

VIEWPOINT

Law, Ethics, and Public Health in the Vaccination Debates Politics of the Measles Outbreak

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The US Centers for Disease Control and Prevention (CDC) declared endemic measles eliminated in 2000, with rubella and congenital rubella syndrome eliminated in 2004.¹ However, vaccine-preventable diseases (eg, diphtheria, pertussis, tetanus, measles, mumps, and rubella) are increasing, with some parents delaying or selectively immunizing their children and, at times, even opting out of having their child immunized. In 2014, the United States recorded a record number of measles cases—644 cases from 27 states, more than 3-fold higher than any previous year since 2000. As of February 6, 2015, the CDC has reported 121 measles cases in 17 states, mostly from an ongoing outbreak linked to an amusement park in Orange County, California. Most cases were unvaccinated (55%) or of unknown vaccination status (31%).²

The measles outbreak reignited a historic controversy about the enduring values of public health, personal choice, and parental rights. Senator Rand Paul expressed political support for private choice: "The state doesn't own your children," parents do.³ Media coverage, however, has spurred a backlash against parents of unvaccinated children blamed for incubating a public health crisis. For instance, one report noted: "Their children have been sent home from school. Their families are barred from birthday parties

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and neighborhood play dates. Online, people call them negligent and criminal."⁴

Although vaccine policy is politically divisive, the consensus scientific view is that childhood vaccines are safe and effective, among CDC's 10 great 20th-century achievements and a World Health Organization "best buy." One estimate suggests that from 1924 to 2012, childhood vaccinations prevented more than 100 million cases of serious disease, with very rare adverse effects.⁵ The ethical question, then, is whether parents' rights to raise their children justify decisions that place the community at risk.

State Vaccine Mandates: Philosophical and Religious Exemptions

Every state mandates that children older than 5 years receive vaccinations prior to enrollment in state-licensed

day care facilities or public (and for most states, private) schools. The US Advisory Committee on Immunization Practices recommends a series of childhood vaccines, but only states can require them. Although conditioning school attendance on vaccinations dates back to smallpox, modern laws were enacted mostly in response to measles outbreaks in the 1960s and 1970s. Beyond childhood vaccinations, many states require meningococcal vaccines for incoming college students.

States vary in the types of exemptions, rigor of the application process, and review mechanism.⁶ All school immunization laws grant exemptions for medical contraindications to immunization (eg, an allergic response or immune deficiency), which requires a physician's certificate. All states except West Virginia and Mississippi also grant religious exemptions, with varying requirements regarding the sincerity, strength, and religious basis. Twenty states grant philosophical exemptions due to "personal," "moral," or "other" beliefs.⁷ Processes for obtaining non-medical exemptions vary, with some states requiring only a signature on a preprinted form, whereas others adopt a more arduous process. Arkansas, for example, requires a notarized parental statement, counseling, and health department approval.

State exemptions significantly influence vaccination rates and incidence of vaccine-preventable illness.

In 2006, researchers found that states with easy nonmedical exemption processes had 50% higher pertussis rates.⁸ In 2012, researchers reported nonmedical exemption rates 2.3 times higher in states with easy administrative policies than those with difficult policies.⁹ In practice, exemptions for all reasons constitute a small percentage of total school entrants, but families that opt out of vaccination tend to cluster within localized communities, with individuals sharing religious or philosophical beliefs. Clustering erodes herd immunity, facilitating disease outbreaks that can spread.

Mandatory vaccination is within the states' police powers because of its public health importance. In 1905, the Supreme Court in *Jacobson v Massachusetts* upheld a smallpox mandate: "We do not perceive that this legislation has invaded any right secured by the Federal Constitution." In 1922, in *Zucht v King*, the Court upheld vaccine requirements as a condition of school entrance. Although medical exemptions are constitutionally required, philosophical and religious opt-outs are not.

Because vaccine laws are generally applicable to all school-aged children and in the public interest, the courts find no overriding right to religious freedom. Rather,

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states grant religious exemptions and philosophical exemptions for political reasons, often in response to strong parental views.

The Politics of Compulsory Vaccination

Immunization has provoked popular resistance, often due to apprehensions about adverse effects in healthy children. Senator Paul referred to “many tragic cases of walking, talking, normal children who wound up with profound mental disorders after vaccines.”³ A 1998 report—since retracted as fraudulent—suggested a link between MMR vaccine and autism. Even though numerous studies and independent reviews of data have found no relationship between MMR vaccine and autism, concerns linger.

Parents express a wide spectrum of concerns, including the right to raise their children, give informed consent, and the freedom of religion or conscience. A small fraction of parents categorically oppose vaccinations, but many others are concerned primarily with state mandates. For these parents, a “nudge” may be all that is required, such as being informed of the science and making exemptions for immunizations more difficult to obtain. The uptake of vaccines, moreover, is associated with perceived susceptibility to and severity of childhood diseases. The catch-22 is that because vaccines are such powerful tools of prevention, individuals are less inclined to vaccinate their children because they rarely see vaccine-preventable childhood diseases.

A Tragedy of the Commons

Parental decisions to opt out of immunizations can have a rational basis. Unvaccinated children avoid rare adverse effects, such as a serious allergic reaction. Moreover, if most children in the community in which they live are immunized, the unvaccinated child also benefits from herd immunity. The dilemma is that if a sufficient number parents act in their own interests by opting out of having their children immunized, then everyone is worse off.

Parents objecting to vaccines often claim the right to informed consent, which is an important medicolegal value. However, consent should not override the rights of others to live safely in their communities. Unvaccinated children put the wider public at risk, violating a basic ethical principle of not imposing harms on others. If an individual's right ends at the point that its exercise jeopardizes the safety of others, then should states allow parents to opt out? Certainly, states should continue to grant medical exemptions for children particularly susceptible to vaccine adverse effects. However, states do not have to grant philosophical and religious exemptions. The main consideration is whether eliminating exemptions could inflame public opinion, thus undermining vaccine policy.

States would be unwise to overreact to the current measles outbreak by fining or imprisoning parents, or subjecting them to tort litigation, if they fail to vaccinate their children. Harsh penalties could fuel public opposition to vaccine policy. It may not even be necessary to entirely eliminate nonmedical exemptions. The wiser course could be to require a rigorous process for claiming the exemption, relying on behavioral economics to encourage compliance. There are good models of tougher standards, including requiring counseling; explaining the benefits of vaccines; requiring parents to sign an affidavit stating the reasons for opting out; and requiring health department approval. Placing a higher burden on the exemption process would make it more difficult for parents to impose risks on their children's friends and schoolmates without their agreement.

If exemptions were truly rare, as they should be, then herd immunity would operate. Everyone would be safer. The current system of generous opt outs virtually ensures that infectious disease outbreaks will continue, perhaps increasing in frequency and geographic scope. Childhood diseases that were once common but now rare could gain a foothold, becoming endemic once again.

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