

## **Vaccines: Individual Liberty vs. the Health of the Public**

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Despite widespread public support for childhood vaccinations and remarkable achievements in the control of many vaccine-preventable diseases, the compulsory immunization of young children highlights the delicate balance between the powers and duties of the state to defend and advance the public health and constitutionally protected rights of individuals.

Vaccines are one of the greatest achievements of biomedical science and public health during the 20<sup>th</sup> century. Indeed, the impressive role of vaccinations in preventing morbidity and mortality, as well as reducing the societal and medical costs of infectious disease is likely difficult for most Americans to appreciate.

Most young parents in Nevada have fortunately never seen a case of measles, mumps, diphtheria, tetanus, or whooping cough. Few, if any, have ever witnessed a child die of such diseases.

Against this backdrop of achievement, the medical and public health communities are expressing concern for the recent outbreak of measles in various regions of the country. They are also expressing concern about the small but growing number of parents taking advantage of exemptions to state laws requiring vaccinations for school-age children.

Before the licensing of the measles vaccine in the United States in 1963, measles was widely prevalent in the US and exacted an enormous toll on the population. Measles can cause pneumonia and brain swelling, which in rare cases can cause death.

According to the Centers for Disease Control and Prevention, in the decade prior to mass immunization for measles in 1963, an average of 503,000 measles cases and 432 measles-associated deaths were reported each year in the US. In the peak year of 1958, there were an estimated 763,000 cases and 552 deaths related to measles.

Like other infectious diseases, a dramatic reduction in the incidence of measles occurred within a couple of years following the introduction of vaccines against them. Measles incidence and deaths began a three-decade decline in 1965. This trend was interrupted by epidemics in the 1970s and late 1980s.

Worldwide, measles still kills over 200,000 children each year (down from nearly a million a few decades ago), yet has been nearly eliminated in the US. In 2006, there were 55 cases of measles

with no measles-associated deaths. And the study determined that every dollar spent on measles vaccination saves an estimated \$10 in medical costs.

During the first four months of 2008, there were 64 cases of measles reported in the US – more than all of 2006 and the highest number of cases reported during the same four-month period since 2001. These outbreaks have been limited to a handful of regions – most notably, New York City, Arizona, and southern California – and are occurring as a result of travelers bringing the measles virus in from other countries.

Laws mandating vaccination, including measles, for school entrance have always been implemented at the state or local level. All states permit medical exemptions to vaccination, such as individuals whose general immunity is already compromised or have allergic reactions to vaccine constituents or who are already ill.

Additionally, all but two states permit exemptions to vaccination based on religious practices or beliefs and twenty states permit exemptions on the basis of personal beliefs or “philosophical” reasons. Exemptions represent an effort by states to accommodate the wishes of the small minority of parents who do not believe, regardless of the reason, in the immunization of their children.

Even though the scope of the recent measles outbreak is limited and number of parents claiming an exemption based for religious or philosophical reasons is small, the number of “exempters” appears to be growing – in the recent outbreak, for example, two-thirds of the cases in children old enough to be inoculated occurred among those whose parents chose not to vaccinate for religious or philosophical reasons.

The challenge for those charged with protecting the public’s health is thus to simultaneously understand the increasingly diverse character of our nation and constitutionally protected liberties of individuals, yet confront unfounded beliefs in circulation, including the deadly notions that vaccines don’t work, vaccines are not necessary, and vaccines are not safe or are linked to autism and other disorders.

Vaccines not only work, they work phenomenally well. Moreover, they provide protection for the vaccinated, as well as, ironically, unvaccinated individuals who benefit from the near elimination of yesteryear’s lethal threats.

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