

Immunizations and Vaccinations

Diphtheria, Tetanus, and Pertussis Vaccine (DPT)

What you need to know before your child gets the vaccine

About the Disease

Diphtheria, tetanus (lockjaw), and pertussis (whooping cough) are serious diseases.

Diphtheria and pertussis spread when germs pass from an infected person to the nose or throat of others. Tetanus is caused by a germ that enters the body through a cut or wound.

<p>Diphtheria causes: a thick coating in the nose, throat, or airway</p>	<p>Tetanus causes: serious, painful spasms of all muscles</p>	<p>Pertussis causes: coughing and choking for several weeks (makes it hard for infants to eat, drink, or breathe)</p>
<p>It can lead to:</p> <ul style="list-style-type: none"> • breathing problems • heart failure • paralysis • death 	<p>It can lead to:</p> <ul style="list-style-type: none"> • locking of the jaw so the patient cannot open his or her mouth or swallow • death 	<p>It can lead to:</p> <ul style="list-style-type: none"> • pneumonia • seizures or convulsions • brain damage • death

About the Vaccines

Benefits of the vaccines

Vaccination is the best way to protect against diphtheria{ XE "diphtheria" }, tetanus, and pertussis. Because most children get the vaccines, there are now many fewer cases of these diseases. There would be many more cases if we stopped vaccinating children.

DT_aP schedule Most children should have a total of five DPT vaccines.

They should have DPT at:

- 2 months of age
- 4 months of age
- 6 months of age
- 12-18 months of age
- 4-6 years of age

Related vaccines

DTaP (Diphtheria Tetanus acellular Pertussis)

Like DPT, it prevents diphtheria, tetanus, and pertussis

It is only given for the 4th and 5th doses

It is less likely to cause the mild problems we see after DPT and is probably less likely to cause some of the moderate problems

DT (Diphtheria Tetanus)

Unlike DPT, it does not prevent pertussis. For this reason, it is usually not recommended.

Who should get DPT vaccine?

Most doctors recommend that almost all young children get DPT or DTaP vaccine.

Some child. should get DT With all vaccines, there are some cautions.

Tell your doctor or nurse if the child getting the vaccine:

ever had a serious allergic reaction or other problem after getting DPT, DTaP, or DT

- now has moderate or severe illness

- has ever had a seizure
- has a parent, brother, or sister who has had seizures
- has a brain problem that is getting worse

If you are not sure, ask the doctor or nurse

What are the risks from DPT vaccines?

As with any medicine, there are very small risks that serious problems, even death, could occur after getting a vaccine.

The risks from the vaccine are much smaller than the risks from the diseases if people stopped using vaccine. Below is a list of problems that may occur after getting the vaccine. **If your child ever had one of the moderate or severe problems listed below or any other serious problem after DPT, DTaP, or DT**, discuss with the doctor or nurse before this vaccination.

Mild DPT problems

If these problems occur, they usually start within hours to a day or two after the

vaccination. They usually last up to 1-2 days:

- soreness, redness, or swelling where the shot was given
- fever
- fussiness, drowsiness, less appetite

Acetaminophen or ibuprofen (non-aspirin) may be used to prevent or reduce fever or soreness. This is especially important for children who have had seizures or had a parent, brother, or sister who has had seizures.

Moderate DPT problems

Once for every 100-1,000 doses:

- on-going crying for three hours or more
- fever of 105° or higher
- an unusual, high-pitched cry

Once for every 1,750 doses

a seizure or convulsion usually caused by a fever
 “shock-collapse”- (becomes limp, pale, and less alert)

Severe DPT problems

These problems happen very rarely:

- serious allergic reaction after DT or DPT
- a long seizure
- decreased consciousness or coma.

Some of these children may have lasting brain damage. There is disagreement about whether DPT causes the lasting brain damage. If it does, it is very rare.

What to do if there is a serious DPT reaction:

Call a doctor or get the person to a doctor right away.

Write down what happened and the date and time it happened.

Ask your doctor, nurse, or health department to file a Vaccine Adverse Event Report form or call: (800) 822-7967 (toll-free)

The **National Vaccine Injury Compensation Program** gives compensation (payment) for persons thought to be injured by vaccines. For details call: (800) 338-2382 (toll-free)

If you want to learn more, ask your doctor or nurse. He or she can give you the vaccine package insert or suggest other sources of information.

Pertussis or whooping

Pertussis{ XE "pertussis" } is part of the DPT series of vaccine. This disease is still persistent in our community. Unlike other immunized diseases it persists in our environment and is has not

cough

been eliminated by vaccines. Most of the cases seen today are under immunized or unimmunized children and adults. This is one of the most contagious of the preventable diseases. It spreads through direct contact or by contact with infected particles spread by coughing.

The incubation period is 1 to 3 weeks. The disease will cause symptoms for up to three weeks. The illness starts as a simple cold with runny nose, cough, and fever. The initial illness last about one week and then the intensity of the cough increases. The cough{ XE "whooping cough" } is characteristic with as many as 5 to 10 coughs followed by a long breath inward producing the classic whoop. The cough is so severe the child's eyes bulge, face turns red, tongue sticks out and the veins of the neck protrude. Coughing can continue until the mucous plugs become dislodged from the small airways. Many children vomit. Coughing episodes are exhausting and can produce a great deal of fatigue. This intense coughing can last weeks. After this intense period of coughing passes, there is a less intense period of coughing that can last months.

Complications can include pneumonia, ear infections, convulsions, coma and death.

In the recent past, the Pertussis portion of the vaccine has incurred a great amount of notoriety. It was linked in the media with the possibility it might trigger Sudden Infant Death Syndrome. It has long been noted to be the main trigger for substantial fever, swelling and crying in 5% to 10% of the children receiving the vaccine. It is known to cause some side effects, but considerable research does not point to the vaccine or Pertussis as the cause of S.I.D.S. in infants. Doctors will exclude Pertussis as part of the vaccine if there is fever greater than 105°, shock, convulsions, or prolonged screaming appears after the vaccine is given. There does not appear to be any proven risk for S.I.D.S. and the risks of contracting Whooping cough and developing complications far outweigh the risks of side effects.

Tetanus (lockjaw)

Tetanus{ XE "tetanus" } is a life threatening illness cause by a toxin (chemical produced by the *Clostridium tetani* bacteria). The incubation period is a few days to a couple of weeks. This disease can cause symptoms localized to one part of the body or a generalized infection. Lockjaw{ XE "lockjaw" } comes from observations of the child after contracting the illness. The infection produces a grimace or sardonic grin (the jaw appears locked in a strange smile). Many different muscle groups are effected with spasms of the back, arms, or legs. These spasms can last for seconds or minutes. They produce exhaustion and extreme pain. The upper airway can also go into spasm producing suffocation and death. There is also a form of the disease that is found in the newborn. Unhygienic birth conditions and lack of maternal immunizations appear to play an important role in this infection. Tetanus is one of the worst diseases I have ever seen because of the suffering it causes. Treatment is difficult and consists of support for the person until the disease run its course or the child dies.

Hemophilus influenzae

Hemophilus influenzae is a bacteria that causes many types of disabling and sometimes fatal illnesses. The Hib vaccine is given at 2, 4, 6 and 15 months and is a very effective deterrent to invasive H. Flu disease.

Most of the children infected are at greater risk for complications when they are very young (under 18 months). One complication is Hemophilus meningitis{ XE "hemophilus meningitis" }. This is one of the most common forms of meningitis in young children. Another complication is acute epiglottitis{ XE "acute epiglottitis" }, an infection of the upper airway, infects the 2 to 7 year old child. Children with this condition have a rapid onset of symptoms including: difficulty to swallow, drooling and difficulty in breathing. If not recognized early, this infection becomes one of the true Pediatric emergencies. Children become sick and die in hours after their airway swells and can result in suffocation. Other infections caused by Hemophilus influenzae are pneumonia, infections of the joint, skin, bone and blood. This vaccine has the fewest side effects of the injectible vaccines and is given into the muscles of the thigh. Since the vaccine is commonly used infections are uncommon now.

Polio

Polio{ XE "polio" } is a viral infection. Most infections with polio viruses cause

generalized symptoms including sore throat, body ache, fever, constipation, cough and runny nose. The illness does **not** progress into complications or paralysis in about 95% of those infected. The most serious form can cause varying degrees of paralysis{ XE "paralysis" }. The paralysis can be localized or more generalized including paralysis of the breathing centers and supporting muscles. This disease occurs mainly in unimmunized children. The vaccine is composed of the three most common viral strains producing disease. The vaccine is made from live virus but is treated so that it can not reproduce and spread as the harmful virus can. The most common form of the vaccine was the Sabin{ XE "Sabin" } or oral polio vaccine. It is not recommended for most children. In certain situations when the child is immunocompromised (immune system is damaged) other forms of the Polio vaccine can be considered. The Salk vaccine{ XE "Salk vaccine" }, made from killed virus, is the recommended vaccine in that case.

Polio vaccine

About the disease

Polio is a serious disease. It spreads when germs pass from an infected person to the mouths of others. Polio can:

- Paralyze a person (make arms and legs unable to move)
- Cause death

About the vaccines

Benefits of the vaccines

Vaccination is the best way to protect against polio. Because most children get the polio vaccines, there are now very few cases of this disease. Before most children were vaccinated, there were thousands of cases of polio.

There are two kinds of polio vaccine

OPV or *Oral Polio Vaccine* is rarely given to children now. It is given by mouth as drops. It is easy to give and works well to stop the spread of polio.

IPV or *Inactivated Polio Vaccine* is given as a shot in the leg or arm. This vaccine is now the recommended route for immunization for the at least the first 2 vaccines in the series

Who should get IPV?

Most doctors recommend that almost all young children get IPV. Tell your doctor or nurse if the person getting the vaccine or anyone else in close contact with the person getting the vaccine is less able to fight serious infections because of:

- a disease that he or she was born with
- treatment with drugs such as long-term steroids
- any kind of cancer
- cancer treatment with X-ray or drugs
- AIDS or HIV infection

If so, your doctor or nurse will probably give IPV instead of OPV. If you are older than 18 years, you usually do not need polio vaccine.

Travel

If you are traveling to a country where there is polio, you should get IPV.

Pregnancy

If protection is needed during pregnancy, IPV can be used.

Allergy to neomycin or streptomycin

Does the person getting the vaccine have an allergy to the drugs neomycin or streptomycin? If so he or she should get OPV, but not IPV. Ask your doctor or nurse if you are not sure.

Tell your doctor or nurse if the person getting the vaccine:

- ever had a serious allergic reaction or other problem after getting polio vaccine
- now has moderate or severe illness

If you are not sure, ask your doctor or nurse.

What are the risks from polio vaccine?

As with any medicine, there are very small risks that serious problems, even death, could occur after getting a vaccine. The risks from getting the vaccine are *much smaller* than the risks from the disease if people stopped using vaccine.
 Almost all people who get polio vaccine have no problems from it.

Risks from IPV

This vaccine is not known to cause problems except mild soreness where the shot is given.

What to do if there is a serious IPV reaction:

Call a doctor or get the person to a doctor right away.
 Write down what happened and the date and time it happened.
 Ask your doctor, nurse or health department to file a Vaccine Adverse Event Report form or call: (800) 822-7967 (toll-free).

The **National Vaccine Injury Compensation Program** gives compensation (payment) to persons thought to be injured by vaccines. For details call: (800) 338-2382 (toll-free)

If you want to learn more, ask your doctor or nurse. She or he can give you the vaccine package insert or suggest sources of information.

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MMR vaccines

Benefits of the vaccines

Vaccination is the best way to protect against measles, mumps, and rubella. Because most children get the MMR vaccines, there are now many fewer cases of these diseases. There could be many more cases if we stopped vaccinating children.

MMR schedule

Most children should have a total of 2 MMR vaccines. They should have MMR at:
 12-15 months 4-6 years of age
 of age

Other vaccines can be given at the same time as the MMR.

Who should get MMR vaccine{ XE "MMR vaccine" }?

Most doctors recommend that almost all young children get MMR vaccine. But there are some cautions. Tell your doctor or nurse if the person getting the vaccine is less able to fight serious infections because of:

Also:

People with AIDS or HIV infection should usually get MMR vaccine
 Pregnant women should wait until after pregnancy for MMR vaccine
 People with a serious allergy to eggs or the drug neomycin should tell the doctor nurse. If you are not sure, ask the doctor or nurse.

Tell your doctor or nurse if the person getting the vaccine:

- ever had a serious reaction or other problem after getting the MMR
- now has moderate or severe illness
- has ever had a seizure
- has a parent, brother, or sister who has had seizures
- has gotten immune globulin other blood products (such as a transfusion) during the past 3 months.

If you are not sure, ask your doctor or nurse.

What are the risks from MMR vaccine?

As with any medicine, there are very small risks that serious problems, even death, could occur after taking the vaccine.

The risks from the vaccine are *much smaller* than the risks from the diseases if people stopped using vaccine.

Almost all people who get MMR have no problems from it.

Mild or moderate problems

Soon after the vaccination, there may be soreness, redness, or swelling where the shot was given.

1-2 weeks after the first dose, there may be:

- rash (5-15 out of every 100 doses).
- Fever of 103° or higher (5-15 out of every 100 doses). This usually lasts 1-2 days.
- Swelling of the glands in the cheeks, neck, or under the jaw.
- A seizure usually caused by fever. This is rare.

1-3 weeks after the first dose, there may be:

pain, stiffness, or swelling in one or more joints up to three days (1 out of every 100 doses in children; up to 40 out of every 100 doses in young women). Rarely, pain or stiffness lasts a month or longer, or may come and go; this is most common in young and adult women.

Acetaminophen or ibuprofen may be used to reduce fever and soreness.

Severe problems

These problems happen very rarely:

- serious allergic reaction
- low number of platelets (type of blood cell) that can lead to bleeding problems. This is almost always temporary.
- Long seizures, decreased consciousness, or coma

Problems following MMR are much less common after the second dose.

What to do if there is a serious reaction:

Call a doctor or get the person to a doctor right away.

Write down what happened and the date and time it happened.

Ask your doctor, nurse or health department to file a Vaccine Adverse Event Report form or call: (800) 822-7967 (toll-free).

The National Vaccine Injury Compensation Program{ XE "National Vaccine Injury Compensation Program" } gives compensation (payment) to persons thought to be injured by vaccines. For details call: (800) 338-2382 (toll-free)

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MMR is a combined vaccine including Measles, Mumps and Rubella (German Measles).

Measles{ XE "Measles" } or Rubeola{ XE "Rubeola" } is a contagious viral illness common throughout the world. Its incubation period lasts about 1 to 2 weeks. After symptoms develop the child shows signs of a runny nose, red eyes and mild to moderate fever (101° to 102°). As the disease progresses, the cough becomes more severe and the fever increases to 104° to 105°. A red, flat rash appears around the ears, neck and hairline. The gland of the neck may be swollen and the rash can be itchy.

Complications of measles are pneumonia, with possible involvement of the heart and nervous system. Viral measles' pneumonia can be fatal. There is no treatment for the disease but bacterial, secondary infections can be treated with antibiotics. Immunizations of this disease are effective but after the first dose of vaccine at 12 to 15 months, a second dose of the combined vaccine is given around the age of 5 years. It is injected into the muscles of the thigh.

Mumps is another contagious illness caused by a virus. It causes various symptoms but the primary symptom is swelling of the primary salivary gland called the parotid gland that is located in front of the ears. There are many secondary infections that can appear after an infection of the mumps virus. Infection of the coverings of the brain and spinal column is the most common secondary infection. Other secondary infections include infections of the testes in boys or the ovaries in girls. Also there can be infections of the pancreas, kidneys, thyroid, heart or ears (deafness). Mumps{ XE "mumps" } can cause many problems and is a disease that warrants immunization so that we can prevent complications.

Rubella{ XE "Rubella" } or **German Measles**{ XE "German Measles" } is part of the MMR vaccine too. It is a contagious illness as the rest of the diseases I mention in the manual. The incubation period is 2 to 3 weeks. The disease starts as mild cold-like illness with runny

nose or sore throat. Remarkable swelling of the glands{ XE "swollen neck glands" } of the neck is noticed especially behind the ears, neck and head. The rash is a flat red rash starting on the face and spreading outward to the chest and then the extremities. It may fade on the face where it first appears as it appears on other areas of the body. The disease is not serious in the child and complications are unusual. Arthritis has been reported in women, and conditions resembling chronic fatigue syndrome have been described. The complications occur in the pregnant unimmunized mother who contracts the disease. Birth defects do appear with complications such as mental retardation, cataracts, bone damage, heart, liver and kidney disease.

Hepatitis B vaccine

The Immunization Practices Committee of the U.S. Public Health Service and the American Academy of Pediatrics Committee on Infectious Diseases recommends all infants in the United States be immunized for Hepatitis B{ XE "Hepatitis B" }.

Ten to 15% of cases of Hepatitis B occur in children. Most cases are recognized because of increased perinatal screening. The population we serve has changed. Many mothers risk contracting Hepatitis B, because they are IV drug users. There is an influx of South East Asians who are Hepatitis B carriers, but Alaskan and Pacific Islanders are also noted to be carriers. Ninety percent of babies who are born from Hepatitis B carriers will become carriers. 25% of these children will develop serious disease, such as chronic hepatitis or liver cancer. Also, children in child care areas where are there Hepatitis B carrier children have an increased risk of developing Hepatitis B or becoming carriers.

There is a larger problem for the population in general. Efforts at targeting high-risk adults by immunizing them has failed. At least two major problems stand in the way of accomplishing this goal. First, there are three possible schedules for introducing the vaccine. Second, the cost of receiving the vaccine is great. The Centers for Disease Control has a goal of integrating the vaccine with the standard vaccines currently given.

The political environment is bright for governmental support of such a universal campaign. Legislators have been sensitized about the issues of Hepatitis B along with current concerns for HIV infected individuals. One important group to be targeted with a campaign for immunization is the adolescent population. About 10% of the cases of Hepatitis B are seen in adolescents. It is believed most of these were sexually transmitted.

The recommendation proposed will be to combine the vaccine with the currently recommended DPT vaccines at 2, 4, and 6 months. Although two alternate schedules are mentioned - 2, 4 and 15 months or birth, 2 and 15 months. A universal immunization program instituted in Alaska and Pacific Island populations proved very successful. There was a 99% drop in acute cases among infants, children, and adults.

Chicken pox vaccine

Although Chicken Pox is rarely fatal to children or adults, the price for families is great. Two thirds of families have both parents working. Children or adolescents are forced out of classroom or child care. This situation requires adult to miss work for at least one week. Many children develop secondary complications like ear, sinus, or chest infections. A doctor's appointment and antibiotics can be necessary. There is treatment for the viral infection with a safe antiviral medication but the results can be minimal. It is most effective if given in the first 24 hours of the eruption of the pox lesions. I don't commonly prescribe the medication because the results are unpredictable.

More serious complications can involve the eye or brain. The vaccine can be given as early as 1 year of age.

Immunization schedule

This is the standard schedule for immunizations{ XE "immunization schedule" }. Children who have missed vaccines or have medical conditions may need to follow a different schedule.

Birth: Hepatitis B up to 2 month old