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The Controversial Nature of Vaccinations

Much of modern society is the way it is today thanks to one key advancement in medicine: the development of the vaccination. Without vaccinations, diseases such as small pox and diphtheria could be detrimental to society just as they had been in 18th century Europe (Riedel 2005). Despite their beneficial effect on mankind, many people still question their existence and protest their use. This is due to the influential role of mass media in today's society. The media has allowed misconceptions regarding vaccinations to spread through society at the touch of a button thanks to the easy access of social media and news-outlets from technology. Despite the media's role in vaccination rates, culture and social characteristics has also been shown to have an effect on vaccination rates. In order to successfully overcome the controversial nature of vaccinations, we must utilize the media in a positive way, form educational outreach programs, and provide opportunities for low-income areas.

During the 18th century, smallpox took 400,000 people annually, leaving survivors with life-altering implications (Riedel 2005). Even though smallpox was lethal, not much was being done to combat this disease except the use of herbal remedies and cold treatments. Some doctors attempted to develop innovative treatments, with the most creative developed by Dr. Sydenham. Dr. Sydenham believed small pox could successfully be eradicated by treating patients to twelve bottles of beer every twenty-four hours, while being kept in a cold room with blankets only up to their waist (Riedel 2005). This method was proved highly ineffective, resulting in the death of all patients. This was not the only unique attempt at preventive care, with blood-letting being another creative form of treatment. Doctors believed that you could "bleed out" the disease, which also proved to be ineffective (Riedel 2005). However, in the spring of 1796, there was hope for the field of medicine. Edward Jenner, the founder of immunology, developed the

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vaccine for smallpox by inserting cowpox into James Phipps, an 8-year old boy who had never been introduced to the disease (Riedel 2005). Jenner came to this conclusion based off his research on dairymaids. He noted that the dairymaids who contracted cowpox were somehow immune to smallpox (Riedel 2005). He then came up with the theory that the disease of cowpox could be transferred from one person to another, preventing the person from contracting smallpox. Jenner tested this theory on Phipps by inserting the cowpox virus from dairymaid Sarah Nelms into the hypodermis of the boy (Riedel 2005). Phipps only had mild cold-like symptoms from the cowpox virus, then was back to good health after a week. Two months later, Jenner inoculated the boy with smallpox. Phipps showed no signs of sickness after its inoculation, proving that he was successfully protected from the disease (Riedel 2005). This was just the start of a whole new era of medicine, one followed by a long road of hardships and controversy.

Before social media and television had their influence on society, the controversy over vaccinations existed. Right after publically announcing his innovative advancement in medicine, Jenner faced scrutiny from the general public. This distaste stemmed from different religious, scientific, and political beliefs of 19th century Europe and the United States. For instance, the clergy of the Roman Catholic Church showed great discontent with this novel discovery. The Catholic Church strongly believed that it was “immoral” and “unchristian” to insert a piece of an animal into a human body, and was tempering with the path that God had set out for us (Riedel 2005). “Health is given to a person by God and God will determine health without the need for medication” (Glatman-Freedman and Nichols 2012). The clergy was too worried that their relationship with God would be ruined if they were to be vaccinated, so in the process put all of the public’s health at risk (Blumberg 2017). Therefore, Christians began to form anti-vaccination

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leagues on the basis of their faith. They spread the anti-vaccination movement through their daily prayers held with their fellow Christians, instilling the views that vaccinations would interfere with a person's faith and relationship with God (Riedel 2005). There was also a general distrust in medicine during this time period. Much of the previous treatment methods to treat infectious disease, such as blood-letting and herbal remedies, did not prove to be effective, so Europeans were afraid to try this innovative preventive measure in fear that it would cause more harm than good (Riedel 2005). This also stemmed from the fact that many people still did not understand the immunology of disease and the process of its transmission. The general public did not understand how by inserting a foreign cowpox lesion could prevent smallpox. In society we are afraid of what we do not know or are unfamiliar with, that is why it is so important to educate people on the nature of vaccines. If people understand the general nature of vaccines, then we can effectively eradicate more infectious diseases of the world.

The main theme of vaccine rejection, however, stemmed from the belief that as humans we have our own personal liberty to choose what we can and cannot put into our bodies. This main theme originated during the 1800s when the government began to control the administration of vaccinations (Riedel 2005). The first vaccine policy, the "Vaccination Act of 1835" was formed in Britain which demanded that all infants up to three months receive the vaccination for small pox. This was an attempt to eradicate the spread of infectious disease by European countries. Since the nature of vaccinations was not fully understood, the act faced great backlash from the people (Riedel 2005). As parents, people believed they should be able to control what foreign matter was going into their infant's body, not the British government whose interest was believed to only be in the revenue the vaccination was creating. If society was not already in turmoil, the Act of 1867 further added to the controversy surrounding vaccinations.

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The Act of 1867 stated that all children up to age fourteen must receive the vaccination, and if they did not they would face penalties (Riedel 2005). Again, people did not understand how the government could know what was good for their own children and believed that the decision to vaccinate should be theirs. Citizens were angered and believed it was their civil liberty to control what goes into their bodies, which fueled the formation of anti-vaccination leagues and journals designated to the movement. The vaccination leagues were all based on ignorance and had no real substance to go off of, except for the violation of their civil liberties. But, would the civil liberties of all of society be effected if one person did not get vaccinated and spread disease? It did not matter because journals and demonstrations continued to spread propaganda, fueling the anti-vaccination movement. The most effective anti-vaccination movement was the Leicester Demonstration March of 1885, which had around 100,000 participants (Riedel 2005). This march was effective in creating hysteria in the general public by the use of children's coffins and controversial banners. Eventually, the Vaccination Act of 1898 was formed to ease hysteria by removing penalties for resisting vaccination and allowing those who did not want to be vaccinated based on personal beliefs receive certification for exemption (Riedel 2005). Still, people were not educated on the nature of vaccinations and just listened to the propaganda spread by the anti-vaccination leagues and journals of the time. This is seen today with the use of the media and technology, fueling the spread of misconceptions. It is imperative that society today use the media to educate people on the nature of vaccinations, so disease can be controlled and vaccinations can be successfully administered across the world.

In society today, there are several misconceptions fueled by the media that are still believed regarding vaccinations. With the spread of misinformation, people have forgotten the good of vaccinations and its part in the eradication of infectious diseases. One of the most

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popular misconceptions still spread is the linkage of thimerosal to autism, despite being disproven multiple times (Baker 2008). Thimerosal is a preservative used in vaccinations that contains mercury. Parents have been alarmed by the inclusion of the mercury-containing ingredient in vaccinations because of its use as a germicide and its potential for neurotoxicity at high-levels (Baker 2008). There was never a concern regarding thimerosal until the 1990s when diagnoses in autism began to prevail. This was not due to an increase in the amount of kids that were autistic, but due to the fact that more people were now being educated on the nature of autism (Baker 2008). The definition of autism began to expand, and those not initially included in the spectrum were now included. Development centers for autism also began to form, and the disorder was now being acknowledged in the curriculum of schools (Baker 2008). Since there was a dramatic increase in the number of autism diagnoses, there was now an overflow of patients in doctor offices. This led to long waiting lists just to see a doctor and receive information on the disorder (Baker 2008). Parents began to get tired of waiting, and went to other avenues for information such as the internet and parental advocacy groups (Baker 2008). Many parents wanted answers for this “autism epidemic”, so searched the internet for any possible explanation. When researching, parents came across the ingredient thimerosal and its linkage to mercury. Without looking any further into it, parents automatically thought that since mercury is toxic and included in the thimerosal that is in vaccinations, this must be linked to the rise of autism in children (Baker 2008). This spread throughout society like wild-fire due to its exploitation from the parental advocacy group the “Mercury Moms” (Baker 2008). Through social networking, the mercury moms brought national attention to this belief by persuading congressman Burton to hold congressional hearings on this matter (Baker 2008). Even though

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research has since disproven this misconception, it is still prevalent in society today due to the easy-access of internet and social media sources.

Two other popular vaccinations that currently face public scrutiny are the Human Papillomavirus Vaccine and the Rotavirus Vaccine. The Human Papillomavirus Vaccine protects against the sexually transmitted disease the human papillomavirus (HPV) (Bronfin 2008). Many parents are apprehensive to receive the vaccination because they believe it will encourage their child to be sexually active at a young age. What many parents ignore is the fact that twenty million people are infected with the virus yearly, and only half of them are actually sexually active (Bronfin 2008). Not only is this STD easily contracted, but it is the cause of cervical cancer in 10% of cases and has also been found to lead to cancers of the vagina, penis, vulva, and anus (Bronfin 2008). Its important for parents to become fully educated on the vaccine because once the infection is acquired, the vaccine can no longer prevent the disease and its deleterious effects (Bronfin 2008). Parents must be made aware of the safety of the vaccine, and its role in the prevention of cancer. Parents are so apprehensive to receive this shot due to its aggressive coverage in television and the media (Bronfin 2008). However, all the stories that have been reported stating that young girls' health have begun to deteriorate after receiving the vaccine were not based off of any science and proved to not be linked to the shot (Bronfin 2008). The media fails to mention the science that disproves what they saying, just that young girls across the United States are becoming seriously ill from the HPV vaccine. The media should play a role in easing parents of their vaccination-worries by reporting the health benefits of vaccinations instead of adding to their anxiety and confusion. There is no scientific evidence stating anything wrong with the HPV vaccine, but the media fails to mention this because it is not as good of a story and will not receive as many views for the network, showing the corruption of society

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today. The Rotavirus Vaccine is another vaccination that faced scrutiny by the public and the media (Bronfin 2008). This vaccine is preventive against the rotavirus, which has been notably the most infectious disease in infants through the spread of fecal matter. The media has constantly reported that the rotavirus vaccine causes intestinal blockage in infants. In actuality, there is some truth to this story, but there has not been a case of intestinal blockage since 1999. In the original vaccine, intestinal blockage was caused due to an error in its formula, but the vaccine was immediately withdrawn from the pharmaceutical market at the first notice of this (Bronfin 2008). The new vaccine was formed in 2006, and has since been effective in preventing against five different strands of the virus, protecting people from 96% of the disease globally (Bronfin 2008). Even though this is an example of how a vaccination can have harmful effects, it shows the effectiveness of the Vaccine Adverse Event Reporting System in monitoring the distribution of vaccines and their effects on its recipients (Bronfin 2008). Vaccinations that are on the market today are continuously being screened for abnormal effects incase this happens again, thus proving that the ones out are safe for distribution. It also shows that if any vaccinations did ever have detrimental effects, they would be quickly and efficiently removed from the market.

In todays society, the media plays the most significant role in our every day lives. From determining what we wear, eat, or where we travel to, it has influenced every aspect of a persons' life. Now, it even plays a role in human health. Where do we draw the line? In parent's vaccination decisions, the media has played a tremendous factor in whether or not a child is vaccinated (Brunson 2013). The parents no longer look for advice from the doctor who is a trained professional, but from those closest to them and sources on the internet (Brunson 2013). In a study done on the influence of social networks on parental vaccination decisions in the

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United States, it was found that those with larger social networks and more of a presence on social media opposed vaccinations more than parents who had smaller social networks and less of a presence online (Brunson 2013). For instance, those who were against childhood vaccinations had networks made up of 6.7 people who were mostly female, while those who were for childhood vaccinations had social networks made up of only 4.8 people and mostly males (Brunson 2013). Therefore, social media and networks have been proven to have a negative impact on vaccination approval. This just shows how easy the internet can influence our thought process, making the future of our country a scary one. The influence of the media on every day life may be getting progressively worse, but this is not a novel idea. The same trend was seen in the 1970s with the DTP vaccine controversy (Riedel 2005). In 1970, the Great Ormond Street Hospital for Sick Children in London stated that thirty-nine infants developed neurological issues after receiving the DTP vaccination. An intense amount of media coverage in the newspapers and television drew excessive attention from all over the world, instilling fear in the parents of young infants (Riedel 2005). All people heard was that the DTP vaccination was linked to neurological issues, no one needed any more information. If people researched the actual cases in Britain, there was no found link between the DTP vaccination and neurological issues of infants according to scientific findings (Riedel 2005). As a society, we rather believe quick and easy information that is given to us than actually sit down and research into something. If done correctly, this could be used to an advantage in the promotion and education of vaccinations.

Since the media plays a significant role in every day life, if used correctly it could promote the use of vaccinations and educate those who are unaware of its advantages to mankind. Research in South Korea has shown that mass media can effectively promote

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vaccinations (Kim and Jung 2017). From 1999 to 2001, television networks and newspaper articles were able to successfully promote influenza vaccinations in South Korea (Kim and Jung 2017). There was a positive correlation found between the use of “vaccine” or “shot” in bold headlines during the television programs or in the newspapers, and those receiving vaccinations (Kim and Jung 2017). It was also found that vaccine promotion in mass media caused people to receive vaccinations four days earlier than they normally would, and even increased the annual vaccination rate by 8% (Kim and Jung 2017). Those with easier access to television and radio were more likely to receive vaccinations due to their awareness of infectious diseases, and the effectiveness of vaccinations in preventing them. In order to improve preventive care in the United States and other areas of the world, it is important to use mass media in a positive way to educate people on infectious disease and vaccinations, instead of spreading misconceptions and creating fear in people.

Even though the media plays a significant role in vaccination rates, it is not the only factor that is influential. Social and cultural backgrounds of a person also play a significant role in whether a person will receive a vaccination or not. For instance, a person's living conditions is key in whether or not they will be vaccinated. Research found in Delhi, India shows those who live in poorer living conditions are less likely to receive vaccinations than those who live in homes with plumbing, electricity, and food on the table (Glatman-Freedman and Nichols 2012). This is because those living in slum areas have limited access to health care services and preventive treatments, leading to a large presence of infectious diseases (Glatman-Freedman and Nichols 2012). If we could figure out a way to reach these lower-income areas and provide the health care they need, we could slowly improve vaccination rates and overcome the misconceptions surrounding them. Gender in low-income is another factor that influences

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vaccination rates. In these poorer countries, such as Saudi Arabia, women lack access to preventive care (Glatman-Freedman and Nichols 2012). In most of these countries, women are treated as second class citizens and are solely dependent on the man (Glatman-Freedman and Nichols 2012). Women lack any social support, and are forbidden from getting an education. Without an education, women are unaware of the importance of vaccinations and all they could do for society as a whole. It is difficult to reach these communities because they are so stuck in their culture and ways, that they are unwilling to listen to western countries. If we could start by improving the social support of women in these poorer countries, we could effectively improve the rates of vaccinations. Religion has also played a factor in whether or not a person receives a vaccination (Glatman-Freedman and Nichols 2012). Only 32% of the Muslim faith are likely to receive vaccinations (Glatman-Freedman and Nichols 2012). Therefore, an increase in childhood mortality is seen in these communities. The culture is more alienated from society, so often do not seek preventive treatment or healthcare. Muslims as a whole are marginalized, and therefore do not have the same accessibility to health care programs (Glatman-Freedman and Nichols 2012). It is important that we form programs to reach these communities, and approach the culture in a way they can relate too. In order to have high vaccination rates, it is important to create a sense of community (Glatman-Freedman and Nichols 2012). People who feel like they are apart of something greater than themselves are more likely to receive vaccinations. Groups who are migrant and do not associate with a specific place or home are less likely to be vaccinated, and as a result, lead to the spread of disease (Glatman-Freedman and Nichols 2012).

As a society, it is our job to combat these misconceptions, educate the public, and provide opportunities for those who have missed them. In order to increase immunization opportunities for those less fortunate, it is important to first locate the communities that are left off the radar.

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For instance, the children of African communities are not immunized due to missed opportunities, not because they are uneducated on the nature of vaccinations (Glatman-Freedman and Nichols 2012). In order to increase vaccination rates, we must improve immunization services to reach these communities. This could be done by the formation of mobile clinics and the support of home delivery vaccinations in low-income areas. In Saudi Arabia, this method has been seen to be effective in increasing vaccination rates, so if applied in all low-income areas should have the same positive effect (Glatman-Freedman and Nichols 2012). Not only is it important to reach those who do not have the opportunity to receive vaccinations, but also educate those that do have the opportunity. By forming educational outreach programs, this could effectively improve vaccine delivery by bringing awareness to the positives of vaccinations. As a result, we could prevent the further spread of infectious disease and lead to an overall improvement in everyday life. For religions like the Muslim faith, outreach programs could be formed that are more relatable to their specific culture, making them feel less alienated and more informed in the process. The most important change that could be the most infective in increasing immunization rates is the utilization of the media. If used properly, the media could spread awareness of the advantages vaccines provide for overall health and its effective prevention of infectious disease. The media could improve communication among areas that are secluded, and connect different social classes, allowing everyone to have the same access to immunization education. With the use of media outlets such as television, radio, and newspapers, a healthier lifestyle could be promoted, creating a better tomorrow for the future of mankind. In conclusion, vaccinations are not the misconceptions the media plays them out to be, but are key factors in preventive care and are an important stepping stone in the path of a brighter future for the human race and medicine.

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