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### Vaccines: Good or Bad?

“A vaccine is a product that produces immunity from a disease and can be administered through needle injections, by mouth, or by aerosol” (U.S. Department of Health and Human Services). Vaccines have a very rich history. In 900 AD, the Chinese were the first ones to discover a type of vaccination. This included inserting powdered scabs from smallpox pustules up the nose or under the skin (“The History of Vaccination”). The discovery of vaccines in their modern form is credited to Dr. Edward Jenner, a British physician in 1796. (“The History of Vaccination”). He discovered that inserting pus from the pustules of cowpox would create immunity for smallpox. He tested this on several children, and he was so confident in his ideas that he even tested it on his own 11 month old son (“Edward Jenner”). In 1797, he tried to publish his experiment. He submitted a paper to the Royal Society describing his work, but was told that he needed more proof (“Edward Jenner”). “In 1798, the results were finally published and Jenner coined the word vaccine from the Latin 'vacca' for cow” (“Edward Jenner”). Vaccines have come a long way since then. Today they are used across the globe to prevent a multitude of diseases. Within the last ten years, there have been vaccines developed for cervical cancer, shingles virus, and meningitis B (“The History of Vaccination”). Every year, vaccines save 2.5 million children from preventable diseases. That is roughly 285 children every hour (“Should Any Vaccines Be Required For Children?”) Even though vaccines save many lives, there are

many concerns surrounding them which cause people to choose not to vaccinate their children. Most concerns surrounding vaccines are not fact-based, but based on unfounded fears and emotional reasons. Parents should choose to vaccinate their children because the truth is, vaccines are a miraculously simple way to prevent diseases. Vaccines are safe, and effective. With the current scientific knowledge about vaccines, not vaccinating would be unethical.

There are many questions that a parent might ask about vaccines. One of the biggest question is “are they safe?” A lot goes into ensuring the safety of a vaccine. This includes testing before they are released, and after. “Before vaccines are approved by the Food and Drug Administration (FDA), they are tested extensively by scientists to ensure they are effective and safe” (“Vaccine Safety”). Even after they are proven safe, manufacturers must comply with safety precautions that includes monitoring by the FDA. Each lot of vaccines must be tested for purity and potency incase of any possible contaminations (“Vaccine Safety”). If there’s anything to worry about vaccines, it’s the rare side effects because although vaccines are safe, there is always the possibility of an allergic reaction.

One concern surrounding the safety of vaccines is the conspiracy that vaccines cause serious health conditions such as autism. “Autism, or autism spectrum disorder, refers to a range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication” (“What Is Autism?”). A study published on February 28, 1998 by a physician named Andrew Wakefield gave people reason to believe that vaccines cause autism. “[The physician] purported to identify a link between the measles, mumps and rubella (MMR) vaccine and the appearance of autism in children” (Heuvel). It was later discovered that the study conducted by Wakefield was completely false, and a total lie. “It was revealed that Wakefield

had fabricated his research as part of a scheme that promised him millions of dollars” (Heuvel). After it was revealed that the study was a lie, Wakefield’s medical license was taken away and his report was “retracted from publication” (Heuvel). Unfortunately, there is no unpublishing the damage that has already been done. The fear of vaccines that Wakefield has caused, has become a movement.

Parents have the right to be concerned about what goes into their children’s bodies, and also about the rise in autism, so some might ask “if vaccines don’t cause autism, then what does?” Evidence shows that genetics play a role (Hotez). “Researchers have suggested that damage could be done by the drugs thalidomide, misoprostol and valproic acid; by exposure to the insecticide chlorpyrifos; and by infection of the mother with the rubella virus” (Hotez). With it being known that vaccines do not cause health conditions such as autism, it is unethical for parents to base their reasoning for not vaccinating their children on the potential risk of autism. Instead of fearing autism, parents should be more afraid of their child being exposed to diseases without the proper defenses that vaccines provide. Vaccines are trustworthy, and to ensure their safety, extensive research on vaccines take place.

Along with their safety, people should choose to vaccinate their children because of their effectiveness. Many diseases have been eradicated, or reduced significantly. What does it mean when a disease is eradicated? It means that the disease is no longer present. An example of this is when the World Health Assembly declared smallpox, a disease that killed 35% of victims eradicated in 1980 (“Disease Eradication”). This was accomplished by closely monitoring the disease and quickly vaccinating any who may be exposed. The eradication of smallpox gave many hope of the future eradication of polio, mumps, and dracunculiasis (Guinea worm disease),

diseases that have substantially decreased, but still circulate in some regions (“Disease Eradication”). All of the diseases that have been eradicated or significantly reduced, are proof that vaccines are effective.

Conversely, some anti-vaxxers will argue that it is no longer important to vaccinate for diseases that are no longer prevalent. Albeit, that is not necessarily the case. This is a perfect example of “out of sight, out of mind,” and it is quite naive, and rather selfish. For example, cases of measles and other diseases have dropped dramatically since vaccines for them were introduced. “Cases of measles, mumps, tetanus, whooping cough (pertussis) and other life-threatening illnesses have been reduced by more than 95 percent” (Meadows). Medical doctor, Hotez predicts that once the amount of unvaccinated children reaches below 90%, major disease outbreaks will occur, and the first outbreak will be measles, a disease that kills thousands each year. Just because a disease is rare, does not make it any less possible that an outbreak can occur. That is why it is so important to vaccinate. Vaccines are the only way to ensure the protection of a major disease outbreak.

If it has been proven that vaccines are safe and effective, then why is it that so many people are persuaded to follow the anti-vaccine movement? It makes a good story, and sadly no publicity is bad publicity. The media portrays the vaccine movement as legitimate when really, it is based on emotions and evidence that have been proven to be false. For example, Jenny McCarthy, an actress, and television talk show host on *The View*, openly promotes her anti-vaccine views. Despite the the scientific proof that there is no connection between vaccines and autism, she believes that vaccines caused her son to have autism. “...the media fuels these arguments by airing junk science as though it were legitimate” (Heuvel). Not to mention,

McCarthy's credentials as a talkshow host and actress doesn't make her a source with the same quality as the Center for Disease Control or the Food and Drug Administration, both of which agree that vaccines are safe and effective.

Thanks to vaccines, diseases that once wiped out humans in massive quantities are now controllable. Some people do not agree with vaccines, and there is a lot of controversy as to whether or not people should have them. Some don't think that vaccines are safe because of the controversy that vaccines may cause autism. The effectiveness of vaccines has been questioned also, but there is no denying their effectiveness when the amount of diseases that have been eradicated or reduced are considered. The media is a huge contributor to the anti-vaccine movement, and it must stop promoting falsehood and start promoting the facts. The reality is, vaccines are safe because they do not cause serious health conditions such as autism, and effective because they have reduced and eradicated multiple diseases. Ignoring the facts would be unethical and irresponsible. There is no reason that parents should choose not to vaccinate their children. All people should get vaccinated, because the risk getting a serious disease, and dieing because of it just isn't worth it.

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