



**2014 PSBR High School Essay Contest**  
***Grand Essayist***

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**Put Down the Broom and Give Thanks to the Unsung Heroes of Medicine**

Shrieks of panic flood the classroom; a door is slammed while my fellow students stand abruptly on their desk in fear that the unwelcomed visitor might come near. My teacher grabs a broom from the supply closet and frantically beats around, missing the rodent every time. The clever mouse slides swiftly to home plate under a cabinet to escape the blow of the broom. In all of the pandemonium, I cannot help but laugh at how people react to mice. The relatives and ancestors of the mice have played a major role in almost every major medical breakthrough of the last century. Biomedical research has an important role in scientists' understanding of the world we live in, including all the bacterium, viruses, and diseases that inhabit it. Put the broom down and leave the poor mouse alone because medicine wouldn't be the same without the mouse, rat and other lab animals. Animal testing - although debated by many - has helped scientists understand diseases such as polio and diabetes. These experiments have not only improved human health, but animals as well.

It is hard to imagine a widespread epidemic that could easily wipeout thousands of people (unless you've seen a movie like *Contagion*). However, just within the last century, a viral disease had people in a panic & the medical community perplexed. A virus attacked the nervous system of its victims, killing thousands and leaving even more people paralyzed, including a young Franklin D. Roosevelt. The disease was poliomyelitis, or polio for short, and there was no known cure. There were 57,628 cases cited in the US in 1952 and 21,000 of these were paralytic. So why is polio unknown to most children worldwide today?

Researchers had started developing a vaccine, but mothers were unwilling to sacrifice their children for testing and the vaccine was still not ready for public distribution. Researchers turned to a primate with a similar immune system- monkeys. By cultivating the polio virus in the monkey's kidney tissue, the chain reaction created a testable group. After years of tweaking and perfecting, the vaccine was released in the late 1950s. To date, it is estimated to have saved millions of lives.

Diabetes is another medical condition that has benefited from animal research. Diabetes thwarts the body's ability to metabolize food when the person cannot make or respond to insulin properly. Insulin is a special hormone that regulates the body's use of glucose, or how much sugar is in the bloodstream. This [diabetes] leads to serious medical conditions such as strokes, circulation problems, and kidney and eye damage. Until the early 1920s, however, scientists had [no] idea how to control the disease because they didn't know how it worked. Researchers built on the experiments of European scientists Minkowski and von Mering. They found that when they removed the pancreas gland from several different dogs, the dogs developed diabetic symptoms. American researchers hypothesized that the pancreas contained the hormone responsible for sugar metabolism. They successfully isolated the hormone and confirmed their

hypothesis by injecting insulin, taken from slaughterhouse cows, into diabetic dogs. They concluded that injected insulin significantly reduces diabetic symptoms, and now millions of diabetics rely on daily insulin injections to regulate their disease.

Surprisingly, not only humans suffer from diabetes. My 10 year old Spanish water dog, Mandy, has to have twice daily insulin shots to keep her blood sugar levels at bay. NBC News projects that diabetes affects one in every fifty pets- not just dogs. It is beautifully ironic my dog and pets with similar conditions have the biomedical research of many lab animals to thank for their diabetic regulation.

The alternative to animal testing for biomedical research is either testing on humans [only] or letting millions of people (and animals) die. People and organizations that have ethical problems with animal testing need to look at the big picture. If scientists use animals respectfully and responsively, diseases can be eradicated or, at least, controlled. Biomedical research has saved millions worldwide and continues to play a vital role for scientists in pursuit of a safer, healthier world for humans and animals alike. So the next time a little mouse scurries by, don't scream or shout. Simply appreciate everything his species and other animals have done to make the world a better place.

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