

**2012 PSBR High School Essay Contest
Finalist**

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Dogs, cats, mice, rats...and vaccines? I assume that you read that and think, "What? Those have absolutely no connection." In reality, they are very much connected, especially while discussing biomedical research.

If you don't know what biomedical research is, let me explain... Biomedical research is the wide area of science that involves the investigation of the biological process and the causes of disease through careful experimentation, observation, laboratory work, analysis, and testing. Animals are used extensively throughout biomedical research.

You may be thinking to yourself, "Why is animal research needed? Is it even necessary?" Well, I'm here to tell you it is very much needed in our society. Animal research benefits both humans and animals. Diseases that once claimed millions of lives no longer threaten you, me, or our loved ones. Survival rates for many major diseases in both humans and animals are at an all-time high, thanks to the discovery of new drugs and advanced surgical procedures due to animal research.

Don't worry, biomedical researchers won't come over to your house and take your newborn puppy for testing. These animals are specifically bred for this purpose. Besides, 90% of animals used for testing are either mice or rats. Cats, dogs, swine, rabbits, and non-human primates are only used when mice/rats are incapable of representing the needed information or data.

Biomedical research has been responsible, at least in part, for every major medical advancement in both human and veterinary health for the past 100 years! Insulin (a man-made substance used to treat diabetes) was invented from animal research performed on dogs. This invention has saved thousands of lives. There has been vaccine development for both human and animal diseases, such as hepatitis, measles, tetanus, anthrax, feline leukemia, and rabies. Multiple different types of treatments have been discovered by animal research. These treatments include the relief of things such as allergies, cancer, and birth defects, along with animal treatments that relieve things such as cataracts, parasites and glaucoma. Through animal research, we've also discovered new information intended for diseases that we didn't know much about for both animals and humans. Some human diseases we've learned much more about consist of AIDS, Alzheimer's disease, blindness, and epilepsy. Animal disorders consist of tooth and gum disease, inherited diseases, and allergies. Through animal research we have mastered antibiotics, blood transfusions, bone grafts, diagnostic tests, chemotherapy, and numerous treatments for diseases, some of which I have mentioned above.

Some people assume that because animals are used in biomedical research, they are suffering, treated cruelly, inflicted with pain, and even killed! This is definitely not the case. Researchers are actually deeply concerned about the condition of the animals they study. There is no acceptance for inhumane treatment. Poor care results in unreliable research data. Pain and distress are thought to have negative impacts on the immune system, so researchers are careful to

protect their animals from unnecessary stress. Researchers are committed to the “Three R’s” (Reduce, Replace, and Refine). They wish to *reduce* the number of animals to the minimum required to get true and valid results. They want to *replace* animal models with non-animal models whenever possible. And they would like to *refine* studies to ensure the most humane conditions. There are also laws that govern animal research in the U.S. called The Animal Welfare Act, and the U.S. Public Health Service Policy. Also, the IACUC (Institutional Animal Care and Use Committee) must approve any and all studies involving animals.

Biomedical research using animals is not cruel or inhumane. As you can see, it has been beyond beneficial to our society for the past 100 years! We’ve cured diseases, advanced treatments, and improved surgical procedures. The animals have provisions/rights and researchers never step over their boundaries. A survey by the American Medical Association found that 99% of active physicians in the U.S. believed that animal research had contributed to medical progress, and 97% supported the continued humane and responsible use of animals for basic and clinical research.