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Prayers versus Vaccinations

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There are a lot of issues that people go back and forth on in the science field. Vaccinations and whether or not people should get them is a controversial issue in the scientific community. Some people feel that it is linked to things including Autism, while others feel that it is partially essential to a healthy life. People's personal views and beliefs in this controversial debate fuel more tension to the issue and make it hard to find solutions or even a compromise. For my three popular media sources I used Fox News, CNN and MSNBC. For my three academic sources I used academic papers and research from Oxford University, SpringerLink and Science Direct. I will discuss the benefits and disadvantages of the vaccination debate and possible solutions.

Vaccinations save lives. The Centers for Disease Control (CDC) estimated that childhood immunization prevented about 419 million illnesses, 26.8 million hospitalizations, and 936,000 early deaths of children born between 1994 and 2018. The measles vaccine has decreased childhood deaths from measles by 74%. Ingredients in the vaccinations are only harmful in a large dosage. Chemicals including formaldehyde and aluminum, can be harmful in large doses but they are not used in harmful quantities in vaccines. Children are exposed to more aluminum in breast milk and infant formula than they are exposed to in vaccines. People are also exposed to more harmful substances daily than in vaccines. Major health organizations support receiving vaccinations including the Food and Drug Administration (FDA), the Institute of Medicine (IOM), American Medical Association (AMA). Vaccinations protect the majority of people from illness. They protect the "herd". Herd immunity means that when the percent of people who need to be vaccinated to provide herd immunity of a population is vaccinated against a contagious

disease it is unlikely that an outbreak of the disease will occur so most people of the community will be protected. Children and adults who cannot be vaccinated due to age, poor health (who are immune-compromised or undergoing chemotherapy, for example), or other reasons rely on herd immunity to prevent contraction of vaccine-preventable diseases. Vaccinations also do not have high adverse reaction rates.

The most common side effect of vaccines, anaphylaxis, a severe allergic reaction, occurs in one per several hundred thousand to one per million vaccinations. Vaccinations save parents time and money. Vaccines cost less in time and money to obtain than infectious diseases cost in time off of work to care for a sick person, potential long-term disability care, and medical costs. Vaccinations protect future generations and diseases have not disappeared so they are still necessary. Vaccinated mothers protect their unborn children from viruses that could potentially cause birth defects, and vaccinated communities can help eradicate diseases for future generations. Before the rubella vaccine was licensed in 1969, a global rubella outbreak caused the deaths of 11,000 babies, and birth defects in 20,000 babies between 1963 and 1965 in the United States.

The CDC notes that many vaccine-preventable diseases are still in the United States. Although the paralytic form of polio has largely disappeared due to vaccination. Vaccines eradicated smallpox and have nearly eradicated other diseases such as polio. Vaccinations also are economic benefits for society. The CDC estimates that vaccinated children born between 1994 and 2018 have yielded net savings of \$406 billion in direct costs and \$1.9 trillion in societal costs, including money saved by preventing lost productivity due to disability and early death. The United States saves about \$27 per \$1 invested in DTaP vaccination, and \$13 per \$1 spent on MMR vaccination. Some vaccination disadvantages

are side effects and harmful ingredients. The rotavirus vaccination can cause intussusception, a type of bowel blockage that may require hospitalization, in about one per 20,000 babies in the United States. Long-term seizures, coma and permanent brain damage may be associated with the DTaP and MMR vaccines, though the CDC notes the rarity of the reaction makes it hard to determine causation.

Some ingredients including Aluminum, Formaldehyde and Cetyltrimethylammonium bromide (CTMB) can cause migraines, strokes, diabetes and allergic reactions. Vaccinations can infringe on religious freedoms and some people feel that the government should not intervene in personal medical choices. Several religions oppose vaccines and mandatory vaccinations. The First Amendment of the US Constitution states, "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." Some religions feel that vaccinations weaken the immune system. Some people feel that natural immunity is better than vaccinations and that diseases targeted have essentially disappeared, so there's no reason to keep them. Some people feel diseases that are targeted by vaccines are relatively harmless making vaccines unnecessary. For example, chickenpox is often just a rash with blisters and can be treated with acetaminophen and calamine lotion.

The measles is normally a rash accompanied by a fever and runny nose and can be treated with rest and fluids. Strong emotion and bad old information is the root of this heated debate, but all it takes is one sick person to affect a highly unvaccinated group.

Everybody wants the best for themselves. In the FOX News article called "Vaccinations are not about who's a Bad Parent, they're about protection" by Taryn Chapman, discusses how parents just want the best for their kids and how kids are just becoming unprotected

in the meantime, while America stays split. Good and bad parenting is not based on medicine, but listening to fictional stories and anti-vaccination propaganda is not fair to let yourself and family suffer off of. A lot of families let the media and someone else's opinion influence and determine what they should do and that should not affect important things including your health. In the CNN article called "Seattle school system says if students aren't vaccinated, they can't return to classes" by Amir Vera, discusses how schools specifically Seattle require their students to be updated with their shots.

This issue is important, because not only will someone be potentially sick, but their education will be affected too. Vera stated: "Public school students in Seattle have until January 8 to get vaccinated or they cannot return to school, according to an announcement by the city's school system. About 2,000 students need their immunization records updated". Vaccinations are controversial, because you're making a choice to potentially affect others and it could also affect you including not being able to go to school or just simply getting sick. Some people feel vaccinations are linked to things including Autism. In the MSNBC show "One more study shows vaccines don't cause Autism" by Maggie Fox, discusses how another study debunks Autism and vaccinations rumors. Fox states:

"This one takes a special look at children with older siblings diagnosed with autism, who do themselves have a higher risk of an autism spectrum disorder. But even these high-risk kids aren't more likely to develop autism if they're vaccinated, according to the report in the Journal of the American Medical Association. Kids who had older brothers or sisters with autism were less likely to be vaccinated on time themselves, probably because their parents had vaccine worries. But those who were vaccinated were no more likely than unvaccinated children to develop autism"

Autism is a very common disorder and includes other various disorders on its spectrum.

There is research being done to find out possible causes other than genetics that contribute to someone having Autism. In this issue published by Oxford Academic called "Vaccines and Autism: A Tale of Shifting Hypotheses" by Stanley Plotkin, Jeffrey S. Gerber, Paul A. Offit, expressed that vaccines do not cause Autism, because they commented and investigated

other scientists' findings. Plotkin, Gerber and Offit read and commented on twenty epidemiologic studies and they have shown that neither thimerosal nor MMR vaccine causes Autism.

These studies have been performed in several countries by many different scientists. The large size of the studied areas even covers rare cases. A global increase in the rate of Autism diagnoses has fueled concerns that an environmental exposure like vaccines might cause Autism. In this issue published by Springer Link called "HPV Vaccine Decision-Making and Acceptance: Does Religion Play a Role?" by Rachel C. Shelton, Anna C. Snavely, Maria De Jesus, Megan D. Othus, Jennifer D. Allen, discusses the results of a study. The study involved:

"A web-based survey among 476 white, Black, and Hispanic parents or caregivers with daughter(s) between the ages of 9–17 to better understand how religion influences HPV vaccine acceptance. Catholic parents were more likely than nonaffiliated parents to have already vaccinated their daughters (vs. being undecided). Parents with frequent attendance at religious services were more likely than parents who do not attend services to have decided against vaccination "

Certain religions do not believe or prefer science and turn to prayers for healing. Science and religion tend to clash as some choose faith over factual evidence. The Church of Illumination states that "the teachings of the Church unequivocally affirm that injections of vaccines and inoculations are a violation of these biblical teachings. In this issue published by Science Direct called "Of natural bodies and antibodies: Parents' vaccine refusal and the dichotomies of natural and artificial" by Jennifer A. Reich, discusses some of the concerns to vaccinations. Some hesitations that Reich expresses are:

"Parents perceive differences in natural and artificial immunity. Vaccines come to be seen as artificial and inferior, leading to refusal. These concerns drive public health and provider communication about vaccines."

Although disease cases in the United States have decreased, parents are still opposing vaccines more often.

In conclusion, I am in favor of getting vaccines to protect myself against certain diseases. More research is being done to investigate the laundry list of claims that anti vaccination people promote. Not containing or trying to prevent a disease is dangerous. Making sure all people have access to healthcare and vaccinations and understanding the concerns of vaccine hesitant parents are possible solutions. The vaccination debate will always be an important and controversial topic, because it affects a lot including education and safety of yourself and others. The decision you make on whether or not to get vaccinated will not only affect you, but will affect others.

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