

Immunization Myths

1. MMR causes autism.

False. In 1998, Dr. Andrew Wakefield published a study in a medical journal called *The Lancet*, which tried to establish a link between the vaccine, an inflammatory bowel condition, and autism. This event had an immediate negative impact on the rate of vaccination of children, especially in the United Kingdom. By 2003/04, the immunization rate there had dropped by 11% to 81%, and reported cases of mumps had risen fourfold. Interestingly, autism rates remained stable during the same period of time, despite the decreased immunization rate.

Since the publication of this paper, many studies have been undertaken to attempt to test Dr. Wakefield's results. Twenty large studies, performed in several countries, by different investigators, using a variety of methods have reached the same conclusion: there is **no** relationship between the measles-mumps-rubella vaccine and autism.

2. Thimerosal in vaccines is harmful.

False. Thimerosal (or ethylmercury), is a substance included in some vaccines that are packaged in multiple dose format to act as a preservative against bacterial contamination of the vaccine. Thimerosal is a very different compound than methylmercury, which can cause severe brain damage. Thimerosal has not been found to be harmful to people in seven separate studies, but was removed from all routine childhood vaccines in Canada by 2001 as a precautionary measure. A small amount of thimerosal is still included in flu vaccine, and in multi-dose vials of hepatitis B vaccine.

3. Multiple vaccines overload the immune system.

False. Vaccines do not overwhelm the immune system. Even infants, whose immune systems are relatively immature, are able to produce a variety of protective responses immediately to the things they are exposed to in their environment. And although there are many more vaccines given to infants and children today than there were 25 years ago, the components in these vaccines have decreased from more than 3000 in 1980 to less than 200 components in today's vaccines.

4. Vaccines are harmful. I read it on the internet.

False. In the first place, while the internet can be a marvelous source of information, not all of the data found there is scientifically accurate. In order to help establish whether or not a particular site contains reliable information, you may need to ask yourself a few questions:

- What is the source of the information? A trustworthy website should provide the name of the person or organization responsible for the site, and a means of contacting the provider.

- Has the information been reviewed by scientific experts in the field? The reviewers' names and credentials should be clearly listed. Be wary of information provided by unnamed "well-known scientists" or "world-famous researchers".
- Is there a date indicating the last review of the information? Reliable websites will be regularly maintained and updated. If the date of the posting is not available, the information may not be current.
- Are the website claims supported by scientific evidence? Reputable websites will provide the source (e.g., medical journal article) for their scientific evidence (e.g., statistics, studies). Be cautious of websites that provide emotional accounts of children harmed by vaccines, and look to ones that report the scientific facts.

Secondly, vaccines are very safe and effective. In fact, the World Health Organization estimates that vaccines prevent two to three million deaths per year worldwide. Vaccination programmes have been so effective that in Canada, some diseases are rarely seen anymore. Manufacturers are strictly regulated and any new vaccine must be shown to be highly effective without causing harm. Additionally, nurses from York Region Community and Health Services inspect every refrigerator in York Region that stores publicly-funded vaccine at least once a year to ensure that the vaccines are being stored correctly. This is to make certain that the vaccines are potent and effective when they are administered. Finally, every report of a serious adverse reaction to a vaccine is followed up, investigated, and reported to the Ministry of Health and Long Term Care.

5. Vaccines can cause the disease they are supposed to prevent.

False. There are several types of vaccine currently in use in Ontario: purified, inactivated and live. The purified and inactivated vaccines do not have any living germs in them, and are not able to produce disease. They stimulate the immune system to respond, without causing illness or infection. Live vaccines *do* infect the cells, and multiply in the body, but the vaccine viruses have been so weakened that they stimulate immunity without causing full-blown illness. Vaccines are highly effective, but no vaccine is 100 percent guaranteed. Some individuals will not develop immunity after vaccination.

6. Flu vaccine can cause the flu.

False. Every year, there are reports of people who received the flu vaccine and then developed the disease. For each flu season, three strains of flu that are predicted to be in circulation are included in the vaccine. Since there are many more strains of flu, it is possible for someone to be infected with a strain that is not included in the vaccine. In addition, it takes about two weeks for a person who has been vaccinated to develop protection against the vaccine. The vaccine itself does not contain any live flu viruses and is therefore not able to cause the disease in the person being vaccinated.

7. Delaying vaccination until infants are older is better.

False. Infants are able to respond to vaccinations from a very young age, and there is no evidence that side effects from vaccines are more common in infants. The vaccines that are given early begin to protect them from diseases that are most likely to develop serious complications at an age when they are the most vulnerable. Combination vaccines have been shown to be as effective and safe as vaccines that are given separately, without additional doctors' visits, and with no increase in the risk of side effects. Additionally, an alternate vaccine schedule can be more difficult to follow, with the possible risk of missing some doses of vaccine. This could

leave children incompletely protected from serious preventable diseases.

8. Natural infection is better at producing immunity than vaccines.

False. Immunity achieved by vaccination is as effective as immunity achieved after disease, with the benefit of not having to endure the illness. Natural infection and vaccination both produce immunity that is specific to a disease, and they both establish immune memory. This means that if the disease is encountered again, the body's immune system will already have a plan in place to recognize the germ and defend itself.