

Service Learning Project AT ROberT H. Goddard Middle School

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**Introduction**

According to the Centers for Disease Control and Prevention (CDC), tooth decay is four times more common in adolescents than asthma. This statistic is very alarming since this is a preventable disease. Middle School children are at an even higher risk for dental caries due to risk factors such as: orthodontic treatment interventions that usually begins around the age of 12 or poor diet habits. The focus of our service learning project was directed at educating this target population of caries risk factors that can negatively impact their oral health. We introduced topics related to their age group such as, bulimia, herpes, nutritional habits, and the use of mouth guards during any contact sport to prevent injury.

At this age most kids can purchase soft drinks without parental supervision. Poor nutritional choices such as, increased consumption of sugary drinks, can be linked to an increased risk of becoming overweight which results in poor overall health. It is essential that quality patient education begin at a very young age to educate children of the importance on how their daily choices and habits can affects their overall health.

The American Heart Association recommends that children and adolescents consume no more than 8 ounces of sugar-sweetened beverages and no more than 25 grams of added sugar per day. Our focus was not telling these children that they are not able to consume these products at all but to make them aware of the dangers associated with the sugary drinks advertised towards this population. Emphasis was placed on educating students on the dangers of these sugars on tooth enamel with prolonged consumption.

# Assessments

The target population for this community service project are middle school children between the ages 10-13. This population is generally in their mixed dentition phase as well as possibly going through orthodontic treatment. Our target population may not yet fully understand the importance of a healthy diet and how it relates to their dental health. This may be due to their new independence of purchasing school snacks on their own. Socioeconomic status may also be a factor, for example, purchasing the cheapest drink may not be the healthiest option. According to the CDC, “The percentage of children and adolescents aged 5 to 19 years with untreated tooth decay is twice as high for those from low-income families (25%) compared with children from higher-income households (11%).” Robert H. Goddard middle school is in a low-income community where we felt they needed quality patient education.

The inability at this age to make educated choices due to lack of knowledge makes them vulnerable to making poor choices. Poor nutritional choices, in conjunction with poor oral hygiene and limited dental care can lead to dental decay or other dental problems. A combination of these risk factors puts our target population at moderate to high risk for dental caries.

An article published by Drummond and Boyd states that early childhood caries (ECC) in primary teeth is a significant predictor of the caries risk and oral health problems of the permanent dentition in adolescence and adulthood. It also states that oral health often suffers in adolescences who have had early childhood caries. As the target population goes through many bodily changes, both dental and systemic, we believe this population needs oral hygiene education and instructions to help them make the correlation between their choices and how it can affect their dental health. Our presentation is designed to address topics we believe directly impact our target population at this age to address their needs.

 The first topic is bulimia in which we created awareness of the negative effects on the oral cavity. Adolescences at this age may go through body image difficulties which can lead to eating disorders such as bulimia. The second topic we address is herpes and varicella virus. Due to their engagement in sexual activity at this age, they need education on its transmission and occurrence. Next, they need proper oral hygiene instructions during orthodontic treatment since this population is generally undergoing orthodontic therapy. Since some adolescences in our target population also engage in sports activities they need to understand sports injury and its prevention. Their lack of understanding on oral clearance and its impact on caries may be the primary factor and therefore, they need education on the dental decay process. Using visuals to help them understand the high content of sugars in their nutritional choices is a good way to educate middle school students. Finally, they need instructions and demonstration on the frequency and technique of brushing, flossing, and rinsing.

According to the article by Drummond and Boyd, treating dental decay in children poses more challenges compared to treating decay in adults. This is due to the belief by some that primary teeth do not need to be treated, the longer time associated with treating childhood caries, not enough funding to treat children, and the risks associated with having to use general anesthesia on a child. Another factor in dental care for children is the caregiver. If the caregiver is not educated or involved in the dental care of the adolescence, the child is less likely to receive the care needed. Therefore, this population needs education on proper oral hygiene care to optimize their oral health long term.

**Planning**

Findings from the assessment stage revealed the oral health needs our target population may face during teenage years. It was determined that they were in need of quality patient education. Our main goal was to create awareness within our target population of the amount of sugar in popular soft drinks. In addition, our second goal was to educate them on proper oral hygiene home care, which was deemed an essential component in promoting optimal oral health. Emphasis was placed on the proper brushing and flossing technique with or without braces. As our third goal we wanted to create awareness on some topics that are relevant to their age group such as the detrimental effects of Bulimia and the prevention of sports injury.

To assist us in educating the students about nutrition, we selected a few popular sugary drinks such as Gatorade, Sprite, Coke, Orange Fanta, and Vitamin Water. We measured how much sugar was in each drink and placed the sugar amount into bottles to allow the students to visualize how much sugar they are consuming from each drink. This method allowed them to visually understand how much sugar is actually in these sugary drinks. Upon completion of our powerpoint presentation, our objective is to demonstrate to the students how to read the nutritional labels and when asked to identify the sugar content 100% of the students will be able to identify the grams of sugar within these drinks.

As part of our second goal to educate on proper oral hygiene care, we used a lot of pictures on our powerpoint to demonstrate what proper oral hygiene looks like in comparison with someone with gingivitis and white spots. We explained that white spots are irreversible however emphasizing that when proper oral hygiene is performed gingivitis can be reversible. We used a typodont to demonstrate proper toothbrush angulation and proper flossing technique. Upon completion of our powerpoint presentation, our objective is to demonstrate to the students how to proper brush using a modified bass technique and proper manipulation of floss, when given the opportunity to practice 75% of the students will be able to demonstrate proper toothbrushing and flossing techniques. To measure and confirm that proper oral hygiene was understood by all participants, we will use the typodont to have the students physically demonstrate the techniques that were demonstrated. This will allow us to ensure that our goal of achieving proper oral hygiene care will be achieved.

To address our third goal, we composed our powerpoint to high light the dangers of eating disorders and its effect on the oral cavity. We wanted to create awareness of the eating disorder bulimia. This was addressed due to the possibility of this age group starting to focus on their physical appearance and in the search of a quick fix to lose weight may explore this unfortunate disorder. We focused on the detrimental effects associated with vomiting on the oral cavity. We informed them that it is not recommended to brush immediately after vomiting due to the acid that can be brush onto all surfaces leading to erosion. Pictures were used to demonstrate what erosion appears like to demonstrate the severity of this eating disorder.

By a show of hands about half the class was involved in school sports, which we then took the opportunity to discuss the importance of wearing a mouth guard during contact sports. We briefly describe the different kinds of mouth guards out in the market. In addition, we discussed all the different sports that according to the American Dental Association (ADA) the use of a mouth guard is recommended.

**Implementation**

Collaboratively, we prepared a power point presentation designed to keep the students engaged by using pictures to reinforce the topics covered. The presentation included all the following: bulimia, herpes, caring for braces, prevention of sports trauma with mouth guards, nutrition, brushing and flossing. We thought it would be good to inform our target audience of the effects of bulimia in their oral cavity. For example, how frequent vomiting can cause the erosion of the enamel, hence making teeth fragile and more susceptible to fractures. As well as the management of bulimia and the recommendation of not brushing immediately after vomiting. The pictures we used demonstrated the detrimental effects of the lingual surfaces of the mandibular anterior regions.

At their age there is misconceptions of what herpes is and its transmission. We educated them on this topic which we deemed necessary in the hopes of reducing transmission and bullying. Some people might think that by kissing their partner that person gave her/him herpes. That is not the case because the person might have already been exposed to the virus previously which remained dormant in the body until it was triggered. Some pictures were included to show our audience how the herpes virus looks.

Since our target population is most likely to be undergoing orthodontic treatment, we asked the audience with a show of hands how many had braces. Five of the students out of 20 currently had braces. We explained the management of braces and how to properly place the toothbrush head for effective plaque removal. We also discussed the use of flossing with floss threaders, superfloss, and orthopicks.

At this age they are most likely to enroll into extracurricular activities such as sports. We wanted to inform them the importance of protecting their teeth when practicing sports to prevent trauma. According to the ADA, mouthguards should be worn when playing most sports for the prevention of trauma to the teeth, lips, jaw and tongue.

When presenting the topic of nutrition, we educated them on the detrimental effects of sugary drinks on their teeth. We had displays of test tubes with sugar that showed how much sugar is in popular sports drinks, sodas, and juices. We encouraged them to limit their consumption of drinks and recommended diluting them with water or simply substituting them with water.

Finally, we educated them on the importance of flossing, brushing and the use of an anticavity rinse. We encouraged them to floss at least once a day and brush twice a day for a least two minutes as recommended by the ADA. To demonstrate how to properly maneuver a toothbrush we used a typodont to demonstrate Modified Bass Technique. We demonstrated proper toothbrush angulation. We also had some samples of regular floss and floss picks and demonstrated how to properly use them on the typodont.

**Evaluation**

To evaluate the success of our service learning project after the PowerPoint presentation, we decided to go around the room and give every student the opportunity to identify and read a nutritional label to determine the grams of sugar in the drinks. This prove effective and our goal was met with 100% of students able to read a nutritional label. Middle school aged children were able to stay focused and absorbed the material because it was presented with many images and props. We believe this approach helped them visually understand all the information presented to them.

To measure the effectiveness of the provided educative material on oral health and proper home care, students were randomly selected to demonstrate on a typodont the proper toothbrush angulation and flossing during oral home care. About 75% of students were able to independently demonstrate properly both mentioned techniques on their first try using the typodonts. For the very few students that were not able to master the toothbrushing and or flossing technique, physically guiding their hands while manipulating the toothbrush was very helpful. To re-evaluate the effectiveness of this, Tell, Show, Do approach, the students who demonstrated difficulty maneuvering the toothbrush were re-evaluated and given the opportunity to demonstrate independently they mastered the technique. By the end of our presentation 100% of students in the classroom was able to use the typodont to effectively demonstrate proper tooth brushing and flossing techniques. This was gratifying as we exceeded our original goal of 75%.

At the end of our presentation to thank the students for their participation and active engagement throughout classroom activities we praised each student with a goodie bag as a form of motivation. The goodie bags contained a toothbrush and a fluoridated toothpaste.

**Conclusion**

Quality preventive care and quality patient education are the two most important factors when focusing on this unfortunate epidemic of tooth decay among children. Although added sugars can be safely consumed in low amounts as part of a healthy diet, few children achieve such levels due to the variety of popular soft drinks that children are exposed to on a daily basis. Creating awareness and educating the children throughout this service learning project made them informed consumers. Being able to identify the amount of sugar in soft drinks by reading the food label on the container is an important tool when deciding what will be their next drink.

As Dental Hygienist we are directly involved with both perspectives and it is our obligation to provide education geared towards improving their dental health and overall health.

As Dental Hygiene students advocating proper oral hygiene is of most importance at any age. Teaching these children to be consistent with their dental checkups once every six months is an essential component of patient education. Emphasis was placed on informing these children that dental decay is a preventable disease if proper oral hygiene care is taken seriously, good nutrition and professionally applied fluoride during their dental checkups if needed.

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