and plastic cups to the children. We instructed them on how to use tablets (chew it up, swish around in their mouth and spit in the provided cup). We explained that darker areas show where plaque is growing more and where it has not been removed when they brushed their teeth. Seeing those areas was a very powerful visual aid and we noticed it made a huge impression on the kids. It’s one thing to speak of bacteria, but when they were able to see it, this is what made the Tell-Show-Do method effective. We explained that a sugar rich diet promotes growth of plaque and bacteria, subsequently causing tooth decay. We showed the kids a YouTube video titled, “How to brush your teeth properly- for kids”, which demonstrated proper tooth brushing and flossing techniques. Afterwards we showed the kids the toothbrushing method on a typodont and we asked them to practice with us using the provided toothbrush from their goodie bags. We were carefully supervising the kids and offered assistance when we noticed anyone struggling to properly implement the shown toothbrushing method. In addition, we introduced kids to the “Happy Tooth, Sad Tooth” activity, which was designed to help encourage kids to make healthier food choices. Lastly, we gave children a questionnaire to evaluate how much was learned from our presentation.

## Evaluation

We began with a pre-assessment to see whether our Service Learning Project was successful or not. The participants were given disclosing tablets to chew and roll over the entire surfaces of their teeth with their tongues. The children were given a hand mirror, as well as verbal instructions to look in the mirror and note if plaque was visible around their teeth. Plaque was visible on 20 of the 23 children's teeth, with three children having no plaque. After the assessment, the children's parents were given supplemental disclosing tablets to use at home one week after to see if the plaque score had changed.

Our objective was to teach elementary school- aged children about healthy eating habits, in particular, limiting sugar intake and plaque formation, which can lead to caries. Our group decided to engage kids in "Happy Tooth, Sad Tooth" activity to encourage children to make healthier dietary choices. 23 out of 23 children (100% ) of children were able to identify snack foods lower in sugar and therefore, better for their oral health. Lastly, we noted that 90% of all kids were able to correctly follow toothbrushing instructions given.

We sent a questionnaire to the parents of the children one week later to assess improvements in plaque score and the efficacy of the children brushing twice a day to re-evaluate our observable objectives. Following receipt of the questionnaire, 100% of the children were able to successfully extract plaque by brushing their teeth twice daily. Since participants were able to recognize plaque and efficiently remove it by brushing, the results indicate that our goal was achieved.

## **Conclusion**

In brief, our Service Learning Project was focused on children aged 8-9, in the middle of the mixed dentition period. We agreed that during this time, children are able to comprehend the impact of the choices they make; and how their choices may have impacted them thus far. We emphasized that oral health would affect their overall quality of life both in the present and future. Parents were part of the target population that we wanted to encourage to actively participate, especially, anyone in the minority population group of our selected location, P.S. 217. We were able to successfully have children participate during our presentation, and involve parents at home with the disclosing tablets we provided. Children were encouraged to go home and reciprocate what they learned to their parents. This way, parents learn second hand what's taught at our presentation, and the children would also practice the "Tell-Show-Do" method and eventually, make it routine. Increasing awareness for both populations decreases the risk of caries and advocates for oral health of all.

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