

VIEWPOINT

Vaccination: Costly clash between autonomy, public health

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In the United States, 117 people from 13 states contracted **measles** between 1 January and 15 July of this year, according to the Centers for Disease Control and Prevention (CDC). In the same time period, 45 states and the District of Columbia reported 3,886 **mumps infections**. In 2015, there were 20,762 **reported cases of pertussis**, or whooping cough, in the country. Pertussis infections are on the rise in many states, prompting a call to vaccinate. For instance, **pertussis cases doubled in Indiana** from 2016 to 2017 and included one fatality.

Each of these numbers is alarming, because if all children were vaccinated, the number of cases of these infectious diseases would drop dramatically. Studies estimate that **vaccines save about 42,000 lives** each year in the U.S., and \$13.5 billion in direct medical costs.

If vaccinations are so effective, why do thousands of parents refuse to vaccinate their children?

In a survey conducted in 2013, 87 percent of pediatricians in the U.S. said they encountered **parents refusing to vaccinate** their children. And about **6 percent of all kindergarteners** in the U.S. have not received at least one essential vaccination. Equally important and worrisome is that although most physicians continue to provide care to families whose children are unvaccinated, physicians are increasingly choosing to **dismiss these families from their practices**.

The failure of parents to vaccinate themselves and especially their children jeopardizes the health

of their children as well as other children and adults.

We propose that doctors and hospitals institute measures that protect people in their practices, rather than refusing to treat anyone. And we believe that all states should require that children be vaccinated before attending school.

Unfounded fears:

Many parents cling to multiple false claims and beliefs when deciding whether to vaccinate their children, and many are no longer willing to take the word of their physician.

For example, some parents fear that vaccinations increase the risk of autism, a belief that is based on false data and continues to spread through social media. Others believe that vaccines are ineffective or that they can cause attention deficit hyperactivity disorder, ear infections and allergies. Still others believe that unvaccinated children are healthier than vaccinated children.

In addition, in the 2013 survey, parents reported that vaccinations are unnecessary because the diseases they prevent have been wiped out in the U.S. When parents have not seen these diseases in many years, they become complacent.

Furthermore, some parents are calling for more long-term clinical studies to assess the health risks of vaccinations. Ethicists caution that such studies are unethical because half of the volunteers would receive the vaccine and half would receive no vaccination, placing half of the volunteers at risk.

Are there health risks associated with vaccinations? Yes. Children have had allergic reactions to vaccines — which is why all parents must sign a statement that, to the best of their knowledge, their child is not allergic to eggs or other products contained in the vaccine. These reactions are rare, however. The CDC reports that only about 1.3 percent of children and 0.2 percent of adults are **allergic to eggs**.

Importantly, no reported risks of vaccinations are associated with autism. (British researcher Andrew Wakefield's original paper in *The Lancet* linking vaccinations to autism has been shown to be a complete fabrication. The paper was retracted and Wakefield's medical license has been revoked.) Children whose mothers were infected with a flu virus or who received their flu shot while pregnant are also no more likely to develop autism than other children, according to a study published in January that looked at more than 196,000 children¹. Many other studies support this finding.

Unethical exemptions:

All 50 states provide medical exemptions to vaccination for the few individuals who are at risk of an

allergic reaction. What is ethically challenging, however, is that 47 states allow parents to use either religious exemptions or personal-belief exemptions to avoid vaccinating their children. These exemptions highlight three bioethical principles that are, in this case, in conflict.

The first principle, autonomy, allows parents, as the decision makers for their children, to exercise their autonomy or self-determination to accept or refuse medical intervention. Many parents believe vaccination is a private affair, not a public-health responsibility. The second principle, beneficence and its partner, non-maleficence, states that medical actions should provide good and not harmful outcomes. The third principle, justice, is seen when public-health experts look at the potential benefits for a whole population, whereas many parents focus only on what they think is good for their child.

Fortunately, there are dilemmas in bioethics, such as whether to vaccinate children, when the solution is absolutely clear.

Vaccination is particularly critical because of the **'herd effect,'** also called 'herd immunity,' among other terms². This is a form of indirect protection from infectious disease that occurs when a large percentage of a population has become immune to an infection, providing a measure of protection for individuals who are not immune. When enough people refuse to vaccinate, protection for the vulnerable is in jeopardy.

So it is imperative that state laws mandate that, except for medical reasons, all children have up-to-date vaccines before they are allowed to attend school. In the past year, at least seven states have tried to pass bills with a provision requiring children to be vaccinated before attending school. We propose that the remaining states follow suit.

Australia may serve as a model. In July, the state of South Australia proposed legislation that would **ban unvaccinated children from preschool** and childcare centers. The idea follows a federal law that punishes parents of unvaccinated children with fines and loss of government benefits.

Separate clinics:

The refusal of some pediatricians to accept unvaccinated children into their practice has some theoretical ethical merit. These doctors do not want to expose people in their waiting room to an unvaccinated child who harbors an infectious disease. We argue, however, that refusing to treat anyone violates the ethical code of doctors to care for all sick individuals.

Recognizing the health risks of caring for an unvaccinated child in an office setting, we propose that private physicians set up exclusive times to provide medical care for unvaccinated individuals. Further, we propose that hospitals set up special clinics with enhanced protections to provide healthcare to people who are not vaccinated. These protections might include heightened infection-

control measures and staff who have been specially trained in containing infectious disease.

In both situations, professionals should be available to educate parents about the benefits of vaccination and the risks of not being vaccinated.

Vaccines are among the most effective methods to control, if not eliminate, serious infectious diseases. The almost complete eradication of polio and smallpox are examples of their incredible value. They also have a record of success in preventing chickenpox, measles and pertussis.

As bioethicists, we appreciate the need to institute laws and educational programs to ensure that all individuals at risk are vaccinated. We trust that the CDC and public-health authorities will continue to rebut the erroneous associations linking vaccination to autism and other health conditions, that regularly appear on social media and in movies such as “Vaxxed.” Science has shown that vaccinations not only protect our current generation but future generations as well.

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