

Gracey Hening

*Antibiotic Resistance: The World's Most Dangerous Threat to Effective Healthcare*

Antibiotic resistance is a very dangerous threat to healthcare today. Bacteria and infections are becoming resistant or adapting to antibiotics. Some antibiotics have lost all of their effectiveness against bacteria. Antibiotic resistance is caused by misuse or overuse of antibiotics. It also occurs naturally, but there are ways to prevent antibiotic resistance from developing. My hypothesis was if antibiotics are repeatedly used on the same bacteria then the effectiveness of the antibiotic will decrease. To test antibiotic resistance, I swabbed bacteria on a petri plate, and placed an antibiotic disk on the petri plate. Then, I waited 24 hours to measure the inhibition zone. After measuring, I swabbed the bacteria around the inhibition zone and took that same bacteria and swabbed it on to a new petri dish. I repeated this four times. The results were very exciting to see. All of the inhibition zones decreased by the fourth generation, supporting the hypothesis. Some antibiotics did not work at all after the second generation which was super cool and interesting. Antibiotics are supposed to lose their effectiveness over time. I was surprised that there was a difference in such a short period of time. Overall, I learned a lot doing this project. I learned not only a lot about antibiotic resistance, but I learned things for future microbiology projects. I had a hard time the first two times I tried this experiment. Nothing worked until the third time after I changed some materials and other things. It was frustrating at first, but I am glad that I chose antibiotic resistance for my project.