

## MMR Vaccination Controversy

This media analysis report seeks to examine the themes that the media uses to discuss the MMR vaccination controversy and their usefulness for understanding the issues.

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April 2012

### The Wakefield Connection: Background

Through a series of publications between 1995 and 2000, Andrew Wakefield, a former British surgeon, argued that the MMR vaccine caused a new disease, autistic enterocolitis. Wakefield's findings caused concern across the United Kingdom resulting in plummeting MMR vaccination rates. Some areas even lost herd immunity, which is the percentage of the population that needs to be vaccinated to prevent the outbreak of a certain disease. Vaccination rates in the United States and other areas of the world have also declined following Wakefield's research.

Wakefield's co-authored 1998 paper entitled "Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children" is credited with igniting the modern MMR vaccine controversy along with a press conference held shortly after the paper's publication in *The Lancet*. The 1998 study's subjects consisted of twelve autistic children and the findings reported by Wakefield alleged that eight children started exhibiting signs of autism shortly after receiving the MMR vaccine. However, research by *The Sunday Times* investigative journalist, Brian Deer, exposed that Wakefield had a conflict of interest at the time of the 1998 study. Deer revealed that Wakefield was paid more than £400,000 by lawyers seeking to prove that the vaccine was unsafe. In addition, Wakefield's findings were never replicated and thus never garnered significant support in the scientific community. Wakefield's credibility also diminished in 2004 when ten out of the study's thirteen coauthors retracted the study's conclusions. The paper was later fully retracted from the *Lancet* in 2010 with Great Britain's General Medical Council (GMC) claiming that Wakefield's conduct was both "irresponsible and dishonest."

### Trends in MMR Vaccination Controversy

In *The Panic Virus*, Seth Mnookin, an American writer and journalist, contends that the media sustained the vaccine-autism controversy through reckless and trivial reporting. These reports presented the possible link between vaccines and autism as a viable theory despite scientific evidence to the contrary. In an effort to evaluate Mnookin's claims, a media search was conducted of *The Washington Post* and *The New York Times* articles concerning MMR vaccination controversy from 1997 to 2011. Seven search terms were applied to a ProQuest search of *The New York Times* and a LexisNexis Academic search of *The Washington Post*, which yielded 367 results. In analyzing the results, patterns were observed in the media's reporting of the controversy that confirmed Mnookin's claim. This document explores these patterns and makes suggestions for bridging the gap between scientific findings and the media's presentation of these facts.

#### THIMEROSAL CONFUSION: CONNECTING VACCINES, MERCURY, AND AUTISM

Before Wakefield's study was published, the United States' Food and Drug Administration (FDA) was involved in an investigation into thimerosal, which is a mercury-based preservative previously used in many vaccines. In 1997, Congress passed the Food and Drug Administration Modernization Act, which

required the FDA to study the mercury content of its approved products. The review resulted in the FDA ordering thimerosal's removal from all over-the-counter drugs in 1998. Following the FDA's decision, vaccination safety activists, concerned about mercury exposure, called for the removal of thimerosal from vaccines. The FDA then released a report in 1999 stating that thimerosal would be removed from vaccines as a precautionary measure. The near simultaneous occurrence of the FDA's report and Wakefield's 1998 study complicated the media's reporting of the MMR vaccination controversy by linking the two issues.

Prior to Wakefield's study, vaccine opponents were concerned about thimerosal's safety because they feared that vaccines could lead to mercury poisoning. However, after Wakefield's study, attention then shifted to concerns about vaccines causing autism. These concerns became intertwined in media reporting, which resulted in a new trend that connected mercury to autism through vaccines. A 2004 *The New York Times* health section article "No Evidence of Autism Link is Seen in Vaccine, Study Says" denies that the combined MMR vaccine increases children's risk of autism but then later explains that doctors **"are studying how environmental pollutants, like mercury from municipal waste incinerators, affect developing brains."** This sequence of claims may confuse readers because it begins with the assertion that vaccines do not cause autism but ends with the suggestion that mercury may adversely affect brain development. Since autism is a neurodevelopmental disorder, readers may interpret the latter claim to be conflicting with the former.

This confusion also stems from the article's failure to distinguish between the different forms of mercury found in vaccines and in industrial processes. The type of mercury found in thimerosal, *ethylmercury*, is different from the mercury usually discussed in relation to mercury poisoning, *methylmercury*. According to the FDA, methylmercury is a neurotoxin and high levels of exposure to it may cause cognitive deficits. Current recommended levels for mercury exposure are based on levels of *methylmercury*. However, the Global Advisory Committee on Vaccine Safety (GACV) has stated that *ethylmercury* is substantially different from *methylmercury*. Since 2000, the GACV has studied thimerosal and vaccines in depth and has yet to find any evidence to support concerns about thimerosal's safety.

#### CONVEYING SCIENCE: LAY CONSTRUCTION OF SCIENTIFIC FACT

Many media outlets hypothesized that the rising rates of autism in the early 2000s may be connected to the increasing number of vaccines given to children. However, this idea was not a dominant theory held by medical professionals. Some medical experts postulated that rates of autism may not be rising, but instead medical professionals are now better equipped to diagnose autism spectrum disorders. Others suggested that autism rates are increasing due to evolving definitions of the disorders, so that now more people meet the diagnostic criteria.

Some media reports included these and other alternative explanations to emphasize that the connection between vaccines and autism was a mere correlation. However, at the sentence level, articles often presented the connection between vaccines and autism in a way that suggested a causal link. For example, an excerpt from a 2004 *The Washington Post* A-section article, "Experts Find No Vaccine-Autism Link; Panel Says More Research on Possible Connection May Not Be Worthwhile," reads **"After decades in which vaccines were generally considered certified miracles of medicine, the preparations and their safety have been openly challenged in recent years as the number of routine childhood immunizations has risen, along with the prevalence of several behavioral disorders."** In this quotation, the idea that vaccines are scientific miracles is subordinate to the notion

that people are concerned about the safety of vaccines. The structure of the sentence instills a sense of intimate connection between these two ideas when there is no evidence to support such a relationship. Therefore, a reader who may not understand the science pertaining to the vaccine-autism controversy may understand this sentence to be implying that vaccines are not actually as beneficial as was previously thought—and in fact might be dangerous.

Another example of media reports skewing scientific fact can be seen in a 2002 *The New York Times* health section article, “The Not-So-Crackpot Autism Theory,” which states **“American children still receive up to 20 vaccines in the first two years of life. The first symptoms of autism often appear between the ages of 12 and 24 months. Most autism experts say that the two facts are coincidental, but as a major California study recently confirmed, autism is being diagnosed in numbers far higher than ever before, suggesting that a nongenetic cause may be partly to blame.”** The presentation of this information pairs the nongenetic cause with vaccination in the reader’s mind. In fact, this particular article does not even explore possible alternative explanations but simply leaves the reader with two statements that are implied to be connected, the first being that autism is not merely genetic and the second is that autism appears around the time that children receive most of their immunizations. This argument does a disservice to the newspaper’s readers by implying that vaccines are the leading theory for rising autism rates when there is no scientific evidence to support this suggestion.

#### VACCINES: PUBLIC OR PRIVATE? POPULATION-BASED OR INDIVIDUAL?

Reports about anti-vaccine positions tend to stress the importance of a single child’s welfare. In 2000, *The Washington Post* featured an A-section article, “Autism’s New Face,” that begins by telling the story of Westin Beveridge, who is an example of “the new face of autism.” The article states that **“Now autism includes lots of people like Westin Beveridge. They are children whose symptoms are mild and treatable, although not likely curable. Across America, they are being found in epidemic numbers.”** Then the article informs readers that the House Government Reform Committee is investigating a possible vaccine-autism link. The article personalizes the investigation by explaining that Dan Burton, a representative in Congress who believes that vaccines had adverse effects on his grandchildren, leads the committee.

The personal anecdotes of Westin Beveridge and Dan Burton are just a couple of examples of the approach often used by the media to articulate vaccine concerns. Although this personalization makes for entertaining and emotional news stories, it does not reflect the medical findings about MMR safety and does not address the health implications that would arise from declining vaccination rates. This type of sensational reporting with regard to vaccine controversy is misleading since it puts vaccination controversy into an individualized and personal frame and neglects the public health dimensions of vaccine refusal.

In sharp contrast, media reports discussing the pro-vaccine position usually emphasize advocates’ desire to protect public health. These reports explain advocates’ apprehension about losing herd immunity, often referencing south London’s loss of herd immunity in 2002, which resulted in a measles outbreak. A 2003 *Washington Post* A-section article, “Measles Cases Rebounding in Affluent Society,” claims that **“If vaccine coverage continues to fall, sometime soon the unvaccinated children will no longer be able to ‘hide’ in the larger crowd of vaccinated ones. Instead, there will be enough of them to become exactly what the measles virus is looking for, metaphorically speaking. They will be a group of susceptible hosts (with new ones being born all the time) large enough for the**

**bug to set up a self-sustaining chain of person-to-person transmission.”** The rhetoric of this excerpt may be alienating to readers who are concerned about vaccine risk to themselves and their children. The if-then presentation implies that pro-vaccine activists discount individual concerns in favor of broad public health goals, even if those goals pose risks to individuals.

The excerpt described above could better serve readers by relating these concerns to individuals instead of speaking in broad, scientific terms. By portraying the pro-vaccine groups as unconcerned about individual concerns, the media is unknowingly suggesting that the public should not trust public health officials with their individual child’s welfare. This potential mistrust of medical officials is very dangerous and could lead to public health crises, such as the loss of herd immunity and the reappearance of largely eradicated diseases, such as measles. Therefore, the media should attempt to present these issues through the same scope, public or private, instead of using two different viewpoints and attempting to make a comparison between the two.

## Conclusions

These trends in the media’s reporting of the MMR vaccination controversy support Mnookin’s claim that the media sustained the controversy through reckless and trivial reporting. In particular, the American media kept the debate alive as the majority of the reporting analyzed here did not even occur until Wakefield’s coauthors retracted the study’s conclusions in 2004. Vaccination controversy is most often reported on in a manner that suggests unfounded connections among mercury, vaccines, and autism and pits provaccine activists against anti-vaccine groups in battles over personal and public health. The false impressions about the MMR vaccination controversy fostered by the media create a worrisome distrust of public health officials and leave audiences misinformed by resources that they trust to deliver thoroughly researched and accurate news. The media should be more aware of these trends when reporting about the MMR vaccination controversy and seek to better serve readers with accurate presentation of scientific evidence and reliable reporting on leading scientific theories.

## Important Dates to Remember

