

Importance of vaccination to the survival of humanity



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People in developed countries are able to live without the fear of a plague breakout. They are able to attend festivals, ride the subway, and share food without worrying that they could bring home a deadly pathogen to infect their loved ones. This is possible through the advent of vaccines. Surviving the year was not always so simple. There were times when there would be mass outbreaks of disease regularly. Cities would be breeding grounds for deadly pathogens, and the population would live in fear of having contact with neighbors, as they might be given the deadly blight. Vaccines have changed all of this. Not only do people these days feel protected from diseases, some even feel that in a way, man has conquered nature, allowing for more people to have longer lifespans and a greater quality of life. Vaccines have saved us by allowing pathogens to be bent to our will and serve our immune system, protecting more than just the individual, and making our schools safe by requiring vaccinations.

Vaccinations have changed our lives by using pathogens to aide our immune system rather than harm it. To understand how helpful vaccines are, it is important first to understand how vaccines work. Vaccines function one of four ways: by utilizing live, attenuated microbes, killed microbes, toxoids, or recombinant DNA from microbes (Krasner and Shore 2014). When live, attenuated microbes are used, the microbial strain has been tested multiple times in mice until a non-lethal strain is found and injected into a person. This person will then be able to easily fight off the disease and will have immunity through the antibodies made against the microbes for life. The use of killed microbe vaccines are slightly safer than live, attenuated vaccines, <https://assignbuster.com/importance-of-vaccination-to-the-survival-of-humanity/>

as the virus is dead but still causes antibodies to be produced. The downside to killed-microbe vaccines however, is that they often require a few boosters to be really effective and keep a lasting memory in the host's immune system (publichealth.org). Toxoid Vaccines are taken from the microbe and then detoxified and injected into a person. This will cause the person to create antibodies against the toxin, effectively making them immune. Furthermore, antitoxins can be produced by injecting a small amount of toxin into a large animal such as a horse, which will produce antibodies against the toxin and then be injected into a person if the need arises (Krasner and Shore 2014). This is used to combat venomous animal bites or stings. Finally, recombinant DNA from a microbe can be taken and added to a nonvirulent virus and then injected into a person, who will then produce antibodies against the code of the microbe. Through these four ways, vaccines actively use microbes to create antibodies in the individual who is given the vaccine, giving them protection against that very microbe.

Vaccines protect more than the individual through herd or community immunity. Herd immunity is the idea that when a critical immunization threshold of people vaccinated is met, the spread of diseases will be so reduced that the disease is no longer a threat, and even people who are at risk or who have not received the vaccine will acquire protection (U. S. Department of Health and Human Services (HHS)). An excellent example of herd immunity at its finest is the way in which developed countries deal with the different strains of the flu each year. Every year, scientists come up with a vaccine which is a combination of the strains which are prevalent that year. Many people will receive these vaccines, and a herd immunity is built

up so that less and less people get the flu every year. Furthermore, less and less people die from the flu nowadays that they did in the past, partly due to advances in medicine, but also due to the lack of spread of the disease.

Measles has been eradicated in North America due to vaccinations and herd immunity. According to the California Department of Public Health, an outbreak of Measles was confirmed in December of 2014 when 40 people who had been at Disneyland contracted the disease. Whereas in other areas of the world this outbreak would have become a national epidemic, the disease only spread to six other states and the outbreak was found to have ended in April of 2015. The short duration of the outbreak and its relative containment were all due to the strong herd immunity that citizens of the U. S. had built up over decades of Measles vaccinations. For these reasons, vaccines are able to protect not only an individual who has been given the vaccine, but also other members of the community who have not been vaccinated.

Vaccines have become important to community health through the controversial requirement by schools for students to be vaccinated. An ongoing debate in the education field has been whether or not schools should require their students to have been vaccinated for various diseases. Proponents of school immunization point out that the more students are vaccinated, the greater the herd immunity that is generated, and thus the safer the students and the community are. Opponents argue that there is always the possibility that a child could have an adverse reaction to the vaccine or perhaps develop Autism as a result. The claim that vaccines cause Autism has been widely refuted through numerous studies conducted

around the world, which has led most experts to believe that not immunizing a child based on this risk is a fallacy. As Plotkin, Gerber, and Offit write, “ However, both epidemiological and biological studies fail to support these claims,” (Plotkin, Gerber, and Offit 2009). Since 2009, more studies have been done on the issue, all showing that there is a negligible link between Autism and vaccines. As for other adverse effects which vaccines may cause, one is much more likely to get the disease when unvaccinated than to have an adverse reaction to a vaccine, and the consequences of contracting the disease will be much more severe. For these reasons, school immunization should be required as it makes the students and community much safer.

We in the United States are fortunate to live in a vaccinated world. We don't have to live under the shadow of disease as our ancestors did, and as some people in the world still do. Through the use of vaccines we have generated enough herd immunity in schools and communities that our children can grow up safe from the illnesses that used to plague our country and world. Therefore, vaccines have saved us by allowing pathogens to be bent to our will and serve our immune system, protecting more than just the individual, and making our schools safe by requiring vaccinations.

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