

2013 PSBR 7th & 8th Grade Essay Contest
First Place

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Humans have learned many things from Bioscience research. Early in the 20th century people were struggling with many diseases that today are simply gone from our world. Through careful research and well thought-out experiments, scientists have been able to create vaccines to be given to people very early in their lives, before an illness can strike, eradicating terrible and deadly diseases. This has all been done thanks to bioscience research. But what is it?

Bioscience research is everywhere in the world. Not just in medicines used to cure headaches and other more worrisome diseases, but even in hair products! Humans need to be sure what we are using is fully tested. The first step to making sure a product is safe is a simulation. Scientists develop a product and test using computers to see if it will be safe for animals and soon humans. Once that hurdle is passed, an in vitro test is performed. (In vitro is Latin for in glass.) This step is useful near the beginning of the testing process. Scientists take cells or tissue from a human body and examine the effect of a substance inside lab dishes. If the product is found to be safe, animal models are used. Because many animals are similar in makeup to humans, this step brings scientists closer to seeing if the medicine is safe to offer to the public. Finally, researchers are able to utilize human clinical trials, using human volunteers who through reactions to a medicine add to the body of knowledge. Scientists also conduct epidemiological studies where they collect information on which people get diseases and where they get them, studying things that correlate with the disease, such as weather and diet. If all these steps are done, and the medicine is safe, it can be prescribed to the public.

There are three types of bioscience research: basic, applied, and clinical. Basic research is when scientists look, in a general way, toward a better understanding of life processes and how diseases work. Their aim is not to cure diseases, but to find information that could be used to help develop cures. After basic research is done, scientists apply what they know and look to develop a new drug, treatment, or prevention. Clinical researchers test what the other scientists have found out and put that knowledge to a final test. If all goes well, these scientists test the product or medicine on a group of people. If that test is successful, researchers look to an even larger group, studying possible side effects and long-term effects.

Bioscience research has helped many people. Scientists have found treatments for some diseases, that a century ago, were too fantastic to be imagined. Bioscience has helped keep families together, including my own. One of my aunts suffered from Stage IV non-Hodgkin's lymphoma, only to be saved through a combination of medicines that included a bone-marrow transplant from a family donor. Without bioscience research, my aunt would not be alive. Thanks to all the research that bioscientists have done, my family remains healthy and intact. In a larger sense, if not for this life-saving research, many families throughout the world would have suffered terrible losses. Bioscience research has truly saved lives.