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Calling the Shots: Balancing Parental and Child Rights in the Age of Anti-Vax

MAHRUKH BADAR*

ABSTRACT

Vaccinations have become a contentious issue in recent times. Although there has always been opposition to vaccines, the internet has made it possible for pseudoscience and false information to spread like never before. This has led to alarming declines in vaccine confidence and adherence rates globally. High-income countries have seen the sharpest drop in vaccine confidence rates. Factors such as the complacency effect and religious objections likely explain this decline. Most countries have attempted to raise vaccine confidence levels by enacting laws that make vaccinations for children compulsory, with strict penalties for parents who refuse to comply. In addition to vaccine mandates, the United States has the National Vaccine Injury Compensation Program for those who suffered injuries after receiving compulsory vaccines. Many of these policies create great friction between the government and individual liberties and do not address the rights of children at all. For these reasons, parents and children alike need a comprehensive solution that satisfies both their needs. To achieve this, states should adopt the mature minor doctrine in the context of vaccines. Schools should educate children about the safety and efficacy of vaccines to ensure that they are properly informed and increase their chances of being deemed a mature minor to bolster the effects of the mature minor doctrine. Additionally, parents whose children have been harmed by anti-vaxxers should be

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compensated for their suffering. This could be accomplished by fining anti-vaxxers for failure to vaccinate and using that money to create a national fund similar to the United States' current vaccine compensation program.

INTRODUCTION

Throughout the world, most people have had personal experiences with vaccines, making them one of the only medical treatments that most people have in common. For this reason, vaccine adherence could be a proxy to discern individuals' attitudes towards healthcare systems.¹ Although vaccines have always been somewhat controversial, they have proven to be effective enough to eliminate certain diseases—such as smallpox—from entire countries.² Recently, however, vaccine hesitancy rates worldwide have climbed so high as to reintroduce diseases that had previously been eradicated, such as measles,³ causing the World Health Organization (WHO) to declare vaccine hesitancy—“the reluctance or refusal to vaccinate despite the availability of vaccines”—as one of the top ten threats to global health in 2019.⁴

In 2019, measles caused 110,000 deaths worldwide, mostly in children aged under five,⁵ notwithstanding the global availability of a vaccine.⁶ This is a 300% increase from the same time period in 2018.⁷ Many developed countries, such as France, Germany, and Britain, that had previously eradicated measles have now lost their measles-free status.⁸ As of the first two months of 2019 alone, the United States had 159 reported diagnoses of measles, which is greater than the number of

1. WELLCOME TRUST, *Chapter 5: Attitudes to Vaccines*, WELLCOME TR. 104, 106, <https://wellcome.ac.uk/sites/default/files/wellcome-global-monitor-2018.pdf> (last visited Jan. 8, 2020).

2. *Id.*

3. *See id.*

4. *Ten Threats to Global Health in 2019*, WORLD HEALTH ORG., <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019> (last visited Nov. 27, 2019).

5. Eve Watling, *7 Countries Where Anti-Vaxxer Myths are Fueling Outbreaks*, NEWSWEEK (Mar. 8, 2019, 6:10 AM), <https://www.newsweek.com/anti-vaxxers-france-japan-1353202>.

6. Henrietta H. Fore & Tedros Adhanom Ghebreyesus, *Measles Cases Are Up Nearly 300% from Last Year: This is a Global Crisis*, CNN (April 15, 2019, 9:45 AM), <https://www.cnn.com/2019/04/15/opinions/measles-cases-rise-global-crisis-fore-ghebreyesus/index.html>

7. *Id.*

8. Julia Belluz, *The Global Crackdown on Parents Who Refuse Vaccines for Their Kids Has Begun*, VOX (Nov. 15, 2019, 9:10 AM), <https://www.vox.com/science-and-health/2017/8/3/16069204/vaccine-fines-measles-outbreaks-europe-australia>.

diagnoses reported in 2017 altogether.⁹ People, mostly children, who have not immunized against measles will have a 90% chance of contracting the disease.¹⁰

Despite the well-known risks of infectious disease, some parents still choose to opt out of vaccinating their children.¹¹ In the United States, 1.3% of two-year-olds were unvaccinated as of 2017, a figure that has quadrupled over the past fifteen years.¹² These parents may have concerns about vaccines and may not have accurate information regarding their safety and efficacy.¹³ There are four main reasons why parents choose to postpone or decline vaccinations: (1) religious grounds, (2) personal or philosophical beliefs, (3) doubts about safety, and (4) difficulty in seeking more information from doctors and nurses.¹⁴ The WHO has declared that, due to the decrease in vaccine adherence, many European countries no longer have the 95% vaccination rate that is necessary for “herd immunity” to prevent the spread of infectious diseases.¹⁵

Decisions regarding vaccinations are not solely a personal matter. Choosing to not vaccinate has the potential to threaten entire communities with epidemics.¹⁶ Many countries have implemented various legal solutions to increase the rate of vaccine confidence—the trust that people have in vaccines and administrators—but none have been able to develop a coherent solution that accounts for the rights of *both* parents and children. This note examines the factors contributing to global vaccine hesitancy, compares the methods countries employ to encourage vaccination worldwide, and identifies gaps in those methods. Part I discusses the history of opposition to vaccines. Part II compares vaccine hesitancy rates among high- and low-income countries and explains several factors that contribute to some surprising findings.

9. Watling, *supra* note 5.

10. *Id.*

11. See Noah Berlatsky, *Fighting the Anti-Vax Movement with Lawsuits*, THE ATLANTIC (Feb. 4, 2015), <https://www.theatlantic.com/health/archive/2015/02/fighting-the-anti-vax-movement-with-lawsuits/385130/>.

12. Meera Jagannathan, *The Share of Kids Who Aren't Getting Vaccinated Has Quadrupled in the Past Several Years*, MKT. WATCH (Oct. 12, 2018, 1:52 AM), <https://www.marketwatch.com/story/the-share-of-kids-who-arent-getting-vaccinated-has-quadrupled-in-the-past-several-years-2018-10-12-13885223>.

13. See, e.g., Berlatsky, *supra* note 11.

14. Jagannathan, *supra* note 12 (citing Chephra McKee & Kristin Bohannon, *Exploring the Reasons Behind Parental Refusal of Vaccines*, J. PEDIATRIC PHARMACOLOGY & THERAPEUTICS, 21:104-09. (2016)).

15. See Taylor & Francis Group, *Top Global Public Health Scientists Launch New Challenge to Anti-Vaxxers*, (July 2, 2019), <https://www.sciencedaily.com/releases/2019/07/190702112659.htm>.

16. See WELLCOME TRUST, *supra* note 1.

Part III analyzes some of the national and global legal solutions to increase vaccine adherence levels. Lastly, Part IV identifies elements that may be missing in these solutions to provide a comprehensive solution that addresses both parent's and children's rights to make decisions regarding vaccines.

I. RISE OF THE GLOBAL ANTI-VACCINATION MOVEMENT

English physician Edward Jenner, who inoculated a young boy with the cowpox virus to immunize him to smallpox in 1796, is regarded as the founder of the vaccine in Western medicine.¹⁷ The inoculation proved to be effective and smallpox vaccinations became commonplace by the early 1800s due to government mandates.¹⁸ These mandates resulted in near-immediate public opposition to vaccines for several reasons.¹⁹ First, parents were afraid of the process of inoculation itself, as it involved introducing a weakened cowpox virus by making a small incision in a child's arm and smearing the incision with lymphatic fluid from a person vaccinated a week earlier.²⁰ Second, religious leaders opposed the smallpox vaccine for being "unchristian" because the vaccine was derived from an animal, not a human.²¹ Third, some of the vaccine skepticism also stemmed from the belief that people contracted smallpox from organic decay, and so there could be no cure.²² Fourth, people felt that government-mandated vaccines impinged on personal liberty, particularly on parental rights.²³

For example, the English Vaccination Act of 1853 required vaccinations for all children older than two years of age.²⁴ The Vaccination Act of 1867 increased the age requirement to fourteen years.²⁵ The act also added penalties for refusing vaccines.²⁶ Dissidents of government-mandated vaccines created the Anti-Vaccination League

17. See The Coll. of Physicians of Phila., *History of Anti-Vaccination Movements*, THE HISTORY OF VACCINES, <https://www.historyofvaccines.org/content/articles/history-anti-vaccination-movements> (last updated Jan. 10, 2018); Stephen Reidal, *Edward Jenner and the History of Smallpox and Vaccination* 18 BAYLOR U. MED. CTR. PROC. 21, 24 (2005).

18. See The Coll. of Physicians of Phila., *supra* note 17.

19. *Id.*

20. See *id.*

21. *Id.* (citing Nadja Durbach, *They Might As Well Brand Us: Working Class Resistance to Compulsory Vaccination in Victorian England*, 13 SOC'Y SOC. HIST. MED. 45, 45(2000)).

22. See *id.*

23. See *id.*

24. See Nadja Durbach, *"They Might As Well Brand Us": Working-Class Resistance to Compulsory Vaccination in Victorian England*, 13 SOC'Y SOC. HIST. MED. 45, 45 (2000).

25. *Id.*

26. *Id.*

and Anti-Compulsory Vaccination League in England.²⁷ Americans had a similar response to vaccines, demonstrated by the creation of the Anti-Vaccination Society of America in 1879, the New England Anti-Compulsory Vaccination League in 1882, and the Anti-Vaccination League of New York City in 1885.²⁸ People's fears of governmental infringement of personal liberty, and parental rights in particular, have continued to fuel the anti-vaccination movement into modern times.

The modern-day public resistance to vaccines can largely be attributed to Andrew Wakefield's study of the measles-mumps-rubella (MMR) vaccine in England.²⁹ In 1998, *The Lancet* published Wakefield's study, which found a correlation between the administration of the vaccine and the onset of autism.³⁰ Wakefield argued that the MMR vaccine had not been properly tested, which resulted in public fear and confusion over the safety of the vaccine.³¹ Sensationalist media exacerbated public hysteria.³² Autism rates appeared to be increasing at this time as well, which made Wakefield's findings seem incontrovertible to worried parents.³³ The study led to a general distrust of the MMR vaccine and of organizations, such as the Centers for Disease Control and Prevention (CDC) in the United States, that strongly recommended the vaccine.³⁴

Since the article's publication, Wakefield's study has been publicly discredited to the point that *The Lancet* released a statement in 2004 that it never should have published the article.³⁵ *The Lancet* officially retracted the article in 2010 for several reasons. First, Wakefield's study was found to be scientifically unsound, as it was based on fabricated data and no subsequent studies have found a relationship between the MMR vaccine and autism.³⁶ Second, it came to light that Wakefield was secretly paid by a law board to find any evidence to support a case involving parents who believed that vaccines had harmed their child,

27. See *id.* at 59.

28. The Coll. of Physicians of Phila., *supra* note 17.

29. See Watling, *supra* note 5.

30. *Id.*

31. The Coll. of Physicians of Phila., *supra* note 17.

32. *Id.*

33. See *The Legal Framework of the Anti-Vaccination Movement*, LEGAL TALK NETWORK (Feb. 22, 2019), <https://legaltalknetwork.com/podcasts/lawyer-2-lawyer/2019/02/the-legal-framework-of-the-anti-vaccination-movement/>.

34. *Id.*; see generally *Measles, Mumps, and Rubella (MMR) Vaccination: What Everyone Should Know*, CDC (March 28, 2019), <https://www.cdc.gov/vaccines/vpd/mmr/public/index.html> (providing information about the MMR vaccine).

35. LEGAL TALK NETWORK, *supra* note 33; see Richard Horton, *A Statement by the Editors of The Lancet*, 363 THE LANCET 820, 821 (March 06, 2004).

36. The Coll. of Physicians of Phila., *supra* note 17.

thereby revealing a conflict of interest.³⁷ Due to his egregious scientific misconduct, Wakefield lost his professorship and license to practice medicine.³⁸ Although the scientific and medical communities quickly realized the falsity and danger of Wakefield's findings, his ideas still linger in the public consciousness.³⁹

In the current age, there are two kinds of objections to vaccines: (1) general objections to vaccines and (2) objections to mandatory vaccines.⁴⁰ The first objection mainly stems from concerns about the various side effects of vaccines.⁴¹ Parents might be so afraid of their child experiencing a side effect that they may refuse vaccination altogether.⁴² These parents often believe that side effects are much more common than they actually are.⁴³ The second objection is a continuation of the view that such mandates give the government too much power to control personal liberties, especially parental rights.⁴⁴ Additionally, people continue to object to vaccines on religious grounds. Scientists grow viruses in live cell lines, some of which originate from cells that were extracted from abortions in the 1960s.⁴⁵ Thus, those opposed to abortion on religious grounds often refuse vaccination for the same reasons.⁴⁶

The media exacerbated the confusion and fear that resulted from Wakefield's now-debunked findings. Today, the internet and social media have taken the frenzy to new heights. The internet, which is easily accessible to skeptical and worried parents, is rife with inaccurate information regarding vaccines. For example, Dr. Paul Scullard, from England, conducted a study of people searching for a link between the MMR vaccine and autism on Google and found that only half of the returned websites correctly stated that there is no such correlation.⁴⁷ This contradiction compounds concerned parents' confusion in their quest to discern the truth about vaccinations. This may especially be the case for what the medical community refers to as Vaccine Hesitant Parents (VHPs).⁴⁸ VHPs do not categorically oppose vaccines; instead

37. *Id.*

38. Watling, *supra* note 5.

39. *Id.*

40. LEGAL TALK NETWORK, *supra* note 33.

41. *Id.*

42. *See id.*

43. *Id.*

44. *See id.*

45. *Id.*

46. *Id.*

47. Eve Dubé et al., *Vaccine Hesitancy: An Overview*, 9 HUM. VACCINES & IMMUNOTHERAPEUTICS 1763, 1766 (2013).

48. *See generally id.* (exploring possible causes of vaccine hesitant parents).

they fear the harm that they believe vaccines could cause their children.⁴⁹ The discrepancies in online information instill in parents a fear of the unknown.⁵⁰ Parents may then act on this fear and refuse to vaccinate their children.⁵¹ Furthermore, the advent of social media has allowed anti-vaxxers to easily share inaccurate information, as well as create their own content by sharing personal experiences with vaccines.⁵²

The anti-vaccination movement is a grassroots movement where people support their views by sharing stories and pictures of children who have supposedly been harmed by vaccines.⁵³ This sort of storytelling makes it more difficult for children who wish to be vaccinated to discuss the topic with their parents who may point to these anecdotes as evidence that vaccines cause genetic illnesses and other medical issues.⁵⁴ Although information regarding the safety of vaccines is readily available online through the CDC and other organizations, this information does not appeal to VHPs nearly as much as personal stories do.⁵⁵

In the United States, approximately one in ten parents do not adhere to the CDC's recommended vaccine schedule for children by either delaying or outright refusing vaccination.⁵⁶ Although anti-vaxxers are still a global minority, the anti-vaccination movement is at least partially responsible for the 30% increase in the number of measles cases reported worldwide.⁵⁷ This drastic upswing in a disease that was nearly eradicated a few decades ago has resulted in the WHO listing vaccine hesitancy as one of the top ten threats to global health in 2019 along with climate change, dengue fever, and HIV.⁵⁸

49. *Id.* at 1764.

50. *See id.* at 1766.

51. *Id.*

52. Rahul Parikh, *How to Combat the Anti-Vaxxer Message*, CNN (Sept. 14, 2019, 9:37 PM), <https://www.cnn.com/2019/09/14/opinions/vaccine-hesitancy-opinion-parikh/index.html>.

53. *Id.*

54. *See* Emily Moon, *Why the Children of Anti-Vaxxers Are Taking to Reddit for Advice*, PAC. STANDARD (Feb. 13, 2019), <https://psmag.com/social-justice/why-the-children-of-anti-vaxxers-are-taking-to-reddit-for-advice>.

55. *See id.*; *Vaccine Information Statements (VISs)*, CENTR. FOR DISEASE CONTROL & PREVENTION (July 28, 2020), <https://www.cdc.gov/vaccines/hcp/vis/current-vis.html> (VISs available for download).

56. *Id.*

57. *Id.*

58. WORLD HEALTH ORG., *supra* note 4.

II. GLOBAL VIEWS ON VACCINATION

A. *High-Income Countries*

The Wellcome Trust, a London-based research foundation, conducted the first and only global study of its kind to determine people's perceptions of science and how factors such as "culture, context, and background" shape views about vaccines.⁵⁹ The study aimed to identify how these factors affected vaccine confidence to explain the rise of the anti-vaccination movement. The study surveyed 140,000 people of fifteen years of age or older from April to December 2018 in 144 countries.⁶⁰ Shockingly, the study found that high-income countries, particularly in Europe, had higher rates of vaccine hesitancy than some low-income countries in Africa and Asia.⁶¹ High-income countries, such as the United States and France, had alarmingly high numbers of parents who were unclear about the need and safety of vaccines and were thus either reluctant to or refused to vaccinate their children.⁶² People in industrialized countries were also more likely to doubt the ability of vaccines to immunize against disease.⁶³

The *Wellcome Global Monitor* found that only 72% of people in Northern America agreed that vaccines are safe.⁶⁴ The rate is similar in Northern Europe, where only 73% of the population agreed that vaccines are safe.⁶⁵ The rate is even lower in Western Europe and the lowest in Eastern Europe, where only 59% and 40% of people, respectively, agree on the safety of vaccines.⁶⁶ The study found vaccine confidence rates above 90% only in Iceland, Norway, and Northern Cyprus where 97%, 93%, and 92% of people, respectively, believed in the efficacy of vaccines.⁶⁷

Wellcome's study found that France has the highest number of anti-vaxxers in the world, with 33% of residents believing that vaccinations are not safe, which is in stark contrast to the global average of only

59. *World Survey Reveals People Trust Experts but Want to Know More About Science*, WELLCOME TR. (June 19, 2019), <https://wellcome.ac.uk/news/world-survey-reveals-people-trust-experts-want-know-more-about-science>.

60. *See Richer Countries Show Lower Trust in Vaccines*, DEUTSCHE WELLE (June 19, 2019), <https://www.dw.com/en/richer-countries-show-lower-trust-in-vaccines/a-49262702>.

61. WELLCOME TRUST, *supra* note 1.

62. *See id.*

63. *Id.*

64. *Id.*

65. *Id.*

66. *Id.*

67. *Id.*

7%.⁶⁸ This suspicion of vaccines permeated across various demographic groups in France; people of different ages, education levels, living environments, or parental status did not demonstrate significant variations in their views.⁶⁹ Additionally, 10% of residents believed that it was unimportant for children to be vaccinated.⁷⁰ Furthermore, 55% of residents were suspicious of science and technology, stating that these could reduce the number of jobs in the country, a finding that was unique to France.⁷¹ The study indicates that these doubts about vaccines spiked after 2009, when the WHO was accused of spearheading a flu vaccination program that was swayed by pharmaceutical companies.⁷² The trend in decreasing confidence in vaccines and scientists has resulted in an overall decrease in herd immunity rates, resulting in increased numbers of measles and meningococcal disease cases.⁷³

Italy is also among the countries that have very low vaccine confidence rates worldwide.⁷⁴ The 2012 court case of Valentino Bocca, a fifteen-month-old boy whose parents alleged that he was harmed by the MMR vaccine in 2004, emboldened Italian anti-vaxxers.⁷⁵ His parents claimed he was a healthy child before the vaccination, but that his health quickly deteriorated after the vaccination which eventually caused his autism.⁷⁶ The parents brought suit in Rimini, a city in northeastern Italy, and the court awarded the family 140,000 euros.⁷⁷ The ruling resulted in parents of vaccinated children scrambling to have their cases investigated by lawyers to determine whether the parents could bring their own lawsuits.⁷⁸ The court overruled the *Bocca* case in 2015, but vaccine adherence rates had already decreased to 85% by then.⁷⁹ Anti-vaccine sentiment in Italy was further fueled by the Five Star Movement (M5S), a populist, right-wing political party, that claimed that vaccines resulted in numerous illnesses such as autism

68. *Id.*

69. *Id.*

70. *Id.*

71. *Chapter 4: Science and Society*, WELLCOME TR., <https://wellcome.ac.uk/reports/wellcome-global-monitor/2018/chapter-4-science-and-society> (last visited Jan. 8, 2020).

72. *Id.*

73. *Id.*

74. WELLCOME TRUST, *supra* note 1.

75. Paul Bignell, *Italian Court Reignites MMR Vaccine Debate After Award over Child with Autism* INDEPENDENT (June 17, 2012), <https://www.independent.co.uk/life-style/health-and-families/health-news/italian-court-reignites-mmr-vaccine-debate-after-award-over-child-with-autism-7858596.html>; Watling, *supra* note 5.

76. Bignell, *supra* note 75.

77. *Id.*

78. *See id.*

79. Watling, *supra* note 5.

and leukemia.⁸⁰ The M5S later retracted its stance on vaccines after 5,000 people contracted measles, resulting in four deaths in the country in 2017.⁸¹ In 2018, the M5S even called for children to be vaccinated.⁸²

Low vaccine confidence and its consequences are not limited to only European countries. Since early 2019, Japan has been dealing with over 170 diagnosed cases of measles, signaling the country's worst measles epidemic in ten years.⁸³ The rise is partially attributable to the teachings of Kyusei Shinkyo, an anti-vaccine religious group that preaches that vaccines are harmful.⁸⁴ Similar to the M5S in Italy, Kyusei Shinkyo retracted its anti-vaccine stance after several of its members contributed to a measles outbreak in Mie Prefecture and vowed to follow "the guidance of public health centers" in the country.⁸⁵ Unfortunately, even with the current outbreak, schools do not require vaccines for enrollment.⁸⁶ As of 2016, only 83% of seven-year-olds had received the measles-rubella vaccine, and vaccine rates continue to be low in the country.⁸⁷

B. Middle-Income Countries

Several middle-income countries have high numbers of VHPs for some of the same reasons cited in high-income countries. In Eastern Europe, only 65% of people believe in the efficacy of vaccines.⁸⁸ Eastern European countries that are part of the European Union (EU) were found to have higher rates of vaccine confidence than Eastern European countries not in the EU.⁸⁹ For example, in Ukraine, Belarus, Moldova, and Russia, only 50%, 46%, 49%, and 62% of people, respectively, agree with the effectiveness of vaccines.⁹⁰ Conversely, Romania, the Czech Republic, Hungary, Slovakia, and Poland demonstrated 75%, 76%, 78%, 80%, and 84% belief, respectively, in vaccine safety.⁹¹

Ukraine is currently fighting the largest measles outbreak in the world.⁹² The epidemic is quickly getting worse in the country; there

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.*

88. WELLCOME TRUST, *supra* note 1.

89. *Id.*

90. *Id.*

91. *Id.*

92. Watling, *supra* note 5.

were less than 5,000 measles diagnoses in 2017, 53,000 in 2018, and at least 24,000 in the first two months of 2019 alone.⁹³ In 2012, the United Nations International Children's Emergency Fund (UNICEF) reported that approximately 33% of Ukrainian parents objected to vaccines and that only about 50% of children were up to date on their vaccines, which was a sharp decline from the 80% of children fully vaccinated in 2008.⁹⁴ Experts believe that Ukraine's measles epidemic is spreading to its neighbors; Romania battled approximately 1,000 measles cases per month in 2017, and Serbia is currently battling the sixth-largest measles outbreak in the world.⁹⁵

Poland has government-mandated vaccine schedules but has still seen a steep increase in the number of parents refusing to vaccinate their children over the past ten years.⁹⁶ In 2016, an estimated 23,000 parents refused to vaccinate their children, a striking increase from 2011 when only approximately 5,000 parents declined vaccinations.⁹⁷ This rapid decrease in vaccine confidence resulted in a measles outbreak in Warsaw towards the end of 2018.⁹⁸

Outside of Europe, Brazil reported 10,262 measles diagnoses and 12 resulting deaths in 2018, a shocking increase from the zero reported cases in 2017.⁹⁹ Much of the epidemic is contained in the Amazonas where about 33% of residents were unvaccinated at the start of the epidemic.¹⁰⁰ The large influx of Venezuelan refugees from across the border may also have worsened the epidemic.¹⁰¹ Outbreaks of other diseases in the country, such as yellow fever, are also likely the result of rapid dissemination of misinformation regarding vaccine safety online.¹⁰² Indeed, inaccurate information spread so quickly online that healthcare experts and professionals were unable to contain the outbreaks.¹⁰³

C. Low-Income Countries

In surprising contrast to high- and middle-income countries, the vast majority of people in low-income countries either somewhat or

93. *Id.*

94. *Id.*

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.*

99. *Id.*

100. *Id.*

101. *Id.*

102. Fore & Tedros, *supra* note 6.

103. *Id.*

strongly believe in the safety of vaccines. For example, 95% of people believe in vaccine safety in South Asia and 92% of people believe the same in East Africa.¹⁰⁴

According to *Wellcome's* study, Bangladesh has the highest vaccine confidence rate in the world, where 97% of people believe in the safety and efficacy of vaccines and 99% believe in the importance of vaccines for children.¹⁰⁵ Bangladesh's confidence in vaccines enabled it to achieve the WHO's Millennium Development Goal to decrease rates of childhood mortality in the country.¹⁰⁶ Bangladesh has also implemented several of UNICEF's vaccination programs to slow the spread of diseases such as diphtheria and other vaccine-preventable diseases.¹⁰⁷

Rwanda has the second-highest rate of vaccine confidence in the world, with 94% of people believing that vaccines are safe, and 99% believing they are effective and important for children to have.¹⁰⁸ The high rate of vaccine confidence in the country is correlated with their high trust in their healthcare system; 97% of people trust Rwanda's healthcare system, in contrast to the global average of 76%.¹⁰⁹ Like Bangladesh, Rwanda successfully implemented several WHO-initiated vaccine programs over the past twenty years.¹¹⁰ Vaccine adherence rates in the country were as low as 30% in 1995, resulting in the spread of many vaccine-preventable diseases. In addition to the WHO programs, Rwanda utilized community health workers and technological advancements to increase vaccine adherence rates to their current level.¹¹¹ As a result of these efforts, vaccine-preventable disease rates have drastically decreased in the country.¹¹²

104. WELLCOME TRUST, *supra* note 1.

105. *Id.*

106. *Id.*; see *Reduce Child Mortality: Where We Are?*, UNITED NATIONS DEV. PROGRAM <https://www.bd.undp.org/content/bangladesh/en/home/post-2015/millennium-development-goals/mdg4.html> (last visited Nov. 23, 2019).

107. WELLCOME TRUST, *supra* note 1.

108. *Id.*

109. *See id.*

110. *Id.*; see generally *Rwanda Immunization success story*, WHO (Feb. 20, 2018) (discussing Rwanda's implementation of technological solutions and working with international partners), <https://www.afro.who.int/news/rwanda-immunization-success-story>; *Rwanda Paediatric Association Committed to Boost Vaccination*, WHO (Oct. 06, 2015)(discussing Rwanda's use of 12 antigens), <https://www.afro.who.int/news/rwanda-paediatric-association-committed-boost-vaccination>.

111. WELLCOME TRUST, *supra* note 1.

112. *Id.*

D. Explaining the Discrepancies

Although greater trust in scientists, healthcare providers, and governments is typically correlated with greater trust in the efficacy of vaccines, this is not the case in Europe, where only 86% of people trust doctors and nurses.¹¹³ Imran Khan, head of Wellcome Trust's public engagement department, stated that this discrepancy could be explained by what he called the "complacency effect."¹¹⁴ Khan explained the complacency effect by noting that people in wealthier countries, which have lower rates of vaccine confidence, are less likely to believe in the efficacy of vaccines because these countries typically have not had high instances of infectious diseases.¹¹⁵ This effect also explains why people in countries like Bangladesh, Rwanda, and Egypt are more likely to have greater trust in vaccines: these countries have very high rates of infectious diseases, thus, these countries have seen the massive positive impact of vaccines firsthand.¹¹⁶

Generally, people in more developed countries are not as likely to contract viral infections if they are not vaccinated, thereby contributing to the complacency effect.¹¹⁷ If unvaccinated people in wealthier countries do contract vaccine-preventable diseases, it likely will not be fatal because these countries tend to have robust healthcare systems.¹¹⁸ An issue with the complacency effect is that virtually all improvements to vaccine confidence and adherence rates can one day fall victim to it, thereby eventually negating progress made against infectious diseases in places like Bangladesh and Rwanda.

The amount of scientific education people are exposed to could also explain the discrepancies of vaccine confidence rates between high-income countries and low-income countries. As part of its study on global attitudes toward vaccinations, the *Wellcome Global Monitor* found that people who had "recently sought information about science or health" were more likely to believe that vaccines are not safe.¹¹⁹ Of the people surveyed, 74% of people who sought scientific information were less likely to strongly or somewhat agree that vaccines are safe, whereas

113. See Press Release, WELLCOME TR., *How Much Does the World Trust Medical Experts and Vaccines?*, (June 19, 2019), <https://wellcome.ac.uk/press-release/how-much-does-world-trust-medical-experts-and-vaccines>.

114. Nicole Lyn Pesce, *This Is the Most Anti-Vaxxer Country in the World*, MKT. WATCH (June 19, 2019, 5:04 PM), <https://www.marketwatch.com/story/this-is-the-most-anti-vaxxer-country-in-the-world-2019-06-19>.

115. *Id.*

116. *Id.*

117. DEUTSCHE WELLE, *supra* note 60.

118. *Id.*

119. WELLCOME TRUST, *supra* note 1.

81% of people who did not seek scientific information strongly or somewhat agree that vaccines are safe.¹²⁰ This bizarre result was reflected in people who sought medical or health information as well: 75% of people who sought medical information were less likely to strongly or somewhat agree that vaccines are safe, whereas 82% of people who did not seek medical or health information strongly or somewhat agreed that vaccines are safe.¹²¹ *Wellcome's* findings regarding access to scientific and medical information match its findings that high-income countries have lower overall vaccine confidence.¹²² Although the study did not gather data on the kind of information people sought, the study's findings suggest that perhaps those who seek scientific and medical information about vaccines are more likely to be incredulous of vaccines.¹²³ *Wellcome* states that these findings make it clear that simply increasing vaccine education will be insufficient to increase vaccine confidence in high-income countries.¹²⁴

Another factor that likely contributes to the variation in vaccine confidence between low-income countries and high-income countries is insufficient healthcare infrastructure and government corruption.¹²⁵ The WHO also cites a lack of access to vaccines as an explanation for low vaccine adherence rates.¹²⁶ For example, one reason that Ukraine's current measles outbreak has not subsided is that there are frequent vaccine shortages in the country, making it even more difficult for parents who wish to immunize their children to do so.¹²⁷ Furthermore, a study published by *The Lancet* in 2013 found that the Ukrainian government had the ability to vaccinate only about 65% of its population, due in part to government corruption.¹²⁸

Additionally, right-wing politicians have contributed to the growth of the global anti-vaccination movement.¹²⁹ For example, in France, Marine Le Pen, the head of the National Rally party, opined, "We know so little about the long-term consequences of multiple vaccinations, which fill the pockets of medical labs."¹³⁰ This sort of rhetoric ignited fear among the French that science and technology would reduce the

120. *Id.*

121. *Id.*

122. *Id.*

123. *Id.*

124. *Id.*

125. See WHO, *supra* note 4.

126. *Id.*

127. Watling, *supra* note 5.

128. *Id.*

129. *Id.*

130. *Id.*

number of jobs available,¹³¹ subsequently resulting in Le Pen gaining more anti-vax followers.¹³²

Religion may also play a role in creating the large differences in vaccine confidence rates worldwide. Although most religions do not outright object to immunization, some religions may restrict certain reasons for getting vaccines or certain ingredients in vaccines.¹³³ Studies have shown that no particular religious group doubts vaccines over others: Islam, Hinduism, Judaism, and Buddhism have no religious objections to vaccines, and their adherents generally accept vaccines.¹³⁴ This demonstrates that views on vaccinations are influenced more by local cultures and norms than religious ideologies.¹³⁵ Most Christian denominations do not prohibit vaccines either, but some *do* doctrinally object to vaccinations.¹³⁶ For example, the Dutch Reformed Congregation has a history of resisting vaccines due to its belief that vaccinations obstruct destiny.¹³⁷ However, some practitioners of this faith believe that vaccines are divine blessings that people should use and be thankful for.¹³⁸ Similarly, Christian Science teaches that prayer can cure and prevent illnesses, so vaccinations are unnecessary.¹³⁹ Followers of this denomination often request religious exemptions to avoid being vaccinated.¹⁴⁰

Clearly, there is a wide variety of reasons why certain populations choose to vaccinate or not to vaccinate. The factors mentioned in this Part are only some examples indicating that there is not a one-size-fits-all solution to increasing global vaccine confidence. This is further demonstrated by the various actions taken by governments and organizations to increase vaccination rates, discussed in Part III.

131. Pesce, *supra* note 114.

132. Watling, *supra* note 5.

133. *Immunizations and Religion*, VANDERBILT UNIV. MED. CTR. (Aug. 27, 2013), <https://www.vumc.org/health-wellness/news-resource-articles/immunizations-and-religion>.

134. *Id.*

135. Dubé et al., *supra* note 47.

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.*

140. *Id.*

III. LEGAL RESPONSES TO ANTI-VACCINATION WORLDWIDE

A. Mandatory Vaccinations Worldwide

Some people believe that it is child abuse when parents deny their children access to vaccines. They espouse the belief that such parents should be punished for putting their children at risk of harm or death, especially because the overwhelming majority of scientific findings indicate that vaccines are safe and effective.¹⁴¹ Although choosing not to vaccinate a child does not currently give rise to a criminal charge of child abuse anywhere in the world, many governments are starting to enforce mandatory vaccinations with varying punishments for failure to comply.¹⁴² For example, to address its anti-vaccination crisis, the French government has made eleven vaccines, including measles, mandatory for all children born after January 1, 2018.¹⁴³ In doing so, Agnes Buzyn, the Minister of Health in France, stated, "I do not like to impose obligations, it goes against my character . . . , [b]ut with vaccinations it is justified."¹⁴⁴ This is an increase to the prior mandate, which made only three vaccinations compulsory: diphtheria, tetanus, and polio.¹⁴⁵ France is also promoting vaccines through various public education campaigns.¹⁴⁶

France has not imposed a fine for noncompliance with its new vaccine mandate, but many other countries have. For instance, since 2014, the Croatian government has mandated that all children be immunized against several diseases including diphtheria, pertussis, tetanus, polio, measles, mumps, rubella, and tuberculosis.¹⁴⁷ The Italian government recommended but did not mandate the measles vaccine until a recent outbreak in the country.¹⁴⁸ The new Italian law requires children aged sixteen and younger to be vaccinated against ten diseases.¹⁴⁹ Italian parents have to provide proof of these vaccinations to enroll their children in school.¹⁵⁰ If parents fail to do so, they can be fined 500 euros, and their child could be barred from attending school

141. Belluz, *supra* note 8.

142. *Id.*

143. Watling, *supra* note 5.

144. *Id.*

145. Belluz, *supra* note 8.

146. WELLCOME TRUST, *supra* note 1.

147. Rafal K. Patryn & Anna Zagaja, *Vaccinations—Between Free Will and Coercion*, 12 HUM. VACCINES & IMMUNOTHERAPEUTICS 2204, 2204-05 (2016).

148. *Id.* at 2205.

149. Belluz, *supra* note 8.

150. *Id.*

altogether.¹⁵¹ Vaccine Hesitant Parents (VHPs) in Poland¹⁵² and Australia also face fines for not vaccinating their children prior to school enrollment¹⁵³. New South Wales, Australia, enacted a “no jab, no play” law in 2017, which requires all daycare and preschool students to be vaccinated before entering the programs.¹⁵⁴ The law states that preschool and daycare program directors could be fined 5,500 Australian dollars for enrolling unvaccinated children.¹⁵⁵

People in Germany are particularly wary of mandatory vaccines because such requirements are viewed as characteristic of totalitarian regimes.¹⁵⁶ Germany had mandatory vaccines but rescinded the mandates in 1989.¹⁵⁷ An outbreak of measles after the mandates’ rescission, however, caused health officials in Berlin to consider reintroducing the mandates.¹⁵⁸ In 2013, the German government made certain vaccines mandatory for enrolling children in schools.¹⁵⁹ Similar to Italy, upon a child’s enrollment, these schools require parents to submit a “vaccination card” showing that the child has received the vaccine or a doctor’s note confirming that the child has already had measles.¹⁶⁰ If parents do not provide proof of their child’s vaccinations, the government can fine them up to 2,500 euros and the school may remove their child from school.¹⁶¹

B. Mandatory Vaccinations in the United States

The United States has grappled with the constitutionality of mandatory vaccinations since the early twentieth century. Cambridge, Massachusetts, suffered a smallpox outbreak in the early 1900s, which forced health officials to enact a vaccine mandate.¹⁶² A pastor named Henning Jacobson refused the smallpox vaccination because he alleged that he had experienced bad reactions to other vaccines.¹⁶³ The state

151. *Id.*

152. Patryn & Zagaja, *supra* note 147.

153. Belluz, *supra* note 8.

154. *Id.*

155. *Id.*

156. See Patryn & Zagaja, *supra* note 147.

157. *Id.*

158. *Id.*

159. *Id.*

160. *Id.*

161. Belluz, *supra* note 8.

162. Linda Poon, *How Mandatory Vaccination Fueled the Anti-Vaxxer Movement*, CITYLAB (Apr. 24, 2019, 9:20 AM), <https://www.citylab.com/life/2019/04/anti-vaxxer-history-new-york-measles-mandatory-vaccination/586969/>.

163. *Id.*

fined Jacobson five dollars for not complying with the mandate.¹⁶⁴ Jacobson brought suit against the state, arguing the law violated his bodily autonomy; the state responded by criminally charging him.¹⁶⁵ Massachusetts was the first state in the nation to pass a law for obligatory vaccinations for children entering school, which was why groups such as the Anti-Compulsory Vaccination Society provided financial and legal aid to Jacobson in his case against the state.¹⁶⁶

After losing in the Massachusetts Supreme Court, Jacobson appealed to the United States Supreme Court.¹⁶⁷ In 1905, the Supreme Court held in *Jacobson v. Massachusetts* that obligatory vaccinations are constitutional when they are “necessary for the public health or the public safety.”¹⁶⁸ and when the general public is “under the pressure of great dangers,”¹⁶⁹ and thereby affirmed the lower court.¹⁷⁰ This was a case of first impression for the Supreme Court in determining the authority of states to make decisions affecting public health.¹⁷¹ The majority opinion was careful to make clear that states cannot force vaccinations in every circumstance.¹⁷² Writing for the majority, Justice Harlan stated that penalties such as fines for noncompliance with vaccine mandates were within the state’s powers.¹⁷³ However, states do not have the authority to coerce people into vaccinations as that would be “cruel and inhumane to the last degree.”¹⁷⁴

All fifty states have enacted some kind of vaccine mandate, mainly for students, with certain exemptions in place.¹⁷⁵ Every state allows for medical exemptions, most states allow for religious exemptions, and some states allow exemptions for personal and philosophical beliefs.¹⁷⁶ The states that have the most exemptions, especially for personal and philosophical beliefs, predictably have the most people refusing vaccinations.¹⁷⁷ These states include Colorado, Oregon, Texas, and Washington, all of which recently have had outbreaks of measles, a

164. *Id.*

165. The Coll. of Physicians of Phila., *supra* note 17.

166. Poon, *supra* note 162.

167. *Id.*

168. *Jacobson v. Massachusetts*, 197 U.S. 11, 27 (1905).

169. *Id.* at 29.

170. *Id.* at 39.

171. The Coll. of Physicians of Phila., *supra* note 17.

172. *Jacobson*, 197 U.S. at 37-39.

173. *See id.* at 38-39.

174. *Id.* at 39.

175. Poon, *supra* note 162.

176. *Id.*

177. Belluz, *supra* note 8.

disease that public health officials previously declared was eradicated from the country.¹⁷⁸

The widespread use of religious exemptions to vaccinations has prompted some states to reform their vaccine laws. Between 2009 and 2010, only 1.1% of people sought an exemption for a nonmedical reason; this figure rose to 2.2% between 2017 and 2018.¹⁷⁹ In the past few years, Mississippi, California, West Virginia, New York, and Maine have responded by abolishing exemptions for religious and personal beliefs and exempting vaccines only for medical issues, which makes them the states with the strictest vaccine mandates in the country.¹⁸⁰ These states have decreased opportunities to object to vaccines in order to prevent VHPs from refusing vaccinations for their children because “parental autonomy does not extend to health-related decisions contrary to the child’s best interests.”¹⁸¹

C. Vaccine Compensation Acts

Although vaccine injuries are rare, the National Childhood Vaccine Act of 1986 (“Vaccine Act”), which became effective October 1, 1988, created the National Vaccine Injury Compensation Program (“Vaccine Program”), which provides compensation to those negatively affected by mandatory childhood vaccinations.¹⁸² The Vaccine Act also compensates petitioners for legal expenses, even if they do not win their case.¹⁸³ Congress enacted the act as an alternative to litigation to protect vaccine manufacturers from liability and as an alternative to litigation, which is more costly, timely, and adversarial.¹⁸⁴ A plaintiff must file a claim in Vaccine Court, which is an administrative office that is part of the Court of Federal Claims.¹⁸⁵ Vaccine Court is not an Article III court and its masters are appointed by Court of Federal Claims judges.¹⁸⁶

178. Moon, *supra* note 54.

179. Belluz, *supra* note 8.

180. *Id.*

181. Moon, *supra* note 54.

182. *Vaccine Claims/Office of Special Masters*, U.S. COURT FED. CLAIMS, <https://www.uscfc.uscourts.gov/vaccine-programoffice-special-masters> (last visited Nov. 22, 2019).

183. *About the National Vaccine Injury Compensation Program*, HEALTH RES. & SERVS. ADMIN., <https://www.hrsa.gov/vaccine-compensation/about/index.html> (last reviewed March 2020).

184. U.S. COURT OF FEDERAL CLAIMS, *supra* note 182.

185. LEGAL TALK NETWORK, *supra* note 33.

186. *Id.*

To qualify for compensation, plaintiffs must have suffered an injury that is listed in the Vaccine Injury Table.¹⁸⁷ This table includes conditions such as anaphylaxis, shoulder injuries related to vaccine administration, Guillain-Barré Syndrome, and vasovagal syncope, among others.¹⁸⁸ If a parent claims that her child has sustained an injury from a vaccine that is not listed in the Vaccine Injury Table, then the parent must demonstrate that “it is more likely than not” that the vaccine caused the injury, using medical and scientific information as evidence.¹⁸⁹ Vaccine Court masters exercise broad discretion when considering the types of evidence to admit to determine causation.¹⁹⁰ This is because the Vaccine Act has lenient rules of evidence and does not strictly apply the *Daubert* standard to experts.¹⁹¹ If a plaintiff can show that her child suffered an injury caused by a vaccination, she is entitled to compensation from the Vaccine Injury Compensation Trust Fund, which is funded by an excise tax of seventy-five cents on all covered vaccines.¹⁹²

D. Torts Litigation

Due to the sheer volume of information proving the safety and efficacy of vaccines, some people believe that a parent’s refusal to vaccinate their children amounts to “medical negligence.”¹⁹³ For example, pediatrician Paul Offit states that although car seats and certain vaccinations for children are mandatory by law, the parental decision to refuse the latter is different because parents are “also making the decision for *other* children.”¹⁹⁴ Because preventing children from being immunized compromises herd immunity, medical ethicists argue that anti-vax parents should be held legally accountable.¹⁹⁵

Although there is no legal precedent for anti-vax litigation, law professor Dorit Reiss advocates holding anti-vaxxers accountable by

187. Stephen D. Sugarman, *Cases in Vaccine Court — Legal Battles over Vaccines and Autism*, 357 NEW ENG. J. MED. 1275, 1276 (2007); National Vaccine Injury Compensation Program, HEALTH RES. & SERVS. ADMIN. (Nov. 2020), <https://www.hrsa.gov/vaccine-compensation/index.html>.

188. *Vaccine Injury Table*, NAT’L CHILDHOOD VACCINE INJURY ACT, <https://www.hrsa.gov/sites/default/files/vaccinecompensation/vaccineinjurytable.pdf>.

189. See Sugarman, *supra* note 187.

190. LEGAL TALK NETWORK, *supra* note 33.

191. *Id.*

192. HEALTH RESOURCES & SERVICES ADMINISTRATION, *supra* note 187.

193. Moon, *supra* note 54.

194. *Id.* (emphasis added).

195. *Id.*

using existing negligence litigation principles.¹⁹⁶ Reiss states that torts litigation would allow either children to sue their parents or parents to sue anti-vax parents for harm resulting from refusal to vaccinate.¹⁹⁷ To win their case, plaintiffs in anti-vax litigation would have to demonstrate that it is “more likely than not” that the defendant’s failure to vaccinate caused the harm.¹⁹⁸ Reiss acknowledges that actual harm may be difficult to establish due to difficulties in determining how a person may have contracted an infectious disease, but plaintiffs may still be able to satisfy this element by using tools such as contact tracing and laboratory tests.¹⁹⁹ Additionally, Reiss argues that causation is difficult to demonstrate in many torts cases and should not be a reason to exclude anti-vax litigation.²⁰⁰

For the issue of proximate cause, Reiss states that plaintiffs may be able to sue an index patient whose failure to vaccinate resulted in an outbreak.²⁰¹ Although this may be unfair to the index patient, courts typically examine proximate cause on a case-by-case basis, which results in inconsistent methods of balancing the “foreseeability of the plaintiff, foreseeability of the harm, and intervening causes.”²⁰² For this reason, Reiss argues that proximate cause, especially in cases involving an index patient, must also be reviewed on a case-by-case basis.²⁰³

In addition to complications with proving causation, compensation for plaintiffs is also complex. There is a strong possibility that compensation may not be possible in anti-vax litigation due to the high costs of medical expenses.²⁰⁴ Typically liability insurance provides compensation in these cases, but liability compensation does not currently cover illnesses caused by the insured.²⁰⁵ These issues may render negligence lawsuits against anti-vaxxers an unusable theory; however, Reiss suggests three options for adequately compensating plaintiffs.²⁰⁶ First, defendants that are wealthy enough to compensate plaintiffs should do so.²⁰⁷ Reiss argues that this option alone is sufficient

196. *E.g., id.*; see also Berlatsky, *supra* note 11.

197. Moon, *supra* note 54.

198. Dorit Rubinstein Reiss, *Compensating the Victims of Failure to Vaccinate: What are the Options?*, 23 CORNELL J.L. & PUB. POL’Y 595, 619 (2014).

199. *Id.*

200. *Id.* at 621.

201. *Id.* at 621-22.

202. *Id.* at 622.

203. *Id.*

204. *See id.* at 623.

205. *Id.*

206. *Id.*

207. *Id.*

to justify anti-vax litigation.²⁰⁸ Reiss's remaining two options rely on the ability of anti-vaccination movements to assemble their members and resources.²⁰⁹ Such organizations could help their members by fundraising to cover the legal expenses and remedies incurred by the defendant, or they could assemble to change the law so that liability insurance covers illnesses caused by the insured.²¹⁰ Similar to her response to the potential causation issues in lawsuits, Reiss argues that the risk of insolvent defendants is possible in all forms of litigation and should not be used as a reason to dismiss anti-vax litigation.²¹¹

PART IV: WHAT IS MISSING? A COMPREHENSIVE SOLUTION

Mandatory vaccinations and compensation for vaccine injuries largely focus on the rights of parents to make medical decisions for their children. Critics of these measures argue that they create friction between the government and individual rights.²¹² Perhaps the most obvious factor missing from these reforms is the children themselves! Due to the sharp increase in diagnoses of vaccine-preventable diseases, such as measles, in the United States, the American Medical Association (AMA) has announced that it will support states that adopt the mature minor doctrine in the context of vaccinations.²¹³ The mature minor doctrine, developed in the common law, allows certain children to give informed consent to specific medical treatments.²¹⁴ In a press release, the AMA's House of Delegates stated that "[t]he inability of minors in some states to provide consent to vaccinations has been cited as a barrier to improved vaccination rate[s]."²¹⁵

In modern times, children of VHPs who wish to be vaccinated have taken to online forums, such as Reddit, to voice their frustrations and seek advice.²¹⁶ Eighteen is the age of medical consent in the United States, so children often have no other means of seeking information or expressing their views.²¹⁷ Although the mature minor doctrine arises most often in abortion cases, courts could apply the same principles to

208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.*

212. See Patryn & Zagaja, *supra* note 147.

213. *AMA Adopts New Policies on First Day of Voting at 2019 Annual Meeting*, AMER. MED. ASS'N, (June 10, 2019), <https://www.ama-assn.org/press-center/press-releases/ama-adopts-new-policies-first-day-voting-2019-annual-meeting>.

214. Moon, *supra* note 54.

215. AMER. MED. ASS'N, *supra* note 213.

216. Moon, *supra* note 54.

217. *Id.*

vaccinations after a physician determines whether a minor is sufficiently mature to undergo the procedure.²¹⁸ Eighteen states have already adopted the mature minor doctrine for vaccines and thereby ensured that children will have access to preventive care at the proper time.²¹⁹ By allowing children to consent to vaccines under the mature minor doctrine, they will be able to have open and frank discussions with their healthcare providers and obtain trustworthy information, instead of asking potentially unqualified strangers on the internet.²²⁰

Introducing children early to information about vaccinations is one way to prepare children to counter their VHPs. Schools and teachers would play an active role in this reform by teaching about the development and functions of vaccines. Schools can use their already-existing biology and health classes to teach children about how vaccines are made and how they protect against disease. Schools would also easily be able to tailor this information as children move up grade levels to ensure a robust understanding of the safety and efficacy of vaccinations. Vaccine education would allow more physicians to identify more children as mature enough to consent to immunizations without their parents' approval, since children will already have a profound understanding of the importance of vaccines.

In addition to educating children about vaccines in schools and adopting the mature minor doctrine, parents who *do* vaccinate their children and are harmed by anti-vaxxers should be compensated for their suffering. Governments could use a model similar to the aforementioned Vaccine Program to compensate people who have been injured by the administration of mandatory vaccines. Currently, no state in the United States has enacted penalties for parents who refuse to vaccinate their children.²²¹ As discussed in Part III.A, many countries have opted to fine parents who refuse to vaccinate their children. If parents in the United States refuse to vaccinate their children and the law does not protect their ability to do so, they should pay a fine to the

218. *Id.*

219. Don Ward Hackett, *AMA May Endorse 'Mature-Minor' Vaccination Decisions*, PRECISION VACCINATIONS (June 11, 2019), <https://www.precisionvaccinations.com/vaccinations-may-become-teenagers-decision>.

220. *See id.*

221. *See* Belluz, *supra* note 8; Even Koslof, *Verify: Yes, States Can Legally Mandate a Vaccine, and Fine or Jail you for Refusing It, but Context is Needed*, WUSA9 (Sept. 10, 2020, 10:42 PM), <https://www.wusa9.com/article/news/verify/can-a-state-force-me-to-take-a-vaccine-mandations-united-states-requirement/65-4a95a459-7055-4c7e-aaa3-8f4e5fe53b98>; Kate Sheridan, *Is It a Crime to Avoid Vaccines? People Who Refuse Are Being Punished with Jail and Job Loss*, NEWSWEEK (Dec. 5, 2017, 3:22 PM), <https://www.newsweek.com/sending-parents-jail-refusing-vaccinate-doesnt-work-say-experts-730439>.

government. The government can use the money gathered from these fines to create a fund similar to the Vaccine Injury Compensation Trust Fund to compensate parents for medical and other fees incurred by being exposed to an infectious disease spread by an anti-vaxxer. Under this scheme, plaintiffs would be required to show proof of causation using scientific and medical information, similar to the Vaccine Act. A compensation fund for people harmed by the choices of anti-vaxxers would also be less expensive, time-consuming, and adversarial than torts litigation whilst still ensuring that any harm is rectified.

CONCLUSION

The need for vaccines has been demonstrated time and time again. Vaccinations have proved to be a unique issue in the context of individual and parental rights. Most individual rights involve making decisions that impact only the decision-maker. Vaccines are distinct in that a private decision has the potential to expose entire communities to fatal diseases. This is the complex backdrop against which the world is currently battling its increase in vaccine hesitancy rates. Medical professionals have seen diseases scientists deemed completely eradicated decades ago in the past few years alone. Although governments are starting to push against the anti-vaccination movement, they are still completely ignoring the rights of those being harmed the most: children. To fully combat vaccine hesitancy, governments will need to find solutions that both respect the rights of parents and allow children to exercise their rights.