Overview - Vaccines

Vaccines

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The 1918 flu pandemic was responsible for the death of more than 675,000 Americans and more than 50 million people worldwide. The devastation and fear caused by this pandemic is, in part, what drives the preparedness of the United States today. Since 1918, the United States has developed flu vaccines, antiviral medications, and intensive care facilities, but widespread fear of another major pandemic is still common.

Fear of polio also hovered over families in the years before Jonas Salk developed the first safe vaccine for polio in 1955. Prior to the availability of the vaccine, polio was widely considered the worst threat to public health, with more than three hundred thousand cases resulting in fifty-eight thousand deaths each year. Susan Brooks Thistlethwaite, writing in the Washington Post on October 12, 2009, reminisces, “When the news was broadcast that Salk had created a polio vaccine, church bells started ringing across the country, factories stopped for moments of silence, synagogues and churches held prayer meetings, and parents and teachers cried with relief and joy. Salk was hailed as a ‘miracle worker,’ and parents rushed to get their kids vaccinated.”

In addition to flu and polio vaccines, the United States has available many vaccinations to protect against a myriad of illnesses. In fact, if a child receives all the vaccinations recommended by the US Centers for Disease Control and Prevention (CDC), by his or her second birthday he or she will have received immunizations to protect him or her from mumps, measles, chicken pox, meningitis, and many other frightening diseases. Yet, not everyone is happy with this scientific advancement. Although vaccination provides assurance to many people, some are concerned about possible long-term negative effects of vaccines. Parents in increasing numbers are choosing not to vaccinate themselves or their children, and the controversy surrounding vaccination has grown.

Should Vaccination Be Mandatory?

Even though vaccines do prevent epidemics and related deaths, the questions of whether vaccination should be mandatory and what government entity has the power to legislate vaccinations are hotly debated.

History of Mandatory Vaccinations

The first vaccination law, which mandated vaccination of all individuals over twenty-one years of age against smallpox, was enacted in Massachusetts in 1809. The vaccine, which exposed patients to a weaker live virus known as cowpox, was gaining popularity around the world. Protests against the vaccine in the United States eventually led to the case Jacobson v. Massachusetts, in which the Supreme Court upheld an earlier ruling by a Massachusetts court and thus gave power to the states to enact vaccination laws.
Some people worry the federal government may mandate widespread vaccinations in the face of an epidemic, but it does not currently have the power to do so. According to a Congressional Research Service (CRS) report for Congress titled “Mandatory Vaccinations: Precedent and Current Laws” released on May 21, 2014, the Public Health Service Act, which gives the secretary of health and human services the authority to keep diseases from entering the United States from foreign countries or from traveling between states, does not extend to federally mandated vaccinations of all citizens. The report explains that “no mandatory vaccination programs are specifically authorized, nor do there appear to be any regulations regarding the implementation of a mandatory vaccination program at the federal level during a public health emergency.” To date, only individual states can mandate vaccines.

State Vaccination Laws

All states have mandatory vaccination laws for school children that include limited exemptions for religious, medical, or philosophical beliefs. As of 2015, all states and the District of Columbia offered exemptions for medical reasons, such as for children with cancer or HIV for whom an immunization could be detrimental to their health, but not all states offer exemptions for other reasons. As of 2016, according to the Immunization Action Coalition, forty-five states and the District of Columbia provided exemptions for religious reasons. In addition, nineteen states allowed for personal belief exemptions to vaccines. Following an outbreak of measles in the state in 2014 that sickened nearly 150 people, California passed a bill the following year that ended vaccine exemptions for religious and personal beliefs. California joined Mississippi and West Virginia as the only states that did not allow for any exemptions other than medical ones.

Reasons People Choose Not to Vaccinate

Following the devastation caused by earlier pandemics, some may wonder why anyone would risk contracting a horrible disease rather than get a simple shot. However, concerns about vaccines have grown over the years. Some people have raised concerns about the ingredients, such as preservatives, in immunizations, while others have questioned if giving young children so many vaccines in such a short span of time could harm their immune systems. In addition, people have raised concerns about vaccines causing serious side effects. Persistent fears about the rising rate of autism continue to make some parents hesitant to vaccinate their children, even though the link between childhood vaccinations and the developmental disorder have largely been disproved.

Fewer Concerns about Illnesses

One of the reasons that some people choose not to vaccinate is because they believe the illnesses that immunizations protect against are rare or that they are not that serious. Many people today were not alive when polio was spreading throughout the country. Since the disease has been eradicated in the United States, some people forgo vaccinations for themselves or their children because they do not feel that there is any chance of contracting the illness. Other people believe that some childhood diseases, such as chicken pox (varicella), are not that serious because they experienced these diseases themselves when they were young and survived. Some of these
people also argue that the natural immunity acquired by having had the disease is stronger than the immunity provided by a vaccine, though there is currently no scientific evidence to corroborate this theory.

**Ingredients in Vaccines**

Concerns about the ingredients in vaccines have also led some people to decline immunizations for themselves or their children. One such ingredient is thimerosal, which contains ethylmercury. Thimerosal is a preservative that prevents the growth of harmful bacteria in vaccines. Although thimerosal leaves the body quickly and has been used in vaccines safely in years past, some people do experience allergic reactions to the ingredient. In 2001, thimerosal was removed from childhood vaccinations, and several of these vaccinations—including measles, mumps, and rubella (MMR); varicella; and inactivated polio—never contained thimerosal.

Despite this, concerns about vaccine ingredients continue. Aluminum is found in about half of all vaccines, and some people worry that children are being exposed to too much aluminum too early in their development. Once such critic is Dr. Robert W. Sears, a pediatrician and author. Sears believes that young children are given too many vaccines in a short span of time, which, he argues, could lead to aluminum overexposure. Because of this, Sears recommended an alternative vaccination schedule in his 2007 book *The Vaccine Book: Making the Right Decision for Your Child*. Delayed vaccination schedules have been criticized by the American Academy of Pediatrics, which believes that delaying vaccinations leaves children at risk for vaccine-preventable diseases for a longer time.

**Vaccines and Autism**

Perhaps one of the biggest contributors to parents’ reluctance to vaccinate their children is the persistent idea that vaccines are linked to autism spectrum disorder (ASD). According to the CDC, the rate of ASD in the United States was 1 in 68 children in 2012, which was a dramatic increase from 1 in 150 children in 1992. Some experts believe that the increase in cases is due, in part, to a better understanding of the disorder and changes in diagnostic procedures, but some people believe that vaccines are to blame.

In the late 1990s, a paper published by British physician Andrew Wakefield and a dozen coauthors raised specific concerns about the possible link between autism and the MMR vaccine. The authors of the paper could not prove an autism-MMR link, but Wakefield said in interviews at the time that he believed that the combination shot was worrisome. Since then, Wakefield has said that he believes the MMR vaccine has contributed to the rise in autism cases. However, further research did not provide any evidence that the MMR vaccine caused autism. Despite the fact that the paper was retracted by the journal that published it and Wakefield’s medical license was taken away in 2010, the idea that vaccines might contribute to autism still concerns many parents of young children.

**Reasons People Do Vaccinate**

Parents choose to vaccinate for many reasons. One of the most obvious is that they do not want
their children to contract vaccine-preventable diseases. They feel that vaccines are an important part of overall health. Other reasons have to do with herd immunity and their personal belief that vaccines are safe and effective.

**Lowering the Risk of Serious Diseases**

Although some people feel that vaccinations are unnecessary because outbreaks of serious diseases are rare, many vaccine-preventable diseases still exist in the world today. In 2000, the United States announced that it had eradicated measles from the country. Fifteen years later, the disease was back. The CDC reported that there were 189 cases of measles across the country in 2015. As of July 2016, the CDC had reported 46 cases of measles nationwide.

While some parents feel that diseases like chicken pox are not that serious, others do not want to take the risk that such a disease could develop into something worse, like pneumonia. In addition, the cost of caring for a child with chicken pox, which could include multiple doctor visits and the need for parents to take time off work, is prohibitive for some families. Therefore, they choose vaccination over the immunity that would be acquired by contracting the disease.

**Herd Immunity**

Another reason people choose vaccination is herd immunity. This is the idea that the vaccination level of a population must be at about 90 percent for the rest of the unvaccinated community to be protected against outbreaks of disease. Some people, such as immunocompromised individuals and very young babies, cannot receive certain vaccinations. Herd immunity protects these individuals from disease. But if the vaccination rate drops significantly within a community, the population is no longer protected, putting the unvaccinated at risk. Some people specifically choose vaccination because they feel that it will protect others from disease.

**Safety and Effectiveness of Vaccines**

The safety and effectiveness of vaccines has been questioned in recent years. For example, some people argue that the vaccine to prevent influenza is pointless because it does not cover all strains of the flu. While this is true, some people feel that some protection from the flu, which causes thousands of deaths each year in the United States, is better than none.

People who choose to vaccinate also feel that vaccines have been proven safe. According to CNN, a study published by Public Health Reports in 2011 found that 95 percent of parents who vaccinate believe that medical professionals, many of whom encourage vaccination, have their children’s best interest in mind, and only 31 percent of those parents were concerned that vaccinating their children would lead to serious side effects.

**Conclusion**

Some people feel the decision to vaccinate should be left up to parents, while others contend that vaccination is important for the health of the entire population. However, outbreaks of vaccine-preventable diseases like the 2014 measles outbreak in California have rekindled debate about the
need for vaccinations from people on both sides of the issue. As research into vaccines continues, so does the debate about safety and effectiveness.

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