



FINAL REPORT
2017/2018
SCHOOL YEAR

**ADOLESCENT ORAL
HEALTH CAMPAIGN**

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Introduction

During the 2017 – 2018 school year, the Oral Health Program (OHP) continued the Adolescent Oral Health Campaign launched during the 2016-2017 school year. This intervention is designed to educate middle school and high school aged students about oral health care with the goal of encouraging positive oral health behaviors and increasing the participation and utilization of dental services. The campaign targeted middle school and high school health classes along the Wasatch Front. The educational intervention consisted of a presentation given by the OHP Oral Health Educator, OHP Interns, and volunteer dental hygiene students. Presentations were 45 to 60 minutes in length, and varied by school. Anonymous pre- and post-tests were given to all students before and after the educational segment. These assessments asked knowledge-based questions on oral health topics that were addressed in the educational presentation. In addition, these assessments contained questions about students' demographics, such as age, Zip code, race, and ethnicity, and questions about access to dental services, such as the last time the student saw a dentist or dental hygienist. Completed surveys were then entered into Survey Monkey in order to evaluate the effectiveness of this oral health intervention. In addition, educational brochures that included a list of local safety net dental clinics were made available to all students.

The OHP Oral Health Educator, along with interns, provided 98 presentations at 18 schools to a total of 2,508 middle and high school students during the 2017–2018 school year. Through a partnership with the Utah Schools for the Deaf and the Blind, campaign material was modified and presentations were offered to 59 students in special needs classrooms. Toothbrushes, floss, and toothpaste were also passed out to all of the students in these special needs classrooms.

Goals and Objectives

The primary goal of the Adolescent Oral Health Campaign was to increase the oral health knowledge and healthy behaviors among adolescents attending public and certain charter schools in Utah, especially along the Wasatch Front. To meet this goal, the presentation focused on individual behaviors that adolescents can control in their lives, as oral hygiene at home is a major behavior students can control and improve. Another goal was to increase the number of students accessing dental services at least once a year by encouraging students to seek dental services and describing the benefits of such services. Low cost dental resources were made available to all students.

Vision and Mission of the Adolescent Oral Health Campaign:

Increase oral health knowledge and healthy behaviors among adolescents attending public school.

Increase the number of students receiving preventive oral health services once a year by encouraging students to seek services, describing benefits of service and providing local safety net clinics to all students.

Methods

Interventions

A one-time oral health intervention was designed specifically for middle school students with a modified presentation designed for high school students. A pre-test was completed by the students and turned in to the Oral Health Educator prior to the beginning of the intervention. The oral health presentation covered a multitude of topics including proper brushing and flossing habits, healthy nutrition choices such as limiting sugary snacks and drinks, how a cavity is formed, how to prevent gum disease, how to properly clean braces and retainers, and the importance of regular dental care. The Health Belief Model, a psychological health behavior change model, was used to address perceived barriers to good oral hygiene habits. The effectiveness of the Adolescent Oral Health Campaign was measured through pre- and post-tests, completed by students in the classroom in paper format. Students receiving the modified presentation through the Utah Schools for the Deaf and the Blind were allowed extra time to complete the pre-test by taking it prior to the Oral Health Educator's arrival.

School Participation

Although public schools were the main focus for this campaign, two charter schools were also contacted and received the intervention, including the International Charter School, and the Utah School for the Deaf and the Blind. A special emphasis was placed on schools in Canyons, Granite, Ogden, and Tooele School Districts. Presentations were primarily scheduled by the Oral Health Educator by contacting individual health teachers in schools along the Wasatch Front. Schools were selected to participate in the Oral Health Assessment based on the health teachers' response to our program. As a result, schools were not randomly selected for this campaign.

Methods

Analysis

Completed pre- and post-tests were entered into Survey Monkey by OHP's Oral Health Educator and by OHP interns. Complete response data was downloaded from Survey Monkey to a Microsoft Excel file, and uploaded into SAS 9.4 for analysis. Average student age, distribution of student age, race, and ethnicity, and responses to all survey questions were analyzed. Pre- and post-test responses to all survey questions were compared, and stratified analyses of specific oral health knowledge questions were conducted. All analyses were conducted in SAS 9.4.

Results

Demographics

Demographics of students at participating schools are presented in Table 1. Distribution of ages and student gender were calculated based on pre-test responses. More than 99% of students reported being between the ages of 11 and 17 (n = 2399). Average student age was 13.2 years (SD±1.1 years). There was no significant difference in student participation by gender: 47.1% of students identified as female in the pre-test (n = 1056), compared with 52.9% of students who identified as male (n = 1172). The majority of students (57.1%, n = 1368) identified as persons who are White, while the remainder of students identified as person who are non-White: 4.8% identified as persons who are Black/African American (n = 112), 4.3% identified as persons who are Asian (n = 104), 2.7% identified as persons who are American Indian/Native American (n = 65), 2.1% identified as persons who are Native Hawaiian/Pacific Islander (n = 51), and 8.6% identified as persons who are "Other" (n = 207). Finally, 20.5% of students selected multiple races and were re-categorized as being Mixed Race (n = 491). Nearly three-fourths of students were classified as persons who are non-Hispanic (71.5%, n = 1713), and just over one-fourth were classified as persons who are Hispanic (28.5%, n = 682).

Student Demographics

| | Total number of students (n 2,508) | Percentage (%) |
|------------------------------------|---------------------------------------|----------------|
| Age | | |
| 11 | 108 | 4.5 |
| 12 | 413 | 17.2 |
| 13 | 1115 | 46.5 |
| 14 | 647 | 27.0 |
| 15 | 48 | 2.0 |
| 16 | 33 | 1.4 |
| 17 | 16 | 0.7 |
| 18 | 10 | 0.4 |
| 19 | 6 | 0.3 |
| 20 | 3 | 0.1 |
| Gender | | |
| Female | 1146 | 47.1 |
| Male | 1286 | 52.9 |
| Race | | |
| American Indian/Native American | 65 | 2.7 |
| Asian | 104 | 4.3 |
| Black/African American | 112 | 4.7 |
| Native Hawaiian/Pacific Islander | 51 | 2.1 |
| White | 1368 | 57.1 |
| Other | 207 | 8.6 |
| Mixed Race | 491 | 20.5 |
| Ethnicity | | |
| Hispanic/Latino | 682 | 28.5 |
| Non-Hispanic/Latino | 1714 | 71.5 |

Table 1: Student Demographics

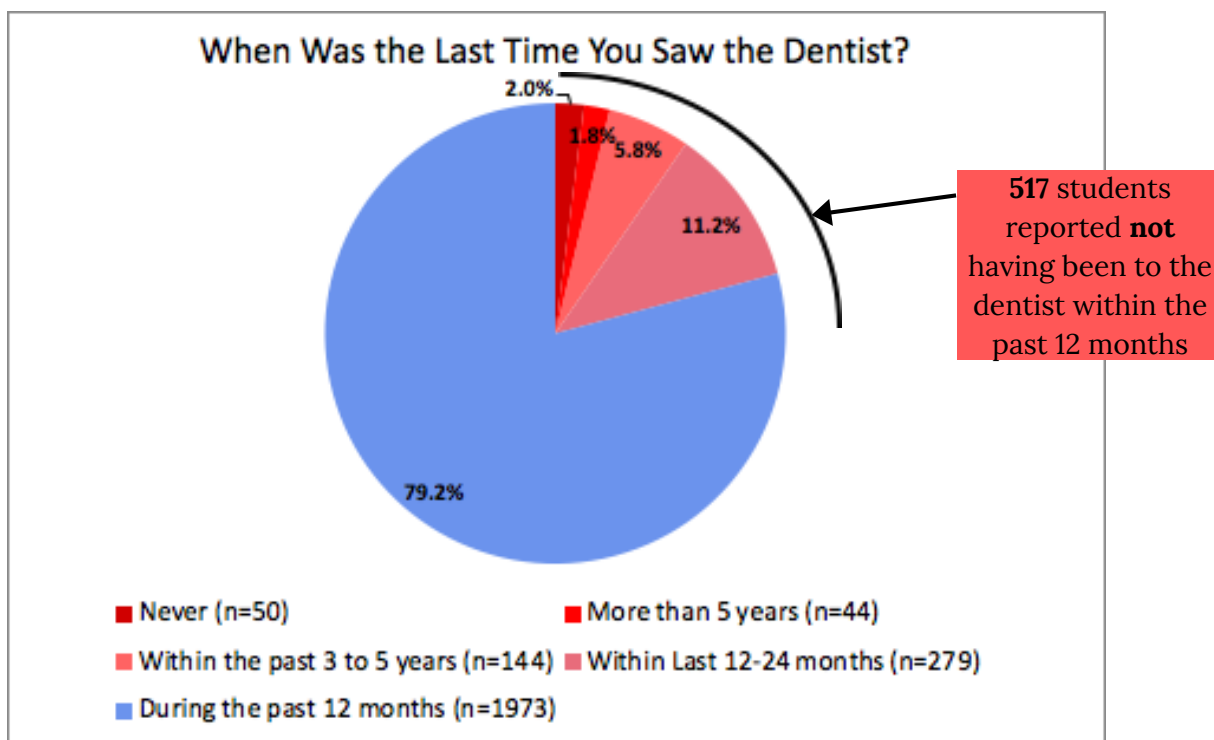
Oral Health Behavior Questions

As noted previously, our survey included questions aimed at better understanding students' oral health knowledge, as well as their individual oral health behaviors. Only pre-test responses to oral health behavior questions were analyzed for this report to minimize the risk that the intervention may have impacted students' responses in the post-test, thereby biasing results. The following questions were asked regarding students' oral health behaviors:

When was the last time you saw a dentist for a check-up, exam, teeth cleaning?

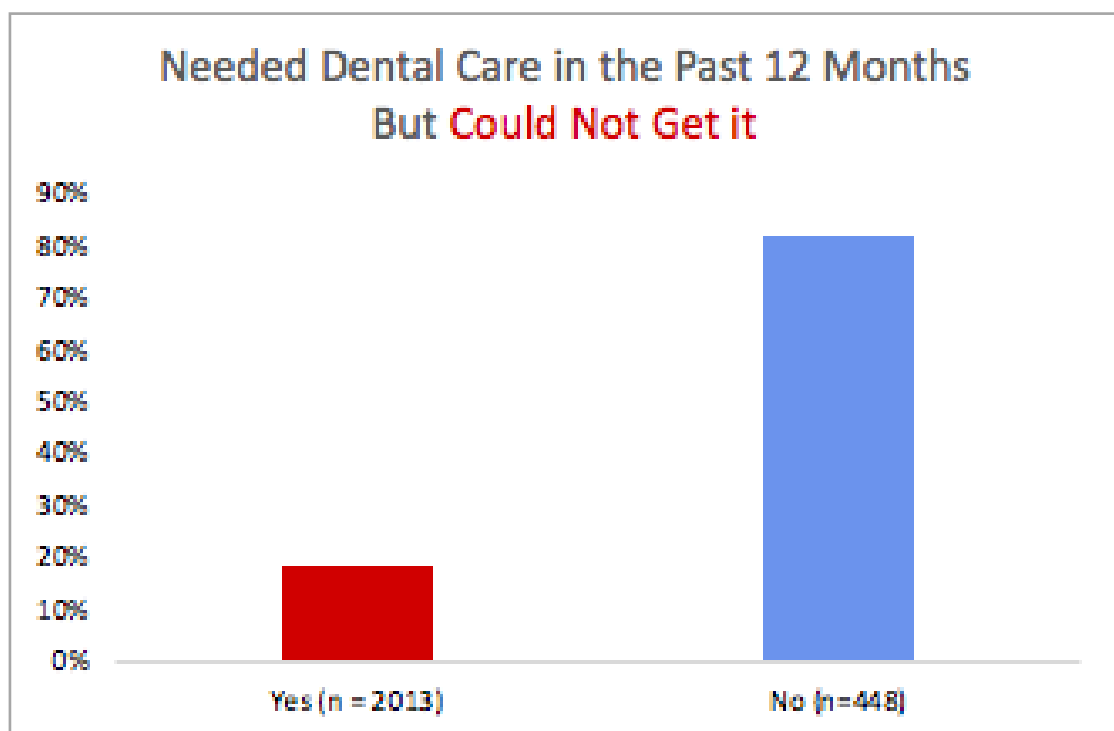
This question was modified from the 2016-2017 report to the 2017-2018 report. During the 2016-2017 campaign, the question asked, "When was the last time you saw a dentist for a check-up exam, teeth cleaning, or other dental work?" This question was amended to, "When was the last time you saw a dentist for a check-up, exam, teeth cleaning?" in the 2017-2018 campaign in order to focus on students' accessing preventive dental care. It is of interest to note the results of the Adolescent Oral Health Campaign Survey closely follow the state of Utah Youth Risk Behavior Survey (YRBS) question 86 asked during the 2017 school year: in the YRBS survey, the majority of students 1,377 or 76.8% reported going to the dentist during the past 12 months. In the adolescent survey, 1,972 students or 78.6% reported going to the dentist during the past 12 months. Nonetheless, caution should be taken when comparing these results, as YRBS is a statewide survey primarily reaching 14 to 18 year old students and the question included "other dental work" which was eliminated from the 2017-2018 Adolescent report. The Adolescent Campaign also focused primarily on middle school students along the Wasatch Front and primarily surveyed 12-14 year old students.

In summary, the majority of students surveyed in the 2017-2018 Adolescent Oral Health Campaign reported having a dental visit within the last 12 months (79.2%, n = 1973). More than ten percent of students reported visiting a dentist between the last 12-24 months (11.2%, n = 279). A small number of students reported having a dental visit within the past three to five years (5.8%, n = 144), a few reported seeing a dentist more than five years ago (1.8%, n = 44), and some students indicated they had never been to the dentist (2.0%, n = 50).



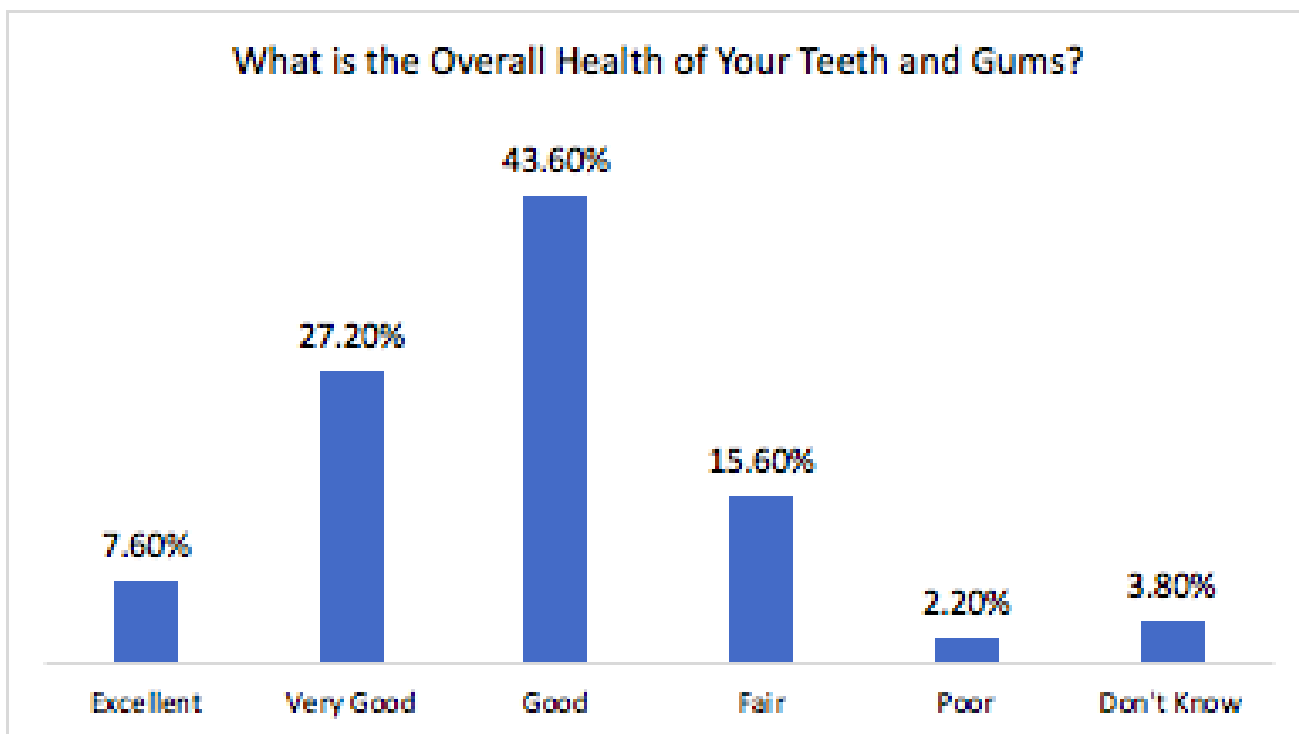
During the past 12 months, was there a time when you needed dental care but could not get it at that time?

This question was added in the 2017-2-18 school year in order to assess unmet need, and determine whether oral health disparities exist among students. This question is meant to measure accessibility of dental services for students within the past 12 months.



Overall, how would you rate the health of your teeth and gums?

This question was also an addition to the 2017-2018 school year to assess students' perception of their own oral health. Fewer [CH1] than 10% of adolescents rated their oral health as being excellent (7.6%, n = 189). The majority of students rated their oral health as either very good (27.1%, n = 681) or good (43.6%, n = 1091). Fewer than 20% of students rated their oral health as fair (15.6%, n = 391). Only a few students rated their oral health as poor (2.2%, n = 54), or reported [CH2] they did not know how they rated their oral health (3.8%, n = 95).

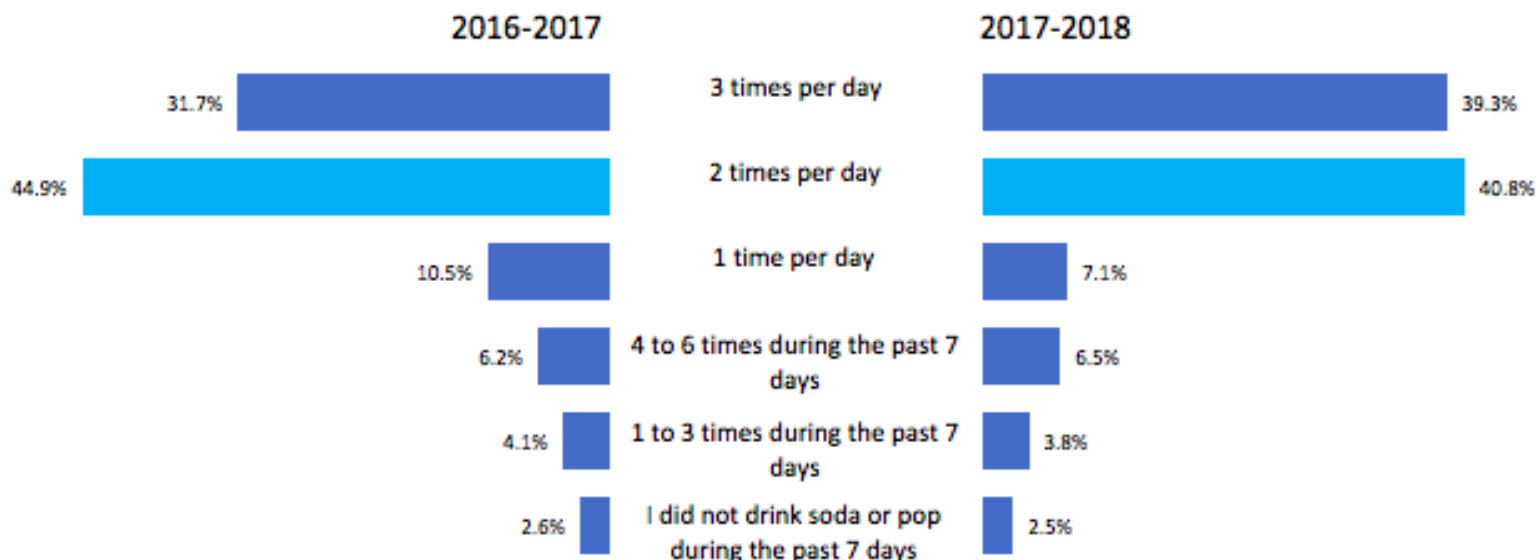
**During the past 7 days, how many times did you drink a can, bottle or glass of soda pop, such as Coke, Pepsi, or Sprite? (Not including diet soda or diet pop)**

Just under half of the students reported consuming one to three sodas over the course of the previous week (40.3%, n = 1010), and nearly one-third of students reported not consuming any soda during the previous week (38.8%, n = 973). Fewer than ten percent of the students reported consuming at least one soda per day (6.3%, n = 159), or consuming soda four to six times a week (7.0%, n = 176).



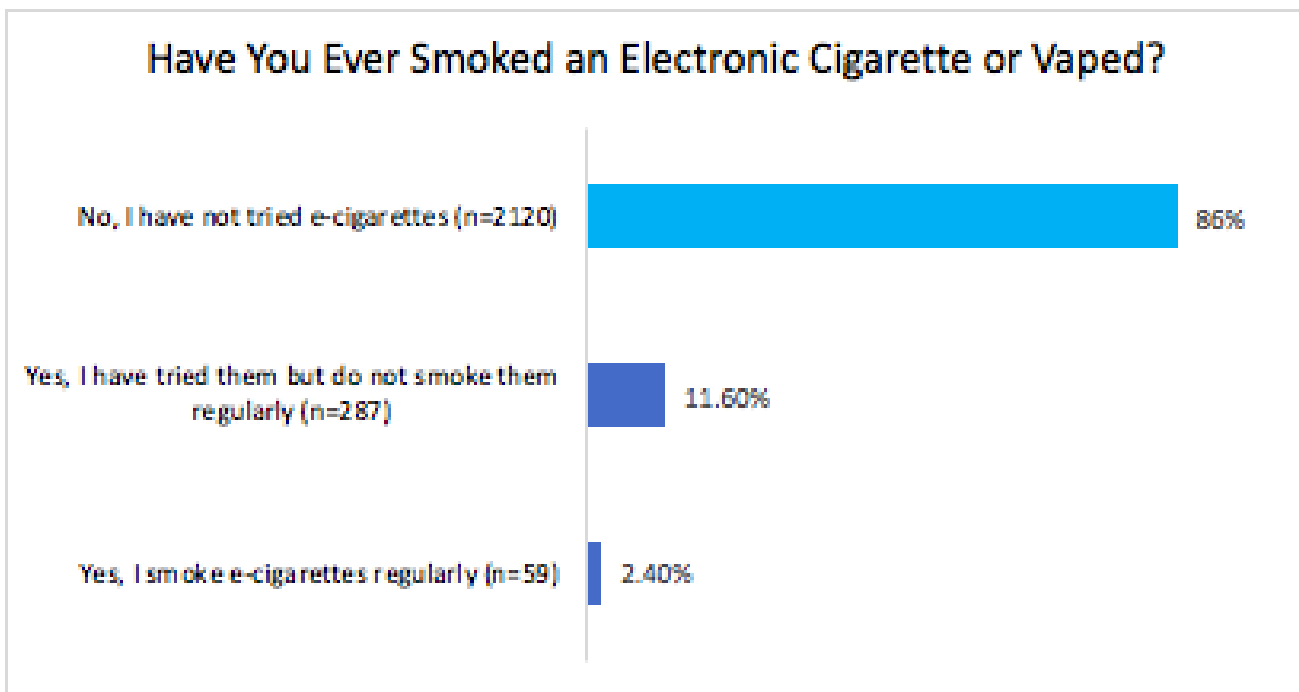
We were interested in comparing student pre-test responses on soda consumption in the 2017-2018 campaign with responses to the same question from the previous year. We found a statistically significant difference in reported soda consumption between these two school years ($F = 43.9$, $df = 5$, $p < 0.0001$). The chart below compares the proportion of student responses to each category of soda consumption between the two school years – while there was little change in the proportion of students who reported drinking 1 – 3 sodas per day, the proportion of students who reported drinking 4 – 6 sodas per week dropped by 3.4% between the 2016-2017 and 2017-2018 school year; the proportion of students who reported drinking 1 – 3 sodas per week dropped by 4.1% between these two years, and 7.6% more students reported not drinking any soda in the past week during the 2017-2018 school year, when compared with the previous school year.

Weekly Soda Consumption Compared Between Years



Have you ever smoked an electronic cigarette or vaped?

The OHP recognizes the increasing popularity of electronic cigarettes among teens and young adults in Utah. According to the Vape Product Experimentation and Use Fact Sheet found in Utah's Indicator-Based Information System (IBIS), "In 2013, 2015, and 2017 Utah students were more likely to report use of electronic cigarettes or vape products than any other tobacco or nicotine product." This report also found that, "In 2017, nearly one-fourth of Utah students in grades 8, 10, and 12 reported they had tried vape products (also known as electronic cigarettes, e-cigarettes, vape pens, or mods) and 11% reported current use." Due to the staggering rise in popularity of vaping products the OHP decided to address vaping and other tobacco products and their consequences on the oral cavity (including mouth, tongue, teeth and throat) in this campaign.



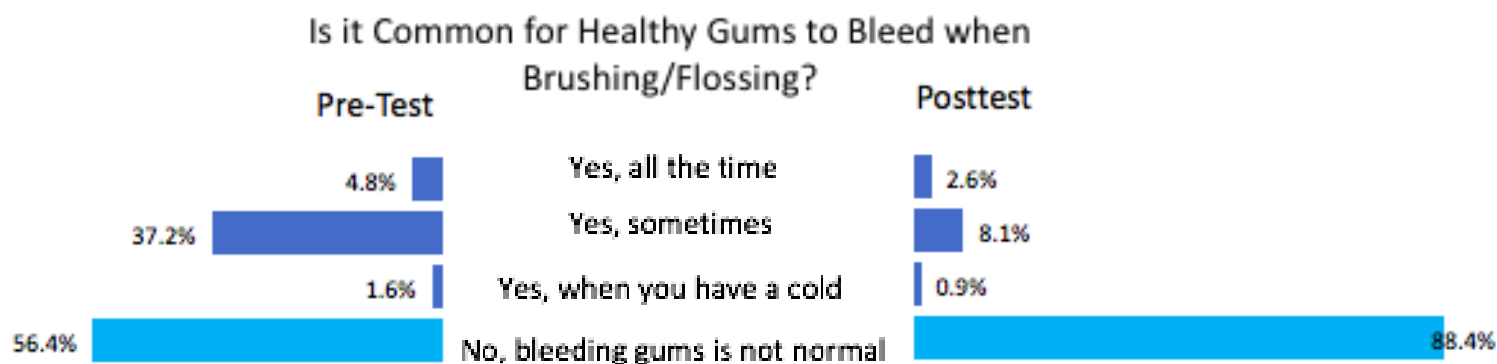
Results from surveyed sixth and seventh grade students show that the majority of students (86.0%, n = 2120) have not smoked an electronic cigarette or vaped. Just over ten percent (11.2%, n = 287) reported trying or experimenting with electronic devices, and 2.53% (n = 121) teens reported using these products regularly.

ORAL HEALTH KNOWLEDGE QUESTIONS

Topics covered in the educational intervention included cavities, gum disease, nutrition (with an emphasis on soda consumption), braces, and the importance of mouth guards while engaging in athletic activities. Questions geared toward assessing students' understanding of specific topics were asked in both the pre- and post-tests. A comparison of pre- and post-test responses for each of these questions is presented below. A table of all questions asked and the number and frequency of responses given for each answer choice is presented at the end of this report.

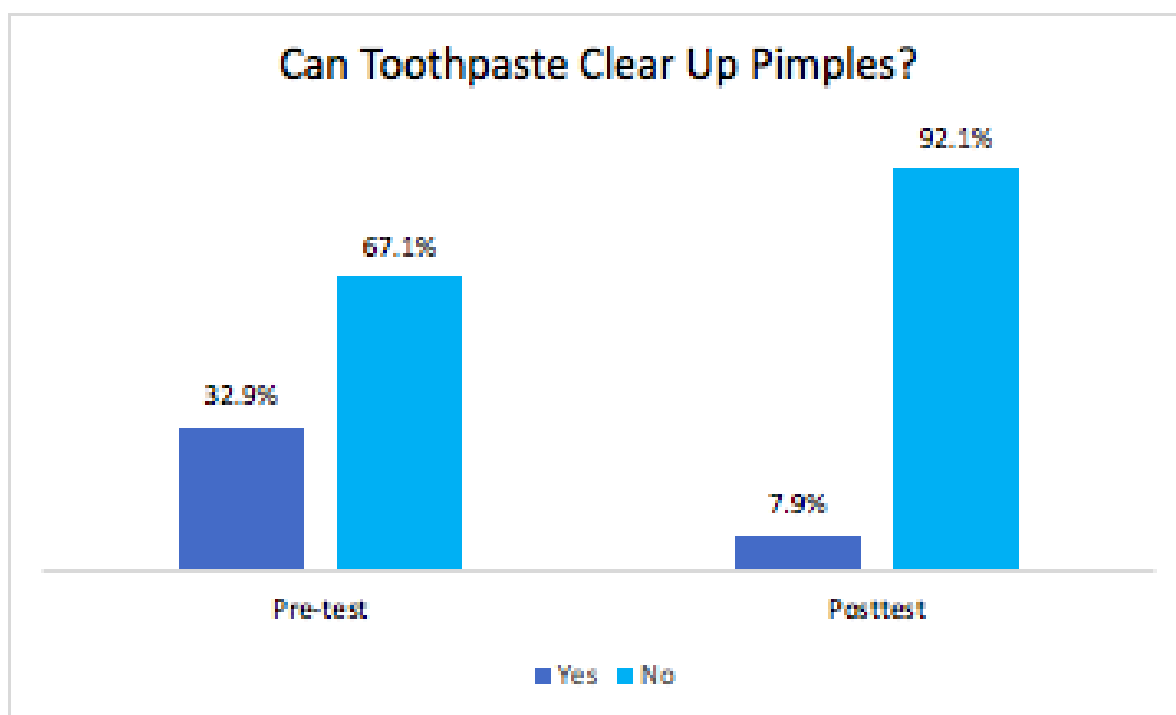
Is it common for healthy gums to bleed with brushing/flossing?

The correct response to this question is “No, bleeding gums is not normal.” Just over half of the students selected the correct response during the pre-test (56.4%, n = 1407), compared with 88.4% (n = 2053) who selected this response during the post-test.



Can toothpaste clear up pimples?

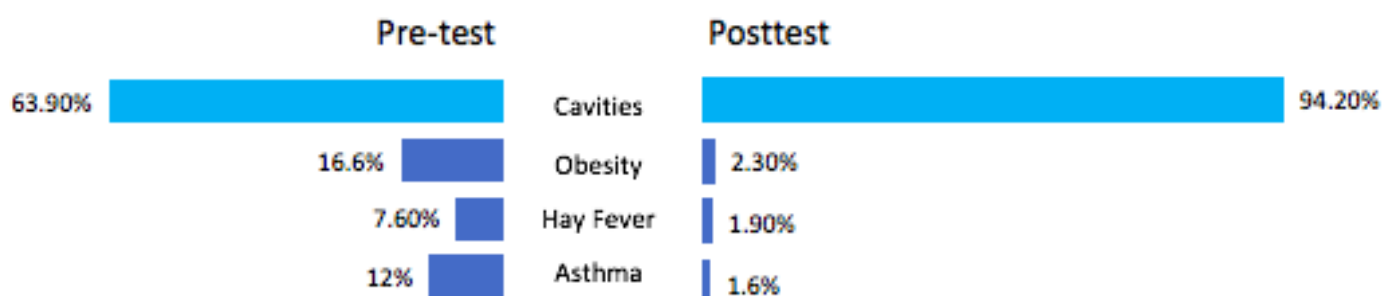
There is no scientific evidence that toothpaste will help with pimples. More than half of the students selected the correct answer in the pre-test (67.1%, n = 1643), while nearly all students selected the correct response on the post-test (92.1%, n = 2100).



Which of the following chronic diseases is most common among children / teens?

The National Center of Health Statistics (2015) reported in 2011-2012, 58% of youth between the ages of 12-19 have some form of decay in an adult tooth. Cavities are five times more common than asthma and seven times more common than hay fever. This question sought to determine whether students understood the significant effect that poor oral health has on a population level, in addition to an individual level. More than half of the students selected the correct response on the pre-test (63.9%, n = 1587). Almost all the students selected the correct response on the post-test (94.2%, n = 2188). These results are similar to those from the 2016-2017 campaign, where 71.9% of students selected the correct answer on the pre-test and 95.8% selected the correct response on the post-test.

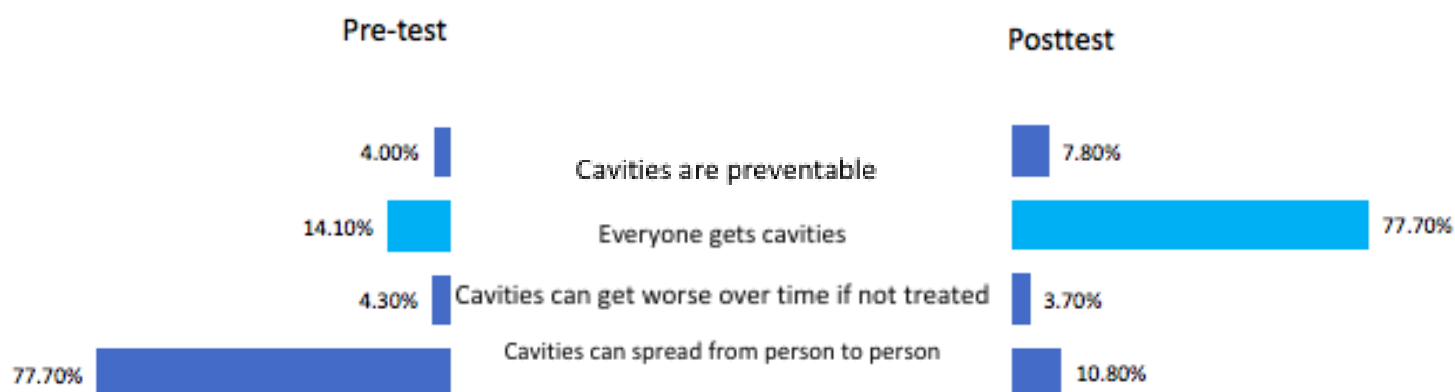
Most Common Chronic Disease Among Children/Teens



All of the following statements are true about cavities except for one. Mark the statement that is false.

“Everyone gets cavities” is the false statement, and is thus the correct answer choice. The majority of students incorrectly chose “Cavities can spread from person to person” as being false on the pre-test (77.7 %, n = 1922). On the post-test, however, the same proportion of students correctly identified the false statement (77.7%, n = 1792).

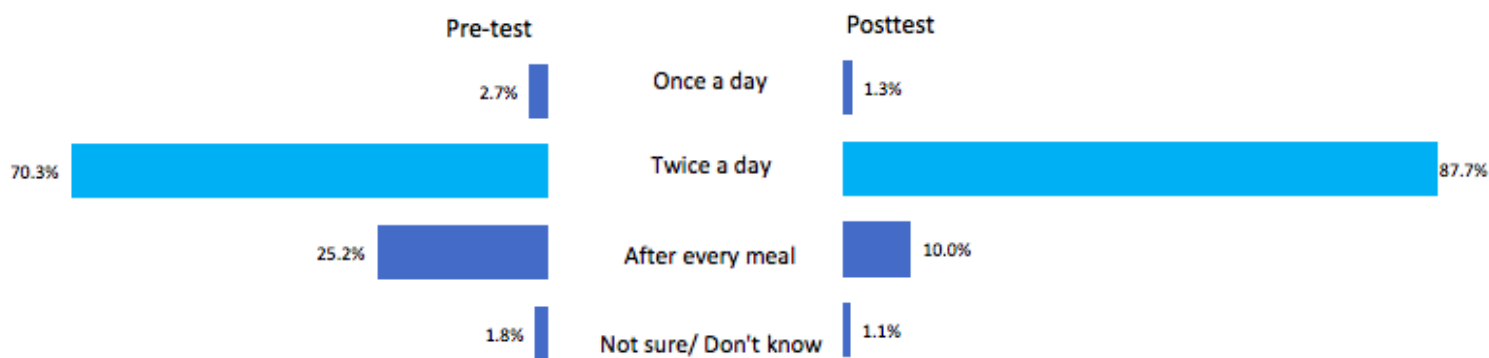
Choose the Single False Statement About Cavities



How often is it recommended that you brush your teeth?

This question sought to provoke students to think about the importance of dental hygiene at home in overall oral health. Pre-test results indicate that the majority of the students (70.3%, n = 1754) were already aware that brushing twice a day is recommended by the American Dental Association (ADA), while one quarter of students indicated on the pre-test that brushing after every meal was preferred (24.2%, n = 628). Although the ADA recommends this frequency for certain cases, such as for individuals who wear orthodontic appliances, the recommendation for the general public is to brush teeth twice a day for two minutes. The post-test demonstrated a clear shift in students' knowledge, with the majority of students (87.7%, n = 2032) marking the correct answer that brushing twice a day was recommended.

How Often is it Recommended You Brush Your Teeth?



The American Dental Association Recommends:

Brush your teeth twice a day with a soft- brissled brush and make sure to use an ADA- accepted fluoride toothpaste

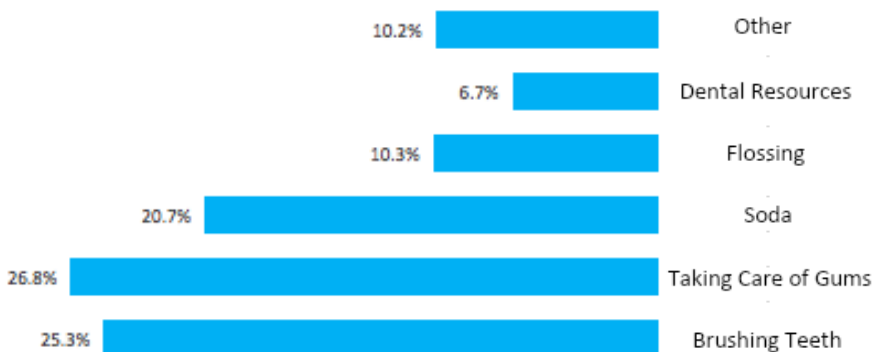
<https://www.mouthhealthy.org/en/az-topics/b/brushing-your-teeth>

Post-Test Qualitative Questions

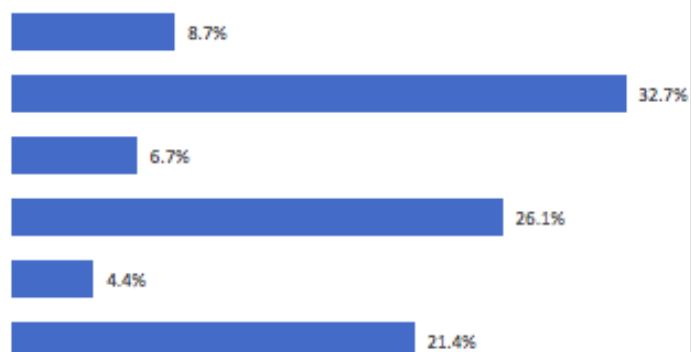
Following the 2016–2017 school year, an evaluation of the campaign was designed and conducted by a former OHP intern in May and June of 2017. Based on the results of this evaluation, OHP, working in collaboration with the Data Resources Program, decided to add two additional questions to determine students' subjective opinions regarding the relevance of the oral health information discussed in this intervention. This feedback will allow the OHP to adjust the presentation in the future. The questions added were:

Comparison of MOST and LEAST Helpful Topics Reported by Adolescents After the Oral Health Presentation

Topics Reported as MOST Helpful



Topics Reported as LEAST Helpful



Students indicated:

That information on taking care of their gums was most helpful and information on dental resources was least helpful.

Limitations

Adolescent Oral Health Campaign

Limitations

Some limitations should be noted. The first limitation relates to school selection; OHP's Oral Health Educator contacted specific schools, and if the school's health teacher agreed to the presentation then OHP presented at that school. As a result, schools were not randomly selected to participate in the intervention, and the students who received the intervention program may not be representative of all of Utah's adolescents. Finally, there was a difference between the number of completed pre-tests and completed post-tests that were returned to the Oral Health Educator: while 2,508 pre-tests were completed by students, only 2,336 completed post-tests were returned to the Oral Health Educator.

It should also be noted that bias due to self-reporting is always present – it is therefore possible that the results to health behavior questions, such as questions about soda consumption or last dental visit, are not entirely accurate. And since the surveys were self-reported, some students returned pre- and post-tests not completely filled out.

Conclusions

The Adolescent Oral Health Campaign is an efficient way to assess and increase adolescents' knowledge of oral health topics. Offering this intervention on a yearly basis will allow OHP to track trends in changes in knowledge of oral health topics among Utah adolescents. These findings will continue to be used to modify information presented in subsequent campaigns.

Conclusions

| Table 2: Survey Question Responses (correct answer choice in bold) | | |
|--|-----------------|------------------|
| | Pre-Test | Post-Test |
| Survey Question | N (%) | N (%) |
| <i>Is it common for healthy gums to bleed when brushing/flossing?</i> | | |
| No, bleeding gums is not normal | 1406 (56.1%) | 2045 (87.9%) |
| Yes, when you have a cold | 41 (1.6%) | 21 (0.9%) |
| Yes, sometimes | 928 (37.0%) | 187 (8.0%) |
| Yes, all the time | 120 (4.8%) | 61 (2.6%) |
| <i>Can toothpaste clear up pimples?</i> | | |
| Yes | 805 (32.1%) | 180 (7.7%) |
| No | 1642 (65.5%) | 2101 (89.9%) |
| <i>Which of the following chronic diseases is most common among children/teens?</i> | | |
| Asthma | 297 (11.8%) | 38 (1.6%) |
| Cavities | 1586 (63.2%) | 2189 (93.7%) |
| Hay fever | 188 (7.5%) | 44 (1.8%) |
| Obesity | 412 (16.4%) | 53 (2.3%) |
| <i>All of the following statements are true about cavities except for one. Mark the statement that is false.</i> | | |
| Cavities can spread from person to person | 1922 (76.6%) | 250 (10.7%) |
| Cavities can get worse over time if not treated | 106 (4.2%) | 86 (3.7%) |
| Everyone gets cavities | 348 (13.9%) | 1792 (76.7%) |
| Cavities are preventable | 98 (3.9%) | 179 (7.6%) |
| <i>How often is it recommended that you brush your teeth?</i> | | |
| Once a day | 68 (2.7%) | 30 (1.3%) |
| Twice a day | 1753 (69.9%) | 2032 (86.9%) |
| After every meal | 628 (2.5%) | 231 (9.9%) |
| Not sure/Don't know | 46 (0.2%) | 25 (1.1%) |

Table 2: Survey Responses

Acknowledgements

This report is the result of collaboration between the Oral Health Program and the Data Resources Program within the Bureau of Maternal and Child Health at the Utah Department of Health.

We would like to thank school administrators, teachers, and students for their participation in the Adolescent Oral Health Campaign. In addition, we would like to thank the Oral Health Program Educator, Lauren Neufeld, for designing this intervention and offering the presentation to participating schools. A special thank you to OHP interns Kiersten Philpot and Hanna Harris for presenting at participating schools. Hanna also contributed to the analyzing of data and writing the 2017-2018 school year report.

