Global Child Health: Vaccine Safety

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Immunization prevents an estimated 2.5 million deaths each year. Unfortunately, one in five children worldwide, including 22 million infants, lack access to life-saving vaccines, often because their countries don't have the resources to purchase and deliver vaccines to their citizens. As a result, each year 1.5 million children still die of vaccine-preventable illnesses.

Advocates for global immunization programs are often asked about vaccine safety. Dispelling misconceptions and inaccurate reporting about vaccine safety is critical to ensuring that children across the globe have access to vaccines and are protected from vaccine-preventable illnesses.

Vaccine Safety Monitoring and Adverse Events

- All medicines have side effects. However, vaccines are among the safest medical products available.
- Vaccines go through rigorous testing by global and national authorities. Years of testing, trials, and approval are required before vaccines become publicly available.[1]
- Once a vaccine is licensed in a country, safety information continues to be collected and analyzed. The World Health Organization has established a Global Vaccine Safety Initiative to ensure that monitoring of vaccine safety takes place even in low-resource settings.
- The majority of vaccines' side effects are minor, such as temporary pain or redness at the vaccination site. Severe reactions to vaccines, such as allergic reactions, can occur. However, such reactions are extremely rare.
- Vaccines are one of the most cost-effective and successful public health interventions available. The past 30 years have seen global vaccination programs drastically reduce diseases like pertussis, diphtheria and Hib meningitis (an inflammation of the lining of the brain and spinal cord) across low- and medium-income countries. Wiping out vaccine-preventable diseases also reduces childhood disabilities, such as paralysis from polio, and deafness and blindness from rubella.
- Vaccine refusal is highest for diseases which have already been largely eliminated by vaccines; when people witness high rates of death from diseases, vaccine refusal is much lower.[2]

Vaccines and the Immune System

- Vaccines strengthen the immune system by delivering antigens, which train the immune system to respond quickly when the body encounters a germ to destroy that germ before it can cause disease.
- Studies have shown that it is safe for infants to receive multiple vaccines at once.[3] In fact, children are exposed to more antigens daily by eating and breathing than are found in vaccines.
- Most vaccines are given early in life because this is when children are most vulnerable to diseases like pneumonia, measles, and polio. Based upon the local risk of vaccine-preventable illness, vaccine availability, and scientific studies of vaccine effectiveness and safety, each country decides how many vaccines should be given early in life.
- Early childhood vaccines restore the protection previously provided by the mother's immune system. Prior to birth, a developing baby receives antibodies from the mother, and these temporarily protect the newborn from many diseases. However, each month after birth the amount of antibodies from the mother decreases by half.




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Autism

- The AAP is deeply concerned about the rising number of children with autism spectrum disorders and is committed to understanding, preventing and treating autism.
- Numerous reports have reviewed the medical and scientific evidence on vaccines, and the AAP joins the Centers for Disease Control and Prevention and the Institute of Medicine in concluding that childhood vaccines are generally safe, serious adverse events are rare, and there is no relationship between vaccines and autism.

Thimerosal

- Thimerosal, an ethyl mercury-containing compound, has been used as an additive to vaccines since the 1930s because it is effective in preventing bacterial and fungal growth, particularly in multi-dose vials used to package some vaccines. Vaccines that come in multi-dose vials require that each dose be drawn from the vial with a fresh needle. With each new needle, it is possible for microbes to get into the vial. Thimerosal prevents the growth of bacteria in the vial.
- Without preservatives, all vaccines would need to be packaged in single dose vials. Most vaccines in the United States are now supplied in single dose vials, but this significantly increases their costs, which would be prohibitive in resource poor countries.
- The form of mercury in vaccines is ethyl mercury, which does not build up in a person's body. The form of mercury in environmental pollution (and often found in fish) is a different compound, methyl mercury, which can accumulate in the bloodstream and takes some time to work its way out.
- The Global Advisory Committee on Vaccine Safety (GACVS) has stated that there is no evidence of toxicity in infants, children, or adults exposed to thimerosal in vaccines, a position supported by multiple studies.[4]

Supporting immunization helps Americans

One of the best ways to eliminate disease outbreaks and reintroduction of diseases in the United States is to make sure all children in the world have access to immunizations. Expanding access to vaccines strengthens our ability to fight disease globally, keeps our families healthy here at home, and improves economic stability around the world.

All children should be vaccinated as medically indicated. High vaccination rates lead to "herd immunity," which helps to protect everyone in the community, including those who are too young to be vaccinated or who cannot be vaccinated due to weakened immune systems.

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[2] Omer, B., Orenstein, W., and Koplan, J (April 11, 2013). Perspective: Go big and go fast — Vaccine refusal and disease eradication. *New England Journal of Medicine*, Vol. 368 No. 15. Retrieved from http://centerforvaccineethicsandpolicy.net/2013/04/13/perspective-go-big-and-go-fast-vaccine-refusal-and-disease-eradication/

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[4] World Health Organization (July 2006). Statement on thiomersal. Retrieved from http://www.who.int/vaccine_safety/committee/topics/thiomersal/statement_jul2006/en/