



Invited critical review

Thimerosal: Clinical, epidemiologic and biochemical studies David A. Geier ^a, Paul G. King ^b, Brian S. Hooker ^c, José G. Dórea ^d, Janet K. Kern ^{a,*},
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ABSTRACT

Introduction: Thimerosal (or Thiomersal) is a trade name for an organomercurial compound (sodium ethylmercury (Hg) thiosalicylate) that is 49.55% Hg by weight, which rapidly decomposes in aqueous saline solutions into ethyl-Hg hydroxide and ethyl-Hg chloride. Developed in 1927, it has been and is still being used as a preservative in some cosmetics, topical pharmaceuticals, and biological drug products, including vaccines. Concerns have been voiced about its use because it is toxic to human cells. Although it is banned in several countries, it continues to be added to some vaccines in the United States and many vaccines in the developing world.

Discussion: This critical review focuses on the clinical, epidemiological, and biochemical studies of adverse effects from Thimerosal in developing humans. This review will include research that examines fetal, infant, and childhood death; birth defects; neurodevelopmental testing deficits in children; and neurodevelopmental disorders (attention deficit/hyperactivity disorder, autism spectrum disorder, tic disorder, and specific developmental delays). The review will also look at the research that examined the outcomes of acute accidental ethyl-Hg poisoning in humans. The studies that examine the underlying biochemical insights into the neuronal cellular damage will also be explored.

Conclusion: The culmination of the research that examines the effects of Thimerosal in humans indicates that it is a poison at minute levels with a plethora of deleterious consequences, even at the levels currently administered in vaccines.

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[☆] Conflict of interest: Six (6) of authors have been involved in vaccine/biologic legal actions (DAG, PGK, BSH, JKK, LSK, and MRG). One author (JGD) has no conflict of interest.

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