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Immunizations for Prevention of Disease in Children

Immunizations protect your child against several serious, life-threatening diseases. Your child should have shots according to the following schedule. If your child's shots are not up-to-date, call your healthcare provider's office for an appointment. Take your child's shot card with you to each appointment.

Routine Immunization Schedule for Infants and Children

Age of Child	Immunization
birth to 2 weeks	Hep B
2 months	DTaP, IPV, Hib, Hep B, PCV, rotavures
4 months	DTaP, IPV, Hib, PCV, Rotavures
6 months	DTaP, Hib, Hep B, PCV, Rotavures
6 to 18 months	IPV
6 months to 18 years	Influenza (yearly)
12 to 15 months	MMR, Hib, Var, PCV
12 to 18 months	DTaP, Hep A
18 to 36 months	Hep A
4 to 6 years	DTaP, IPV, MMR, Var
11 to 12 years	Tdap, MCV, HPV

Explanation of abbreviations:

DTaP = diphtheria, tetanus, pertussis (whooping cough)
Hep A = hepatitis A
Hep B = hepatitis B
Hib = Haemophilus influenzae type b
HPV = human papillomavirus
IPV = inactivated poliovirus
MCV = meningococcal conjugate vaccine, 4-valent
MMR = measles, mumps, rubella
PCV = pneumococcal conjugate vaccine, 13-valent
RV = rotavirus
Tdap = tetanus, diphtheria, and pertussis for 11 years old and up
Var = chickenpox (varicella)

Descriptions of Immunizations

Diphtheria, tetanus, and pertussis (DTaP/Tdap) vaccine

Diphtheria is a serious infection of the throat that can block the airway and cause severe trouble breathing. Tetanus is a nerve disease caused by bacteria that get into a wound. Whooping cough is a dangerous disease, especially for babies. The risk of suffering and death caused

by whooping cough is far greater than the possible side effects of the shot. A child who has not been immunized against pertussis has a chance of 1 in 3000 of getting whooping cough. In contrast, a child who gets the shot is estimated to have a chance of 1 in 2 million or less of having neurological damage from the vaccine.

If your child is between 11 and 18 years of age, he or she may need a Tdap booster. Pregnant teens should receive a Tdap shot with every pregnancy, regardless of how long it has been since the last shot. Ask your healthcare provider if your child needs this shot.

Measles, mumps, and rubella (MMR) vaccine

Measles is a highly contagious disease caused by a virus. The disease causes high fever, a rash, often a severe cough and occasionally infection of the brain. Outbreaks of measles have made it necessary for children to have 2 MMR vaccines. They should have the first shot when they are 12 to 15 months old and the second when they are 4 to 6 years old. Mumps causes swelling of many body organs, including the salivary glands in the cheeks. Mumps can cause deafness. Rubella is a viral disease that damages a fetus. It can cause the soon-to-be-born to have nervous system abnormalities, heart disease and eye disease.

Varicella (chickenpox) vaccine

The varicella vaccine is usually given between the ages of 12 and 15 months, and a second dose should be given at age 4 to 6 years. It can be given to older children if they have not had the vaccine or the disease yet. Children age 13 or older should get 2 doses at least 4 weeks apart.

This vaccine is 70% to 90% effective in preventing chickenpox. If your child had the vaccine, but still gets chickenpox, it will be a milder form of the disease. By getting the chickenpox vaccine, you can reduce the chance of missed work and school, skin infections, medical costs, and getting shingles later in life. There is also an MMRV vaccine that provides protection against measles, mumps, rubella (German measles), and varicella (chickenpox).

Haemophilus influenzae type b (Hib) vaccine

Haemophilus influenzae type b is a type of bacteria that can cause life-threatening diseases in children (such as meningitis, epiglottitis, and pneumonia). Before the vaccine was available, over 3800 children per year in the US became mentally retarded, blind, or deaf, or got cerebral palsy as a result of the disease. The Hib vaccine does not protect against flu and meningitis caused by viruses.

Hepatitis B vaccine (Hep B)

Vaccination against hepatitis B prevents this type of hepatitis and the severe liver damage that can occur 20 or 30 years after a person is first infected. More than 5000 adults die each year in the U.S. from hepatitis-related liver cancer or cirrhosis. The younger the age when the infection occurs, the greater the risk of serious problems.

If you have an older child who was not vaccinated against hepatitis B as an infant, ask your provider whether he or she should have the shots. Your child needs a total of 3 hepatitis B shots.

Polio vaccine

The polio vaccine protects children from this now rare but crippling disease. The inactivated polio vaccine (IPV) is recommended.

DTaP-IPV

This combination shot includes diphtheria, tetanus, pertussis and polio vaccines in the same shot.

DTaP-IPV-hep B

This is a combination vaccine that includes diphtheria, tetanus, pertussis, polio, and hepatitis B in the same shot.

DTaP-IPV-Hib

This is a combination vaccine that includes diphtheria, tetanus, pertussis, polio, and Haemophilus influenzae type b in the same shot.

Hep B-Hib

This vaccine combines hepatitis B and Haemophilus influenzae type b in the same shot.

Rotavirus (RV) vaccine

Rotavirus is the most common cause of severe infection in the intestines, usually causing diarrhea. Most cases occur between 6 months and 2 years of age. Rotavirus vaccines should not be given to infants aged after age 8 months. The rotavirus vaccine given early in life prevents most cases of severe rotavirus disease, which can cause dehydration or death.

Pneumococcal (PCV) vaccine

The PCV vaccine protects against the 13 types of pneumococcal bacteria that cause pneumonia, bloodstream infections, and meningitis. The vaccine also prevents some ear infections caused by pneumococci.

PCV is recommended for all children younger than 5 years of age. Babies should receive 3 doses 2 months apart and a fourth dose when they are 12 to 15 months old. The usual age for the first shot is 2 months. Catch-up vaccination can be given to children up to age 5.

Children who received all 4 doses of the former type of PCV which protected against 7 strains should receive a single dose of PCV13 vaccine.

A different kind of pneumococcal vaccine (PPSV) is given to some children with serious chronic health conditions. These children get PPSV when they are over age 2 to prevent pneumonia or meningitis.

Human papillomavirus vaccine

HPV disease is the cause of nearly all cases of genital warts and cervical cancer. Two HPV vaccines are approved by the FDA:

- HPV4 to help prevent cervical, vaginal and vulvar cancers (in females) and genital warts (in females and males)
- HPV2 to help prevent cervical cancers in females

The first dose is recommended to be given to females at age 11 or 12 years. Three doses of the vaccine are given: the first dose, another 2 months later, and the last dose 6 months after the first dose. The vaccines can be given to females at age 13 through 26 years if they have not yet been vaccinated.

HPV4 is recommended to be given in a 3-dose series to males aged 9 through 18 years to help prevent genital warts.

HPV vaccines work best if given before exposure to HPV through sexual contact.

Influenza vaccine

An annual flu vaccine is recommended for children over 6 months of age. Children younger than 9 years of age who get the flu vaccine for the first time or who only received 1 dose during the previous flu season should receive 2 doses, at least 4 weeks apart.

There are two forms of influenza vaccine:

- A shot made with a killed virus
- A nasal spray vaccine made with a live, weak virus

Only healthy children 2 and older can get the nasal spray. Your child cannot get the flu from either type of vaccine.

Children less than 2 years old can get very sick and need to go to the hospital if they get the flu. Other high-risk children who should get the flu vaccine are children ages 6 months and older who have certain medical problems. Caregivers of young children should also get the flu vaccine each year.

Hepatitis A vaccine

The hepatitis A vaccine is recommended for all children over 1 year of age. It should also be considered for older children and teens in some states and regions, and for certain people at high risk. Talk to your healthcare provider or local public health department for more information.

Meningococcal (MCV) vaccine

Meningococcal disease can cause severe infections of the lining of the brain and spinal cord or the bloodstream. Meningococcal disease can often be prevented in adolescents and young adults by a vaccine. Two doses of MCV4 are recommended for adolescents 11 through 18 years of age, especially teens starting high school, or young adults before they move into college dorms. The first dose should be given at 11 or 12 years of age, with a booster dose at age 16. Children as young as 6 weeks of age who have immune system problems, a chronic disease, or who are going to travel to a part of the world where meningococcus is common, should be vaccinated with a different meningococcal vaccine.

Catch-up Vaccinations

Some vaccinations may be given to children and even adults while other vaccines have upper age limits. Check with your doctor if you have questions about whether your child should receive catch-up vaccination.

Reasons not to vaccinate

Talk to your provider before getting your child vaccinated if:

1. **Your child has an allergic reaction to a previous vaccine**

2. Your child has a progressive neurologic disease.

The pertussis vaccine (DTaP) should not be given if a child has a progressive neurologic disease. Your child can still have the tetanus and diphtheria vaccine without the pertussis vaccine.

3. Your child has immune system problems.

Children with immune systems that are weakened by certain diseases or medicines should not get live virus vaccines (such as chickenpox, nasal spray flu vaccine, rotavirus, or MMR). A live virus vaccine can cause the actual disease if the immune system is very weak.

4. Your child has egg allergies

Children who have a severe allergy to eggs should not receive the influenza vaccine. However, children who are allergic to eggs can receive all other routine immunizations. Although the measles and mumps vaccines are grown in chick cells, the egg proteins are removed from these vaccines. The vaccines can be given without having your child tested for an egg allergy.

Unwarranted reasons to delay or avoid vaccination

Some children in the U.S. have not received all of the recommended immunizations. The following conditions are NOT reasons to delay or avoid immunizations.

Your child CAN still get immunizations if:

- Your child had soreness, redness, or swelling at the injection site after a previous DTaP shot.
- Your child had a fever of less than 105°F (40.5°C) after a previous DTaP shot.
- Your child has a mild illness such as a cold, cough, or diarrhea without a fever.
- Your child is recovering from a mild illness such as a cold, cough, or diarrhea.
- Your child has recently been exposed to an infectious disease.
- Your child is taking antibiotics.
- Your child was premature.
- Your child is breast-feeding.
- Your child has allergies (unless it is an egg allergy).
- Your family has a history of seizures or sudden infant death syndrome (SIDS).

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