Free to Choose but Liable for the Consequences: Should Non-Vaccinators Be Penalized for the Harm They Do?

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I. Introduction

Consider this hypothetical scenario involving a choice not to vaccinate a child. Ms. S has a niece who is autistic. The girl's parents are suspicious that there is some relationship between her autism and her Measles Mumps and Rubella (MMR) vaccination. They have shared their concerns with Ms. S. She then declines to have her own daughter, Jinny S., vaccinated with the MMR vaccine. To bypass the state's mandatory vaccination requirement, Ms. S claims a state-legislated "philosophical exemption," whereby she simply attests to the fact that she is opposed to vaccinating her daughter due to a "conscientiously held belief." At the age of four, Jinny goes on a trip by airplane to Germany with her mother. After returning to the United States, she attends daycare despite having some mild cold symptoms. Subsequently, she develops a classic measles rash, at which point her mother brings her to a pediatrician and keeps her home from daycare.

About one week later, a one-year-old daycare classmate of Jinny's — Michael P. — develops a severe illness. The little boy is too young to receive the MMR vaccine, although his parents intend to have him vaccinated when appropriate. A pediatrician determines that Michael also has measles. Unfortunately, after being hospitalized, the child dies. Michael's parents have heard that Jinny previously had the measles and know, from a prior conversation with Ms. S on the playground, that she is strongly against vaccinations. Distraught by Michael's sudden death and believing that Ms. S, by choosing to not vaccinate her child, is responsible for his death, Michael's parents ask their local district attorney to file criminal charges. They also consult with an attorney, suspecting that even if a criminal lawsuit is unsuccessful, they might be able to recover damages from Ms. S in civil court.[1]

Is there a case for holding non-vaccinators legally liable for harm caused to others by their inaction? This will depend on the answers to two questions. First, does the scientific capability exist to prove that Jinny infected Michael with measles? If so, are there legal grounds for either criminal or civil liability?

Can Science Link Jinny's Measles Infection to Michael's Death?

Can biomedical science reliably ascertain the source of a measles infection, such that it could determine whether one person transmitted the measles virus to another? In the law, if there is not sufficient scientific evidence of transmission from Jinny to Michael, causation cannot be determined, and there is no viable legal case.

There is adequate scientific capability to determine with a great deal of confidence, though not absolute certainty, that one person transmitted the measles virus to another, but there is not much scientific literature that directly addresses the question of causation for the measles. Therefore, most of the available evi-

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dence must be derived from expert testimony. However, if this hypothetical case were litigated, qualified experts would likely be asked to interpret the data and make the causal link.

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Donald Jungkind, Ph.D., is the Director of Clinical Microbiology Laboratories at Thomas Jefferson University in Philadelphia. According to Dr. Jungkind:

> The [Center for Disease Control (CDC)] is interested in the epidemiology of measles cases because that can be important to define transmission and institute prevention. Most measles in the USA begins as an imported case. CDC allows labs to send specimens to the public health system where at either the city, state, or federal level, they culture the virus and get it "fingerprinted" at CDC. CDC has a World Health Organization database where they can match the strain to see where it came from. They can tell if it came from a city in England, from a particular African country, etc. *They could definitely link primary and secondary cases in this country*.[2]

When a representative of the CDC was asked about causation in the hypothetical case of Jinny and Michael, he said,

> The best way to link the infections in the scenario that is described would be epidemiologically. For example, a child in a US daycare setting [like Michael] is not likely to have multiple exposures of measles. Assuming that measles is confirmed by some laboratory method (IgM detection and/or PCR), the exposure patterns and timing of the appearance of clinical signs should be able to identify the source. Yes, we can sequence viruses and we would expect that viruses in the same chain of transmission would have identical sequences in the 450 nt window used for genotyping. So, sequence identity could help confirm the epi link with the important caveat that viruses with identical sequences will also be detected if there are multiple importations from the same source. For example, right now there is a lot of measles in Europe and we are getting frequent importation of viruses wit [*sic*] the same sequence into various locations in the US.[3]

In the view of this CDC expert, the most useful method in establishing causation is epidemiology rather than laboratory methods. A thorough investigation would need to be undertaken to present a timeframe of symptom onset with both children. Scientists would need to determine if Jinny contracted measles during her trip to Germany or if she contracted it while in the United States. A thorough vetting of common contacts would be required.

Viral sequencing alone is not the best technique for proving causation. Despite the fact that laboratory studies have shown mutation rates that rival HIV,[4] field studies have shown the virus to be much more stable, eliminating the possibility of accurately tracking predictable mutations from one person to another. Sequence identity can reliably rule out a patient by matching sequences. However, it can only "rule in" transmission by confirming that both children had the same viral strain and that one possibly transmitted the virus to the other.

An important question raised by laboratory methods is how reliably one can isolate the virus. As recently as 1998, a key reference work claimed that "[p]ractically, the diagnosis of acute infections caused by MMR viruses has to be based on serological assays since these viruses or viral antigens are rarely recovered or detected from infected individuals."[5] What does that mean? Most people will probably not know. However, a more recent CDC publication indicates that, while still technically difficult, viral isolation has become much more reliable. Currently, the CDC recommends oropharyngeal or nasopharyngeal swabs as primary collection methods, and urine collection as preferable if collection is delayed more than 5 days after rash onset.[6] Best collection times are within 3 days, ideally within 7, and not past 10 days after rash onset.[7] Both children in the hypothetical scenario likely would have had samples taken in the normal course of clinical care in this time frame.

While viral collection and sequencing can be helpful in establishing causation, a causal claim ultimately must depend on epidemiology for confirmation of transmission. Essentially, measles is a rare and reportable disease. Making contact with someone else infected with measles is incredibly rare because the incidence of measles is so low in the United States. Researchers can follow and analyze measles cases to establish temporal and spatial links from person to person.

This type of tracking would provide a reliable case for causation in our hypothetical case. Assuming Jinny contracted measles while in Germany, it is unlikely that Michael had encountered another individual with measles. Epidemiological analysis could link the two children with a high degree of confidence if all evidence supported transmission.[8]

Utilizing the scientific tools available today, it cannot be proven with 100 percent certainty that Jinny infected Michael with measles. Nevertheless, current scientific techniques could lead experts to state they believe that the preponderance of the evidence, with 95 percent certainty or better, that Jinny infected Michael.

II. Legal Analysis of Civil and Criminal Liability

Is there the potential for civil or criminal liability in the hypothetical? A strong argument can be that a *prima facie* case for civil liability exists under a theory of tortious negligence. There may also be the potential for criminal liability.

Civil Liability

In the hypothetical, tort liability provides a direct avenue for Mr. and Mrs. P to seek recovery for the harm suffered as a result of the loss of their son. Under a theory of tortious negligence, Mr. and Mrs. P could bring a cause of action that seeks to hold Ms. S. liable for failing to have Jinny vaccinated.[9] As others have noted, "Tort liability could encourage vaccination of children among parents who might otherwise take advantage of the easy availability of a philosophical exemption."[10]

To establish a *prima facie* case for tortious negligence, a plaintiff must demonstrate that: (1) the defendant owed the plaintiff a legal duty, requiring the person to conform to a certain standard of conduct for the protection of others against unreasonable risks; (2) the defendant has breached that duty; (3) the breach of that duty was both the direct and proximate cause of the harm suffered; and (4) the plaintiff suffered damages.[11] The plaintiff must prove these elements by a preponderance of the evidence, meaning that the plaintiff need not exclude every possible explanation. Rather, reasonable persons may conclude that the defendant's action was a substantial cause of the harm suffered.[12]

Duty

The existence of a legal duty is a question of law for the court.[13] California courts have held that a legal duty is an expression of the "sum total" of policy considerations that guide the law in determining whether the plaintiff is entitled to protection.[14] Similarly, Michigan courts have cited that the "determination of whether a duty should be imposed upon a defendant is based on a balancing of the societal interest involved, the severity of the risk, the burden upon the defendant to meet the duty, the likelihood of occurrence and the relationship between the parties."[15] Maryland courts have held that an individual has a legal duty to refrain from conduct that a reasonable person would know, or have reason to know, might constitute an unreasonable risk of harm to others.[16] Courts have long held that individuals with hazardous, contagious diseases have a legal duty to protect others from the danger of infection.[17]

The foreseeability of harm is a crucial factor in determining the existence and scope of an individual's legal duty.[18] As the Maryland Court of Appeals has held,

> One who knows he or she has a highly infectious disease can readily foresee the danger that the disease may be communicated to others with whom the infected person comes into contact. As a consequence, the infected person has a duty to take reasonable precautions — whether by warning others or by avoiding contact with them — to avoid transmitting the disease.[19]

In order for the defendant to foresee the harm, she must have either actual or constructive knowledge.[20] Constructive knowledge encompasses a gamut of possible mental states, such as "one who is deliberately indifferent in the face of an unjustifiably high risk of harm," or "one who merely should know of a dangerous condition."[21]

Duty with an Exemption

The extant case law across all jurisdictions is bereft of cases directly factually similar to the Jinny/Michael hypothetical. Courts have, however, considered liability for the negligent transmission of an infectious disease — ranging from smallpox to herpes — since *Smith v. Baker*[22] in 1884, where the court held a parent liable for negligently taking his children, who were infected with whopping cough, to the plaintiff's boarding house. Nevertheless, in the case of Jinny, where a parent has validly utilized the statutory protection afforded by a philosophical exemption, establishing that a duty exists and, subsequently, has been breached, is difficult.[23]

Case law supports a need to manage the incidence of infectious disease by requiring of individuals who knowingly have a communicable disease to take reasonable precautions to prevent its spread. While Ms. S has a strong argument that she was merely relying

on the statutory protection afforded by a philosophical exemption, Mr. and Mrs. P may nonetheless assert that such an exemption does not negate the fundamental duty one has to act reasonably in preventing the spread of disease to others. One can make a legitimate, state-sanctioned choice not to vaccinate, but that does not protect the person making that choice against the consequences of that choice for others.

If this argument were advanced, Mr. and Mrs. P would need to demonstrate that, though Ms. S did not have actual knowledge that Jinny had measles when she came into contact with Michael, she did have constructive knowledge. Absent vaccination, Jinny was part of a group at high risk for the development of measles. A parent in Ms. S's position could foresee that, without vaccination, the likelihood that a child such as Jinny might contract measles was substantially higher than if she had been vaccinated. Mr. and Mrs. P would, in turn, need to demonstrate that a reasonable person in Ms. S's positions would have a duty to take further steps regarding the ramifications of Jinny not being vaccinated.

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Duty without an Exemption

A closely related scenario, which is perhaps more common, retains all of the facts of the original hypothetical, save the sole change that Ms. S does not claim a philosophical exemption to the vaccine mandate — she simply does not have her child vaccinated. Absent the statutory protection afforded by the philosophical exemption, it will be far easier for Mr. and Mrs. P to prove the existence of a legal duty to protect against the consequences of that choice.

In the hypothetical, the philosophical exemption served as an initial line of defense for Ms. S. In the case of a simple failure to vaccinate, however, Ms. S's position will be far more vulnerable. Now she will have to defeat Mr. and Mrs. P's plausible argument that Ms. S had a legal duty — given the combination of constructive knowledge and the foreseeability that Jinny was at risk for measles — to act as would be expected of a reasonable person and take further precautions to prevent harm to others.

Breach

Returning to the original hypothetical, supposing that Mr. and Mrs. P have successfully demonstrated that a duty of care exists. Ms. S should have taken reasonable precautions to reduce the potential risk of Jinny acting as a vehicle for the spread of an infectious disease. These reasonable precautions could well encompass, notifying those with whom Jinny regularly comes into contact, e.g., people at her school, that she has not been vaccinated and refraining from participation in activities that have a high potential to spread the disease, if there is a reasonable concern that Jinny has become infected. If Ms. S had not taken measures such as these, it would be likely that the court would find that the duty of care has been breached.

Causation

Causation requires that, as a factual matter, the defendant's act directly contributed to producing the plaintiff's injury or loss. Traditionally, courts have used the "but for" test to determine whether the defendant's act satisfied this requirement. Under this test, the defendant's conduct satisfies causation where the event would not have occurred *but for* her conduct.[24] Mr. and Mrs. P must demonstrate, by a preponderance of the evidence, that Jinny's being ill directly caused Michael's death.

In the hypothetical, demonstrating causation would largely be a product of laboratory testing supported by epidemiological inquiry as presented in expert affidavits. The scientific evidence would then strongly support the claim that Jinny was, in fact, the source of Michael's fatal disease. Consequently, Mr. and Mrs. P would likely be able to support their case.

Proximate causation imposes limits on causation such that the effects of remote or unexpected and unforeseen consequences are negated. To satisfy proximate causation, Mr. and Mrs. P would have to demonstrate that Ms. S's actions were a substantial factor in bringing about the alleged injury. In short, a court would consider whether Ms. S could have foreseen Michael's death. In making this determination, the court would weigh the risks of Ms. S's failure to vaccinate Jinny, her failure to warn others with whom she regularly came into contact, and her failure to withhold her child from daycare when she was ill, knowing potentially vulnerable children were present. A jury would have to ascertain whether a reasonable person in Ms. S's position would have anticipated the risk of Michael's death such that the failure to vaccinate Jinny was a substantial factor in bringing about that death.

There are no reported cases in which criminal liability has been imposed on parents for failing to vaccinate their children, where such failure has caused the death of another. Nevertheless, a valid criminal claim could be brought especially against a non-vaccinator acting outside the shield of a legislative exemption.

Damages

Assuming that the first three elements of the *prima facie* case have been successfully demonstrated, Mr. and Mrs. P would not have any difficulty in showing that they have suffered actual damages. Mr. and Mrs. P would be able to recover general damages — to compensate for pain and suffering as a result of the loss of their son Michael—and special damages — to compensate for quantifiable expenses incurred in treating his measles.

Criminal Liability

There are no reported cases in which criminal liability has been imposed on parents for failing to vaccinate their children, where such failure has caused the death of another. Nevertheless, a valid criminal claim could be brought especially against a non-vaccinator acting outside the shield of a legislative exemption. A New York court has held that a parent's knowing failure to have his child vaccinated against measles in the midst of a measles outbreak or epidemic could rise to the level of neglect under New York's Family Court Act.[25] This instance highlights the willingness of courts to consider more than mere civil liability for the failure to vaccinate, where a situation is especially dire.

The case against Ms. S, however, probably could not be for neglect, as the hypothetical posits that she availed herself of the statutory protection afforded by a philosophical exemption. This claim insulates her from criminal liability under neglect. Rather, Mr. and Mrs. P might pursue a claim for criminally negligent homicide since criminal homicide constitutes negligent homicide when it is committed negligently.[26]

III. Conclusion

Can parents who choose not to vaccinate their children be held legally liable for any harm that results? The state of laboratory and epidemiological understanding of a disease such as measles makes it likely that a persuasive causal link can be established between a decision to vaccinate, a failure to take appropriate precautions to isolate a non-vaccinated child who may have been exposed from highly vulnerable persons, and death. Liability could certainly exist if a parent simply chose not to vaccinate his child and a death results. Even if a parent chooses to not vaccinate a child under a state law permitting exemptions, that may not create complete protection against liability for the adverse consequences of that choice. Choices about vaccination have consequences, and sometimes, sadly, deadly consequences. It will be up to the courts to determine whether exemption statutes suffice to give complete protection against liability no matter how negligent, risky, or indifferent to the welfare of others a non-vaccinating parent is in exposing a child to others. The scientific and legal foundation for bringing charges against non-vaccinators for the harm they do exists.

Acknowledgements

The authors also wish to acknowledge helpful comments from members of the Center for Vaccine Ethics and Policy. Their website can be found at: http://www.centerforvaccineethicsandpolicy.org/.

References

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4. R. Hunt, "Human Immunodeficiency Virus. Anti-HIV Therapy," University of South Carolina School of Medicine, *available at* <http://pathmicro.med.sc.edu/lecture/hiv14a.htm> (last visited June 26, 2012): S. J. Shrag, P. A. Rota, and W. J. Bellini, "Spontaneous Mutation Rate of Measles Virus: Direct Estimation Based on Mutations Conferring Monoclonal Antibody Resistance," *Journal of Virology* 73, no. 1 (1999): 51-54.
5. I. Julkunen, I. Davidkin, and C. Oker-Blom, "Methods for Detecting Anti-Measles, Mumps, and Rubella Virus Antibodies," in J. R. Stephenson and A. Warnes, eds., *Diagnostic Virology Protocols* (Totowa: Humana Press, 1998): at 154.
6. Center for Disease Control, *Manual for the Surveillance of Vaccine Prevention Diseases, Measles Virus Isolation*, *available at* <http://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.html> (last visited July 13, 2012).
7. *Center for Disease Control, Manual for the Surveillance of Vaccine Prevention Diseases, Measles, Laboratory Testing, available at* <http://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.html#laboratory> (last visited July 13, 2012).
8. "Placing a clear level of certainty on this is pretty difficult... I would be making up percentages on this but would say 90-95% certain...assuming there was no one else the infant came into contact with that had measles." E. Lautenbach, "Hypothetical Measles Question," email to David Hoke, April 13, 2011; I think the epidemiological evidence can build a strong case but I think certainty is not possible. if all of the epidemiological features pointed to the first child infecting the second, then I think the certainty of that is very high (>>95%) given that measles is otherwise such a rare infection in the US currently." J. Metlay, "Hypothetical Measles Epi Question," email to David Hoke, April 13, 2011.

9. It should be noted, further, that Mr. and Mrs. P might likewise pursue a claim for the negligent infliction of emotional distress, due to the personal suffering they would experience in losing their child. While such an action is certainly a viable option, it has no direct bearing on our argument that liability ought to be applied where harm has resulted from claiming a philosophical objection to vaccination.
10. S. P. Teret and J. S. Vernick, "Gambling with the Health of Others," *Michigan Law Revie*w *First Impressions* 107, no. 110 (2009): 110-113, at 111.
11. *John B. v. Superior Ct.*, 45 Cal. Rptr. 3d 316, 324, 137 P.3d 153, 159 (2006); *R.A.P. v. B.J.P.*, 428 N.W.2d 103, 106 (Minn. Ct. App. 1988); *B.N. v. K.K.*, 312 Md. 135, 141, 528 A.2d 1175, 1178 (1988).
12. See, e.g., *Hamil v. Bashline*, 481 Pa. 256, 265-66, 392 A.2d 1280, 1284 (1978).
13. *John B.*, 45 Cal. Rptr. 3d at 324, 137 P.3d at 159.
14. *Id.*
15. *Doe v. Johnson*, 817 F. Supp. 1382, 1386 (W.D. Mich. 1993).
16. *B.N.*, 528 A.2d at 141-43, 528 A.2d at 1178-79.
17. *R.A.P.*, 428 N.W.2d at 107; *Skillings v. Allen*, 143 Minn. 323, 326, 173 N.W. 663, 664 (1919).
18. *John B.*, 45 Cal. Rptr. 3d at 324, 137 P.3d at 159 (internal quotation omitted).
19. *B.N.*, 312 Md. at 142, 528 A.2d at 1179.
20. *John B.*, 45 Cal. Rptr. 3d at 324-25, 137 P.3d at 160-61.
21. *Id.*, at 325, 137 P.3d at 161 (internal quotations and citations omitted).
22. *Smith v. Baker*, 20 F. 709 (S.D.N.Y. 1884).
23. See Teret and Vernick, *supra* note 10, at 112.
24. Prosser and Keeton on the Torts 266 (William Lloyd Prosser et al. eds., 5th ed. 1984).
25. *In re Christien M.*, 157 Misc. 2d 4, 21-22, 595 N.Y.S. 2d 606, 613 (N.Y. Fam. Ct. 1992).
26. Model Penal Code § 202(2)(d) (1981).
27. See Teret and Vernick, *supra* note 10, at 112.