HealthLinkBC

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Childhood vaccines: What is in vaccines and why

Immunization has saved more lives in Canada in the last 50 years than any other health measure.

What is in childhood vaccines?

Vaccines are made with ingredients that make them safe and effective at preventing disease. Vaccines help your child's immune system build protection against disease-causing germs (viruses and bacteria). Vaccines contain killed or weakened germs or parts of the germs called antigens. Some newer vaccines contain instructions that the body uses to make antigens. When your child gets a vaccine, their immune system makes antibodies to the antigens. These antibodies will protect your child from the germ if they are exposed to it.

What are some of the other ingredients in vaccines?

Many vaccines have ingredients that improve the immune response to the vaccine. Other ingredients keep vaccines stable and prevent contamination by bacteria and fungi.

Ingredients such as aluminum salts, antibiotics and formaldehyde keep vaccines safe and effective. Studies have not linked these ingredients to disease or illness. Below are some of the ingredients in vaccines:

- **Antibiotics:** Some vaccines contain small amounts of antibiotics. Antibiotics are used to prevent bacterial contamination during vaccine production
- **Aluminum salts:** Aluminum salts have been used in vaccines for many years. They improve the body's immune response to the vaccine, giving your child better protection from disease
    - Children are naturally exposed to aluminum in the environment. Aluminum is in the air, food and water. It is even in breast milk and infant formula. The amount of aluminum in a vaccine is similar to what a baby may get from infant formula each day
- **Formaldehyde:** Some vaccines are made from germs or toxins that need to be killed, weakened or inactivated to prevent disease. Formaldehyde is used to do this and then it is removed. Any tiny amount left in the vaccine will not harm your child
- **Other ingredients:** Other ingredients keep vaccines stable and safe during production, shipping and storage. Examples are sugars, amino acids, salts and proteins, such as albumin and gelatin

Do childhood vaccines contain thimerosal?

In B.C., routine childhood vaccines have not contained thimerosal since 2001, except for some influenza vaccines. Thimerosal is a preservative that contains ethylmercury. It is present in small amounts in some influenza vaccines to prevent bacterial and fungal growth. Receiving a vaccine contaminated with bacteria or fungi could make a person sick.

Many studies have shown that the thimerosal in vaccines does not harm children.

Do vaccines contain human or animal cells?

No. Vaccines do not contain human or animal cells. These cells are only used in the early stages of vaccine production. The viruses needed to make some vaccines can only grow in human or animal cells.

After the virus is grown, it is separated from the cells and used to make the vaccine. No cells are present in the final vaccine.

Why do some vaccines contain egg protein?

Some vaccines are made from viruses grown in eggs or in cells taken from eggs. These vaccines may have small amounts of egg protein from the manufacturing process.

Examples of vaccines that may contain egg protein include:

- MMR (measles, mumps and rubella)
- MMRV (measles, mumps, rubella and varicella)
- Influenza

These vaccines are safe for children with egg allergies.

For more information

For more information on childhood immunization, visit:

- HealthLinkBC File #50a Your baby's immune system and vaccines
- HealthLinkBC File #50b The benefits of immunizing your child
- HealthLinkBC File #50c Childhood vaccines are safe
- HealthLinkBC File #50e A better immunization experience for your child