

Vaccines

Parents of children with autism spectrum disorders (ASDs) may worry about a possible link between vaccines and autism. In fact, one recent survey said that 54% of parents of children with ASDs thought autism was caused by immunizations. The consensus of health professionals based on scientific research is that there is no evidence that vaccines cause autism. Some common questions that parents have include

What should we know about vaccines?

Today's vaccines are the safest in history. Before they can be released, vaccines must pass many tests. The Food and Drug Administration (FDA) tests new vaccines for up to 10 years before giving the vaccine a license. For all vaccines, it must be proven that they are safe and work well. Once the vaccine is being used, the FDA and Centers for Disease Control and Prevention (CDC) monitor its use through the Vaccine Adverse Event Reporting System (VAERS). They look for any problems that might turn up later.

Sometimes vaccines can cause fever or soreness where the shot was given. Very rarely, people have an allergic reaction. Vaccines save lives and protect against the spread of more diseases than ever before. If you decide not to give your child a vaccine, you may put your child and other children around him at risk. Your child could catch a disease that is dangerous or even deadly.

Does the measles-mumps-rubella vaccine cause autism?

Research has shown that many parents of children with ASDs begin to have concerns when their children are between 18 and 24 months of age, which is around the same time children get the measles-mumps-rubella (MMR) vaccine. This makes parents wonder if there is a connection, especially when the child regresses or loses some milestones such as social skills or eye contact. About one fourth of children with autism will begin to say words but then stop speaking later. In a 2004 report, the Institute of Medicine Immunization Safety Review Committee carefully reviewed all of the published scientific literature and concluded that there is no link between autism and the MMR vaccine. Other studies since that time also have not found any link.

Measles, mumps, and rubella are serious and the vaccine has shown great success, with a decrease in reported cases of all 3 diseases of more than 99% after the vaccine was licensed. You can protect your children by immunizing them against these serious childhood illnesses.

What is thimerosal? Is it safe?

Health professionals agree that exposure to mercury can be harmful to children. There have been many efforts to reduce the number of ways children can be exposed to mercury, including changes in mercury thermometers (switching to digital thermometers) and cautions against mercury found in some fish. Some people worry about a link between autism and certain vaccines that use a preservative called thimerosal because thimerosal contains a type of mercury. Thimerosal is used in some vaccines as well as other medicines, including contact lens solutions and throat and nose sprays, to help prevent contamination with bacteria. Thimerosal includes ethyl mercury, which is not the same type of mercury as methyl mercury that can be found in some fish and pollution.

In 1999, the Public Health Service and the American Academy of Pediatrics (AAP) asked that thimerosal be taken out of vaccines just to be extra safe. Some states have passed laws to require this. We can't always remove all of the mercury from around us, but we can control the mercury used in vaccines. So by taking thimerosal out of vaccines, we can lower the amount of mercury a child may be exposed to during early life. Since 2001, most routine children's vaccines made in the United States have no thimerosal or only very tiny amounts. The current exceptions include most flu vaccines, tetanus and diphtheria toxoid vaccines used in older children and adults, and some other vaccines that are not recommended for very young children (eg, some forms of meningococcal vaccine). Some flu vaccines do not contain thimerosal and if desired, parents can ask their doctor about thimerosal-free flu vaccines. Some vaccines, such as the MMR, polio, and chickenpox vaccines, have *never* contained thimerosal.

The AAP supports the routine vaccination of children to prevent potentially dangerous childhood illnesses. It is important for scientists to continue to study how to make vaccines safer and more effective.

References

- American Academy of Pediatrics. Active and passive immunization. In: Pickering LK, ed. *Red Book: 2006 Report of the Committee on Infectious Diseases*. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006:1–103
- American Academy of Pediatrics. *Immunizations & Infections Diseases: An Informed Parent's Guide*. Fisher MC, ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006
- Andrews N, Miller E, Grant A, Stowe J, Osborne V, Taylor B. Thimerosal exposure in infants and developmental disorders: a retrospective cohort study in the United Kingdom does not support a causal association. *Pediatrics*. 2004;114:584–591
- Barbarese WJ, Katusic SJ, Colligan RC, Weaver AL, Jacobsen SJ. The incidence of autism in Olmsted County, Minnesota, 1976-1997: results from a population-based study. *Arch Pediatr Adolesc Med*. 2005;159:37–44
- Dales L, Hammer SJ, Smith NJ. Time trends in autism and in MMR immunization coverage in California. *JAMA*. 2001;285:1183–1185
- D'Souza Y, Fombonne E, Ward BJ. No evidence of persisting measles virus in peripheral blood mononuclear cells from children with autism spectrum disorder. *Pediatrics*. 2006;118:1664–1675
- Fombonne E, Zakarian R, Bennett A, Meng L, McLean-Heywood D. Pervasive developmental disorders in Montreal, Quebec, Canada: prevalence and links with immunizations. *Pediatrics*. 2006;118:e139–e150
- Harrington JW, Rosen L, Garnecho A, Patrick PA. Parental perceptions and use of complementary and alternative medicine practices for children with autistic spectrum disorders in private practice. *J Dev Behav Pediatr*. 2006;27(2 Suppl):S156–S161
- Heron J, Golding J, and the ALSPAC Study Team. Thimerosal exposure in infants and developmental disorders: a prospective cohort study in the United Kingdom does not support a causal association. *Pediatrics*. 2004;114:577–583
- Honda H, Shimizu Y, Rutter M. No effect of MMR withdrawal on the incidence of autism: a total population study. *J Child Psychol Psychiatry*. 2005;46:572–579
- Hviid A, Stellfeld M, Wohlfahrt J, Melbye M. Association between thimerosal-containing vaccine and autism. *JAMA*. 2003;290:1763–1766
- Katz SL. Has the measles-mumps-rubella vaccine been fully exonerated? *Pediatrics*. 2006;118:1744–1745
- Kaye JA, del Mar Melero-Montes M, Jick H. Mumps, measles, and rubella vaccine and the incidence of autism recorded by general practitioners: a time trend analysis. *BMJ*. 2001;322:460–463
- Madsen KM, Hviid A, Vestergaard M, et al. A population-based study of measles, mumps, and rubella vaccination and autism. *N Engl J Med*. 2002;347:1477–1482
- Richler J, Luyster R, Risi S, et al. Is there a “regressive phenotype” of autism spectrum disorder associated with the measles-mumps-rubella vaccine? A CPEA study. *J Autism Dev Disorder*. 2006;36:299–316
- Rutter M. Incidence of autism spectrum disorders: changes over time and their meaning. *Acta Paediatr*. 2005;94:2–15
- Taylor B, Miller E, Farrington CP, et al. Autism and measles, mumps, and rubella vaccine: no epidemiological evidence for a causal association. *Lancet*. 1999;353:2026–2029
- Verstraeten T, Davis RL, DeStefano F, et al. Safety of thimerosal-containing vaccines: a two-phased study of computerized health maintenance organization databases. *Pediatrics*. 2003;112:1039–1048

Resources

- AAP Childhood Immunization Support Program: www.cispimmunize.org
- CDC National Center for Immunization and Respiratory Diseases: www.cdc.gov/vaccines
- Immunization Action Coalition: www.immunize.org
- VAERS: <http://vaers.hhs.gov>

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