



# FAKE NEWS, FUZZY SCIENCE AND STORYTELLING IN THE **Autism/Vaccine Debate**

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*“In this era of exploding media technologies there is no truth except the truth you create for yourself.”<sup>1</sup> – Richard Edelman*

Just prior to Dr. Julie Gerberding’s January 2009 resignation as Director of the U.S. Centers for Disease Control, advertising industry mogul Richard Edelman<sup>2</sup> praised her as a “selfless crusader, a throw-back to a time when public service was the highest calling.” Edelman cited Gerberding’s ability in “humanizing communications” and “the need to tell stories to buttress traditional CDC reliance on science and facts.”<sup>3</sup>

The praise lavished by Edelman on Gerberding is fitting coming from a global leader in the creation of what some media critics call “fake news” reports that accompany pharmaceutical promotion.<sup>4</sup> Edelman is a Director of the CDC Foundation, a private organization set up by corporate America to support the CDC and fund special projects – euphemistically termed a “public private partnership.”<sup>5</sup> Indeed, Edelman cited his own work on the CDC Foundation as the source for his knowledge of Gerberding’s practice of buttressing CDC reliance on science and facts. Three weeks after lauding Gerberding’s storytelling ability, Edelman announced Gerberding’s hiring by his influential public relations firm, Edelman, as an advisor on global health strategy.<sup>6</sup>

Gerberding’s move from the CDC’s world of “facts and science” to the world of “fake news” came to mind the other day as I was leaving my law office. A colleague, aware of my interest in the connection of vaccines to autism, remarked in passing about “this new Italian study that seems to have resolved the controversy.” Because I

respect my friend’s intelligence, I could not complain about the reasonable inference he drew about the study from local news reports. He had read the article in our local and very reputable newspaper that led with this headline: “New study: Mercury-based vaccine preservative safe.”<sup>7</sup> The newspaper had reported the results of a new study by Alberto Tozzi and other Italian epidemiologists published in the journal of the American Academy of Pediatrics.<sup>8</sup> It was one of many such articles in the press. Others claimed “Study adds to evidence of vaccine safety,”<sup>9</sup> and “Another Autism-Vaccine Study Fails to Support Link.”<sup>10</sup>

As recounted in the press, the study’s lead author, epidemiologist Alberto Tozzi, claims, “Put together with the evidence of all the other studies, this tells us there is no reason to worry about the effect of thimerosal in vaccines.” Similar “storytelling” permeated the news media, creating a “truth,” in Rick Edelman’s public relations parlance, that appeared indomitable. The CDC “Italian Study” had been anticipated for years by critics of the thimerosal hypothesis. It was another opportunity to beat back the ever-increasing challenges by parents of injured children around the world to the safety of vaccines.<sup>11</sup> How fitting that this thimerosal safety tale telling, that so well-punctuated Dr. Gerberding’s tenure at the CDC was released right at the curtain call of her 6-year CDC performance.<sup>12</sup>

I have already discussed some of the other studies on which Dr. Tozzi relied in my prior two columns in *The Autism File*. We have observed the studies’ failures to

dispel the evidence that thimerosal is indeed a problem, the shocking lack of research to even look at children with regressive autism or other groups with susceptibility to the neurotoxin, and the ignored studies that have actually found an association between thimerosal and neurodevelopmental disorders such as autism.<sup>13</sup> The author of the Italian study appears, if quoted accurately, to be bootstrapping flawed, inadequate or off-point studies to reach conclusions unsupported by his own study. This fake synergy of studies seems always to accompany fake news.

The newly published CDC-funded Italian study examined the effects of thimerosal by contacting, in 2003, the families of children who had participated in an efficacy study of pertussis vaccines 10 years earlier. Two groups of children were identified: one that had relatively low exposure to thimerosal through vaccines and another group that had a higher exposure. Through a selection process, some of the children were given standardized neuropsychological tests in memory and learning, attention, language, and other areas key to development. The results seemingly showing no differences between the two groups are claimed by some to exonerate thimerosal as a danger to developing children.

The truth is that the “science and facts” part of the study does nothing to exonerate thimerosal. The study contains no data that can responsibly be interpreted to exonerate thimerosal’s role in causing autism or other serious neurodevelopmental disorders. Among the problems of the study, especially

as it may apply to the United States population of children born since 1988, are the following:

- Unlike the U.S. and elsewhere, very few children in the Tozzi study - less than 1% - received thimerosal-containing hepatitis B vaccines, and almost none at birth, as compared with almost universal vaccination at birth with the hepatitis B vaccine in the United States.
- The children in the Tozzi study all received less thimerosal than did U.S. children-the high exposure group received 75 micrograms less and the low exposure group received 162.5 micrograms less.
- There was only one child with autism in the 1704 children who were interviewed for the study and the 1403 who were included in the final neuropsychological testing data. In a group of 1700 children, one would expect approximately 9 children with an autism diagnosis, according to the CDC's study of U.S. children born at around the same time (1992 to 1994).<sup>14,15</sup>
- The study's eligibility criteria excluded individuals with underlying diseases or low birth weight at vaccination, children who would be most vulnerable to injury from a neurotoxin like mercury.
- The number of children in the final study data - 1403 - was too small to allow epidemiologists to draw any conclusions - in epidemiological terms the study is "underpowered."
- The study did find significant associations of higher thimerosal exposure to the incidence of tics, and children in the high exposure group performed worse in several other categories. The scientific finding of an association with tics replicates previous findings, including those in the CDC's Thompson study of U.S. children, published in 2007 and referenced in an earlier Autism File column in this series.<sup>16</sup>

Dr. Tozzi has been candid in explaining that the study's objective was not to evaluate the relationship of thimerosal exposure to autism. I include at length his comments to an American parent because it places the value of his study to understanding the autism epidemic in context:

The population included in our study was originally enrolled in a vaccine efficacy clinical trial when children were 2 months old. Eligibility criteria excluded individuals with underlying diseases or low birth [weight] at vaccination. We selected therefore a healthy population that was followed up to 10-12 years old when the neuropsychological assessment was performed. ***We did not have the objective to specifically study children with autism and the number of subjects included in our study would have been insufficient to make any epidemiological assessment on this subject.*** Take also into account that the diagnosis of autism is not frequent in our country possibly due to a lower incidence compared with other countries or to a lower sensitivity of diagnostic approaches. We did observe however one case of autism in the group exposed to lower thimerosal doses and no cases in those exposed to higher doses. This finding may be simply the effect of chance. On the other hand we had a unique opportunity to study two groups randomly exposed to different doses of thimerosal contrarily to all the other published studies in which many problems in adjusting for confounders arise.<sup>17</sup> [Emphasis added.]

According to the study's lead investigator, therefore, and consistent with the data contained in the study, it does not even look at the relationship of vaccines or thimerosal in vaccines and autism. What then does the study show? Not much, except a possible association with tics and some other neuropsychological disorders.

Revealingly, the recitation of the limitations of the study are candidly stated by Tozzi et al., and would seem to negate any significance to the study at all in the context of the debate as to whether vaccines cause serious neurodevelopmental disorders including autism:

Some limitations should be considered in the interpretation of our results. The cumulative intake of thimerosal was relatively low, compared with that in other countries including the United States, where vaccination schedules included more thimerosal-containing vaccines in the first year of life.

Moreover, there was no comparison group with no exposure to thimerosal, although our setting was appropriate to identify a dose response effect in the absence of any evidence suggesting a threshold dose for observation of an effect. Our analysis included only healthy children who were selected during enrollment in the original trial, and some families might have declined to participate in the present study because their children had cognitive developmental problems. This might have reduced the prevalence of adverse neuropsychological conditions and might have made potential differences hard to detect. The eligibility criteria of the original trial also limited the participation of low birth weight children, and only 55 children with birth weights of <2500 g underwent the neuropsychological evaluation (data not shown). Moreover, only 1% of children in this study received hepatitis B virus vaccine at birth. Although no effect of birth weight according to thimerosal intake was detected through multivariate analyses, our study was not powered to detect an association of thimerosal exposure and neuropsychological development in low birth weight infants.

Thus, the authors were fairly transparent about their study - it had serious limitations. One wonders what the CDC got for its likely sizable investment in this Italian study of thimerosal's effects. Dr. Julie Gerberding, on the other hand, extracted something from the study that global health care public relations leader Richard Edelman believes was her forté during her tenure: a story to "buttress traditional CDC reliance on science and facts."<sup>18</sup> It is her swan song.

The Italian study's examination of the "science and facts" was insufficient; the "fake news" storytelling that purported to clear thimerosal was the shoddy product the CDC and the U.S. taxpayer received for their investment.

### **And Now For Some "Science and Facts"**

There has been much storytelling from the media and some medical organizations about whether or not the increase of autism incidence is real. Without convincing scientific support, we have repeatedly

observed reports attributing the rise in numbers of children with an autism diagnosis to “better diagnosing,” “diagnostic substitution” or other claims. Some state education departments have resorted to such claims to justify their policies to limit budget allocations for educating children with autism. This has happened in the face of evidence that the increase in the numbers of children with autism is real.<sup>19,20</sup>

In my earlier columns, I made reference to the opinion of Sander Greenland, Ph.D. that epidemiology has thus far neglected to examine whether or not thimerosal in vaccines is associated with autism. Dr. Greenland’s opinion carries great weight because, among other achievements, he produced the leading textbook in the field, *Modern Epidemiology*,<sup>21</sup> with his coauthor, Kenneth J. Rothman, PhD. According to Dr. Greenland, the issue of whether or not thimerosal can cause autism in susceptible subgroups is an open one.

An important study was recently produced by researchers Dr. Iva Hertz-Picciotto and Dr. Lora Delwiche of the University of California at Davis. Dr. Hertz-Picciotto is

the author of the chapter “Environmental Epidemiology” in Dr. Greenland’s textbook. Dr. Hertz-Picciotto also led a panel convened by the National Institute of Environmental Health Sciences at the direction of Congress that issued a 2006 report severely criticizing the use of the CDC’s multimillion dollar database, the Vaccine Safety Datalink or VSD, to evaluate whether vaccines play a causal role in autism.

Dr. Hertz-Picciotto’s new study, “The Rise in Autism and the Role of Age at Diagnosis”<sup>21</sup> found that in California, a state that maintains good records of children with disabilities, factors such as migration of families to the state, changes in diagnostic criteria, diagnosis of children at younger ages, and inclusion of milder autism cases in the state’s data do not fully explain the observed increases in the numbers of children with autism. The authors cautioned that “[o]ther artifacts have yet to be quantified, and as a result, the extent to which the continued rise represents a true increase in the occurrence of autism remains unclear.” The study strongly suggests

that the almost 8-fold increase in autism incidence in California from the early 1990’s through 2008 was likely real but required further scrutiny.

The study recommended “rigorous investigation” to determine incidence or prevalence of autism among individuals aged 20 to 30, where researchers would have to find 4 to 8 undiagnosed cases of autism for every diagnosed case to match the numbers in children under the age of 18.

The researchers warned that the “current occurrence of autism, a seriously disabling disorder in young children...is a major public health and educational concern.” Even more striking were the public statements by Dr. Hertz-Picciotto. The internationally respected autism researcher said that rather than continuing to spend the bulk of autism research dollars on genetics, “[i]t’s time to start looking for the environmental culprits responsible for the remarkable increase in the rate of autism in California.”<sup>23</sup>

Rather than storytelling, one researcher is telling us to look more closely at the “science and facts” rather than the “truth” as told by the CDC.

## References

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<sup>2</sup> [http://www.sourcwatch.org/index.php?title=Richard\\_Edelman](http://www.sourcwatch.org/index.php?title=Richard_Edelman)

<sup>3</sup> “A True Public Servant,” Rick Edelman blog, January 13, 2009: [http://www.edelman.com/speak\\_up/blog/](http://www.edelman.com/speak_up/blog/) (Accessed February 7, 2009)

<sup>4</sup> <http://www.prwatch.org/node/8031>

<sup>5</sup> <http://www.cdcfoundation.org/about/ourboard/index.aspx> (Last accessed February 8, 2009)

<sup>6</sup> *PR Week*, January 30, 2009: <http://inbrief.prweekblogs.com/2009/01/30/former-cdc-director-to-consult-with-edelman/> (Accessed February 7, 2009)

<sup>7</sup> *Newsday*, January 26, 2009, New study: Mercury-based vaccine preservative safe: <http://www.newsday.com/services/newspaper/printedition/monday/health/nyhsvacc266013109jan26,0,6904052.story> (Accessed 2/8/09).

<sup>8</sup> Tozzi, et al. Neuropsychological Performance 10 Years After Immunization in Infancy With Thimerosal-Containing Vaccines. *PEDIATRICS* (2009) vol. 123 (2) pp. 475-482, url: <http://dx.doi.org/10.1542/peds.2008-0795>

<sup>9</sup> [http://www.salon.com/wires/ap/scitech/2009/01/25/D95UKPPG0\\_med\\_vaccine\\_safety/](http://www.salon.com/wires/ap/scitech/2009/01/25/D95UKPPG0_med_vaccine_safety/)

<sup>10</sup> <http://biotech.about.com/b/2009/01/28/another-autism-vaccine-study-fails-to-support-link.htm>

<sup>11</sup> Arthur Allen, “Thimerosal Vindicated in Another Study, Yet ... the Show Must Go On”, September 27, 2007, *The Huffington Post*: [http://www.huffingtonpost.com/arthur-allen/thimerosal-vindicated-in-\\_b\\_66143.html](http://www.huffingtonpost.com/arthur-allen/thimerosal-vindicated-in-_b_66143.html) (Accessed February 8, 2009).

<sup>12</sup> Goodman, “Gerberding Resigns as CDC Head”, *Medscape Medical News*, January 12, 2009: <http://www.medscape.com/viewarticle/586612> (Accessed February 8, 2009).

<sup>13</sup> Krakow, RJ, Scientific Studies Update: Vaccines, Thimerosal & Toxins Under Scrutiny, *The Autism File*, Autumn 2008, pp.14-17; Krakow, RJ, The Case Is Not Closed on Vaccines and “Autism”, *The Autism File*, Winter 2009, pp. 28-31.

<sup>14</sup> *Morbidity and Mortality Weekly Report*, Parental Report of Diagnosed Autism in Children Aged 4-17 Years — United States, 2003-2004, Vol. 55 / No. 17, p. 481, May 5, 2006 (published by Centers for Disease Control) (Rate of autism in children 4-17 years of age is 5.5/1000 or 1 in 182 for children born in 1994 and 5.7/1000 or 1 in 175 for children born in 1992.)

<sup>15</sup> *Morbidity and Mortality Weekly Report*, Prevalence of Autism Spectrum Disorders-Autism and Developmental Disabilities Monitoring Network, 14 Sites, United States, 2002, February 9, 2007 / 56(SS01):12-28 (published by Centers for Disease Control) (Rate of autism in children at years of age is 1 in 152 for children born in 1994 and 1 in 182 for children born in 1994 and 5.7/1000 or 1 in 175 for children born in 1992.)

<sup>16</sup> Thompson et al. Early thimerosal exposure and neuropsychological outcomes at 7 to 10 years. *The New England Journal of Medicine* (2007) vol. 357 (13) pp. 1281-92, at 1285: <http://dx.doi.org/10.1056/NEJMoa071434>

<sup>17</sup> Private email communication between Dr. Alberto Tozzi and a parent, January 26, 2009

<sup>18</sup> “A True Public Servant”, Rick Edelman blog, January 13, 2009: [http://www.edelman.com/speak\\_up/blog/](http://www.edelman.com/speak_up/blog/) (Accessed February 7, 2009)

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<sup>20</sup> Lower Special Ed Numbers Raise Hope and Questions - *New York Times*:

<sup>21</sup> <http://www.nytimes.com/2007/07/08/nyregion/nyregionspecial2/08mainwe.html?r=1&pagewanted=print&oref=slogin> Date: 2007-07-07 23:52:50 -0400 (The NY State director of special education services stated, “While there is a tremendous increase in the diagnosis of autism, it’s more a shift from other diagnoses like mental retardation, or emotional disturbance.”)

<sup>22</sup> Greenland, S. and Rothman, K., Lash, T., *Modern Epidemiology*, 3rd Ed., Lippincott Williams & Wilkins, 2008.

<sup>23</sup> Hertz-Picciotto et al. The Rise in Autism and the Role of Age at Diagnosis. *Epidemiology* (2009)

<sup>24</sup> <http://www.epidem.com/pt/re/epidemiology/abstract.00001648-200901000-00016.htm>

<sup>25</sup> *Medical News Today*, UC Davis M.I.N.D. Institute Study Shows California’s Autism Increase Not Due To Better Counting, Diagnosis, January 8, 2009: <http://www.medicalnewstoday.com/articles/134717.php> (accessed 2/9/09)