

CDC Studies on Vaccines and Autism Spectrum Disorders

Study	Description and Findings	Publication Date or Estimated Date of Publication
Denmark Measles-Mumps-Rubella (MMR)/Autism Study	CDC has an ongoing cooperative agreement with the Danish Medical Research Council. This agreement supports collaboration with Danish researchers and gives CDC an opportunity to pursue causes of birth defects and developmental disabilities through Denmark's unique public health data infrastructure. The Danish study, which followed more than 500,000 children for 7 years, found no association between the MMR vaccination and autism. The results were published in the <i>New England Journal of Medicine</i> (2002;347:1477-82).	November 2002
Thimerosal Screening Study	The Vaccine Safety Datalink (VSD) was used to screen for possible associations between exposure to vaccines containing thimerosal and a variety of renal, neurologic, and developmental problems. In the first phase of this study, CDC used data from the two VSD managed care organizations (MCOs) with automated outpatient data (where more subtle effects of mercury toxicity might be seen). The CDC and VSD researchers found statistically significant associations between thimerosal and two neurodevelopmental disorders—language delays and tics. However, the associations were weak and were not consistent between the two MCOs. No association was shown with autism. In the second phase of the study, CDC researchers looked at data from a third MCO with similar automated vaccination and outpatient data to see if these findings could be repeated. Analyses using the same methods as in the first two MCOs did not confirm results seen in the first phase. The results were published in <i>Pediatrics</i> (2003;112:1039-48).	November 2003
Age at First MMR Vaccination in Children With Autism and School Matched Control Subjects: A Population-Based Study in Metropolitan Atlanta.	CDC did a vaccine study as part of the Metropolitan Atlanta Developmental Disabilities Surveillance Program. The study compared the age at which children with an ASD got the Measles Mumps Rubella (MMR) vaccine with the age at which children who do not have an ASD got the vaccine. The study's results showed that children with autism received their first MMR vaccination at similar ages as children without autism. The study was published in <i>Pediatrics</i> (Feb 2004; 113(2):259-66).	February 2004
The Autism and Biopsy Study	This study is investigating whether the MMR vaccine may cause autism by a mechanism involving persistent measles virus infection in the intestine. Researchers are examining the intestinal tissue of children with autism for the presence of measles virus.	September 2008
Immunizations and Possible Developmental	CDC is working with the National Institutes of Health on a study to evaluate whether the MMR vaccine is linked with developmental regression, which occurs in a subset of children with autism.	To be determined

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Regression		
Italy Thimerosal NDD Study	<p>CDC is collaborating with researchers in Italy to evaluate children who were randomly exposed to differing amounts of thimerosal during infancy as part of a clinical trial of whooping cough vaccines, including thimerosal-containing and thimerosal-free vaccine preparations. Although not studied as part of the original clinical trial, researchers now are comparing the occurrence of neurological developmental disorders among the clinical trial participants related to level of thimerosal exposure.</p>	To be determined
Thimerosal Neurological Disorders (NDD) Follow-up Study	<p>Researchers assessed the relationship between thimerosal and neurodevelopmental disorders (they did not include autism) by administering neuropsychological tests to children between the ages of 7 and 10 years whose vaccinations in the first year of life could have contained thimerosal. The study compared the neuropsychological performance among children exposed to different quantities of thimerosal from vaccines administered and other exposures during the first year of life. The study found only a few statistically significant associations between exposure from thimerosal and neuropsychological functioning. The weight of the evidence from this study does not support an association between early ethyl mercury exposure from thimerosal-containing vaccines and/or immunoglobulins and neuropsychological functioning at ages 7 to 10 years. The study can be accessed at http://www.cdc.gov/od/science/iso/vsd/thimerosal_outcomes/</p>	September 2007
Study to Explore Early Development (SEED)	<p>The six sites of CDC's Centers for Autism and Developmental Disabilities Research and Epidemiology (CADDRE) Network will investigate risk factors and causes of autism in 2 to 5-year-olds, including the following:</p> <ul style="list-style-type: none"> • Physical and behavioral characteristics • Infection and immune function, including autoimmunity • Reproductive and hormonal features • Gastrointestinal features • Genetic features • Socio-demographic features • Smoking, drug, and alcohol use in pregnancy • Sleep features • Select mercury exposures (including any vaccine use by the mother during pregnancy, child's vaccine exposures after birth, maternal prenatal exposure to RhoGAM, job history for possible occupational exposures) • Biomarkers <p>Enrollment in this study began Fall 2007. Read the press release or fact sheet about the study.</p>	To be determined

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The Thimerosal and Autism Study	Using the Vaccine Safety DataLink, CDC is comparing thimerosal exposure in children with and without autism. Children with autism are being evaluated in person by certified specialists using the most up-to-date, standardized diagnostic assessments. Researchers are also reviewing medical records and interviewing parents to assess any factors that could influence the study's findings.	September 2008