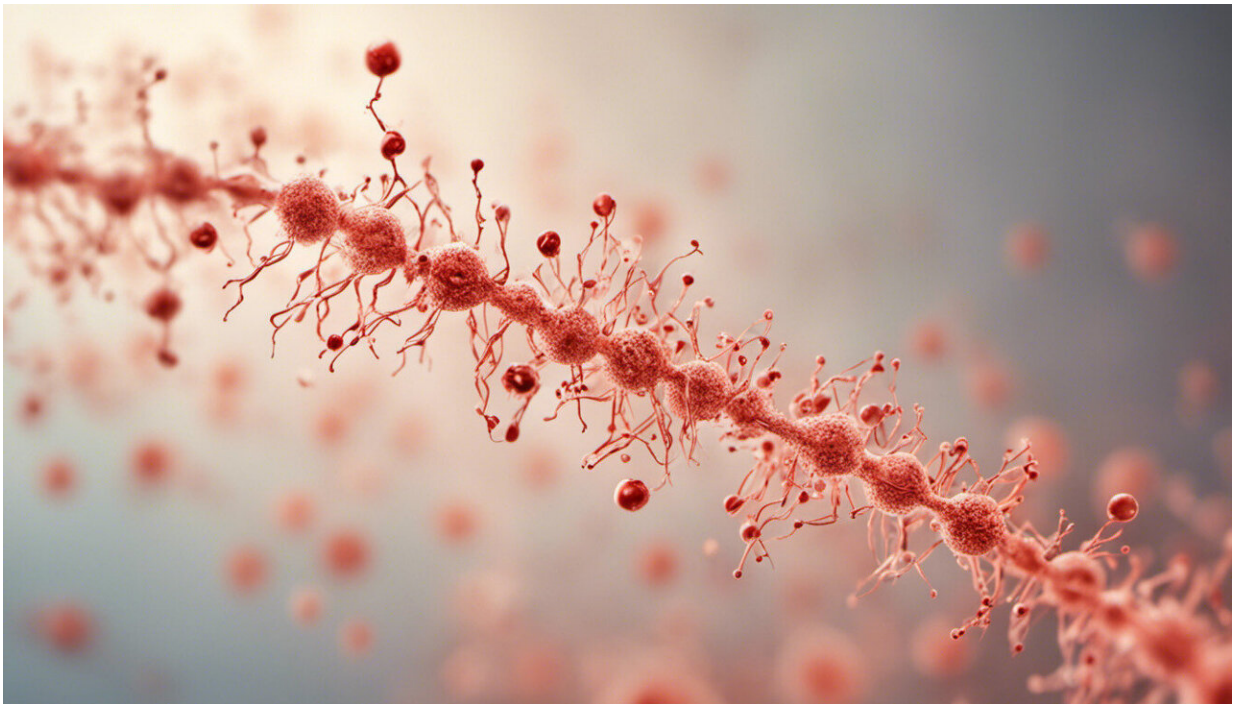


Measles outbreak: Why are anti-vaxxers risking a public health crisis?

May 14 2019, by Gregory C Mason



Credit: AI-generated image ([disclaimer](#))

The current outbreak of measles has startled public health practitioners, who [declared measles controlled over two decades ago](#). We are now grappling with [a low-level epidemic](#) that may become endemic. Health professionals, armed with [the science to back up vaccination](#), strongly disapprove of parents who do not vaccinate their children. They

characterise objections to vaccines as ignorant and [irresponsible](#).

Measles caused 110,000 deaths worldwide in 2018, but so far, only 65 occurred in the Americas (mostly in Venezuela and Brazil) and none in [North America](#). In Canada, the small but rapidly [trending upward number of cases](#) is far from an epidemic.

However, with over 200,000 unvaccinated children [under the age of five](#) and some areas well below the target immunization rate of [95 per cent](#), this may change quickly.

Measles is a highly contagious airborne disease with a relatively small rate of serious [complication](#). With the recommended double dose, the [measles, mumps, rubella \(MMR\) vaccine is 97 per cent effective against measles](#).

Anti-vaxxers also cite the [complications of vaccination](#) as a reason to doubt the value of the MMR vaccine. But these complications are exceedingly rare.

Weighing the decision of not to vaccinate with the probability of falling ill is at the heart of the risk analysis made by all [parents](#).

Applying risk analysis to a public health crisis

I am an economist and [the anti-vaxx movement](#) makes me think of how a risk analysis could offer insight into the anti-vaccination decision of some parents.

Risk analysis uses probability to predict the ultimate impact of a [decision](#). We use risk analysis every day from simple problems such as whether to take an umbrella based on a weather forecast, to assessing when it is safe to cross over into oncoming traffic to pass another car. Getting wet

because we forget an umbrella has a smaller consequence than making a poor car-passing decision.

Just how do we combine probability of an outcome with the impact of that outcome to make the best decision?

Most commonly, everyday experience is our guide. We get wet once because we leave the umbrella at home, and then we start using the weather forecast and the probability of precipitation as a guide. Those of us who are averse to a bad hair days will pack an umbrella with just a 10 per cent chance of rain. Others will take no preventive action until forecasters set precipitation at 75 per cent. We balance the probability of an occurrence with its perceived cost or benefit if that outcome transpires.

The essential problem with [risk analysis](#) regarding vaccines and [anti-vaxxers](#) is that parents have increasingly limited time to assess complex medical issues. Risk analysis requires the balancing of probabilities and context and that is hard to do with health related decisions.

Anti-vaxxers

Normally for health matters we have relied on experts such as a [family physicians](#) or [public health](#) information offered by governments and trusted third parties.

But medical advice no longer comes just from family physicians. A growing panoply of wellness practitioners advise the public. While creating a [holistic definition of health](#) makes sense, it has also had the unintended consequence of creating an opening for [an army of so called "experts" who opine on health matters](#), often crowding out information from traditional medical sources.

Also, as I recall when a parent of young children, [many parents are sleep deprived](#), giving them little time to fact-check so many rely on the advice of friends and doctors. Social media has also created [echo chambers of misinformation](#) and it is easy to fall into a circle of "virtual" authorities that first create then build on misinformation.

Complicating the assessment of risk from measles is the increasingly [sophisticated](#) internet-based advocacy against vaccination that sow fear, uncertainty and doubt.

For example, although the direct link between the MMR (measles, mumps, rubella) vaccine and autism has been [laid to rest repeatedly and most recently using big data](#), anti-vaxxers continue to circulate the weak association between aluminum and autism and the fact that some vaccines contain aluminum salts. This partial information leads to an erroneous inference that measles vaccine can lead to autism.

In fact, the MMR vaccine does not contain aluminum salts. Aluminum is the [third-most-abundant element](#) after oxygen and silicon, and any vaccine is a minor source of this element for all of us. But the lingering and faulty inference is that vaccinating your children against measles exposes them to high levels of aluminum and therefore raises the [risk for autism](#).

Many parents do not have the time or ability to undertake the research to penetrate the misinformation of the anti-vaxxers and therefore can be left with a flawed analysis of the risks associated with not vaccinating their children.

Combating misinformation

Let's try and understand why parents are making these dangerous health decisions. I believe that if parents have more accessible information,

they may be more able to undertake a true risk assessment of vaccinations.

Taking on the "myth-information" of anti-vaxxers directly in sharp concise messages and calling them out by name will be more successful than general information on web sites.

Parents need to become better consumers of information: always check the sponsors of websites offering medical advice.

But this may not be enough. I tend to take medical advice on vaccinations. When my physician suggested I was of an age to get the shingles vaccine, I did. But I was ready to do this anyway as I know three people who have had shingles, one mild, the other moderate with lingering pain to this day, and one who had a severely disfiguring case that triggered early retirement.

My direct experience with the disease really prompted my decision to vaccinate.

I fear that only when some children die, or become severely damaged as was common in the pre-vaccination days, will risk become real to [vaccine](#)-hesitant parents, and then we will see a stampede to get the shots.

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Provided by The Conversation

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<https://medicalxpress.com/news/2019-05-measles-outbreak-anti-vaxxers-health-crisis.html>

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