

# A meta-analysis epidemiological assessment of neurodevelopmental disorders following vaccines administered from 1994 through 2000 in the United States

David A. GEIER<sup>1</sup> & Mark R. GEIER<sup>2</sup>

<sup>1</sup> Vice-President, The Institute of Chronic Illnesses, Silver Spring, MD, USA.

<sup>2</sup> President, The Genetic Centers of America.

Correspondence to: Dr. Mark R. Geier  
14 Redgate Ct., Silver Spring, MD 20905, USA.  
PHONE: +1 (301)989-0548  
FAX: +1 (301)989-1543  
EMAIL: mgeier@comcast.net

Submitted: April 4, 2006

Accepted: May 7, 2006

Key words: developmental delay; mercury; merthiolate; thimerosal; thiomersal

Neuroendocrinol Lett 2006; 27(4):401-413 PMID: 16807526 NEL270306A01 ©Neuroendocrinology Letters [www.nel.edu](http://www.nel.edu)

## Abstract

**BACKGROUND:** Thimerosal is an ethylmercury-containing compound (49.6% mercury by weight) used as at the preservative level in vaccines (0.005% to 0.01%).

**METHODS:** Statistical modeling in a meta-analysis epidemiological assessment of the Vaccine Adverse Event Reporting System (VAERS) for neurodevelopment disorders (NDs) reported following Diphtheria-Tetanus-whole-cell-Pertussis (DTP) vaccines in comparison to Diphtheria-Tetanus-whole-cell-Pertussis-Haemophilus Influenzae Type b (DTPH) vaccines (administered: 1994-1997) and following Thimerosal-containing Diphtheria-Tetanus-acellular-Pertussis (DTaP), vaccines in comparison to Thimerosal-free DTaP vaccines (administered: 1997-2000), was undertaken.

**RESULTS:** Significantly increased adjusted (sex, age, vaccine type, vaccine manufacturer) risks of autism, speech disorders, mental retardation, personality disorders, thinking abnormalities, ataxia, and NDs in general, with minimal systematic error or confounding, were associated with TCV exposure.

**CONCLUSION:** It is clear from the results of the present epidemiological study and other recently published data associating mercury exposure with childhood NDs, additional ND research should be undertaken in the context of evaluating mercury-associated exposures, especially from Thimerosal-containing vaccines.

**Conflict of interests:** Dr. Mark Geier has been an expert witness and consultant in vaccine cases before the no-fault National Vaccine Injury Compensation Program (NVICP) and in civil litigation. David Geier has been a consultant in vaccine cases before the no-fault NVICP and in civil litigation.

**Study Funding:** None.