
VACCINES AND THE TRAGEDY OF THE COMMONS: AN ARGUMENT FOR AN ALTERNATIVE LIABILITY TORT REMEDY

ABSTRACT

As once-feared-and-eliminated diseases like measles make a comeback, the debate over whether or not to vaccinate continues to rage on. The frontline for this debate is our nation's school system, which simultaneously provides a breeding ground for such diseases and a first line of defense. By choosing not to vaccinate, the defense is weakened, transmission is fostered, and others are put at risk.

Children who are incapable of receiving vaccinations due to prior health conditions must rely on the immunity of their peers. In places where exemptions are frequently abused and a significant portion of the school system is unvaccinated, these children have a significantly greater risk of contracting an otherwise preventable disease. When an unreasonable risk turns into an identifiable injury, a tort remedy is suitable. Unfortunately, attributing the cause of a disease with a high reproduction rate to a single individual may be easier said than done. As a solution to the problem of causation, an alternative liability-based tort suit could give innocent families a remedy, encourage vaccinations, and preserve the liberty and autonomy of the antivaccine community.

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I. INTRODUCTION

In 1998, Dr. Andrew Wakefield, along with 11 others, authored a study

purporting to show a link between the Measles–Mumps–Rubella vaccine (MMR vaccine) and autism,¹ arguably triggering the contemporaneous public resistance to vaccines.² Despite 10 of the 12 co-authors retracting their support for the study’s conclusion,³ the publisher officially retracting the study in 2010,⁴ and following studies’ inability to find a link,⁵ a significant percentage of the population still believes a causal relationship exists between vaccines and autism.⁶ This misbelief is furthered by substantial erroneous and misleading information, and the fact that vaccine risk has become such a polarizing issue.⁷ Even beyond these informational challenges, the vaccine debate presents a risk–benefit problem that cannot be solved by simply balancing the *individual* risks and benefits.⁸

Vaccinations have a long history that can be traced as far back as the second century.⁹ Naturally, the early emphasis was on communicable diseases and protecting the individual from infection.¹⁰ But as science became more advanced, vaccination practices became a public health measure that is considered “among the top ten public health achievements

1. Andrew J. Wakefield et al., *Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children*, 351 LANCET 637, 637 (1998).

2. Rachel A. Greenleaf, Note, *Why Plaintiffs Shouldn’t Have It Their Way—Revisiting Concurrent Jurisdiction of Autism Claims Against Thimerosal Manufacturers*, 21 FED. CIR. B.J. 299, 310 (2011).

3. *Hazlehurst v. Sec’y of Health & Human Servs.*, 604 F.3d 1343, 1348 (Fed. Cir. 2010).

4. Andrew J. Wakefield et al., *Retraction—Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children*, 375 LANCET 445, 445 (2010).

5. See, e.g., Bharathi S. Gadad et al., *Administration of Thimerosal-Containing Vaccines to Infant Rhesus Macaques Does Not Result in Autism-Like Behavior or Neuropathology*, 112 PROC. NAT’L ACAD. SCI. U.S. 12498, 12500–02 (2015).

6. See *83% Say Measles Vaccine Is Safe for Healthy Children: No Partisan Differences in Views of Vaccine Safety*, PEW RES. CTR. (Feb. 9, 2015), <http://www.people-press.org/2015/02/09/83-percent-say-measles-vaccine-is-safe-for-healthy-children/>.

7. See, e.g., Maranda Dynda, *I Was Duped by the Anti-Vaccine Movement*, VOICE VACCINES, <http://www.voicesforvaccines.org/i-was-duped-by-the-anti-vaccine-movement/> (last visited Aug. 29, 2017).

8. Anjali Jain et al., *Autism Occurrence by MMR Vaccine Status Among US Children with Older Siblings with and Without Autism*, 313 JAMA 1534, 1535, 1538 (2015).

9. James G. Hodge, Jr. & Lawrence O. Gostin, *School Vaccination Requirements: Historical, Social, and Legal Perspectives*, 90 KY. L.J. 831, 832, 836–37 (2002).

10. *Id.* at 836–37.

of the twentieth century.”¹¹ In fact, compulsory vaccination laws can be traced as far back as the early 1800s, where even at that time a penalty was imposed upon parents for failing to vaccinate their children.¹²

Compulsory vaccination programs continue to be one of the most effective ways of protecting our children and the broader citizenry from highly contagious diseases.¹³ Illogically, these programs gain and lose support depending on the prevalence of outbreaks.¹⁴ History continues to repeat itself. Today, through the abuse of religious and philosophical exemptions, school vaccination programs are circumvented and the broader, epidemiological benefit of herd immunity is whittled away with each unvaccinated child.¹⁵ Parents often invoke these exemptions based primarily on the individual risks and dangers of vaccinations, which fails to account for the risks and benefits to the community as a whole.¹⁶ Where a decision, premised on personal costs and benefits, does not account for the costs and benefits of the community, a tragedy of the commons results and some mechanism is required to make the decision-making process account for the costs imposed on others.

The tort system offers a flexible, case-by-case mechanism for encouraging individuals to account for the costs and benefits their personal decision not to vaccinate passes on to society. This Note argues that a negligence cause of action using alternative liability would present a greater likelihood that those harmed by vaccine-preventable communicable diseases actually have the opportunity to be compensated for their loss, while simultaneously deterring parents from using exemptions for the wrong reasons. Part II addresses the necessity of vaccinations for the benefit of society and the individual.¹⁷ Part III addresses an alternative liability-based negligence suit as a method for imposing joint and several liability.¹⁸ And

11. *Id.* at 832–33.

12. *Id.* at 841.

13. Ellen C. Tolsma, Note, *Protecting Our Herd: How a National Mandatory Vaccination Policy Protects Public Health by Ensuring Herd Immunity*, 18 J. GENDER RACE & JUST. 313, 321 (2015).

14. *Id.* at 322.

15. See Katherine Shaw Makielski, Note, *May Contain Unvaccinated Children: Imposing a Duty to Warn in the Context of Nonmedical Childhood Vaccine Exemptions*, 64 CASE W. RES. L. REV. 1867, 1871, 1874–75 (2014).

16. See Hodge & Gostin, *supra* note 9, at 876.

17. *Infra* Part II.

18. *Infra* Part III.

finally, Part IV addresses some of the public policy justifications for using the tort system and an alternative liability theory.¹⁹

II. VACCINES, PUBLIC HEALTH, AND THE TRAGEDY OF THE COMMONS

In *The Tragedy of the Commons*, Garrett Hardin illustrated a problem that has plagued society in various forms for thousands of years.²⁰ In the classic illustration, multiple herdsman graze cattle on a communal pasture of limited size.²¹ It doesn't take long before one of the herdsman realizes that the pasture could support more grazing, and therefore the herdsman could reap additional benefits by simply adding another cow to the pasture.²² The only cost to his decision is additional grazing to the land, which he does not fully appreciate because the harm is felt by the herdsman collectively.²³ In this example, the herdsman's benefit is an "internality," which can be described as "the impact of one's current decision on one's future self."²⁴ On the other hand, the cost of overgrazing is an "externality," which is defined as a "burden that a person or entity creates but does not bear, instead shifting the burden to others."²⁵ As rational actors, each herdsman comes to the conclusion that the benefits outweigh the costs (since they are spread out over all the herdsman), and each puts another cow on the pasture.²⁶ In order to compete, each herdsman repeats this process until the pasture becomes so overgrazed that it is unable to support any cows, and all the herdsman suffer.²⁷

One solution to overgrazing of communal pastures was to privatize the land, thereby making each individual property owner more fully subject to the costs and benefits of each personal decision.²⁸ However, tragedy-of-the-

19. *Infra* Part IV.

20. Garrett Hardin, *The Tragedy of the Commons*, SCIENCE, Dec. 13, 1968, at 1243, 1244–45.

21. *See id.* at 1244. For ease of the illustration, imagine each herdsman only has two cows on the pasture.

22. *See id.*

23. *See id.*

24. Saul Levmore, *Internality Regulation Through Public Choice*, 15 THEORETICAL INQUIRIES L. 447, 447 (2014).

25. *Externality*, BOUVIER LAW DICTIONARY (2012).

26. *See* Hardin, *supra* note 20, at 1244.

27. *See id.*

28. *See id.*; *see also* Elinor Ostrom, *Coping with Tragedies of the Commons*, 2 ANN. REV. POL. SCI. 493, 494–95 (1999) (discussing how to manage common pool resources).

commons problems arise in a variety of other forms, such as a communal garden where no single person wants to bear the entire burden of fertilizing the entire garden. Here, the solution could be a communal agreement to share in the costs of fertilizing the garden. While not every tragedy-of-the-commons problem poses such a simple and low-cost solution, the basic solution to tragedies of the commons is to internalize the externalities, making citizens individually accountable for both costs and benefits.²⁹ The decision not to vaccinate presents another iteration of the tragedy of the commons where, at its most basic level, the solution remains the same—internalize the externalities.

Vaccines serve two primary functions. First, vaccines immunize individuals.³⁰ Second, vaccines serve a public health function by increasing the percentage of the population immune from the disease.³¹ By making more people immune (or at least less susceptible) to the disease, contagious diseases have a more difficult time spreading from person to person.³²

A. Individual Immunization

Ordinarily, when germs enter the human body, the human body recognizes the germs as foreign and produces antibodies in response.³³ At the time of this response it is too late to protect from the immediate infection, but by forming the antibodies, the body is able to protect from future infections.³⁴ Vaccines are intended to be a safe method to emulate this process by introducing killed or weakened germs to the human body, which allows the body to produce the antibodies without the effects of the full-fledged disease.³⁵

29. See Lee Anne Fennell, *Common Interest Tragedies*, 98 NW. U. L. REV. 907, 914–17 (2004).

30. FE Andre et al., *Vaccination Greatly Reduces Disease, Disability, Death and Inequity Worldwide*, 86 BULL. WORLD HEALTH ORG. 140, 140–41 (2008).

31. *Id.*; see also Rebecca Rodal & Kumanan Wilson, *Could Parents Be Held Liable for Not Immunizing Their Children?*, MCGILL J.L. & HEALTH. Aug. 2010, at 39, 45–46.

32. Andre et al., *supra* note 30, at 141–42; see also Rodal & Wilson, *supra* note 31, at 41.

33. U.S. DEP'T OF HEALTH & HUMAN SEVS., PARENT'S GUIDE TO CHILDHOOD IMMUNIZATIONS 23–24 (2015), <https://www.cdc.gov/vaccines/parents/tools/parents-guide/downloads/parents-guide-508.pdf>.

34. *Id.*

35. *Id.*

B. Public Health Benefit—Herd Immunity

Many vaccines for communicable diseases also serve a much more significant public health benefit by lowering the spread of contagious diseases with the goal of reaching complete elimination. From a public health perspective, vaccines reduce the “basic reproduction number” of communicable diseases, which reflects the average number of individuals infected for each initial infection.³⁶ As each subsequent individual becomes infected, the probability of each future infection expands exponentially.³⁷ As an example, if a single person is infected by a disease with a reproduction number of 2, the disease would spread to two other individuals on average.³⁸ Thus, the disease may start with one person, spread to two additional people, from those two people spread to four more, and so on.³⁹ In theory, this cycle repeats until the entire population is infected.⁴⁰ As long as the reproduction number is greater than 1, the disease will continue to spread.⁴¹ However, when the reproduction number is anything less than 1, the disease will ultimately dissipate.⁴²

From a public health perspective, vaccines work by making large swaths of the population immune to the disease, reducing the reproduction number in a given population.⁴³ After the reproduction number is less than 1, transmission of the virus is slowed and the risk of infection significantly lessens.⁴⁴ To put the reproduction number in perspective, measles is one of the most contagious diseases on the planet with a reproduction number between 15 and 25.⁴⁵ By contrast, the Ebola virus outbreak in West Africa in 2014 had an estimated reproduction number between approximately 1.5 and 2.5.⁴⁶

36. Andre et al., *supra* note 30, at 142.

37. See Paul Fine et al., “Herd Immunity”: A Rough Guide, 52 CLINICAL INFECTIOUS DISEASES 911, 913–14, 913 tbl.1 (2011).

38. See *id.*

39. See *id.*

40. Mary Holland & Chase E. Zachary, *Herd Immunity and Compulsory Childhood Vaccination: Does the Theory Justify the Law?*, 93 OR. L. REV. 1, 7–8 (2014).

41. See Fine et al., *supra* note 37, at 911.

42. See *id.*

43. *Id.* at 913–14 (discussing the basic reproduction number and its relation to the critical vaccination level).

44. Rodal & Wilson, *supra* note 31, at 45–46.

45. *Id.* at 46.

46. Christian L. Althaus, *Estimating the Reproduction Number of Ebola Virus (EBOV) During the 2014 Outbreak in West Africa*, PLOS CURRENTS OUTBREAKS (Sept.

Unfortunately, herd immunity assumes randomly mixing populations, which is only truly possible in certain small, closed populations and does not occur in open populations.⁴⁷ In fact, a given individual may only be in close contact with a small number of people; some have estimated the number to be between 10 and 50 people.⁴⁸ In geographic pockets where vaccine use decreases, it only takes a small fraction of the population to significantly affect the percentage of the micropopulation that is immune, which in turn affects the reproduction number and significantly increases (or decreases) the level of risk for the entire micropopulation.⁴⁹ While herd immunity may be statistically impossible to achieve, there can be significant variability among subgroups, which can be equally beneficial or drastically dangerous.⁵⁰ For instance, if the micropopulation meets the critical threshold for herd immunity, vaccinations can be just as protective.⁵¹ By contrast, it only takes a few unvaccinated individuals to significantly increase the risk within the micropopulation.⁵² Ultimately, micropopulations pose a significant hurdle for public health initiatives because it is extraordinarily difficult and expensive for nationwide public health campaigns to address micropopulations.⁵³ At the very least, the broader public will still benefit from the “herd effect,” which is the mitigation of the spread of disease because less of the population is susceptible to infection.⁵⁴

Moreover, pursuing herd immunity is important for a number of additional reasons. Not everyone can be vaccinated because some individuals have medical contraindications.⁵⁵ Many of the diseases with existing vaccinations are communicable, while the symptoms have not yet

2, 2014), <http://currents.plos.org/outbreaks/article/estimating-the-reproduction-number-of-zaire-ebolavirus-ebov-during-the-2014-outbreak-in-west-africa/>.

47. John P. Fox et al., *Herd Immunity: Basic Concept and Relevance to Public Health Immunization Practices*, 94 AM. J. EPIDEMIOLOGY 179, 180 (1971).

48. *Id.*

49. See Rane Seither et al., *Vaccination Coverage Among Children in Kindergarten—United States, 2014–2015 School Year*, CTRS. DISEASE CONTROL & PREVENTION: MORBIDITY & MORTALITY WKLY. REP. (Aug. 28, 2015), <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6433a2.htm>.

50. Fox et al., *supra* note 47, at 186.

51. *Id.* at 181–82.

52. *Id.* at 181.

53. *Id.* at 183.

54. *Id.* at 186.

55. Rodal & Wilson, *supra* note 31, at 60.

manifested themselves.⁵⁶ And, vaccines do not have a 100 percent efficacy rate.⁵⁷

Due to these difficulties, public health campaigns attempt to focus on the groups of the population with the greatest likelihood of improvement.⁵⁸ Generally, the proportion of the population that is immune to various infectious agents “increases with age and, for highly infectious agents, will approach unity at some point in life.”⁵⁹ Recognizing this distribution, public health campaigns focus fundamentally on the family level because children are inherently at a higher risk of infection, and the contact rate between family members is very high.⁶⁰ After the family, a focus is placed on geographic neighborhoods, where there is risk for interfamily contact.⁶¹ At this level, there is significant variation because of factors such as proximity, social events, and common interests, which can cause added problems for public health initiatives.⁶² Communicability is further complicated when families leave their geographic neighborhoods by going to work or school.⁶³ Schools pose an especially high level of risk because there is close contact between children from different families in different neighborhoods, and school-aged children are highly susceptible to many infectious diseases.⁶⁴ Not only are children at risk of getting an infectious disease while at school, but individuals far removed from school are at risk when sick children get on the bus or in the car and go back to their neighborhoods, exposing other families and family members.⁶⁵ Beyond mere contact, susceptibility is heightened because young children have not yet developed a natural immunity to many communicable diseases.⁶⁶ Thus, due to the high level of contact, population mixing, and lack of natural immunity, vaccine immunity is even more important in school-aged children, and hence why all 50 states have enacted public-school vaccination laws.⁶⁷

56. *Id.* at 54.

57. *See* Fine et al., *supra* note 37, at 913 (discussing vaccine effectiveness against transmission, analogous but not the same as conventional vaccine efficacy).

58. *See* Fox et al., *supra* note 47, at 182–83.

59. *Id.* at 183.

60. *Id.* at 182.

61. *Id.* at 182–83.

62. *See id.*

63. *See id.* at 183.

64. *Id.*

65. *See id.*

66. *See id.* at 180.

67. *See* STATE SCHOOL IMMUNIZATION REQUIREMENT AND VACCINE EXEMPTION

Mitigating communicability in school systems is extraordinarily important for the protection of children, but while schools present significant risk, they also present a relatively simple and widespread solution for mitigating that risk both for children and for society—vaccination programs.⁶⁸ While opposition was always present, “[p]arents largely supported these mandatory vaccinations because they lived through epidemics that were eliminated as a result of vaccinations.”⁶⁹ More recently, there has been increasing pushback against mandatory vaccination policies, as outbreaks of vaccine-preventable diseases decline and the public sees these diseases as less of a risk.⁷⁰

State mandatory vaccination programs require children to be vaccinated for specific diseases before attending public schools.⁷¹ But, state laws also afford specific exemptions, which vary from state to state.⁷² Every state allows for medical exemptions; almost all states allow for religious exemptions; and approximately one-third of states allow for philosophical exemptions.⁷³ For decades mandatory vaccination programs in public schools have allowed society to benefit from the herd effect.⁷⁴ However, as the frequency and severity of outbreaks decline, parents feel less of a need to vaccinate their children.⁷⁵ This trend is not new. Historically, a large percentage of the population will not vaccinate when outbreaks are infrequent, but during and following outbreaks the number of people vaccinating significantly increases.⁷⁶ This trend continues today and is possibly even stronger because of the widespread belief that vaccines have a causal connection to autism.⁷⁷ Despite the lack of scientific data to support the connection, there is a litany of false and anecdotal information that

LAWS 1–2 (2015), cdc.gov/phlp/docs/school-vaccinations.pdf.

68. Tolsma, *supra* note 13, at 318–19, 321–22.

69. *Id.* at 318 (citing John D. Lantos et al., *Why We Should Eliminate Personal Belief Exemptions to Vaccine Mandates*, 37 J. HEALTH POL. POL’Y & L. 131 (2012)).

70. Rodal & Wilson, *supra* note 31, at 43.

71. Seither et al., *supra* note 49; *State Vaccination Exemptions for Children Entering Public Schools*, PROCON.ORG, <http://vaccines.procon.org/view.resource.php?resourceID=003597> (last visited Sept. 23, 2017) [hereinafter *Vaccination Exemptions*].

72. Seither et al., *supra* note 49; *Vaccination Exemptions*, *supra* note 71.

73. Seither et al., *supra* note 49; *Vaccination Exemptions*, *supra* note 71.

74. Tolsma, *supra* note 13, at 318.

75. Rodal & Wilson, *supra* note 31, at 43; Tolsma, *supra* note 13.

76. *See* Tolsma, *supra* note 13, at 321.

77. Greenleaf, *supra* note 2, at 310–11.

attempts to cast doubt on the safety of vaccines.⁷⁸ Inevitably, individuals weigh this false information in making their decisions not to vaccinate.⁷⁹ Moreover, since many people have not had personal experience with many of these diseases, anecdotal information may be more persuasive. As this misinformation inflates the risk posed by vaccines, personal decisions not to vaccinate become overwhelmed by the individual costs and benefits.

For these reasons, the cost–benefit analysis of parents is far from equivalent to the cost–benefit analysis of health care professionals because parents, like the herdsman, measure the personal risk against the personal benefit.⁸⁰ This cost–benefit analysis is where the tragedy-of-the-commons issue arises, and it is a reason the court system needs to impose some form of liability or duty in order to make parents account for the significant public health benefits of aggregating the vaccinations of children. And given the inherent herd immunity challenges, even a small stick could accomplish much in the way of reducing communicable disease transmissibility.⁸¹ At the very least, the tort system could supplement the existing vaccination laws by helping make innocent victims of wrongful conduct whole again.

III. ALTERNATIVE LIABILITY AND THE TORT SYSTEM AS A SUPPLEMENT

Generally speaking, the public policy rationales underlying the tort system are to shift losses to responsible parties, compensate victims for their losses, and deter wrongful conduct.⁸² At its most basic level, a negligence suit against nonvaccinating parents would fit squarely within the broad purposes of the tort system and potentially internalize the externalities of vaccination programs.

First, a tort remedy against nonvaccinating parents would shift the costs of an innocent victim's injury to the persons responsible for creating the harm. The United States currently uses the tort system to compensate victims of other communicable diseases,⁸³ and it could be extended to

78. See, e.g., Amanda Z. Naprawa, *Don't Give Your Kid That Shot!: The Public Health Threat Posed by Anti-Vaccine Speech and Why Such Speech Is Not Guaranteed Full Protection Under the First Amendment*, 11 CARDOZO PUB. L. POL'Y & ETHICS J. 473, 501–03 (2013).

79. See *id.* at 493.

80. See Rodal & Wilson, *supra* note 31, at 43–45.

81. See *id.* at 42.

82. *Roberts v. Williamson*, 111 S.W.3d 113, 118 (Tex. 2003).

83. See generally Joanna B. Apolinsky & Jeffrey A. Van Detta, *Rethinking Liability for Vaccine Injury*, 19 CORNELL J.L. & PUB. POL'Y 537 (2010) (discussing the current

vaccine-preventable diseases as well. One problem with diseases like measles, however, is that they often reproduce at such a high rate that establishing causation in a negligence case with the requirement of identifying a single cause of the plaintiff's harm would be very difficult.⁸⁴ For this reason, unvaccinated children will not often be identifiable as the source of a disease.⁸⁵ Therefore, vaccination exemptors are put in a unique situation in which they are not subject to liability in the tort system, yet they are also increasing the risk of harm to others.⁸⁶ These individuals receive the benefit of herd immunity without any of the consequences of achieving it. In the end, society is put at an unfair additional risk with no one to hold accountable if that risk materializes into a tangible injury. When the risk does materialize into a tangible injury, there needs to be a system to compensate those families, parents, and children who, from no fault of their own, acquire a communicable, vaccine-preventable disease as a result of other parents' wrongful decisions not to vaccinate their children.

Second, the tort system can function as a deterrent to parents choosing not to vaccinate for the wrong reasons.⁸⁷ While commentators doubt the tort system serves a deterrent function because of the low probability of a single negligent actor actually being held liable for a single harm, imposing joint and several liability may cast a broad enough net to adequately threaten liability.⁸⁸ In fact, joint and several liability mechanisms have garnered support precisely for this reason.⁸⁹

While the tort system may not be the most effective tool for encouraging vaccinations, it is something that could be considered to supplement existing legislation—especially in today's political climate,

system for handling vaccine injury).

84. See Arthur L. Caplan et al., *Free to Choose but Liable for the Consequences: Should Non-Vaccinators Be Penalized for the Harm They Do?*, 40 J.L. MED. & ETHICS 606, 606–07 (2012) (discussing the challenges of establishing legal causation in measles cases).

85. See Dorit Rubinstein Reiss, *Compensating the Victims of Failure to Vaccinate: What Are the Options?*, 23 CORNELL J.L. & PUB. POL'Y 595, 619 (2014); Rodal & Wilson, *supra* note 31, at 45–46.

86. See Caplan et al., *supra* note 84, at 610.

87. See Peter Cane, *Tort Law as Regulation*, 31 COMMON L. WORLD REV. 305, 309–10 (2002).

88. See RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL & EMOTIONAL HARM § 28 cmt. f (AM. LAW. INST. 2010) (citing WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* 212 (1987)).

89. See *id.*

where state legislators may lack the political capital to tighten existing vaccination infrastructure.⁹⁰ At the very least, a tort remedy could act as an absolute backstop in circumstances where children suffer life-altering injuries due to a preventable disease like measles.⁹¹

A. Negligence and Alternative Liability

In a general negligence cause of action, the plaintiff must establish: duty, breach of duty, causation, and damages.⁹² Many commentators have already discussed at length duty and breach of duty for nonvaccinator liability, but the most difficult component of the negligence action would be establishing causation because of the highly infectious nature of vaccine-preventable communicable diseases.⁹³ Despite a preponderance-of-the-evidence standard, causal belief will only attach to a defendant's conduct if there is sufficient evidence that not only supports the causal explanation involving the defendant's tortious conduct, but also makes it the most plausible suggested explanation.⁹⁴ Still, causation can be altered in unique factual circumstances justifying a deviation from the norm, and nonvaccinating parents may present the requisite factual circumstances to justify a deviation from the standard causation analysis and, thus, invoke alternative liability to aid plaintiffs.⁹⁵

1. Duty and Breach of Duty

Duty will be the first hurdle in a negligence suit. Ordinarily a question for the court, the plaintiff must establish that the wrongdoers had a duty and that the duty was to the plaintiff.⁹⁶ Under the Restatement (Third) of Torts, "An actor ordinarily has a duty to exercise reasonable care when the actor's conduct creates a risk of physical harm."⁹⁷ "An actor's conduct creates a risk

90. See generally Tolsma, *supra* note 13, at 329–32 (discussing the current climate regarding mandatory vaccinations).

91. *Complications of Measles*, CTRS. DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/measles/about/complications.html> (last visited Sept. 23, 2017) (discussing severe and long-term complications from measles, such as pneumonia, encephalitis, and subacute sclerosing panencephalitis—a rare but fatal central nervous system disease).

92. See RESTATEMENT (THIRD) OF TORTS § 6.

93. See, e.g., Caplan et al., *supra* note 84, at 608–09.

94. Richard W. Wright, *Causation in Tort Law*, 73 CALIF. L. REV. 1735, 1824 (1985).

95. See *id.* at 1813.

96. See Reiss, *supra* note 85, at 607–08.

97. RESTATEMENT (THIRD) OF TORTS § 7.

when the actor's conduct or course of conduct results in greater risk to another than the other would have faced absent the conduct."⁹⁸ This determination hinges on a variety of factors, such as the severity and likelihood of the foreseeable risk, the burden on the actor to prevent the risk, the relationship between the parties, and the societal interest involved.⁹⁹

When parents choose not to vaccinate their children, they are, at a minimum, creating greater risk to other children than those children would face absent the refusal to vaccinate.¹⁰⁰ Given that "[c]ourts have long held that individuals with hazardous, contagious diseases have a legal duty to protect others from the danger of infection,"¹⁰¹ it is not an illogical leap to extend liability to nonvaccinating parents.

An initial and obvious response is that the purportedly responsible parents cannot be held liable because their failure to vaccinate their children is an omission, not an affirmative act; as the tort system is wary of imposing a duty in the case of an omission, the parents should not be held liable.¹⁰² This argument should fail for two reasons. First, the process to go through in order to claim an exemption is anything but an omission; it is frequently an involved process.¹⁰³ Second, the distinction between an act and omission must be determined by observing the entire course of conduct, which must constitute an affirmative act creating an unreasonable risk of harm.¹⁰⁴ The Restatement clarifies that:

Even when the actor and victim are complete strangers and have no relationship, the basis for the ordinary duty of reasonable care . . . is conduct that creates a risk to another. Thus, a relationship ordinarily is not what defines the line between duty and no-duty; conduct creating risk to another is.¹⁰⁵

Under the customs of modern medicine and public-school health

98. *Id.* § 7 cmt. o.

99. *See, e.g.*, Caplan et al., *supra* note 84, at 608.

100. Reiss, *supra* note 85, at 608.

101. Caplan et al., *supra* note 84, at 608 (citing *Skillings v. Allen*, 173 N.W. 663, 664 (Minn. 1919); *R.A.P. v. B.J.P.*, 428 N.W.2d 103, 107 (Minn. Ct. App. 1988)).

102. RESTATEMENT (THIRD) OF TORTS § 37 ("An actor whose conduct has not created a risk of physical or emotional harm to another has no duty of care to the other . . .").

103. *See* Reiss, *supra* note 85, at 607–08.

104. RESTATEMENT (THIRD) OF TORTS § 37 cmt. c.

105. *Id.*

requirements, making a decision to not vaccinate a child, as a whole, is an affirmative act that creates a risk to other children within the same school because it requires affirmative steps to carry out the decision.

Given the duty component's emphasis on *foreseeability*,¹⁰⁶ it is unlikely that a court would find, as a matter of law, that a parent who chooses not to vaccinate does not create foreseeable risk to other students and thus would not have a duty. Moreover, if a court were to rule as a matter of law that nonvaccinators do not have a legal duty to other children in the school, the decision would amount to an exclusion of all subsequent claims in that category.¹⁰⁷

In sum, a plaintiff would likely be able to show a duty on behalf of nonvaccinating parents because using an exemption is an affirmative act creating foreseeable risk to a specific group of persons. Additionally, there is more than sufficient ammunition to establish breach of this duty because of the strong custom to vaccinate children, the objectively low burden of vaccinations, and the foreseeable risk to others can be relatively high in both potential frequency and severity. Nevertheless, a failure to vaccinate is not negligence per se, and when parents choose not to vaccinate their child but still take steps to mitigate the risk to others, a court could find that no duty was breached. For example, if parents believe there to be a risk that their child is infected with a contagious disease, the parents could take reasonable steps to reduce the risk of harm, such as promptly notifying the school and refraining from participation in social activities and sports.¹⁰⁸

2. Causation Under Alternative Liability

As a special causation mechanism, alternative liability may be used “[w]here the conduct of two or more actors is tortious, and it is proved that harm has been caused to the plaintiff by only one of them, but there is uncertainty as to which one has caused it.”¹⁰⁹ At trial, a plaintiff must show that (1) all defendants acted tortiously, (2) the plaintiff was “harmed by the conduct of at least one of the defendants,” and (3) the “plaintiff must be

106. Some courts expressly do not include foreseeability in the duty analysis, reserving the consideration for breach of duty. *Id.* § 7 cmt. J.

107. *See id.* (“Determinations of no duty are categorical while foreseeability cannot be determined on a categorical basis.”).

108. *See* Caplan et al., *supra* note 84, at 609.

109. RESTATEMENT (SECOND) OF TORTS § 433B (AM. LAW INST. 1965); *see also* RESTATEMENT (THIRD) OF TORTS § 28(b).

unable to identify which defendant caused the injury.”¹¹⁰ After the negligence of the defendants is established, the burden of proof shifts to the defendants, where they are responsible for showing, by a preponderance of the evidence, that they are not responsible for the plaintiff’s injury.¹¹¹ If the defendants are unable to prove they are not responsible for the plaintiff’s injury, they are held to be jointly and severally liable.¹¹²

The seminal alternative liability case, *Summers v. Tice*, held multiple tortfeasors liable, despite only one of the tortfeasors actually causing the plaintiff’s harm.¹¹³ The facts of *Summers* involved a three-person hunting party where two of the party members negligently shot their guns at the same time.¹¹⁴ The third member of the hunting party was shot, and due to the unique scenario, could not prove which of the other two members factually caused the harm.¹¹⁵ The court held both defendants jointly and severally liable reasoning that the injured party was placed, by the defendants, “in the unfair position of pointing to which defendant caused the harm. If one [defendant] can escape the other may also and [the] plaintiff is [left] remediless.”¹¹⁶ The court shifted the burden of proof to the defendants to establish that they did not cause the harm.¹¹⁷

Originally, it was thought this shifting burden was intended to reflect that the defendants were in a “far better position” to determine who actually caused the injury.¹¹⁸ While this may have been included as a rationale in *Summers*, the Supreme Court of California retracted the “far better position” rationale and emphasized that the defendants merely put the plaintiff in an unfair position.¹¹⁹ Generally, unfair situations arise where the independent actions and indivisible harm occurred simultaneously.¹²⁰ In

110. See, e.g., *Zands v. Nelson*, 797 F. Supp. 805, 813 (S.D. Cal. 1992) (citing *Abel v. Eli Lilly & Co.*, 343 N.W.2d 164 (Mich. 1984)).

111. *Hall v. E.I. Du Pont De Nemours & Co.*, 345 F. Supp. 353, 379 (E.D.N.Y. 1972).

112. See e.g., *Summers v. Tice*, 199 P.2d 1, 5 (Cal. 1948); see also 1 DAN B. DOBBS ET AL., *THE LAW OF TORTS* § 193 (2d ed. 2011).

113. DOBBS ET AL., *supra* note 112, § 193.

114. *Summers*, 199 P.2d at 1–2.

115. *Id.*

116. *Id.* at 4.

117. *Id.* at 5.

118. *Sindell v. Abbott Labs.*, 607 P.2d 924, 929 (Cal. 1980).

119. *Id.* at 929–31.

120. RESTATEMENT (SECOND) OF TORTS § 433B cmt. H (AM. LAW INST. 1965) (“All of these [alternative liability] cases have involved conduct simultaneous in time, or substantially so, and all of them have involved conduct of substantially the same

such unfair situations, it is better for the tortious defendants to pay for the plaintiff's injury than it is for the innocent plaintiff to bear the costs.¹²¹

In the case of a plaintiff injured by a population of unvaccinated children, the harm caused by unvaccinated children could be considered indivisible and simultaneous because the risk created by each unvaccinated child contributes exponentially to the total risk of communicability in a given school, and acquisition of a disease cannot often be traced to a single person.¹²² From the perspective of a healthy child in a school with a population of unvaccinated children, it is unrealistic to parse out the specific, individual risk created by each unvaccinated child.¹²³ This is further complicated by the fact that many vaccine-preventable diseases are communicable before identifying symptoms have manifested.¹²⁴ And from the public health perspective, the risk to a healthy individual is created by the group as a whole.¹²⁵ These points are especially true in a preschool or elementary school where children are constantly mixing and are significantly more vulnerable to these communicable diseases.¹²⁶

One limitation to alternative liability is that the plaintiff must include all potential tortfeasors who could have contributed to the plaintiff's harm.¹²⁷ Thus, an innocent plaintiff suffering from a vaccine-preventable disease would have to show that only the named defendants could have contributed to their disease.¹²⁸ Since most cases of vaccine-preventable disease outbreaks occur in unvaccinated individuals, this is not an insurmountable limitation

character, creating substantially the same risk of harm, on the part of each actor.”). The most prevalent types of cases invoking alternative liability include pollution and products liability, but may also include car accidents when the harm is indivisible. *See, e.g., In re “Agent Orange” Prod. Liab. Litig.*, 506 F. Supp. 737, 741–42 (E.D.N.Y. 1979) *rev’d*, 635 F.2d 987 (2d Cir. 1980) (discussing implied causes of action).

121. Wright, *supra* note 94, at 1818.

122. *See* RESTATEMENT (SECOND) OF TORTS § 433B cmt. h; *see supra* Part I.

123. *See* Fine et al., *supra* note 37, at 913–14.

124. PREETA KUTTY ET AL., MANUAL FOR THE SURVEILLANCE OF VACCINE-PREVENTABLE DISEASES: CHAPTER 7: MEASLES (2013), <https://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.pdf>.

125. Fine et al., *supra* note 37, at 913–14.

126. *Infant Immunizations FAQs*, CTRS. DISEASE CONTROL & PREVENTION, <http://www.cdc.gov/vaccines/parents/parent-questions.html> (last visited Sept. 23, 2017).

127. *See, e.g., Wysocki v. Reed*, 583 N.E.2d 1139, 1141 (Ill. App. Ct. 1991); *see also* DOBBS ET AL., *supra* note 112, § 193.

128. *See Wysocki*, 583 N.E.2d at 1141; *see also* DOBBS ET AL., *supra* note 112, § 193.

on the cause of action.¹²⁹ However, alternative liability would likely be inapplicable where multiple vaccinated and unvaccinated individuals are potential causes.¹³⁰ But this limitation could be overcome if a plaintiff were to show that the named defendants were the only carriers of the disease prior to the plaintiff's contraction, in which case all potential causes would be before the court.¹³¹

In sum, an alternative liability mechanism could apply if a plaintiff were to show that only the wrongfully unvaccinated children could have caused the plaintiff's harm. This would be a useful tool in communities with a strong antivaccine sentiment. And while the theory has limitations, causation arguments such as alternative liability are not designed to be a silver bullet, but are rather used on a case-by-case basis.

IV. THE BENEFITS OF THE TORT SYSTEM AND ALTERNATIVE LIABILITY

There are a number of benefits from using the tort system as a supplement to existing laws. First, the tort system may shrink the size of the groups abusing the religious and philosophical exemptions, which have been a consistent challenge for public health campaigns.¹³² Second, the tort system would allow steadfast parents to preserve their liberty and parental autonomy.¹³³ And finally, fairness should allow a civil remedy for innocent plaintiffs who would otherwise be left without a remedy from wrongful tortfeasors.¹³⁴

A. Shrinking the Size of the Unvaccinated Pool

While the number of people choosing not to vaccinate fluctuates depending on the prevalence of a given disease, public health campaigns seek to reduce the number of "free riders" and increase the percentage of

129. Nakia S. Clemmons et al., *Measles—United States, January 4–April 2, 2015*, 64 *CTS. DISEASE CONTROL & PREVENTION: MORBIDITY & MORTALITY WKLY. REP.* (Apr. 17, 2015), <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6414a1.htm>.

130. *See* RESTATEMENT (SECOND) OF TORTS § 433B(3) (AM. LAW INST. 1965).

131. *See id.*

132. *See* Caplan et al., *supra* note 84, at 609.

133. *See* *Jacobson v. Massachusetts*, 197 U.S. 11, 26 (1905); *see also* *Phillips v. City of N.Y.*, 775 F.3d 538, 543 (2d Cir. 2015) ("New York could constitutionally require that all children be vaccinated in order to attend public school. New York law goes beyond what the Constitution requires by allowing an exemption for parents with genuine and sincere religious beliefs.").

134. *See infra* Part IV.C.

the population with immunity, which contributes to the herd effect and the ultimate goal of herd immunity.¹³⁵ Specifically, those seeking philosophical exemptions and those wrongfully seeking religious exemptions are the primary targets.¹³⁶ By imposing joint and several liability on a collective group of tortfeasors—increasing the likelihood of civil liability—parents may be deterred from choosing the exemptions and not vaccinating their child.¹³⁷ This may be an even greater incentive to vaccinate in communities where children are commonly unvaccinated, as there is a much greater chance of an outbreak occurring. In communal tragedy parlance, joint and several liability may work to internalize the externalities, making antivaccine parents appreciate both the benefits and costs of their actions.

B. Preservation of Liberty and Autonomy

Starting with *Jacobson v. Massachusetts*, courts have repeatedly held that the only exemption required by mandatory vaccination policies is for health contraindications.¹³⁸ The existing religious and philosophical exemptions go beyond what is constitutionally required.¹³⁹ Despite the outcry of religious freedom, the U.S. Supreme Court has stated that “[t]he right to practice religion freely does not include the liberty to expose the community or the child to communicable disease or the latter to ill health or death.”¹⁴⁰ Furthermore, “there is no substantive due process right to public education.”¹⁴¹ While parental autonomy and education are important rights, they are not absolute rights and may be superseded by a sufficient community interest.¹⁴² Vaccinations are considered a “compelling interest” that has repeatedly outweighed personal liberty and parental autonomy rights.¹⁴³ Since, at the present time, there is no constitutional issue posed by barring religious and philosophical exemptions, the tort system would be a

135. Rodal & Wilson, *supra* note 31, at 44; Tolsma, *supra* note 13, at 318–20.

136. See Fox et al., *supra* note 47, at 185.

137. See generally Andrew F. Popper, *In Defense of Deterrence*, 75 ALB. L. REV. 181 (2012).

138. *Jacobson*, 197 U.S. at 26; see also *Phillips*, 775 F.3d at 543; *Workman v. Mingo Cty. Bd. of Educ.*, 419 Fed. App’x 348, 353–54 (4th Cir. 2011).

139. See, e.g., *Jacobson*, 197 U.S. at 26; *Phillips*, 775 F.3d at 540; *Workman*, 419 Fed. App’x at 352.

140. *Prince v. Massachusetts*, 321 U.S. 158, 166–67 (1944).

141. *Phillips*, 775 F.3d at 542 n.5 (quoting *Bryant v. N.Y. State Educ. Dep’t*, 692 F.3d 202, 217 (2d Cir. 2012)).

142. *Jacobson*, 197 U.S. at 25–26.

143. *Workman*, 419 Fed. App’x at 353.

constitutionally viable vehicle to supplement the existing vaccination exemptions.¹⁴⁴

There are numerous options to counteract the problem posed by the presence of unvaccinated children in public schools, including retracting the existing philosophical and religious exemptions or more strictly enforcing the existing exemptions. These options would restrict parents' ability to choose whether to vaccinate their children and would require substantial political momentum.¹⁴⁵ On the other hand, tort liability allows parents to make the decision they believe is in the best interest of their child.¹⁴⁶ Some argue this is merely a de facto, mandatory vaccination requirement.¹⁴⁷ However, in reality, parents are free to choose. They simply must be willing to compensate those innocently injured by their actions or take extra precautions in order to protect other individuals.¹⁴⁸ In sum, the tort system could be less intrusive on personal liberty because it would still allow for an option of not vaccinating.

C. Civil Liability: A Plea for Fairness

As the Supreme Court has recognized, there are risks that we as citizens are subject to for the manifest good of the community.¹⁴⁹ Vaccines, like all other medications, pose a risk of adverse consequences.¹⁵⁰ By abusing religious and philosophical exemptions, antivaccine families are not doing their civic duty, which, here, requires being subject to a very small risk of adverse consequences.¹⁵¹ Those parents performing their civic duty of vaccinating their children receive the benefit of the National Childhood Vaccine Injury Act (NCVIA), which provides a procedure for compensating these victims through a no-fault system paid from a trust fund.¹⁵²

144. See, e.g., *Jacobson*, 197 U.S. at 26; *Phillips*, 775 F.3d at 540; *Workman*, 419 Fed. App'x at 352.

145. See generally *Holland & Zachary*, *supra* note 40, at 32–39.

146. See *id.* at 37.

147. *Id.* at 36.

148. See *id.*

149. *Jacobson*, 197 U.S. at 25–26.

150. See *id.*

151. Douglas S. Diekema, *Responding to Parental Refusals of Immunization of Children*, 115 PEDIATRICS 1428, 1429 (2005).

152. Apolinsky & Van Detta, *supra* note 83, at 552–54 (compiling and summarizing the statutory sections regarding the NCVIA). The NCVIA was set up to compensate victims and protect pharmaceutical companies so that pharmaceutical companies are not deterred from manufacturing socially desirable vaccines through personal injury suits.

The NCVIA provides a significant benefit for victims of vaccine-related injuries because it provides a presumption of causation if the injury or side effect is included on the Vaccine Injury Table and occurs within a specified period of time after receiving the vaccine.¹⁵³ If the injury does not fall under the confines of the Vaccine Injury Table, the victim must then establish causation between the vaccine and the injury received.¹⁵⁴ Although compensation is capped at \$250,000, if the victim or the victim's family is unhappy with the compensation awarded through the administrative action, he or she can forego the offered compensation and elect to pursue a cause of action against the vaccine manufacturer in civil court.¹⁵⁵ While this program has its flaws, at a minimum it provides a mechanism with a very lenient causation requirement for victims of vaccines to receive at least some remuneration for their losses.¹⁵⁶

Thus, victims of antivaccine decisions are left without an adequate civil remedy, while victims of bad vaccines are at least partially compensated for their loss *without the requirement of proving causation*. As more and more parents choose not to vaccinate their children, the prevalence of diseases like measles will increase, and an alternative liability remedy would be one method to make innocent victims whole. Out of fairness for innocent plaintiffs—a historical justification for tort liability—courts should consider imposing some form of tort liability.

V. CONCLUSION

In conclusion, alternative liability is a viable mechanism for holding antivaccine parents responsible for their decisions. It would spread a judgment across multiple defendants, lessening the severity of the burden on antivaccine parents and increasing the likelihood of liability. This remedy would encourage parents on the fence about whether to vaccinate their children to more fully appreciate the costs and benefits of their actions, which could be a partial remedy to the “tragedy of the commons” plaguing vaccinations. While alternative liability is not a comprehensive solution to the problems posed by vaccination resistance, it would provide a flexible supplement to existing vaccination infrastructure that would retain the

Id. at 553–54. The NCVIA trust fund is supplied by taxes charged on all childhood vaccines. *Id.*

153. *Id.* at 552.

154. *Id.* at 552–53.

155. *Id.* at 553–54.

156. *See id.*

individual liberty of the antivaccine community while helping to make victims of vaccine-preventable communicable diseases whole.

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