

Abstract

Antibiotic resistance is the event where antibiotics are no longer effective in their ability to destroy bacteria post infection. When infections are not treated with the full course of antibiotics or when non-bacterial illnesses are mistakenly treated with antibiotics, bacteria have the opportunity to develop into an antibiotic-resistant strain. They are able to mutate and evolve so that they can adapt to the interference that antibiotics normally create. Our primary goal is to assess how knowledgeable high school students (grades 9-12) are about antibiotic resistance. Furthermore, we are looking to understand if the method which antibiotic education is given can influence knowledge retention. After a baseline knowledge assessment (n=94), we divided students from two high schools, the Milwaukee Academy of Science and the High School of Health Sciences, into three groups, each receiving a different form of antibiotics education. One group will receive an informative presentation about bacteria, one group will receive an informative presentation about viruses, and a third group will receive no presentation. We hypothesize that students receiving the presentation about bacteria will be able to answer questions about bacteria and antibiotic resistance better than those receiving the virus presentation, or neither presentation. This will be assessed by a follow-up survey, 1 month post presentation. This study will engage students in activities, teach them about the dangers of antibiotic resistance, and what they can do to prevent antibiotic resistance from becoming a much bigger issue. Antibiotic resistance is a very pressing issue, and the more we can do about it, the better.

Background

Antibiotics are antimicrobial drugs used in the treatment and prevention of bacterial infections. Since the 1920's, antibiotics have been a revolutionary scientific discovery. In 1928, scientists discovered an antibiotic called Penicillin. It helped ward off bacterial infections during the first World War. The discovery of Penicillin has created a cure for many different types of deadly bacterial infections, but also sparked interest in the discovery of new forms of antibiotics. However, this discovery has not come without drawbacks: bacteria are able to adapt to the interference that Penicillin causes to their crucial processes that keep them alive, allowing them to become resistant to Penicillin, and the next time you go to your doctor, your treatment may not be as simple as it is now. Antibiotic resistance is a much more pressing issue, and if nothing is done about it, it will only get worse.

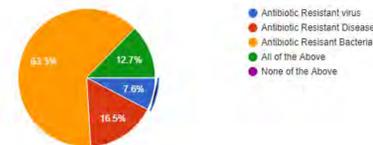


Hypothesis & Specific Aims

HYPOTHESIS

If we administer a set of presentations on antibiotics then students knowledge of antibiotics will grow rapidly because it is a informing method to teach students nad shows the significane of teaching methods.

What is a "Superbug"?



SPECIFIC AIMS

1. We will create a survey based on antibiotics and antibiotic resistance to ascertain high school students' baseline information about the topic.
2. We will create a presentation on antibiotics, another one with the same presentation and a kahoot, and a third presentation on viruses (control group) to provide students with the information that is significant to antibiotic resistance and how much of an issue that it will prove to be.
3. We will create a Post survey about the workshop to see if the students would retain the knowledge from the presentation and workshop to see if any of these methods worked in teaching high school students.

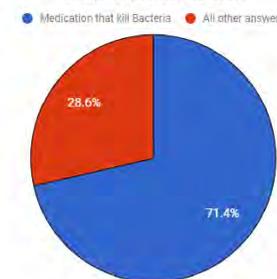
Pre-Survey

To start our research we created a survey, handed it out in the middle of October, and tracked the data. The survey was on antibiotics, asking basic questions such as, "do you know what antibiotics are" in order to determine the recruited high school students' level of knowledge on antibiotic resistance. From there, we took the survey data and divided it up to see where the high school students lacked knowledge. The chart below is an example of the preliminary data that we received from our first survey; out of the 101 students that we surveyed, 51 knew what antibiotics

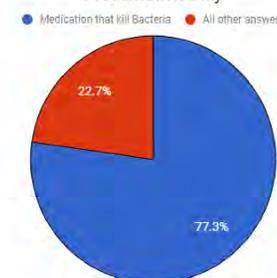
RESULTS

What Are Antibiotics?

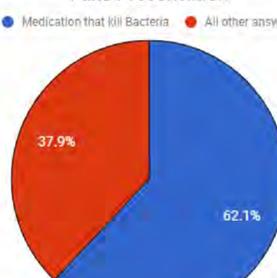
Presentation & Kahoot



Presentation Only

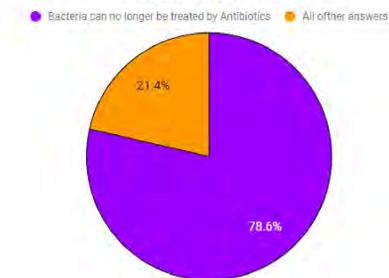


Fake Presentation

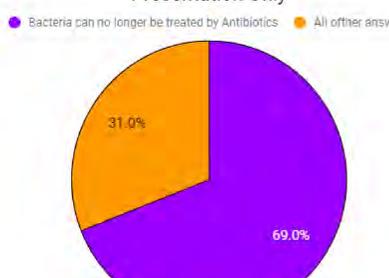


What is Antibiotic Resistance

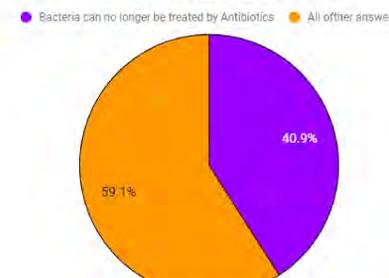
Presentation & Kahoot



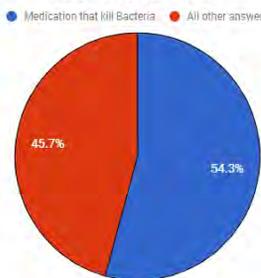
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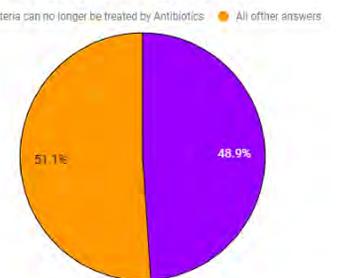
Fake Presentation



What are Antibiotics?



What is Antibiotic Resistance?



Conclusion

In the end we determined that our data was significant. By seeing a major increase in retention knowledge for the antibiotic presentation and the presentation with the Kahoot we determined that using these two teaching methods worked in helping the students retain the knowledge, and we were also able to determine that there is a significant defiecit in knowleged of antibiotics and superbugs in teenagers.

p-value = 0.010306

p-value = 0.028745