

Protecting Our Children

Protecting Our Community

## **Mercury In Vaccines: Thimerosal, Autism and Other Health Concerns**

---

### **The Basic Facts You Need to Know**

In the recent past, concerns were raised about the use of mercury in vaccines. These concerns centered around the potentially harmful effects of mercury on infants and developing fetuses, because high concentrations of mercury can be damaging to the developing nervous system. For a while there were fears circulating that the use of mercury in vaccines could cause autism or other developmental disorders in children. Here is what you need to know about the use of mercury in vaccines:

★ Thimerosal is a preservative used to prevent harmful bacteria in some vaccines (mainly vaccines for older children and adults). Thimerosal contains a form of mercury called ethylmercury. None of the vaccines that infants and young children routinely receive contain thimerosal, except the influenza vaccine.

★ Numerous studies have shown that there is no link between the use of mercury in vaccines and autism. Autism is caused by genetic factors and can also be influenced by environmental factors, but only in the first trimester of pregnancy, NOT after the child is born. Additionally, pregnant mothers who were given blood transfusions containing thimerosal as a preservative did not have a higher incidence of autism.<sup>1</sup>

### **Mercury in Vaccines Does Not Cause Autism**

Some parents are concerned that thimerosal, a mercury-containing preservative used in the influenza vaccine, causes autism. However, during the past few years a series of studies have shown this concern to be unfounded.

For instance, the vast weight of medical and scientific evidence now refutes the idea that the MMR vaccine (which used to contain thimerosal) causes autism. Fourteen studies that included hundreds of thousands of children in the United States, the United Kingdom and Denmark found children with autism were not more likely to have received the MMR vaccine containing thimerosal, or to have received the MMR vaccine recently.

Five recent studies performed in the United States, the United Kingdom and Denmark clearly found the thimerosal contained in vaccines did not cause autism.<sup>2</sup> These studies compared the risk of autism in children who received vaccines containing thimerosal to those who received vaccines without thimerosal. The studies were consistent, clear and reproducible — the incidence of autism was the same in both groups. Since that review, several new studies have looked for, but not found—an association of thimerosal exposure with autism and other developmental disorders.

### **Two Types of Mercury**

There are different types of mercury. Mercury is found in the environment in the earth's crust, air, soil and water. Through natural processes, mercury is converted to methylmercury and makes its way through the food chain in fish, animals, and humans. At high levels, it can be toxic to people.



Ethylmercury, on the other hand, is the kind of mercury used in some vaccines, like the influenza vaccine. Studies show that ethylmercury is broken down and excreted more rapidly by the body and is therefore less likely to accumulate in the body and cause harm.

## Does Thimerosal in Vaccines Pose a Risk to Infants?

Although it is clear that large quantities of mercury can damage the nervous system, there is no evidence that the small quantities contained in water, infant formula, and breast milk do. An infant who is exclusively breast-fed will ingest more than twice the quantity of mercury that was ever contained in vaccines and fifteen times the quantity of mercury contained in the influenza vaccine.

In one study, scientists at the University of Rochester Medical Center tested the blood levels of mercury in 16 full-term infants shortly after the children had received recommended vaccines that contained thimerosal. They found that “none of the blood mercury levels observed in the studied infants exceeded the most recently revised lowest level of maternal blood mercury considered to represent a potentially significant exposure to the developing fetus.”<sup>3</sup>

By doing matched studies of people who did or did not receive vaccines, we now know that vaccines don't cause diabetes, multiple sclerosis, allergies or asthma. A publication that reviewed 93 studies examining the relationship between chronic diseases is listed below.<sup>4</sup>

## Websites With Additional Information on Vaccines and Thimerosal

- ★ Vaccine Education Center: [www.vaccine.chop.edu](http://www.vaccine.chop.edu)
- ★ American Academy of Pediatrics: “Vaccine Safety”: at [http://www.cispimmunize.org/ill/ill\\_main.html](http://www.cispimmunize.org/ill/ill_main.html)
- ★ Centers for Disease Control and Prevention: “Vaccine Safety Issues” at <http://www.cdc.gov/nip/vacsafe/concerns/gen/of-interest.htm>
- ★ Immunization Action Coalition: “Thimerosal Information” at <http://www.immunize.org/safety/thimerosal.htm>
- ★ Institute for Vaccine Safety, Johns Hopkins Bloomberg School of Public Health: “Thimerosal in Vaccines” at <http://www.vaccinesafety.edu/cc-thim.htm>
- ★ National Network for Immunization Information: “Thimerosal/Mercury” at [http://www.immunizationinfo.org/thimerosal\\_mercury\\_issues.cfm](http://www.immunizationinfo.org/thimerosal_mercury_issues.cfm)

### References

- 1 Thimerosal and Autism, Paul A. Offit, MD, Director, Vaccine Education Center, Children's Hospital of Philadelphia. [www.vaccine.chop.edu](http://www.vaccine.chop.edu)
- 2 Vaccine Education Center web site, “The Facts About Childhood Vaccines,” Vol. 4, Feb. 2005.
- 3 Pichichero ME, Cernichiari E, Lopreiato J, Treanor J. (2002). Mercury concentrations and metabolism in infants receiving vaccines containing thimerosal: a descriptive study. *The Lancet*, 360(9347):1737-41
- 4 Offit, PA and Hackett, CJ. 2003. Addressing parents concerns: Do vaccines cause allergic or autoimmune diseases? *Pediatrics* 111:653-659.

### Additional References

- A. Hviid, et al., “Association between thimerosal-containing vaccine and autism,” *Journal of the American Medical Association* 2003;290:1763-1766.
- T. Verstraeten, et al., “Safety of thimerosal-containing vaccines: a two-phased study of computerized health maintenance organization databases,” *Pediatrics* 2003;112:1039-1048.
- J. Heron, J. Golding, and ALSPAC Study Team. “Thimerosal exposure in infants and developmental disorders: a prospective cohort study in the United Kingdom does not show a causal association,” *Pediatrics*. 2004;114:577-583.
- N. Andrews, et al., “Thimerosal exposure in infants and developmental disorders: a retrospective cohort study in the United Kingdom does not show a causal association,” *Pediatrics*, 2004;114:584-591.
- Ball LK, Ball R, and Pratt RD. (2001). An assessment of thimerosal use in childhood vaccines. *Pediatrics*, 107(5), 1147-1154
- Magos L. (2001). Review on the toxicity of ethylmercury, including its presence as a preservative in biological and pharmaceutical products. *Journal of Applied Toxicology*, 21(1), 1-5