

Immunization

An important choice you make for your child

What you need to know about childhood immunizations



This book has been developed for parents by health care providers
who strongly recommend childhood immunizations.

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An electronic version is available at: www.vch.ca/public/immunization/

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Dear Parents,

We want to answer all your questions about childhood immunizations. This book contains the latest information about the importance and safety of childhood immunizations. If you would like more information than you find here, please let us know.

Protect your child against serious diseases by choosing vaccines for your child.

Sincerely,
Your health care provider

BENEFITS

BENEFITS

VACCINE-PREVENTABLE DISEASES

DISEASES

MULTIPLE SHOTS

MULTIPLE
SHOTS

WHAT'S IN VACCINES?

WHAT'S IN
VACCINES?

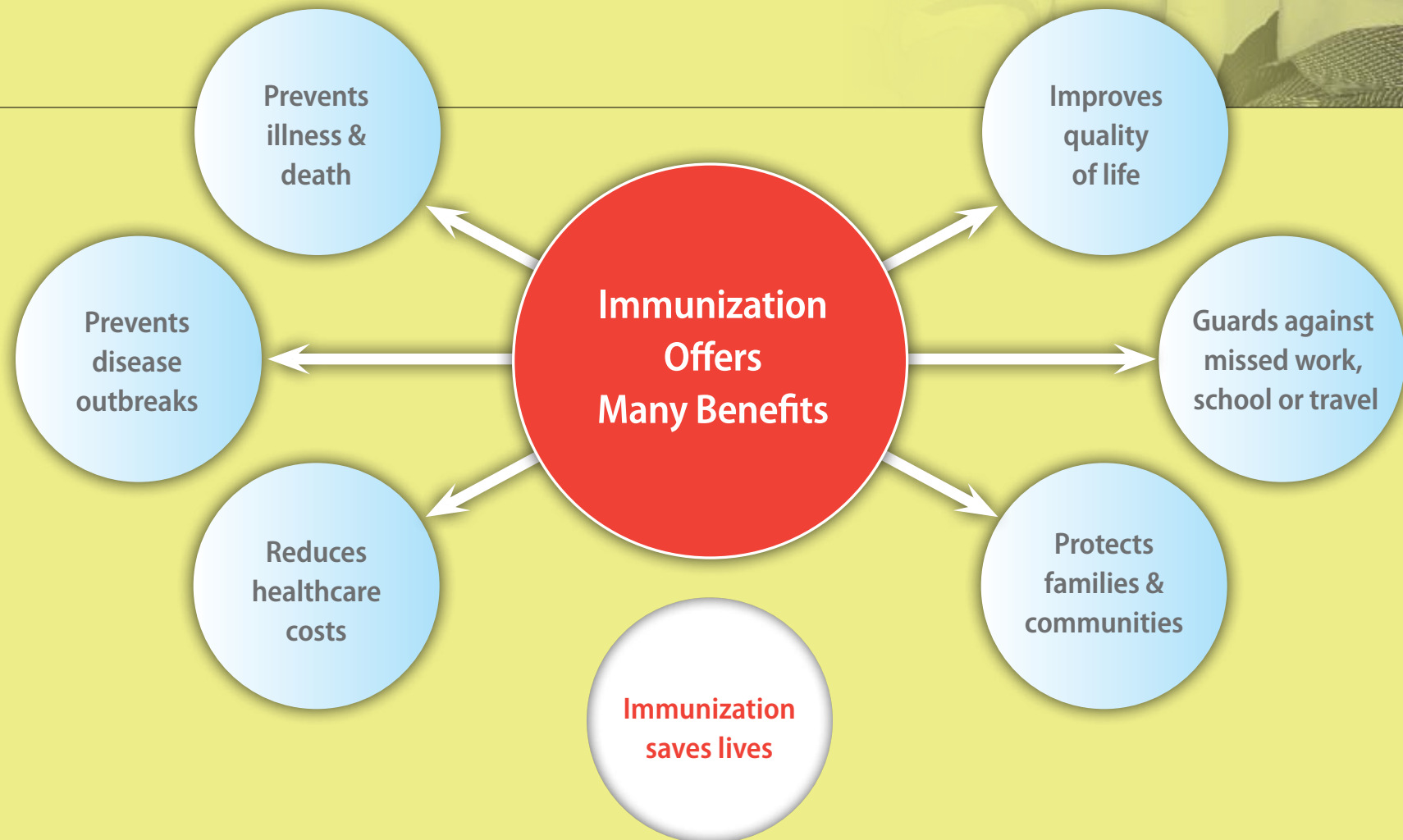
VACCINE SAFETY

SAFETY

RESOURCES

RESOURCES

Immunization: a healthy choice for everyone



Vaccines protect everyone

Vaccines protect in two ways. When **children** get their shots, they are protected personally against diseases. As well, when most children are immunized, it's harder for disease to spread from person to person. This helps build a circle of protection around a **whole community** and protects those who can't be immunized for medical reasons or for whom a vaccine might not be 100% protective.

The circle of protection

Your child's immunizations help protect others too:

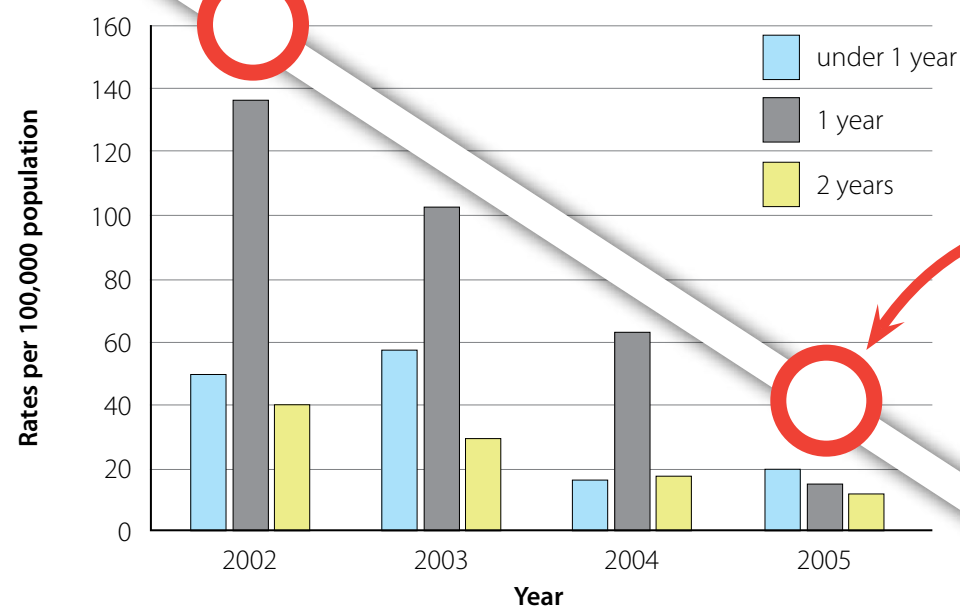
- A newborn child
- A grandparent being treated for cancer
- A relative or friend in poor health
- A child who can't be immunized



Vaccines work quickly to protect children

When a new vaccine is made available to children, the number of children who get sick drops quickly. Here's a look at how quickly the pneumococcal conjugate vaccine worked to protect young children in British Columbia.

Before vaccine



The grey bars on the diagram show a large drop in the number of one-year old children who got pneumococcal disease after the vaccine was given to children, starting in 2003.

After vaccine

Source: Paulus, S., et al. (2006). Incidence of invasive pneumococcal disease after introduction of the universal infant immunization program, British Columbia (2002–2005). CCDC, 32–14.

Incidence of invasive pneumococcal disease in B.C. in children under 3 yrs.

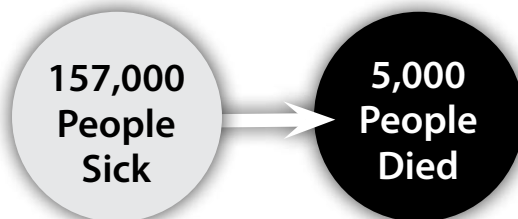
Immunization saves childrens' lives

Vaccines work best when all children are immunized. The following stories show what happened in some countries when large groups of children did not get immunized. Many people became sick and died. This happened in England, Russia, Japan, Sweden, Italy and many other countries. Canada has not seen large-scale outbreaks because childhood immunization rates remain high. However, if too few children are immunized it can happen in Canada too.

A story from **Russia**

In the late 1980s the public health system collapsed with the break-up of the Soviet Union and children were unable to get their vaccines.

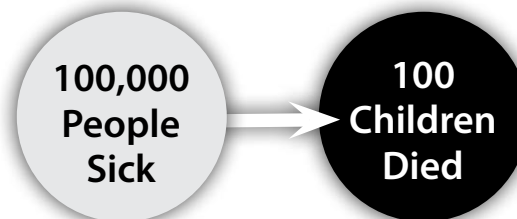
Result = diphtheria epidemic



A story from **England & Wales**

From 1977–1979 whooping cough immunization rates dropped too low.

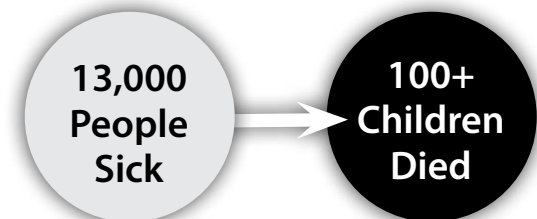
Result = whooping cough epidemic



A story from **Japan**

From 1976–1979 whooping cough immunization rates dropped too low.

Result = whooping cough epidemic



When the number of children immunized goes down, the number of people who get the disease goes up.

Immunization is the best protection now and in the future

Where will your child be 5–10–20 years from now?
Vaccines will help protect your child everywhere they go throughout their life.



✓	Here are places your children will be protected
✓	Daycares, pre-schools, schools
✓	Birthday parties
✓	Waiting rooms at doctors' offices
✓	Summer camps
✓	Airplanes, public transit
✓	Colleges and university residences
✓	Community centres, churches, concerts
✓	Workplaces
✱	Getting all shots on time is the best protection

Diseases

Childhood vaccines are provided free to protect against these diseases. Read this section to learn why immunization is your child's best protection.



DTaP–IPV–Hib COMBINED VACCINE

DIPHTHERIA (D)

TETANUS (T)

PERTUSSIS (aP) (Whooping cough)

POLIO (IPV)

HAEMOPHILUS (Hib)

MMR COMBINED VACCINE

MEASLES (M)

MUMPS (M)

RUBELLA (R)

SINGLE VACCINES

HEPATITIS B

MENINGOCOCCAL

PNEUMOCOCCAL

VARICELLA (Chickenpox)

INFLUENZA (The flu)

The ultimate truth: “Parents who decide not to vaccinate, actively decide to leave their children susceptible to disease.”

Dr. Gary Marshall,
Professor of Pediatrics and Immunization Expert

Vaccines protect against very infectious diseases

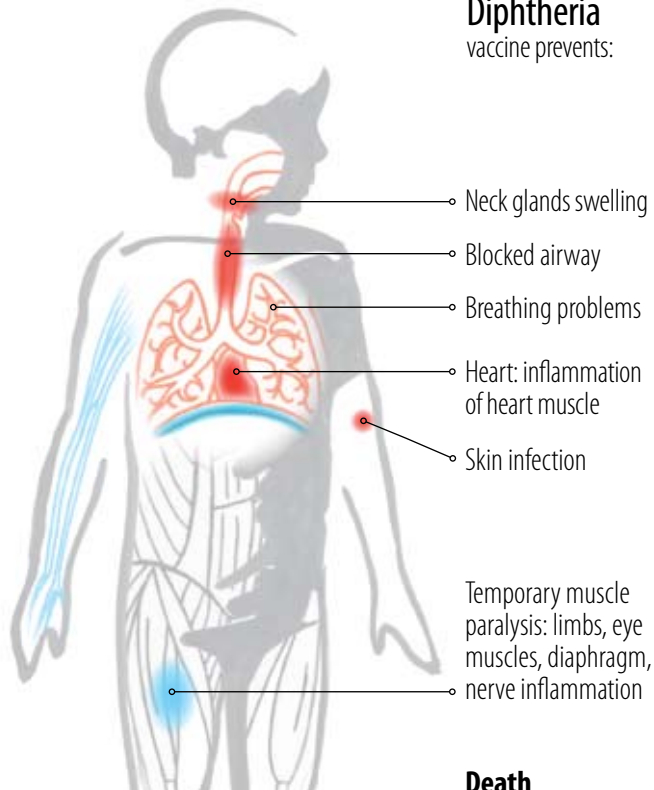
This is how pneumococcal germs and many other germs can spread from one child to another.



Diphtheria

Part of the DTaP-IPV-Hib combined vaccine

Diphtheria vaccine prevents:



Diphtheria can be a deadly disease because some types attack the airway and vital organs. Although rarely seen in Canada today, it's easy for diphtheria to return if too few people get immunized. This has happened in several places around the world. **The diphtheria vaccine is safe.** It's your child's best defence.



Diphtheria vaccine works*

Q

Before diphtheria vaccine, how many people got sick in Canada each year?

A

Up to 9,000 people

Q

Since diphtheria vaccine, how many people get sick in Canada each year?

A

1 person in 2004



Did you know?



One person in 10 who gets diphtheria will die, even with treatment.

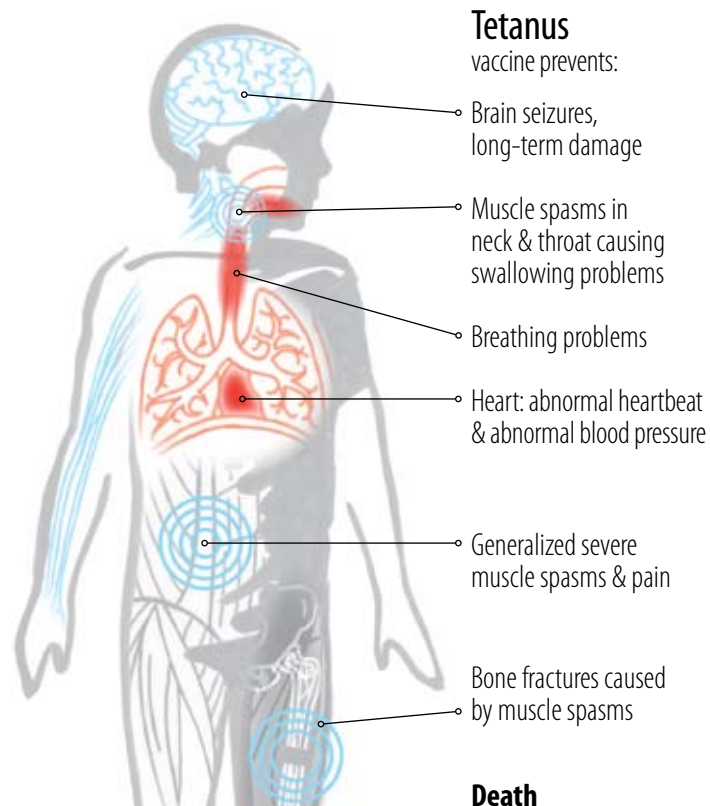


Parents need reminders too. To maintain lifelong immunity, adults need a tetanus-diphtheria booster shot every 10 years. Pass this message on to your family and friends.

*Source: Provisional Data Public Health Agency of Canada

Tetanus (Lockjaw)

Part of the DTaP-IPV-Hib combined vaccine



Tetanus is a **life-threatening** disease caused by a germ found in dust and soil. Unlike other vaccine-preventable diseases, it's found in our environment and doesn't spread between people. The germ enters the body through a break in the skin. There is no other protection against tetanus except the vaccine. **The tetanus vaccine is safe.**



Parents' questions



Where could my child come in contact with tetanus?



Tetanus lives amongst us. Here are examples of where it can be found:

- The soil in your garden or the playground
(1/3 of all soil samples in North America contain tetanus spores)
- Animal and human feces
- Dust – streets, houses, buildings



Did you know*



Since tetanus vaccine has been used in Canada, the number of people sick with tetanus has gone down over 90%.



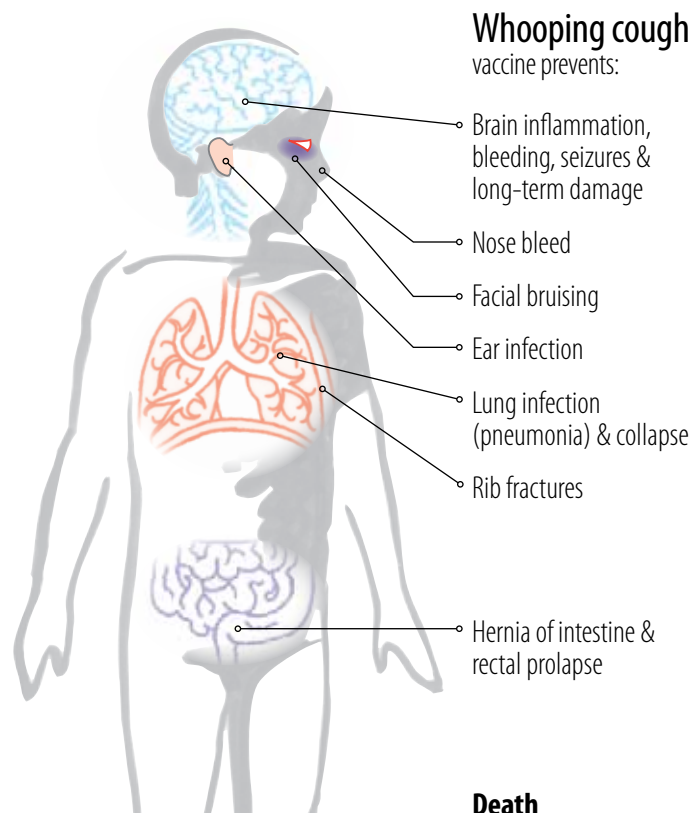
Parents—remember your booster every 10 years

*Source: Canadian Immunization Manual, 7th edition, 2006.

Pertussis

(Whooping cough)

Part of the DTaP-IPV-Hib combined vaccine



Whooping cough is still common and affects people of all ages, but is most severe in young children. Every year 1 to 3 infants die in Canada from whooping cough. That's why it's very important for all children to receive the vaccine. **The whooping cough vaccine is safe.** It's your child's best protection.



Whooping cough vaccine works*

Q

Before this vaccine, how many people got sick in Canada each year?

A

Up to 25,000 people

Q

Since this vaccine, how many people get sick in Canada each year?

A

2,712 people in 2004



Did you know?



Infants younger than 6 months old get terribly sick if they catch whooping cough. That's why early immunization is so important.



20–30% of infants with whooping cough will be hospitalized.



Someone not vaccinated against whooping cough has a very high risk (90%) of getting sick if exposed because the germ is very contagious.

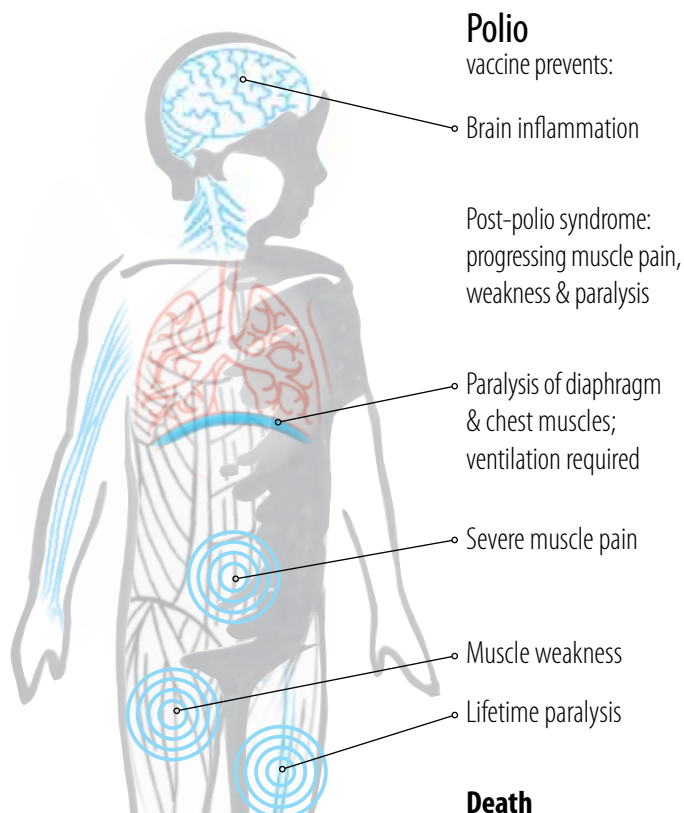


Young babies often catch whooping cough from an adult who thinks they just have a bad cold and cough.

*Source: Provisional Data Public Health Agency of Canada.

Polio

Part of the DTaP-IPV-Hib combined vaccine



The polio vaccine works so well that there is no longer a threat of getting polio disease in Canada. However, until polio is wiped out all over the world, protection is still needed. **The polio vaccine is safe** and is usually combined with other vaccines to provide your child the best protection possible.



Polio vaccine works*

Q

Before polio vaccine, how many people got polio disease in Canada each year?

A

Up to 20,000 people

Q

Since polio vaccine, how many people get polio disease in Canada each year?

A

0 people in 2004

?

Parents' questions

Q

If polio disease is no longer in Canada how could my child get polio?

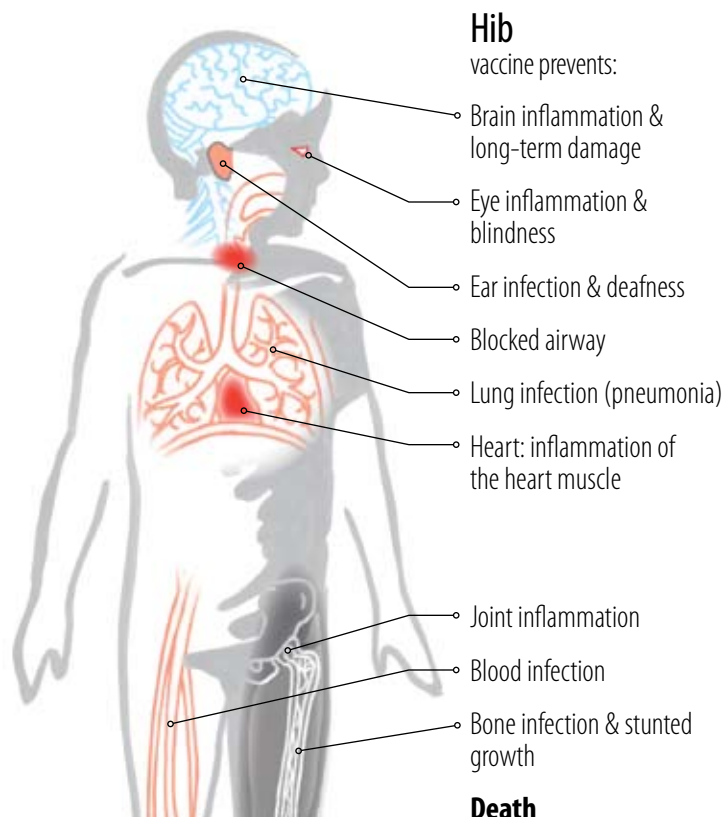
A

Today, the highest risk of getting polio is through travel. An infected traveller could bring polio to Canada, or exposure could happen while travelling to another country where polio still exists.

*Source: Provisional Data Public Health Agency of Canada

Haemophilus influenzae type b (Hib)

Part of the DTaP-IPV-Hib combined vaccine



Hib is a severe life-threatening disease. Children under age five are most at risk and 5% will die if infected. The good news is that Hib disease is now rare in Canada, but only as long as immunization rates remain high. **The Hib vaccine is safe.** It's your child's best defence against Hib infection.



Hib vaccine works*

Q

Before Hib vaccine, how many people got sick in Canada each year?

A

Up to 2,000 young children

Q

Since Hib vaccine, how many people get sick in Canada each year?

A

68 young children in 2004

?

Parents' questions

Q

How is the Hib germ spread from child to child?

A

The Hib germ can be spread by:

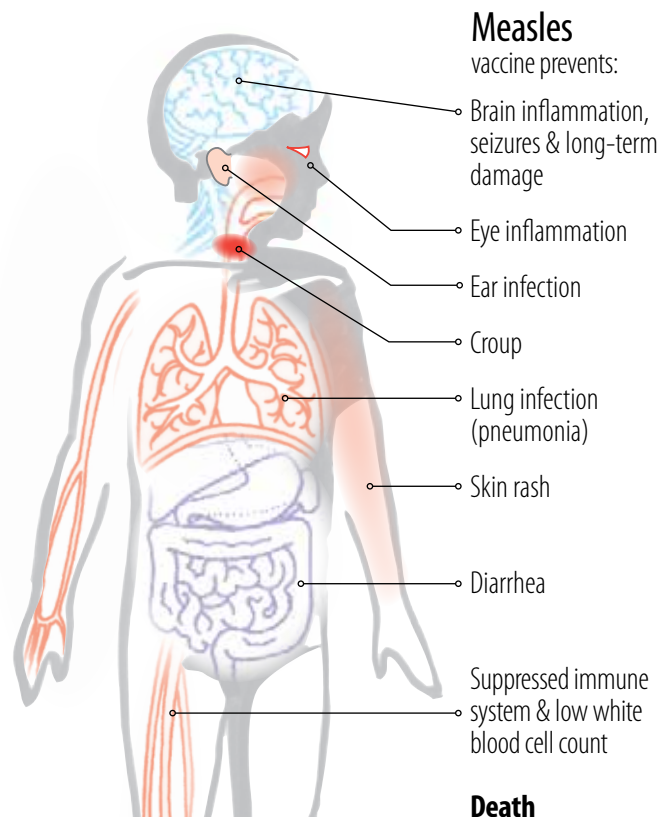
- Sneezing, coughing, sharing food items, and touching toys and other things that have been handled by someone who has the germ.
- Even a healthy child who has been immunized can carry the germ in their nose and throat and spread the Hib germ to another child.

*Source: Provisional Data Public Health Agency of Canada

Measles

(Red measles)

Part of the MMR combined vaccine



Measles is contagious and can cause lifelong brain damage or death. **The MMR vaccine is safe.** It is **NOT** a cause of autism or any other disease. It's your child's best defence against measles.



Measles (MMR) vaccine works*

Q

Before measles vaccine, how many people got sick in Canada each year?

A

Up to 300,000 people

Q

Since measles vaccine, how many people get sick in Canada each year?

A

7 people in 2004

?

Parents' questions

Q

Isn't it better to get natural measles disease?

A

No. Let's compare:

- Encephalitis risk from natural measles disease: 1 in 1,000 children
- Encephalitis risk from measles vaccine: Less than 1 child per 1 million shots; a tiny risk compared to the risk from measles disease.

Did you know?

•

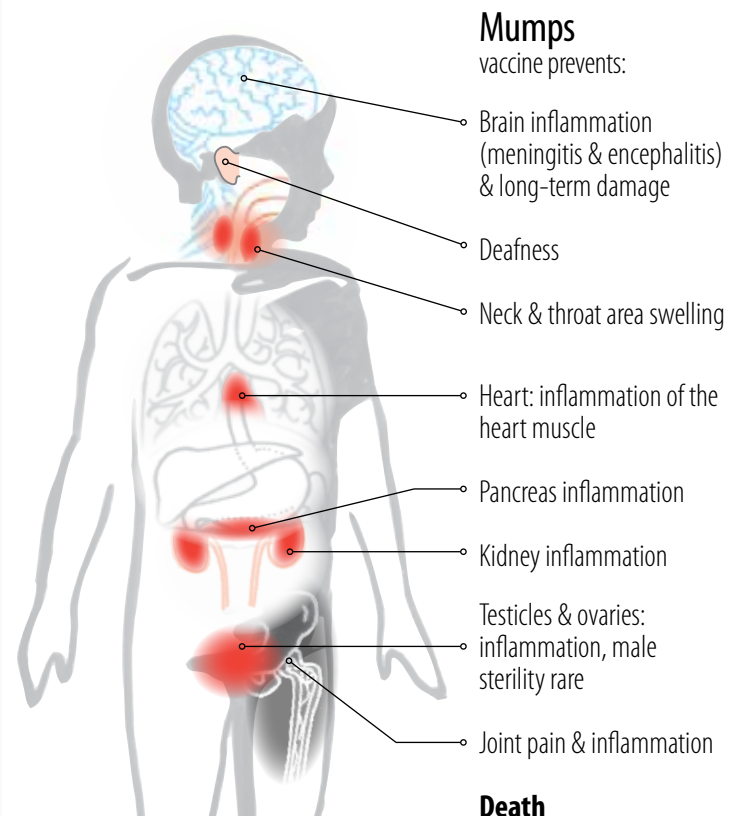
Measles is the leading vaccine-preventable cause of death of children in the world. In 2002 the World Health Organization reported that 35 million people were sick with measles; 614,000 died.

*Source: Provisional Data Public Health Agency of Canada.

Mumps

Part of the MMR combined vaccine

Mumps disease is usually not serious. However, it can cause lifelong problems such as deafness and brain damage. **Mumps vaccine is safe.** It's your child's best defence against mumps.



Mumps (MMR) vaccine works*

Q

Before mumps vaccine, how many people got sick in Canada each year?

A

Up to 52,000 people

Q

Since mumps vaccine, how many people get sick in Canada?

A

32 people in 2004

?

Parents' questions

Q

Isn't it safer for my child to get natural mumps disease rather than the vaccine?

A

No. Let's compare:

- Risk of meningitis from natural mumps disease:
1 in 20 children—this is a high risk
- Risk of meningitis from mumps (MMR) vaccine:
1 child every 800,000 shots—this is a very, very low risk

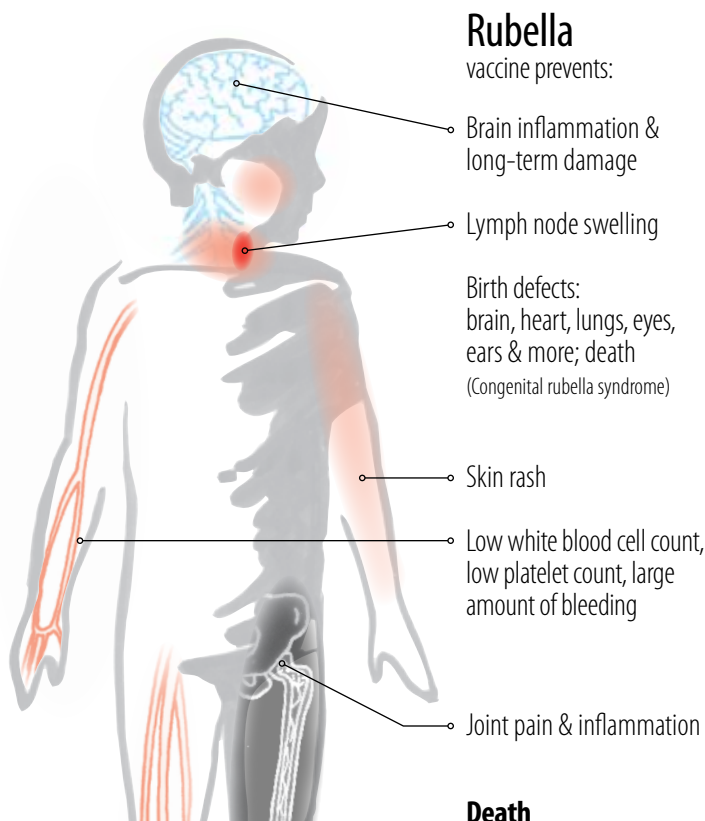
*Source: Provisional Data Public Health Agency of Canada

MMR

Rubella (German measles)

Part of the MMR combined vaccine

Rubella is usually not serious in children, but very serious in pregnant women. Rubella during pregnancy can cause death or severe damage to an unborn child. Although rubella disease is rare in Canada today, it can easily return if too few children get immunized. **Rubella vaccine is safe.** It protects your child and others too.



Rubella (MMR) vaccine works*

Q

Before rubella vaccine, how many people got sick in Canada each year?

A

Up to 69,000 people

Q

Since rubella vaccine, how many people get sick in Canada?

A

9 people in 2004



Did you know?



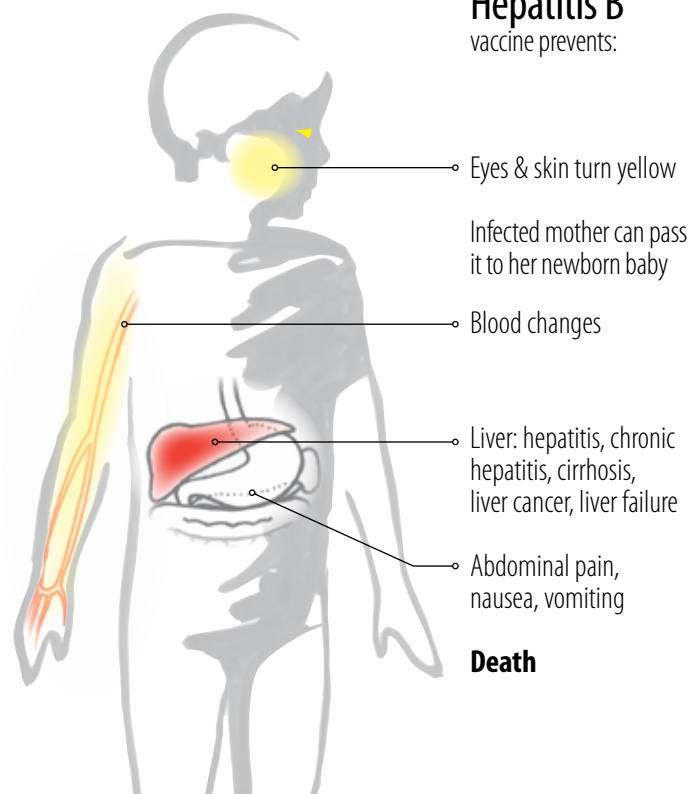
If a pregnant woman gets sick with rubella in the first three months of her pregnancy, there is a very high risk (85%) of damage to her unborn child. High immunization rates can ensure the entire community is protected and prevent this from happening.

*Source: Provisional Data Public Health Agency of Canada

Hepatitis B

Single vaccine

Hepatitis B vaccine prevents:



Death

The hepatitis B germ lives in an infected person's blood and body fluids and attacks the liver. Some people don't know they have hepatitis B and can pass it on to a friend or a loved one. Children should be immunized early; if a baby gets hepatitis B, it's likely (90% chance) they will have the disease for life. **The hepatitis B vaccine is safe** and offers lifetime protection.



Parents' questions



How could my child get hepatitis B?



1. Object to person spread:

- Sharing personal items, such as a toothbrush or razor, that have infected blood on them
- Getting a tattoo or body piercing with equipment that has infected blood on it
- Being poked by a used needle

2. Person to person spread:

- Sexual contact with someone infected
- Being splashed in the face or eyes with infected blood



Did you know?

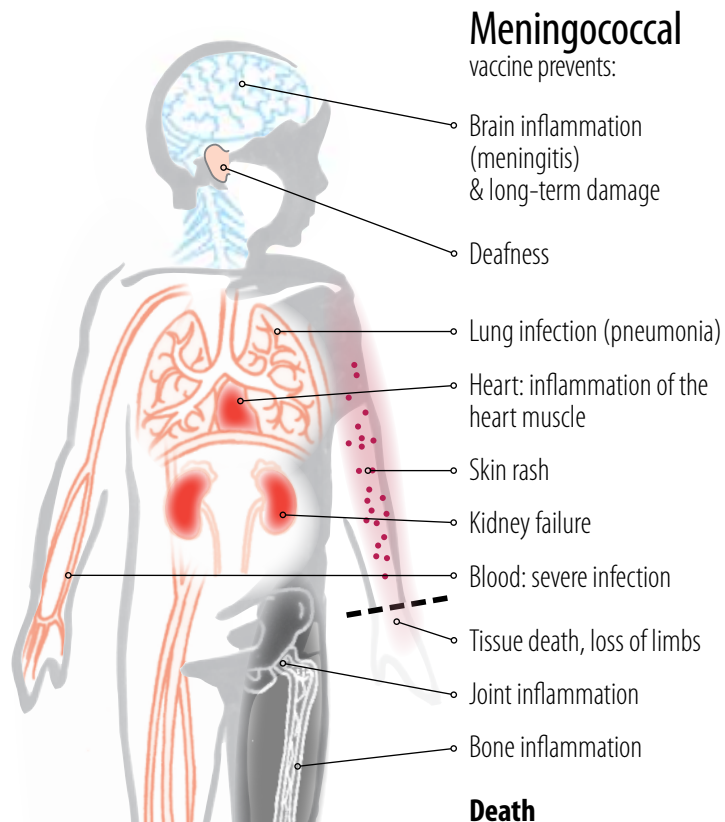


BC has the highest rate of hepatitis B infection in Canada. It's the leading cause of liver cancer in the world.

Meningococcal

Meningococcal disease is a very serious disease that can lead to death. This germ can invade a young child's body quickly, which is why it's important to immunize children as young as possible. **The meningococcal vaccine is safe.** It's your child's best protection.

Single vaccine



Parents' questions



How could my child get meningococcal disease?



Here are 3 ways your child could get infected:

- If your child is standing very close to an infected playmate who coughs or sneezes, infected droplets can land on or in your child's mouth, nose or eyes.
- If your child shares a snack or water bottle with an infected friend, your child can come in contact with their friend's infected saliva (spit).
- If your child shares a toy with an infected friend and puts the toy in their mouth the germ can be passed along.



Did you know?

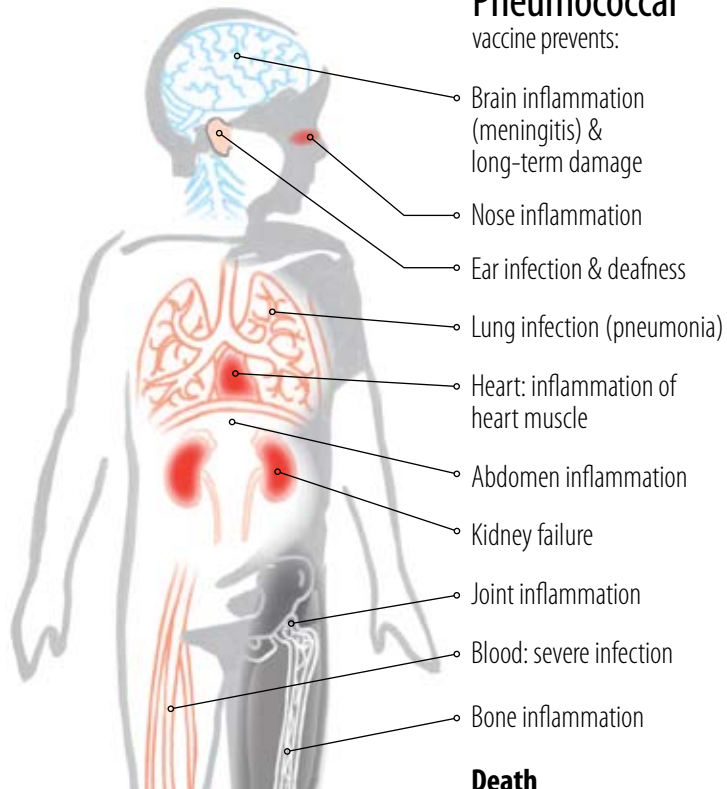


Some healthy people are carriers of the meningococcal germ which they can carry in their nose and throat. These people may not get sick, but they can cause others to get sick.

Pneumococcal

Single vaccine

Pneumococcal vaccine prevents:



Immunizing children against pneumococcal disease, as early as possible, protects them from serious harm such as brain damage and death. Some types of pneumococcal disease are very hard to treat because some antibiotics no longer work. **Pneumococcal vaccine is safe.** It's your child's best defence against pneumococcal disease.



Did you know?

- Pneumococcal germs are common and can live in the nose and throat of healthy young babies. In fact, many people (up to 40%) of all ages carry these germs but don't get sick. Even though these people are healthy, they can infect others who can get very sick with pneumococcal disease.
- For every 20 children that get sick with pneumococcal disease, up to 5 children will die.
- For some people, even with antibiotic treatment, the pneumococcal germ can cause lifelong damage.

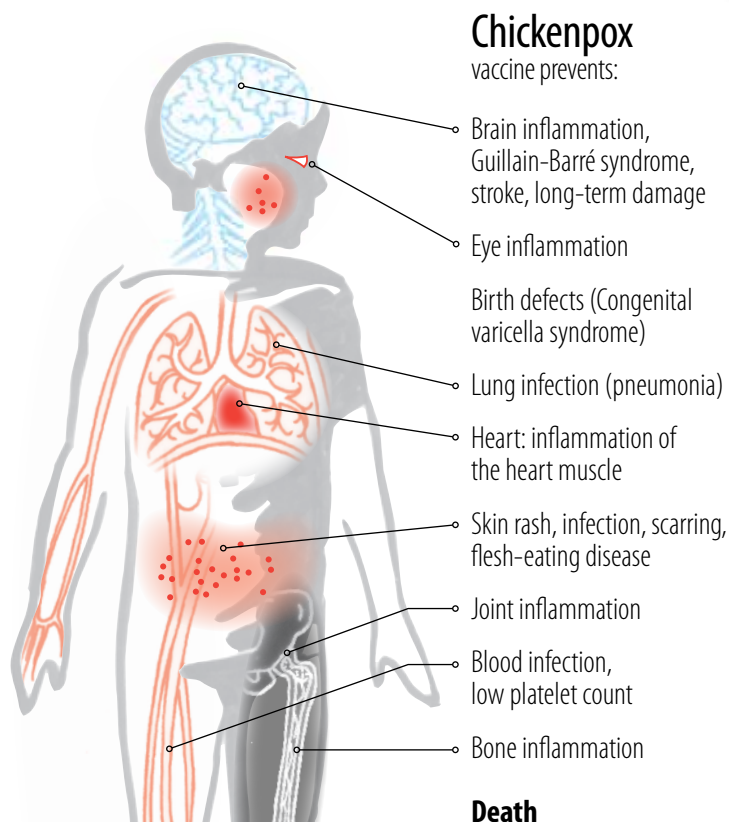


Learn more!

- See page 10 to learn how the pneumococcal germ can be passed from one child to another.

Varicella (Chickenpox)

Single vaccine



Chickenpox is not always a harmless childhood disease. While most people will get a mild to moderate illness, some people get very ill. Chickenpox in adults can be severe, with a death rate 25 times higher than for children. Chickenpox in pregnancy can seriously harm an unborn child. **The chickenpox vaccine is safe and protects your child against severe disease.**



Chickenpox vaccine works



Before chickenpox vaccine, 1,000 people in Canada were hospitalized and 10 died each year.



Did you know?



The average child under age 12 will get about 350 itchy, sore blisters.



The number of blisters goes up with age. An adult can get over 500 blisters.



The blisters can cause lifelong scars on the skin.



Scratching the rash can lead to skin infections such as flesh-eating disease, which can be fatal.



A child with chickenpox can mean time off work for parents and extra treatment costs to help ease the effects of the rash.



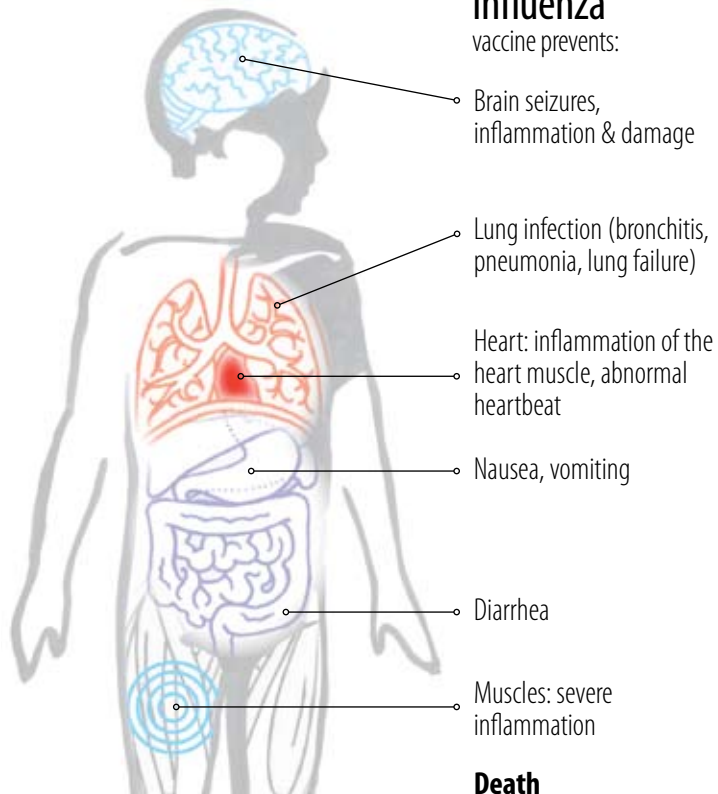
Children who don't get the vaccine risk getting chickenpox later in life when the effects of the disease are more severe.

Influenza (The flu)

Single vaccine

Influenza

vaccine prevents:



Death

Influenza (the flu) can be a severe, life-threatening illness for the very young, the elderly and the sick. A flu vaccine for you, your child, all other family members and caregivers is the best way to protect against the flu. **The flu vaccine is a safe and healthy choice** and is needed every year.



Parents' questions



Can you get the flu from the vaccine?



No. The vaccine is made in such a way that it's not possible to get the flu from the vaccine.



What's the difference between the flu and a common cold or upset stomach?



- The flu is much more severe and attacks the airway and lungs.
- Someone with the flu can be in bed for a week and longer.
- Each year in BC, hundreds of people die from the flu and further events such as pneumonia.
- The flu vaccine protects against 3 serious types of flu germs.



Did you know?



Children younger than 2 years old, even healthy children, are at high risk of needing hospital care if they get sick with the flu. A few children die every year in Canada from the flu.

Childhood immunization schedules



Your child's immunization schedule will be based on your child's age and health status. The vaccines are given free by a public health nurse or a doctor. For the most current childhood immunization schedule visit the ImmunizeBC website and click on the vaccine schedules at:

www.immunizebc.ca

Call a community health centre near you to book your child's immunization appointment with a public health nurse or call your family doctor.

For best protection, get all your child's shots and get them on time.

Multiple shots



Parents tell us they worry about their child getting several shots at the same visit. Please read the following information to learn why this is safe and how it benefits your child.

IMMUNE SYSTEM BASICS

BUILDING IMMUNITY

PARENTS' QUESTIONS

Immune system basics

Vaccines are far safer than getting natural disease. Vaccines help build parts of the immune system that fight certain diseases without your body facing the illness caused by the actual disease. Read on to learn more about some of the immune system's key parts.

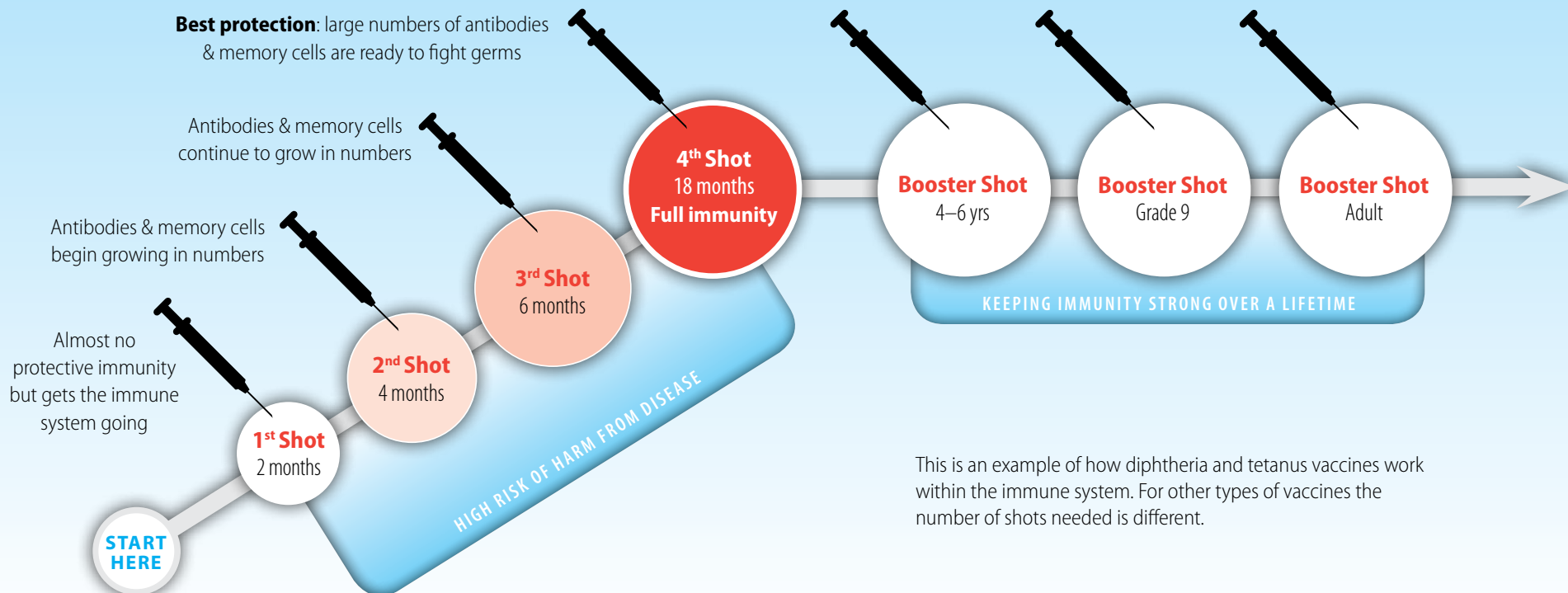
?	Parents' questions
Q	What is immunity ?
A	Immunity is your body's ability to identify an invading germ and destroy it. The best level of immunity against vaccine-preventable diseases is achieved by ensuring your child receives all their shots on time.
Q	What are antigens and how do they trigger an immune response?
A	Antigens sit on the surface of germs. When germs invade your body, your body will "see" the antigens and want to destroy the germs before they make you sick. This triggers the immune response. Your body makes immune chemicals ("antibodies") and immune cells ("memory cells") to kill the germs.
Q	How do antibodies work?
A	Antibodies latch onto the germs' antigens to help your immune system attack the germs and kill them.

?	Parents' questions
Q	How do memory cells work?
A	Memory cells react very fast when they "see" invading germs that they remember. They let your immune system know that the germs need to be killed before they multiply and make you sick.
Q	What is a booster shot ?
A	For some vaccines, booster shots are needed because some antibodies reduce in numbers over time. The booster shot reminds your immune system to make more antibodies.
*	Did you know?
•	Breastfeeding provides many healthy benefits but DOES NOT provide your child with complete protection against vaccine-preventable diseases. All babies should be immunized according to the schedule.

Building immunity

Most vaccines need more than one dose over time to produce full protection. That's why it's important to follow the immunization schedule. It gives the best protection with the fewest doses of each vaccine. Scientists are always looking for new ways to reduce the number of doses and still keep the best protection.

Developing the best protection takes time



The top five questions parents ask about multiple shots



1 **Q** What's the difference in protection if my child doesn't get all their shots needed by a certain age?

A The childhood immunization schedule starts at 2 months of age to provide the earliest protection possible against harm. Skipping some vaccines until later means protection against disease is delayed.

2 **Q** Isn't it too much stress on my child's immune system to get so many shots at once?

A No, your child's immune system is amazing. In theory, a baby's immune system can handle hundreds of vaccines at once. *Disease weakens the immune system, not vaccines.*

3 **Q** Are side effects worse with more than one shot at a time?

A No, reactions are no worse than if the shots were given one at a time.

4 **Q** My child has a cold today. Is it safe to get all their shots?

A Yes, having a cold is not a reason to delay shots. Your child's immune system works so well that they can get all their shots even if they are teething, have a fever, diarrhea, ear infection or are taking antibiotics.

5 **Q** Are multiple shots harder on me than on my child?

A Some parents say yes. Experience tells us that children handle multiple shots well and recover quickly. It also means fewer visits and less hassle for you.

What's in vaccines?



A vaccine needs special ingredients to make sure it's safe and works to protect against a disease. Vaccines are carefully tested and monitored. They have an excellent safety record.

This section will help you learn about ingredients involved in making vaccines. If you want more detailed information than you find here, please ask your health care provider.

VACCINE ANTIGENS

OTHER VACCINE INGREDIENTS

MAKING A VACCINE

VACCINES DO NOT CAUSE AUTISM

INFORMATION ON THE INTERNET

Vaccine antigens

Q What are vaccine antigens?

A Vaccine antigens are the most important parts of a vaccine. They are made from pieces of germs or whole germs which have been treated to keep them from making you sick. The germs are killed, weakened or changed so that they still wake up your immune system but can't cause illness. Go to page 26 to learn more about antigens.

Q Why are vaccine antigens so important?

A Vaccine antigens let your body's immune system build protection against a certain type of disease. Your body will have the same kind of immunity as a natural disease would create but without the sickness of the natural disease.

Vaccines are a healthy choice and prevent disease. Many studies have shown that vaccines **DO NOT** cause these diseases:

- | | |
|-------------------------------------|------------------------------|
| <input checked="" type="checkbox"/> | Autism |
| <input checked="" type="checkbox"/> | Arthritis |
| <input checked="" type="checkbox"/> | Asthma |
| <input checked="" type="checkbox"/> | Bowel disease |
| <input checked="" type="checkbox"/> | Brain damage |
| <input checked="" type="checkbox"/> | Cancer |
| <input checked="" type="checkbox"/> | Chronic fatigue syndrome |
| <input checked="" type="checkbox"/> | Diabetes |
| <input checked="" type="checkbox"/> | Mad cow disease |
| <input checked="" type="checkbox"/> | Sudden infant death syndrome |

Other vaccine ingredients



Q What other ingredients are needed?

A **Preservatives**
Some vaccines need preservatives to keep harmful germs from growing in the vaccine and infecting your child.

Adjuvants (helpers)
Some vaccines need adjuvants, such as aluminum salts, to improve the body's immune response. They help the body to make antibodies more easily.

Stabilizers
Stabilizers, such as sugars, amino acids and proteins, make sure the vaccine is of the highest quality. They protect vaccines during freeze-drying, from heat damage or from sticking to the sides of the vaccine bottle.

Q Is it true that thimerosal **does not** cause autism?

A **Yes**, many scientific studies looking at over 500,000 children have not linked ethylmercury, a type of mercury from the preservative thimerosal, to autism or any other problem. In fact, autism rates continue to rise even though thimerosal has been removed from all but one vaccine (flu). Read page 33 for more details.

Q Are aluminum salts safe?

A **Yes**, aluminum has a 70 year safety record. It's used in some vaccines in very small amounts and the body gets rid of it quickly. Aluminum is one of the most common elements present in air, food and water. Breast milk, infant formula and antacids are all examples of foods which contain aluminum.

Making a vaccine

Special agents are used to make a vaccine and are removed at the end of the manufacturing process. Although they are removed, tiny amounts that are too small to cause harm may remain. **Read on** to learn why these agents are needed to keep vaccines safe and effective.

Q Why are these agents needed?

A **Inactivating agents**
These agents, such as formaldehyde, kill any germs remaining in the vaccine so they cannot make people sick.

Cellular products

Some vaccines need to be made in human or animal cells.

Antibiotics

Antibiotics keep a vaccine from going bad during the manufacturing process. If a child were to receive a spoiled vaccine they could get very sick.

Q Is the use of formaldehyde safe?

A **Yes**, it has been used safely for many, many years to ensure vaccine safety. In fact, formaldehyde naturally occurs in the human body. A baby will normally have ten times the amount found in a vaccine in their system.

Q Could my child get “mad cow disease” from a vaccine?

A **No**, the organs of a cow that might carry “mad cow disease” are not used in making a vaccine. As well, only disease-free cows are used in the process. There has never been a case of “mad cow disease” linked to a vaccine.

Q Do vaccines that contain tiny amounts of human cells or proteins cause harm?

A **No**, vaccines go through a careful process to ensure this doesn’t happen. There have been no known cases of contracting diseases like HIV or hepatitis from a vaccine.

Vaccines do not cause autism: looking at the scientific evidence

You may read on the internet or hear from a friend that the MMR vaccine or thimerosal in vaccines may cause autism. This myth has lasted even though research clearly shows it's not true. You can see why vaccines might be questioned. Children get several vaccines over the period when the first sign of autism might show up. But that doesn't mean one thing causes the other. The information below should reassure you that vaccines **DO NOT** cause autism.



5 key facts and further reading on the web

- 1** Hundreds of thousands of immunized children have been studied over many years and no link to the MMR vaccine or any other vaccine has been found. www.iom.edu/CMS/3793/4705/4715.aspx
- 2** Autism rates have continued to increase despite the removal of thimerosal from vaccines, as evidenced by a large California study reviewing trends between January 1995 and March 2007. <http://archpsyc.ama-assn.org/cgi/content/abstract/65/1/19>
- 3** New research finds that the type of mercury from thimerosal (ethylmercury) is naturally removed from the body 10 times faster than the type of mercury (methylmercury) eaten in food such as fish. Fast removal prevents the chance of harmful toxic build-up. <http://pediatrics.aappublications.org/cgi/reprint/121/2/e208>
- 4** Current evidence shows that as many as 20 genes may be involved in the development of autism. www.nichd.nih.gov/publications/pubs/upload/autism_overview_2005.pdf
- 5** MMR vaccine has never had thimerosal. Also, since 1995 almost every vaccine for children in Canada has been thimerosal-free.

More evidence

Canadian Coalition for Immunization Awareness and Promotion—links to 28 further readings: www.immunize.cpha.ca/en/publications-resources/questions/autism.aspx

The Immunization Action Coalition—links to two good resources and 47 further readings: www.immunize.org/catg.d/p4026.pdf
www.immunize.org/catg.d/p2065.pdf

The Institute of Medicine—an independent review committee not tied to vaccine makers—eight large-scale international immunization safety reviews: www.iom.edu/CMS/3793/4705/4715.aspx

Autism information

The Autism Society of Canada: www.autismsocietycanada.ca

New autism book—Grinker, R. (2007). *Unstrange minds: Remapping the world of autism*. New York: Basic Books. Read a book review by the Journal of Clinical Investigation at: <http://www.jci.org/articles/view/33677/pdf>

A word about vaccine information on the internet

If you are looking for information on the internet, be sure to check the source. It's easy to pass around a misleading and scary story that is not based on fact. If you have questions about what you are reading, share them with your health care providers.



5 questions to ask yourself about internet information

- 1 Who are the authors? Are they experts and is the work found in a medical or scientific journal with a good reputation?
- 2 Could the authors be influenced by something that may sway (bias) their results? Are they working for a special interest group or fundraising? For example, the myth about the MMR vaccine causing autism started from a tiny research study that was found to be flawed and biased and was later retracted by most of the authors.
- 3 Is the information an emotional story, an opinion, a message to sell an alternative product/service, or a valid research finding?
- 4 Is the information new or old?
- 5 Have other experts found the same results?



Did you know?

- Vaccine product descriptions, which include a product ingredient list for each type of vaccine, vaccine health files and vaccine experts on video can be found at: www.immunizebc.ca



Learn more!

- YouTube as a Source of Information on Immunization: A Content Analysis can be found at: <http://resources.cpha.ca/cciap/data/627e.pdf>
- Eight resources that provide tips on evaluating health information on the internet can be found at: www.vaccineinformation.org/topics/internetinfo.asp

Vaccine safety



Healthy babies and children all around the world receive vaccines, **so everyone takes vaccine safety very seriously**. This section has key information about the superb safety record of childhood immunizations.

BENEFITS FAR OUTWEIGH THE RISKS

COMMON SIDE EFFECTS

RARE ADVERSE EVENTS

MONITORING SAFETY

IMMUNIZATION RECORDS

Benefits far outweigh the risks

The risks from vaccines are very small. The table below compares the risk of some diseases before vaccines were available, to the tiny risk of a severe vaccine reaction happening today. Other lifestyle risks are added to put vaccine risk in perspective.

✱	Risk of death or serious injury (per 100,000 people each year)	
●	Deaths in those with tetanus (before vaccines)	30,000
●	Deaths in those with diphtheria (before vaccines)	5,000
●	Deaths in those with whooping cough (before vaccines)	500
●	Deaths in smokers (1-pack/day)	300
●	Skydiving deaths	200
●	Farming deaths	36
●	Deaths in those with measles (before vaccines)	30
●	Auto collision deaths	21
●	Mother dies during childbirth	11
●	Soccer or football deaths	4
✱	Risk of severe reaction to a vaccine (per 100,000 people each year)	
●	Risk of severe reaction to DTaP vaccine	3
●	Risk of severe reaction to MMR vaccine	1

*Source: U.S. Centers for Disease Control and Prevention, National Immunization Program. (2004). NPI Reference Guide on Vaccines and Vaccine Safety.

*✱ Few things in life are harmless

● Here are more examples:

Everyday activities* have hidden dangers:

- 350 people die in bath or shower related accidents
- 200 people choke after food blocks windpipe
- 100 people are struck and killed by lightning

*In the US each year. Source: www.immunize.org/catg.d/4038myth.htm

*✱ Did you know?

- Some diseases that can be prevented by vaccines can cause a child harm for life.

Information about common side effects

Common side effects usually occur within 12–24 hours after immunization and go away within a few days. In general, most symptoms that start more than 48–72 hours after immunization are usually not related to the vaccine. If you are worried about your child, call your health care provider.



Here are common side effects:

●	Mild discomfort
●	Redness, pain and swelling where the shot was given
●	Loss of appetite
●	Crying
●	Fever
●	Fussiness, drowsiness



Here are less common side effects:

●	After MMR vaccine your child may get a mild fever, a measles-like rash and swelling in the cheek and neck area that may occur about 7 to 12 days after the vaccine and last up to several days. These side effects are less common after the 2 nd dose of MMR.
●	After chickenpox vaccine, a mild fever and a rash, which looks like chickenpox but with very few spots, can occur within 2 weeks after the vaccine.



Here's how you can help:

✓	Cuddle your child
✓	Apply a cool, wet cloth to the sore area
✓	For fever, give your child: <ul style="list-style-type: none">• Acetaminophen (like Tylenol ® or Tempra ®)• More to drink• Light clothes to wear
✗	Never give ASA (like Aspirin ®) as it can harm your child

Report serious or unexpected reactions to your health care provider

Information about rare adverse events

Vaccines are safe. In fact, it's much safer to get a vaccine than to get sick. Serious adverse events are very rare following a dose of a vaccine and even in these cases there is often not enough information to say if the event was caused by the vaccine or something else. Read the information below to learn more.

RARE
1/1,000 to 1/10,000
people

Seizure caused by fever

- While this can occur after a vaccine, about 3% of healthy children between the ages of 6 months to 6 years will have a seizure with any fever caused by many common infections.
- The seizure is the result of the fever, not the vaccine.
- Seizures may be frightening but do not cause harm, permanent brain damage or increase a child's risk for epilepsy.
- **The risk after a vaccine is less than 1 in 3,000 children.**
- For those children with a history of seizures, using acetaminophen (like Tylenol ®) before and after their shots can reduce the risk.

Hypotonic-Hyporesponsive Episode

- This is a temporary event whereby a child may become pale, floppy and may not respond normally.
- Children recover fully with no lasting problems and they can still get their next shots when due.
- The cause is unknown.
- **The risk after a vaccine that contains DTaP is less than 1 in 2,100 children.**

VERY RARE
less than 1/10,000
people

Guillain Barré Syndrome (GBS)

- Is a very rare, but serious brain disorder with muscle paralysis.
 - GBS can appear after a variety of infections.
 - Most people make a good recovery.
 - The cause is unknown.
- The link between childhood GBS following certain vaccines is not supported by conclusive scientific evidence.
- To be extra safe, current Canadian recommendations state that if GBS develops within 8 weeks of getting a tetanus-containing vaccine or influenza vaccine, future doses should not be received.

Severe allergic reaction (anaphylaxis)

- Anaphylaxis is a life-threatening reaction that can cause hives, difficulty breathing and swelling of the throat.
- Anaphylaxis is commonly caused by food, not vaccines.
- After a vaccine, the **very rare** risk is about 1 in a million. Good treatment is available.

Other events that may involve the brain, nervous system and blood are very rare and almost always resolve. The risks of harm from natural disease are far greater.

Sources: Your Child's Best Shot, 3rd ed. and the Canadian Immunization Guide, 7th ed.

There are several systems to monitor vaccine safety in Canada



Public Health Agency of Canada (PHAC)

Voices ARE heard and programs and vaccines are changed when necessary.

The story of whole cell whooping cough vaccine is a good example. There was public and government concern about side effects, so scientists created a newer acellular vaccine with milder side effects that is used today.

Children's hospitals

IMPACT – Canadian Immunization Monitoring Program ACTIVE

12 children's hospitals across Canada monitor any admissions related to harm following vaccines or vaccine-preventable diseases.

Findings are reported to PHAC.

**Since 1991, no cases of encephalitis, encephalopathy or acute paralysis have been linked to vaccines.*

Special research studies

Public health experts, scientists and vaccine manufacturers conduct special research studies. Research results are reviewed by PHAC.

Public health nurses & doctors

Parents report to their local public health office or to their doctor any unusual event after immunization. Each report is reviewed by a medical health officer and the information is sent to PHAC for review.

Paediatricians

Canadian Paediatric Surveillance Program








2500 paediatricians from across Canada monitor their practices for rare conditions, including vaccine-preventable diseases and report their results every month to PHAC.

Source: Your Child's Best Shot, 3rd ed.

Your child's immunization record is an important health document to keep for life

Keep an up-to-date copy of your child's immunization record in a safe place. Your record may be the only record. Take it with you each time your child is immunized. You will be asked to show it often throughout their childhood. If there is no record of a shot being given, it will need to be repeated.

Places that require immunization records:

-  Daycares, pre-schools & kindergarten entry
-  Childrens' camps
-  Outdoor adventure schools
-  Post-secondary schools in Canada
-  In the U.S., school applications may not be accepted or the process delayed without records
-  Travelling may require records
-  Work (paid or volunteer) in healthcare, the military, police, fire or ambulance services


Parents' questions

Q If there is a disease outbreak at my child's school and some children haven't been immunized, what can happen?

A School immunization records will be checked to see who is immune to the disease:

- Children and adults at the school who are not immune to the disease are unprotected and at high risk of getting sick.
- They can be a threat to others who can't be immunized for medical and other reasons.
- They will be asked to stay home until the outbreak is over, which can last a few days, weeks or even months.

Did you know?

 Measles is so easy to catch that one person with measles at your child's school can trigger an outbreak.

Resources



5 good immunization websites

These websites offer reliable immunization information and link to many other resources:

- BC immunization website: www.immunizebc.ca
- Canadian Coalition for Immunization Awareness & Promotion (CCIAP): www.immunize.cpha.ca
- Immunization Action Coalition (U.S.): www.immunize.org
- Children's Hospital of Philadelphia (U.S.): www.vaccine.chop.edu
- Centers for Disease Control and Prevention (U.S.): www.cdc.gov/vaccines/

Good books

- Your Child's Best Shot: A Parent's Guide to Vaccination, 3rd edition
Find at the Canadian Paediatric Society: www.cps.ca/english/publications/Bookstore/YourChildsBestShot.htm
- The Canadian Immunization Guide, 7th edition
Find at the Public Health Agency of Canada: www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php

Good on-line reading

- Impact of anti-vaccine movements on pertussis control: The untold story. www.thelancet.com/journals/lancet/article/PIIS0140673697043341/abstract
- Mumps outbreak at a summer camp demonstrates the need for vigilance against all vaccine-preventable diseases and other "Unprotected People" reports. www.immunize.org/reports/mumps.asp
- Vaccine myths: <http://resources.cpha.ca/cciap/data/342e.pdf>
- Vaccine concerns: <http://resources.cpha.ca/cciap/data/214e.pdf>
- Addressing parents' concerns: Do multiple vaccines overwhelm or weaken the infant's immune system? www.pediatrics.org/cgi/content/full/109/1/124
- Addressing parents' concerns: Do vaccines contain harmful preservatives, adjuvants, additives, or residuals? www.pediatrics.org/cgi/content/full/112/6/1394

A young boy and girl are shown from the chest up, floating in the water. They are both wearing life jackets and swimming goggles. The boy, on the left, has short brown hair and is smiling. The girl, on the right, has long dark hair and is also smiling, showing her teeth. They appear to be having fun at a swimming pool or beach. The background is slightly out of focus, showing some foliage and a building.

[illegible]

Immunization: an important choice you make for your child

Help pass the message on: ☒ Vaccines save lives ☒ Vaccines are safe for your child ☒ Your child needs them all ☒ Your child needs them on time