

# Thimerosal

Thimerosal is a mercury-based preservative found in multi-dose vials (vials containing more than one dose of medicine) of vaccines. Thimerosal is added to vials of vaccine that contain more than one dose to prevent the growth of bacteria and fungi in the event that they get into the vaccine vial. This may occur when a syringe needle enters a vial as a vaccine is being prepared for administration. Contamination by germs in a vaccine could cause severe local reactions, serious illness, or even death when the vaccine is given.

Thimerosal contains mercury. Mercury is a naturally occurring element found in air, soil, water, and the earth's crust. Since the earth's formation, volcanic eruptions, the weathering of rocks, and the burning of coal have caused mercury to be released into the environment. Once released, certain types of bacteria in the environment can change mercury into methylmercury. Methylmercury can then make its way through the food chain in fish, other animals, and humans. At high levels in the body, mercury can be very toxic. The knowledge that vaccines that are routinely given to children might contain mercury is enough to cause panic in the minds of many.

What most parents are not aware of is that there are two different types of mercury--methylmercury and ethylmercury. Methylmercury is the type that can lead to mercury toxicity and cause damage to the human body. Thimerosal does not contain methylmercury; it contains ethylmercury. Studies comparing ethylmercury and methylmercury suggest that they are processed differently in the human body. Ethylmercury is broken down and excreted much more rapidly than methylmercury is. Therefore, ethylmercury is much less likely than methylmercury (the type of mercury in the environment) to accumulate in the body and cause harm. Thimerosal does not stay in the body a long time so it does not build up and reach harmful levels. When thimerosal enters the body, it breaks down to ethylmercury and thiosalicylate which are easily eliminated. Data from multiple studies show no convincing evidence of harm caused by the low doses of thimerosal contained in some vaccines.

The most common side-effects of thimerosal are minor reactions like redness and swelling at the injection site. Although rare, some people may be allergic to thimerosal. Even if so, research shows that most people who are allergic to thimerosal will not have a reaction when thimerosal is injected under the skin. Research does not show any link between thimerosal in vaccines and autism, a neurodevelopmental disorder. In fact, when thimerosal was removed from childhood vaccines in 2001, autism rates went up, which is exactly the opposite of what would be expected if thimerosal caused autism. Furthermore, the MMR (measles, mumps, rubella) vaccine (the vaccine most commonly cited by anti-vaxxers as the autism-causing culprit) does not, and never did, contain thimerosal. The varicella (chickenpox), polio, and pneumococcal vaccines also never contained thimerosal. Except for certain brands of the influenza (flu) vaccine, thimerosal has been removed from, or reduced in, all vaccines manufactured for market in the United States for children aged 6 years and under. For a complete list of vaccines and their thimerosal content level, please visit <http://www.vaccinesafety.edu/thi-table.htm>

The majority of information discussed above can be found on the Center for Disease Control and Prevention's web site at [:http://www.cdc.gov/vaccinesafety/concerns/thimerosal/thimerosal\\_faqs.html](http://www.cdc.gov/vaccinesafety/concerns/thimerosal/thimerosal_faqs.html)