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# ***AUTISM AND VACCINES: UBC DEFENDS THE FREEDOM TO RESEARCH***

Prof Christopher Shaw advocates scientific freedom for vaccine research.

► **By Danni Shanel**



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With the advent of the recent measles outbreak in the US, the eyes of parents everywhere are once again drawn to the hot-button topic of whether or not to vaccinate their children.

One UBC professor has felt the force of this topic upon his vaccination studies.

In 2011, neuroscientist and professor in UBC's ophthalmology and visual science department Christopher Shaw published two papers concerning a possible correlation between the aluminum found in vaccinations and autism. These were later discredited by the World Health Organization for appearing to declare causation based on correlation. In recent months, these papers have again come under fire.

In the CBC segment "Day 6" last month, Shaw's research was accused of being "anti-vaccination," bringing into question both the integrity of his work and the university's judgement.

According to Shaw, his papers and the 2011 study have been grossly misrepresented, and that vaccines as a whole are not solely responsible for the spike in cases of autism.

Instead, Shaw believes that autism is most

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probably the result of a combination of genetic susceptibility and its interaction with one of many possible toxins.

Shaw's studies look at aluminum in certain vaccines as one of these potential toxins.

"The problem is that aluminum has no role in biology," said Shaw. "It's not an element that you want anywhere near any of your cellular processes — it can mess things up very badly."

As a result, Shaw and co-author Lucija Tomljenovic decided to examine the potential toxicity of aluminum.

They looked at how aluminum was introduced to the human body in processed food, water and anti-acids. They found that one of the main places was through aluminum adjuvants, a vital ingredient in some vaccines. Shaw and Tomljenovic then decided to investigate if there could be a link between the use of these aluminum adjuvants in vaccines and the rates of autism.

Although the authors knew that such research had been widely discredited by the scientific community, they decided to look into it anyway to find a possible link.

"We are scientists," said Shaw. "We do science. You can't avoid something because it has politically or socially charged aspects."



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UBC professor Christopher Shaw continues to study the link between autism and vaccines. Photo courtesy NIAID/Flickr

Although autism spectrum diagnoses began to increase substantially in the 1990s, widespread research ([http://www.cdc.gov/vaccinesafety/oo\\_pdf/CDCStudiesonVaccinesandAutism.pdf](http://www.cdc.gov/vaccinesafety/oo_pdf/CDCStudiesonVaccinesandAutism.pdf)) discredited the link between autism and vaccines in general. The reason for the spike in diagnoses is not fully understood, although some research suggests that changes in reporting

practices and improved diagnostic tools (<http://archpedi.jamanetwork.com/article.aspx?articleid=1919642>) are contributing to the increased numbers.

Still, Shaw believes that there is more at play behind the increase in autism numbers.

“We haven’t had a shift in the gene pool, so if the rates are really changing, then something else is driving it.... Is it absolutely aluminum? No. It could be corn flakes, but that’s why you ask the question,” said Shaw.

In order to examine the link between aluminum and autism, they sampled CDC-recommended vaccines to determine which ones used aluminum adjuvants and in what quantity, then compared that with the autism rates. Shaw said that his study only looks at the increased rates rather than determines a causal link between autism and aluminum.

“All that [the study concluded] was that the rates of autism ... seem to be increasing fairly dramatically,” said Shaw. “One causal factor could be something in a vaccine. Based on what we know about aluminum, we think that aluminum could be contributing to that.”

According to Shaw, he and his team went through the nine criteria developed by British statistician A.B. Hill to determine whether it was worth trying to find a causal relationship between a correlation and found that many of them were satisfied for his research.

Using mice models for experiments, Shaw continued conducting research to find whether increased aluminum injections could replicate something that is similar to autism in mice. While his study could not demonstrate a link between autism and aluminum, the wording of the study (<http://www.ncbi.nlm.nih.gov/pubmed/22099159>) still suggests that it might be there.

“This is where it gets interesting. It is going to be the interception of genetic susceptibility with the presence of some toxin.... It’s not just aluminum — some things are going to have the same sort of interaction,” said Shaw. “And the outcomes, no two cases are identical. So how you get there is probably as individual as the individual.”

Shaw also said that if the aluminum in these vaccines is contributing to rising autism rates, then the answer would not be to ban vaccines, but instead to find a safer adjuvant. He named a calcium-phosphate adjuvant as the nearest possible substitute, which is being tested for safety in a lab in France.

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— Christopher Shaw

Although the WHO discredits the study as being based purely on hypothetical correlation, Shaw said he believed the rest of the study was sound, as it has been anonymously peer reviewed and published in the Journal of Inorganic Biochemistry.

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— Christopher Shaw

"This was probably the most hard-assessed set of reviews I've ever had," said Shaw. "I have never had anything like this in my academic career."

The CBC segment also called into question Shaw's academic integrity, as it pointed out that he received \$860,000 in grant money from the Dwoskin foundation, which has been associated with the anti-vaxxer argument.

Shaw said that even though he accepted the money, his research is not guided by the foundation's principles.

"Claire Dwoskin doesn't call me up and tell me what to do and even if they did I wouldn't do it," said Shaw. "This is science. We will go wherever the science goes, and we will find whatever there is to find or not."

UBC also released a statement regarding Shaw's right to research the link between vaccines and autism at the university being a matter of academic freedom and the scientific process.

"UBC does not endorse any faculty member's research findings as it is up to the scientific community to evaluate research through the peer review process and to respond to findings with additional research," said UBC Associate Vice President Helen Burt in the statement.

"That is the nature of academic freedom — to challenge and have one's findings challenged."

While several of Shaw's students are pursuing different studies concerning vaccines, Shaw's most recent research focuses on Amyotrophic Lateral Sclerosis.