

James M. Jeffords Center's

Immunization Trends and Immunization Exemption Policies

This report focuses on the current debate over non-medical immunization exemptions in the United States. In it we examine the nationwide trends in child vaccination rates as well as those particular to the state of Vermont, the dangers of these exemptions as well as the reasons why they are used, and the results of numerous medical studies relevant to the debate.

Vaccines are generally acknowledged as one of the most significant public health success stories of the last century.¹ Vaccines are credited with radically reducing "morbidity and mortality from a variety of bacteria and viruses."² At the turn of the twentieth century many diseases could cause mass outbreaks and were common sources of loss of health and life.³ These same diseases, after the advent of immunization, are now rarely seen because they have been prevented by mass vaccination. However, vaccines can in rare cases cause severe allergic reactions. In Vermont, exemptions are granted to children for medical reasons, such as a compromised immune system. Mississippi and West Virginia are the only two states that do not grant exemptions for individuals who have religious beliefs against immunizations. Christian Scientists and the Amish are two well know religious groups that do not believe in vaccination. Twenty states, including Vermont, allow philosophical exemptions for those who object to immunizations because of personal, moral or other beliefs.

¹ Committee to Review Adverse Effects of Vaccines, Board of Population Health and Public Health Practice, The Institute of Medicine of the National Academies,

Vermont's Exemption History

Vermont has allowed an exemption based on "moral convictions" since 1979; the philosophical conviction exemption was created in 2007.⁶ In the 2010-2011 school year, incoming kindergarten exemption rates in Vermont were 0.2 percent religious, 0.6 percent medical, 5.4 percent philosophical, and 10.4 percent were provisionally admitted.⁷ The provisionally admitted category applies to children who are admitted to a childcare facility and are in the process of complying with immunization requirements as indicated by their health care provider.⁸ Provisional admission is permitted for no longer than sixty days.⁹

Since 2005, vaccination rates in Vermont have experienced a downward trend.¹⁰ In 2009, 59.9 percent of Vermont children ages 19 to 35 months had received the seven-series vaccine recommended by the Center for Disease Control.¹¹ The seven-series vaccine includes 4 doses of DTP/DT/DTaP (Diphtheria, tetanus, pertussis), 3 doses of poliovirus vaccine, 1 dose of measles containing vaccine, 3 doses of Hib (*Haemophilus influenzae* type b) vaccine, 3 doses of hepatitis B vaccine, 1 dose of varicella vaccine and 4 doses of PCV (Pneumococcal).¹² In comparison with the other New England states, Vermont has the lowest percentage of children ages 19 to 35 months receiving the vaccine series. Figure 1 shows the New England states and the percentages of children ages 19 to 35 months receiving the vaccine series.

⁶ Gregory Sanford, Vermont State Archives and Records Administration; Vermont Association of Hospitals and Health Systems, "House Health Care Considers Philosophical Exemptions," accessed April 12, 2012, http://www.vahhs.org/index.php?option=com_content&view=article&id=158%3Ahouse-health-care-considers-philosophical-exemptions&catid=48%3Ahighlights&Itemid=148.

⁷ Vermont Department of Health, "Vermont's Immunization Law," modified March 26, 2012, accessed April 12, 2012, http://healthvermont.gov/hc/imm/documents/immunization_law_faq.pdf.

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Figure 1: Percent of Children Aged 19 to 35 Months Receiving Vaccine Series, New England States, 2009.

Source: Center for Disease Control and Prevention, Morbidity and Mortality Weekly Report, "National, State, and Local Area Vaccination Coverage among Children Aged 19-35 Months – United States 2009," modified 2010, accessed April 12, 2012, <http://www.cdc.gov/mmwr/PDF/wk/mm5936.pdf>.

Dangers of Immunization Exemptions

Mandatory immunizations ensure the health of the public as a whole. Individual exemptions threaten not only the exempted individual's well-being, but also the health of his or her entire community.¹³ In order to maintain "herd immunity," or the level of immunization in a community that makes transmission unlikely,¹⁴ a minimum of 75%-94% of the population must be vaccinated.¹⁵ Dipping below this level endangers the immunized community as well; it increases the likelihood that individuals who have received the necessary immunizations will acquire these vaccine preventable diseases (VPD).¹⁶

A 2000 study by the American Medical Association found that non-vaccinated individuals were twenty-two times more likely to acquire pertussis, also referred to as “whooping cough”, and six times more likely to acquire measles than vaccinated children.¹⁷ Additional studies have shown increased risk among geographical “clusters” of people who have exempted themselves from vaccination. This means that outbreaks are more likely to occur when individuals who have been exempted from immunizations are geographically concentrated in a small area.¹⁸ This danger is especially threatening in religious communities that regularly make use of a religious exemption, such as schools of Christian Scientists and Amish villages. These communities have experienced numerous outbreaks of preventable diseases.¹⁹ These kinds of outbreaks are the threat that a community faces from high exemption percentages and, consequently, low vaccination rates. The outbreaks that these communities have experienced can be considered a testament to the precautionary benefits of vaccinations and a warning of the dangers associated with immunization exemptions.

Justification for Non-Medical Vaccine Exemption

Despite the lack of peer-reviewed evidence suggesting vaccines are unsafe, concerns about vaccination safety persist in the United States. In a 2009 survey study conducted by the *Journal of the American Academy of Pediatrics*, 54 percent of respondents indicated that they are concerned about the serious adverse effects of vaccines.²⁰ The most common medical concern regarding vaccinations is the belief that certain vaccines can cause Autism in otherwise healthy children.²¹ The ‘safety of vaccines’ question became a prominent issue after Dr. Andrew Wakefield published a study in the British medical journal, *The Lancet*, in 1998. In the study Wakefield and his research team claimed that the MMR Vaccine—treating Measles, Mumps and Rubella—caused autism spectrum disorders.²² The publication of Wakefield’s research initiated a controversy over the medical safety of vaccinations. Thimerosal, a mercury-containing preservative used in vaccinations since the 1930s, was blamed as the compound in vaccinations that could cause autism.²³

¹⁷ Daniel R Feiken, “Individual and Community Risks...,” (p 3149).

¹⁸ Saad B Omer, et al., “Geographic Clustering of Nonmedical Exemptions to School Immunization Requirements and Associations With Geographic Clustering of Pertussis,” *American Journal of Epidemiology*, 168. no. 12 (2008): 1389-1396.

¹⁹ Center for Disease Control and Prevention, “Outbreak of Measles Among Christian Science Students – Minnesota and Illinois,” last updated May 2001, accessed April 2012,

<http://www.cdc.gov/mmwr/preview/mmwrhtml/00031788.htm>; Center for Disease Control and Prevention, “Poliovirus Infections in Four Unvaccinated Children – Minnesota,” last reviewed October 2001, accessed April 2012, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5441a6.htm>.

Center

The entirety of the medical community has concluded that there is no causal relationship between autism and vaccinations. Dr. Wakefield's research was discredited by multiple academic journals, most notably the British medical journal in which he had published his study, *The Lancet*. The research evidence led The Institute of Medicine of National Academics to assert that there is no causal relationship between the MMR vaccine and autism, and no causal relationship between thimerosal-containing vaccines and autism.²⁴ Despite the overwhelming evidence that thimerosal-containing vaccines do not have serious medical risk, in July 1999 the Public Health Service agencies, the American Academy of Pediatrics, and vaccine manufacturers agreed that thimerosal should be reduced or eliminated in vaccines as a precautionary measure.²⁵

Despite the overwhelming literature suggesting otherwise, many individuals believe that vaccines may cause autism. In the aforementioned study conducted by Freed et al., 25 percent of the participants believed that some vaccines cause autism in otherwise healthy children.²⁶ Concerns about vaccine safety are fueled solely by personal accounts and anecdotal evidence. "Although peer-reviewed original scientific research and multiple expert committees that have reviewed all available data on this issue have failed to show any association between vaccines and autism, anecdotally the concern continues to affect parents."²⁷

The failure for medical literature to shape opinion on the subject is a similar concern voiced by the Autism Science Foundation:

While there are still a handful of parents who, in almost a religious way, cling to the notion that vaccines cause autism, the vast majority of parents and scientists have accepted what the data clearly show. There is no data to support an autism vaccine link. There never has been.

vaccinations on the grounds of their religious beliefs.²⁹ The United States Supreme Court has not yet ruled on the constitutionality of religious exemptions but in examining similar cases in which religious beliefs conflict with public or state interests there is a discernible trend, "The Court rulings suggest that mandatory immunization against dangerous diseases does not violate the First Amendment right to free exercise of religion."³⁰ This trend suggests that if a state chooses to eliminate religious exemptions in their vaccine programs, the Supreme Court will support the Constitutionality of that action.

Aside from religious exemptions, 20 states offer philosophical exemptions for those who object to immunizations on the grounds of moral, personal or other reasons. An example of a common philosophical objection would resemble "the state has no right to impose mandatory health policy on my children." Debating the validity of this ideological claim is outside the scope of this report. The Supreme Court has, however, upheld mandatory state immunization law, which has set the precedent for the Constitutionality of mandatory vaccine programs.³¹ Individuals have also opposed vaccinations for other philosophical or moral beliefs such as a belief that vaccines interfere with "nature's generic blueprint," and other unspecified personal reasons.

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country have grown more cynical about vaccine safety and efficacy.⁴² This cynicism has in turn led to a decrease in the percentage of vaccinations nationwide. Given the medical literature's consistent and voluminous evidence supporting the importance, safety and success of vaccinations, this decrease rightly causes serious concern among policy makers and medical professionals.
