

Authors: Courtney Roofe, Theresa Kimball, Virginia McCotry, and Nicole Hargraves;
Additional: PI Eric Darrah

Abstract

- A superbug is a type of bacteria that, over repetitive exposure to antibiotic drugs, becomes resistant to the drug to the point where the drug is no longer effective, therefore becoming antibiotic resistant.
- In 2013, the U.S. Centers for Disease Control and Prevention (CDC) estimated that at least two million people each year in the United States contract a superbug related illness, and at least 23,000 of these cases are fatal. Deaths caused by superbugs are more prevalent than those caused by HIV/AIDS. The cause of the superbugs are related to improper antibiotic use, and *it is hypothesized that an increased access to knowledge will decrease the amount of superbug-related illnesses, and increase the proper use of antibiotics.*
- The goal of this study is to determine what the general population knows about superbugs, identify trends between population groups, and determine deficiencies in knowledge through the application of a survey. Results from the survey would be used to advocate for the prevention of superbugs and proper antibiotic use. We will use the results to create a resource to promote further education for people in knowledge deficient groups.

Background

- According to the CDC, at least eighteen different superbugs have been identified in the United States.
- Recently, a superbug *E. anopheles*, has been linked to 18 deaths in Wisconsin, and connected with 26 other cases throughout the state. This specific bacteria can affect people over the age of 65, causing symptoms like fever, shortness of breath, chills, and cellulitis (DHS, 2016).

Future Plans

- Collect data in hospitals to see what the knowledge level of patients is.
- This could help determine if they are getting the proper education of how to handle antibiotics when they are prescribed to them.
- Pamphlets, brochures, or a website could be produced based on the areas of weakness to make information accessible to all.
- Could then follow up with those who had received the literature and see if it lowers the rates of superbug related illness among them.
- Can test to see if proper use of antibiotics increases based on knowledge from before and after the literature.

Our Aims

- Our project is aimed to:
 - Look at what people in the community already know
 - Discover trends between available resources and location for future targeting
 - Communicate and collaborate with medical professionals to create an easily accessible resource for public

The Study

- We asked students at the High School of Health Sciences in Wales, Wisconsin and student in the KM Perform School for Arts and Performance to take a quick 11-question survey on superbugs and antibiotic resistant bacteria as well as proper care of antibiotics.

I know what a superbug is. (93 responses)

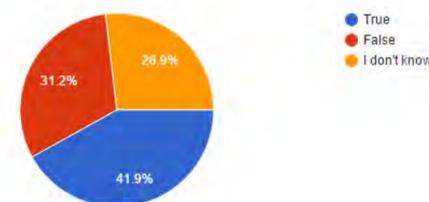


Figure 1. As figure 1 shows, 41.9% of responses, or 39 out of the 93 total responses believed they knew what a superbug is.

A superbug is a virus. (93 responses)

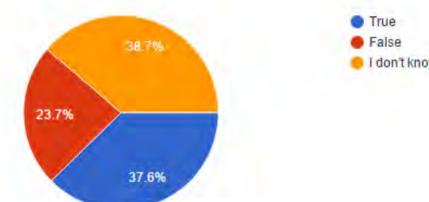


Figure 2. As figure 2 shows, a majority of people answered either that a superbug is a virus or they do not know. Only 23.7%, or 22 of the 93 respondents answered correctly.

- This data shows that even though 41.9% of respondents believed they knew what a superbug was (Fig.1), only 23.7% of the total 93 actually knew (Fig.2).

- A significant percent of people do not know the antibiotics are used to treat illness due to bacteria, not viruses. Of the people surveyed, those from the High School of Health Sciences had 48.1% answering correctly, and from the KM Perform School for Arts and Performance, only 35.7% knew it was not used for treating viruses (Fig.3).

Antibiotics can be used to treat a virus. (93 responses)

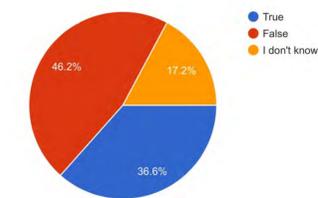


Figure 3. As figure 3 shows, more than half of respondents, or 53.8%, did not know that antibiotics are primarily used to treat bacterial infections.

- When asked if it was acceptable to stop taking antibiotics when feeling better, 89.2% answered correctly. Of the High School of Health Sciences students who answered, 91.0% correctly, whereas 84.6% of students from KM Perform School for the Arts and Performance answered correctly (fig.4).

It is OK for me to stop taking antibiotics if I am feeling better, even if I still have some days on the prescription left. (93 responses)

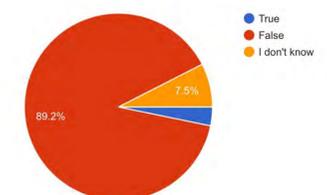


Figure 4. As figure 4 shows, a majority of people, or 89.2%, understand that it is not OK to stop taking medication before the prescription is over.

Conclusion

- Students in a science based school had a greater knowledge of what antibiotics do and how to use them safely and effectively.
- Having exposure to the information can greatly increase the knowledge that people have about superbugs.
- Being educated about the use of antibiotics can help to encourage the proper use of antibiotics, which could be further studied in a hospital setting.
- Based on the lack of knowledge that people have of superbugs from both areas, it is important that everyone be more educated about superbugs so that they can prevent the spread of them in their own lives.