

Antibiotic Resistance And Ways To Solve It

By Isabelle Chen

On a typical fall day, the Honors Biochemistry students went on a special mission. Wearing blue lab gloves and carrying sterile scoops and tubes, the girls walked across campus to find a perfect spot where they would begin their exhaustive process of digging. If a faculty member passed by and gave them a doubtful stare, the girls would smile and say that they were trying to find new antibiotics from soil bacteria.

Two months ago, when the girls started Biochemistry class, they would not have anticipated this journey on a chilly fall afternoon. At the very least, the connection of antibiotics prescribed in the doctor's office to the antibiotics developed by soil bacteria would not have been obvious.

Reminiscing to a time when I stared at the sluggish clock and rested in my sickbed, antibiotics were the lifesaver. What I didn't know was that the bacteria were making a destructive journey through my body and that the antibiotics were killing these bacteria that caused the infection in me. Nowadays, bacteria become "smart" enough because their rapid mutations in DNA allow them to bypass the attack of antibiotics—in other words—become resistant. The bacteria can even transfer their antibiotic resistant DNA to one another and make more bacteria resistance. If I am going to lie in my sick bed again, the previously effective antibiotics won't work anymore.

But why? In fact, almost all types of bacterial pathogens are becoming resistant to antibiotic drugs. According to the Oxford University Press, the antibiotic resistance crisis has been attributed to the overuse and misuse of antibiotics. As medical and agricultural field increasingly use antibiotic, the bacteria are more likely to become resistant because of the great exposure to antibiotics in the environment.

How do we reduce the antibiotics? Hygiene is one of the solutions. The cleanliness of a hospital helps prevent infections, and fewer infections reduce antibiotic usage. Expanding the use of existing vaccines may also reduce the use of antibiotics. According to the World Health Organization, if every child in the world receives a vaccine to protect them from bacterial infection, there can be a reduction of 11 million days of antibiotic use annually!

More importantly, antibiotic resistance is a global issue. Science education in middle school and high school should incorporate the knowledge of antibiotic resistance and increase students' curiosity in scientific research. The knowledge about antibiotic resistance is important for everyone, especially for girls because women are underrepresented in the STEM research field.

To stop antibiotic resistance, hygiene, vaccination, and education are small steps we all can take. While the first two steps will solve antibiotic resistance from a medical perspective, education will slow antibiotic resistance by raising awareness. Everyone can take part in eliminating this public health crisis.