

## **APPENDIX 1. Misconceptions About Vaccine Safety**

### **1. Vaccines are not safe**

Vaccines are thoroughly tested before approval and continue to undergo safety monitoring after approval. Vaccines are among the safest medical products available. Serious side effects are very rare. In contrast, the diseases that vaccines prevent are serious threats to health, even today.

### **2. Vaccines don't work**

Although vaccines are highly effective, they may not protect everybody who has been vaccinated during an outbreak, and up to 10 to 15% of people may develop the disease. However, almost 100% of those who have not been vaccinated will get the disease if they are exposed. Vaccination is the best way to prevent disease and reduce the risk of disease transmission.

### **3. Vaccination is linked to diseases like autism, multiple sclerosis, and sudden infant death syndrome**

Numerous excellent scientific investigations using rigorous scientific methods have determined the following:

- Measles, mumps, and rubella vaccine does not cause autism.
- Hepatitis B vaccine does not cause multiple sclerosis or relapses of multiple sclerosis.
- Pertussis vaccine does not cause brain damage.
- Childhood vaccines do not increase the risk of asthma.
- Influenza vaccine does not cause Guillain-Barré syndrome.

Although allegations to the contrary still circulate, these allegations are false.

### **4. Vaccines weaken the immune system**

In fact, vaccines strengthen the immune system by stimulating immune memory. When a vaccinated individual encounters the disease, the immune system is stimulated to respond immediately and eliminate the organism, preventing illness.

### **5. Vaccines have many serious side effects**

Almost all vaccine side effects are mild and temporary, like a sore spot and redness at the injection site or mild fever. These can be managed with acetaminophen. Serious side effects are so rare that the risk cannot even be calculated accurately.

### **6. Vaccination is not necessary because the diseases are gone**

Vaccine-preventable diseases have not disappeared even though they are not common in Canada. Diseases return rapidly when their vaccination rates decrease. Small outbreaks can turn into epidemics rapidly if much of the population is not protected by vaccination.

### **7. Vaccines contain toxic substances**

The killed or attenuated organism is the main ingredient in a vaccine. Vaccines also contain adjuvants to increase the immune response to the vaccine and preservatives to prevent contamination. All vaccines meet rigorous safety standards. For example, thimerosal, a preservative, has been determined to be safe. Formaldehyde is used to weaken or inactivate the virus and is removed during manufacturing. Vaccines do not contain antifreeze.

### **8. Some vaccines aren't safe because they are released too soon**

Canada carefully controls the approval process for vaccines: all must meet strict scientific standards for effectiveness and safety before they are approved for use. Health Canada also tests the vaccine in its own laboratories. Even in cases of outbreaks, vaccines are not approved for use until they have met all the normal effectiveness and safety standards.

**Adapted from:** Health Canada. It's Your Health. Misconceptions about vaccine safety. Updated December 2011. Available at <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/med/misconception-eng.php>.

