

Arguments for and against the vaccine



**ASSIGN
BUSTER**

Vaccine Debate

Introduction

There has always been a debate over the idea that children our newborns don't need vaccinated. Some people think they give babies deadly diseases that would kill them. Who knows it may or may not be true. In this paper I'm going to go over both sides of this big debate and explain why getting your children vaccinated is VERY important, especially when it comes to your children's lives. Another thing is how a vaccine even works to show you that vaccines are safe.

The Doctor Is out: The anti-vaccination movement in America

Since 1998, a growing fear surrounding vaccinations in the United States and England has been spreading. The claim is that vaccinations contain dangerous amounts of Mercury, Formaldehyde, and other toxins and can possibly link to bowel disease and autism. Despite mountains of evidence to the contrary, the anti-vaccination (which has gained the dubious moniker, anti-vax) movement continues to grow in The United States and England. This paper looks to outline the history of the movement, both historical vaccination scares and the modern incarnation of anti-vax, and shed light on the dangers of not having children vaccinated, as well as present evidence to the safety and effectiveness of vaccines. The current vaccination scare is nothing new, and is reminiscent of previous historical scares, the worst of which being in 19th Century Europe. In 1853, the British government passed the Vaccination Act of 1853, making vaccinations mandatory for all children in the first three months. The passage of the act caused a violent anti-

vaccination movement to begin, with riots in Ipswich, Henley, and Mitford. Subsequently, the Anti-Vaccination League in London was formed the same year, giving the movement an appearance of credibility. In 1867, Parliament passed another law, The Compulsory Vaccination Act of 1867, extending the vaccination schedule to fourteen years. This caused more backlash within the anti-vaccination community, and more groups began forming, such as the Anti-Compulsory Vaccination League, as well as scientific journals such as The Anti-Vaccinator (1869), The Vaccination Inquirer (1879) and The National Anti-Compulsory Vaccination Reporter (1874) (Wolf, Robert M; Sharp, Lisa K, British Medical Journal).

The movement didn't stop in England, however. By the 1870's it had spread to Sweden, and the vaccination rate in Stockholm dropped from 90% in 1872 to 40% in 1873. The Swedish government did little to react to this until Stockholm was hit by a major Smallpox pandemic in 1874. With so few people vaccinated against the virus, it spread quickly and ravaged the city, leaving 4, 063 dead in Sweden, and 1, 206 of those deaths in the city of Stockholm (Kotar, S. L., Smallpox: A History p. 177).

Other countries weren't immune to this outbreak, either. Europe was in the middle of the Franco-Prussian war at this time, meaning large forces were moving quickly across Europe, and taking the disease with them. Smallpox spread into Denmark and Norway, which led to 6, 620 reported cases and 425 deaths in Denmark, and 2, 235 cases with 275 deaths in Norway (Kotar, S. L., Smallpox: A History p. 177). By this point in history, a viable Smallpox vaccine was available and had been for decades. In 1798, Edward Jenner effectively immunized patients against Smallpox by injecting them with a <https://assignbuster.com/arguments-for-and-against-the-vaccine/>

weaker strain of Cowpox. The body's immune response to fight off the Cowpox virus conferred a permanent immunity to contraction of Smallpox. The uproar over vaccine denial in Europe, however, made the vaccination useless, and while Sweden had laws in place requiring vaccinations, they were not well enforced. 49% of children weren't immunized in Stockholm, the city that took the brunt of the pandemic.

Understanding this direct cause and effect relationship between lack of vaccinations, mobility of people, and deaths from preventable diseases is important in the fight against the modern day anti-vaccination movement. Europe in the 1870's lost a portion of its population to a preventable disease, which was spread so quickly by the movement of armies during the Franco-Prussian war as well as the displacement of civilians resulting from the war. Smallpox, as with most diseases, incubates in people for a few days before symptoms are visible, however it is still possible to spread the virus while it's in its incubatory stages. So, this means that many people who arrived in Sweden and Denmark that were carriers had no outward symptoms. They were interacting with a culture that was largely unvaccinated against Smallpox, allowing the disease to run rampant amongst the population with deadly consequences.

Fast forward 130 years to the modern world and this scenario could again become a lethal reality. We live in a world that increasingly connected, where people travel daily from one country or continent to another, and with little effort. While there are vaccination laws in the United States and most of the rest of the developed world, places such as West Africa have no such laws, and very high rates of vaccine preventable illnesses. People can travel <https://assignbuster.com/arguments-for-and-against-the-vaccine/>

quickly and with relatively little effort from these places and back again in less than the amount of time it would take a viral infection to start showing symptoms. This is exactly what happened in Newark, Texas in 2013. The Eagle Mountain International Church in Newark is a church that boasts over 1, 500 members. They are also vehement anti-vax proponents. In August of 2013 a member had traveled to Indonesia, where he contracted measles. He showed no outward symptoms upon his return to Texas and attended church, where he then spread the measles to other members of the congregation. Sixteen people contracted the illness, nine children and seven adults, none of whom had been vaccinated against it. One of the adults then spread the measles to nearby Denton, Texas, infecting another five people, again, not vaccinated (Aleccia, Jonel; NBC News). While this case was relatively mild and brought no fatalities, it shows a demonstrable pattern between vaccine denial, migration, and infection.

To understand why vaccinations are important, it's necessary to understand how they work; and to understand the denial movement it's important to know the stance of the anti-vaccinationists. Without delving too much into the science (entire doctoral and PhD thesis have been written on the subject), vaccines work by injecting weak or paralyzed forms of viruses and other chemicals directly into the bloodstream of a patient. The patient's (typically an infant) immune system then fights off the infection, and the body builds an immune response to the infection. This response is permanent, and the patient has now developed anti-bodies to various diseases (Centers for Disease Control and Prevention, How Vaccines Prevent Disease).

The anti-vaccination stance is that vaccinations are not tested enough, that pharmaceutical companies cannot be trusted, and that the added chemicals in vaccinations aren't safe for human consumption. They claim, as well, that parts from aborted fetuses, rabbit brains, dog kidney, and chicken embryos are used in the manufacture of vaccines, and that while you can always get a vaccination, you can't undo an existing one. The list of chemicals in vaccinations is indeed staggering, according to the anti-vaccination camp. Thimerosal, MSG, anti-freeze, and formaldehyde are just a few of the long list of dangerous chemicals in vaccinations, according to the web site The Healthy Home Economist (<http://www.thehealthyhomeeconomist.com/six-reasons-to-say-no-to-vaccination/>).

While it is true that many of these chemicals exist in vaccines, they are frequently in trace amounts not harmful to humans. Many of them are used only during the manufacturing process and are actually removed from the final product. Thimerosal, which contains ethyl mercury, is common in many vaccines, and is used as a disinfectant (Centers for Disease Control and Prevention; Vaccine Ingredients). Anti-vaxers have claimed for years that the addition of mercury into an infant is incredibly dangerous, however, a study published in The Lancet and conducted at the University Of Rochester proved just the opposite. 40 infants were randomly selected, 19 of them received vaccines with ethyl mercury, and 21 without. Blood, urine, and stool samples were then taken from the infants from three to twenty eight days after the initial vaccination. The infants were exposed to 111.3 micrograms of Thimerosal containing ethyl mercury (higher than is contained in vaccines) or to 82.5 micrograms if the infant was under 3 months old (for scale, 1

microgram is equal to 1.0×10^{-9} kilograms). The findings showed that, between 4-10 days, the half-life decay of ethyl mercury was 95%, meaning that 95% of the chemical had dissipated from the infants in just over a week. Further, the trace amounts that were actually injected into the infants were incredibly minute, so much so that, by comparison, you would consume more mercury by eating an apple, almost ten times as much. Only one of the infants was shown to have an increased level of ethyl mercury after 28 days, but the amount still fell within the acceptable tolerance range (Pichichero, *The Lancet*). Mono Sodium Glutamate, or MSG, is present as well in vaccinations; however this chemical in small amounts is in no way harmful to humans. It's commonly found in table salt and other food seasonings. While formaldehyde is indeed used in the manufacture of vaccines, it is not in the final product. The formaldehyde is used to paralyze the virus that is going in the vaccination, and is subsequently removed before the vaccine is complete. The American Journal Of Public Health performed a study in 1954 of the use of formaldehyde in the poliomyelitis vaccine, and found it to be completely safe (*American Journal Of Public Health*, Salk, Jonas E. M. D., Volume 44 Issue 5).

Anti-freeze is another harmful chemical that the anti-vaccinators will frequently tell you are contained within all vaccines. While this isn't completely untrue, it's not totally true either. It is more the subject of a poor understanding of chemistry. Anti-freeze is primarily methanol, which is in the chemical family of alcohols. However, methanol is completely harmless to humans in small amounts. Anti-freeze, though, is very poisonous in nearly any dosage. That's due to the active ingredient, the freezing-point depressor

ethylene-glycol. While methanol is certainly found in vaccines due to its sterile properties, ethylene-glycol certainly isn't (Brown, M. D., Baby 411: Clear Answers & Smart Advice about Your Baby's Shots).

The modern evolution of the anti-vaccination movement started in earnest with Dr. Andrew Wakefield in 1998. He published a study in The Lancet Medical Journal in which he claimed to have found a link between the Measles, Mumps, and Rubella (MMR) vaccine and Autism Spectrum Disorders, or ASD. The initial report sent shock waves through the medical community. However, four years later the results of his research were unable to be reproduced by any other medical team and speculation arose. Finally, in 2004, Brian Deer, an investigative journalist for The Sunday Times in London published his findings. In the course of his research into Dr. Wakefield's study he found multiple conflicts of interest (Deer, Brian, The Sunday Times). His article prompted a lengthy investigation by the General Medical Council (GMC), England's medical ethics and licensing board.

During the course of their investigation, they found Andrew Wakefield to be guilty of serious professional misconduct and stripped him of his medical license, and had his name stricken from the Medical Register. The GMC found that he had accepted money from a private contingent of lawyers, the Legal Aid Board (LAB), who were engaging in a class action lawsuit against a vaccine production company. Wakefield was paid \$84, 160. 00 (converted from Pounds Sterling) for his research, and it was concluded that over half of the money went directly to Mr. Wakefield instead of into the study. He was also found to be guilty of tampering with 5 of the patients, even though he had a strict no contact rule with all patient test subjects (General Medical

<https://assignbuster.com/arguments-for-and-against-the-vaccine/>

Council, Fitness to Practice Council, 1-7). As far as a link between autism and the MMR vaccine, doctors have dismissed it as a classic case of correlation not being equal to causation. Most children are diagnosed with ASD shortly after they are vaccinated, but that's only because nearly all children are vaccinated, and the age at which vaccinations take place are the same age at which ASD starts to show its symptoms, but there is no direct correlation between the two.

Even though the evidence all points to the contrary, and the research and testing have proven vaccinations to be both safe and effective, vaccination denial is still a prevalent health issue. The Centers for Disease Control and Prevention (CDC) releases a weekly report, the Morbidity and Mortality Weekly Report that shows all cases of infectious and communicable diseases reported in the United States. The data shows a clear spike of vaccine preventable illnesses, such as Measles, Diphtheria, Rubella, and Smallpox in geographical areas that have higher concentration of anti-vaccination advocates (Centers for Disease Control, Morbidity and Mortality Weekly Report, report data for April 2014).

The danger isn't just for those who choose not to get vaccinated or choose not to get their children vaccinated. Vaccinations are so effective because of "herd immunity". There are people who are incapable of getting vaccinated, either due to allergies or to rare medical conditions. They rely on the people around them to be properly vaccinated, thus eliminating a host for the virus. As rates of vaccination decline, the herd becomes smaller, and viruses and diseases will be able to find hosts easier, not only contaminating those

foolish enough not to get vaccinated, but also those who are just unable to get vaccinated.

Conclusion

This is a dangerous and very real health concern. The CDC has (unofficially) referred to celebrities such as Jenny McCarthy and Bill Maher, who are staunch opponents of vaccinations, as public health threats. The data is clear, vaccinations are safe, and there is absolutely no link between vaccinations and autism. The media has leaned heavily on scare tactics to boost ratings, reporting that vaccinations are potentially dangerous and encouraging people to seek homeopathic or natural remedies instead of synthesized ones. It is our duty as a people to educate and be educated on such matters that concern our public health with such tremendous force.