

## Maryland's Child Passenger Safety Laws

Maryland's new child safety seat law goes into effect on June 30, 2008. The new law requires that all children younger than eight years of age be secured in a federally approved child safety seat\* according to the safety seat and vehicle manufacturers' instructions, unless the child is 4 feet, 9 inches or taller, or weighs more than 65 pounds. The child restraint must be right for the child's size, age, and weight.

\*Child safety seats include: infant seats, convertible seats, forward-facing seats, booster seats, or other safety devices federally approved for use by children in motor vehicles.

A person may not transport a child younger than 16 years of age unless the child is secured in a child safety seat or a vehicle's seat belt.

A child younger than 16 years may not ride in an unenclosed cargo bed of a pick-up truck.

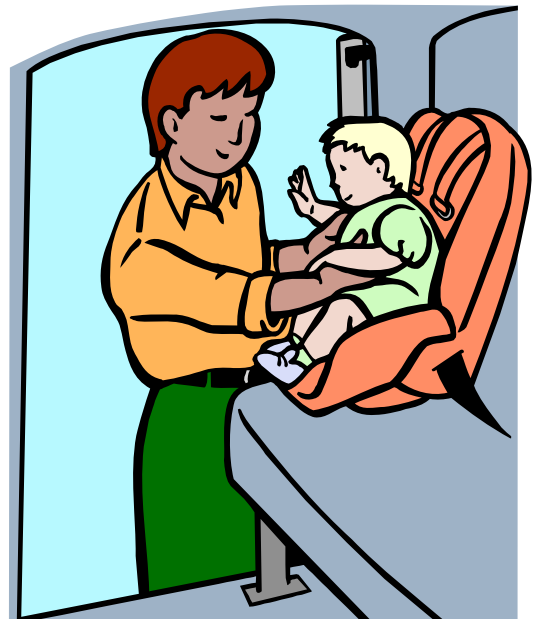
A vehicle can be stopped and the driver issued a citation for a violation of these laws. Currently the fines for failing to buckle up children and for allowing a child to ride in an unenclosed cargo truck bed are \$48 and \$50, respectively.

Please remember that it is very important that all children be properly secured in child safety seats and/or seat belts. The safest location in a car to buckle-up a child is in the middle of the rear seat.

Buckle up our children - follow our law!

Questions? Call Maryland Kids in Safety Seats at 1-800-370-SEAT or Maryland State Highway Administration at (410) 787-4077.

Visit [http://www.sha.state.md.us/faq/oc/faq\\_oc3.asp](http://www.sha.state.md.us/faq/oc/faq_oc3.asp) for frequently asked questions about car seats.



**General Child Seat Use Information**  
**Buckle Everyone. Children Age 12 and Under in Back!**

	AGE / WEIGHT	SEAT TYPE / SEAT POSITION	USAGE TIPS
INFANTS	Birth to at least 1 year <b>and</b> at least 20 pounds.	Infant-Only Seat/rear-facing or Convertible Seat/used rear-facing.  <b><i>Seats should be secured to the vehicle by the safety belts or by the LATCH system.</i></b>	<ul style="list-style-type: none"> <li>▪ Never use in a front seat where an air bag is present.</li> <li>▪ Tightly install child seat in rear seat, facing the rear.</li> <li>▪ Child seat should recline at approximately a 45 degree angle.</li> <li>▪ Harness straps/slots at or below shoulder level (lower set of slots for most convertible child safety seats).</li> <li>▪ Harness straps snug on child; harness clip at armpit level.</li> </ul>
	Less than 1 year/ 20-35 lbs.	Convertible Seat/used rear-facing (select one recommended for heavier infants).  <b><i>Seats should be secured to the vehicle by the safety belts or by the LATCH system.</i></b>	<ul style="list-style-type: none"> <li>▪ Never use in a front seat where an air bag is present.</li> <li>▪ Tightly install child seat in rear seat, facing the rear.</li> <li>▪ Child seat should recline at approximately a 45 degree angle.</li> <li>▪ Harness straps/slots at or below shoulder level (lower set of slots for most convertible child safety seats).</li> <li>▪ Harness straps snug on child; harness clip at armpit level.</li> </ul>
PRESCHOOLERS / TODDLER	1 to 4 years/ at least 20 lbs. to approximately 40 lbs.	Convertible Seat/forward-facing <b>or</b> Forward-Facing Only <b>or</b> High Back Booster/Harness.  <b><i>Seats should be secured to the vehicle by the safety belts or by the LATCH system.</i></b>	<ul style="list-style-type: none"> <li>▪ Tightly install child seat in rear seat, facing forward.</li> <li>▪ Harness straps/slots at or above child's shoulders (usually top set of slots for convertible child safety seats).</li> <li>▪ Harness straps snug on child; harness clip at armpit level.</li> </ul>
YOUNG CHILDREN	4 to at least 8 years/unless they are 4'9" (57") tall.	Belt-Positioning Booster (no back, only) or High Back Belt-Positioning Booster.  <b><i>NEVER use with lap-only belts—belt-positioning boosters are always used with lap AND shoulder belts.</i></b>	<ul style="list-style-type: none"> <li>▪ Booster used with adult lap and shoulder belt in rear seat.</li> <li>▪ Shoulder belt should rest snugly across chest, rests on shoulder; and should NEVER be placed under the arm or behind the back.</li> <li>▪ Lap-belt should rest low, across the lap/upper thigh area—not across the stomach.</li> </ul>

Children's Tylenol--Pain and Fever				
Age/Weight	Infant's Drops (.8mL)	Children's Suspension (5 mL or 1 tsp)	Children's Meltaway Tablets (80 mg)	Jr. Meltaway Tablets (160 mg)
0-3 mos. 6-11 lbs.	0.4 mL	-	-	-
4-11 mos. 12-17 lbs.	0.8 mL	-	-	-
12-23 mos. 18-23 lbs.	1.2 mL	-	-	-
2-3 yrs. 24-35 lbs.	1.6 mL	1 tsp. or 5 mL	2 tablets	-
4-5 yrs. 36-47 lbs.	-	1½ tsp. or 7.5 mL	3 tablets	-
6-8 yrs. 48-59 lbs.	-	2 tsp. or 12.5 mL	4 tablets	2 tablets
9-10 yrs. 60-71 lbs.	-	2½ tsp. or 12.5 mL	5 tablets	2½ tablets
11 yrs. 72-95 lbs.	-	3 tsp. or 15 mL	6 tablets	3 tablets
12 yrs. 95+ lbs.	-	-	-	4 tablets

Children's Advil--Pain and Fever				
Age/Weight	Drops (100mg or 2.5 mL)	Suspension (100 mg or 5 mL)	Junior Tablets (100 mg)	Adult Tablets (200 mg)
6-11 mos. 13-17 lbs.	½ dropper	½ tsp.	-	-
12-23 mos. 18-23 lbs.	1 dropper	1 tsp.	-	-
2-3 yrs. 24-35 lbs.	1 dropper	1 tsp.	-	-
4-5 yrs. 36-47 lbs.	-	1½ tsp.	-	-
6-8 yrs. 48-59 lbs.	-	2 tsp.	2 tabs	-
9-10 yrs. 60-71 lbs.	-	2½ tsp.	2 tabs	-
11-12 yrs. 72-95 lbs.	-	3 tsp.	3 tabs	1-2 tabs

# HEPATITIS B VACCINE

## WHAT YOU NEED TO KNOW

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis).

### 1 What is hepatitis B?

Hepatitis B is a serious disease that affects the liver. It is caused by the hepatitis B virus (HBV). HBV can cause:

**Acute (short-term) illness.** This can lead to:

- loss of appetite
- diarrhea and vomiting
- tiredness
- jaundice (yellow skin or eyes)
- pain in muscles, joints, and stomach

Acute illness is more common among adults.

Children who become infected usually do not have acute illness.

**Chronic (long-term) infection.** Some people go on to develop chronic HBV infection. This can be very serious, and often leads to:

- liver damage (cirrhosis)
- liver cancer
- death

Chronic infection is more common among infants and children than among adults. People who are infected can spread HBV to others, even if they don't appear sick.

- In 2005, about 51,000 people became infected with hepatitis B.
- About 1.25 million people in the United States have chronic HBV infection.
- Each year about 3,000 to 5,000 people die from cirrhosis or liver cancer caused by HBV.

Hepatitis B virus is spread through contact with the blood or other body fluids of an infected person. A person can become infected by:

- contact with a mother's blood and body fluids at the time of birth;
- contact with blood and body fluids through breaks in the skin such as bites, cuts, or sores;
- contact with objects that could have blood or body fluids on them such as toothbrushes or razors;
- having unprotected sex with an infected person;
- sharing needles when injecting drugs;
- being stuck with a used needle on the job.

### 2 Hepatitis B vaccine: Why get vaccinated?

**Hepatitis B vaccine can prevent hepatitis B**, and the serious consequences of HBV infection, including liver cancer and cirrhosis.

Routine hepatitis B vaccination of U.S. children began in 1991. Since then, the reported incidence of acute hepatitis B among children and adolescents has dropped by more than 95% – and by 75% in all age groups.

Hepatitis B vaccine is made from a part of the hepatitis B virus. It cannot cause HBV infection.

Hepatitis B vaccine is usually given as a **series of 3 or 4 shots**. This vaccine series gives long-term protection from HBV infection, possibly lifelong.

### 3 Who should get hepatitis B vaccine and when?

#### Children and Adolescents

- All children should get their first dose of hepatitis B vaccine **at birth** and should have completed the vaccine series by 6-18 months of age.
- Children and adolescents through 18 years of age who did not get the vaccine when they were younger should also be vaccinated.

#### Adults

- All unvaccinated adults **at risk for HBV infection** should be vaccinated. This includes:
  - sex partners of people infected with HBV,
  - men who have sex with men,
  - people who inject street drugs,
  - people with more than one sex partner,
  - people with chronic liver or kidney disease,
  - people with jobs that expose them to human blood,
  - household contacts of people infected with HBV,
  - residents and staff in institutions for the developmentally disabled,
  - kidney dialysis patients,

- people who travel to countries where hepatitis B is common,
- people with HIV infection.

- Anyone else who wants to be protected from HBV infection may be vaccinated.

#### 4 Who should NOT get hepatitis B vaccine?

- Anyone with a life-threatening allergy to **baker's yeast**, or to **any other component of the vaccine**, should not get hepatitis B vaccine. Tell your provider if you have any severe allergies.
- Anyone who has had a life-threatening allergic reaction to a **previous dose of hepatitis B vaccine** should not get another dose.
- Anyone who is **moderately or severely ill** when a dose of vaccine is scheduled should probably wait until they recover before getting the vaccine.

Your provider can give you more information about these precautions.

Pregnant women who need protection from HBV infection may be vaccinated.

#### 5 Hepatitis B vaccine risks

Hepatitis B is a very safe vaccine. Most people do not have any problems with it.

The following **mild problems** have been reported:

- Soreness where the shot was given (up to about 1 person in 4).
- Temperature of 99.9°F or higher (up to about 1 person in 15).

**Severe problems** are extremely rare. Severe allergic reactions are believed to occur about once in 1.1 million doses.

A vaccine, like any medicine, *could* cause a serious reaction. But the risk of a vaccine causing serious harm, or death, is extremely small. More than 100 million people have gotten hepatitis B vaccine in the United States.

#### 6 What if there is a moderate or severe reaction?

What should I look for?

- Any unusual condition, such as a high fever or behavior changes. Signs of a serious allergic

reaction can include difficulty breathing, hoarseness or wheezing, hives, paleness, weakness, a fast heart beat or dizziness.

What should I do?

- **Call** a doctor, or get the person to a doctor right away.
- **Tell** your doctor what happened, the date and time it happened, and when the vaccination was given.
- **Ask** your doctor, nurse, or health department to report the reaction by filing a Vaccine Adverse Event Reporting System (VAERS) form.

Or you can file this report through the VAERS web site at [www.vaers.hhs.gov](http://www.vaers.hhs.gov), or by calling 1-800-822-7967.

*VAERS does not provide medical advice.*

#### 7 The National Vaccine Injury Compensation Program

In the event that you or your child has a serious reaction to a vaccine, a federal program has been created to help pay for the care of those who have been harmed.

For details about the National Vaccine Injury Compensation Program, call 1-800-338-2382 or visit their website at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation).

#### 8 How can I learn more?

- Ask your doctor or nurse. They can give you the vaccine package insert or suggest other sources of information.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636 (1-800-CDC-INFO)**
  - Visit CDC websites at:
    - [www.cdc.gov/ncidod/diseases/hepatitis](http://www.cdc.gov/ncidod/diseases/hepatitis)
    - [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)
    - [www.cdc.gov/travel](http://www.cdc.gov/travel)



DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION

Vaccine Information Statement (Interim)  
Hepatitis B (7/18/07) 42 U.S.C. § 300aa-26

# Haemophilus Influenzae Type b (Hib) Vaccine

## WHAT YOU NEED TO KNOW

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis).

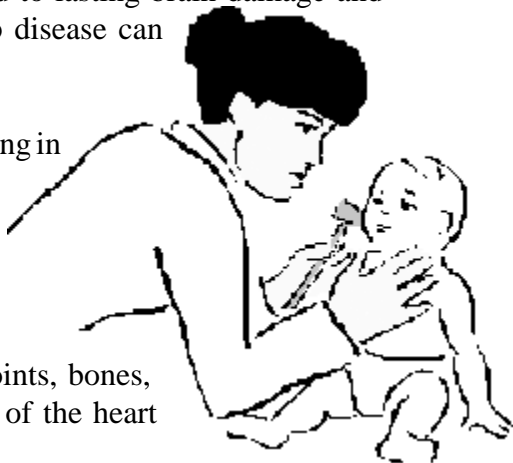
### 1 What is Hib disease?

*Haemophilus influenzae* type b (Hib) disease is a serious disease caused by a bacteria. It usually strikes children under 5 years old.

Your child can get Hib disease by being around other children or adults who may have the bacteria and not know it. The germs spread from person to person. If the germs stay in the child's nose and throat, the child probably will not get sick. But sometimes the germs spread into the lungs or the bloodstream, and then Hib can cause serious problems.

Before Hib vaccine, Hib disease was the leading cause of bacterial meningitis among children under 5 years old in the United States. Meningitis is an infection of the brain and spinal cord coverings, which can lead to lasting brain damage and deafness. Hib disease can also cause:

- pneumonia
- severe swelling in the throat, making it hard to breathe
- infections of the blood, joints, bones, and covering of the heart
- death



Before Hib vaccine, about 20,000 children in the United States under 5 years old got severe Hib disease each year and nearly 1,000 people died.

#### **Hib vaccine can prevent Hib disease.**

Many more children would get Hib disease if we stopped vaccinating.

### 2 Who should get Hib vaccine and when?

**Children should get Hib vaccine at:**

- ✓ 2 months of age
- ✓ 4 months of age
- ✓ 6 months of age\*
- ✓ 12-15 months of age

\* Depending on what brand of Hib vaccine is used, your child might not need the dose at 6 months of age. Your doctor or nurse will tell you if this dose is needed.

If you miss a dose or get behind schedule, get the next dose as soon as you can. There is no need to start over.

Hib vaccine may be given at the same time as other vaccines.

#### **Older Children and Adults**

Children over 5 years old usually do not need Hib vaccine. But some older children or adults with special health conditions should get it. These conditions include sickle cell disease, HIV/AIDS, removal of the spleen, bone marrow transplant, or cancer treatment with drugs. Ask your doctor or nurse for details.

### 3 Some people should not get Hib vaccine or should wait

- People who have ever had a life-threatening allergic reaction to a previous dose of Hib vaccine should not get another dose.
- Children less than 6 weeks of age should not get Hib vaccine.
- People who are moderately or severely ill at the time the shot is scheduled should usually wait until they recover before getting Hib vaccine.

Ask your doctor or nurse for more information.

## 4

### What are the risks from Hib vaccine?

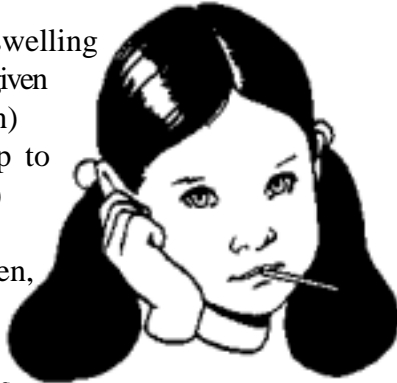
A vaccine, like any medicine, is capable of causing serious problems, such as severe allergic reactions. The risk of Hib vaccine causing serious harm or death is extremely small.

Most people who get Hib vaccine do not have any problems with it.

#### Mild Problems

- Redness, warmth, or swelling where the shot was given (up to 1/4 of children)
- Fever over 101°F (up to 1 out of 20 children)

If these problems happen, they usually start within a day of vaccination. They may last 2-3 days.



## 5

### What if there is a moderate or severe reaction?

#### What should I look for?

Any unusual condition, such as a serious allergic reaction, high fever or behavior changes. Signs of a serious allergic reaction can include difficulty breathing, hoarseness or wheezing, hives, paleness, weakness, a fast heart beat, or dizziness within a few minutes to a few hours after the shot.

#### What should I do?

- **Call** a doctor, or get the person to a doctor right away.
- **Tell** your doctor what happened, the date and time it happened, and when the vaccination was given.
- **Ask** your doctor, nurse, or health department to report the reaction by filing a Vaccine Adverse Event Reporting System (VAERS) form.

Or you can file this report through the VAERS web site at [www.vaers.hhs.gov](http://www.vaers.hhs.gov), or by calling 1-800-822-7967.

*VAERS does not provide medical advice*

## 6

### The National Vaccine Injury Compensation Program

In the rare event that you or your child has a serious reaction to a vaccine, a federal program has been created to help you pay for the care of those who have been harmed.

For details about the National Vaccine Injury Compensation Program, call **1-800-338-2382** or visit the program's website at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation)

## 7

### How can I learn more?

- Ask your doctor or nurse. They can give you the vaccine package insert or suggest other sources of information.
- Call your local or state health department's immunization program.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636 (1-800-CDC-INFO)**
  - Visit the National Immunization Program's website at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)



**U.S. Department of Health & Human Services**  
Centers for Disease Control and Prevention



# PNEUMOCOCCAL CONJUGATE VACCINE

## WHAT YOU NEED TO KNOW

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis).

### 1 Pneumococcal disease

Infection with *Streptococcus pneumoniae* bacteria can make children very sick.

It causes blood infections, pneumonia, and bacterial meningitis, mostly in young children. (Meningitis is an infection of the covering of the brain.) Pneumococcal meningitis kills about 3 people in 10 who get it.

Pneumococcal meningitis can also lead to other health problems, including deafness and brain damage.

Before there was a vaccine, pneumococcal infection caused:

- over 700 cases of meningitis,
- 13,000 blood infections,
- about 5 million ear infections, and
- about 200 deaths

every year in the United States in children under five.

Children younger than 2 years of age are at highest risk for serious disease.

Pneumococcal bacteria are spread from person to person through close contact.

Pneumococcal infections can be hard to treat because some strains of the bacteria have become resistant to the drugs that have been used to treat them. This makes **prevention** of pneumococcal infections, through vaccination, even more important.

### 2 Pneumococcal conjugate vaccine (PCV)

There are 91 strains of pneumococcal bacteria. Pneumococcal conjugate vaccine (PCV) protects against 7 of them. These 7 strains are responsible for most severe pneumococcal infections among children. Since PCV came into use, severe pneumococcal disease has dropped by nearly 80% among children under 5.

PCV can also prevent some cases of pneumonia and some ear infections. But pneumonia and ear infections have many causes, and PCV only works against those caused by pneumococcal bacteria.

PCV is given to infants and toddlers . . . to protect them when they are at greatest risk for serious diseases caused by pneumococcal bacteria.

Older children and adults with certain chronic illnesses may get a different vaccine called pneumococcal *polysaccharide* vaccine. There is a separate Vaccine Information Statement for that vaccine.

### 3 Who should get PCV and when?

#### Infants and Children Under 2 Years of Age

PCV is routinely given as a series of 4 doses, one dose at each of these ages:

- 2 months      - 6 months
- 4 months      - 12-15 months

Children who miss their shots at these ages should still get the vaccine. The number of doses and the intervals between doses will depend on the child's age. Ask your health care provider for details.

#### Children 2 through 4 Years of Age

- Healthy children between their 2nd and 5th birthdays who have not completed the PCV series should get 1 dose.
- Children with medical conditions such as:
  - sickle cell disease,
  - a damaged spleen or no spleen,
  - cochlear implants,
  - HIV/AIDS or other diseases that affect the immune system (such as diabetes, cancer, or liver disease), or
  - chronic heart or lung disease . . .

or children who take medications that affect the immune system, such as chemotherapy or steroids . . .

should get 1 or 2 doses of PCV, if they have not already completed the 4-dose series. Ask your health care provider for details.

PCV may be given at the same time as other vaccines.

#### 4 Some children should not get PCV or should wait

Children should not get pneumococcal conjugate vaccine if they had a serious (life-threatening) allergic reaction to a previous dose of this vaccine, or if they have a severe allergy to any vaccine component. Tell your health-care provider if your child has ever had a severe reaction to any vaccine, or has any severe allergies.

Children with minor illnesses, such as a cold, may be vaccinated. But children who are moderately or severely ill should usually wait until they recover before getting the vaccine.

#### 5 What are the risks from PCV?

Any medicine, including a vaccine, could possibly cause a serious problem, such as a severe allergic reaction. However, the risk of any vaccine causing serious harm, or death, is extremely small.

In studies (nearly 60,000 doses), pneumococcal conjugate vaccine was associated with only mild reactions:

- Up to about 1 infant out of 4 had redness, tenderness, or swelling where the shot was given.
- Up to about 1 out of 3 had a fever greater than 100.4°F, and up to about 1 in 50 had a higher fever (over 102.2°F).
- Some children also became fussy or drowsy, or had a loss of appetite.

No serious reactions have been associated with this vaccine.

Life-threatening allergic reactions from vaccines are very rare. If they do occur, it would be within a few minutes to a few hours after the vaccination.

Vaccine Information Statement (Interim)  
Pneumococcal Conjugate Vaccine 42 U.S.C. §300aa-26  
12/9/08

#### 6 What if there is a severe reaction?

##### What should I look for?

Any unusual condition, such as a high fever or behavior changes. Signs of a severe allergic reaction can include difficulty breathing, hoarseness or wheezing, hives, paleness, weakness, a fast heart beat or dizziness.

##### What should I do?

- Call a doctor, or get the person to a doctor right away.
- Tell the doctor what happened, the date and time it happened, and when the vaccination was given.
- Ask your provider to report the reaction by filing a Vaccine Adverse Event Reporting System (VAERS) form.  
Or you can file this report through the VAERS website at [www.vaers.hhs.gov](http://www.vaers.hhs.gov), or by calling 1-800-822-7967.

*VAERS does not provide medical advice.*

#### 7 The National Vaccine Injury Compensation Program

A federal program exists to help pay for the care of anyone who has a serious reaction to a vaccine.

For more information about the National Vaccine Injury Compensation Program, call 1-800-338-2382 or visit their website at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation).

#### 8 How can I learn more?

- Ask your provider. They can give you the vaccine package insert or suggest other sources of information.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call 1-800-232-4636 (1-800-CDC-INFO) or
  - Visit CDC's website at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines).



DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION

# POLIO VACCINE

## WHAT YOU NEED TO KNOW

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis).

### 1 What is polio?

**Polio is a disease caused by a virus.** It enters a child's (or adult's) body through the mouth. Sometimes it does not cause serious illness. But sometimes it causes *paralysis* (can't move arm or leg). It can kill people who get it, usually by paralyzing the muscles that help them breathe.

Polio used to be very common in the United States. It paralyzed and killed thousands of people a year before we had a vaccine for it.

### 2 Why get vaccinated?

**Inactivated Polio Vaccine (IPV) can prevent polio.**

**History:** A 1916 polio epidemic in the United States killed 6,000 people and paralyzed 27,000 more. In the early 1950's there were more than 20,000 cases of polio each year. **Polio vaccination was begun in 1955.** By 1960 the number of cases had dropped to about 3,000, and by 1979 there were only about 10. The success of polio vaccination in the U.S. and other countries sparked a world-wide effort to eliminate polio.

**Today:** No wild polio has been reported in the United States for over 20 years. But the disease is still common in some parts of the world. It would only take one case of polio from another country to bring the disease back if we were not protected by vaccine. If the effort to eliminate the disease from the world is successful, some day we won't need polio vaccine. Until then, we need to keep getting our children vaccinated.

#### **Oral Polio Vaccine: No longer recommended**

There are two kinds of polio vaccine: **IPV**, which is the shot recommended in the United States today, and a live, oral polio vaccine (**OPV**), which is drops that are swallowed.

Until recently OPV was recommended for most children in the United States. OPV helped us rid the country of polio, and it is still used in many parts of the world.

Both vaccines give immunity to polio, but OPV is better at keeping the disease from spreading to other people. However, for a few people (about one in 2.4 million), OPV actually causes polio. Since the risk of getting polio in the United States is now extremely low, experts believe that using oral polio vaccine is no longer worth the slight risk, except in limited circumstances which your doctor can describe. The polio shot (IPV) does not cause polio. **If you or your child will be getting OPV, ask for a copy of the OPV supplemental Vaccine Information Statement.**

### 3 Who should get polio vaccine and when?

IPV is a shot, given in the leg or arm, depending on age. Polio vaccine may be given at the same time as other vaccines.

#### **Children**

Most people should get polio vaccine when they are children. Children get 4 doses of IPV, at these ages:

- ✓ A dose at 2 months
- ✓ A dose at 4 months
- ✓ A dose at 6-18 months
- ✓ A booster dose at 4-6 years

#### **Adults**

Most adults do not need polio vaccine because they were already vaccinated as children. But three groups of adults are at higher risk and *should* consider polio vaccination:

- (1) people traveling to areas of the world where polio is common,
- (2) laboratory workers who might handle polio virus, and
- (3) health care workers treating patients who could have polio.

Adults in these three groups who **have never been vaccinated against polio** should get 3 doses of IPV:

- ✓ The first dose at any time,
- ✓ The second dose 1 to 2 months later,
- ✓ The third dose 6 to 12 months after the second.

Adults in these three groups who **have had 1 or 2 doses** of polio vaccine in the past should get the remaining 1 or 2 doses. It doesn't matter how long it has been since the earlier dose(s).

Adults in these three groups who **have had 3 or more doses** of polio vaccine (either IPV or OPV) in the past may get a booster dose of IPV.

Ask your health care provider for more information.

## 4

### Some people should not get IPV or should wait.

#### These people should not get IPV:

- Anyone who has ever had a life-threatening allergic reaction to the antibiotics **neomycin**, **streptomycin** or **polymyxin B** should not get the polio shot.
- Anyone who has a severe allergic reaction to a polio shot should not get another one.

#### These people should wait:

- Anyone who is moderately or severely ill at the time the shot is scheduled should usually wait until they recover before getting polio vaccine. People with minor illnesses, such as a cold, *may* be vaccinated.

Ask your health care provider for more information.

## 5

### What are the risks from IPV?

Some people who get IPV get a sore spot where the shot was given. The vaccine used today has never been known to cause any serious problems, and most people don't have any problems at all with it.

However, a vaccine, like any medicine, could cause serious problems, such as a severe allergic reaction. *The risk of a polio shot causing serious harm, or death, is extremely small.*

## 6

### What if there is a serious reaction?

#### What should I look for?

Look for any unusual condition, such as a serious allergic reaction, high fever, or unusual behavior.

If a serious allergic reaction occurred, it would happen within a few minutes to a few hours after the shot. Signs of a serious allergic reaction can include difficulty breathing, weakness, hoarseness or wheezing, a fast heart beat, hives, dizziness, paleness, or swelling of the throat

#### What should I do?

- **Call** a doctor, or get the person to a doctor right away.

- **Tell** your doctor what happened, the date and time it happened, and when the vaccination was given.
- **Ask** your doctor, nurse, or health department to report the reaction by filing a Vaccine Adverse Event Reporting System (VAERS) form.

Or you can file this report through the VAERS website at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or by calling 1-800-822-7967.

*VAERS does not provide medical advice.*

Reporting reactions helps experts learn about possible problems with vaccines.

## 7

### The National Vaccine Injury Compensation Program

In the rare event that you or your child has a serious reaction to a vaccine, there is a federal program that can help pay for the care of those who have been harmed.

For details about the National Vaccine Injury Compensation Program, call **1-800-338-2382** or visit the program's website at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation)

## 8

### How can I learn more?

- Ask your doctor or nurse. They can give you the vaccine package insert or suggest other sources of information.
- Call your local or state health department's immunization program.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636 (1-800-CDC-INFO)**
  - Visit the National Immunization Program's website at <http://www.cdc.gov/vaccines>



**U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES**  
Centers for Disease Control and Prevention

# TETANUS, DIPHTHERIA (Td) or TETANUS, DIPHTHERIA, PERTUSSIS (Tdap) **VACCINE**

## WHAT YOU NEED TO KNOW

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis).

### 1 Why get vaccinated?

Children 6 years of age and younger are routinely vaccinated against tetanus, diphtheria and pertussis. But older children, adolescents, and adults need protection from these diseases too. Td (Tetanus, Diphtheria) and Tdap (Tetanus, Diphtheria, Pertussis) vaccines provide that protection.

**TETANUS (Lockjaw)** causes painful muscle spasms, usually all over the body.

- It can lead to tightening of the jaw muscles so the victim cannot open his mouth or swallow. Tetanus kills about 1 out of 5 people who are infected.

**DIPHTHERIA** causes a thick covering in the back of the throat.

- It can lead to breathing problems, paralysis, heart failure, and even death.

**PERTUSSIS (Whooping Cough)** causes severe coughing spells, vomiting, and disturbed sleep.

- It can lead to weight loss, incontinence, rib fractures and passing out from violent coughing. Up to 2 in 100 adolescents and 5 in 100 adults with pertussis are hospitalized or have complications, including pneumonia.

These three diseases are all caused by bacteria. Diphtheria and pertussis are spread from person to person. Tetanus enters the body through cuts, scratches, or wounds.

The United States averaged more than 1,300 cases of tetanus and 175,000 cases of diphtheria each year before vaccines. Since vaccines have been available, tetanus cases have fallen by over 96% and diphtheria cases by over 99.9%.

Before 2005, only children younger than 7 years of age could get pertussis vaccine. In 2004 there were more than 8,000 cases of pertussis in the U.S. among adolescents and more than 7,000 cases among adults.

### 2 Td and Tdap vaccines

- Td vaccine has been used for many years. It protects against tetanus and diphtheria.
- Tdap was licensed in 2005. It is the first vaccine for adolescents and adults that protects against all three diseases.

Note: At this time, Tdap is licensed for only one lifetime dose per person. Td is given every 10 years, and more often if needed.

These vaccines can be used in three ways: 1) as catch-up for people who did not get all their doses of DTaP or DTP when they were children, 2) as a booster dose every 10 years, and 3) for protection against tetanus infection after a wound.

### 3 Which vaccine, and when?

#### Routine: Adolescents 11 through 18

- A dose of Tdap is recommended for adolescents who got DTaP or DTP as children and have not yet gotten a booster dose of Td. The preferred age is 11-12.
- Adolescents who have already gotten a booster dose of Td are encouraged to get a dose of Tdap as well, for protection against pertussis. Waiting at least 5 years between Td and Tdap is encouraged, but not required.
- Adolescents who did not get all their scheduled doses of DTaP or DTP as children should complete the series using a combination of Td and Tdap.

#### Routine: Adults 19 and Older

- All adults should get a booster dose of Td every 10 years. Adults under 65 who have never gotten Tdap should substitute it for the next booster dose.
- Adults under 65 who expect to have close contact with an infant younger than 12 months of age (including women who may become pregnant) should get a dose of Tdap. Waiting at least 2 years since the last dose of Td is suggested, but not required.
- Healthcare workers under 65 who have direct patient contact in hospitals or clinics should get a dose of Tdap. A 2-year interval since the last Td is suggested, but not required.

New mothers who have never gotten Tdap should get a dose as soon as possible after delivery. If vaccination is needed *during* pregnancy, Td is usually preferred over Tdap.

#### Protection After a Wound

A person who gets a severe cut or burn might need a dose of Td or Tdap to prevent tetanus infection. Tdap may be used for people who have never had a dose. But Td should be used if Tdap is not available, or for:

- anybody who has already had a dose of Tdap,
- children 7 through 9 years of age, or
- adults 65 and older.

Tdap and Td may be given at the same time as other vaccines.

### 4 Some people should not be vaccinated or should wait

- Anyone who has had a life-threatening allergic reaction after a dose of DTP, DTaP, DT, or Td should not get Td or Tdap.
- Anyone who has a severe allergy to any component of a vaccine should not get that vaccine. Tell your provider if the person getting the vaccine has any severe allergies.

- Anyone who had a coma, or long or multiple seizures within 7 days after a dose of DTP or DTaP should not get Tdap, unless a cause other than the vaccine was found (these people *can* get Td).
- Talk to your provider if the person getting either vaccine:
  - has epilepsy or another nervous system problem,
  - had severe swelling or severe pain after a previous dose of DTP, DTaP, DT, Td, or Tdap vaccine, or
  - has had Guillain Barré Syndrome (GBS).

Anyone who has a moderate or severe illness on the day the shot is scheduled should usually wait until they recover before getting Tdap or Td vaccine. A person with a mild illness or low fever can usually be vaccinated.

## 5 What are the risks from Tdap and Td vaccines?

With a vaccine (as with any medicine) there is always a small risk of a life-threatening allergic reaction or other serious problem.

Getting tetanus, diphtheria or pertussis would be much more likely to lead to severe problems than getting either vaccine.

Problems reported after Td and Tdap vaccines are listed below.

### Mild Problems

(Noticeable, but did not interfere with activities)

#### Tdap

- Pain (about 3 in 4 adolescents and 2 in 3 adults)
- Redness or swelling (about 1 in 5)
- Mild fever of at least 100.4°F (up to about 1 in 25 adolescents and 1 in 100 adults)
- Headache (about 4 in 10 adolescents and 3 in 10 adults)
- Tiredness (about 1 in 3 adolescents and 1 in 4 adults)
- Nausea, vomiting, diarrhea, stomach ache (up to 1 in 4 adolescents and 1 in 10 adults)
- Chills, body aches, sore joints, rash, swollen glands (uncommon)

#### Td

- Pain (up to about 8 in 10)
- Redness or swelling (up to about 1 in 3)
- Mild fever (up to about 1 in 15)
- Headache or tiredness (uncommon)

### Moderate Problems

(Interfered with activities, but did not require medical attention)

#### Tdap

- Pain at the injection site (about 1 in 20 adolescents and 1 in 100 adults)
- Redness or swelling (up to about 1 in 16 adolescents and 1 in 25 adults)
- Fever over 102°F (about 1 in 100 adolescents and 1 in 250 adults)
- Headache (1 in 300)
- Nausea, vomiting, diarrhea, stomach ache (up to 3 in 100 adolescents and 1 in 100 adults)

#### Td

- Fever over 102°F (rare)

### Tdap or Td

- Extensive swelling of the arm where the shot was given (up to about 3 in 100).

### Severe Problems

(Unable to perform usual activities; required medical attention)

#### Tdap

- Two adults had nervous system problems after getting the vaccine during clinical trials. These may or may not have been caused by the vaccine. These problems went away on their own and did not cause any permanent harm.

#### Tdap or Td

- Swelling, severe pain, and redness in the arm where the shot was given (rare).

A severe allergic reaction could occur after any vaccine. They are estimated to occur less than once in a million doses.

## 6 What if there is a severe reaction?

### What should I look for?

Any unusual condition, such as a high fever or behavior changes. Signs of a severe allergic reaction can include difficulty breathing, hoarseness or wheezing, hives, paleness, weakness, a fast heart beat or dizziness.

### What should I do?

- Call a doctor, or get the person to a doctor right away.
- Tell the doctor what happened, the date and time it happened, and when the vaccination was given.
- Ask your provider to report the reaction by filing a Vaccine Adverse Event Reporting System (VAERS) form. Or you can file this report through the VAERS website at [www.vaers.hhs.gov](http://www.vaers.hhs.gov), or by calling 1-800-822-7967.

VAERS does not provide medical advice.

## 7 The National Vaccine Injury Compensation Program

A federal program exists to help pay for the care of anyone who has a serious reaction to a vaccine.

For details about the National Vaccine Injury Compensation Program, call 1-800-338-2382 or visit their website at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation).

## 8 How can I learn more?

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DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION



Some parents of children with autism are concerned that vaccines are the cause. Their concerns center on three areas: the combination measles-mumps-rubella (MMR) vaccine; thimerosal, a mercury-containing preservative previously contained in several vaccines; and the notion that babies receive too many vaccines too soon.

#### *Q. What are the symptoms of autism?*

*A. Symptoms of autism, which typically appear during the first few years of life, include difficulties with behavior, social skills and communication.* Specifically, children with autism may have difficulty interacting socially with parents, siblings and other people; have difficulty with transitions and need routine; engage in repetitive behaviors such as hand flapping or rocking; display a preoccupation with activities or toys; and suffer a heightened sensitivity to noise and sounds. Autism spectrum disorders vary in the type and severity of the symptoms they cause, so two children with autism may not be affected in quite the same way.

#### *Q. What causes autism?*

*A. The specific cause or causes of autism in all children are not known.* But one thing is clear: autism spectrum disorders are highly genetic. Researchers figured this out by studying twins. They found that when one identical twin had autism, the chance that the second twin had autism was greater than 90 percent. But when one fraternal twin had autism, the chance that the second twin had autism was less than 10 percent. Because identical twins have identical genes and fraternal twins don't, these studies proved the genetic basis of autism. More recently, researchers have successfully identified some of the specific genes that cause autism.

Some parents wonder whether environmental factors – defined as anything other than genetic factors – can cause autism. It's possible. For example, researchers found that thalidomide, a sedative, can cause autism if used during early pregnancy. Also, if pregnant women are infected with rubella virus (German measles) during early pregnancy, their babies are more likely to have autism.

#### *Q. Does the MMR vaccine cause autism?*

*A. No.* In 1998, a British researcher named Andrew Wakefield raised the notion that the MMR vaccine might cause autism. In the medical journal *The Lancet*, he reported the stories of eight children who developed autism and intestinal problems soon after receiving the MMR vaccine. To determine whether Wakefield's suspicion was correct, researchers performed a series of studies comparing hundreds of thousands of children who had received the MMR vaccine with hundreds of thousands who had never received the vaccine. They found that the risk of autism was the same in both groups. The MMR vaccine didn't cause autism. Furthermore, children with autism were not more likely than other children to have bowel problems.

#### *Q. Does thimerosal cause autism?*

*A. No.* Multiple studies have shown that thimerosal in vaccines does not cause autism. Thimerosal is a mercury-containing preservative that was used in vaccines to prevent contamination. In 1999, professional groups called for thimerosal to be removed from vaccines as a precaution. Unfortunately, the precipitous removal of thimerosal from all but some multidose preparations of influenza vaccine scared some parents. Clinicians were also confused by the recommendation.

Since the removal of thimerosal, six studies have been performed to determine whether thimerosal causes autism. Again, hundreds of thousands of children who received thimerosal-containing vaccines were compared to hundreds of thousands of children who received the same vaccines free of thimerosal. The results were clear: The risk of autism was the same in both groups.

# Vaccines and Autism: What you should know

*Q. Are the studies showing that neither the MMR vaccine nor thimerosal causes autism sensitive enough to detect the problem in small numbers of children?*

*A. The studies showing that neither the MMR vaccine nor thimerosal causes autism, called epidemiological studies, are very sensitive.* For example, epidemiological studies have shown that a rotavirus vaccine used between 1998 and 1999 in the United States caused intestinal blockage in 1 out of every 10,000 vaccine recipients; that measles vaccine caused a reduction in the number of cells needed to stop bleeding (platelets) in 1 out of every 25,000 recipients; and that an influenza (swine flu) vaccine used in the United States in 1976 caused a type of paralysis called Guillain-Barré Syndrome in 1 out of every 100,000 recipients.

About 1 out of every 150 children in the United States is diagnosed with an autism spectrum disorder. Even if vaccines caused autism in only 1 percent of those children – meaning 1 out of every 15,000 children – the problem would have easily been detected by epidemiological studies.

*Q. Is autism caused by children receiving too many vaccines too soon?*

*A. Several facts make it very unlikely that babies are overwhelmed by too many vaccines given too early in life.*

First, before they are licensed, new vaccines are always tested alone or in combination with existing vaccines. These studies determine whether new vaccines alter the safety and efficacy of existing vaccines and, conversely, whether existing vaccines affect the new vaccine. These studies, called concomitant use studies, are performed every time a new vaccine is added to the existing vaccination schedule.

Second, although the number of vaccines has increased dramatically during the past century, the number of immunological components in vaccines has actually decreased. One hundred years ago, children received just one vaccine, for smallpox. The smallpox vaccine contained about 200 immunological components. Today, with advances in protein purification and recombinant DNA technology, the 14 vaccines given to young children contain only about 150 immunological components.

Third, the immunological challenge from vaccines is minuscule compared to what babies typically encounter every day. The womb is sterile, containing no bacteria, viruses, parasites or fungi. But when babies leave the womb and enter the world, they are immediately colonized by trillions of bacteria that live on the linings of their nose, throat, skin and intestines. Each bacterium contains between 2,000 and 6,000

immunological components. And babies often make an immune response to these bacteria to prevent them from entering the bloodstream and causing harm. The challenge that vaccines present is tiny in comparison to that from the environment.

Fourth, children have an enormous capacity to respond to immunological challenges. Susumu Tonegawa, a molecular biologist who won a Nobel Prize for his work, showed that people have the capacity to make between 1 billion and 100 billion different types of antibodies. Given the number of immunological components contained in modern vaccines, a conservative estimate would be that babies have the capacity to respond to about 100,000 different vaccines at once. Although this sounds like a huge number, when you consider the number of challenges that babies face from bacteria in their environment, it's not.

Here's another way to understand the difference in scale between immunological challenges from vaccines and natural challenges from the environment. The quantity of bacteria that live on body surfaces is measured in grams (a gram is the weight of about one-fifth of a teaspoon of water). The quantity of immunological components contained in vaccines is measured in micrograms or nanograms (millionths or billionths of a gram).

*Q. If I am concerned that vaccines cause autism, what is the harm in delaying or withholding vaccines for my baby?*

*A. All of the evidence shows that vaccines don't cause autism, so delaying or withholding vaccines will not lessen the risk of autism; it will only increase the period of time during which children are at risk for vaccine-preventable diseases.* Several of these diseases, like chickenpox, pertussis (whooping cough) and pneumococcus (which causes bloodstream infections, pneumonia and meningitis) are still fairly common. Delaying or withholding vaccines only increases the time during which children are at unnecessary risk for severe and occasionally fatal infections.

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**All of the evidence shows that vaccines don't cause autism, so delaying or withholding vaccines will not lessen the risk of autism; it will only increase the period of time during which children are at risk for vaccine-preventable diseases.**

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This information is provided by the Vaccine Education Center at The Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from The Children's Hospital of Philadelphia. The Vaccine Education Center does not receive support from pharmaceutical companies.

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Vaccine Education Center at  
The Children's Hospital of Philadelphia

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Today, young children receive vaccines to protect them against 14 different diseases. Because some vaccines require more than one dose, children can receive as many as 26 inoculations by 2 years of age and up to five shots at one time. For this reason, some parents now ask their doctors to space out, separate or withhold vaccines. The concern that too many vaccines might overwhelm a baby's immune system is understandable, but the evidence that they don't is reassuring.

### *Q. What are the active components in vaccines?*

**A. Vaccines contain parts of viruses or bacteria that induce protective immune responses. These active ingredients are called immunological components.**

Vaccines that protect against bacterial diseases are made from either inactivated bacterial proteins (e.g., diphtheria, tetanus and whooping cough [pertussis]) or bacterial sugars called polysaccharides (e.g., *Haemophilus influenzae* type b [Hib] and pneumococcus). Each of these bacterial proteins or polysaccharides is considered an immunological component, meaning that each evokes a distinct immune response.

Vaccines that protect against viral diseases (e.g., measles, mumps, rubella, polio, rotavirus, hepatitis A, hepatitis B, chickenpox and influenza) are made of viral proteins. Just like bacterial proteins, viral proteins induce an immune response.

### *Q. Do children encounter more immunological components from vaccines today than they did 30 years ago?*

**A. No. Although children receive more vaccines now than ever before, most people would probably be surprised to learn that the number of immunological components in vaccines has dramatically decreased.**

Thirty years ago, children received seven vaccines, which protected against measles, mumps, rubella, diphtheria, tetanus, pertussis and polio. The total number of bacterial and viral proteins contained in these seven vaccines was a little more than 3,000.

Today, children receive 14 different vaccines, but the total number of immunological components in these vaccines is only about 150.

This dramatic reduction is the result of scientific advances that have allowed for purer, safer vaccines.

### *Q. Can too many vaccines overwhelm an infant's immune system?*

**A. No. Compared to the immunological challenges that infants handle every day, the challenge from the immunological components in vaccines is minuscule.**

Babies begin dealing with immunological challenges at birth. The mother's womb is a sterile environment, free from viruses, bacteria, parasites and fungi. But after babies pass through the birth canal and enter the world, they are immediately colonized with trillions of bacteria, which means that they carry the bacteria on their bodies but aren't infected by them. These bacteria live on the skin, nose, throat and intestines. To make sure that colonizing bacteria don't invade the bloodstream and cause harm, babies constantly make antibodies against them.

Colonizing bacteria aren't the only issue. Because the food that we eat and the dust that we breathe contain bacteria, immunological challenges from the environment are unending. Viruses are also a problem. Children in the first few years of life are constantly exposed to a variety of different viruses that cause runny noses, cough, congestion, fever, or diarrhea.

Given that infants are colonized with trillions of bacteria, that each bacterium contains between 2,000 and 6,000 immunological components and that infants are infected with numerous viruses, the challenge from the 150 immunological components in vaccines is minuscule compared to what infants manage every day.

[more ►](#)

# Too Many Vaccines? What you should know

**Q. How many vaccines can children effectively handle at one time?**

**A. A lot more than they're getting now.**

The purpose of vaccines is to prompt a child's body to make antibodies, which work by preventing bacteria and viruses from reproducing themselves and causing disease.

So, how many different antibodies can babies make?

The best answer to this question came from a Nobel Prize-winning immunologist at the Massachusetts Institute of Technology named Susumu Tonegawa, who first figured out how people make antibodies. Tonegawa discovered that antibodies are made by rearranging and recombining many different genes, and found that people can make about 10 billion different antibodies. Given the number of antibody-producing cells in a child's bloodstream, and the number of immunological components contained in vaccines, it is reasonable to conclude that babies could effectively make antibodies to about 100,000 vaccines at one time. Although this number sounds overwhelming, remember that every day children are defending themselves against a far greater number of immunological challenges in their environment.

**Q. How do we know that multiple vaccines can be given safely?**

**A. The FDA requires extensive safety testing before vaccines are licensed. Before a new vaccine can be licensed by the Food and Drug Administration (FDA), it must first be tested by something called 'concomitant use studies.' Concomitant use studies require new vaccines to be tested with existing vaccines.**

These studies are performed to make sure the new vaccine doesn't affect the safety or effectiveness of existing vaccines given at the same time, and vice versa. Because concomitant use studies have been required for decades, many studies have been performed showing that children can be inoculated with multiple vaccines safely.

**Q. What is the harm of separating, spacing out or withholding vaccines?**



**A. Delaying vaccines can be risky. The desire by some parents to separate, space out or withhold vaccines is understandable. This choice, however, is not necessarily without consequence.**

First, delaying vaccines only increases the time during which children are susceptible to certain diseases, some of which are still fairly common. Chickenpox, whooping cough (pertussis), influenza and pneumococcus still cause hospitalizations and deaths in previously healthy children every year. And before the chickenpox vaccine, every year about 70 children died from the disease.

Second, spacing out or separating vaccines will require children to visit the doctor more often for shots. Researchers have found that children experience similar amounts of stress, as measured by secretion of a hormone called cortisol, whether they are getting one or two shots at the same visit. This study suggests that although children are clearly stressed by receiving a shot, two shots aren't more stressful than one. For this reason, more visits to the doctor created by separating or spacing out vaccines will actually increase the trauma of getting shots.

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