

Point-Counterpoint

Why We Should Eliminate Personal Belief Exemptions to Vaccine Mandates

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Abstract We argue that personal belief exemptions to the mandate for childhood immunizations should not be allowed. Parents who choose not to immunize their children put both their own children and other children at risk. Other children are at risk because unimmunized children go to school or day care when they are contagious but asymptomatic, exposing many more children to potentially dangerous infections. The risks to children from disease are much higher than the risks of vaccines. There are, of course, some bona fide reasons why children should not be immunized. Some children have known allergies or other medical contraindications to certain immunizations. Immunization refusals based on parental beliefs, however, do not fall into this category. In those cases, children are denied the protection of immunizations without any medical or scientific justification. By eliminating personal belief exemptions to those childhood vaccines associated with contagious diseases that have high rates of childhood mortality, we would better protect children and would more fairly spread the burdens of this important public health program.

The Centers for Disease Control and Prevention (CDC 2011) recently reported that there were more cases of measles in the United States in the first six months of 2011 than in any year since 1996. Among those who contracted the disease, 89 percent were unvaccinated. Altogether, 40 percent were hospitalized. Among those hospitalized, only one had been immunized. Clearly, measles vaccine is effective in both preventing disease and limiting the severity of disease in those afflicted. Still, many parents do not seek immunization. In many states, they are permitted to refuse immunization for medical reasons, religious reasons, and by reason of personal beliefs. Two states — West Virginia and Mississippi — allow

exemptions only for medical reasons. All other states allow religious exemptions. Twenty states allow exemptions for personal beliefs (Institute for Vaccine Safety 2011).

In this article, we review the bioethical and health policy debates about vaccines. We argue that the personal belief exemption should be eliminated because it is unjust.

Background

Vaccines are among the most successful and most cost-effective medical technologies ever developed. They have eliminated or greatly reduced the prevalence of diseases that were major causes of morbidity and mortality throughout human history.

The first vaccines to be recommended as part of the routine childhood immunization schedule were for diseases like measles, polio, and diphtheria that were common, contagious, and life threatening. Moreover, these diseases were common enough for most parents to have lived through epidemics and seen children suffer and die from their effects. Consequently, most parents supported programs for mandatory immunization.

After such programs were put into place, the public health effects were unarguable. Through universal mandated immunization, many of these diseases have been reduced or eliminated. For example, the mortality rate in the United States from diphtheria, mumps, pertussis, and tetanus dropped by 99 percent after routine immunization began (Roush, Murphy, and the Vaccine-Preventable Disease Table Working Group 2007).

One result of this dramatic success is that, today, most parents have not themselves experienced or known family members who have contracted a commonly recognized vaccine-preventable infection (like measles or mumps) or who know of the potential severe complications of such infections.

Vaccines are extraordinarily safe compared with most medical interventions. They are not 100 percent effective. Thus, they work best when they are given to all children in order to produce “herd immunity,” which prevents the spread of contagious diseases. When sufficient numbers of the members in a community are immunized or immune to a disease, it stops circulating in the community. Even if a case of the disease is inadvertently imported into that community, few if any will get sick, and the disease will not spread. Herd immunity is the major protection for children too young to yet receive vaccines and for those with immune deficiencies or true medical contraindications to receiving a vaccine.

Simply put, the more people who are immunized, the lower the rate of infection in the community and the lower the risk to everyone of contracting disease. For most communicable childhood diseases, 90 percent of the population must be immunized to prevent outbreaks of disease. When immunization rates fall below that percentage, there are, predictably, disease outbreaks (van Boven et al. 2010).

Given all this, it may seem surprising that mandates to immunize all children should generate controversy. But debates about such mandates persist.

Over the last two hundred years, both sides in the debate over mandatory immunizations for children have developed powerful arguments. Broadly speaking, there are three relatively distinct arguments against mandates. One group bases its opposition on religious beliefs. Another group is composed of political libertarians, who may or may not be religious. A third group might be called the self-interest maximizers. Given the existence of these groups, many argue that the political costs of mandates outweigh the public health benefits and thus oppose mandates even though they themselves believe in immunizations for themselves and their children.

In this article, we briefly summarize the arguments against and for mandates. We then offer our own policy proposals.

Arguments against Mandates

Those who base their arguments on religious beliefs generally oppose immunizations under any circumstances, even in the context of disease outbreaks (Novotny et al. 1988). Many religious groups oppose immunization, but they do so for different reasons and in varying degrees and circumstances. In Afghanistan, Nigeria, and Pakistan, many Muslim groups oppose polio immunization on two grounds. Some claim that it is a Western plot to sterilize Muslims (Kapp 2003), and others see it as an attempt to subvert the will of God (Warraich 2009). Certain Christian groups, including Christian Scientists (CDC 1994), some Amish (Fry et al. 2001), and some Dutch Reformed churches (de Melker et al. 2003), oppose immunization. Their reasons vary, but their convictions are similar. They oppose compulsory immunization because they believe that immunization violates their religious freedom. Catholics have specific opposition to vaccines manufactured using human cell lines derived from aborted fetuses. At present, mainstream Catholic belief is that it is permissible to use such vaccines, but that it would be preferable to develop vaccines that

did not originate in such cell lines (Furton 1999). Prudential arguments about the efficacy of vaccine or the risks of disease may not influence the policy views held by these groups.

The second and third groups of opponents to vaccine mandates generally do not have strong feelings about the inherent rightness or wrongness of immunizations. Instead, they have strong feelings about mandates and about being forced to do things that they do not choose for themselves or their children.

Some opposition to vaccine mandates is based on libertarian political theory and a vigorous defense of personal liberty. This school of thought draws on political ideas rather than religious beliefs. From this perspective, there is a strong presumption against governments' ability to compel medical treatment of any kind or to compel any other violation of bodily integrity for anyone at anytime. To do so, according to the most emphatic view, constitutes criminal assault.

This was the argument in a famous case that went before the U.S. Supreme Court in 1905. Henning Jacobson, who opposed the Massachusetts mandatory vaccine policy, argued that "a compulsory vaccination law is unreasonable, arbitrary and oppressive, and therefore, hostile to the inherent right of every freeman to care for his own body and health in such way as to him seems best; and that the execution of such a law against one who objects to vaccination, for whatever reason, is nothing short of an assault upon his person" (*Jacobson v. Commonwealth of Massachusetts*, 197 US 11 [1905]). Jacobson lost the case. The U.S. Supreme Court upheld the right of the state of Massachusetts to mandate immunizations. The Court stipulated that, in evaluating such mandates, courts should consider four factors—the necessity of the intervention to avoid unwanted events, the use of "reasonable means" to achieve the desired end, a proportional benefit-to-burden ratio, and the safety of the intervention for the people who are required to be treated.

For most libertarians, the objection to immunization is not absolute. Instead, they recognize that the government has an obligation to protect public health. Therefore, when a sufficiently dangerous infectious disease is spreading, they recognize a government right to restrict individual liberty by quarantine or mandatory immunization. The conservative legal scholar Richard Epstein (2003, 139) describes (but does not completely endorse) this right as follows: "Individual liberty, especially on matters of public health, must be subordinated to the protection of the common good, so that the state is justified to use public force to achieve that end." As with religious beliefs, however, there is diversity of opinion among people who adhere to the same broad belief system.

A third argument against mandatory immunization is based on the assumption that each individual can calculate the risks and benefits of each vaccine in each circumstance where it might be used. Further, this view assumes that parents can make such calculations for their children. By this view, individuals who make such assessments are assumed to be rational, to weigh the evidence, and to calculate a personal risk-benefit ratio.

Often, their calculations are decidedly rational but reflect the uncertainties associated with the classic “collective action problem.” That is, the rationality of their choice is conditional on the choices made by all other parents at the same time, choices that they cannot know at the time they make their own choice. If all other parents immunized their children, then herd immunity would provide protection and rational choice would be not to immunize one’s own child. But if every parent made that choice, then there would be less herd immunity, the risks to each individual child of contracting the disease would go up, and it would be a rational choice to immunize one’s own child. This sort of reasoning is reflected in the collective phenomenon, observed in many countries, by which immunization rates go down as disease rates go down. Then, as herd immunity wanes, there is an outbreak, children die, and immunization rates go up again (Miller, Vurdien, and White 1992).

Arguments for Mandates

The arguments for mandatory immunizations are much more uniform. Simply put, proponents of mandates argue that vaccines protect individuals from life-threatening or life-altering diseases and that they also protect society from the contagion associated with individual infections. Proponents acknowledge that immunization may have some risks for each individual who is immunized. However, they calculate those risks as much lower than the risks of the diseases for which the immunizations are given. Therefore, they conclude, it is in each individual’s self-interest to get immunized.

One need not necessarily believe that it is in each individual’s interest to get immunized, however. One could argue that if the risks to any individual are low enough, and the benefit to the community high enough, then it is in the self-interest of every person to support a system of universal, or near universal, immunization. This line of argument addresses the collective action problem noted above.

These two arguments reinforce each other. The combination of the benefit to individuals regardless of collective action decisions and the net benefit to society if everybody participates can justify the interference

with individual liberty that is an inherent part of any mandate. The only questions left are how to decide which vaccine-disease combinations meet standards for a mandate and how to implement and enforce a mandatory immunization policy (Feudtner and Marcuse 2001).

What Should Public Health Policy Be?

The public health questions can be framed thus: When do any individual's personal choices sufficiently infringe on or endanger other citizens and their families such that personal freedoms can and should be restricted? This tension between personal freedom and public welfare is at the base of the question of whether and when there should be stringent legislation to enforce universal immunization. With regard to adults, most countries favor personal liberty except in the case of epidemic disease. Thus there are presently no compulsory vaccination laws for adults in the United States. When there is an outbreak of disease, however, adults can be compelled to either be immunized or be quarantined. In such situations, the community's public health is prioritized over and above unconstrained individual liberties.

This debate lines up as a conflict pitting autonomy and liberty against beneficence or consequentialism. The moral good of my personal freedom is countered by the moral considerations of harm to innocent third parties (through contagion with an infectious agent) or ideas about what is best for citizens who cannot make decisions for themselves or exercise their own freedom. There is no philosophical system in which these moral considerations are weighed and balanced against one another in the abstract. They are all part of any debate about the moral basis for public policy.

With regard to children, the debate is more complicated, since the children themselves are not exercising their own liberty or competently refusing immunization on their own behalf. Instead, their parents make the decision for them. In these situations, in the United States, we have implemented "weak" mandates. That is, we "mandate" certain immunizations for children, but only as a condition of entry into school and only with parental informed consent, and we allow many ways for parents to "opt out" on behalf of their children with no penalty.

The weighing and balancing of these ethical principles lead to certain generalizable conclusions. Mandatory immunization policies are more ethically defensible (and more politically acceptable) when the vaccines are safe, the disease deadly, and the disease highly contagious and difficult to treat. They are less ethically defensible when the disease is mild

or less contagious or when the vaccine has risks that are more frequent or severe than is common with vaccines. The quantification of disease deadliness, contagiousness, or treatability is, of course, imprecise and subject to differing perceptions. But imprecise does not mean impossible. Measles is a paradigm case of a disease that is highly contagious and potentially fatal (1 to 3 per 1,000 cases in developed countries) and for which there is a safe and effective vaccine. The more the disease/vaccine scenarios look like measles, the stronger the case for a mandate.

By contrast, an argument can be made for not mandating certain vaccines such as rotavirus vaccine in all countries. Perhaps the United States is one country where it could reasonably be allowed to be optional. This orally administered vaccine is given in childhood at two to eight months of age as either two or three doses to protect against the most common cause of diarrhea and hospitalization for dehydration in young children in the United States (Glass et al. 1996). However, death is extremely rare here. Most of the benefit derived accrues to economic benefit and decreases in loss of work to parents. There are reasonably good support systems in place for taking care of the overwhelming majority of children with rotavirus disease without resulting fatalities. Almost every child will become infected with rotavirus several times in his or her lifetime, and 1 in 7 infected children will require a clinic or emergency department visit for this infection. One in 70 children will be hospitalized at some point during childhood, leading to a total of 50,000–70,000 hospital admissions each year in the United States for this disease. In developed countries, death from rotavirus disease is rare—only 1 in 200,000 children die each year (Tucker et al. 1998). There are no known chronic or long-term ill effects of rotavirus disease.

The current rotavirus vaccines are very safe. Their use has resulted in a dramatic, nearly 85 percent, decrease in hospitalizations for rotavirus disease since release in 2006. Yet an argument could be made to refrain from mandating this vaccine in the United States. This vaccine in developing countries, however, is lifesaving, not just illness preventing, as it is in developed countries. But rotavirus spreads easily in day care and other child care settings and produces significant costs and morbidity. So parents opting to reduce the likelihood of rotavirus disease could still choose to get the vaccine without mandate in the United States.

A third vaccine, for hepatitis B, requires an equally complex set of considerations. Current recommendations are for the vaccine to be given at birth. This is to prevent perinatal transmission in situations where the mother is a carrier of hepatitis B. In the absence of perinatal transmis-

sion, hepatitis B is not usually contracted until adolescence or adulthood. Hepatitis B is the most common sexually transmitted disease in the world and endemic in countries without high rates of immunization. Worldwide, there are over 350 million carriers of hepatitis B (Kao and Chen 2002). Acute hepatitis B can be deadly. It can also lead to chronic hepatitis and liver cancer. The vaccine is quite safe. Public health authorities in the United States and the World Health Organization recommend universal immunization during infancy and childhood. We support those recommendations.

But hepatitis B is not contagious or dangerous during childhood in the same way that measles or mumps are contagious. Therefore, the powerful arguments for mandating immunization for children—based on the need to protect other children—do not apply. Instead, the argument for providing hepatitis B immunization during infancy and childhood rests on the well-described phenomenon that universal immunization programs are easier to implement for babies than for older children, adolescents, or adults (Smith et al. 2010). This, however, is a less powerful argument than the one for preventing imminent harm to third parties. In such situations, exceptions for personal beliefs are more defensible.

What should the policy response be to parents who choose to not immunize their children or to modify the schedule of immunizations based on their own assessment of the optimum timing of periodicity of vaccinations?

We think that there are good public health reasons for mandating childhood immunizations when the disease is deadly, it is contagious, it occurs during childhood, and there is a safe and effective vaccine. We advocate rescinding personal belief exemptions for such vaccines. Parents who choose not to immunize their children are putting both their own children and other children at risk. The risk to their own children is straightforward. The risk to other children comes through a decrease in “herd” or “community” immunity.

Personal decisions to refuse immunizations inevitably lead to public health problems. In January 2008 an unvaccinated seven-year-old boy returned to San Diego with his family from a European trip and was ill with fever, rash, and respiratory symptoms. He was evaluated at a physician’s office, had laboratory studies performed, and later went to the emergency room. He turned out to have measles. During his travels and his medical evaluation, many individuals were exposed to the child. Over the next few weeks, eleven additional cases of measles occurred in unvacci-

nated infants and children including his sibling, schoolmates, and children who had also been in the physician's office at the same time.

This is not an isolated incident. As noted above, the Centers for Disease Control and Prevention report that measles outbreaks are on the rise and that most occur in unimmunized children.

So the inaction by choice (not immunizing) puts the community at risk, particularly its most vulnerable members. Infants below the age of six months are at highest risk from morbidity and mortality from communicable infections. Unimmunized children who become ill with vaccine-preventable illnesses visit doctors' offices, urgent care centers, or emergency rooms where they expose other children to illnesses. They also go to school or day care when they are contagious but asymptomatic, exposing many more children to potentially dangerous infections. Ultimately, the risks to children from disease are much higher than the risks of vaccines.

There are, of course, some bona fide reasons why children should not be immunized. Some children have known allergies or other medical contraindications to certain immunizations. In these situations, the risks exceed the benefits, and such children should not be immunized and should be exempted from any mandate for vaccines. Immunization refusals based on parental beliefs, however, do not fall into this category. In those cases, children are denied the protection of immunizations without any medical or scientific justification.

By eliminating personal belief exemptions to those childhood vaccines associated with contagious diseases that have high rates of childhood mortality, we would better protect children and would more fairly spread the risks and burdens of this important public health program.

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