

Timeline: Thimerosal in Vaccines (1999-2008)

The following is a brief timeline of key events and published articles on thimerosal and vaccines from 1999 to 2008.

1999

A congressionally-mandated Food and Drug Administration (FDA) review of mercury in drugs and food was completed, which included a recommendation for the reassessment of thimerosal use in vaccines.

(July 7) A joint statement about thimerosal was issued by the American Academy of Pediatrics (AAP) and the Public Health Service (PHS). A separate but comparable statement about thimerosal was released by the American Academy of Family Physicians (AAFP).

(October 20) Advisory Committee on Immunization Practices (ACIP) reviewed information about thimerosal in vaccines and received updates from CDC's National Immunization Program and several vaccine manufacturers on the current and anticipated availability of vaccines that do not contain thimerosal as a preservative.

(November 5) MMWR was published that stated "given the widely acknowledged value of reducing exposure to mercury, vaccine manufacturers, FDA, and other PHS agencies are collaborating to reduce the thimerosal content of vaccines or to replace them with formulations that do not contain thimerosal as a preservative as soon as possible without causing unnecessary disruptions in the vaccination system. FDA will expedite review of supplements to manufacturers' product license applications that present formulations for eliminating or reducing the mercury content of vaccines."

CDC launched a study by Verstaeten et al. to assess safety of thimerosal-containing vaccines.

2001

All vaccines routinely recommended for children 6 years of age and under in the U.S. were produced without thimerosal as a preservative, with the exception of inactivated influenza vaccine.

(May 5) A comprehensive risk assessment of thimerosal use in childhood vaccines was conducted by Ball et al. and published in *Pediatrics*. This assessment found no evidence of harm from the use of thimerosal as a vaccine preservative, other than local hypersensitivity reactions. The review also stated that some infants may be exposed to cumulative levels of mercury during the first 6 months of life that exceed EPA recommendations, and that exposure of infants to mercury in vaccines can be reduced or eliminated by using products formulated without thimerosal as a preservative.

(October 1) Institute of Medicine's (IOM) Immunization Safety Review Committee issued a report, based on a review of available data, concluding that the evidence was inadequate to either accept or reject a causal relationship between thimerosal exposure from childhood vaccines and the neurodevelopmental disorders of autism, attention deficit hyperactivity disorder, and speech or language delay.

2002

(September 3) A CDC and Danish Medical Research Council cohort study, *A Population-Based Study of Measles, Mumps, and Rubella Vaccination and Autism*, was published in the *New England Journal of Medicine*. This study followed more than 500,000 children in Denmark over 7 years and found no association between the MMR vaccination and autism.

2003

(January) Last lots of thimerosal-preserved containing pediatric vaccines expire.

(August) Stehr-Green, et al. ecological cohort study, *Autism and Thimerosal-Containing Vaccines: Lack of Consistent Evidence for an Association*, American Journal of Preventive Medicine - This study assessed autism incidence and the use of thimerosal-containing vaccines. Data did not support an association between thimerosal-containing vaccines and autism in Denmark and Sweden where exposure to thimerosal was eliminated in 1992 and where autism rates continued to increase.

(November) Verstraeten et al., *Safety of Thimerosal-Containing Vaccines: A Two-Phased Study of Computerized Health Maintenance Organization Databases*, Pediatrics - In this study, the Vaccine Safety Datalink (VSD) was used to screen for possible associations between exposure to thimerosal-containing vaccines and a variety of renal, neurologic and developmental problems. No consistent significant associations were found between thimerosal-containing vaccines and neurodevelopmental outcomes.

2004

(May 17) IOM issued a follow-up to their 2001 report. This report, based on further epidemiological studies, concluded that these studies consistently provided evidence of no association between thimerosal-containing vaccines and autism. The report further stated that while the committee strongly supported targeted research that focused on better understanding the disease of autism, from a public health perspective the committee did not consider a significant investment of studies of the theoretical vaccine-autism connection to be useful at the time of the report's publication. In addition, the committee encouraged that research on autism focus more broadly on the disorders causes of and treatments for autism. Further, the committee did not recommend a policy review of the schedule and recommendations for routine childhood vaccine administration based on hypotheses regarding thimerosal and autism.

(May 28) ACIP recommended the inactivated influenza vaccine for routine use in children 6 to 23 months of age. This recommendation did not include a preference for thimerosal-free influenza vaccine for this group and stated that the benefits of influenza vaccination outweigh the theoretical risk, if any, for thimerosal exposure through vaccination.

2006

(September 26) In a statement prepared for the Coalition for Mercury-free Drugs (CoMeD), FDA concludes that the evidence reviewed by IOM in 2004 does not support an association between thimerosal-containing vaccines and autism.

2007

(July 7) CDC releases official statement on Autism and Thimerosal. Excerpt: some people believe increased exposure to thimerosal (from the addition of important new vaccines recommended for children) explains the higher prevalence in recent years. However, evidence from several studies examining trends in vaccine use and changes in autism frequency does not support such an association. Furthermore, a scientific review by the Institute of Medicine (IOM) concluded that "the evidence favors rejection of a causal relationship between thimerosal-containing vaccines and autism." CDC supports the IOM conclusion. Full text of the statement is available at <http://www.cdc.gov/od/science/iso/concerns/thimerosal.htm>.

(September 27) Thompson et al., *Early Thimerosal Exposure and Neuropsychological Outcomes at 7 to 10 Years*, New England Journal of Medicine - This study more rigorously examined the hypotheses that increasing exposure to thimerosal is associated with neurodevelopmental disorders. Findings did not

support a causal association between early exposure to mercury from thimerosal-containing vaccines and immune globulins and deficits in neuropsychological functioning at the age of 7 to 10 years.

2008

(January 8) Schechter et al., *Continuing Increases in Autism Reported to California's Developmental Services System: Mercury in Retrograde*, Archives of General Psychiatry - The study examined the prevalence of Autism Spectrum Disorders in children 3 years of age and older reported to the California Developmental Services System using client reports for the years 1989 through March, 2007. Data found that the prevalence of children with autism born from 1989 through 2003 increased each year (and for each age up to 10 years). This was true whether the data were examined by year of birth or age group. Specifically, the prevalence at ages 3 to 5 years increased for each birth year since 1999, during the period when exposure to thimerosal preservative in vaccines began to be reduced.

CDC is currently conducting a thimerosal-autism case control study to determine if there is an association between the diagnosis of an autistic disorder and the level of mercury exposure from vaccines and immunoglobulins, and to determine if there an association between the diagnosis of autistic spectrum disorder and level of mercury exposure from vaccines and immunoglobulins.

A study is being completed in Italy to compare the prevalence of neurodevelopmental disorders among DTaP vaccine trial participants exposed to different quantities of thimerosal during infancy in randomized, controlled trials of acellular pertussis vaccines. The study evaluated the children using a standardized battery of neuropsychological tests. The Immunization Safety Review Committee of the Institute of Medicine (IOM) specifically recommended such a study in 2001.

A thimerosal and autism case-control study in three U.S. MCOs was conducted and is scheduled for publication in 2008. Children with autism were evaluated by certified specialists using state of the art, standardized diagnostic assessments. Vaccination histories and information on other potential confounding factors were ascertained for both cases and matched controls by review of medical records and standardized interviews of the children's parents.