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Thimerosal (organic mercury) in vaccines:
Causal factor for regressive autism in children[1]

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SUMMARY OF THE SCIENCE

The recent focus in the autism community was on a whistleblower-exposed finding, *which was suppressed by the U.S. Centers for Disease Control and Prevention (CDC)*, of an elevated risk for an autism diagnosis in African-American males associated with the timing of vaccination with a vaccine containing live measles, mumps and rubella viruses.

That statistical finding, *which the CDC-published 2004 paper omitted*, has again raised the issue of the causal factor(s) for a regressive "Autism" or "autism spectrum disorder (ASD)" diagnosis that may be related to the recommended childhood vaccination program in the United States of America (USA).

This article examines the leading vaccination-related autism-causal candidates, Thimerosal, aluminum-based adjuvants, and those vaccines that contain the live measles, mumps and rubella viruses (the MMR-containing vaccines).

The key observations in this article are,

1. The male-to-female gender ratio (M/F ratio) in those groups of children with a post-vaccination "Autism" or "ASD" diagnosis is greater than "2" and, *typically*; is greater than "3".
2. Of the possible causal factors listed,
   a. only Thimerosal is known to cause gender differences of this magnitude (M/F ratio > 2) in those adversely affected by exposure to it;
   b. for the MMR-containing vaccine-related outcomes, the M/F ratios are typically less than "1.2"; and
   c. for effects associated with the non-specific aluminum-based adjuvants and other vaccine components, like, *for example*, DNA and DNA fragments, the M/F ratios appear to be about "1" or less.
3. Based on recent epidemiological studies in VAERS, the relative risk of a subsequent "Autism/ASD" diagnosis declined when the use of Thimerosal as a preservative in the early childhood pertussis-containing vaccines given multiple times was stopped even when the replacement vaccine was a 2-phenoxyethanol-preserved pertussis-containing vaccine that had more

[1] An Essay Assessing Signaling Effects in the Vaccine Adverse Events Reporting System (VAERS) Database: The importance of assessing the ratio of reports for males to reports for females when the outcomes are the VAERS data dictionary (costart) terms 'Autism' and/or 'ASD' and the vaccine exposures are to Thimerosal-containing vaccines (which usually contain aluminum adjuvants) and the MMR and/or MMRV vaccines in the US States, the District of Columbia and Puerto Rico for the period 1991 through 2013.

than double the level of an aluminum-based adjuvant (500 micrograms [µg] of aluminum [Al]) than the "equivalent" Thimerosal-preserved vaccine nominally contained (230 µg of Al) per 0.5-milliliter (mL) dose.

Moreover, a drop in ASD level (from 1.5% to 1.0 %) was observed in the birth cohorts of vaccinated Danish children after all the Thimerosal-preserved vaccine inoculations had been replaced by no-Thimerosal-vaccine inoculations although the inoculation-timing schedule for the initial MMR vaccine and the MMR vaccine's manufacture and composition remained essentially the "same".

4. In children who were up to 3.75 years of age when they were vaccinated during the period from 1991 through 2013, for the 379 VAERS reports of MMR-containing-vaccination-related "Autism and ASD" adverse event following inoculation (AEFI), 196 (51.5-plus %) of those reports indicated that a Thimerosal-preserved vaccine was administered in the same vaccination session in which an MMR-containing vaccine was given.

Additionally, in VAERS, only 39 MMR-containing-vaccine-associated "Autism" and "ASD" reports were found in children 3.75 to 7 years of age.

Furthermore, only 21 of those 39 VAERS AEFI reports ("54%") were for one or more additional doses of an MMR-containing vaccine – clearly confirming that, *because there was no significant general "new report" or "re-challenge" effects associated with additional inoculations with an MMR-containing vaccine*, MMR-containing vaccines are probably not a primary causative factor for a VAERS report of "Autism" or ASD" in the affected children.

5. From before 1991 through 2002, the vaccination schedule in the USA recommended that multiple Thimerosal-preserved vaccine doses be administered for three (3) types of vaccines (DTP/DTaP/DT, hepatitis B and Hib) before the first MMR-containing dose was to be given.

Furthermore, *from 2002*, where the available doses of those vaccine types were initially mostly reduced-Thimerosal or, later, no-Thimerosal formulations, the inactivated-influenza vaccine doses that were recommended to be given to children starting at six (6) months of age were mostly Thimerosal-preserved doses.

6. *Though affected by inherent quantization granularity*, when there were more than 10 female-associated reports in VAERS, then the M/F ratios for the VAERS AEFI reports for "Autism" and "ASD" associated with an MMR inoculation exceed three ("3") just like the similar M/F ratios for "Autism" and "ASD" associated with VAERS AEFI reports that are linked to some Thimerosal-preserved vaccine inoculation(s).

Based on the preceding observations, the author of this essay postulates that, for those children with a regressive "Autism" or "ASD" diagnosis,

a. the major causal factor for those diagnoses were the bolus doses of Thimerosal in Thimerosal-preserved vaccines (and serums) to which the diagnosed children had been exposed from before birth onward;

b. the MMR-containing vaccines were a triggering or aggravating factor that increases the gastrointestinal symptoms exhibited by children whose regression was strongly associated with an inoculation with an MMR-containing vaccine; and

c. the aluminum-based adjuvants and other vaccine components are either a minor factor or a "non-factor" when it comes to the risk that a child vaccinated according to the recommended vaccination schedule in the USA will subsequently be given a regressive "Autism" or "ASD" diagnosis.

INTRODUCTION

Recently much has been made of an admission of the cover-up of a statistically significant finding in a paper purportedly assessing, *among other things*, the abnormal timing of the receipt of an MMR vaccine by a small group of African American males and their relative risk of receiving an "Autism/ASD" diagnosis[2].

Ignoring the fact that this "omitted" effect was most statistically significant in a group of African-American males, this effect has been portrayed as an "MMR vaccination causes autism" effect and a "racial" effect.

However, if anything, this effect was a timing effect that is more tied to the gender (male) of the significantly affected African-Americans, male and female, studied than it is to their racial background *per se*.

Furthermore, most seem to pretend not to have a clue as to what could have caused this racial difference in the outcomes observed.

Yet, to Dr. King, the cause of the disparity in outcomes is as "plain as the nose on your face": the typical significantly lower level of vitamin D (measured as the blood level of 25-hydroxy vitamin D) found in African Americans of all ages in this country[3] as compared to those who have skin pigmentation which promotes rather than suppresses the "natural" production of vitamin D, where lowered vitamin D levels have been shown to be a significant risk co-factor in a

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[2] On August 27, 2014, through his attorney, "Frederick M. Morgan,Jr., Morgan Verkamp, LLC, Cincinnati, Ohio", Dr. William W. Thompson, an epidemiologist studying vaccines, vaccinated-population outcomes and vaccine safety , who has been employed by the US Centers for Disease Control and Prevention (CDC) since at least the 1990s, published (http://www.morganverkamp.com/august-27-2014-press-release-statement-of-william-w-thompson-ph-d-regarding-the-2004-article-examining-the-possibility-of-a-relationship-between-mmr-vaccine-and-autism/) a short "Press Release" that, among other things, contained the following admission of scientific fraud,

"FOR IMMEDIATE RELEASE-AUGUST 27,2014

STATEMENT OF WILLIAM W. THOMPSON, Ph.D., REGARDING THE 2004 ARTICLE EXAMINING THE POSSIBILITY OF A RELATIONSHIP BETWEEN MMR VACCINE AND AUTISM

My name is William Thompson. I am a Senior Scientist with the Centers for Disease Control and Prevention, where I have worked since 1998.

I regret that my coauthors and I omitted statistically significant information in our 2004 article published in the journal *Pediatrics*. The omitted data suggested that African American males who received the MMR vaccine before age 36 months were at increased risk for autism. Decisions were made regarding which findings to report after the data were collected, and I believe that the final study protocol was not followed. …".

[3] See for example, http://jn.nutrition.org/content/136/4/1126.full.pdf+html, Harris SS. Vitamin D and African Americans. *J. Nutr*. 2006 April; 136(4): 1126-1129.

wide variety of medical diseases and disorders[4].

Moreover, when the subject of whether the MMR is the causal factor or some other factor, like prior or concomitant Thimerosal exposure, or other factors, like, *for example*, exposures to aluminum adjuvants or human DNA remnants, are causal, the typical answer is that these issues are complex.

Additionally, given all of the entities and their different levels in the many vaccines that are administered, many assert that there is no way to ascertain what the major factor or factors might be.

However, because a whistle blower has admitted the cover up of an apparent effect, *where "autism" and the timing of the administration of an MMR vaccine are what were epidemiologically studied*, some conclude that the MMR vaccine "must" have caused the statistically significant autism-risk signal that was observed and concealed by the study authors, who were employed by the US Centers for Disease Control and Prevention (CDC) when the study in question was published in 2004[5].

Furthermore, since this document is an expository article, *for the sake of brevity*, its assertions will not be comprehensively linked to the supporting literature[6].

Finally, this essay begins with the fundamental premise that: **a)** the gender-linked nature of the observations reported and **b)** the failure to assess the full vaccination history of the study participants combined to almost guarantee the CDC-employed researchers designed that 2004 study to obscure the importance of the other vaccines, or, *more specifically*, some toxic component in them, generally and/or specifically given prior to and/or with the MMR-containing vaccine inoculations.

This information was not assessed because the real major causal factor was, *as it has been all along*, the bolus doses of organic mercury (Thimerosal [49.55% organic mercury by weight]) in certain vaccines administered to children multiple times.

This factor was, has been, and still is, the major causal factor knowingly used by the CDC, the World Health Organization (WHO) and the pharmaceutical industry to continue their campaign to increase chronic disease in the people of the world in their ever-more-transparent and insatiable efforts to increase:

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4 For example, "Low Vitamin D Levels Linked to Disease in Two Big Studies", http://well.blogs.nytimes.com/2014/04/01/low-vitamin-d-levels-linked-to-disease-in-two-big-studies/?_php=true&_type=blogs&_r=0.

5 DeStefano F, Bhasin TK, Thompson WW, Yeargin-Allsopp M, Boyle C. Age at First Measles-Mumps-Rubella Vaccination in Children With Autism and School-Matched Control Subjects: A Population-Based Study in Metropolitan Atlanta. *Pediatrics* 2004 Feb; 113(2); 259-266. http://www.bowdiges.org/documents/files/Age_of_MMR_exposure_comparison_study.pdf.

6 Those seeking such links are encouraged to discover them for themselves in PubMed, Google Scholar and elsewhere. In addition, some of those links may be found in the previous "Publications" posted in http://dr-king.com.

a. Their profits by creating ever increasing epidemics of chronic disease that requires ever more profitable continual treatments to manage and

b. *With their fellow GMO food and pesticide purveyors, and endocrine-disrupting chemical makers*, their control of the population by making every person chronically ill — preferably from before they are born into this world but certainly as soon as possible thereafter.

INITIAL STUDY — VARIATION IN THE NUMBER OF VAERS "AUTISM" AND "ASD" REPORTS LINKED TO "MMR" VACCINE INOCULATIONS

In early 2014, some of those researchers with whom Dr. King collaborates approached him with an assertion that there appeared to be a causal linkage between MMR vaccination and the subsequent risk of a vaccinated child's being diagnosed with autism.

To examine the validity of that presumed linkage, knowing that the fundamental "nature" of the live-virus measles, mumps and rubella vaccine currently used in the USA, *Merck's M-M-R® II, live measles, mumps and rubella vaccine*, has changed little since the 1980s and that the follow-on MMRV vaccine, *Merck's ProQuad®* [approved in 2005 and little used in 2005 and 2006], simply adds an elevated level (over that found in the Merck's Varivax® vaccine) of the Merck strain of the alphaherpes varicella zoster virus (commonly abbreviated as VZV), Dr. King reviewed the Vaccine Adverse Events Reporting System (VAERS) database to find those MMR-associated adverse-event reports in children one (1) to two (2) years of age over the period from 1991 through 2006[7].

The summary results of those studies and Dr. King's cogent observations about the fluctuation in the number of those reports for the period from 1992 through 2006 are presented in **Table 1** on the next page.

Though this table is quite informationally dense, the bottom line is that, *as the color scheme used illustrates*, the change of the level (number) of MMR-associated adverse-event reports in VAERS was apparently "linked" to changes in the recommended levels of Thimerosal exposures that the affected infants had received before, with or after their initial MMR vaccination.

Based on the findings shown in **Table 1**, MMR-vaccination was certainly a contributory factor to the overall post-vaccination damage reported in VAERS for post-MMR-related adverse-event reports having "Autism" or "ASD" as an

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[7] The surveillance period and beginning date were, respectively, dictated by the need to have complete year of reports and the fact that, before 1991, the VAERS database is sparsely populated with ever fewer adverse events since this database, mandated by the National Vaccine Injury Act of 1986 (42 U.S.C. § 300aa-10 through § 300aa-34) as amended and jointly administered by the US Food and Drug Administration and the CDC, was slow to be set up.

included adverse outcome.

However, the primary causal factor clearly seems to be associated with the recommended level of exposure to the Thimerosal-preserved vaccines added on top of the recommended DTP/DTaP/DT vaccination programs' doses of Thimerosal-preserved (and aluminum adjuvanted) vaccines.

These additions included multiple doses of a Thimerosal-preserved hepatitis B [Hep B] vaccine (three doses; nominally adding 75 micrograms [µg] of Thimerosal [37.5 µg of organic mercury {Hg} exposure]) and a *Haemophylis influenzae* type B vaccine [Hib] (four doses; nominally adding 200 micrograms (µg) of Thimerosal [100 µg of organic Hg] exposure).

Table 1 Distribution of "Autism/ASD"-related Reports after MMR Vaccination (& Other Vaccines' Inoculations) for Children 1 to less than 2 Years of Age

Comments on Those Vaccines Given	**DTP, DTaP, DT, TT, Hep B & Hib vaccines were mostly THM-preserved; there was a Hib-Hep B vaccine that was a No-THM vaccine. In 1997, THM-preserved flu shot was added for all women in their 2nd or 3rd trimesters of pregnancy during the "flu" season.**									**Change from THM-preserved vaccines to Reduced-THM vaccines – effective in late 2003 & thereafter. THM-preserved flu shot added for children 6 to 23 months of age in 2002 (when feasible)**					
Year of Inoculation	**1992[1]**	**1993[1]**	**1994[1]**	**1995[1]**	**1996[1]**	**1997[2]**	**1998[2]**	**1999[2]**	**2000**	**2001**	**2002[3]**	**2003[3]**	**2004[3]**	**2005[3]**	**2006[3]**
Reports of Autism after MMR Inoculation	**7**	**7**	**5**	**13**	**22**	**28**	**35**	**28**	**26**	**18**	**24**	**13**	**13**	**13**	**15[4]**

[1] Increasing coverage for Hib and Hep B vaccines.

[2] Hib & Hep B coverage stabilizes and, in 1997, CDC recommends giving THM-preserved flu shots to women in their 2nd & 3rd trimesters of pregnancy.

[3] Reduced-THM vaccines begin to predominate for Tap, Hib & Hep B but effect is offset by a recommendation to give children 6 to 23 months of age a THM-preserved flu shot in 2002 (when feasible) and reiteration of recommendation to give THM-preserved flu shot to women in their 2nd & 3rd trimesters of pregnancy.

[4] For children 1-2 years of age in a separate search.

Thimerosal-preserved Hep B and Hib were added to, and primarily used in, the early childhood vaccination schedule[8] starting from birth and typically ending before the vaccinated children in the USA were 18 months of age in the period from 1990 through 2003 when the last doses of these Thimerosal-preserved vaccines were mostly replaced by reduced-Thimerosal doses.

However, starting in 2002, the CDC began making a recommendation for, *when feasible*, the annual inactivated-influenza vaccine inoculation of children 6 to 23 months of age.

[8] Ironically, had Merck's COMVAX®, "[HAEMOPHILUS b CONJUGATE (MENINGOCOCCAL PROTEIN CONJUGATE) and HEPATITIS B (RECOMBINANT) VACCINE]" [from Merck's package insert, which has still not been updated to the current FDA-approved format] approved by the US Food and Drug Administration (FDA) 6 October 1996, have been exclusively used for the 2, 4 and 6 month doses of Hib – satisfying the requirement for hepatitis B vaccination at 2 and 4 months – then the children's overall additional early-childhood maximum Thimerosal exposure in the period from 1997 through 2003 could have been reduced to nominally 75 µg [37.5 µg of organic mercury] (from one "at birth" Thimerosal-preserved hepatitis B vaccine dose and the fourth dose of a Thimerosal-preserved Hib) – a 200-µg reduction in Thimerosal exposure [a 100-µg reduction in organic mercury exposure]. However, in the 1980s and most of the 1990s, there was no pervasive concern about the increasing exposures to Thimerosal from Thimerosal-preserved vaccines.

Moreover, the CDC's 2002 recommendations reiterated its recommendation, first announced in 1997, that essentially all pregnant women should get an inactivated-influenza vaccination in their second and third trimesters of pregnancy (in the "10-month" flu season) when most all of the available FDA-approved inactivated-influenza doses were Thimerosal-preserved doses.

Coincidentally, though the diagnoses of the adverse outcomes occurred later, at a time when the Thimerosal exposure from Thimerosal-preserved early childhood vaccines was declining (the 2001 data point in **Table 1** ["18"] as compared to the 2000 data point ["28"]), there was a significant uptick (the 2002 data point in **Table 1** ["26"]) in MMR-associated "Autism" reports found in VAERS.

This variation in MMR-related adverse reports occurred even though the vaccination coverage levels for the initial MMR-containing vaccines were "constant" as were the coverage levels for the DTP/DTaP/DT, hepatitis B, and Hib vaccines in the 2000s.

Based on this finding, Dr. King began to examine how this "apparent" reality could be confirmed in a manner that separated out the "causative" effects of Thimerosal (organic Hg), and the MMR-containing vaccines (M-M-R II and ProQuad)[9].

The following presumptions, investigations and findings seem to clearly establish that Thimerosal exposure was the major causal factor for the inherently regressive "Autism/ASD" reports in VAERS.

However, *based on symptoms reported in the VAERS entries associated with MMR vaccination*, the MMR-containing vaccine was a significant contributing factor.

However, aluminum adjuvants were <u>not</u> found to be a significant driver for increased "Autism/ASD" reports in VAERS from the mid-1990s onward.

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9 In this article, the focus will be on using a key differentiating factor (Male to Female ratio) to separate reports where Thimerosal (organic mercury) is the major causative factor from those where the MMR and adjuvant exposures were possibly significant factors. The information in the MMR-related adverse-event reports can then be used to separate those reports where the MMR was a significant contributory factor to the "autism" diagnosis (e.g., post-incubation-period high fever coupled with immediate post-adverse-event regression) from those reports in which MMR vaccination was, at best, a regression-accelerating factor for "autism" or, for those who were diagnosed with the onset of "autism" before their first MMR vaccination, a non-factor.

Since a recent study (<u>see</u> footnote "**21**") found that more than doubling the aluminum level (to 500 µg of aluminum per dose in the 2-phenoxyethanol-preserved DTaP vaccine vs 230 µg of aluminum in the Thimerosal-preserved DTaP) while replacing the Thimerosal with 2-phenoxyethanol as the preservative resulted in a significantly reduced subsequent risk of an "autism" diagnosis, there appears to be <u>no</u> significant increase for an "autism" diagnosis associated with the level of aluminum-adjuvant exposure in a DTaP program that had administered these vaccines in similar periods of time.

While there may be medical "costart" terms that are uniquely associated with the overall level of aluminum-adjuvant exposure in children, the major causal factor for a subsequent report in VAERS for a diagnosis of "Autism/ASD" is Thimerosal with MMR-vaccination being, at best, a contributory triggering or aggravating factor.

Moreover, changes in these other components did not account for the pattern of decreases and increases seen in the "Autism/ASD" reports in VAERS linked to the MMR/MMRV-vaccination during the period from 2001 through 2006 (see **Table 1**).

THE BASIS PRESUMPTIONS FOR CAUSAL LINKAGE OF "AUTISM/ASD" REPORTS IN VAERS TO THIMEROSAL BOLUS-DOSE EXPOSURES

The following outline briefly presents the basis presumptions used to assign relative causal weight for the Thimerosal exposures, the aluminum adjuvants, and the MMR vaccine inoculations per se.

Lacking any *definitive* evidence that, during the period in which the children studied by the CDC received their vaccines, other ingredients were (or could have been) significant causal factors and seeing no *definitive* evidence that the change in the manufacture of one of the components of the MMR vaccine to use a human-related cell line caused a significant change in the adverse events or adverse-event patterns associated with the MMR vaccine, this discussion will be restricted to these three (3) factors and their apparent contribution to the VAERS-reported "Autism/ASD"-related adverse outcomes observed.

A. Presumptions for the gender-related adverse health impacts of components by themselves in an animal or human study:

1. For annealed polymeric hydrated hydroxyaluminum salt used as adjuvants (not non-annealed polymeric hydrated hydroxyaluminum salts, not non-polymeric aluminum salts, and certainly not toxic organo-aluminum compounds that have been used in some studies): Male-to-female gender ratio: ≤ 1.0[10].

2. For the MMR & MMRV vaccines made by Merck: Male-to-female gender ratio: ≤ 1.2[11].

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[10] Using the recent findings from studies in VAERS where comparisons of the autism risk for DTAP vaccines that: **a)** only removed the preservative level of Thimerosal but left the rest of the formulation the same or **b)** replaced the Thimerosal with a preservative level of 2-phenoxyethanol and increased the aluminum adjuvant level from 230 µg of aluminum in the Thimerosal-preserved vaccine case to 500 µg of aluminum in the 2-phenoxyethanol instance to the Thimerosal-preserved vaccines used prior to 2000 found a similar reduced risk in both instances indicating that the effect on the risk for an "autism" risk was not significantly affected by the increased level of aluminum in the "**b)**" study.

[11] Example of an instance where the adverse reaction associated with the MMR or MMRV vaccination appears to be independent of the adverse effects of the prior or concomitant Thimerosal (and aluminum adjuvant) exposures or the increase in cases in males leaves the M/F ratio less than 1.2, a search of the VAERS database for "Idiopathic thrombocytopenic purpura (10021245)" reports in children under 18 years old associated with the MMR/MMRV vaccination for the period 1991 through 2013 found 74 reports, 37 male and 37 female (M/R gender ratio = 1.000. Similarly, a search using "Thrombocytopenia (10043554)" found a 122 reports in VAERS and a M/F ratio of 1.440 for the period 1992-2000, where the early childhood exposure to Thimerosal was at its highest, but only 61 reports in VAERS and a M/F ratio of 0.9677 for the period 2001-2013, when the maximum Thimerosal exposure was significantly

3. For Thimerosal & other mercury compounds: Male-to-female gender ratio: ≥ 1.9, usually > 3.0, and the magnitude of that gender ratio appears to be roughly dependent on the children's total exposure to Thimerosal as well as the timing of their separate bolus-dose Thimerosal exposures.

B. Presumptions for adverse neurodevelopmental impacts of multiple exposures in developing humans (based on limited studies):

1. For the annealed polymeric hydrated hydroxyaluminum salts used as adjuvants: After some initial doses, additional doses simply incrementally add to the effects seen in prior doses.

If such adjuvants were the principal cause for "Autism" and "ASD" diagnoses, then, *in countries like Denmark*, which stopped using Thimerosal-containing childhood vaccines, the true incidence rates of "ASD" cases would have either gone sidewise or increased.

However, in fact, the incidence of "ASD" cases in children in Denmark significantly declined after the Thimerosal-preserved childhood vaccines were completely replaced with no-Thimerosal vaccines [which still contained an aluminum adjuvant] (from "1.5%" at the peak for the ASD <u>instances</u> from exposure to Thimerosal-preserved early childhood vaccines in "1994-1995", *when many of Danish children continued to get Thimerosal-preserved early childhood vaccine exposures*, to "1.0%" in 2002-2004[12], *when they did <u>not</u>*).

2. For those who are seriously adversely impacted by an initial MMR or MMRV vaccine inoculation truly administered alone [<u>without</u> any prior or concomitant doses of Thimerosal-pre-

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less on average – indicating that, had the vaccines administered had <u>no</u> Thimerosal and <u>no</u> adjuvant that the M/F ratio for the MMR/MMRV vaccine probably would have been < 0.968.

12 Gronborg TK, Schendel DE, Parner ET. Recurrence of Autism Spectrum Disorders in Full and Half-Siblings and Trends Over Time A Population-Based Cohort Study. JAMA Pediatr. doi:10.1001/jamapediatrics.2013.2259. Published online August 19, 2013. The tabulated data for period, cases, population and ASD prevalence was taken from "Table 3. Description of the Study Cohort, With the ASDs ... in Danish Families Among Births From 1980 to 2004" and is emphasized in the following table.

Birth Year of the index Child	No. of Births	No of Cases	Prevalence % (95% CI),
1980-1984	265,223	782	0.3 (0.3)
1985-1989	285,047	1,765	0.7 (0.6)
1990-1991	127,642	1,228	1.0 (0.9)
1992-1993	135,024	1,515	1.2 (1.1)
1994-1995	139,393	1,864	1.5 (1.4)
1996-1997	135,376	1,681	1.4 (1.3)
1998-1999	132,573	1,542	1.3 (1.2)
2000-2001	132,625	1,386	1.2 (1.1)
2002-2004	193,764	1,401	1.0 (0.9
Overall	1,546, 667	13,164	1.2 (1.2)

served and/or aluminum-salt-adjuvanted vaccines, there usually should be an increased second-dose (re-challenge) adverse effect for a second dose administered at any time after an initial-dose that truly caused a serious adverse reaction.

However, *in those children who are <u>not</u> significantly negatively impacted by the first dose of MMR or MMRV*, the observed second-dose adverse effect of MMR vaccination was usually relatively small and might, *when there was a significant delay between doses*, actually be smaller than the initial dose's adverse effect.

Nonetheless, based on clinical studies[13,14,15], certain adverse impacts of an initial MMRV inoculation are twice those of initial inoculation with an MMR vaccine and the adverse impacts of administration of first dose at "16-24" months are twice those at "12-15" months, although measles protection is generally enhanced when the MMR-containing vaccines' administration is postponed until the otherwise healthy child is two (2) years of age or older before the initial MMR/MMRV dose is given.]

3. For truly low-level injected-Thimerosal-bolus-doses, *such as those found in Thimerosal-preserved vaccines*, which are given at any time, *absent some exacerbating factor*, the resulting organic-mercury-related adverse effects are slow to develop[16].

Moreover, the effects are greater for *in utero* exposure than they are for at-birth or early childhood exposure (based on the relative risks associated with the previously Thimerosal-preserved Rho(D) serums and the current Thimerosal-preserved inactivated-influenza vaccines that are being given to pregnant women and the at-birth and later Thimerosal-preserved Hep B and Hib vaccines given to neonates shortly after birth).

For multiple post-natal exposures given during childhood

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13 Jacobsen SJ, Ackerson BK, Sy LS, et al. Observational safety study of febrile convulsion following first dose MMRV vaccination in a managed care setting. *Vaccine* 2009; 27: 4656–4661.

14 Klein NP, Fireman B, Yih WK, et al. Measles-mumps-rubella-varicella combination vaccine and the risk of febrile seizures. *Pediatrics* 2010; 126: e1–e8.

15 Hambidge SJ, Newcomer SR, Narwaney KJ, Glanz JM, Daley MF, Xu S, Shoup JA, Rowhani-Rahbar A, P Klein N, Lee GM, Nelson JC, Lugg M, Naleway AL, Nordin JD, Weintraub E, DeStefano F. Timely versus delayed early childhood vaccination and seizures. *Pediatrics*. 2014 Jun; 133(6): e1492-e14999. doi: 10.1542/peds.2013-3429. [http://pediatrics.aappublications.org/content/133/6/e1492.long]

16 For example, in those instances where Iraqis ate bread made from wheat seed treated with sparingly soluble ethylmercury-based fungicides, the adults consumed the grain for more than a month before they began to exhibit the symptoms of chronic mercury poisoning.

development, based on the Hep B series, the effects for equal doses initially appear to be about constant but, owing to the administration of other Thimerosal-containing doses before 12 months of age, the effect increases significantly at first but then, *absent a change in the recommended vaccination schedule or some other exacerbating factor*, becomes a lesser percentage of the overall adverse effects for ongoing early childhood exposures to Thimerosal in vaccines[17].

C. With respect to MMR/MMRV-linked adverse-event reports linked to "Autism and ASD" in VAERS, there appear to be three (3) general types of adverse regressive developmental response patterns that emerge after the first MMR vaccination was given, **a)** the child gradually begins to regress over time; **b)**, when, *following an appropriate incubation period after an MMR or MMRV inoculation (6 to 21-plus days)*, the child has a high fever and/or some other serious adverse side effects (e.g., seizures, projectile vomiting and/or severe diarrhea), the affected child rapidly and severely regresses often with bowel-disease involvement; or **c)** "immediately" (0 to 1 days) after a vaccination session, the child has a severe adverse reaction to the vaccine or vaccines he or she has been given, which, at a minimum, include the live-virus measles, mumps and rubella components, <u>before</u> the onset of the recognized MMR-vaccine-related "incubation" period has been reached[18].

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17 In the period from 1991 through 2001, the initial Thimerosal exposure for a child vaccinated according to the CDC's recommended schedule <u>was</u> 425 to 507-plus micrograms (µg) by the child's first birthday. After the Thimerosal-preserved vaccines were replaced by the reduced-Thimerosal vaccines and, in 2002, a recommendation to vaccinate infants six (6) to 23 months of age annually with inactivated-influenza vaccines delivering 25 µg of Thimerosal per 0.25-mL dose and pregnant women were recommended to take the 0.5-mL doses of Thimerosal-preserved inactivated-influenza vaccines exposing the fetus to up to 50 µg of Thimerosal or roughly 75-plus µg of Thimerosal in the period from 2002 through 2005. In 2006, the CDC recommended that children get two (2) 0.25-mL doses of inactivated influenza vaccines instead of one (1) dose and widened the age range to 6 to 35 months. This doubled the initial dosing and increased the doses of influenza vaccine infants could receive, upping the children's nominal exposure by one year of age to 100-plus µg of Thimerosal with an additional 25 to 50 µg of Thimerosal exposure before the children's third birthday. More recently, the CDC has widened the childhood vaccination age-range to every flu season with annual exposures to 50 µg doses of Thimerosal for those three (3) years of age and older. In 2009, a pandemic single-strain (A H1N1 2009) influenza vaccine was also recommended to be given to pregnant women and children with children under nine (9) years of age were recommended to get two (2) doses. Since the majority of the doses of that pandemic inactivated-influenza vaccine were Thimerosal-preserved, these recommendation increased the children's maximum Thimerosal exposure by another 50 to 100 µg. Moreover, the doubled Thimerosal exposure that the developing fetuses received during the 2009—2010 influenza season resulted in almost an order of magnitude increase in fetal losses – clearly indicating that Thimerosal exposure during pregnancy was toxic to the developing children carried in their mother's womb. Finally, exposure to certain antibiotics and the use of J&J's Tylenol® or generic acetaminophen is known to interfere with the human body's ability to excrete mercury and sub-optimal levels of vitamin D are known to increase the risk of a child's getting an "autism" diagnosis.

18 Based on a review of some MMR-associated adverse-event-reports' patterns reported after the first

D. Since "Autism" and "ASD" are generally perceived to be "permanent disabilities" when the child is first diagnosed in VAERS, we can look at the gender ratios for males-to-females for those with a diagnosis of "Autism" or "ASD" in the category "Permanent disability" as well as with the total numbers of these diagnoses to see what these "gender" ratios are when:

1. Thimerosal-containing [THM-c] vaccines and "one" MMR or MMRV (MMR-c) vaccine were administered before the children were 3.75 years of age for the "multiple-THM-c plus 'one (1)' MMR-c" males-to-females ratios, and

2. The children are three (3) years and nine months to less than 7 years of age and multiple-THM-c vaccines and generally two (2) MMR-c vaccinations (2 MMRs, or 1 MMR and 1 MMRV, or 2 MMRVs) are administered for the "multiple-THM-c plus multiple MMR-c" males-to-females ratios.

provided an adequate follow-up time has elapsed (at least 7.5-plus years [limiting us to examining the data from 1992[19] through 2007]).

GENDER RATIOS FROM VAERS REPORTS OF "AUTISM" AND "ASD"

When those examinations were done, the male-to-female gender ratios (M/F ratios) observed were those reported in **Table 2** on the next page.

Clearly, given the M/F ratios observed in this VAERS analysis, it seems that Thimerosal is by far the major causal factor for the subsequent "Autism" and "ASD" diagnoses described in VAERS reports from the period from 1992 through 2007, where adequate follow-up times have elapsed to allow those who choose to report to VAERS to have reported essentially all of the cases that will present themselves to the adverse-event recorders.

Moreover, the overall Thimerosal exposure level was fluctuating in a manner that, *on balance*, indicated an intermittent overall exposure decline in the period from 2001 through 2007.

MMR or MMRV vaccination, there are often signs of susceptibility to mercury-poisoning (a note that an older sibling has an autism, ASD or PDD or another adverse neurodevelopmental diagnosis); or of mercury poisoning before MMR is given (e.g., milk allergy, reaction to previous DPT shot; and/or multiple ear or other continual infections following earlier Thimerosal- and adjuvant-containing vaccine inoculations).

19 The problems associated with examining the adverse-event records for reports containing the costart terms, "Autism" & "ASD" in the Vaccine Adverse Events Reporting System (VAERS) database before 1992 are that: **a)** the database was only sparsely populated before 1991 and, in 1991, there were only five (5) total adverse-event reports for the category "Autism" plus "ASD" rendering any value found highly uncertain. This lack–of-reports problem resurfaces in the data for 2008 through 2013 partly because the available follow-up period is inadequate to ensure that almost all of the "Autism and ASD" reports or, *for that matter*, almost all of the "permanent" disability or "Autism" and "ASD" reports that will ever be submitted to VAERS have been entered into the VAERS database.

However, the minimum M/F ratios for "Autism/ASD" did not drop below "2" and the number of reports to VAERS seemed to *roughly* track the relative Thimerosal-exposure changes arising from: **a)** changes in the composition of certain vaccines that were previously Thimerosal-preserved and **b)** the addition of Thimerosal-preserved influenza vaccine to the recommended vaccination schedule for pregnant women and infants[20].

Table 2 Information from VAERS search in children in the USA & Puerto Rico for Autism & ASD diagnoses for MMRR/MMRV and Thimerosal-[THM]-Preserved/THM-containing Vaccines 1992 – 2007.

	Multiple THM-containing & "One (1)" MMR/MMRV Vaccinations		More THM-containing & "Multiple" MMR/MMRV Vaccinations		
	0 to < 3.75 years of age Gender Ratio[1] (# males)		0 to < 7 years of age Gender Ratio[1] (# males)		
Inoculation Year	Permanent Disability Reports	Total Autism and ASD Reports	Permanent Disability Reports	Total Autism and ASD Reports	Notes
1992	6.000 (12)	3.750 (15)	7.000 (14)	3.400 (17)	MMR uptake stable for 1 dose & nearing 90 % uptake 2nd dose. However, uptake of Hepatitis B and Hib THM-preserved early childhood vaccines increasing until ~1996–1997. In 1997–1999, the level of coverage of the early childhood vaccines was "stable". Late in 2002, some doses of reduced-THM flu vaccines became available and, in 2002, the CDC started recommending the THM-preserved influenza vaccines be given to young children.
1993	11.000 (11)	4.333 (13)	11.000 (11)	4.666 (14)	
1994	4.666 (14)	5.750 (23)	3.750 (15)	4.800 (24)	
1995	3.400 (17)	3.666 (22)	4.000 (20)	4.166 (25)	
1996	7.500 (30)	6.666 (40)	8.000 (32)	7.000 (42)	
1997	6.833 (41)	5.300 (53)	7.500 (45)	5.273 (58)	
1998	6.400 (32)	7.875 (63)	7.200 (36)	8.222 (74)	
1999	9.000 (45)	8.125 (65)	9.200 (46)	8.375 (75)	
2000	3.777 (34)	3.697 (48)	3.091 (34)	3.266 (49)	
1992-2000 Mean (SD_{n-2})	6.508 (2.625 [SD_{n-2}])	5.462 (1.890 [SD_{n-2}])	6.749 (2.838 [SD_{n-2}])	5.463 (2.081 [SD_{n-2}])	SD_{n-1} corrected to SD_{n-2} because gender ratios are being evaluated, the correction is SD_{n-1} x SQRT [(n-1)/(n-2)] = SD_{n-1} x 1.069044968.
2001	4.000 (24)	4.200 (42)	3.000 (24)	3.308 (43)	In 2001-2007, THM level in early childhood vaccines declined but THM-preserved influenza vaccine uptake was increasing throughout this period. In general, the need for a sufficient follow-up period and the entry of reports into VAERS limits a study to years that are **≥ to 7.5 years** in the past. [Note: Need to re-evaluate 2007 data in mid-2015. Furthermore, the M/F ratios in this period are more much variable because of variations in the vaccination recommendations.]
2002	13.500 (27)	7.167 (43)	14.000 (28)	7.333 (44)	
2003	3.500 (21)	4.125 (33)	4.000 (24)	4.500 (36)	
2004	4.667 (14)	4.000 (20)	5.000 (15)	4.200 (21)	
2005	1.852 (13)	1.909 (21)	1.857 (13)	2.000 (22)	
2006	7.500 (30)	7.400 (37)	7.750 (31)	6.333 (38)	
2007	10.000 (20)	10.000 (30)	10.000 (20)	10.000 (30)	
2001-2007 Mean (SD)	6.431 (4.526 [SD_{n-2}])	5.543 (3.012 [SD_{n-2}])	6.515 (4.741 [SD_{n-2}])	5.382 (2.965 [SD_{n-2}])	SD_{n-1} corrected to SD_{n-2} because gender ratios are being evaluated, the correction is SD_{n-1} x SQRT [(n-1)/(n-2)] = SD_{n-1} x 1.095445115.

[1] In this analysis, the few reports in some years with an "Unknown" gender identifier were excluded from the M/F ratio calculation.

In addition, the nominal increases for the per-dose amount of the annealed

[20] For example, an increase in M/F ratios for children vaccinated in 2002 when CDC's ACIP made a recommendation to vaccinate all children 6 months of age to 23 months of age when almost all of the available influenza vaccine doses were Thimerosal-preserved doses.

hydrated polymeric hydroxyaluminum salts used as adjuvants in some of the no-Thimerosal vaccine formulations that replaced the Thimerosal-preserved vaccines that were being administered in the late 1990s do not seem to be increasing the "Autism/ASD"-related adverse-event reports for vaccines that were previously associated with the corresponding Thimerosal-preserved vaccines[21].

Furthermore, there was clearly no obvious major increase in the numbers of "Autism/ASD"-related VAERS adverse-events reports in those between 3.75 and seven (7) years of age, when children are scheduled to get a second MMR shot.

Based on the observed gender-ratio realities, it is appears that the "MMR-inoculation timing effect" reported to have been inappropriately removed from a 2004 CDC-generated study that violated its protocol is obscuring the reality that the effect is actually a Thimerosal-exposure effect.

This observation is based on the *reported* reality that: **a)** the incidence of autism-related diagnoses apparently declined in the USA after 2000[22], and **b)** only African-American males were found to have a significantly elevated risk of an autism diagnosis – but not African-American females.

IF the MMR vaccine were truly a causally related MMR-vaccination-timing effect, *which has been misreported as an MMR-vaccination effect even though no assessment was made of the levels of exposure of those children to the various Thimerosal-containing vaccines*, THEN there should have been some comparable effect seen for African-American females.

Yet, there was no such "increased risk" for African-American females.

Moreover, a lesser effect was seen and reported for males overall in the original 2004 article but no such effect was seen in females overall.

Turning to the search results for the VAERS search conducted (see **Table 2**), the maximum number of VAERS "Autism/ASD" adverse-event reports for males occurred in those vaccinated in 1999.

Furthermore, a general decline in "Autism/ASD" reports from that point going forward indicates that, *as the findings in a recent epidemiological study in VAERS support (see footnote "**22**")*, the level of "Autism" appears to have declined as the maximum exposures to Thimerosal (THM) in the recommended early childhood vaccination program have decreased.

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21 Geier DA, Hooker BS, Kern JK, King PG, Sykes LK, Geier MR. A two-phase study evaluating the relationship between Thimerosal-containing vaccine administration and the risk for an autism spectrum disorder diagnosis in the United States. *Translational Neurodegeneration* 2013 Dec. 16; 2:25 (12 pages). [http://www.biomedcentral.com/content/pdf/2047-9158-2-25.pdf.] In the first phase, where the risk of an "autism" diagnosis after a Thimerosal-preserved DTaP vaccine was compared to the risk of an "autism" diagnosis after a 2-phenoxyethanol-preserved DTaP vaccine that nominally contained 2.17 times as much aluminum adjuvant as the Thimerosal-preserved vaccine, the risk for an "autism" diagnosis was significantly less for the 2-phenoxyethanol-preserved vaccine.

22 Geier DA, Kern JK, King PG, Sykes LK, Geier MR. The risk of neurodevelopmental disorders following a Thimerosal-preserved DTaP formulation in comparison to its Thimerosal- reduced formulation in the vaccine adverse event reporting system (VAERS). *J Biochem Pharmacolog Res*. 2014Jun; 2(2): 64-73. http://researchpub.org/journal/jbpr/number/vol2-no2/vol2-no2-3.pdf.

In addition, the absence of a large increase in "Autism" reports after the second MMR-containing vaccine inoculation also confirms that the MMR-containing vaccine was not a major causal factor in the "Autism/ASD" AEFI reports submitted to, and posted in, the VAERS database

However, though a rough indicator of "Autism/ASD" reports, the category "Permanent Disability" did not adequately capture all of the "Autism/ASD" reports because, *contra-intuitively*, many of the "Autism/ASD" AEFI reports were not classified as "permanent disability" reports in VAERS.

Therefore, the attempt to use the "short cut" of the report category of "permanent disability" as a "surrogate" for the "Autism/ASD" AEFI reports was abandoned.

THE VARIATION OF GENDER RATIOS FROM VAERS REPORTS OF "AUTISM" AND "ASD" AS A FUNCTION OF THE AGE AT INOCULATION

Next, Dr. King conducted a 12-level[23] childhood vaccination-age-range timing study for reports in VAERS for the THM-containing vaccines and the MMR-containing vaccines as shown in **Table 3** on the next page.

The age ranges selected cover the childhood vaccination program in a manner that, in the early intervals, spans the nominal target dates for the administration of THM-preserved early childhood vaccines before 2004 and THM-preserved inactivated-influenza vaccines from 2002 onwards.

Again, *based on the M/F gender ratios observed*, when there were more than 2,500 MMR and MMRV reports in any age range, the observed ratios of males to females indicated that the Thimerosal that these children were given earlier or with their MMR or MMRV inoculation was the major causal factor.

Moreover, *based on a review of some of the MMR-containing vaccine reports*, the MMR-containing vaccine inoculation along with the other vaccines given were concomitantly acting as:

- **a.** More immediate neurodevelopmental-regression triggering agents (typically, when, after an appropriate incubation period, the child suddenly developed a high fever and gastrointestinal symptoms);
- **b.** A harm-aggravating agent when:
  - **i.** there was no high fever but the child's slow loss of attained skills and language became apparent in the months following the last MMR-containing vaccine given to the child or
  - **ii.** a fever occurred "immediately" indicating that it was triggered by other than the post-inoculation incubation-period

[23] The twelve (12) age ranges were: 0 – <0.09 year (yr); 0.09 – <0.40 yr; 0.40 – <0.60 yr; 0.60 – <1.1 yr; 1.1 – <1.6 yr; 1.6 – <2.1 yr; 2.1 – <3.1 yr; 3.1 – < 3.75 yr; 3.75 – <5.5 yr; 5.5 – <7 yr; and 7 – <18 yr).

Table 3(a) Autism & ASD Reports from 4 September 2014 Searches of VAERS for Period from 1991 through 2013

FDA-approved, CDC-recommended Childhood Vaccines That Contain or Contained Thimerosal (THM-c) [1]

Interval (years) ➔	0.00 – < 0.09 [2]	0.09 – < 0.25	0.25 – < 0.40	0.40 – < 0.60	0.60 – < 1.10	1.10 -- < 1.60	1.60 -- < 2.10	2.10 -- < 3.10	3.10 -- < 3.75	3.75 -- < 5.50	5.50 – < 7.00	7.00 -- < 18.0
Males	18	53	15	47	76	191	43	22	---	27	6	5
Females	4	15	6	13	17	28	9	2	---	3	1	3
Unknown	0	0	1	0	0	1	0	2	---	0	0	0
M/F Ratio [1]	4.500	3.533	2.142 – 2.666	3.615	4.529	6.586 – 6.857	4.778	5.500 – 12.000	---	9.000	6.000	1.666
Total Autism & ASD Reports	22	68	22	60	93	220	52	26	0	30	7 [3]	8 [4]
Total VAERS THM-c Reports	612	13,644	6,311	10,270	10,210	15,929	7,256	3,518	551	27,063	3,166	14,147
% of Total that are Autism & ASD reports	3.594	0.498	0.348	0.584	0.910	1.381	0.716	0.739	"0"	0.110	0.0258	0.0565

[1] Thimerosal-preserved early childhood vaccines recommended and available at multiple intervals from birth through 7 years in 1991 – 2003 with Thimerosal-preserved inactivated-influenza vaccines starting in 1997 for pregnant women and , in 2002 for children 6-23 months of age and then expanded such that by 2009, children up to 9 years were recommended to get an annual flu shot and, in 2009, extra doses of a mostly Thimerosal-preserved pandemic influenza vaccine, where, to this day, most inactivated-influenza doses are still Thimerosal-preserved doses but, for older children, the recommendation for an annual influenza vaccine was only effective for the end of 2011 and onward. Hence, multiple exposures to Thimerosal was almost a given in all intervals.

[2] The general formula for the Males-to-Females Ratio (M/F Ratio) is M/(F+U) to (M+U)/F when there are entries where the child's gender is missing. When the "unknown" (U) is "zero", that formula reduces to simply M/F.

[3] Note: Coincidentally, no Autism/ASD reports were entered into VAERS for children vaccinated in the first month of life after 2003, when last of Thimerosal-preserved hepatitis B vaccine doses expired.

[4] Only sporadic Autism/ASD reports in VAERS for those vaccinated during this period [5.5 to < 7 years of age] in 1994, 1995 (2), 1997, 1998, 2003, 2005

[5] Only sporadic Autism/ASD reports in VAERS for those vaccinated during this period [7 to < 18 years of age] in 1994, 1996, 1997, 1998 (2), 1999, and 2000 (2).

Table 3(b) From Reports of Inoculation with FDA-approved, CDC-recommended Childhood MMR & MMRV Vaccines (MMR-c)

Interval (years) ➔	0.00 – < 0.09 [6]	0.09 – < 0.25 [6]	0.25 – < 0.40 [6]	0.40 – < 0.60 [6]	0.60 – < 1.10	1.10 -- < 1.60	1.60 -- < 2.10	2.10 -- < 3.10	3.10 -- < 3.75	3.75 -- < 5.50	5.50 – < 7.00	7.00 -- < 18.0
Males	1	2	3	2	84	184	25	17	1	30	7	5
Females	0	3	1	0	20	28	5	3	0	9	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
M/F Ratio	Not defined [ND]	0.666	3.000	ND	4.200	6.571	5.000	5.666	ND	3.333	ND	5.000
Total Autism & ASD Reports	1 [7]	5 [8]	4 [9]	2 [10]	104	212	30	20	1 [11]	39	7	6
Total VAERS MMR-c Reports [6]	70	120	70	84	7,628	12,091	2,545	1,109	171	20,842	1,617	3,784
% of Total that are Autism & ASD Reports	1.428	4.166	5.714	2.380	1.363	1.753	1.178	1.803	0.584	0.1871	0.4329	0.1585

[6] Measles vaccine administration generally contraindicated before the child is 9 months of age with the normal recommended inoculation windows being 12-15 months (1.00-1.25 year) for the first dose and 4-6 years of age for the second dose.

[7] Administered in 1999 when a THM-c hepatitis B vaccine was also being given in the first month of life.

[8] Only sporadic reporting Autism/ASD reports in VAERS for those vaccinated during this period [0.09 to < 0.25 years] in 1991 (2), 1996, and 1998 (2).

[9] Only sporadic reporting Autism/ASD reports in VAERS for those vaccinated during this period [0.25 to < 0.40 years] in 1998, 2003 (2), and 2010.

[10] Only sporadic reporting Autism/ASD reports in VAERS for those vaccinated during this period [0.40 to < 0.60 years] in 1996 [MMR, DPP&HIB @ 6 months] and 2001 [MMR, DTAP, IPV, PNC & VARCEL, where the bolded abbreviations were Thimerosal-preserved vaccines].

[11] This is a 1999 report that showed a 3.5-yr-old male was given MMR and VARCEL inoculations that were noticed to start regression in the inoculated child. Highly probable that this child had previously been given THM-c vaccines.

effects of a live-virus measles, mumps, and/or rubella infection or, *for an MMRV vaccination*, a measles, mumps, rubella and/or chickenpox infection *per se*; or

c. Both a triggering and an aggravating agent when both immediate and incubation-related adverse effects were observed.

A Study of VAERS "Autism and ASD" Reports and "Overall" VAERS "Adverse Event" Reports by Year of Inoculation

Finally, Dr. King undertook another review of the VAERS "Autism/ASD" reports over the period from 1992 through 2013 where the overall reports or, *after the HPV vaccines were introduced*, the HPV-reduced overall reports for 2006-2013 were used as surrogates for some reasonably constant unknown reported fraction of the level of events that occurred annually

Other than requiring the removal of one (1) of the female "Autism" reports from the 2007 set because this was a report following inoculation with the HPV4 and MQ4 vaccines (not an MMR-containing vaccine), removal of the HPV-associated reports in 2006 through 2013 did not significantly affect the instances of "Autism/ASD" reports.

A summary of that data is shown in **Table 4** on the next page.

Again, though **Table 4** contains data for the period from 2008 through 2013, the reports for the "Autism/ASD" instances in that interval probably are significantly biased because an inadequate follow-up period has prevented all of the targeted "Autism/ASD" AEFIs from being identified and reported to VAERS.

Based on the observed offsets between vaccination and diagnosis as well as the offsets between a diagnosis and its being reported to VAERS, if the current trends continue, it will take until 2021 before "all" of the "Autism/ASD" AEFIs that have been and probably will be reported to be found in the VAERS database for reports through 2013.

Fortunately, sufficient time has elapsed so that the effects of the increases and reductions in the maximum level of the early developmental Thimerosal-preserved-vaccine exposure can be seen in the data in **Table 4** for the years from 1992 probably through 2007.

Clearly, except for one "Autism/ASD" VAERS report not associated with either a Thimerosal-containing vaccine or an MMR-containing vaccine (a report from the concomitant vaccination with a human papilloma virus vaccine (HPV4) and a meningococcal meningitis vaccine (MNQ)), which, along with all VAERS reports where an HPV vaccine was given, was excluded from consideration, the M/F gender ratios in the period for 1992 through 2007 for each year's "Autism/ASD" reports were "2.0", or higher, while the M/F gender ratios

Table 4 VAERS Reports – Autism & ASD vs. Overall (except HPV for 2006-2013) Reports from 1992 through 2013 for USA [States, DC & PR] in Children less than 18 years of Age

Year of Inoculation	Gender Demographic Information					Reports	
	Symptom Categories	Males	Females	Unknown	M/F Ratio[1]	Total	% of Overall (Autism & ASD freq.)
1992	Autism and ASD	17	5	0	3.400	22	0.421
	Overall Reports[2]	2,765	2,415	43	1.131 – 1.162	5,223	(~ 1 in 237)
1993	Autism and ASD	14	3	0	4.666	17	0.346
	Overall Reports[2]	2,476	2,383	48	1.018 – 1.059	4,907	(~ 1 in 288)
1994	Autism and ASD	25	5	1	4.183 – 5.200	31	0.619
	Overall Reports[2]	2,611	2339	53	1.091 – 1.138	5,003	(~ 1 in 161)
1995	Autism and ASD	27	6	0	4.500	33	0.467
	Overall Reports[2]	3,592	3371	96	1.036 – 1.094	7,059	(~ 1 in 214)
1996	Autism and ASD	42	7	1	5.250 – 6.142	50	0.728
	Overall Reports[2]	3,549	3,215	103	1.069 – 1.135	6,867	(~1 in 137)
1997	Autism and ASD	59	11	0	5.363	70	1.155
	Overall Reports[2]	3,006	2,971	79	0.985 – 1.038	6,056	(~ 1 in 86.5)
1998	Autism and ASD	79	10	0	7.900	89	1.572
	Overall Reports[2]	2,827	2,704	127	0.998 – 1.092	5,658	(~ 1 in 63.6)
1999	Autism and ASD	67	9	0	7.444	76	1.204
	Overall Reports[2]	3,146	3,047	117	0.994 – 1.070	6,310	(~ 1 in 83.0)
2000	Autism and ASD	52	16	0	3.250	68	1.039
	Overall Reports[2]	3,343	3,110	90	1.044 – 1.103	6,543	(1 in 96.2)
2001	Autism and ASD	50	14	1	3.333 – 3.642	65	0.914
	Overall Reports[2]	3,671	3,380	57	1.068 – 1.102	7,108	(~ 1 in 109)
2002	Autism and ASD	50	6	1	7.142 – 8.500	57	0.799
	Overall Reports[2]	3,718	3,335	76	1.0910 – 1.137	7,129	(~ 1 in 125)
2003	Autism and ASD	43	9	0	4.777	52	0.651
	Overall Reports[2]	4.259	3,658	65	1.143 – 1.182	7,982	(~ 1 in 153)
2004	Autism and ASD	21	6	0	3.500	27	0.393
	Overall Reports[2]	3,541	3,277	51	1.064-1.096	6,869	(~ 1 in 254)
2005	Autism and ASD	24	12	0	2.000	36	0.537
	Overall Reports[2]	3,481	3,184	54	1.075 – 1.110	6,719	(~ 1 in 186)
2006	Autism and ASD	39	10	0	3.900	49	0.664
	Corrected Overall Reports[2]	3,745	3493	133	1.032 – 1.110	7,376	(~1 in 150)
2007	Autism and ASD	32	4	0	8.000	36	0.325
	Overall Reports[2]	5,185	4,579	153	1.097 – 1.164	11,050	(~1 in 307)
2008	Autism and ASD	10	7	0	1.428	17	0.175
	Corrected Overall Reports[2]	4,919	4,661	134	1.025 – 1.084	9,714	(~ 1 in 571)
2009	Autism and ASD	10	5	0	2.000	15	0.122
	Corrected Overall Reports[2]	6,138	5,925	138	1.012 – 1.059	12,201	(~ 1 in 813)
2010	Autism and ASD	6	0	0	ND	6	0.0565
	Corrected Overall Reports[2]	4,964	4,547	107	1.066 – 1.115	9,564	(~ 1 in 1524)
2011	Autism and ASD	8	1	0	8.000	9	0.120
	Corrected Overall Reports[2]	3,873	3,513	62	1.083 – 1.120	7,448	(~ 1 in 827)
2012	Autism and ASD	8	2	0	4.000	10	0.164
	Corrected Overall Reports[2]	3,144	2,895	57	1.065 – 1.105	6,096	(~ 1 in 610)
2013	Autism and ASD	3	0	0	ND	3	0.0509
	Corrected Overall Reports[2]	3,008	2,784	93	1.045 – 1.117	5,885	(~ 1 in 1961)

[1] Male-to-Female Ratio [M/F Ratio} is defined as the interval from M/(F+Unknown[U]) – (M+U)/F, which reduces to M/F when U=0. If F = 0, M/F is "Not Defined" [ND]; if M = 0, M/F = "0".

[2] Overall Reports is defined as Reports for All vaccines except, in 2006-2013, HPV reports because: a) skewed M/F ratio for HPV reports since it was not given equally to males and females & b) only one HPV report was flagged [incorrectly] as an "Autism" report, when, in reality it probably was a severe "Gullian Barré" report as HPV4 was given with MNQ vaccine.

for the HPV-reduced overall VAERS reports (which included the "Autism/ASD" reports) did not exceed "1.2".

Therefore, confirming that, *for "Autism and ASD" reports in VAERS*, the M/F gender ratios observed indicate that, *with one (1) exception*, Thimerosal exposure is clearly linked to VAERS reports where "Autism" and/or "ASD" was an observed adverse outcome.

CONCLUSIONS

Based on the preceding studies, the M/F gender ratios for the VAERS reports for "Autism and ASD" clearly indicate that Thimerosal exposure is causally linked to these outcomes.

Based on a review of the VAERS reports associated with an MMR-containing vaccination found that most of those reports also showed evidence that a Thimerosal-preserved vaccine was given concomitantly and, for the period up to 2002, the recommended early childhood vaccination schedule ensured that infants were given Thimerosal-preserved vaccines.

The preceding realities combine to bolster the causal role of Thimerosal in the regressive autism outcomes reflected in the "Autism/ASD" reports in VAERS.

Based on review of the VAERS reports where an MMR-containing vaccine was administered, MMR-containing vaccine inoculation is a:

a. **i.** Mild, when no immediate serious adverse reactions are reported and the child's subsequent milestone losses are gradually noticed, to

ii. Severe (when immediate serious adverse reactions occur closely followed by immediate recognition of developmental losses are noticed,

aggravating factor for a subsequent "Autism/ASD" diagnosis, or

b. MMR-containing-vaccination-regression-triggering factor for a subsequent "Autism/ASD" diagnoses when, *after a recognized incubation period*, the child has serious adverse reaction usually involving both high fever and gastrointestinal upset (vomiting and/or diarrhea) coupled with an immediate serious loss of learned skills.

Finally, based on:

a. the M/F gender ratios in **Table 4,** associated with the "Autism/ASD" reports or the "overall" AEFI reports in VAERS each year,

b. a review of those "Autism/ASD" reports specifically associated with the MMR-containing vaccine inoculations and

c. the results from another cited study (see footnote "**21**"),

the aluminum adjuvant level does not appear to be a significant causal factor

for "Autism/ASD" reports in VAERS.

SUGGESTED ACTIONS

If, after reading and studying these findings, you concur with this assessment of the causal nature of the Thimerosal exposures concealed:

a. behind the tainted assessment of MMR vaccination timing and

b. in other studies, where the current CDC whistleblower was one (1) of the CDC authors,

please join me in insisting that, *in addition to retracting the 2004 CDC-generated paper (Destefano F, Bhasin TK, Thompson WW, Yeargin-Allsop M, Boyle C. Age at First Measles-Mumps-Rubella Vaccination in Children With Autism and School-Matched Control Subjects: A Population-Based Study in Metropolitan Atlanta. Pediatrics 2004 February 1; 113(2): 259-266 [http://www.bowdiges.org/documents/files/Age_of_MMR_exposure_comparison_study.pdf]) for which whistle-blowing "Thompson WW" has recently disclosed scientific malfeasance*:

1. The CDC's Verstraeten et al. (2003) study[24] must be retracted in view of the fact that the CDC has repeatedly claimed that the original datasets used in that study have been "lost", rendering it impossible to confirm the validity of the data manipulations used and the findings asserted;

2. As scientific malfeasance has also been established[25] in the Madsen et al. (2003) paper[26], that paper must be retracted;

3. Since the 2004 Institute of Medicine (IOM) report, "Immunization Safety Review: Vaccines and Autism"[27], rests on the validity of the aforementioned studies that, *along with other problematic epidemiological studies (see footnote "**25**")*, were used as the basis of that report, that 2004 IOM report must be withdrawn;

4. Because its findings rest on those problematic studies and the subsequent IOM 2004 report, the findings, conclusions and rulings in the "Omnibus Autism Proceeding"[28] must be overturned.

Moreover, all autism claims that were denied or forced to be withdrawn should be reinstated with prejudice.

In addition, the federal government should be compelled to add

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[24] Verstraeten T, Davis RL, DeStefamo F, Lieu TA, Rhodes PH, Black SB, Shinefield H, Chen RT. Safety of Thimerosal-Containing Vaccines: A Two-Phased Study of Computerized Health Maintenance Organization Databases. *Pediatrics* 2003 Nov 1; 112(5): 1039 -1048. [http://putchildrenfirst.org/media/5.5.pdf].

[25] Hooker B, Kern J, Geier D, Haley B, Sykes L, King P, Geier M. Methodological Issues and Evidence of Malfeasance in Research Purporting to Show Thimerosal in Vaccines Is Safe. Biomed Res Int. 2014; 2014: 247218 (8 pages) [http://www.hindawi.com/journals/bmri/2014/247218/].

[26] Madsen KM, Lauritsen MB, Pedersen CB, Thorsen P, Plesner A-M, Andersen PH, Mortensen PB. Thimerosal and the Occurrence of Autism: Negative Ecological Evidence From Danish Population-Based Data. *Pediatrics* 2003; 112: 604-606).

[27] This report is available through http://www.iom.edu/Reports/2004/Immunization-Safety-Review-Vaccines-and-Autism.aspx.

[28] The official proceedings are available through the link http://www.uscfc.uscourts.gov/omnibus-autism-proceeding.

"Autism" and "ASD" to the vaccine-table injuries for any Thimerosal-preserved vaccine as well as for the MMR and MMRV vaccines whenever a Thimerosal-preserved vaccine was given before or with an MMR/MMRV vaccine inoculation and that inoculation appeared to the petitioning parents to be the triggering factor for their child's subsequent "vaccine" injury;

5. All federal vaccination recommendations should be withdrawn and all State vaccination mandates should be suspended until, *for those vaccination programs that are truly medically cost effective when all costs are considered*[29], those vaccines are shown to be effective in preventing disease in the vaccinated when "disease protected" volunteer inoculees are subsequently exposed to the causative pathogen(s) and those prophylactic vaccines given in the childhood vaccine programs can be proven not to be carcinogenic, mutagenic, or reproductively toxic to humans when the applicable scientifically sound and appropriate preclinical toxicity studies are independently conducted[30]; and, *last but not least*,

6. There should be an immediate:

- **a.** ban on the distribution of all Thimerosal-preserved and Thimerosal-containing vaccines in the USA;
- **b.** *at the manufacturer's expense*, a Class I recall, and destruction, of all in-date Thimerosal-preserved vaccine doses in a manner that fully complies with all the strictures governing the proper disposal of such hazardous Hg-containing wastes;
- **c.** prohibition of the use of Thimerosal or any other Hg-based compound in the manufacture of any drug or component of a

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29 Based on the current published findings, the chickenpox vaccination program has been shown to be neither cost effective nor effective, on balance, in preventing chickenpox or shingles and it recommendation for universal use should be permanently banned and all State mandates for its use should be immediately revoked. Similarly, the pertussis vaccination program has been shown to be a failure and, based on the 1980s experience seen by the Japanese, the recommended minimum age for the first dose of any DPT- or DTaP- or DT- containing vaccine should be raised to two (2) years. Similarly, the routine early Hib, hepatitis B, inactivated polio, pneumococcal vaccine, and rotavirus vaccination programs should also be abandoned because no vaccine should be prophylactically administered to any child before that child's developmental age exceeds one (1) year.

30 For vaccines that are found to be carcinogenic in humans, the manufacturer of that vaccine should be fined US $ 10.00 for each dose of that vaccine that was ever distributed; for vaccines that are only found to be mutagenic, the fine for each dose ever distributed should be US$ 5.00; for every vaccine that is found to be only reproductively toxic, the fine for each dose should be US$ 3.00 per dose; for vaccines found to be both carcinogenic and mutagenic or carcinogenic and reproductively toxic or mutagenic and reproductively toxic, the fine for each dose distributed should be US$ 20.00; and for vaccines that are found to be carcinogenic, mutagenic and reproductively toxic to humans, the fine for each distributed dose should be US$ 30.00 per dose. In addition, both the executives of the involved pharmaceutical companies and the governmental agencies should be criminally prosecuted for their wanton disregard of the risk of harm to the recipients of the vaccines that are proven to have any of the aforementioned preclinical toxicities and, upon conviction, be compelled to forfeit their wealth and pensions.

drug, including vaccines and any component of any vaccine; and

d. revocation of all FDA licenses for any vaccine containing any level of added Thimerosal or any other added Hg-based compound.

DR. KING'S CLOSING REMARKS

As is Dr. King's usual practice, if anyone questions any of this article's science-based assertions, please provide Dr. King those independent[31] peer-reviewed publications that clearly refute the assertions that the questioner finds problematic and, *after verifying their validity*, Dr. King will modify his views accordingly as well as appropriately revise this article.

ACKNOWLEDGMENTS

For contributing valuable insights and providing their personal experience-based knowledge in various areas, Dr. King thanks Tetyana Obukhanych, PhD; Mayer Eisenstein, MD, JD, MPH; Gary S. Goldman, PhD; Boyd E. Haley, PhD; Melissa and Doug Troutman; Eileen Dannemann; Brian Hooker, PhD; Janet K. Kern, PhD; Catherine J. Frompovich; Neil Z. Miller; Mark R. Geier, MD, PhD; and David A. Geier.

Additionally, Dr. King specifically thanks Gary S. Goldman, Melissa R. Troutman, Eileen Dannemann, and Jennifer S. Toland for their support, suggestions, corrections and alternate wordings that helped him to finalize this response.

ABOUT PAUL G. KING, PHD, AUTHOR OF THIS ARTICLE

In addition to the information available on his web site, http://www.dr-king.com/, Dr. Paul G. King, PhD, an analytical chemist with an MS in inorganic chemistry, is Science Advisor to the Coalition for Mercury-Free Drugs (CoMeD, Inc., http://www.mercury-freedrugs.org/, a 501(3)(c) not-for-profit corporation) as well as the Science Advisor to the National Coalition of Organized Women (NCOW).

More recently, Dr. King was the co-author of a review paper in the journal ***Vaccine*** with Gary S. Goldman, PhD, which evaluated the CDC-recommended

[31] To qualify as an independent document, the study should be published by researchers who have no direct or indirect conflicts of interest from their ties to either those commercial entities who profit from the sale of any product or practice addressed in this response or those entities, academic, commercial or governmental, who directly or indirectly, actively promote any product or practice, the development of any product or practice, and/or programs using any product or practice covered in this assessment.

universal varicella vaccination program in the USA[32].

Moreover, Dr. King was also one of the authors of a paper in ***Int. J. Environ. Res. Public Health***, where the lead author was Janet K. Kern, PhD.

That peer-reviewed paper reviewed Thimerosal exposure and the roles of sulfation chemistry and thiol availability in autism[33].

Also, Dr. King was one of the authors in a review chapter, "Mercury Induced Autism"[34] (pages 1411-1432), in **Comprehensive Guide to Autism**, Editors: Vinood B. Patel, Victor R. Preedy and Colin R. Martin. Springer New York (2014), where the lead author was Mark R. Geier, MD, PhD.

Additionally, Dr. King was one of the authors of the paper, "A two-phase study evaluating the relationship between Thimerosal-containing vaccine administration and the risk for an autism spectrum disorder diagnosis in the United States", in the journal, ***Translational Neurodegeneration***, where the lead author was David A. Geier.

That open-access paper contributed more evidence to the actuality of a causal relationship between the level of Thimerosal-preserved vaccine exposure and the subsequent risk of any of the inoculated children's receiving a diagnosis of "Autism" or "ASD" (or, *implicitly*, any other injected-Thimerosal-exposure-related adverse neurodevelopmental outcome) causally linked to an adverse post-vaccination outcome in the USA[35].

Moreover, Dr. King is one of the authors of a paper that is titled, "Methodological Issues and Evidence of Malfeasance in Research Purporting to Show Thimerosal in Vaccines Is Safe" (see footnote "**25**")**,** where Dr. Brian Hooker was the lead author.

That open-access paper established that the six (6) key epidemiological studies, which the CDC uses to support its assertion that Thimerosal-containing vaccines are safe to give to pregnant women and developing children, have significant methodological issues and evidence of intentional malfeasance that renders them scientifically unreliable.

In addition, Dr. King is the co-author of a paper with Dr. Gary S. Goldman that is titled, "Vaccination to prevent varicella: Goldman and King's response to Myers' interpretation of Varicella Active Surveillance Project data"[36], which,

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32 Goldman GS, King PG. Review of the United States universal varicella vaccination program: Herpes zoster incidence rates, cost effectiveness, and vaccine efficacy based primarily on the Antelope Valley Varicella Active Surveillance Project data. *Vaccine* 2013 March 25; 31(13): 1680-1684 (open access). [See, http://www.sciencedirect.com/science/journal/0264410X/31/13, article "6".]

33 Kern JK, Haley BE, Geier DA, Sykes LK, King PG, Geier MR. Thimerosal Exposure and the Role of Sulfation Chemistry and Thiol Availability in Autism [Review]. *Int. J. Environ. Res. Public Health* 2013 Aug, 10, 3771-3800. OPEN ACCESS

34 See, http://www.researchgate.net/publication/258009647_Mercury_Induced_Autism/file/60b7d526955a643330.pdf for the chapter.

35 Geier DA, Hooker BS, Kern JK, King PG, Sykes LK, Geier MR. A two-phase study evaluating the relationship between Thimerosal-containing vaccine administration and the risk for an autism spectrum disorder diagnosis in the United States. *Translational Neurodegeneration* 2013 Dec. 16; 2:25 (12 pages). [http://www.biomedcentral.com/content/pdf/2047-9158-2-25.pdf.] In the first month after publication, it was accessed more than 10,500 times.

36 Goldman Gs, King PG. Vaccination to prevent varicella: Goldman and King's response to Myers' interpretation of Varicella Active Surveillance Project data. *Hum Exp Toxicol* 2014 Aug; 33(8): 886-893. Abstract: http://het.sagepub.com/content/33/8/886.abstract.

as the abstract's "Summary" states, clearly established in the USA that (emphasis added)

> "[w]hen the costs of the booster dose for varicella and the increased shingles recurrences are included, the universal varicella vaccination program is neither effective nor cost-effective".

Finally, Dr. King is one of the authors of an in-press paper that is titled, "Thimerosal as discrimination: vaccine disparity in the UN Minamata Convention on mercury"[37], where Lisa K. Sykes was the lead author.

That article addresses the discriminatory nature of the now internationally condoned disparity between the early childhood vaccination programs in the developed countries, where the use of Thimerosal-preserved vaccines has mostly been abandoned, and the developing countries, where several of the early childhood vaccines remain Thimerosal-preserved vaccines.

Underscoring this dichotomy, the article's "Abstract" closes with,

> "Ultimately, the Minamata Convention on Hg has sanctioned the inequitable distribution of thimerosal by specifically exempting TCVs from regulation, condoning a two-tier standard of vaccine safety: a predominantly no-thimerosal and reduced-thimerosal standard for developed nations and a predominantly thimerosal-containing one for developing nations. This disparity must now be evaluated urgently as a potential form of institutionalised discrimination."

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[37] Sykes LK, Geier DA, King PG, Kern JK, Haley BE, Chaigneau CG, Megson MN, Love JM, Reeves RE, Geier MR. Thimerosal as discrimination: vaccine disparity in the UN Minamata Convention on mercury. *Indian J Med Ethics*. 2014 Apr 11. [Epub ahead of print.] The article's abstract is available at http://www.ncbi.nlm.nih.gov/pubmed/25101548.