"I brush, I floss, I rinse, I smile!"

Presentation

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Introduction:

Our service learning project was to give an oral health presentation to a class of approximately 30 2nd graders. Our goal was to get the kids excited about oral hygiene and to provide anticipatory guidance for the years ahead.

When initially reaching out to the school, we had the advantage of a preexisting relationship with the teacher; the son of one of our group members was a student in the class, and had been treated in the NYCCT clinic. This relationship gave us several advantages: it made it easier to reach out and establish rapport with the contact person; we had advance knowledge of the school's administration, schedule and location; it even gave us some insights into the characteristics of 2nd-graders. We also learned that the classroom was equipped with a computer with PowerPoint and a smart board. Unfortunately, the website YouTube was not accessible from the school computer, so we could not link to any oral hygiene videos via the internet.

Perhaps because of these advantages, our proposal was enthusiastically approved by the teacher. She even requested that we give our presentation for all four 2nd-grade classes, totaling around 120 kids. Initially, we felt that we could not make the time commitment required because the four of us were only free on Mondays would have needed to visit the school multiple times. But since we also wanted to be fair to the other students, we decided to invite other groups to give presentations to the other classes. We also learned that the teacher had other activities planned for

the students related to dental hygiene, including showing a video after we left. In this way, we were able to incorporate our presentation into the teacher's planned curriculum.

After settling the logistics, we began our research. A recent review of studies measuring the impact of oral health education in children provided several important insights. First, the review concluded that personalized brushing instruction effectively improves the quality of the childrens' homecare. One study demonstrated that the percentage of kids who brushed the lingual posteriors increased from 8 to 43%. Another study found that the percentage of kids who employed a circular brushing method tripled. Although potentially detrimental for adults, the circular, or Fones, method of brushing is considered suitable for children because it is easy to perform.

Another cross-sectional study found that race/ethnicity and socioeconomic status to be the primary risk indicators for ECC; with the highest risk group being Hispanic children whose parents did not graduate from high school. The second highest-risk race was black, followed by white, while Asian kids were not rated. Given that Brooklyn is one of the most diverse cities in the country, we were confident that our classroom would have kids of all races, and all risk categories. After completing a literature review, we felt ready to begin our assessment.

Assessment:

In planning our presentation, we first took into account the situation of the kids. Given their age, they have been living with their primary dentition for several years and are just beginning the mixed dentition period. The final primary teeth, the maxillary second molars, erupt by 33 months[1], while the first adult teeth, the mandibular first molars, generally erupt at age six. Assuming that the 2nd graders we would be dealing with would be 6-8 years old, depending on their birthdays, they could have a wide range of dentitions. If they were six, it's possible that they still have an intact primary dentition. On the other hand, if they are eight, they could have the adult maxillary and mandibular first molars, as well as the central and lateral incisors[2]. Additionally, because the permanent first molars erupt posterior to the primary second molars, the children could have up to 24 fully-erupted teeth in the mouth, assuming that the primary central and lateral incisors were exfoliated before eruption of the permanent incisors. This is not always the case, however, as the permanent incisors sometimes erupt linguals or labially to the retained primary teeth. This situation causes anterior crowding, making effective oral hygiene difficult and increasing the likelihood of plaque retention, potentially contributing to gingivitis and dental caries. In the end, although the children might present with a variety of dentitions, they will all be about to begin a time of great physical and emotional changes, and our planning proceeded with this in mind.

Planning:

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[1] Wilkins EM. *Clinical Practice of the Dental Hygienist, 11th ed.* Philadelphia, PA: Lippincott Williams & Wilkins; 2013, p. 762.

[2] Bath-Balogh M, Fehrenbach MJ. *Illustrated Dental Embryology, Histology, and Anatomy, 3rd ed.* St. Louis, MO: Elsevier; 2011, p. 193.

Based on our assessment, we decided that our main goal should be to improve the childrens' oral hygiene knowledge. A more meaningful goal would be to change their behavior, but since we are only doing a one-time presentation we cannot measure behavioral changes. We can, however, measure some changes in their knowledge directly after the presentation.

In considering how to assess the results of the presentation, we took into account the capabilities of the children. We initially considered ending the presentation with a survey. However, we eventually decided that filling out a written survey would be too cumbersome for the kids. Instead, we chose to directly ask questions we explained during the presentation, followed by brushing instruction. We felt that this would be more engaging for the kids while giving us a general measure of how much knowledge they retained.

Another aspect of our planning was on the props and visual aids to use during the presentation. After reviewing several oral kids' oral health presentations online, we came up with several ideas. One idea was to illustrate the impact of soda on teeth by soaking several hard boiled eggs in soda. In theory, the shells of the eggs should partially dissolve, leaving soft fragments of the shell intact that the kids could feel with their hands. In practice, however, even after several days, the egg shells remained intact, albeit stained.

Another idea was a participatory flossing demonstration in which two kids stand back-to-back trapping a tennis ball between them; at first one hygienist uses an oversized toothbrush over the

sides of the kids. Afterwards, two hygienists pass a jump rope in between the kids to dislodge the tennis ball. This demonstrates in a fun way that brushing removes the interproximal plaque that brushing leaves behind. Unfortunately, although one of our group members works in a pediatric dental office, we were unable to secure an oversized toothbrush. A third idea was to bring gifts for the kids, including dental-themed temporary tattoos and pencils, and hand them out to the kids as a reward for answering questions. We purchased the supplies from amazon.com, and also made giftbags for the kids to take home from them. We believed these rewards would get the kids more motivated and engaged in the presentation. Having completed our planned, we felt prepared to meet the kids face-to-face.

Implementation:

We arrived at the school at 9:15 and were escorted to the classroom. We wore our scrubs to emphasize our roles as dental professionals and give our words greater authority. A critical part of the presentation was the PowerPoint slides, so we made sure to save the file in multiple formats to prevent technical difficulties. This turned out have been a good decision because the classroom computer did not have a licensed copy of PowerPoint; as an alternative we opened the presentation as a PDF in the Preview app and were able to continue. The teacher asked the students to sit on the carpet in front of the projection screen. Since we were standing, this caused us to be towering over the kids, which is not recommended. During the presentation, this could not be avoided because there was no room to kneel down. However, during the brushing instruction portion at the end, we kneeled or crouched down to be on an even level with the kids.

Another issue that developed is that the kids became a little too excited and noisy. Several times during the presentation the teacher had to raise her voice to get the kids to quiet down. For awhile the kids would be quiet, but then gradually get louder again. We tried to keep the kids calm, ourselves, but we couldn't raise our voices in the same way the teacher could. Before leaving, we spoke with the teacher as she completed the evaluation form. We also took some group pictures with the kids, gave the gift bags to the teacher, and said goodbye.

Evaluation:

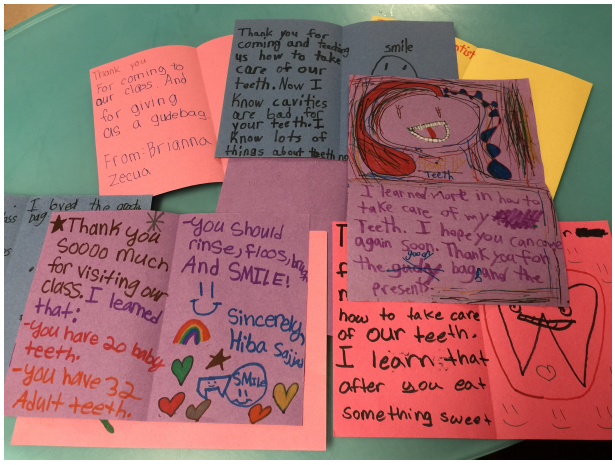
To evaluate whether the students had retained the key information from our presentation, we verbally quizzed the kids in the question and answer period. Our questions included: "How many baby and adult teeth do I have?" "What are the four different kinds of teeth and what are they used for?" "What causes cavities?" "What are healthy snacks?" "What three things do you have to do for a healthy smile?" "What ingredient in toothpaste helps prevent cavities?" We found that the kids were able to answer almost all of the questions, except for the question about fluoride. This may have been too advanced for them. Afterwards, we used our typodonts and brushes

to evaluate whether the students could demonstrate the Fones brushing technique we had explained. Some of the kids were not immediately able to perform the small circular strokes, although they did remember to brush the insides, outsides, tops, and tongue. With our guidance, we believe their brushing technique improved significantly.

Conclusion:

After using dental hygiene process of care to design and implement a presentation for 30 second graders, we found that they responded enthusiastically. The teacher thanked us warmly before we left, and a few days later we received hand-made thank you cards from the children. The cards were extremely charming with colored illustrations of teeth and descriptions of what they learned.

We also learned how to more effectively engage with a young population: we found that the PowerPoint presentation was effective, but needed to be mixed with demonstrations and activities to keep the kids from getting either too bored or too excited. They appreciated the materials we gave them, and the presentation length of one hour seemed like a good match for their attention spans. In evaluating our presentation, we chose to verbally quiz the students instead of having them complete a survey. In retrospect, however, the children



probably could have successfully completed a survey, and this would have provided a more objective measure of what they learned. If we do a presentation like this in the future, a written survey could be a valuable tool.

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