



## Vaccines

Some parents of children with autism spectrum disorders (ASDs) may worry about a possible link between vaccines and ASDs. In fact, one recent survey said that 54% of parents of children with ASDs thought ASDs were caused by immunizations. The consensus of health professionals based on scientific research is that there is no evidence that vaccines cause ASDs. Despite these scientific data, parents continue to worry that vaccines may cause children at risk for ASDs to develop symptoms at the time many childhood vaccinations are given. 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 US Food and Drug Administration (FDA) tests new vaccines for up to 10 years before giving a 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 monitor its use through the Vaccine Adverse Event Reporting System. They look for any problems that might turn up later.

Sometimes vaccines can cause fever or soreness where the shot was given. Very rarely, children 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. Some families who are worried about the number of vaccines children are given work out alternative schedules of administration with their doctors to make certain that their children are protected from vaccine-preventable illness. Policies on vaccine schedules are necessary so that families and physicians do not lose track of vaccines that are given, children and youth are protected at vulnerable times of development, and the population at large is kept safe.

### Does the measles-mumps-rubella (MMR) vaccine cause ASDs?

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 a child regresses or loses some milestones such as social skills or eye contact. About one-fourth of children with ASDs 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 ASDs and the MMR vaccine. Additional studies since that time also have not found any link. *The Lancet*, the medical journal that originally published the article linking MMR vaccination and autism, publicly retracted, or withdrew, the article in 2011 due to serious concerns about the validity of the research.

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.

Scientific studies indicate that multiple genes work together with things in the environment to predispose a child to ASDs. Scientific studies do not indicate that vaccines cause ASDs, nor have they identified groups in the population at greater genetic risk to be affected by vaccines. Research investigating environmental causes of ASDs is important and will, hopefully, identify environmental risk factors for ASDs.

### 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 ASDs 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, which can be found in some fish and pollution.

In 1999, the US Public Health Service and 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, as most environmental mercury comes from burning coal, but we can control mercury used in vaccines. 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. 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 parents can ask their doctor about thimerosal-free flu vaccines. Some vaccines, such as MMR, polio, and chickenpox, have never contained thimerosal. Studies of large populations have not shown that there is a relationship between ASD rates and prior administration of thimerosal-containing vaccines or MMR administration. In fact, in one survey from Canada, rates of ASDs actually increased after thimerosal was removed from vaccines.

The AAP supports routine, timely vaccination of children to prevent potentially dangerous childhood illnesses. Parents are encouraged to discuss their concerns about vaccines with their child's pediatrician to best understand vaccine benefits to their children. Scientists will continue to study how to make vaccines safer and more effective and will continue to study environmental events that might contribute to the causes of ASDs.

### Resources

American Academy of Pediatrics Childhood Immunization Support Program: [www.aap.org/immunization](http://www.aap.org/immunization)

American Academy of Pediatrics HealthyChildren.org: [www.HealthyChildren.org](http://www.HealthyChildren.org)

Centers for Disease Control and Prevention Vaccines & Immunizations: [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)

Immunization Action Coalition: [www.immunize.org](http://www.immunize.org)

Vaccine Adverse Event Reporting System: <http://vaers.hhs.gov>

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate. Original document included as part of *Autism: Caring for Children With Autism Spectrum Disorders: A Resource Toolkit for Clinicians*, 2nd Edition. Copyright © 2013 American Academy of Pediatrics. All Rights Reserved. The American Academy of Pediatrics does not review or endorse any modifications made to this document and in no event shall the AAP be liable for any such changes.

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