



Effectiveness of Mandatory Vaccination Programs in the United States

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Abstract

Vaccinations have been a widely debated topic in recent years due to many vehement accusations that they cause autism in children. The accuracy of these accusations has been repeatedly studied across the globe, and the unanimous consensus has been for years that vaccines do not cause autism. Despite these findings, the number of unvaccinated individuals in the United States continues to grow, which in turn has brought about the return of infectious diseases, which had an exceedingly low incidence rate in past years. This has resulted in the implementation of mandatory vaccination programs in particular areas of the United States. These programs argue that compulsory vaccination programs are not only necessary to protect immunocompetent individuals, but they are also crucial to maintaining herd immunity. By doing so, immunocompromised individuals who are unable to receive vaccinations due to underlying medical conditions are protected. Furthermore, a thorough jurisprudential review reveals these mandatory vaccination programs are, in fact, legal to implement despite opponents to these programs arguing that their rights have been infringed.

Introduction

According to the American Public Health Association, one of the significant issues in America today is that of vaccinations. Vaccinations, particularly the vaccine for Measles, Mumps, and Rubella (MMR), were thrust into the spotlight in 1999 after Andrew Wakefield published a now-discredited article linking the MMR vaccine to autism. Although his claims have been studied and tested extensively and found to be false on numerous occasions, a startling number of Americans continue to believe his claims. Today, this population continues to grow, especially after celebrities adamantly claim vaccines have caused autism in their children. By parents refusing to vaccinate their children because of personal beliefs or religious reasons, it has resulted in the return of infectious diseases. One such example is

measles. In 1997, measles had an incidence of 138 confirmed cases in 1997, compared to a rate of 1,282 confirmed cases in 2019, of which 61 were reported to have complications, which includes but is not limited to pneumonia and encephalitis [1,2].

While the numbers of those refusing to vaccinate themselves or their children grow (often referred to as anti-vaxxers), some U.S. states, cities, and even other countries have implemented mandatory vaccination policies [3-6]. The purpose of this article seeks to establish the effectiveness of the mandatory vaccination programs currently in place through an extensive review of previously published findings. Additionally, the report aims to examine the legality of these types of vaccination programs



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because they appear to infringe upon individual rights when looking at them on a surface level.

Materials and methods

For this narrative review, obtaining Institutional Review Board (IRB) approval was not needed, nor was it obtained. Although there was research involved, at no point during its duration were human subjects, their private information, identifiable private information, identifiable biospecimens, coded private information or biological specimens included.

In order to find appropriate studies, the researcher began by using Google Scholar as a general search engine. Afterward, more specific search engines were used, which include but are not limited to PubMed and EBSCO Host, where MESH terms were used to narrow down potential articles. To further limit his results, he limited articles from 2010 to the present day. However, in order to establish the constitutionality of vaccination programs, public records were researched. In doing so, the researcher found Supreme Court decisions dating back to 1905 continuing to present day as well as referencing the U.S. Constitution. In addition to searching for scholarly articles, the researcher also sought after published articles on reputable websites such as the American Public Health Association website as well as obtained epidemiological data from government websites such as the Centers for Disease Control and Prevention.

In terms of study selection, once the researcher received articles from his initial search, he began a preliminary review examining the article's title and abstract. During the investigation, the researcher obtained the full text of the articles and included those discussing current mandatory vaccination programs, their results, and articles pertaining to the legality of said programs. Furthermore, the researcher excluded articles that discussed vaccination programs that are not currently mandatory.

Analysis

Our understanding of vaccines, how they are made, as well as how the human body responds to them has improved drastically since 1798, when Edward Jenner pioneered the vaccine for Smallpox. The results from our literature review demonstrate that mandatory vaccination programs in the United States are not only effective, but they are also constitutional. Interestingly enough, in 2005, Virginia Mason Hospital (VMH) implemented policies requiring all healthcare personnel to show proof of vaccination as part of their "fitness for duty requirement." If they refused to receive vaccinations, then they could have potentially faced termination or have been placed on leave without pay [7]. The only exception to this policy was that only employees who had a documented medical contraindication or a legitimate religious belief were exempt from this policy, and the results showed approximately 99% compliance [7].

Outside of the United States, many countries have already implemented compulsory vaccination programs and have had great success. Two examples that we will analyze will be those of the countries Italy and China. In Italy, it is recommended by the National Immunization Prevention Plan for adolescents between the ages of 11-18 to receive multiple vaccines, including Meningococcal B and C vaccines, DTaP, and HPV. Initially, compliance was lower than expected, prompting the Italian government to implement programs where children would be able to receive vaccinations at school in addition to traditional health care settings. After applying these school-based vaccination delivery systems, there were significantly higher rates of compli-

ance, implying that these school-based interventions were effective [5]. Similarly, in China, before 1992, the incidence and prevalence of hepatitis B virus among Chinese citizens were of great concern. Because of this, the Chinese government proposed and ultimately implemented mandatory neonatal hepatitis B vaccination for all children. Years later, the results of this policy showed a significantly lower incidence of hepatitis B, indicating the protective nature of the vaccine, thereby decreasing the overall morbidity and mortality of hepatitis B in Chinese citizens [6].

Despite these results and many more, the anti-vaccination community in the United States continues to grow for many reasons, which include but are not limited to celebrity endorsement, dissemination of false information, and religious preferences. Concerning celebrity endorsement, Jenny McCarthy is perhaps the most vocal celebrity who has spoken out against child vaccination. Her reasoning is because her son was diagnosed with autism sometime after he received the MMR vaccine. Since her initial outcry in 2007, she has been all over mainstream media channels advocating that the MMR vaccine is what gave her son autism. However, debate exists between medical professionals and scientists on whether her son was ever autistic in the first place. Their reasoning was because his presenting symptoms were similar to those of Landau-Kleffner syndrome, which can present with multiple seizures and can result in speech and language problems, both of which occurred in her son [8].

Furthermore, a 2015 study found that some children who present with attentional flexibility problems, developmental delays, amongst other issues, were incorrectly diagnosed with autism. When in actuality, these children should have been diagnosed with another condition [9]. In terms of disseminating false information, multiple websites run by anti-vaccination supporters exist. However, their claims often manipulate information and are misinterpretations of study results. One such example is that vaccines, more specifically, the MMR vaccine contains thimerosal leading to an increased number of autism diagnoses [10]. These claims are untrue because thimerosal has not been used in any children's vaccines since 2001, while the number of autism diagnoses continues to rise in children. Additionally, thimerosal has been used in vaccines since the early twentieth century. Thimerosal has also been studied numerous times, and evidence of thimerosal causing harm has yet to be found [2].

One objection to mandatory vaccination laws is that the statutes invade parental rights to be able to practice their religion, thereby infringing on their First Amendment rights. However, it was determined that a law is constitutional as long as its intent is not to hinder religion nor single out religious behavior as a form of punishment [11]. As a response to *Smith*, Congress approved two statutes to reestablish religious freedoms: The Religious Freedom Restoration Act of 1993 and the Religious Land Use and Institutionalized Persons Act of 2000. However, neither act provides grounds for challenging mandatory vaccination laws. Therefore, concerning religion and compulsory vaccinations, there is no basis to challenge current law either by the U.S. Constitution or by federal law [12].

Furthermore, despite what many anti-vaccination supporters believe to be an infringement upon their rights, mandatory vaccination programs are entirely constitutional as determined by the Supreme Court in *Jacobson v. Massachusetts*. This case set a precedent by stating that compulsory vaccination laws are

legal when they are necessary for public safety or the overall health of the public [13]. Furthermore, in 1922, the Supreme Court affirmed this decision upholding mandatory vaccination requirements for children entering the public school system [14].

Even though the Supreme Court has already established precedent, there must be some exceptions to mandatory vaccination laws, such as individuals who have chronic health problems or are immunocompromised, which preclude them from receiving vaccinations. Unfortunately, these exceptions are frequently abused by those who refuse to vaccinate their children [15]. One such exemption that is commonly used is that of being exempt based on religion. However, *Prince v. Massachusetts* established that even though parents can raise their children however they please, this right “is not absolute,” and the Court held that “the custody, care and nurture of the child reside first in the parents... the family itself is not beyond the regulation of public interest” [16]. This meant that parents could not keep the state from regulating parental decisions solely based on religion [17]. However, the government has to protect children from communicable diseases that could potentially kill or maim them even if they object based on their religion [18].

While the government must protect children, the government must also adhere to the United States Constitution and its Bill of Rights. Furthermore, if policies that allowed religious exemptions to vaccinations existed, it would create different stratifications of children because of their particular religion. These stratifications would deny children equal access to vaccinations, which goes directly against the Fourteenth Amendment, which guarantees children equal protection under the law [19] (U.S. Const. Amend. XIV).

Interestingly enough, from 2011-2017, 175 new bills were proposed by state legislators to either expand or limit access to exemptions. Of the 175, only 13 bills were signed into law, 12 of which limited access to exemptions. This implies that even though there are many bills proposed, the ones most likely to be passed are the ones that limit vaccine exemptions, thereby mitigating threats to the public’s health [20]. Additionally, recent studies have also shown that in states with more lenient vaccine laws also tend to be the same states that have higher rates of diseases that are vaccine-preventable [21,22].

Conclusion

Simply put, vaccinations and mandatory vaccination programs are not only effective, but they are also constitutional as well. Without vaccinations themselves, hundreds of thousands, if not millions of individuals in the United States, would not be alive today without them. Because of the parent’s conscious decisions to vaccinate their children, many immunocompromised individuals are currently alive today. This is because of the concept of herd immunity, which is further proof that vaccines work. However, individuals who refuse to vaccinate not only put their children at risk. They also put immunocompromised individuals at risk to contract communicable diseases. Despite what opponents to mandatory vaccination programs believe, the programs themselves are entirely constitutional. They are not an infringement on an individual’s rights because one person’s freedom does not legitimize inflicting injury on to another individual. Therefore, we recommend that all states implement compulsory vaccination programs for all children unless there is a valid medical contraindication that precludes them from receiving vaccinations.

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