When foreign substances (antigens) such as germs enter out body, our immune system recognizes them. In return they "produce the right antibody to fight the antigens." (Kelly) Vaccination is "a disease-causing agent that is given to a person in a killed or weakened form (or in the form of proteins genetically engineered to look like a disease-causing agent), in order to stimulate the production of antibodies to fight off the disease."(Gazis-Sax) It protects us from specific diseases and "boosts [our] body's own defense system" (What is vaccination…) which is also known as the immune system.

The principle behind which vaccines work is that it contain germs that are weak or dead thus they don't make a person sick. Having these germs in our system triggers our immune system to make antibodies to fight off these antigens (foreign substances). Our body can obtain antibodies through two main sources: active immunity and passive immunity. Active immunity is when our body makes our own antibodies and it "always leads to memory cells and thus provide long term immunity" to the antigens (286 Damon). Memory cells are located in the immune system they are also known as white blood cells or lymphocytes. There are two main types of memory cells T cells and B cells. T cells "activate the immune system and directly attack pathogen," (what is a memory cell) were as B cells "produce substances called antibodies, which can disable and kill pathogens."(What is a memory cell?) These cells present in vaccines "do not respond immediately when [they] first encounter an antigen" (Memory Cell) but rather they initiate a secondary response when the same antigen attacks for the second time. This way the immune system is more effective and more rapid. Primary immune response is our 1st line of defense when our immune systems produces antibodies by b-lymphotyes cloning themselves through meiosis and are specific to the antigen in our bloodstream. Vaccines aim to produce a weakened strand of a certain antigen into our body to create primary immune defense.

The other way of obtaining antibodies is through artificial means known as the passive immunity. This is when "an organism acquires antibodies which were produced in another organism." (286 Damon) However, acquiring antibodies from another organism only has a temporary benefit because the antibodies get attached to the antigens and none of them go through the process of cloning through meiosis. There are various benefits for the use of vaccine on individuals and the society. The Department of Health and Human Services in the U.S. state that vaccines "are among the 20th century's most successful and cost-effective public health tools for preventing disease, disability, and death." (Satcher) This is because when vaccine is injected in an individual it prevents them from acquiring a serious disease and in addition when vaccines are injected in children, they prevent the disease from spreading and by this helping the society. There are various infectious diseases that have been eliminated in various countries through the process of routinely vaccinating the children. For instance, in "the 1960s, many people witnessed first-hand, the terrible effects of rubella, commonly known as German measles. During an epidemic between 1964 and 1965, about 20,000 infants were born with deafness, blindness, heart disease, mental retardation, and other birth defects because the rubella virus infected their pregnant mothers. Today, thanks to nearly universal use of an effective vaccine, the rubella virus poses virtually no threat to the children of expectant mothers." (Satcher) Furthermore, vaccines not only save lives by preventing the infectious disease agents, they also save money. There are health organizations that help subsidize the cost of vaccines and in addition getting a vaccine is far less cheaper than treating the treatment itself if it occurs.

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