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ADDRESSING VACCINATION HESITANCY

By Savannah Young*

ABSTRACT

This note examines the United States' vaccination policy in comparison to other countries' policies. Throughout Europe and in certain states in the United States, vaccination requirements are tightening, and citizens are expected to comply with more stringent requirements. The past year has brought new outbreaks of vaccine-preventable diseases in the United States and Europe, which has led to a push against the anti-vaccine movement and for stronger vaccination policies. However, the likelihood of a federally mandated immunization program emerging in the United States, like those in Europe and China, is low. The best policies to encourage vaccination compliance are to increase effective education about the high benefits and low costs of vaccines; and make the process of obtaining an exemption more difficult. A policy that emphasizes education and fewer exemptions would produce greater immunities from diseases without the backlash that mandatory requirements would create. Such policy would place the choice to vaccinate in the informed hands of the American people, promoting both individual autonomy and protecting public health.

This note was written before the COVID-19 pandemic and reflects data, statistics, and analysis that predates the outbreak.

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I. INTRODUCTION

Every year, tens of thousands of Americans contract preventable diseases.¹ Vaccines are the best protection from these diseases and are especially important for protecting children, the elderly, and those with weakened or compromised immune systems.² However, compliance with the recommended vaccinations has been an increasing problem in the United States. For example, in 2008, the United States experienced 140 cases of measles, and of the 131 cases reported through July, 91 percent of the victims were unvaccinated or had an unknown vaccination status.³

Vaccines protect not only the person who chose to get vaccinated, but also protects others who are unable to be vaccinated by preventing the disease from spreading.⁴ Laws and policies are essential for preventing outbreaks and the spread of diseases.⁵ Legal infrastructure gives regulators and officials tools to address those who are not vaccinated.⁶

Currently, vaccines can prevent the contraction of Chickenpox, Diphtheria, Flu, Hepatitis A, Hepatitis B, Hib, HPV, Measles, Meningococcal, Mumps, Polio, Pneumococcal, Rotavirus, Rubella, Tetanus, and Whooping Cough.⁷ Vaccines reduced, and even

¹ *Six Things YOU Need to Know about Vaccines*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/vaccines/vac-gen/vaxwithme.html> (last visited Feb 14, 2020).

² *Id.*

³ Dorit Rubinstein Reiss, *Thou Shalt Not Take the Name of the Lord Thy God in Vain: Use and Abuse of Religious Exemptions from School Immunization Requirements*, 65 HASTINGS L.J. 1551, 1596 (2014).

⁴ *Six Things YOU Need to Know about Vaccines*, *supra* note 1.

⁵ Leila Barraza et al., *Legal and Policy Responses to Vaccine-Preventable Disease Outbreaks*, 42 J.L. MED. & ETHICS 11, 11 (2019).

⁶ *Id.* at 13.

⁷ *Diseases & The Vaccines that Prevent Them*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/vaccines/parents/diseases/index.html> (last visited Feb 14, 2020).

eliminated diseases such as smallpox worldwide.⁸ While vaccines can cause side effects, they are normally rare and usually minimal.⁹

Vaccines work with the body's natural defenses to help develop immunity to a disease.¹⁰ Each ingredient in the vaccine serves a specific purpose to aid the body in building immunity.¹¹ For example, adjuvants help boost the body's response to the vaccine, residual cell cultures grow materials to make the vaccine, and residual antibiotics prevent contamination by bacteria during the manufacturing process.¹² Contrary to many of the fears and misconceptions surrounding immunization, vaccines undergo extensive lab testing to ensure their safety.¹³ After testing, clinical studies are performed before the vaccine is licensed.¹⁴ After licensing, federal agencies monitor the vaccine to ensure its continued safety.¹⁵ Vaccines are researched and tested through the Centers for Disease Control and Prevention (CDC) and National Institute of Health (NIH),¹⁶ and must also be approved by the Food and Drug Administrations (FDA). In an emergency, vaccines may receive accelerated approval through the FDA, but must still meet many fitness requirements before being administered to the public.¹⁷

Despite the proven health benefits and extensive testing of vaccines, there has been a rise in anti-vaccine sentiment throughout the Western Hemisphere due to the misconception that vaccines cause more harm than benefit to the children that receive them.¹⁸ In 2019, the

⁸ *Five Important Reasons to Vaccinate Your Child*, VACCINES.GOV, https://www.vaccines.gov/getting/for_parents/five_reasons (last visited Feb 14, 2020).

⁹ *Id.*

¹⁰ *Making the Vaccine Decision: Addressing Common Concerns*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/vaccines/parents/why-vaccinate/vaccine-decision.html>.

¹¹ *What's in Vaccines?*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/vaccines/vac-gen/additives.htm>.

¹² *Id.*

¹³ *Making the Vaccine Decision: Addressing Common Concerns*, *supra* note 10.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ Eric Hargan et al., *Vaccine Law 101*, 35 J.L. MED. & ETHICS 72, 72 (2007).

¹⁷ *Id.*

¹⁸ Azhar Hussain et al., *The Anti-vaccination Movement: A Regression in Modern Medicine*

World Health Organization (WHO) listed vaccine hesitancy as one of the top ten threats to global health.¹⁹ They stated that vaccine hesitancy threatens to reverse years of progress made in tackling vaccine-preventable diseases.²⁰ Specifically, they stated that vaccines currently prevent two to three million deaths per year; that number could be increased by about 1.5 million if global coverage of vaccinations improved.²¹

This note first examines the anti-vaccination movement, then analyzes vaccination policies in the United States and abroad. Next, the note looks at the success of policies in other countries and how those policies can be applied in the United States, specifically, allowing fewer exemptions and increasing education.

II. THE ANTI-VACCINATION MOVEMENT

Opposition to vaccines dates as far back as 1772, when vaccines were believed to hinder God's punishment of humankind for its sins.²² In 1898, Great Britain removed penalties for violation of the vaccination laws after receiving pressure from the Anti-Vaccination League, which sought to protect the liberties of people from being invaded by Parliament.²³ From the inception of vaccines to today, anti-vaccination groups have worked to dismantle the implementation of effective immunization programs and policies.

One of the many reasons for this anti-vaccination rhetoric is the fear caused by past crises involving vaccines. For example, in 1955, some batches of the polio vaccine contained live polio virus, even though the vaccine had passed the safety testing.²⁴ The incident caused many cases of paralysis in the United States.²⁵ Additionally, in

CUREUS 1, 8 (Jul. 3, 2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6122668/pdf/cureus-0010-00000002919.pdf>.

¹⁹ *Ten threats to global health in 2019*, WORLD HEALTH ORG., <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019>.

²⁰ *Id.*

²¹ *Id.*

²² Hussain et al., *supra* note 18, at 2.

²³ *Id.*

²⁴ *Historical Vaccine Safety Concerns*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/vaccinesafety/concerns/concerns-history.html>.

²⁵ *Id.*

2003, The Institute of Medicine revealed that people who received the swine flu vaccine in 1976 suffered an increased risk of developing Guillain-Barré Syndrome, a serious neurological disorder.²⁶ Similarly, in 1998, some infants developed intussusception (a rare type of bowel obstruction that occurs when the bowel folds in on itself) after being vaccinated with the rotavirus gastroenteritis vaccine.²⁷ Even though these cases of adverse effects were small in comparison to the total number of the vaccinations given, parents tended to pay more attention to the number of bad events, rather than the total number of doses.²⁸ This emphasis on the number of adverse events engenders fear and decreases the likelihood of parents choosing to vaccinate their children.

In recent years, opposition has largely been spurred by the publication of a paper by Andrew Wakefield, which suggested a connection between the measles, mumps, and rubella vaccine (MMR,) and autism.²⁹ In 1998, Wakefield and twelve colleagues published a case series that suggested that the vaccine may predispose children to behavioral regression and pervasive developmental disorder.³⁰ The study has since been debunked and rebuked.³¹ Almost immediately after Wakefield's publication, studies were conducted that proved no link between the MMR vaccine and autism.³² Subsequently, the study was retracted by ten of the original authors, who stated that there was no causal link and that the data used was insufficient.³³ The retraction was followed by an admission by the publication that Wakefield had been hired by parents in lawsuits against vaccine producers.³⁴ In 2010, the publication completely retracted the study, and the authors were

²⁶ *Id.*

²⁷ *Id.*

²⁸ See Jan Hoffman, *How Anti-Vaccine Sentiment Took Hold in the United States*, N.Y. TIMES (Sep. 23, 2019), <https://www.nytimes.com/2019/09/23/health/anti-vaccination-movement-us.html>.

²⁹ Hussain et al., *supra* note 18, at 1.

³⁰ T. S. Sathyanarayana Rao & Chittaranjan Andrade, *The MMR vaccine and autism: Sensation, refutation, retraction, and fraud*, 53(2) INDIAN J. PSYCHIATRY 95 (2011), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3136032/?report=printable>.

³¹ Hussain, Ali, Ahmed & Hussain, *supra* note 18 at 2.

³² Rao & Andrade, *supra* note 30.

³³ *Id.*

³⁴ *Id.*

held guilty of ethics violations, scientific misrepresentation, and deliberate fraud.³⁵

However, despite its falsity, Wakefield's study caused vast drops in vaccination rates throughout the world. For example, in 2003, the MMR vaccination rate in some parts of London was as low as 61 percent; in Ireland, from 1999 to 2000, the national immunization level was below 80 percent; and in the United States, MMR vaccinations dropped 2 percent from 1999 to 2000.³⁶

Because vaccines nearly wiped out many diseases, researchers hypothesized that one reason for the increasing vaccination hesitancy is the generations of adults who lived without seeing the side effects and destruction of the diseases that vaccines prevent.³⁷ This is especially true in high income countries, where vaccines have largely become "victims of their own success."³⁸ This has affected both doctors and patients, who have fortunately never seen cases of diseases like polio, which affects the spinal cord and brain.³⁹ Because the memory of the disease has been wiped out, parents are less likely to vaccinate because they have no relevant comparison of what the vaccines are preventing against.

Additionally, in today's culture of individualism and consumerism, many Americans think about vaccinations from an "individual consumer point of view."⁴⁰ Under that view, parents want to make their own health decisions, rather than a doctor or government telling that what they should do.⁴¹ Another driver of vaccination hesitancy is parents' misconceptions about the

³⁵ *Id.*

³⁶ Hussain et al., *supra* note 18, at 3.

³⁷ Kevin Hooker, *Exemptions to Vaccine Mandates: The Problem and Possible Remedies*, 14 HOUS. J. HEALTH L. & POL'Y 26 275.

³⁸ Eve Dube et al., *Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications*, 14(1) EXPERT REV. VACCINES 99, 100 (2015), <https://mde.biologia.gr/ferma/wp-content/uploads/sites/13/2017/03/Vaccine-hesitancy-vaccine.pdf>.

³⁹ Hoffman, *supra* note 28.

⁴⁰ Susan Gallagher, *The Many Faces of Vaccine Hesitancy*, DUKE GLOBAL HEALTH INST. (Apr. 21, 2019), <https://globalhealth.duke.edu/media/news/many-faces-vaccine-hesitancy>.

⁴¹ *Id.*

pharmaceutical industry.⁴² For example, some believe that doctors promote and suggest vaccines due to their supposed ties to the pharmaceutical industry.⁴³ In 2014, parental confidence in the CDC and pediatricians was dropping.⁴⁴ At that time, mistrust of big pharmaceutical companies was even greater.⁴⁵ This mistrust led to more skepticism about vaccines, and therefore, lower vaccination rates.

News, media outlets, and spokespeople such as Jenny McCarthy and Oprah, exacerbate the anti-vaccine movement.⁴⁶ This emphasis on media is concerning for vaccine advocates because parents are more likely to believe an individual's experience with a vaccine rather than abstract numbers.⁴⁷ For example, a popular misconception is that the flu vaccine causes the individual to contract the flu, and many individuals tell stories of them or someone they know contracting the flu after receiving the vaccination.⁴⁸ However, the flu vaccine is typically administered in the winter, when many viruses and bacteria are circulating, so people conflate the flu with other infections that are going around at the time.⁴⁹

Easy access to online information increased vaccine hesitancy and the spread of false information, rather than encouraging vaccinations.⁵⁰ Individuals opposed to vaccinations tend to be more active in news forums, resulting in a minority of users producing a disproportionate amount of anti-vaccine content.⁵¹ Studies examining vaccine-related content on websites and social media showed a substantial amount of inaccurate information.⁵² A 2007 study found that 32 percent of YouTube videos about immunization opposed

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Hoffman, *supra* note 28.

⁴⁵ *Id.*

⁴⁶ Hussain et al., *supra* note 18, at 1.

⁴⁷ Hoffman, *supra* note 28.

⁴⁸ Gallagher, *supra* note 40.

⁴⁹ *Id.*

⁵⁰ Hussain, *supra* note 18, at 3.

⁵¹ Dube et al., *supra* note 38, at 105.

⁵² *Id.* at 106.

vaccinations and had higher ratings than pro-vaccine videos.⁵³ Another study that evaluated how effectively internet users assessed the accuracy of medical information about vaccines concluded that 59 percent of the participants thought that the sites were entirely accurate, but only 45 percent were actually accurate.⁵⁴ Moreover, 53 percent of the participants in that study left with significant misconceptions about vaccines.⁵⁵ Another study also found that viewing an anti-vaccine website for only five to ten minutes increased perceptions of vaccine risks which still remained five months after the study.⁵⁶ This spread of online misinformation is troubling, as there is a growing trend of individuals seeking health information from “user-generated” websites, like an online news group or blog, rather than evidence-based websites.⁵⁷

This rise of vaccine hesitancy coupled with the spread of misinformation about vaccines severely decreases the safety of the entire population. When significant numbers of people in a population are vaccinated, the population achieves “herd immunity,” which provides protection for the members of the population that are unable to be vaccinated.⁵⁸ Herd immunity aims at the complete removal of disease from the population; however, as long as any member in a population is vaccinated, the likelihood of the disease spreading decreases.⁵⁹ Thus, even if the herd immunity is not ultimately achieved, society still benefits from the buffer of the disease.⁶⁰ Like

⁵³ Jennifer Keelan et al., *YouTube as a Source of Information on Immunization: A Content Analysis*, 298(21) JAMA (2007), <https://jamanetwork.com/journals/jama/fullarticle/209631>.

⁵⁴ Phillip Kortum et al., *The Impact of Inaccurate Internet Health Information in a Secondary School Learning Environment*, 10(2) J. MED. INTERNET RES. (2008), <https://www.jmir.org/2008/2/e17>.

⁵⁵ *Id.*

⁵⁶ Cornelia Betsch et al., *The Influence of Vaccine-critical Websites on Perceiving Vaccination Risks*, 15(3) J. HEALTH AND PSYCHOLOGY (Mar. 26, 2010), <https://www.ncbi.nlm.nih.gov/pubmed/20348365>.

⁵⁷ Dube, *supra* note 38, at 106.

⁵⁸ Dr. Nili Karako-Eyal, *Beyond the Ethical Boundaries of Solidarity: Increasing Vaccination Rates Through Mandatory Education to Solidarity*, 6 TEX. A&M L. REV. 345, 352 (2019).

⁵⁹ Mary Holland & Chase E. Zachary, *Herd Immunity and Compulsory Childhood Vaccination: Does the Theory Justify the Law*, 93 OR. L. REV. 1, 8-9 (2014).

⁶⁰ *Id.*

herd immunity, American policy should strive to maximize immunizations in order to protect the population at large, especially those who are unable to receive their immunizations due to health concerns.

Issues with herd immunity include the “free rider problem,” or one refusing to vaccinate because since everyone else vaccinated, the free rider is less likely to contract the disease.⁶¹ The greater the number of free riders, the greater the risk of disease spreading—especially if the risks of vaccination outweigh the benefits of receiving it, then few will vaccinate.⁶² However, the importance of building herd immunity cannot be overstated. The CDC’s reports and findings estimate that between 1994 and 2014, 732,000 deaths of U.S. children were prevented, as well as 322 million cases of childhood illnesses due to vaccinations.⁶³ In addition, it has been estimated that for each U.S. birth cohort receiving the recommended childhood immunizations, about 20 million illnesses and more than 40,000 deaths are prevented, resulting in \$70 billion in savings.⁶⁴

III. VACCINATION IN THE UNITED STATES

In the United States, children can start receiving numerous vaccinations from the time they are born.⁶⁵ The vaccination schedule for children is recommended by the Advisory Committee on Immunization Practice (AICP).⁶⁶ The recommendations are developed using an evidence-based approach that considers balancing the harms and benefits of the vaccine, type and quality of evidence, values and preferences of those affected, and health and economic

⁶¹ *Id.* at 9.

⁶² *Id.*

⁶³ Erwin Chemerinsky & Michele Goodwin, *Compulsory Vaccination Laws are Constitutional*, 110 NW. U. L. REV. 589, 600 (2016).

⁶⁴ C. Lee Ventola, MS, *Immunization in the United States: Recommendations, Barriers, and Measures to Improve Compliance*, 41 PHARMACY AND THERAPEUTICS, Jul. 2016, at 426 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4927017/>.

⁶⁵ *Immunization Policy Issues Overview*, NATIONAL CONFERENCE OF STATE LEGISLATURES (May 22, 2019), <http://www.ncsl.org/research/health/immunizations-policy-issues-overview.aspx>.

⁶⁶ *Id.*

consequences.⁶⁷ Children's school and daycare requirements serve as a "safety net" for children who don't receive the recommended vaccinations.⁶⁸ School requirement laws are state-based and reflect the recommendations of the AICP.⁶⁹ Some states give state health officers the authority to change or revise school requirements through administrative rule or legislation.⁷⁰ All fifty states and territories have at least one local or regional immunization registry, so that doctors are able to check a child's immunization history through a centralized database where they don't have to rely on the parents or a paper record.⁷¹

Unlike for children, there are few vaccination requirements for adults.⁷² Medicare covers influenza and pneumococcal vaccinations for adults over the age of sixty-five.⁷³ However, there are no federal programs to assist adults who do not have access to good medical care or cannot afford the recommended vaccines.⁷⁴ The adult immunization schedule recommended by the AICP is simpler than the schedule for children. It includes vaccinations such as, Hepatitis B, tetanus, and varicella, but applies only to certain individuals in at-risk populations or occupations.⁷⁵ The biggest focus of adult immunizations is influenza and pneumococcal vaccinations for elderly adults.⁷⁶

All states have statutes that require vaccinations in specific settings.⁷⁷ Typically, these compulsory vaccinations apply to school children or children in daycare, and those who work in medical facilities.⁷⁸ Mandatory school vaccinations vary from state to state and

⁶⁷ *Evidence-Based Recommendations—Grade*, CENTERS FOR DISEASE CONTROL AND PREVENTION (Oct. 23, 2018), <https://www.cdc.gov/vaccines/acip/recs/grade/about-grade.html>.

⁶⁸ *Immunization Policy Issues Overview*, *supra* note 65.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Immunization Policy Issues Overview*, *supra* note 65.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ Terri Dobbins Baxter, *Employer-Mandated Vaccination Policies: Different Employers, New Vaccines, and Hidden Risks*, 2017 UTAH L. REV. 885, 900 (2017).

⁷⁸ *Id.*

most states offer exemptions from the immunizations.⁷⁹ For healthcare workers, the statutes differ as to what vaccinations are required and what, if any, exemptions apply.⁸⁰ The requirements for vaccine administration are also determined by the states. Professional licensing boards in each state determine whether health care workers can administer vaccinations, and state law varies with respect to who is authorized to administer the vaccinations and the degree to which physician oversight is needed.⁸¹

According to the Association of State and Territorial Health Officials, the price to fully vaccinate one child in the public sector in 2014 was \$1,894.52.⁸² Federal funding covers about 95% of all publicly funded vaccinations through The Vaccines for Children Program (VFC) and Section 317 of the Public Health Services Act. VFC provides free vaccines for un- or under-insured, Medicaid-eligible, Native American, and Alaskan Native children.⁸³ Section 317 is administered by the CDC and provides grants to states, territories, commonwealth trusts, and some cities for vaccine purchase and for programs like outreach and disease surveillance.⁸⁴

While states largely rely on federal resources to purchase vaccines, federal programs do not cover all children so states must supplement those funds.⁸⁵ Some states have universal purchase programs in which they purchase all recommended vaccines for children, regardless of whether they are insured or not.⁸⁶ Other states have universal select programs where they purchase most recommended vaccines for all children, with the exception of one or more vaccines.⁸⁷

During the 1970s, as people became more concerned about vaccine safety and personal health, there were several lawsuits brought against vaccine manufacturers and healthcare providers by

⁷⁹ *Id.*

⁸⁰ *Id.* at 904.

⁸¹ Hargan et al., *supra* note 16, at 74.

⁸² *Immunization Policy Issues Overview*, *supra* note 65.

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Immunization Policy Issues Overview*, *supra* note 65.

those who believed they had been injured by the vaccinations.⁸⁸ At the time, damages were awarded even though there was a lack of scientific evidence to support the claims of injury and as a result, vaccine prices increased and many manufacturers stopped production, creating a vaccine shortage.⁸⁹ To address these problems Congress passed the National Childhood Vaccine Injury Act (NCVIA) in 1986.⁹⁰

The NCVIA created the National Vaccine Program Office, which coordinated the immunization related activities of many agencies.⁹¹ The Act also required healthcare providers to provide patients with a vaccine information statement.⁹² The statement is created by the CDC and contains a brief description of the disease and the risks and benefits of the vaccine.⁹³ Healthcare providers are also required to report adverse events that result from the vaccination to the Vaccine Adverse Event Reporting System.⁹⁴ Additionally, the act established a committee from the Institute of Medicine that was to review vaccine reactions.⁹⁵ The NCVIA also created that National Vaccine Injury Compensation Program to compensate those injured by vaccines on a “no fault” basis.⁹⁶ Under the compensation program, the United States Court of Federal Claims determines who is and is not compensated.⁹⁷

While immunization requirements vary, all states provide exemptions.⁹⁸ Every state allows medical exemptions, and many states except California, Mississippi, West Virginia, New York, and Maine grant religious or philosophical exemptions.⁹⁹ Currently, only fifteen

⁸⁸ *History of Vaccine Safety*, CENTERS FOR DISEASE CONTROL AND PREVENTION (Oct. 27, 2015), <https://www.cdc.gov/vaccinesafety/ensuringsafety/history/index.html>.

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ *History of Vaccine Safety*, *supra* note 88.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ Chemerinsky & Goodwin, *supra* note 63, at 602.

⁹⁸ *Immunization Policy Issues Overview*, *supra* note 65.

⁹⁹ *States With Religious and Philosophical Exemptions From School Immunization Requirements*, NATIONAL CONFERENCE OF STATE LEGISLATURES (Jan. 29, 2021), <http://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>.

states allow exemptions for those who object based on personal, moral, or other beliefs.¹⁰⁰ There are three common philosophical objections: (1) a parent objects to mandatory vaccination due to political objections to government interference; (2) a parent is troubled by the perceived risk of being vaccinated; and (3) a parent perceives vaccinations to be the cause of harm to children.¹⁰¹

However, in recent years, states began to tighten their exemptions.¹⁰² One study found that from 2009 to 2012, thirty-one out of thirty-six proposed bills aimed at expanding exemptions, while only five aimed at restricting them.¹⁰³ “None of the bills proposing to expand exemptions passed, while three out of five proposing restrictions were enacted into law.”¹⁰⁴ This study illustrates the movement that states are making to restrict vaccine exemptions.

Additionally, in 2015, West Virginia began requiring a certificate by a licensed physician for exemption requests; Vermont became the first state to repeal its personal belief exemption; Illinois required each public school district to make exemption data available to the public, and required those who claim the exemption to obtain a health care provider’s signature and submit an exemption certificate; Connecticut required an annual notarized statement from parents claiming an exemption; and California removed exemptions for personal beliefs, including religious objections.¹⁰⁵

Also, in 2016, Delaware explained that “in the event that the Division of Public Health declares that there is an outbreak of a vaccine preventable disease, or if in the estimation of the Division of Public Health, an unvaccinated child has had, or is at risk of having an exposure to a vaccine preventable disease, the child shall be temporarily excluded from attendance at the public school.”¹⁰⁶ Delaware also gave the Division of Public Health the authority to

¹⁰⁰ *Id.*

¹⁰¹ Hooker, *supra* note 37, at 279-80.

¹⁰² See *States With Religious and Philosophical Exemptions From School Immunization Requirements*, *supra* note 99.

¹⁰³ Reiss, *supra* note 3, at 1597.

¹⁰⁴ *Id.*

¹⁰⁵ See *States With Religious and Philosophical Exemptions From School Immunization Requirements*, *supra* note 99.

¹⁰⁶ *Id.*

review medical exemptions signed by a physician.¹⁰⁷ Likewise, in 2017, Utah amended the grounds for exemption, required renewal of the exemption under certain circumstances, and created a new exemption form.¹⁰⁸

Moreover, in 2019, Washington removed the personal belief exemption from the MMR vaccine for public and private schools and daycare facilities; Maine also removed its personal and religious belief exemption for public school immunization requirements; and New York removed the religious exemption for public school vaccination requirements.¹⁰⁹ As a whole, a large number of states are moving toward stricter policies to enforce compliance with the recommended vaccines in order to better protect their populations.

IV. VACCINATION IN OTHER COUNTRIES

Throughout the world, countries are being forced to create and implement novel policies to combat vaccine hesitancy. Large, recent outbreaks of vaccine preventable diseases have shifted the discourse from anti-vaccination to the need to protect citizens from avoidable microscopic dangers.

On June 29, 2019, the People's Republic of China took an even harsher measure than those seen in the United States when it adopted the PRC Law on Vaccination Adoption, effective December 1, 2019.¹¹⁰ The law provides for strict vaccine management with harsh penalties to ensure vaccine safety.¹¹¹ The law also regulates researching, producing, distributing, and using vaccines; and the requirements and penalties are more stringent when compared to other drugs.¹¹² Under China's immunization program, residents are to be vaccinated with the required vaccines, which will be administered for free.¹¹³ The law also establishes a compensation program for those who develop

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *States With Religious and Philosophical Exemptions From School Immunization Requirements*, *supra* note 99.

¹¹⁰ *China: Vaccine Law Passed*, GLOBAL LEGAL MONITOR (Aug. 27, 2019), <http://www.loc.gov/law/foreign-news/article/china-vaccine-law-passed/>.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

adverse reactions to the vaccines.¹¹⁴ For mandatory vaccinations, the compensation is paid through local fiscal budgets, while for voluntary vaccination, the vaccine license-holder bears the responsibility for compensation.¹¹⁵ In addition, vaccine license holders are required to publish vaccine information on their websites, including “product instructions and labels, official approval, recall information, inspections and punishment received and compulsory insurances covered.”¹¹⁶

China’s law mandates tougher penalties for the production and sale of fake and substandard vaccines.¹¹⁷ People whose violations of the law constitute a crime bear heavier criminal responsibility. Those producing or selling fake vaccines are subject to a fine of fifteen to fifty times the value of the illegal products, and substandard vaccine makers or sellers face a fine of ten to thirty times the value.¹¹⁸ The threshold for fines under the law is also raised.¹¹⁹

Like China, many European countries are also implementing stricter laws and providing greater penalties for non-compliance with the current laws. Throughout Europe, the number of cases of measles in the first half of 2019 was already greater than all of 2018.¹²⁰ Within the first six months of 2019, nearly 90,000 cases and thirty-seven deaths were reported across forty-eight of the fifty-three European World Health Organization countries.¹²¹ Ukraine has been the most heavily impacted, with more than 54,000 cases within the first half of 2019.¹²² Moreover, the United Kingdom, Albania, Czech Republic, and Greece have all had their measles elimination status revoked.¹²³ Experts say

¹¹⁴ *Id.*

¹¹⁵ Liangyu, *China Focus: China adopts tough law to ensure vaccine safety*, XINHUANET (Aug. 9, 2019), http://www.xinhuanet.com/english/2019-06/29/c_138185186.htm.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ Nicola Davis, *Lives at risk from surge in measles across Europe, experts warn*, GUARDIAN (Aug. 29, 2019), <https://www.theguardian.com/society/2019/aug/29/lives-at-risk-from-surge-in-measles-across-europe-experts-warn>.

¹²¹ *Id.*

¹²² *Id.*

¹²³ *Id.*

that these inadequate and decreasing vaccination rates are largely due to the anti-vaccination movement.¹²⁴ In response to these numbers, many countries are now pursuing more stringent vaccination policies.

For example, Germany's parliament passed the Measles Protection Act, which will take effect in March 2020 and make the measles vaccination compulsory for all children.¹²⁵ Parents who refuse to vaccinate their children can be fined up to €2,500 and have their child banned from nursery school.¹²⁶ The health ministry, led by Jens Spahn, described the law as "child protection" and stated that those who backed it were expressing a responsibility towards the whole of society.¹²⁷ Under the law, both children and staff in childcare facilities are required to have the vaccination and to show proof of their immunization.¹²⁸ The law will also require immunizations for adults born after 1970 who work with children in public institutions, like daycares and hospitals.¹²⁹

Additionally, the British Health Secretary, Matt Hancock, stated that the country was looking into making vaccinations for school children mandatory.¹³⁰ The United Kingdom recently lost its measles free country status from the WHO due to declining rates of MMR vaccinations.¹³¹ Hancock believes this loss should be a wakeup call for Britain and has stated that he would do whatever possible to increase vaccinations rates.¹³² He first expressed the idea in May 2019, stating that he did not want to force compulsory vaccinations, but might be required to act if no other solution could be reached.¹³³ In the United Kingdom, Prime Minister Boris Johnson has begun to

¹²⁴ *Id.*

¹²⁵ Kate Connolly, *German parliament approves compulsory measles vaccination*, GUARDIAN (Nov. 14, 2019), <https://www.theguardian.com/world/2019/nov/14/german-parliament-approves-compulsory-measles-vaccinations>.

¹²⁶ *Id.*

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ Melissa Eddy, *Germany Mandates Measles Vaccine*, N.Y. TIMES (Nov. 14, 2019), <https://www.nytimes.com/2019/11/14/world/europe/germany-measles-vaccine.html>.

¹³⁰ Peter Walker, *Hancock: compulsory vaccinations being seriously considered*, GUARDIAN (Sept. 29, 2019), <https://www.theguardian.com/society/2019/sep/29/government-seriously-considering-compulsory-vaccinations-matt-hancock>.

¹³¹ *Id.*

¹³² *Id.*

¹³³ *Id.*

contemplate measures to be taken to increase vaccine education. On August 19, 2019, he announced plans for a summit of social media firms to discuss how to promote accurate information about vaccinations.¹³⁴ He stated, “I am afraid people have just been listening to that superstitious mumbo-jumbo on the Internet, all that antivax stuff, and thinking that the MMR vaccine is a bad idea . . . [t]hat’s wrong. Please get your kids vaccinated.”¹³⁵

In Ireland, Health Minister Simon Harris, also proposed mandatory vaccinations for children.¹³⁶ While the proposal is currently under consideration, the increasing number of cases of measles has forced Ireland to consider novel solutions to protect public health.¹³⁷

Moreover, after a large outbreak of measles in 2017, Italy adopted a law increasing the number of mandatory vaccinations from four to ten for those aged up to sixteen years old.¹³⁸ The new law added the MMR, pertussis, varicella, and Hib vaccines to the list of already mandatory vaccines.¹³⁹ As part of the law, parents and guardians of unvaccinated children can be fined,¹⁴⁰ and unvaccinated or partially vaccinated children under the age of six are not permitted to enroll in educational services.¹⁴¹ In Italy, to raise awareness of the new mandatory law, the Ministry of Health created a website dedicated to vaccinations, including a special section provided for the new law.¹⁴²

The Ministry of Health also provided a free phone number and two mailboxes dedicated to questions about vaccinations.¹⁴³ In

¹³⁴ Talha Burki, *Vaccine Misinformation and Social Media*, LANCET (Oct. 2019), [https://www.thelancet.com/journals/landig/article/PIIS2589-7500\(19\)30136-0/fulltext](https://www.thelancet.com/journals/landig/article/PIIS2589-7500(19)30136-0/fulltext).

¹³⁵ *Id.*

¹³⁶ *Mandatory Vaccines for Children Under Consideration*, IRISH EXAM’R, <https://www.irishexaminer.com/breakingnews/ireland/mandatory-vaccines-for-children-under-consideration-921154.html>.

¹³⁷ *Id.*

¹³⁸ Fortunato D’Ancona et al., *The law on compulsory vaccination in Italy: an update 2 years after the introduction*, EUROSURVEILLANCE, June 27, 2019, at 1, 1, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6607737/pdf/eurosurv-24-26-5.pdf>.

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 3.

¹⁴¹ *Id.*

¹⁴² *Id.* at 2.

¹⁴³ D’Ancona et al., *supra* note 138 at 2.

addition, five letters providing information regarding the new law were sent to public regional and national institutions, health and educational authorities, and healthcare professionals throughout Italy.¹⁴⁴ At the local level, there was also implementation of communication and training for public health and healthcare providers.¹⁴⁵ In late 2018, the Ministry of Health also implemented a national television and internet campaign which sought to combat vaccine hesitancy.¹⁴⁶ The campaign promoted the benefits of vaccination and used two celebrities as testimonials.¹⁴⁷

Similarly, in 2018, France extended mandatory vaccinations for infants to cover eleven diseases,¹⁴⁸ and mandated that children must receive their vaccinations to participate in school or other children's activities; if vaccinations are refused, penal proceedings may ensue.¹⁴⁹ The extension of coverage was introduced due to "insufficient vaccine coverage, persistence of a preventable burden for some diseases and growing vaccine hesitancy in the French population."¹⁵⁰ To promote France's new legislation, the country set up a public website with information about vaccines.¹⁵¹ The website has over a quarter of a million visitors every month.¹⁵² In addition, France also established a more in-depth website for health care professionals.¹⁵³

Furthermore, in Poland, vaccinations included in the immunization schedule are mandatory for all children and funded by the state.¹⁵⁴ All children residing in Poland for more than three months

¹⁴⁴ *Id.* at 3.

¹⁴⁵ *Id.* at 2-3.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 2.

¹⁴⁸ Henri Partouche et al., *Mandatory vaccination of infants in France: Is that the way forward?*, EUR. J. GEN PRAC., Dec. 17, 2018, at 49, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6394317/pdf/igen-25-1561849.pdf>.

¹⁴⁹ *Id.* at 50.

¹⁵⁰ *Id.* at 51.

¹⁵¹ Alex Whiting, *How France is persuading its citizens to get vaccinated amid high levels of skepticism*, INDEPENDENT (Jul. 8, 2019), <https://www.independent.co.uk/news/health/france-measles-vaccine-antivaxx-vaccine-government-world-health-organisation-a8958611.html>.

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Mandatory Vaccinations in Poland – History and Rationale*, SZCZEPHENIA INFO, <https://szczepienia.pzh.gov.pl/en/stories/mandatory-vaccinations-in-poland/>.

must be vaccinated, and their immunizations are tracked through an immunization card.¹⁵⁵ Parents who choose not to vaccinate their children are subject to administrative procedures and usually a monetary fine.¹⁵⁶ When the mandatory policy was criticized by anti-vaccination activists, the Minister of Health declared that “[r]esignation from mandatory vaccinations is impossible. Thanks to mandatory vaccination we maintain high immunization coverage and protect the weakest who cannot be immunized.”¹⁵⁷

In Canada, “Immunize Canada,” a website initiative, has provided many educational and training resources about immunization to support the work of health care professionals.¹⁵⁸ For example, they provide webinars, presentations, events, and conferences,¹⁵⁹ including webinars on “Responding to Health Misinformation Online” and “Immunizing Immunocompromised Adults.”¹⁶⁰

V. SUCCESS OF OTHER COUNTRIES

In general, mandatory vaccination requirements are successful in increasing vaccination rates. However, mandatory requirements do not change the minds of skeptical parents, which has the potential to hinder the mandatory law’s effectiveness. Moreover, a country’s fundamental demographics and ideologies will necessarily impact the effectiveness of its vaccination policy.

China is one of the world’s largest producers of vaccines, producing around 700 million vaccine doses annually.¹⁶¹ However, despite this vast number, China’s Expanded Program on Immunization (EPI) provides for fewer available vaccines than the

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ *Education & Training*, IMMUNIZE CANADA (Feb. 14, 2017), <https://immunize.ca/education-training>.

¹⁵⁹ *Id.*

¹⁶⁰ *Webinars*, IMMUNIZE CANADA (Dec. 2, 2019), <https://immunize.ca/webinars>.

¹⁶¹ Yaming Zheng et al., *The landscape of vaccines in China: history, classification, supply, and price*, 18 BMC INFECTIOUS DISEASES 1, 1 (2018), <https://bmcinfectdis.biomedcentral.com/track/pdf/10.1186/s12879-018-3422-0.pdf>.

United States and other European countries.¹⁶² Additionally, China's EPI system protects children from fewer diseases than other high and middle income countries.¹⁶³ Specifically, there is a lack of Hib, ORV, PVC, influenza, and HPV vaccines.¹⁶⁴ Therefore, even though China will now require mandatory immunizations, greater, structural problems in Chinese healthcare inhibit individuals from being fully protected from vaccine-preventable diseases.

In the United Kingdom, the proposal of a mandatory MMR vaccination has been met with extreme backlash. Both medical and public health organizations have voiced their concerns and stated that a mandatory vaccination would lead to "potential harms."¹⁶⁵ The opposition stated, "[m]aking MMR compulsory would be hasty, premature and 'a kneejerk reaction' to falling [immunization] rates Vaccination could deny patients a choice, lessen trust between patients and doctors and lead parents [skeptical] about the jab to home school their children" ¹⁶⁶ Rather than a compulsory law, Professor Helen Stokes-Lampard, the chair of the Royal College of GPs, advocated for "[p]ositive, informed and educated choice" and stated that this educated choice will "always . . . be more desirable long-term, and we are concerned that rushing down the route of enforcing methods of healthcare could have unintended consequences."¹⁶⁷ The opposition believes that a compulsory mandate should be a last-resort, when all other options have been exhausted and proven ineffective.¹⁶⁸ They also note that by linking mandatory vaccinations to school enrollment, homeschooling would increase, as parents are given no other option.¹⁶⁹ In response to the oppositions' concerns, the Health Secretary maintained that he is committed to increasing vaccination rates and that this new strategy would be effective in doing so.¹⁷⁰

¹⁶² *Id.* at 3.

¹⁶³ *Id.* at 5.

¹⁶⁴ *Id.*

¹⁶⁵ Denis Campbell, *Stop Return of Measles by Making MMR Jab Compulsory, Say GPs*, GUARDIAN (Sep. 8, 2019), <https://www.theguardian.com/society/2019/sep/08/stop-measles-mmr-jab-compulsory-gps>.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ Campbell, *supra* note 165.

In contrast, Italy's compulsory law has increased vaccinations throughout the country. For measles specifically, vaccination coverage for children aged 24 months increased about 2.3 percent; for children aged 35 months vaccination coverage increased 2 percent; and for children aged seven years the vaccination coverage increased 4.4 percent.¹⁷¹ Even vaccination rates for non-mandatory vaccinations have increased since the imposition of the law.¹⁷² For example, the vaccination coverage for the meningococcal vaccine for children aged 24 months increased 5.2 percent.¹⁷³ Yet, despite the law's effectiveness in increasing vaccinations as a whole, the mandatory requirements are still a source of controversy "due to unresolved different opinions and the need to strike balance between individual freedom and the public health."¹⁷⁴ For example, in the beginning years of the law's implementation, political and social pressures from the anti-vaccination movement led to some regions and provinces delaying the implementation of the required fine until 2019, which created inequalities throughout the country.¹⁷⁵

Like Italy, France also experienced similar successes in increasing vaccination rates throughout the country after the implementation of mandatory requirements. For example, the number of infants who received the first dose of the meningococcal C vaccine increased by more than 36 percent.¹⁷⁶ This led to a decrease in the amount of cases of Meningitis C from a yearly average of seventeen from 2012 to 2016 to a yearly average of four in 2018.¹⁷⁷ France also experienced an increase in vaccination rates for non-mandatory vaccines as well.¹⁷⁸ Since the imposition of the mandatory requirements, the historically low national confidence in vaccinations is increasing throughout France. However, even with the positive strides made in increasing vaccination rates, there is concern that the

¹⁷¹ See D'Ancona et al., *supra* note 138 at 1.

¹⁷² *Id.* at 2.

¹⁷³ *Id.*

¹⁷⁴ *Id.* at 3.

¹⁷⁵ *Id.* at 2.

¹⁷⁶ Matthew Warren, *Vaccination Rates Rise in Italy and France After Law Change*, NATURE (Jul. 16, 2019), <https://www.nature.com/articles/d41586-019-02193-4>.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

number of medical exemptions in France could increase in response to the mandatory law.¹⁷⁹

Poland, however, has not, in recent years, experienced the same success as Italy and France. In Poland, even though vaccinations are mandatory, more people are now foregoing their vaccinations. The number of people refusing vaccines and thus subject to a formal administrative procedure increased from 4,893 in 2007 to 23,147 in 2016.¹⁸⁰ Likewise, in 2016 the vaccination rate for the first dose of MMR fell to 95.5 percent from 98.3 percent in 2007.¹⁸¹ The number of vaccinated children is also decreasing. Between 1998 and 2007, 99.8 percent of children born were vaccinated; contrastingly, in 2016, the percentage of non-vaccinated children increased from .2 percent to 6 percent.¹⁸² This dramatic drop in immunization rates is due, at least in part, to parental fears surrounding vaccine side effects.¹⁸³ Under the Polish law, parents who fail to have their children vaccinated receive a reminder that the procedure is mandatory.¹⁸⁴ If they fail to respond, they may be fined up to €2,300; the penalties may be stacked for repeat offenders but the total amount may not exceed €11,500.¹⁸⁵ However, in actual application, the fines are typically much lower and parents can appeal to the health minister and to an administrative court.¹⁸⁶ Thus, regardless of the mandatory law, parental fears and misconceptions continue to pose challenges to Poland's vaccination rates.

In general, informational campaigns have been successful in raising awareness and improving public attitudes, but oftentimes information alone is not enough to sway parents on the fence

¹⁷⁹ Whiting, *supra* note 151.

¹⁸⁰ Gary Finnegan, *MMR Rates Fall in Poland – Despite Mandatory Vaccination Rules*, VACCINES TODAY (Jan. 18, 2018), <https://www.vaccinestoday.eu/stories/mmr-rates-fall-poland-despite-mandatory-vaccination-rules/>.

¹⁸¹ *Id.*

¹⁸² David Krawczyk, *The Rise and Fall of the Polish Anti-Vaccination Movement*, KRYTYKA POLITYCZNA & EUR. ALTS. (Mar. 8, 2019), <http://politicalcritique.org/cee/poland/2019/the-rise-and-fall-of-the-polish-anti-vaccination-movement/>.

¹⁸³ *Poland's Health Minister Warns Against Abolishing Compulsory Vaccinations*, POLAND IN (Mar. 10, 2018), <https://polandin.com/39303325/polands-health-minister-warns-against-abolishing-compulsory-vaccinations>.

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

regarding vaccination. Italy's information campaign was successful in raising awareness and changing attitudes about vaccinations. From 2016 to 2018 the percentage of hesitant parents decreased from 15.5 percent to 11.5 percent.¹⁸⁷ Similarly, in France, a 2019 study of parents revealed that 91 percent believe vaccination is important for their children's health, and 87 percent that it is important for protection of the wider population.¹⁸⁸ These figures show a 5 percent increase from a similar June 2018 study.¹⁸⁹

However, in Canada, only about 2 percent of parents are strongly opposed to vaccination.¹⁹⁰ In addition, the effectiveness of education and information campaigns has proven to be low. If anything, they tend to support parents' decisions to vaccinate, rather than sway those who would not vaccinate.¹⁹¹ Interventionist strategies, like offering vaccines at check-ups, rather than requiring a separate appointment, have been more successful at increasing vaccinations throughout Canada.¹⁹²

In addition, the misperceptions of health professionals in Japan, in part, has led to lower vaccination rates among voluntary vaccines.¹⁹³ In a study of parents who did not choose voluntary vaccinations, 39 percent were worried about side effects and 12.9 percent doubted the vaccine's positive effects.¹⁹⁴ These low rates were driven by both parent and provider attitudes concerning vaccinations, in addition to the lack of standardized information.¹⁹⁵

¹⁸⁷ D'Ancona et al., *supra* note 138, at 2.

¹⁸⁸ Whiting, *supra* note 151.

¹⁸⁹ *Id.*

¹⁹⁰ Susan Scutti, *How Countries Around the World Try to Encourage Vaccination*, CNN (Jan. 2, 2018), <https://www.cnn.com/2017/06/06/health/vaccine-uptake-incentives/index.html>.

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ Norimitsu Kuwabara & Michael S.L. Ching, *A Review of Factors Affecting Vaccine Preventable Disease in Japan*, 73 HAW. J. OF MED. & PUB. HEALTH 376, 379 (Dec. 2014), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4300546/pdf/hjmph7312_0376.pdf.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

VI. APPLICATION IN THE UNITED STATES

While there is no doubt that the statistics regarding the implementation of mandatory requirements in Italy and France have been positive and led to a great increase in vaccination levels, a mandatory law in the United States would be met with opposition similar to the proposed law in Great Britain. Daniel Salmon, Director of the Institute for Vaccine Safety at Johns Hopkins University, stated that government mandated action “reinforces conspiracy theories” and that people perceive their risk to be greater when the action is not voluntary.¹⁹⁶ For example, in 2015 California’s elimination of the personal belief exemption led to an increase in the number of religious exemptions.¹⁹⁷ Similarly, vaccination policy experts have stated that stricter vaccination laws encourage parents to seek novel ways to avoid the mandatory laws.¹⁹⁸

In the United States, no “right is held more sacred, or is more carefully guarded . . . than the right of every individual to the possession and control of his own person, free from all restraint or interference of others . . .”¹⁹⁹ This right to control one’s body has been cemented in the requirement of informed consent for all medical treatment.²⁰⁰ The Supreme Court stated that the logical corollary of the right to consent is the right not to consent and to refuse medical treatment.²⁰¹ This right to choose your treatment and to uphold the autonomy of your body is firmly entrenched in American ideologies and works as a barrier to mandatory vaccination requirements. Even in the case of *Jacobson v. Massachusetts*, which held that mandatory vaccinations were a proper exercise of the state’s police power, the Court left room for exemptions.²⁰²

¹⁹⁶ Hoffman, *supra* note 28.

¹⁹⁷ Bob Curley, *Should Childhood Vaccines Become Mandatory in the US?*, HEALTHLINE (Aug. 3, 2019), <https://www.healthline.com/health-news/should-childhood-vaccines-become-mandatory-in-the-us>.

¹⁹⁸ Daniela Blei & Tamara Venit Shelton, *Vaccines Save Lives. But Stricter Laws May Backfire*, WASH. POST (Aug. 30, 2019), <https://www.washingtonpost.com/outlook/2019/08/30/danger-stricter-vaccine-laws/>.

¹⁹⁹ *Union Pacific Ry. Co. v. Botsford*, 141 U.S. 250, 251 (1891).

²⁰⁰ *Cruzan v. Dir., Mo. Dep’t of Health*, 497 U.S. 261, 269 (1990).

²⁰¹ *Id.* at 270.

²⁰² *Jacobson v. Mass.*, 197 U.S. 11, 39 (1905).

In addition to the inherent legal and ideological issues with a mandatory requirement, logistically, given that states are in control of vaccinations, the implementation of a national mandatory vaccination would create an upheaval of the current vaccination system and require a complete overhaul of current United States policy.²⁰³ Even if, rather than a nationwide mandatory requirement, one state attempted to invoke a mandatory requirement, parents who sought to evade it could simply choose to relocate to a state with a less strict policy. Therefore, under the American system, a mandatory requirement would ideologically, legally, and practically fail.

A. LIMITING EXEMPTIONS

Instead of a mandatory requirement, the United States should provide for fewer exemptions and make the process of obtaining an exception more difficult. This, like the mandatory laws, would lead to greater vaccinations as fewer people would be able to opt-out of the requirements. However, the remaining skepticism in countries with mandatory laws, such as Italy, France, and Poland, would be a smaller issue in the United States, as the exemptions are not forbidden, just more difficult to obtain.

Currently, in many states it is easier to obtain an exemption than to comply with the vaccination requirement.²⁰⁴ For example, some states require only a signed form from the parent to receive an exemption.²⁰⁵ Contrastingly, to comply with the vaccine requirement, the parent and the child would have to go to the doctor's office, and the parent would have to witness the child's discomfort, restrain the child, and ensure that the child's school or the appropriate facility receives the form.²⁰⁶ It's no surprise then, that exemptions are as prominent as they are. However, if states were to increase the difficulty of obtaining the exemption in the first place, then the costs of

²⁰³ *Requirements & Laws*, CTRS. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/vaccines/imz-managers/laws/index.html/>.

²⁰⁴ Hillel Y. Levin et al., *Stopping the Resurgence of Vaccine-Preventable Childhood Diseases: Policy, Politics, and Law*, 2020 U. ILL. L. REV. 233, 257 (2020).

²⁰⁵ *Id.*

²⁰⁶ *Id.*

exempting and complying would be relatively similar and parents would be incentivized to comply with the vaccination requirements.

From 2006 to 2011, states with easy exemption policies experienced a continuous increase in the percentage of people with exemptions from around 2 percent to 3.5 percent, for an average annual growth rate of 13 percent.²⁰⁷ Contrastingly, states with difficult exemption policies did not see as much of an increase, with the percentage of people claiming exemptions rising from around 1 percent in 2006 to 1.3 percent in 2011, about 8 percent annually.²⁰⁸ In addition, the rate of exemption in states with religious and philosophical exemptions are 2.54 times higher than states with only religious exemptions.²⁰⁹

From 1986 to 2004, pertussis incidence (whooping cough) was 41 percent higher in states that accepted parental signature as proof of vaccination, compared to the states that required medical records.²¹⁰ In addition, studies have consistently shown that states with more difficult paperwork requirements for exemptions have less exemptions when compared to states with easier requirements.²¹¹ Exemption rates in states with easier exemption requirements have been shown to increase over time, while states with more difficult requirements have shown little to no increase²¹² Clearly, parental decision making is shaped by state exemption policies. A policy that makes exemptions less convenient will have higher vaccination rates. This policy is one that states should strive to mirror and achieve.

Achieving less exemptions still presents practical implementation challenges. Currently, every state has at least one anti-vaccine group and at least four states have registered political action committees that support candidates who favor exemptions.²¹³ These groups will work to block potential vaccine-friendly legislation and candidates, but if pro-vaccine legislation and candidates can garner a

²⁰⁷ Hooker, *supra* note 37, at 267.

²⁰⁸ *Id.*

²⁰⁹ *Id.*

²¹⁰ Eileen Wang et al., *Nonmedical Exemptions From School Immunization Requirements: A Systematic Review*, 104 AM. J. PUBLIC HEALTH 62 (2014), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202987/>.

²¹¹ *Id.*

²¹² *Id.*

²¹³ Hoffman, *supra* note 28.

majority of the votes, states would be successful in implementing them. Thus, in order to enact initiatives that favor less exemptions states need to push these policies through their legislatures while they have the numbers and support to ensure their success.

B. EDUCATION

In addition to decreasing opportunities to obtain an exemption, increased education about the efficacy, risks, and benefits of vaccines would increase immunization rates throughout the United States. Parents who receive accurate information regarding vaccines, in general, are more supportive of vaccines compared to those who do not receive accurate information.²¹⁴ In the United States, accurate information about vaccines is plentiful. Specifically, the CDC and other health organizations' websites provide information about the benefits, ingredients, and even frequently asked questions about vaccines. The information is easily accessible and credible. Thus, lack of accurate information is not the problem.

The problem is that since most people get their information online, it is very easy for non-credible sources to appear to be credible.²¹⁵ One study found that 62 percent of parents who sought exemptions for their children stated that they relied on the media for information.²¹⁶ In that study, of the parents who fully immunized their children, only 46 percent said they relied on the media for information.²¹⁷

Another problem is that, by responding to misinformation with correct information, especially on social media sites, it only draws more attention to the misinformation and promotes the appearance that there is a genuine debate about the two viewpoints.²¹⁸ Social media sites are beginning to take action in promoting accurate information online in order to combat the vast array of misinformation. In August 2019, Pinterest announced that searches on its site for vaccine-related topics will only produce links to reputable

²¹⁴ Karako-Eyal, *supra* note 58, at 345.

²¹⁵ Burki, *supra* note 134.

²¹⁶ Hooker, *supra* note 37, at 271.

²¹⁷ *Id.*

²¹⁸ Burki, *supra* note 134.

public health organizations.²¹⁹ Similarly, Facebook, which boasts 2.4 billion users every month, recently stated that it would no longer recommend posts with misinformation about vaccines and it would reject advertisements that carried misinformation.²²⁰ Yet, Facebook has not indicated that it will condemn shared posts of misinformation. Instagram has also stated that it will block patently false hashtags concerning vaccines, but it will not remove those that express anti-vaccination opinions.²²¹ YouTube has removed advertisements from anti-vaccination videos so that posters will not make money, but has not made any indication of efforts to remove false information from their site.²²² Similarly, on Twitter, the first link that appears after a vaccine related search is for the Department of Health and Human Services, but there is no removal of false information.²²³

While these initiatives of social media websites are impressive, the misinformation on social media is just the tip of the iceberg as the internet provides many accessible anti-vaccination websites and forums. Additionally, the initiatives by social media sites are currently not prohibiting the posting of false information by the average individual; so while the sites themselves are not promoting the misinformation, they are not taking affirmative steps to prevent it from being posted.

Under firmly entrenched principles, the First Amendment protects speech from government censorship.²²⁴ Therefore, the onus is on the private websites to police the content on their sites. However, this is not a realistic expectation of sites in which millions of users are creating content every day. To combat these problems, there should be training on media literacy skills and education regarding reputable information.²²⁵ That way, the informed public can make their own educated decisions regarding vaccines and the information that they discover online.

²¹⁹ *Id.*

²²⁰ *Id.*

²²¹ *Id.*

²²² Burki, *supra* note 134.

²²³ *Id.*

²²⁴ David L. Hudson Jr., *Free speech or censorship? Social media litigation is a hot legal battleground*, ABA J. (Apr. 1, 2019), <https://www.abajournal.com/magazine/article/social-clashes-digital-free-speech>.

²²⁵ *Id.*

Media literacy provides a framework to access, analyze, evaluate, create, and participate with messages in a variety of forms.²²⁶ It is an alternative to censoring, boycotting, or blaming the media for misinformation.²²⁷ By increasing media literacy, individuals will be better equipped to deal with the misinformation online. When individuals can better respond to and digest the inaccurate information they consume, they will be better educated about vaccinations overall. Therefore, media literacy leads to better education, and better education has proven to increase vaccinations.²²⁸

VII. CONCLUSION

With recent outbreaks in vaccine-preventable diseases, countries throughout the world have started to rethink their vaccination policies and requirements. In China, the PRC Law on Vaccination Adoption will essentially force citizens to comply with China's recommended immunizations or be penalized. Stricter laws are also emerging throughout Europe, and European countries that have not yet adopted stricter laws are having active discourse about the efficacy of their current policies and whether changes are needed to protect their citizens.

In the United States, immunization laws are largely left to the states under their Constitutional guarantee of police power. While the Supreme Court has upheld mandatory vaccinations in the wake of emergencies, it also left room for exemptions. The United States provides opportunities for medical, religious, and philosophical exemptions. After news-worthy disease outbreaks in recent years, many states have begun to restrict their exemptions, some even allowing for only medical exemptions, rather than for religious and philosophical exemptions.

The rise of the anti-vaccination movement brought skepticism concerning the need for, the dangers of refusing, and the reliability of vaccines. However, in general, the risks of vaccines are far outweighed by the benefits, and the vaccinations given to United States citizens are

²²⁶ *Media Literacy: A Definition and More*, CENTER FOR MEDIA LITERACY, <https://www.medialit.org/media-literacy-definition-and-more>.

²²⁷ *Id.*

²²⁸ Hooker, *supra* note 37, at 271.

vetted and ensured safe for administering. To increase compliance, the United States needs to provide for plentiful and accurate information about vaccines, provide for less exemptions, and make the process of obtaining an exemption more challenging.

The United States has a duty to protect its citizens and to promote their general welfare and safety. Vaccinations save lives. A policy and system that does not actively promote these life-saving immunizations disservices all citizens and exposes them to the hazards and risks of dangerous, life threatening, and easily preventable diseases.