

Silencing debate over autism

Despite the lack of scientific evidence that childhood vaccines cause autism, extreme tactics used by those convinced that this hypothesis is correct have been increasingly successful in influencing public opinion and legislation.

The idea that autism is caused by vaccination is influencing public policy, even though rigorous studies do not support this hypothesis. Legislators are right to take into account the concerns of parent groups and others directly affected by autism, but policy decisions should be based on hard evidence rather than anxiety. More worryingly, some proponents have adopted tactics reminiscent of certain animal rights groups, which are aimed at shutting down the views of opponents.

The hypothesis is based on the observation that the number of autism cases increased in the 1980s, coinciding with a push for greater childhood vaccinations, which increased above recommended levels children's exposure to mercury in the vaccine preservative thimerosal. However, autism diagnosis continued to rise even after thimerosal was removed from US childhood vaccines in 2001. A review by the Institute of Medicine (<http://www.nap.edu/catalog/10997.html>) of over 200 studies concluded that there was no causal link between thimerosal-containing vaccines and autism. Autism is no more common among vaccinated than unvaccinated children, and its incidence has not covaried with the presence of thimerosal in vaccines across different times and locations.

These findings have not dissuaded supporters of the mercury-autism link, whose strategies have become more extreme as the evidence against the hypothesis mounts. People who oppose the idea have been harassed with repeated calls, whether they have written a letter to their local paper (<http://tinyurl.com/3dba3c>) or an editorial for *The Wall Street Journal* (<http://tinyurl.com/2obgfg>). The harassment includes parents of autistic children who do not align themselves with the anti-vaccine movement. Kevin Leitch reports, "I have personally been told that because I am not chelating my daughter, I am a child abuser. That I am a murderer. I have had threats of violence made against me, and a few people have even sent personal hate mail to my seven-year-old autistic daughter."

Such tactics are suggestive of a minority with little influence, but the autism-mercury lobbyists have been successful in getting their message across to the public. In 2005, one group took out a full-page advertisement in *The New York Times*, thanking scientists for their "groundbreaking research on the connection between mercury and autism," with a list of publications included. Many of the studies did not address this hypothesis, and some researchers wrote to the editor clarifying that they "do not believe there is a proven connection between mercury and autism." Their letter was not published, so readers were left with the impression that peer-reviewed work supports the hypothesis and that many scientists are convinced of its validity. The effectiveness of such campaigns can be gauged by the 10% decline in children in the UK receiving the measles-mumps-rubella vaccine, which has been similarly linked to autism in the public mind.

The lobby also has some political influence, as illustrated by a bill under consideration in the Minnesota legislature. The bill establishes

a preference for vaccines without trace amounts of mercury. If such a vaccine cannot be found, then doctors would be obligated to have patients sign an informed consent acknowledging that the vaccine contains thimerosal. Given the hysteria surrounding the issue, it is questionable how many parents would consent. According to Diane Peterson of the Immunization Action Coalition, similar bills have been considered in eighteen other US states this year alone, though none has passed.

Scientific criticism of the hypothesis has not gone unheard. Last year, after the Hawaii legislature passed a bill limiting mercury in vaccines, the governor vetoed it because it "ignores the body of current scientific evidence on thimerosal-containing vaccines." Similarly, when a US couple sued a pharmaceutical manufacturer last year, claiming that mercury in medication given to the pregnant mother caused their child to develop autism, the court conducted a Daubert hearing, which determines whether expert witnesses are qualified to present evidence. The testimony of witnesses in favor of the autism-mercury link was dismissed as "hypothesis and speculation," and the case was dropped. Similar testimony is likely to be presented at the omnibus hearing being held later this year to determine whether autism should be deemed a vaccine-caused injury for purposes of the US National Vaccine Injury Compensation Program. The proponents have filed a motion to exclude the Daubert standard for evidence in this hearing.

Mercury is a known neurotoxin, so even without believing that it causes autism, one might argue for removing thimerosal entirely from vaccines. However, this option is not risk-free. Without a reliable preservative, vaccines would need to be dispensed in single-use rather than multiple-use vials, which are more expensive and bulkier. Developing countries may not be able to afford more expensive vaccines. If legislators demand vaccines free of trace amounts of mercury, manufacturers are unlikely to risk contamination by producing multiple-use vials.

It is counterproductive for governments to legislate the medical opinions that doctors give their patients, and the informed consent required by the Minnesota bill is likely to suggest that there are hidden dangers in vaccination. In the end, these fears are driven by ideology rather than science. We urge legislators to base science policy on the best consensus among researchers in the field, rather than the emotional appeals of an agenda-driven group, especially one that attempts to bully into silence those with opposing opinions. Perhaps more importantly, autism researchers themselves need to make clear how far outside the mainstream these views are, or risk having more resources diverted in pursuit of this unlikely idea.

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