

Dear Chairman Weisz and Members of the Human Services Committee,

My name is Paul Carson. I am a physician who specializes in the area of infectious diseases, and am a Professor at North Dakota State University in the Dept. of Public Health, where I am the Medical Director of the Center for Immunization Research and Education. However, my comments today are not on behalf of NDSU.

I am testifying today in opposition to HB 1306 as I believe it is unnecessary, and would be a misuse of ND taxpayer money.

What I want to briefly address with you today, is how do we as scientists establish that something causes something else, in particular, how do we establish that something we do (e.g. receive a vaccine) may cause something bad to happen (e.g. autism or SIDS)? This is more difficult than you might think, as it is often very hard to separate out the item in question, (e.g. vaccines) from all the other things that could influence a particular outcome. We use what is called the “hierarchy of evidence”, which assigns studies to a level based on the quality of their results obtained from research.

To illustrate this, I’m going to use a few examples.

Let me start with a brief, true story that was written about and published. It concerns a young physician in PA, who decided to bring his 8-month-old son to a big flu blitz clinic for his first flu shot. He stood in a long line, and it was late in the afternoon, and after a while, he decided the wait was too long, so he decided to put it off for another day. Tragically, his son died of SIDS that night. This physician then realized had he completed his mission of getting his son vaccinated that day, and observed the tragedy of his son’s death that night, almost nothing would have shaken him from the belief that the vaccine caused his son’s death. And this would have been a completely fair, reasonable, and understandable conclusion. But of course, had he done that, his conclusion would have been completely wrong. This story illustrates what we call the lowest level of evidence, anecdotal observation. It is compelling, but by its very nature, it is anecdotal and prone to error.

The idea that vaccines may cause problems like autism and SIDS, gained traction with the publication of a paper in 1998 by a British researcher named Andrew Wakefield. In that paper he speculated a possible connection between autism and the receipt of the MMR vaccine. The paper had seismic effects, which now ripple outward even to this committee decades later. His study was a very small case-series of only 8 children, a little better than anecdotal data, but in the research world, still considered pretty weak. To make matters worse, his research was subsequently found by an investigative reporter to have falsified data, not gotten proper research approval, and did not disclose major financial conflicts of interest. His co-researchers asked to be removed from the paper, the paper was eventually retracted, and the physician lost his medical license over the debacle.

The next level up in research quality is what we call ecological studies. These are studies that compare populations overall, e.g. “countries that give more vaccines tend to have higher rates of autism”. But you do not need to be a research scientist to recognize that there might be all kinds of other reasons for that association (like, countries that give more vaccines might have more sophisticated surveillance for problems like autism). And we don’t give vaccines to countries or populations overall, we give them to individuals. The example I teach in my class is the very real observation that rising autism rates have

very closely paralleled rising sales in organic foods. Frankly a much tighter correlation than with vaccines. But this lacks biologic plausibility, another thing we look for when trying to establish causality.

Anecdotal cases, case series, and ecological studies are all useful in that they can raise questions, but they do not answer the question. The question this bill seeks to answer has been raised already, numerous times, and it has been addressed by doing the hard and costly work of much higher quality research... those with a control group. It is imperative to look at studies with control groups, to see if the variable in question (vaccines) causes more problems than in a control group that does not receive that exposure. And this has already been done..... a lot!

The Cochrane group is an objective, non-conflicted, multi-national research group that uses the highest standards of evidence-based medicine to review a number of controversial health topics. They have reviewed this issue on several occasions, most recently last year, and collected and summarized 138 studies involving over 23 million children worldwide, the vast majority being case-control, and prospective cohort studies (the best study designs we have short of RCTs), and have found no evidence of any connection with MMR or Varicella vaccines and autism. Here is their summary infographic:

[https://www.cochrane.org/sites/default/files/public/uploads/mrrvaccvisabs\\_final\\_-\\_all\\_slides\\_pdf.pdf](https://www.cochrane.org/sites/default/files/public/uploads/mrrvaccvisabs_final_-_all_slides_pdf.pdf)

Similar reviews have been done on studies looking at the association with vaccines and SIDS, almost all showing either no association, or an actual decline in SIDS in association with vaccination.

It would be very difficult for North Dakota to be able to make a meaningful contribution to this research given our size and ability to fund anything close to the scale of what has already been done. Given the enormous amount of high-quality research that has already been conducted on this issue, and the growing knowledge of what are much more plausible explanations for these conditions, please vote no on using ND tax dollars to do this unnecessary study.