Maternal and Infant Immunization Discussion Guides

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WHY IMMUNIZE?

Use these speaking points with the accompanying family-friendly infographics when talking with expectant parents and caregivers.

- Immunizations help the immune system recognize and resist contagious diseases to keep us healthy.
- The recommended immunization schedule for children is based on how a child's immune system responds to vaccines at various ages and how likely a child is to be exposed to each of the diseases.

During pregnancy:

- Immunization offers protection during a time when you and baby are most at risk of getting seriously sick.
- Baby is protected during pregnancy and for a period of time after they are born.

After your baby is born:

- They can stay healthy as they grow and develop.
- They can attend child care and activities with friends and family.

Community immunity prevents spreading diseases, especially to people who are at risk of serious illness. This helps protect:

- Babies who are too young to get their vaccines.
- People with conditions—including pregnancy—that affect their immune system.
- People who require treatment that lowers their ability to fight infections and respond to vaccines.
- Grandparents and elders in your community who are at higher risk of getting seriously sick.
- When enough people have enhanced immunity (through vaccination or infection), entire communities are protected.

How do immunizations work?

- **Getting immunized is like learning to read.** Vaccines are like books that the immune system uses to learn about harmful diseases. When you or your baby are exposed to a disease, the immune system recognizes it and remembers how to respond.
- Your child's immune system learns more about a disease from each immunization, and your child is better equipped to stay healthy.

Immunizations during pregnancy

Why are certain vaccines recommended before, during and after pregnancy?

While pregnant, you develop antibodies from the vaccines that protect you from illness. Antibodies made before or during pregnancy cross the placenta to your baby before they are born. Your baby receives the antibodies, and their immune system is ready to resist serious diseases early in life. Vaccines also help you avoid getting seriously sick and passing the illness to their newborn.

Anyone who is around the new baby should also stay up to date with vaccines.

Immunizations for children

The timing for each dose of a vaccine is based on:

- The age when a child's immune system responds best to the vaccine.
- The earliest time before a child is likely to be exposed to or get very sick from a disease.

Should all children follow the same recommended vaccine schedule?

Yes. The Child and Adolescent Immunization Schedule is recommended by the American Academy of Pediatrics and Centers for Disease Control and Prevention. It is considered the ideal schedule and applies to all healthy children. There are very few exceptions where a different schedule is needed. For example, a child with a chronic condition or who takes medicine that weakens the immune system may need a different schedule.

Why do children still need vaccines if these diseases are mostly gone?

Smallpox is the only disease that has been eliminated completely by vaccines. That is why we no longer need to use the smallpox vaccine. We still need vaccines for the other diseases that have not been completely eradicated because they can spread again if community immunity decreases.

What determines the timing and number of doses for the recommended vaccine schedule?

Different vaccines need different numbers of doses to best protect your child. Often, children need more than one dose to ensure their immunity from the vaccine lasts as long as possible. By getting all the required doses, you are protecting your child and keeping their immune system stronger for longer.

It is safe to receive multiple vaccines at the same time.

Is my child protected from these diseases for the rest of their life?

Researchers are always studying how long vaccine protection lasts, how many doses we need and how much time between doses works best. That is why some vaccines, like the flu shot are needed every year, but others give lifelong protection after two or more doses spaced months or years apart.

Why does my baby have to get some vaccines every year?

Some vaccines are needed every year. For example, influenza vaccination is recommended every year for two reasons:

- Flu viruses change. The vaccine formula gets updated each year to teach our body to respond to the flu virus types that will be most common during the upcoming flu season.
- Our immune protection declines over time. An annual flu vaccine helps keep our body's defenses ready. The vaccine provides protection from critical and life-threatening illness from influenza. Even in seasons when the vaccine is not an exact match with the circulating strains, it prevents serious complications.

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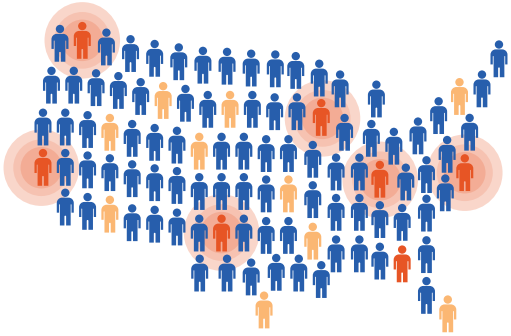
WHY IMMUNIZE?

HOW IMMUNIZATIONS WORK

IMMUNIZATION BUILDS LONG-TERM PROTECTION BEFORE YOUR BABY IS EXPOSED TO SERIOUS DISEASES.

COMMUNITY IMMUNITY } **If enough people get vaccines, they will protect others who cannot get them or have not gotten them yet.**



= Is infected

= Has been vaccinated

= At high risk for disease or has not been (fully) vaccinated.

WITH IMMUNIZATIONS, YOUR BABY CAN:

Have a healthy, consistent routine.

Avoid serious illness and hospitalization.

Spend more time learning and playing.

Grow and thrive!

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PROTECTING PARENT & BABY THROUGH MATERNAL VACCINES

Use these speaking points with the accompanying family-friendly infographics when talking with expectant parents.

Immunizations help protect pregnant women and babies from serious diseases starting before birth.

Your baby gets disease protection from you during pregnancy and beyond.

- Vaccines help you develop antibodies and keep your immune system updated so you can avoid getting very sick from serious diseases while you are pregnant.
- Those antibodies get passed from you to your baby during pregnancy.
- Antibodies—including the ones the body makes from vaccines during pregnancy—pass protection (immunity) to baby before birth. This protection extends after birth for the first few months of life, when the baby's immune system cannot fight diseases as effectively. This immunity decreases over time.

Vaccines before and during pregnancy prevent severe illness.

Getting recommended vaccines before and during pregnancy helps protect you and your baby from serious diseases. Some vaccines can also protect against delivering your baby prematurely.

These illnesses can cause your baby to become very sick and need to stay in the hospital, or worse. Newborns and young infants are at greatest risk!

Protection against diphtheria, tetanus and pertussis (whooping cough)

Birth to 2 months	2 months through 6 years
Tdap vaccine during pregnancy	**DTaP vaccine** for babies at 2 months, 4 months, 6 months, 15–18 months and 4–6 years.

Tdap vaccine during pregnancy protects your baby for up to 2 months after they are born. At age 2 months, your baby should start the DTaP vaccine series to create their own antibodies for their protection.

Protection against influenza (flu)

Birth to 6 months	6 months or older
Annual **influenza vaccine** during pregnancy.	Annual **influenza vaccine**

Influenza vaccine during pregnancy protects your baby for up to 6 months. At age 6 months, your baby needs to receive the influenza vaccine as soon as it is available, ideally by the end of October but the vaccine can be offered until the expiration date (typically June 30) that marks the end of influenza season. Two doses are recommended the first time children get the influenza vaccine if they are under age 9 years. Annual influenza vaccine is also recommended while breastfeeding.

Protection against respiratory syncytial virus (RSV)

RSV immunization is recommended for infants during their first RSV season and for young children up to age 19 months who are at high risk from RSV infection. There are two products to help protect young children during RSV season:

RSV immunization product type	When it is given	Clinical notes
RSV vaccine during pregnancy	**At 32–36 weeks of pregnancy** Protection for baby during RSV season from RSV vaccine given during pregnancy. (Vaccine is given in September–January in most parts of the U.S.*)	RSV vaccine for pregnant women is authorized for one lifetime dose. • If a person receives this vaccine during one pregnancy, they do not need to get it again. • Babies born from later pregnancies should receive the RSV immunization (protective antibody) for infants and toddlers. • Some young children at high risk may need additional protection from RSV immunization (protective antibody) for infants and toddlers.
RSV immunization (protective antibody) for infants and toddlers	**Birth to 8 months of age**	For all infants under age 8 months during the RSV season (generally, October through March)* if no RSV vaccine was given during pregnancy.**
	8–19 months of age	For infants and toddlers at high risk upon entering their second RSV season.

*If you live in Alaska, Florida, or outside the continental U.S., talk to your health care provider about when RSV immunization is recommended where you live.
**Or, if patient received the RSV vaccine less than 2 weeks before the baby's birth.

Protection against COVID-19

Birth to 6 months	6 months or older
COVID-19 vaccine during pregnancy*	1-3 doses of current **COVID-19 vaccine** are recommended for people 6 months of age and older**

*Studies show protection is shared with the baby when a COVID-19 vaccine is received during pregnancy. This provides strong protection that lasts until the infant can receive COVID-19 vaccination at age 6 months. The updated COVID-19 vaccine is recommended when breastfeeding.
**The number of recommended doses is determined based on the number of doses of COVID-19 vaccines received previously.

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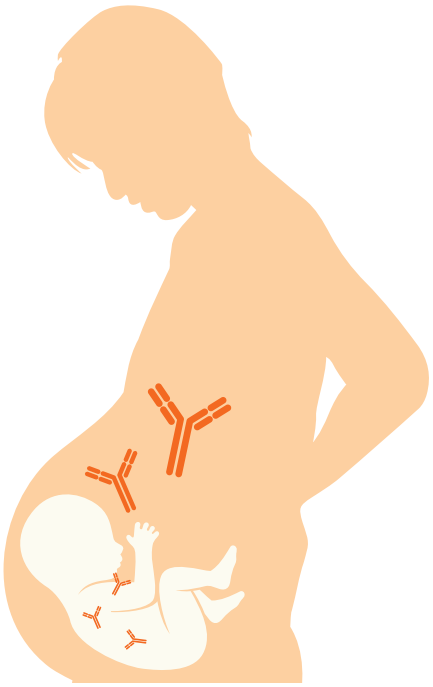
IMMUNIZATIONS DURING PREGNANCY

PROTECTING PARENT & BABY

THROUGH VACCINES IN PREGNANCY

- Vaccines before and during pregnancy prevent you from getting very sick from serious diseases.
- The baby gets antibodies (immune protection) that your body creates from vaccines during pregnancy to protect them from serious diseases.

= Antibodies = protection from disease



BABIES NEED IMMUNIZATIONS TO KEEP THEIR IMMUNE SYSTEM PROTECTED.

Baby's protection from RSV*, whooping cough, flu, COVID

Birth

The protection passed to your baby during pregnancy starts to wear off over time.

Infant immunizations

Your baby's immunizations are recommended at the time that works best at keeping them protected.

* RSV immunization is either given during pregnancy or to the baby during RSV season.

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Immunizations During Pregnancy

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IMMUNIZATION SCHEDULE

Use these speaking points with the accompanying family-friendly infographics when talking with patients.

Vaccines are needed during pregnancy too!

The following vaccines are routinely recommended during pregnancy to protect mothers and babies from these diseases:

Disease	Vaccine	Recommended Schedule
Tetanus, diphtheria and pertussis	Tetanus, diphtheria, acellular pertussis (Tdap)	Each pregnancy Between 27–36 weeks' gestation
Influenza (flu)	Inactivated influenza vaccine (IIV) or Recombinant influenza vaccine	Annually (before the beginning of the influenza season in your area)
COVID-19	COVID-19 vaccine	During pregnancy if not up to date with the most recent COVID-19 vaccine
Respiratory syncytial virus (RSV)	Bivalent RSVpreF vaccine (Abrysvo—Pfizer)	One dose during pregnancy at 32–36 weeks' gestation September–January*

*In most of the continental United States—Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdiction with tropical climate) should follow guidance from public health authorities (e.g., Centers for Disease Control and Prevention [CDC], local state and territorial health departments) or regional medical centers on timing of administration based on local RSV seasonality. Refer to the Child and Adolescent Immunization Schedule for considerations regarding RSV immunization administration to infants.

These vaccines are recommended by the American Academy of Pediatrics (AAP), the American College of Obstetricians and Gynecologists and the CDC. Other vaccines can be given during pregnancy if the patient is at increased risk of acquiring these diseases and has not been vaccinated prior to pregnancy. For example, hepatitis B, hepatitis A and vaccines for travel.

These vaccines are safe.

- Before being licensed by the Food and Drug Administration, each vaccine is carefully studied by scientific experts.
- The CDC continually monitors the safety of all vaccines, which are held to the highest standards.
- It is normal and expected to have minor vaccine side effects.
- Most side effects are mild (e.g., sore arm).
- Serious side effects (e.g., severe allergic reaction) are rare.
- These side effects are not associated with increased risk of poor pregnancy outcome (birth defect, miscarriage, preterm birth or stillbirth).

Protection for mother and baby from vaccines

A baby gets disease immunity (protection) during pregnancy. This immunity can protect baby from some diseases during the first few months of life, but immunity decreases over time. As this protection starts to wane, baby will get their own immunizations to keep up protection.

IMMUNIZATION SCHEDULE

RECOMMENDED DURING PREGNANCY

Diseases prevented	Vaccine	During pregnancy
Tetanus, diphtheria & pertussis (Tdap)	**Tdap vaccine**	**1 dose, preferably at 27–36 weeks' gestation***
Influenza (Flu)	**Inactivated influenza vaccine or recombinant influenza vaccine****	**Annual dose at any point during pregnancy**
COVID-19 (Coronavirus disease 2019)	**COVID-19 vaccine**	**COVID-19 vaccine, when recommended**
Respiratory syncytial virus (RSV)	**RSV vaccine**	**1 dose during pregnancy at 32–36 weeks' gestation for babies to be born during RSV season*****

*If Tdap is administered before pregnancy, it should be administered again during pregnancy.

**Live attenuated influenza vaccine is not recommended during pregnancy.

***RSV season lasts from October through March in most of the continental United States; maternal RSV vaccine is given September–January. Women who received one dose of RSV vaccine during pregnancy should not receive additional doses during later pregnancies. Instead, that infant should receive nirsevimab.

These vaccines are recommended to protect you and to keep your baby safe, too!

Vaccine Information Statements: https://www.cdc.gov/vaccines/hcp/vis/index.html

Recommended Immunization Schedule for Adults Aged 19 Years or Older — United States, 2024

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RESPIRATORY SYNCYTIAL VIRUS (RSV) IMMUNIZATION

Use the information on this page with the infographic page when talking with families.

About RSV

- Respiratory syncytial virus (RSV) causes acute respiratory tract infections in people of all ages and can cause severe illness in infants and children.
- Most children will acquire an RSV infection by age 2 years. In most of the U.S., RSV season typically lasts from October through March and peaks in December or January.
- Symptoms of RSV infection may include
  - » Runny nose
  - » Decreased appetite
  - » Coughing
  - » Sneezing
  - » Fever
  - » Wheezing
- RSV infection can also lead to
  - » Bronchiolitis
  - » Pneumonia
- Approximately 58,000-80,000 children under the age of 5 and up to 3% of children in their first year of life are hospitalized each year in the U.S. due to RSV infection.

How does RSV spread?

- The virus, in droplets from a cough or sneeze, gets into the eyes, nose or mouth.
- Through direct contact with the virus, like kissing the face of a child with RSV.
- By touching a surface that has the virus on it, like a doorknob, and then touching the face before washing your hands.

RSV Prevention (Immunization)

Several products are available to prevent serious illness from RSV infection.

RSVpreF (Abrysvo)

- RSVpreF is a vaccine recommended during pregnancy to protect their infants from RSV infection. Antibodies developed during pregnancy are transferred to the fetus and help protect the baby after they are born.
- There are two RSV vaccines available for adults. Pfizer RSVpreF (Abrysvo) vaccine should only be give during one pregnancy.
- RSVpreF is not for infants or children.

Nirsevimab (Beyfortus)

- Nirsevimab is a long-lasting monoclonal antibody (passive immunization) that offers protection from severe illness from RSV infection for at least 5 months —about the length of an RSV season.
- Nirsevimab is recommended for all infants younger than 8 months born during or entering their first RSV season if:
  - » their birth parent did not receive RSV vaccine,
  - » the birth parent's vaccination status is unknown or
  - » the infant is born less than 14 days after the birth parent's vaccination.
- Nirsevimab is not needed for most infants aged <8 months whose mother received RSVpreF vaccine ≥14 days before birth. Nirsevimab can be considered when, per the clinical judgement of the health care provider, the potential incremental benefit of administration is warranted, including but not limited to the following rare circumstances:
  - » Infants born to those who may not mount an adequate immune response to vaccination or have conditions associated with reduced transplacental antibody transfer.
  - » Infants who have undergone cardiopulmonary bypass or extracorporeal membrane oxygenation leading to loss of maternal antibodies.
  - » Infants with substantial increased risk for severe RSV disease (eg, hemodynamically significant congenital heart disease, requiring oxygen at discharge following an intensive care admission).
- Nirsevimab is recommended for children ages 8–19 months who may be at increased risk of severe disease, including the following individuals:
  - » Children with chronic lung disease of prematurity who required medical support (chronic corticosteroid therapy, diuretic therapy or supplemental oxygen) any time during the 6-month period before the start of their second RSV season.
  - » Children who are severely immunocompromised.
  - » Children with cystic fibrosis who have manifestations of severe lung disease (previous hospitalization for pulmonary exacerbation in the first year of life or abnormalities on chest imaging that persist when stable) or have weight-for-length that is <10th percentile.
  - » American Indian and Alaska Native children. (Note: There is not a recommendation for this group to receive second-season prophylaxis with palivizumab; nirsevimab is recommended.)

After nirsevimab immunization

Side effects from nirsevimab are usually mild and go away on their own. They include

- temporary pain
- redness
- swelling where the injection was given
- rash

More serious but rare side effects include allergic reaction. Advise parents that this may occur after they leave the office or hospital. Parents should call 911 or go to the nearest hospital if their child has signs of a severe allergic reaction, such as

- hives
- swelling of the face and throat
- difficulty breathing
- a fast heartbeat
- dizziness
- weakness

As with any medicine, there is a very remote chance that RSV immunization could cause other serious injury or death.

Palivizumab (Synagis)

- Palivizumab is a shorter-lasting monoclonal antibody available to children at high risk of severe disease from RSV.
- Nirsevimab is preferred over palivizumab for all children because of its efficacy, duration and convenience. Palivizumab may be used for high-risk children if nirsevimab is unavailable.
  - » If nirsevimab is administered, palivizumab should not be administered later that season.
  - » If palivizumab was administered initially for the season and <5 doses were administered, the infant should receive 1 dose of nirsevimab. There is no minimum interval between the last dose of palivizumab and the dose of nirsevimab. No further palivizumab should be administered.
  - » If palivizumab was administered in season 1 and the child is eligible for RSV prophylaxis in season 2, the child should receive nirsevimab in season 2, if available. If nirsevimab is not available, palivizumab should be administered as previously recommended.
- Infants and toddlers receiving palivizumab receive five monthly doses during the RSV season.
- Palivizumab is not recommended in the second season for all American Indian and Alaska Native children. If nirsevimab is unavailable, only those high-risk American Indian and Alaska Native infants and young children who meet current criteria for palivizumab should receive it. American Indian or Alaska Native heritage is not an indication for first or second season palivizumab.

RSV vaccine for pregnant women is authorized for one lifetime dose. If a person receives this vaccine during one pregnancy, they should not receive it again. Any babies born from later pregnancies should receive the RSV immunization (protective antibody) for young children.

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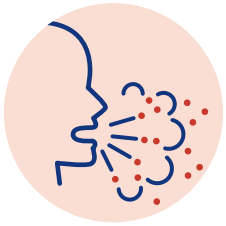
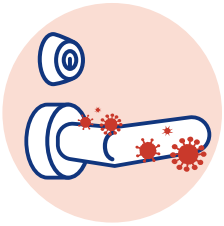
RESPIRATORY SYNCYTIAL VIRUS (RSV) IMMUNIZATION

HOW DOES RSV SPREAD?



The virus, in **droplets** from a cough or sneeze, gets into your eyes, nose or mouth.

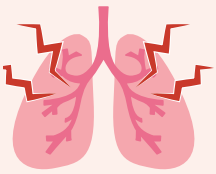
Through **direct contact with the virus**.



By touching a surface that has the virus on it and then touching your face.

Symptoms of RSV infection may include

- Runny nose
- Decreased appetite
- Coughing
- Sneezing
- Fever
- Wheezing

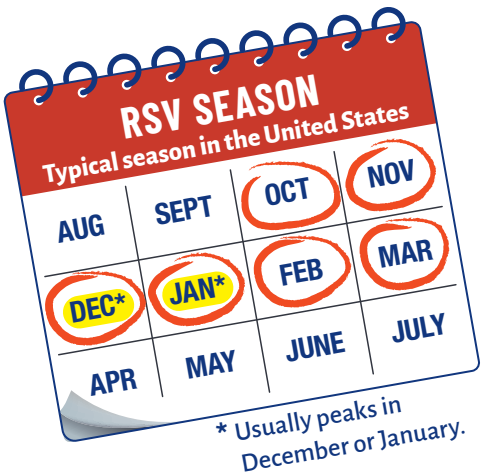


RSV infection can also lead to

- Bronchiolitis
- Pneumonia

Without immunization, most children will be infected by RSV by age 2 years.

The shot for babies is 90% EFFECTIVE in preventing infants from being hospitalized with RSV.



Babies are protected by either

Vaccine during pregnancy

Given September–January

OR

A shot at birth or at the start of RSV season**

Given October–March

** All infants < 8 months of age or toddlers 8–19 months who are at high risk during their second RSV season.

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COVID-19 VACCINE DURING PREGNANCY

Use the conversation starters here with the accompanying infographics for families.

About COVID-19 infection

Common symptoms of COVID-19

- Fever
- Cough

Other symptoms can include

- Sore throat
- Runny nose (rhinorrhea)
- Headache
- Fatigue
- Shortness of breath
- Gastrointestinal symptoms, including nausea, vomiting and diarrhea

Complications from infection can include

- Croup
- Need for ventilator support
- Long COVID
- Death

Complications from infection during pregnancy also can lead to

- Miscarriage
- Preterm birth
- Stillbirth
- Cesarean section

COVID-19 vaccines

- Vaccination reduces the risk of hospitalization and serious illness in babies, children and adults.
- Recommended vaccines during pregnancy, including the COVID-19 vaccine, provide protection during a time of increased vulnerability to disease.
- In addition to providing protection to the patient receiving the vaccine, the COVID-19 vaccine during pregnancy can help lower the risk for the baby after birth.

COVID-19 vaccine dosing

COVID-19 vaccine is recommended at any point in pregnancy and for those who may become pregnant, recently were pregnant or are breastfeeding.

COVID-19 vaccine safety

Pregnant women may get a COVID-19 vaccine and other vaccines, including a flu vaccine, at the same time.

A growing body of evidence on the safety and effectiveness of COVID-19 vaccination indicates that the benefits of vaccination during pregnancy outweigh any known or potential risks. These vaccine benefits include reduced risk of severe or critical COVID-19 disease during pregnancy, as well as reduced risk of COVID-19 hospitalization among infants born to immunized mothers. Additionally, COVID-19 vaccine during pregnancy is safe. COVID-19 vaccine is not associated with increased risk for miscarriage, preterm birth, stillbirth or birth defects. COVID-19 infection during pregnancy is associated with increased risk for these complications.

After vaccination

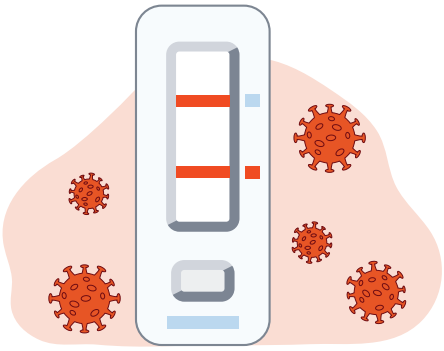
Women who are pregnant have not reported different side effects from women who are not pregnant after vaccination with mRNA COVID-19 vaccines.

Some recipients have no side effects after COVID-19 vaccination. Others experience side-effects that are mild and temporary. These include:

- Pain, swelling or redness where the shot is given.
- Tiredness (fatigue), headache or muscle pain.
- Chills.
- Nausea.
- Fever.

Rarely, cases of myocarditis and pericarditis have been reported in adolescents and young adults. The risk of myocarditis is up to 6 times higher after COVID-19 infection than after the COVID-19 vaccine.

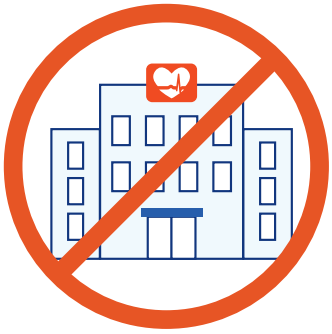
COVID-19 VACCINE DURING PREGNANCY



GETTING SICK WITH COVID WHILE PREGNANT CAN INCREASE THE RISK OF MISCARRIAGE OR STILLBIRTH.

COVID VACCINE IS RECOMMENDED FOR PEOPLE WHO ARE

- Pregnant
- Trying to get pregnant now
- Breastfeeding
- Might become pregnant in the future



IMMUNIZATION DURING PREGNANCY HELPS PREVENT COVID HOSPITALIZATION IN INFANTS LESS THAN 6 MONTHS OLD.

VACCINATION HELPS PROTECT YOU AND YOUR BABY FROM THE MOST SERIOUS OUTCOMES OF COVID ILLNESS.

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INFLUENZA (FLU) VACCINE DURING PREGNANCY

Use the accompanying family-friendly page to start the conversation about the flu vaccine.

Influenza vaccine is recommended every year and can be given at any point during each pregnancy.

- The flu vaccine during pregnancy protects you and your baby.
- When you get a flu shot during pregnancy, your body makes antibodies that get passed to your baby. The antibodies protect your baby against the flu until they can receive the recommended influenza vaccine at age 6 months.

Why vaccinate against flu?

- The flu can be serious—even healthy individuals can have serious complications that require hospitalization.
- Getting the flu causes higher risk of pregnancy complications, including preterm labor and preterm birth.
- People who get the flu while pregnant are more likely to be hospitalized or die.
- The vaccine provides protection from critical and life-threatening illness from influenza. Even in seasons when the vaccine is not an exact match with the circulating strains, it prevents serious complications.
- For most people, flu can cause:
  - » Fever
  - » Cough
  - » Sore throat
  - » Headache
  - » Chills
  - » Muscle aches
  - » Fatigue

Flu vaccine

- Everyone 6 months and older—including those who are pregnant, breastfeeding and those with medical conditions—should receive a flu vaccine every year.
- Those who are pregnant or have pre-existing medical conditions do not need permission or consent from their doctor to get a flu vaccine.
- Only inactivated (killed) vaccine that is given by an injection (shot) is appropriate during pregnancy. Live attenuated (weakened) vaccine that is sprayed into the nose (nasal spray) should not be used during pregnancy.
- Flu vaccines have been given to hundreds of millions of people for more than 50 years and have a very good safety record.

A flu vaccine is needed every year because

- Flu viruses change most years.
- Yearly vaccination helps keep your immune system up to date. Without vaccination, immunity to the flu fades within a year.

It takes about 2 weeks to be fully protected after getting the flu vaccine.

- It is best to get vaccinated before the flu season begins and as soon as the vaccine is available (in late summer or early fall).
- Flu can circulate from early fall through late spring and sometimes later. Pregnant women who don't receive flu vaccine at the start of the season should still get a flu vaccine during flu season.
- You can get a flu vaccine at the same time as other vaccines, during pregnancy.

Flu vaccine in pregnancy

- Flu vaccine protects against complications of the flu, which affect pregnant women most severely.
- Getting the flu vaccine while pregnant also protects the infant against flu-related illness and hospitalization.
- Flu vaccine during pregnancy is safe and is not associated with increased risk for miscarriage, preterm birth, stillbirth or birth defects.
- Side effects after the flu vaccine are mild and can be treated with acetaminophen.

After vaccination

- The side effects experienced by pregnant women from the flu vaccine are the same as for other people. They are generally mild and include:
  - » Soreness, redness and swelling where the shot was given.
  - » Fever, muscle aches and headache.
- Severe side effects are extremely rare.

Flu vaccine does not give people the flu

- Some people get a flu-like illness shortly after they get the flu vaccine. There are a few reasons for this.
  - » They may be infected by a virus other than flu. The flu vaccine only prevents illnesses caused by flu viruses.
  - » They may have been infected by a flu virus before the vaccine took effect.
  - » They may be infected by a strain of the flu virus that is different from those in this year's vaccine. When this happens, the flu vaccines can still prevent or reduce severe illness and hospitalization.
- Flu vaccines vary in how effective they are against circulating strains each year, and some vaccinated people still get sick. The flu vaccine reduces severity of illness in these situations.

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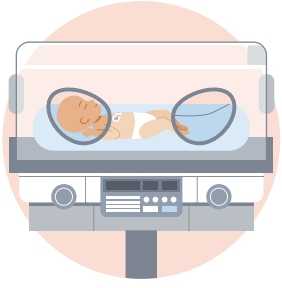
INFLUENZA (FLU) VACCINE DURING PREGNANCY

THE FLU VACCINE IS RECOMMENDED AT ANY TIME DURING YOUR PREGNANCY.

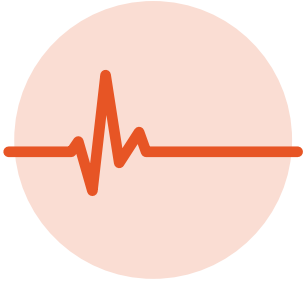
- Lowers your risk of getting sick or being hospitalized.
- Protects your baby after they are born.

INFLUENZA DURING PREGNANCY CAN CAUSE

Serious illness for you and your developing baby



Preterm delivery



Death

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TETANUS, DIPHTHERIA, ACELLULAR PERTUSSIS (Tdap) VACCINE DURING PREGNANCY

Use the conversation starters here with the accompanying infographics for families.

About tetanus, diphtheria and pertussis

Tetanus (also known as lockjaw)

- Tetanus causes severe muscle stiffness that can make it hard or impossible to
  - » Open the mouth
  - » Swallow
  - » Breathe
- One in five people who get tetanus will die.

Diphtheria

- Is a serious throat infection
- It can lead to
  - » Breathing problems
  - » Paralysis
  - » Heart failure
  - » Death

Whooping cough (pertussis)

- Is a lung disease that causes
  - » Severe coughing
  - » Difficulty breathing
  - » Death
- Whooping cough is highly contagious; about 80% of susceptible household contacts will become infected if someone else in the house contracts the infection.
- Babies age 3 months old and younger are most at risk of severe breathing problems and life-threatening illness from the disease.
- Receiving the Tdap vaccine protects you, your baby and others around you who may be at high risk.

Tetanus, diphtheria, acellular pertussis (Tdap) vaccine

- The Tdap vaccine is recommended during week 27 through week 36 of each pregnancy, preferably during the earlier part of this time period.
- There have been several outbreaks of pertussis (whooping cough) throughout the United States.
- Babies are most likely to get whooping cough from someone at home. People who do not know they have whooping cough can spread it to others.
- Babies cannot receive their own vaccine until age 2 months. Unless they receive protection from a vaccine during pregnancy, they are vulnerable to pertussis, serious complications and death before then.
- This vaccine is needed during each pregnancy to help protect their baby from whooping cough after birth.
  - » Being vaccinated protects you from getting infected with pertussis and passing it on to your baby.
  - » Getting the vaccine during pregnancy also allows some protection to be passed to your baby, so they are protected until they can receive their diphtheria, tetanus, acellular pertussis (DTaP) vaccine starting at age 2 months.

After vaccination

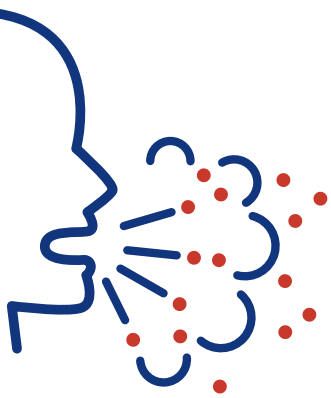
As the immune system is learning how to keep you healthy you may experience side effects. These are usually mild and go away on their own. Serious reactions are possible, but rare.

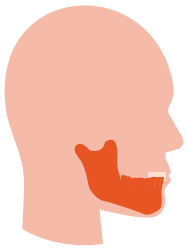
Possible side effects:

- Redness or pain where the shot was given
- Headache
- Tiredness
- Nausea, vomiting, diarrhea or stomachache
- Mild fever of at least 100.4°F or 38°C

TETANUS, DIPHTHERIA, PERTUSSIS (Tdap) VACCINE DURING PREGNANCY

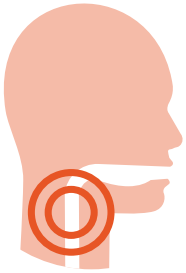
WHOOPING COUGH IS VERY CONTAGIOUS





TETANUS
Lockjaw

- Severe muscle stiffness
- Difficulty opening mouth, swallowing and breathing
- Death



DIPHTHERIA
Serious Throat Infection

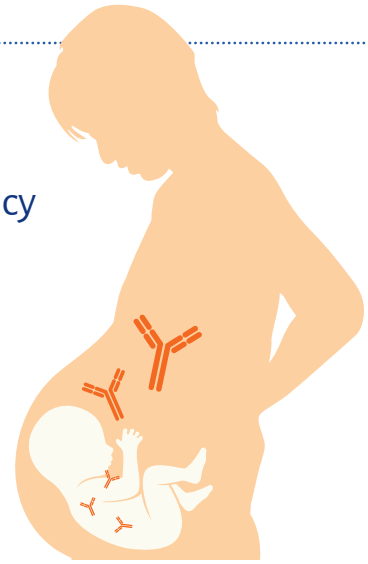
- Breathing problems
- Paralysis
- Heart failure
- Death

PERTUSSIS
Whooping Cough

- **Harsh cough:** The cough of pertussis—also called the "100-day cough"—may not go away for months. The cough can return with future illnesses.
- **Breathing problems:** Babies may not cough at all. Instead, they may struggle to breathe or just stop breathing.
- Death

WHOOPING COUGH VACCINE

- Recommended during each pregnancy in the third trimester.
- Antibodies to protect you.
- Short-term protection is passed to your baby.



Y = Antibodies = protection from disease

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Immunizations for Babies

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DISEASES AND RECOMMENDED IMMUNIZATIONS

Use the information on this page with the family-friendly infographic page when talking with patients.

See the recommended schedule, AAP Red Book (login required), and CDC Pink Book for additional details, including vaccines recommended for special circumstances.

Disease	Vaccine/ Immunization	Disease spread by	Disease symptoms	Disease complications
Respiratory syncytial virus (RSV)	RSV monoclonal antibody (nirsevimab) protects against RSV	Air, direct contact	Runny nose, decreased appetite, cough, sneezing, fever, wheezing	Infection of the small airways of the lungs (Bronchiolitis), or the lung itself (pneumonia), dehydration if unable to eat and drink. 20-30% of infants may need hospitalization
Hepatitis B (HepB)	HepB vaccine protects against hepatitis B	Contact with blood or body fluids, from the pregnant woman to the baby in the womb	Fever, headache, weakness, vomiting, yellow skin and eyes (jaundice), joint pain, or no symptoms	Chronic liver infection, liver failure, liver cancer, death
Rotavirus (RV)	Rotavirus vaccine protects against rotavirus	Through the mouth from food, water or hands that are contaminated by fecal matter	Diarrhea, fever, vomiting	Severe diarrhea, dehydration, death
Diphtheria	DTaP* vaccine protects against diphtheria	Air, direct contact	Sore throat, mild fever, weakness, swollen glands in neck	Swelling of the heart muscle, heart failure, coma, paralysis, death
Pertussis (whooping cough)	DTaP* vaccine protects against pertussis	Air, direct contact	Severe cough, runny nose, apnea (a pause in breathing)	Lung infection (pneumonia), death
Tetanus	DTaP* vaccine protects against tetanus (lockjaw)	Exposure through cuts in skin and contact with soil	Stiff muscles in the neck and abdomen, trouble swallowing, muscle spasms, fever	Broken bones, breathing difficulty, death
***Haemophilus influenzae* type b disease (Hib)**	Hib vaccine	Air, direct contact	Sometimes Hib stays in the nose or throat and doesn't cause symptoms. Hib bacteria that enter the blood can cause serious infections.	Infection of the covering around the brain and spinal cord (meningitis), intellectual disability, life-threatening infection that can block the windpipe and lead to serious breathing problems (epiglottis), lung infection (pneumonia), death
Invasive pneumococcal disease	PCV vaccines protect against pneumococcal disease	Air, direct contact	Sometimes bacteria stay in the nose or throat and do not cause symptoms. Bacteria that enter the blood can cause serious infections, including pneumonia.	Blood infection (bacteremia), infection of the covering around the brain and spinal cord (meningitis), death
Poliomyelitis (polio)	Inactivated poliovirus vaccine (IPV) protects against polio	Air, direct contact, through the mouth from food, water, or hands that are contaminated by fecal matter	Sore throat, fever, nausea, headache, or no symptoms	Paralysis (may be permanent), death
COVID-19	COVID-19 vaccine	Air, direct contact	Fever/chills, cough, shortness of breath/ trouble breathing, fatigue, aches, loss of taste or smell, sore throat, nausea or vomiting, diarrhea, congestion or runny nose	Multiorgan or autoimmune conditions, diabetes, heart problems, blood clots, neurological conditions, multisystem inflammatory syndrome in children (MIS-C), long COVID, death
Influenza (flu)	Flu vaccine protects against influenza	Air, direct contact	Fever, muscle pain, sore throat, cough, extreme fatigue	Lung infection (pneumonia), inflammation of heart or brain, death
Measles	MMR** vaccine protects against measles	Air, direct contact	Rash, fever, cough, runny nose, pink eye	Brain swelling (encephalitis), lung infection (pneumonia), complications in the brain 7-10 years after infection, death
Mumps	MMR** vaccine protects against mumps	Air, direct contact	Swollen neck (salivary glands), fever, headache, tiredness, muscle pain	Infection of the covering around the brain and spinal cord (meningitis), brain swelling (encephalitis), swelling of testicles or ovaries, deafness, death
Rubella	MMR** vaccine protects against rubella	Air, direct contact, through the mouth	Rash, fever, swollen lymph nodes	Very serious in pregnant women and can lead to miscarriage, stillbirth, premature delivery, birth defects
Varicella (chickenpox)	Varicella vaccine protects against chickenpox	Air, direct contact	Rash, tiredness, headache, fever	Infected blisters, bleeding disorders, brain swelling (encephalitis), lung infection (pneumonia), death
Hepatitis A (HepA)	HepA vaccine protects against hepatitis A	Direct contact, through the mouth from food, water or hands that are contaminated by fecal matter	Fever, stomach pain, loss of appetite, fatigue, vomiting, yellowing of the skin and eyes (jaundice), dark urine, or no symptoms.	Liver failure, joint pain, kidney, pancreatic and blood disorders, death

*DTaP vaccine combines protection against diphtheria, tetanus and pertussis

**MMR vaccine combines protection against measles, mumps and rubella

IMMUNIZATION SCHEDULE

RECOMMENDED FOR BABIES AND CHILDREN FROM BIRTH–6 YEARS OF AGE

Catch up: If your child misses a shot recommended for their age, ask your pediatrician when the missed shot can be given.

	Birth	1 Month	2 Months	4 Months	6 Months	8 Months	12 Months	15 Months	18 Months	19–23 Months	2–3 Years	4–6 Years
RSV (Respiratory Syncytial Virus)	✓	1 dose depending on maternal RSV vaccination status				✓	1 dose depending on child's health status					
HepB (Hepatitis B)	✓	✓			✓							
RV (Rotavirus)			✓	✓	✓*							
DTaP (Diphtheria, Tetanus & Pertussis)			✓	✓	✓			✓				✓
Hib (*Haemophilus influenzae* type b)			✓	✓	✓*		✓					✓
PCV (Pneumococcal disease)			✓	✓	✓		✓					✓
IPV (Polio)			✓	✓	✓							✓
COVID-19 (Coronavirus disease 2019)					✓	1–3 doses as recommended						
Flu Vaccine					✓	Yearly**						
MMR (Measles, Mumps, & Rubella)					●		✓					✓
Varicella (Chickenpox)							✓					✓
HepA (Hepatitis A)					●		✓	2 doses at least 6 months apart				

*A third dose of rotavirus or *Haemophilus influenzae* type b vaccine at age 6 months depends on the brand used for the previous dose.

**Two doses given at least 4 weeks apart are recommended for children age 6 months through 8 years who are getting the flu vaccine for the first time and for some other children in this age group.

● These shaded boxes indicate when the vaccine is recommended for all children unless they cannot safely receive it. Your doctor will tell you if your child cannot safely receive the vaccine.

● These shaded boxes indicate that the vaccine is recommended for children whose health condition or situation (eg, travel, outbreak) puts them at high risk for serious diseases. If doses are given earlier than the recommended age because of special circumstances, they may have to be repeated.

See vaccine-specific recommendations at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

These vaccines are recommended by the American Academy of Pediatrics (AAP) (https://www.aap.org/immunization) and the Centers for Disease Control and Prevention (CDC) (https://www.cdc.gov/vaccines/schedules).

These vaccines are safe.

- Before being licensed and recommended, each vaccine has been carefully studied by scientific experts at the Food and Drug Administration and CDC.
- The CDC continually monitors the safety of all vaccines, which are held to the highest standards.
- It is normal and expected to have minor vaccine side effects. Most side effects are mild.
- Serious side effects (e.g., severe allergic reaction) are rare.

Vaccine Information Statements: https://www.cdc.gov/vaccines/hcp/vis/index.html

This schedule is based on the 2024 schedule. The schedule is reviewed annually.

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WHY VACCINATE?

Use these speaking points with the accompanying family-friendly infographics when talking with caregivers.

Vaccines help the immune system recognize and resist contagious diseases so babies and children stay healthy as they grow.

- That means they can attend child care, preschool, school, and activities with friends and family.
- The recommended immunization schedule is based on how a child's immune system responds to vaccines at various ages and how likely a child is to be exposed to each of the diseases.
- When enough people have enhanced immunity after vaccination, entire communities are protected.
- Community immunity prevents spreading diseases to vulnerable people who are at risk of serious illness. This helps protect:
  - » Babies who are too young to get their vaccines.
  - » People with conditions that affect their immune system or who require treatment that lowers their ability to fight infections and respond to vaccines.

How do vaccines work?

- **Getting immunized is like learning how to read.** Vaccines teach your child's immune system to recognize harmful diseases. That means if they are exposed to these germs, their immune system will be ready to respond.
- Over time, the immune system adds more information to its library, so your child stays healthy.

Should all children follow the same recommended vaccine schedule?

Yes. The schedule is considered the ideal schedule and applies to all healthy children. There are very few rare exceptions that would warrant a deviation from this schedule. For example, a child with a chronic condition or who takes medicine that weakens the immune system may need additional doses or a different type of vaccine.

Why do children still need vaccines if these diseases are mostly gone?

Smallpox is the only disease that has been eliminated completely by vaccines. That is why we no longer need to use the vaccine to prevent smallpox. We still need vaccines for the other diseases that can spread if community immunity decreases.

What determines the timing and doses for the recommended vaccine schedule ?

Different vaccines need different numbers of doses to be effective. Often, children need more than one dose to ensure their immunity from the vaccine lasts as long as possible. By getting all the required doses, you are protecting your child and making them stronger.

The timing for each dose of a vaccine is based on

- what age a child's immune system provides optimal protection after vaccination,
- the earliest possible time to provide protection balanced with the age the child is at highest risk for a disease.

Is my child protected from some of these diseases for the rest of their life?

Researchers are always studying how long vaccine protection lasts, how many doses we need and how much time between doses works best. That is why your child needs the flu shot every year. But for another vaccine individuals may develop lifelong protection from two or more doses spaced months or years apart.

Why does my infant or child have to get some vaccines every year?

Some vaccines are needed every year. For example, influenza vaccination is recommended every year for two reasons:

- Flu viruses change yearly. The vaccine formula gets updated each year to teach our body to respond to the flu virus types that will be most common during the upcoming flu season.
- Our immune protection declines over time. An annual flu vaccine will help keep our body's defenses ready. It is the best way to prevent getting the flu.

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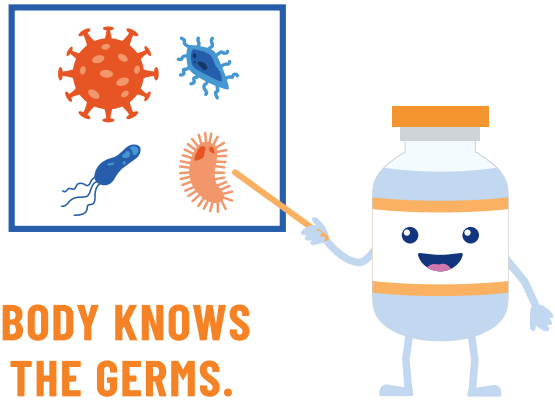
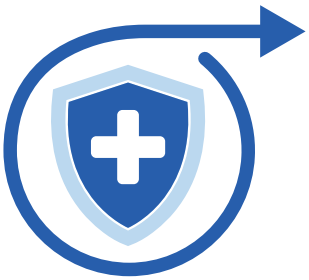
WHY VACCINATE?

BABIES AND CHILDREN NEED VACCINES TO...

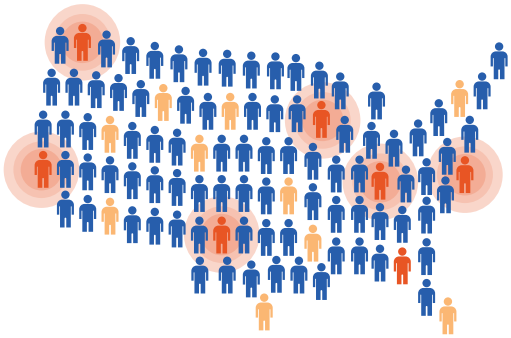


TEACH THE IMMUNE SYSTEM HOW TO RECOGNIZE A VIRUS OR BACTERIA SO THEIR BODY KNOWS HOW TO RESPOND IF THEY ARE EXPOSED TO THE GERMS.



BUILD LONG-TERM PROTECTION AGAINST DISEASES.

PROVIDE COMMUNITY IMMUNITY: PROTECT OTHERS FROM GERMS THAT CAN SPREAD EASILY.



= Is infected

= Has been vaccinated

= At high risk for disease or has not been (fully) vaccinated.

KEEP THEM SAFE AND HEALTHY AS THEY GROW SO THEY CAN:

Play with friends.

Stay in school and keep learning.

Sleep well and feel rested.

Participate in sports and other activities.

Live their BEST LIFE.

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RESPIRATORY SYNCYTIAL VIRUS (RSV) IMMUNIZATION

Use the information on this page with the infographic page when talking with families.

About RSV

- Respiratory syncytial virus (RSV) causes acute respiratory tract infections in people of all ages and can cause severe illness in infants and children.
- Most children will acquire an RSV infection by age 2 years. In most of the U.S., RSV season typically lasts from October through March and peaks in December or January.
- Symptoms of RSV infection may include
  - » Runny nose
  - » Decreased appetite
  - » Coughing
  - » Sneezing
  - » Fever
  - » Wheezing
- RSV infection can also lead to
  - » Bronchiolitis
  - » Pneumonia
- Approximately 58,000-80,000 children under the age of 5 and up to 3% of children in their first year of life are hospitalized each year in the U.S. due to RSV infection.

How does RSV spread?

- The virus, in droplets from a cough or sneeze, gets into the eyes, nose or mouth.
- Through direct contact with the virus, like kissing the face of a child with RSV.
- By touching a surface that has the virus on it, like a doorknob, and then touching the face before washing your hands.

RSV Prevention (Immunization)

Several products are available to prevent serious illness from RSV infection.

RSVpreF (Abrysvo)

- RSVpreF is a vaccine recommended during pregnancy to protect their infants from RSV infection. Antibodies developed during pregnancy are transferred to the fetus and help protect the baby after they are born.
- There are two RSV vaccines available for adults. Pfizer RSVpreF (Abrysvo) vaccine should only be give during one pregnancy.
- RSVpreF is not for infants or children.

Nirsevimab (Beyfortus)

- Nirsevimab is a long-lasting monoclonal antibody (passive immunization) that offers protection from severe illness from RSV infection for at least 5 months —about the length of an RSV season.
- Nirsevimab is recommended for all infants younger than 8 months born during or entering their first RSV season if:
  - » their birth parent did not receive RSV vaccine,
  - » the birth parent's vaccination status is unknown or
  - » the infant is born less than 14 days after the birth parent's vaccination.
- Nirsevimab is not needed for most infants aged <8 months whose mother received RSVpreF vaccine ≥14 days before birth. Nirsevimab can be considered when, per the clinical judgement of the health care provider, the potential incremental benefit of administration is warranted, including but not limited to the following rare circumstances:
  - » Infants born to those who may not mount an adequate immune response to vaccination or have conditions associated with reduced transplacental antibody transfer.
  - » Infants who have undergone cardiopulmonary bypass or extracorporeal membrane oxygenation leading to loss of maternal antibodies.
  - » Infants with substantial increased risk for severe RSV disease (eg, hemodynamically significant congenital heart disease, requiring oxygen at discharge following an intensive care admission).
- Nirsevimab is recommended for children ages 8–19 months who may be at increased risk of severe disease, including the following individuals:
  - » Children with chronic lung disease of prematurity who required medical support (chronic corticosteroid therapy, diuretic therapy or supplemental oxygen) any time during the 6-month period before the start of their second RSV season.
  - » Children who are severely immunocompromised.
  - » Children with cystic fibrosis who have manifestations of severe lung disease (previous hospitalization for pulmonary exacerbation in the first year of life or abnormalities on chest imaging that persist when stable) or have weight-for-length that is <10th percentile.
  - » American Indian and Alaska Native children. (Note: There is not a recommendation for this group to receive second-season prophylaxis with palivizumab; nirsevimab is recommended.)

After nirsevimab immunization

Side effects from nirsevimab are usually mild and go away on their own. They include

- temporary pain
- redness
- swelling where the injection was given
- rash

More serious but rare side effects include allergic reaction. Advise parents that this may occur after they leave the office or hospital. Parents should call 911 or go to the nearest hospital if their child has signs of a severe allergic reaction, such as

- hives
- swelling of the face and throat
- difficulty breathing
- a fast heartbeat
- dizziness
- weakness

As with any medicine, there is a very remote chance that RSV immunization could cause other serious injury or death.

Palivizumab (Synagis)

- Palivizumab is a shorter-lasting monoclonal antibody available to children at high risk of severe disease from RSV.
- Nirsevimab is preferred over palivizumab for all children because of its efficacy, duration and convenience. Palivizumab may be used for high-risk children if nirsevimab is unavailable.
  - » If nirsevimab is administered, palivizumab should not be administered later that season.
  - » If palivizumab was administered initially for the season and <5 doses were administered, the infant should receive 1 dose of nirsevimab. There is no minimum interval between the last dose of palivizumab and the dose of nirsevimab. No further palivizumab should be administered.
  - » If palivizumab was administered in season 1 and the child is eligible for RSV prophylaxis in season 2, the child should receive nirsevimab in season 2, if available. If nirsevimab is not available, palivizumab should be administered as previously recommended.
- Infants and toddlers receiving palivizumab receive five monthly doses during the RSV season.
- Palivizumab is not recommended in the second season for all American Indian and Alaska Native children. If nirsevimab is unavailable, only those high-risk American Indian and Alaska Native infants and young children who meet current criteria for palivizumab should receive it. American Indian or Alaska Native heritage is not an indication for first or second season palivizumab.

RSV vaccine for pregnant women is authorized for one lifetime dose. If a person receives this vaccine during one pregnancy, they should not receive it again. Any babies born from later pregnancies should receive the RSV immunization (protective antibody) for young children.

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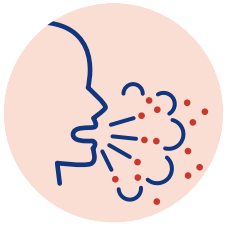
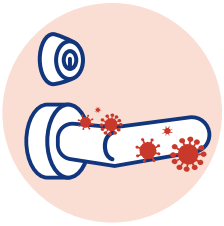
RESPIRATORY SYNCYTIAL VIRUS (RSV) IMMUNIZATION

HOW DOES RSV SPREAD?



The virus, in **droplets** from a cough or sneeze, gets into your eyes, nose or mouth.

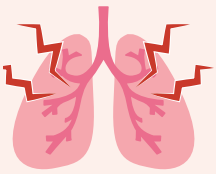
Through **direct contact with the virus**.



By touching a surface that has the virus on it and then touching your face.

Symptoms of RSV infection may include

- Runny nose
- Decreased appetite
- Coughing
- Sneezing
- Fever
- Wheezing

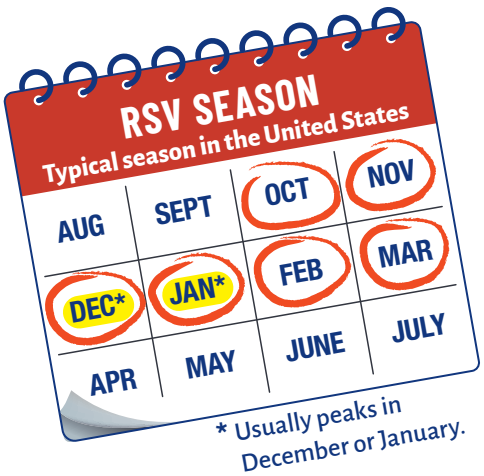


RSV infection can also lead to

- Bronchiolitis
- Pneumonia

Without immunization, most children will be infected by RSV by age 2 years.

The shot for babies is 90% EFFECTIVE in preventing infants from being hospitalized with RSV.



Babies are protected by either

Vaccine during pregnancy

Given September–January

OR

A shot at birth or at the start of RSV season**

Given October–March

** All infants < 8 months of age or toddlers 8–19 months who are at high risk during their second RSV season.

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HEPATITIS B (HepB) VACCINE

Use the speaking points on this page and share the accompanying infographics with families.

About hepatitis B

- Hepatitis B (HepB) is a serious disease that affects the liver.
- The virus can cause severe disease within 6 months of infection. Symptoms can include
  - » Fever.
  - » Fatigue.
  - » Loss of appetite.
  - » Nausea and/or vomiting.
  - » Jaundice (yellow skin or eyes, dark urine, clay-colored bowel movements).
  - » Pain in muscles, joints and stomach.
- HepB can be chronic. Most people who develop chronic disease do not have symptoms, but it can lead to
  - » Liver damage (cirrhosis).
  - » Liver cancer.
  - » Death.
- The vaccine prevents acute and chronic infections, including those that cause liver cancer.

Why is HepB vaccine given to newborn babies?

- Newborns need a dose shortly after birth to protect them from possible exposures during delivery and the first few days of life. This provides a safety net for infants whose family members may not know they are infected with hepatitis B.
- Infected people can spread hepatitis B to others, even when they don't look or feel sick.
- Most babies (90%) who are infected with hepatitis B will develop chronic disease. One out of four who get infected will die prematurely from liver cancer or cirrhosis of the liver.
- Hepatitis B spreads through body fluids. People can become infected with the virus through
  - » Birth (a baby can be infected at or after birth).
  - » Sharing common items such as razors or toothbrushes with an infected person.
  - » Contact with the blood or open sores of an infected person.
  - » Sex with an infected partner.
  - » Sharing needles, syringes, or other drug-injection equipment.
  - » Exposure to blood from needlesticks or sharp instruments.
- People have spread the disease to others in child care settings. In the United States, this risk is very low because most infants have received the hepatitis B vaccine.

Hepatitis B vaccine

- Hepatitis B vaccine is routinely recommended for newborns and infants. Doses are recommended
  - » Shortly after birth.
  - » At age 1 to 2 months.
  - » At age 6 to 18 months.
- The vaccine also is recommended for anyone who is considered at high risk for contracting hepatitis B infection.

Side effects after vaccination usually are mild and go away on their own.

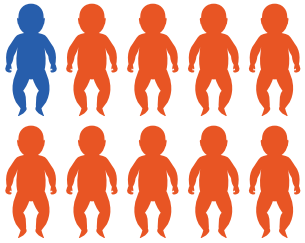
- Soreness where the shot was given.
- Fever.

Severe side effects are rare.

HEPATITIS B (HepB) VACCINE

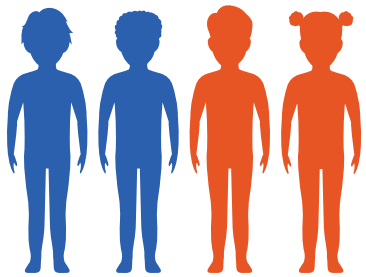
HEPATITIS B IS A SERIOUS LIVER DISEASE

90% OF BABIES



AND

UP TO **HALF** OF CHILDREN



who become infected between ages 1 to 5 years will have chronic disease.

HepB vaccine prevents exposed babies and children from developing cancer later in life.

HepB VACCINE IS GIVEN TO NEWBORNS, WHO MAY BE UNKNOWINGLY EXPOSED AT BIRTH, TO START PROTECTION IN THE FIRST DAYS OF LIFE.

HEPATITIS B SPREADS THROUGH BODY FLUIDS.

PEOPLE MAY NOT KNOW THEY ARE INFECTED AND CAN SPREAD HEPATITIS B EVEN WHEN THEY DON'T LOOK OR FEEL SICK.

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ROTAVIRUS (RV) VACCINE

Use the conversation starters here with the accompanying infographics for families.

Why vaccinate against rotavirus?

- Rotavirus is very contagious. Before there was a vaccine, rotavirus was very common. Infection is especially dangerous for babies and young children under age 5 years. It causes
  - » Vomiting.
  - » Diarrhea (sometimes severe).
  - » Fever.
- Rotavirus illness can lead to
  - » Severe dehydration.
  - » Hospitalization.
  - » Death.
- Rotavirus vaccination strengthens your child's immune system so they can avoid severe infection.
- Rotavirus vaccination is the best way to protect young children.

How does rotavirus spread?

- Rotavirus commonly spreads in families, hospitals and child care centers.
- The virus is in the stool of people who are infected.
  - » Rotavirus can live on surfaces or objects for several days. It is very difficult to stop its spread just by handwashing or disinfecting surfaces.
  - » A child can get rotavirus from touching an object with rotavirus on it and putting hands in their mouth or by consuming food or drinks prepared by someone with the infection.

Rotavirus vaccine

- Rotavirus vaccine is routinely recommended for newborns and infants.
- It is a live, oral vaccine.
- Children should receive 2 or 3 doses of rotavirus vaccine, depending on which vaccine brand is used. Vaccination is recommended at the following ages:
  - » 2 months.
  - » 4 months.
  - » 6 months (if a third dose is required).
- A child must get the first dose of rotavirus vaccine before age 15 weeks and the last before age 8 months.
- If they do not receive the recommended doses of vaccine by age 8 months, they cannot get caught up later.

After vaccination

- Side effects usually are mild and go away on their own. They include
  - » Irritability.
  - » Mild, temporary diarrhea or vomiting.
  - » More serious but rare side effects include a small increased risk of intussusception (blocked bowel) within a week after the first or second rotavirus vaccine dose. Intussusception, unrelated to the vaccine, happens in some babies in the United States. The additional risk of intussusception after rotavirus vaccine ranges from 1 in 20,000 to 1 in 100,000 U.S. infants. The benefits of the rotavirus vaccine in preventing severe disease and hospitalization are far greater than the small increase in risk for intussusception.

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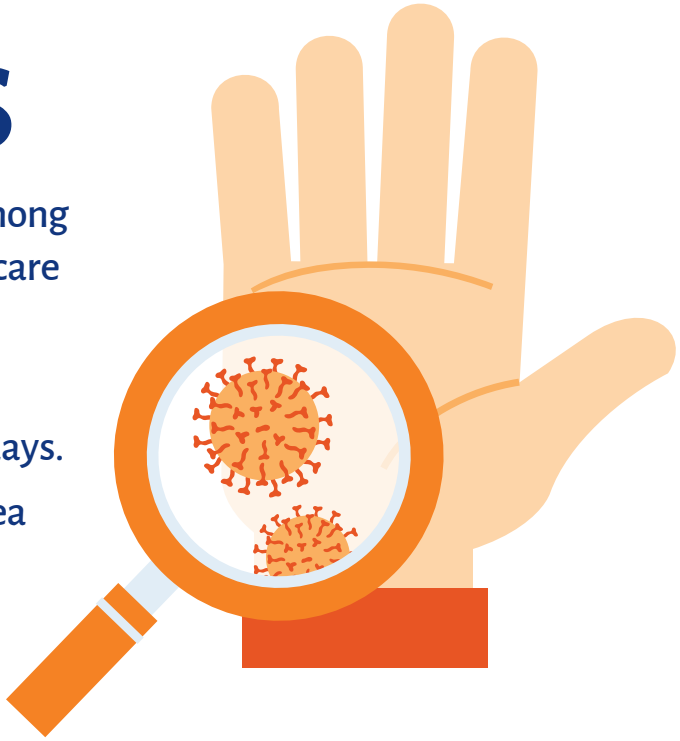
ROTAVIRUS (RV) VACCINE

ROTAVIRUS

- **SPREADS VERY EASILY** among families and in hospitals and child care centers.
  - » Very hard to prevent.
  - » Lives on surfaces for several days.
- Causes fever, stomachache, diarrhea and vomiting.
- Can lead to dehydration.
- Easy to prevent with the vaccine.



SYMPTOMS OF ROTAVIRUS INCLUDE

Fever

Diarrhea

Nausea

ROTAVIRUS VACCINE

PREVENTS SEVERE SYMPTOMS THAT NEED HOSPITAL CARE.

- Instead of a shot, babies swallow the vaccine.
- The first dose must be received before they are 15 weeks old.
- The last dose must be received before they are 8 months old.
- Prevents 40,000 to 50,000 hospitalizations among babies and young children per year in the U.S.

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DIPHTHERIA, TETANUS, ACELLULAR PERTUSSIS (DTaP) VACCINE

Use the conversation starters here with the accompanying infographics for families.

About diphtheria, tetanus and pertussis

Diphtheria

- Diphtheria is a serious throat infection. It can lead to
  - » Breathing problems.
  - » Paralysis.
  - » Heart failure.
  - » Death.

Tetanus (also known as lockjaw).

- Tetanus causes severe muscle stiffness that can make it hard or impossible to
  - » Open the mouth.
  - » Swallow.
  - » Breathe.
- Death from tetanus is not uncommon; a person's outcome can depend on when the disease is identified.

Whooping cough (pertussis)

- Whooping cough is a lung disease that causes
  - » Severe coughing.
  - » Difficulty breathing.
  - » Death.
- Whooping cough is highly contagious; about 80% of susceptible household contacts will become infected if someone else in the house contracts the infection.
- Cases have increased over the past 12 years. Babies age 3 months old and younger are most at risk of severe breathing problems and life-threatening illness from the disease.
- Vaccinating your child against whooping cough protects your child and others around your child who may be at high risk, such as babies or older people.

Diphtheria, tetanus, and acellular pertussis (DTaP) vaccine

- Protection for children age 6 years and younger
- Children should get 5 doses of DTaP vaccine, 1 dose at each of the following ages:
  - » 2 months.
  - » 4 months.
  - » 6 months.
  - » 15 to 18 months.
  - » 4 to 6 years.

Tetanus, reduced diphtheria toxoid, acellular pertussis vaccine (Tdap)

- Protection for adolescents and adults
  - » A tetanus, diphtheria and acellular pertussis (Tdap) vaccine is recommended at age 11 to 12.
  - » A dose is recommended during each pregnancy.
- Tdap can also be given when a Td (tetanus-diphtheria) dose is indicated. This includes
  - » A booster every 10 years.
  - » As tetanus prophylaxis wound management for people who previously have not been vaccinated with Tdap and are not pregnant.
  - » A dose for people age 7 years and older who did not receive all doses of DTaP vaccine.

After vaccination

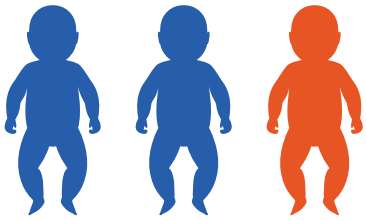
As the immune system is learning how to keep your child healthy, they may experience side effects. These are usually mild and go away on their own. Serious reactions are possible, but rare.

Possible side effects

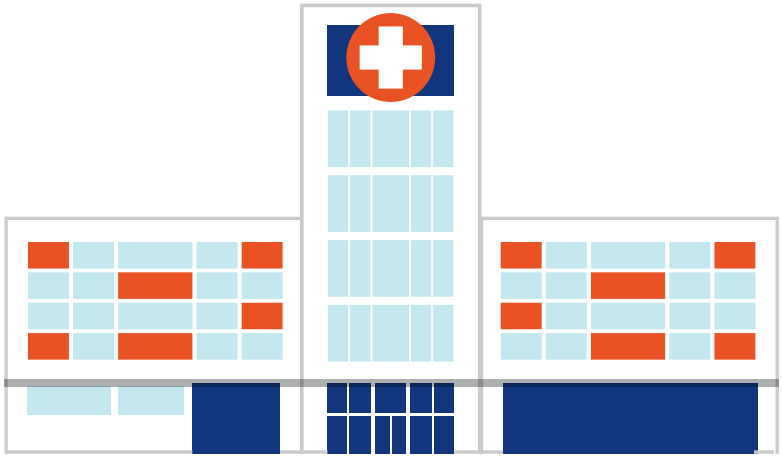
- Redness, soreness, swelling and tenderness where the shot is given.
- Fever, fussiness, tiredness, poor appetite and vomiting sometimes happen 1 to 3 days after DTaP vaccination.
- More serious but rare events include
  - » Young children who get DTaP along with a flu shot at the same time might be slightly more likely to develop a high fever that occasionally results in a febrile seizure.
  - » More serious reactions, such as seizures, non-stop crying for 3 hours or more or high fever (over 105°F) after DTaP vaccination happen much less often.
  - » Very rarely, vaccination is followed by swelling of the entire arm or leg. This rare side effect has been reported in older children when they receive their fourth or fifth DTaP dose.

DIPHTHERIA, TETANUS, ACELLULAR PERTUSSIS (DTaP) VACCINE

WHOOPING COUGH (PERTUSSIS) IS VERY CONTAGIOUS.

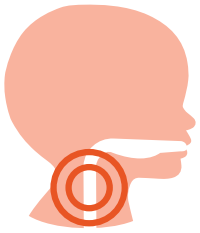


ABOUT ONE THIRD
of babies younger than 1 year old who get whooping cough
NEED CARE IN THE HOSPITAL.



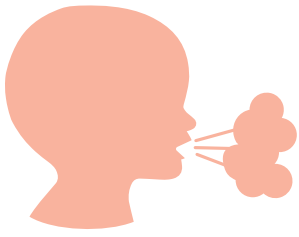
TETANUS
Lockjaw

- Severe muscle stiffness
- Difficulty opening mouth, swallowing, and breathing
- Death



DIPHTHERIA
Serious Throat Infection

- Breathing problems
- Paralysis
- Heart failure
- Death



PERTUSSIS
Whooping Cough

- **Harsh cough:** The cough of pertussis—also called the "100-day cough"—may not go away for months. The cough can return with future illnesses.
- **Breathing problems:** Babies may not cough at all. Instead, they may struggle to breathe.
- Death

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HAEMOPHILUS INFLUENZAE TYPE B (Hib) VACCINE

Use the conversation starters here with the accompanying infographics for families.

About *Haemophilus influenzae* type B (Hib)

- Hib disease is caused by bacteria.
- Hib is not the same as influenza, even though it has influenzae in its name.
- Hib bacteria can cause:
  - » Meningitis, an infection that causes swelling and inflammation of the lining of the brain and spinal cord and can lead to
    - Brain damage.
    - Deafness.
  - » Pneumonia.
  - » Epiglottitis, a severe swelling in the throat, making it hard to breathe.
  - » Bacteremia, an infection of the blood.
  - » Death.
- Children can get Hib disease from others who may have the bacteria and not know it.
- Hib bacteria spread when an infected person coughs or sneezes. If the germs stay in the child's nose and throat, the child probably will not get sick.
- It also spreads when sharing common items, such as utensils or cups, that come in contact with the mouth.
- If the germs spread into the lungs or the bloodstream, it can cause a serious illness called "invasive Hib disease."

Before the vaccine

- One in 200 children under age 5 in the United States had invasive Hib disease.
- Hib was the most common cause of bacterial meningitis in children in the United States.
- About 1,000 children under age 5 years died each year.

After Hib vaccination was recommended in 1985

The number of cases of invasive Hib disease decreased by more than 99%.

Hib vaccine

- The vaccine is recommended for babies and toddlers for the prevention of Hib disease.
- Children receive three or four doses, depending on which brand of vaccine is used. Doses are recommended at:
  - » 2 months of age.
  - » 4 months of age.
  - » 6 months of age (if needed, depending on brand of vaccine).
  - » 12 to 15 months (booster dose).

Side effects after Hib vaccine

Most people who get Hib vaccine do not have any side effects. Serious reactions are rare.

If they occur, side effects begin soon after the shot and last 2 or 3 days. Some children may have redness, warmth or swelling where the shot was given or a fever. These side effects usually are mild and go away on their own.

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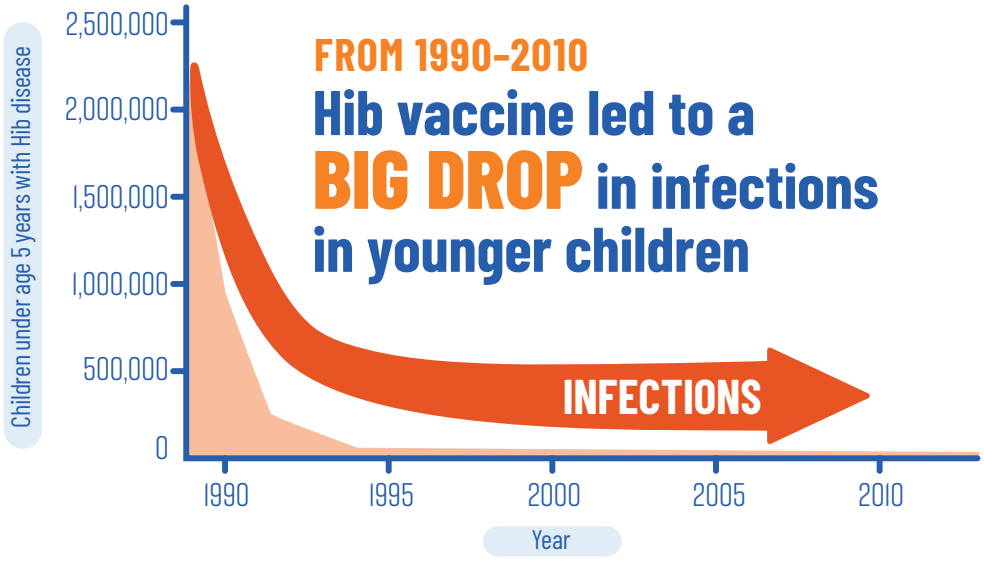
HAEMOPHILUS INFLUENZAE TYPE B (Hib) VACCINE

BEFORE Hib vaccine

Hib disease was a **COMMON CAUSE OF BACTERIAL MENINGITIS** (swelling of the lining of the brain and spinal cord) in babies and young kids in the United States.

Every year, about **20,000** children younger than age 5 years got severe Hib disease.

AFTER Hib vaccine



FROM 1990–2010

Hib vaccine led to a BIG DROP in infections in younger children

Haemophilus influenzae can cause

- Brain damage
- Swollen throat
- Deafness

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PNEUMOCOCCAL CONJUGATE (PCV) VACCINE

Use the conversation starters here with the accompanying infographics for families.

About pneumococcal disease

- Pneumococcal disease is caused by a bacteria, pneumococcus. Infection can cause
  - » Ear infections.
  - » More serious infections of the
    - Lungs (pneumonia).
    - Blood (bacteremia).
    - Lining of the brain and spinal cord (meningitis).
- Some pneumococcal infections are "invasive." Invasive disease means that germs invade parts of the body, such as blood, that are normally free from germs. Invasive disease is usually very serious and can sometimes result in death.
- Vaccines that help protect against pneumococcal disease work well but cannot prevent all cases.
- Anyone can get pneumococcal disease, but children under 2 years of age and adults 65 years and older are among those most likely to get it.
- Pneumococcal infections are becoming more resistant to antibiotics, such as amoxicillin. Vaccination helps prevent infections that are hard to treat with antibiotics.

How does pneumococcal disease spread?

Pneumococcal disease can be spread from person to person through respiratory droplets (such as from sneezing, coughing or spitting).

Pneumococcal conjugate vaccine

- The pneumococcal conjugate vaccine is recommended for babies and young children. It protects against several strains of pneumococcal bacteria.
- It is typically given in a 4-dose series with doses given at each of the following ages:
  - » 2 months.
  - » 4 months.
  - » 6 months.
  - » 12 to 15 months.

After vaccination

Side effects usually are mild and go away on their own. Serious reactions are rare.

Side effects reported following vaccination vary by age and dose in the series. These may include:

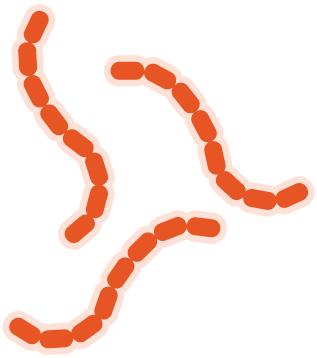
- Fussiness or irritability.
- Drowsiness.
- Temporary loss of appetite.
- Redness or tenderness where the shot was given.
- Swelling where the shot was given.
- Mild fever.
- Rarely, fever over 102.2°F.
- Young children who get the vaccine along with inactivated influenza vaccine at the same time may be at increased risk for febrile seizures.

Other pneumococcal vaccine

The pneumococcal polysaccharide vaccine (PPSV23) protects against 23 strains of bacteria. Some children age 2 years or older with certain conditions also may require one dose of PPSV23 after completing all recommended PCV doses.

PNEUMOCOCCAL CONJUGATE (PCV) VACCINE

PNEUMOCOCCAL DISEASE IS CAUSED BY BACTERIA



Pneumococcal disease can affect

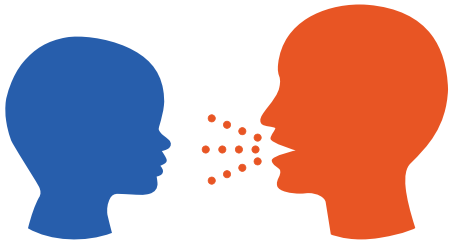
Ears

Lungs

Blood

Brain & spinal cord

PNEUMOCOCCAL DISEASE CAN SPREAD



through the air and direct contact when an infected person breathes, sneezes, coughs or spits.

SOME ANTIBIOTICS MAY NO LONGER CURE PNEUMOCOCCAL INFECTIONS.

Vaccines can help prevent pneumococcal disease.

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INACTIVATED POLIOVIRUS (IPV) VACCINE

Use the conversation starters here with the accompanying infographics for families.

Why vaccinate against poliomyelitis (polio)?

- Before polio vaccines were available, polio was one of the most feared diseases in the United States. It paralyzed and killed thousands of people every year.
- Poliovirus had been eliminated in the United States. But in 2022, a strain of the virus was detected in an unvaccinated individual with symptoms of paralytic polio in New York City and in wastewater samples in the community. The United States has been added back onto the list of countries with circulating poliovirus.
- Vaccination of every eligible individual is the best way to keep high immunity in the United States and stop polio from returning.

Symptoms of polio

- Polio is caused by a virus. Some people infected with poliovirus do not have symptoms or have mild disease resembling a stomach bug.
- Infection can cause
  - » Paralysis (cannot move arms or legs).
  - » Permanent disability.
  - » Death.
- Poliovirus is highly contagious. It only takes one person infected with polio to spread the disease.
- About 100% of unvaccinated children who are exposed at home will get poliovirus.
- There is no cure for polio infection.
- Polio can be prevented by vaccination.

How does poliomyelitis spread?

Polio is spread mainly by person-to-person contact. Usually, the virus enters through the mouth. It can reproduce in the throat or gastrointestinal tract. Polio spreads to other people through contact with stool from an infected person or droplets from a sneeze or cough.

For example, polio spreads when

- An unvaccinated person consumes food or drinks that are contaminated with the virus.
- An unvaccinated person gets stool or droplets from an infected person on their hands and touches their mouth.
- Children who are not vaccinated put toys or other objects that have stool or droplets on them into their mouth.

Inactivated poliovirus vaccine (IPV)

- The polio vaccine is routinely recommended for babies and children. Typically, vaccination should happen at each of the following ages
  - » 2 months.
  - » 4 months.
  - » 6 to 18 months.
  - » 4 to 6 years.
- The polio vaccine usually is given at the same time as other vaccines. Children can receive the vaccine as part of a combination vaccine that provides protection against polio and one or more other diseases in a single shot.
- The schedule may be different for some children (eg, children who are traveling to another country, children who receive combination vaccines).

After vaccination

- Side effects are usually mild and go away on their own.
- Possible side effects
  - » Some people who get IPV have soreness where the shot was given.
  - » IPV has not been known to cause serious problems, and most people do not have any side effects.
  - » There is a very remote chance of serious allergic reaction.

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POLIO (IPV) VACCINE

POLIO SPREADS VERY EASILY.

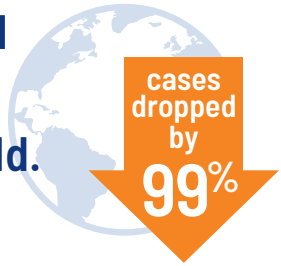
Polio can be stopped if everyone gets vaccinated.

POLIO CAN CAUSE
paralysis, permanent disability or death.

Polio disease has no cure.

BEFORE VACCINES,
widespread paralytic polio caused parents to worry about letting their children swim in public swimming pools.

AFTER VACCINES,
polio cases have dropped around the world.



Polio was eliminated from the United States.

THE DISEASE RETURNED.

One infected person can cause a polio outbreak if others are not vaccinated.

Getting vaccinated protects you and your community.

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COVID-19 VACCINE

Use the conversation starters here with the accompanying infographics for families.

About COVID-19

Common symptoms of COVID-19 in children

- Fever
- Cough

Other symptoms include

- Sore throat
- Rhinorrhea (runny nose)
- Headache
- Fatigue
- Shortness of breath
- Gastrointestinal symptoms, including nausea, vomiting and diarrhea

Complications include

- Croup
- Need for ventilator support
- Multisystem inflammatory syndrome in children (MIS-C)
- Long COVID
- Death

COVID-19 vaccines

- Vaccination reduces the risk of hospitalization and serious illness in babies, children and adults.
- Recommended vaccines for children, including the COVID-19 vaccine, **ensure greater confidence for children to participate in child care and school** and in sports, playdates, extracurricular activities and other group activities with lower risk of illness.
- When children receive this vaccine, they also help protect others in the community.

There are two types of vaccine approved for use in children.

Messenger RNA (mRNA) vaccines—people age 6 months and older

The mRNA in the vaccine teaches our cells how to make copies of the spike protein, which is a part of the virus. Once the spike protein copy is made, two things occur: (1) the cell breaks down the mRNA (instructions) and gets rid of them, and (2) the spike protein copy teaches the immune system to create antibodies and white blood cells that can recognize and respond to the virus. These antibodies protect us the next time we encounter the virus.

Protein Subunit Vaccines—people age 12 years and older

Subunit vaccines include a piece (protein) of the virus that stimulates the immune system. (1) Once the immune system identifies that the protein should not be in the body, it creates antibodies and white blood cells that can recognize and respond to the virus. When you later encounter the virus, the antibodies will recognize and respond to get rid of the virus. (2) These vaccines often include an adjuvant—an ingredient that increases the immune system's response.

COVID-19 vaccine: Doses needed

Dosing for COVID-19 vaccine is dependent on the age of the child, the product used and other medical considerations.

The AAP and CDC recommend children receive all doses of COVID-19 vaccine that are recommended for their age and health condition, including recommended doses of updated COVID-19 vaccine (current formula).The series includes 1–3 doses. COVID-19 vaccines may be given at the same time as other vaccines. For details, see the AAP Pediatric COVID-19 Vaccine Dosing Quick Reference Guide (https://aap.org/COVIDvaccineGuide).

After vaccination

Some children have no side effects after COVID-19 vaccination. When they do experience side effects, they often are mild and temporary. These include

- **6 months–3 years**
  - Pain on the leg or arm where the shot was given.
  - Swollen lymph nodes.
  - Irritability or crying.
  - Sleepiness.
  - Loss of appetite.
  - Fever
- **4–17 years**

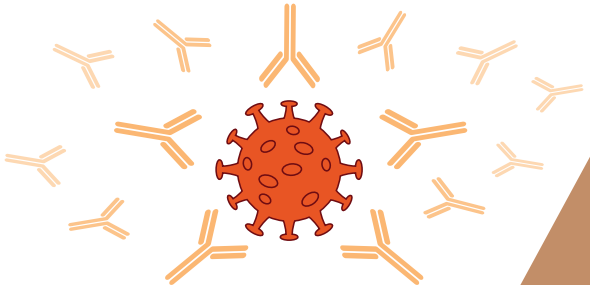
  Side effects are more common **after the second dose** and can include:
  - Pain, swelling, and redness on the arm where the shot was given.
  - Tiredness.
  - Headache.
  - Muscle or joint pain.
  - Chills.
  - Swollen lymph nodes.
  - Fever
  - Nausea

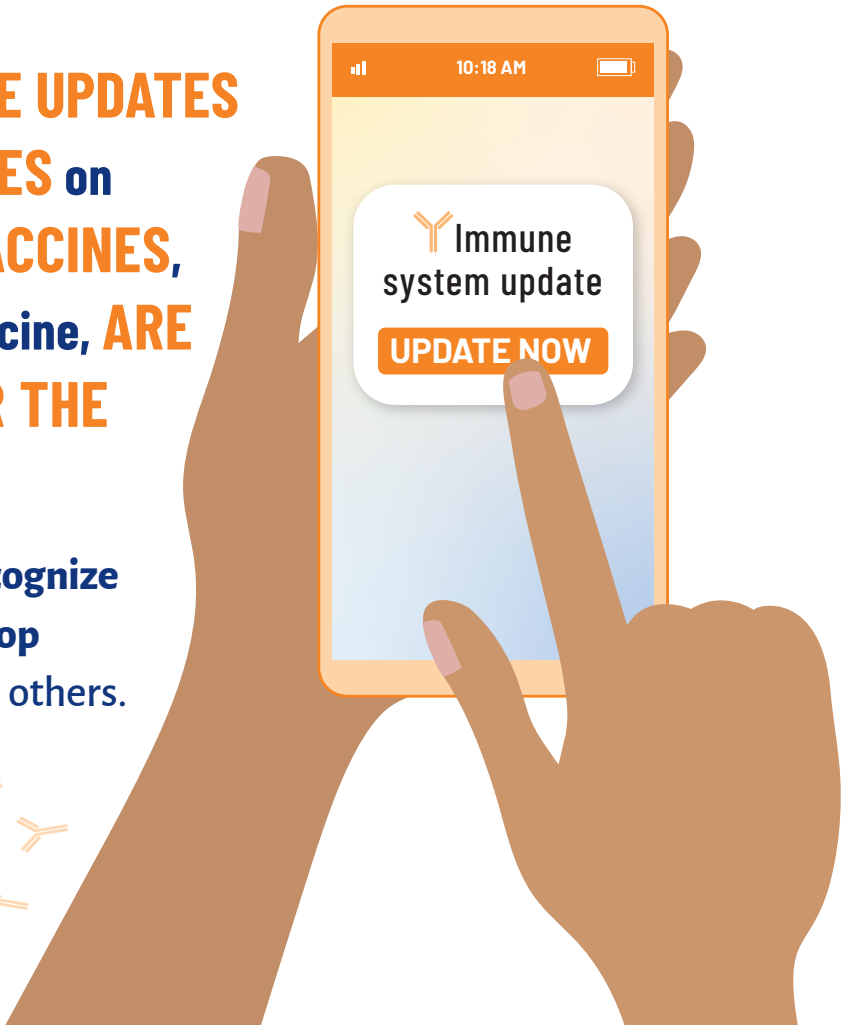
Rarely, cases of myocarditis and pericarditis have been reported in adolescents and young adults after vaccination with mRNA vaccine. The risk of myocarditis is up to 6 times higher after SARS-CoV-2 infection than after the COVID vaccine.

COVID-19 VACCINE

JUST LIKE SOFTWARE UPDATES help you AVOID VIRUSES on your digital devices, VACCINES, including the COVID vaccine, ARE LIKE "UPDATES" FOR THE IMMUNE SYSTEM.

They give us the **tools to recognize and avoid infections** and **stop diseases from spreading** to others.



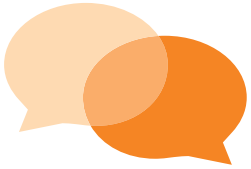


WHEN CHILDREN ARE VACCINATED THEY ARE FREE AND SAFE TO:

Go to school

Play

Visit vulnerable loved ones



Socialize

Participate in activities

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INFLUENZA (FLU) VACCINE

Use the conversation starters here with the accompanying infographics for families.

Why vaccinate against flu?

- Flu can be serious — even children who are considered to have low risk for adverse outcomes can have serious complications that require hospitalization.
- The vaccine provides protection from critical and life-threatening illness from influenza. Even in seasons when the vaccine is not an exact match with the circulating strains of the flu viruses, it prevents serious complications and the need for hospitalization.
- For most people, flu can cause
  - » Fever.
  - » Cough.
  - » Sore throat.
  - » Headache.
  - » Chills.
  - » Muscle aches.
  - » Fatigue.
- Complications include
  - » Inflammation of the heart (myocarditis).
  - » Inflammation of the brain (encephalitis).
  - » Inflammation of the muscles (myositis, rhabdomyolysis).
  - » Multi-organ failure.
  - » Death.
- Flu can be deadly. Each flu season, about 37 to 199 children and teens die from influenza. About 80% were not fully vaccinated.

Flu vaccine

- There are 2 types of seasonal flu vaccines.
  - » Inactivated (killed) vaccine that is given by an injection (shot).
  - » Live attenuated (weakened) vaccine that is sprayed into the nose (nasal spray).
- Everyone 6 months and older should receive a flu vaccine every year. A flu vaccine is needed every year because
  - » Flu viruses change from year to year.
  - » Yearly vaccination helps keep immunity up. Without vaccination, immunity can fade within a year.
- It takes about 2 weeks to be fully protected after getting the flu vaccine.
- It is best to get vaccinated before flu season or as soon as the vaccine is available (in late summer or early fall).
- Flu can circulate from early fall through late spring and sometimes later. Children should still get the vaccine if they missed getting it at the start of the season.
- Flu vaccine can be given at the same time as other vaccines.

After vaccination

- Flu vaccines have been given to hundreds of millions of people for more than 50 years and have a very good safety record.
- Children with egg allergy can receive any influenza vaccine without any additional precautions beyond those recommended for all vaccines.
- Side effects following inactivated flu shot can include
  - » Soreness, redness and swelling where the shot was given.
  - » Fever, muscle aches and headache.
- Side effects following live intranasal flu spray can include
  - » Runny nose or nasal congestion, wheezing and headache.
  - » Vomiting, muscle aches, fever, sore throat and cough.
  - » If these problems occur, they usually begin soon after vaccination and are mild and short-lived.
- Severe side effects are extremely rare.

Flu vaccine does not give people the flu.

- Some people get flu-like symptoms shortly after they get the flu vaccine. There are a few reasons for this.
  - » They may be infected by a virus other than flu. The flu vaccine only prevents illnesses caused by flu viruses.
  - » They may have been infected by a flu virus before the vaccine took effect. It takes about 2 weeks after getting the vaccine for the body to build protection against the flu.
  - » They may be infected by a strain of the flu virus that is different from those in this year's vaccine. When this happens, the flu vaccines can still prevent or reduce severe illness and hospitalization.
- Flu vaccines vary in how well they work, and some vaccinated individuals can still get sick. But the flu vaccine still reduces severity of illness in these situations.

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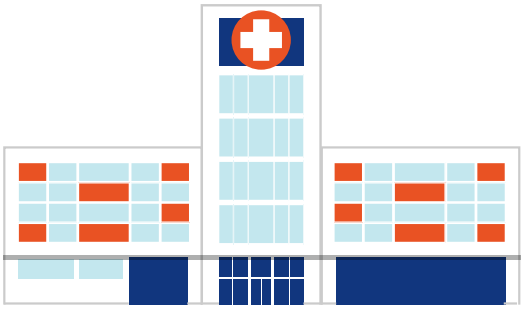
INFLUENZA (FLU) VACCINE

THOUSANDS OF CHILDREN AND TEENAGERS ARE HOSPITALIZED WITH THE FLU EACH YEAR.



THE VACCINE PREVENTS SERIOUS COMPLICATIONS.

CHILDREN UNDER AGE 5 ARE MOST AT RISK OF SERIOUS ILLNESS.

Older children can also get very sick from the flu.

2 doses: children 6 months through 8 years who are getting the flu shot for the FIRST TIME.

Dose 1 — Dose 2

1 dose each year for most children.

FLU VACCINES CAN'T GIVE YOU THE FLU.

Some people get flu-like symptoms shortly after they get the flu vaccine. There are a few reasons for this:

- They may have another illness, like a cold.
- They may have been exposed to influenza right before, or during the two weeks after vaccination, when the body is still learning how to protect against influenza.
- They caught a strain of flu that's not a part of the vaccine. Being vaccinated will still help prevent hospitalization and reduce severe illness.
- Flu vaccines vary in how well they work and some vaccinated people can still get sick. The flu vaccine still reduces severity of illness.

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MEASLES, MUMPS, RUBELLA (MMR) VACCINE

Use the conversation starters here with the accompanying infographics for families.

Why vaccinate against measles, mumps and rubella?

Measles

- Measles is caused by a virus. Its symptoms include
  - » Fever.
  - » Cough.
  - » Runny nose.
  - » Red, watery eyes.
  - » Rash that covers the whole body.
- Measles can lead to
  - » Ear infections.
  - » Diarrhea.
  - » Infection of the lungs (pneumonia).
  - » Hearing loss and deafness.
  - » Brain damage.
  - » Brain inflammation (swelling) can occur up to 7 years after a child had measles. The swelling can lead to convulsions and leave the child with deafness and/or intellectual disability.
  - » Death.
- Before the measles vaccine, measles caused 500 deaths per year; 48,000 people were hospitalized, and 1,000 had encephalitis (swelling of the brain).
- In 2018, measles caused 140,000 deaths worldwide in unvaccinated and undervaccinated people.

How does measles spread?

- Measles is extremely contagious; 90% of those susceptible (don't already have immunity) who are exposed to measles will contract the disease.
- Measles spreads from person to person and through the air. The measles virus can live for two hours on surfaces or suspended in the air. Someone who enters a room where someone with measles had been earlier can catch the disease.
- Outbreaks of measles in the United States mainly affect unvaccinated people and communities with high numbers of unvaccinated people.

Mumps

- Mumps is caused by a virus. Its symptoms include
  - » Fever.
  - » Headache.
  - » Muscle aches.
  - » Tiredness.
  - » Loss of appetite.
  - » Swollen, tender salivary glands under the ears on one or both sides.
- Mumps can also lead to
  - » Deafness.
  - » Swelling of the brain (encephalitis) and/or the brain and spinal cord covering (meningitis).
  - » Painful swelling of the testicles or ovaries.
  - » Sterility.
  - » Very rarely, death.

How does mumps spread?

- Mumps spreads through the air and through saliva droplets.

Rubella

- Rubella virus causes
  - » Fever.
  - » Sore throat.
  - » Rash.
  - » Headache.
  - » Eye irritation.

How does rubella spread?

- Rubella is spread through saliva droplets.
- Rubella syndrome can be passed to the baby before they are born and cause serious birth defects. Rubella infection during pregnancy increases risk of miscarriage.

MMR vaccine

- MMR is routinely recommended for children at 12 to 15 months.
  - » A second dose is recommended at age 4 to 6 years. Some children won't be fully protected until after the second dose.
  - » If there is a local outbreak or planned travel to an area with an outbreak, babies age 6 to 11 months old can receive one dose of MMR vaccine for short-term protection. When they are 12 months or older, they will still need the 2-dose series if they received a dose before age 12 months.
- MMR is a live-virus vaccine.
  - » It can be administered on the same day as other vaccines, including other live vaccines.
  - » If MMR is not administered on the same day, other live-virus vaccines, like LAIV (live, attenuated influenza vaccine) or varicella, should be administered 28 days from administration of MMR.
- MMRV is another live-virus vaccine that contains MMR and varicella (chickenpox) vaccine. It has the same dosing schedule as MMR. For children age 12–47 months, it is recommended to administer MMR vaccine and varicella vaccine separately. This is due to a slightly increased risk of febrile seizures; this increased risk is no longer present by age 4 years. MMRV may be used if parents or caregivers express a preference.

After vaccination

Side effects usually are mild and go away on their own.

- Some people may experience the following after vaccination. If these reactions occur, they usually begin within 2 weeks after the shot. They occur less often after the second dose.
  - » Sore arm from the injection.
  - » Fever.
  - » Redness or rash at the injection site.
  - » Swelling of glands in the cheeks or neck.
- More serious events are rare. They include
  - » Seizure often associated with fever.
  - » Temporary pain and stiffness in the joints, mostly in teenage or adult women.
  - » Temporary low platelet count, which can cause unusual bleeding or bruising.
  - » Long-term seizures, coma, or lowered consciousness.

Does MMR vaccine cause autism?

No. Autism is caused by genetic factors and environmental exposures. More than 80% of children with autism have the condition for genetic reasons.

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MEASLES, MUMPS, RUBELLA (MMR) VACCINE

MEASLES, MUMPS AND RUBELLA

CAN ALL BE SPREAD PERSON TO PERSON.

MEASLES AND MUMPS CAN ALSO SPREAD THROUGH THE AIR.

Measles is especially contagious. Even someone who enters a room where a person with measles had been 2 hours earlier **can catch the disease.**

HIGHLY CONTAGIOUS

MEASLES CAN BE SPREAD BY UNVACCINATED TRAVELERS

RUBELLA INFECTION during pregnancy can cause miscarriage or serious birth defects.

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VARICELLA VACCINE

Use the conversation starters here with the accompanying infographics for families.

Why vaccinate against varicella?

- Varicella, or chickenpox, is caused by a virus. Before varicella vaccine, almost everyone in the United States got chickenpox at some point in their lives. About 4 million people were infected and 10,000 people were hospitalized with chickenpox each year.
- Chickenpox causes an itchy rash all over the body that usually lasts about a week. Other symptoms can include
  - » Fever.
  - » Tiredness.
  - » Loss of appetite.
  - » Headache.
- Serious illness can cause complications like:
  - » Skin infections.
  - » Infection of the lungs (pneumonia).
  - » Inflammation of blood vessels.
  - » Swelling of the brain (encephalitis) and/or the brain and spinal cord covering (meningitis).
  - » Bloodstream, bone or joint infections.
- Some people get so sick that they need to be hospitalized.
- In rare cases, chickenpox can cause death.
- Children who get chickenpox usually miss at least 5 or 6 days of school or child care.
- People who receive the varicella vaccine have a lower risk of developing "shingles" (zoster) later in life compared to people who had a chickenpox infection.

How does chickenpox spread?

- Chickenpox is very contagious. It spreads easily from person to person through fluid from the skin rash or through the air by coughing or sneezing. Anyone who has not had chickenpox and has not gotten the chickenpox vaccine is at risk of infection if they are exposed to the virus.
- The virus that causes chickenpox also causes shingles. After chickenpox infection, the virus remains in the body. People get shingles later in life when the virus reactivates.
- People with shingles can spread the virus to others. Those who get infected will develop chickenpox, not shingles.
- It takes about 2 weeks after exposure to a person with chickenpox or shingles for someone to develop chickenpox. If a person receives the vaccine and has already been exposed, they can develop chickenpox and spread it to others.

Varicella vaccine

- Varicella vaccine is routinely recommended for children at age 12 to 15 months.
  - » A second dose is recommended at age 4 to 6 years. Some children are not fully protected until after the second dose.
- Varicella is a live-virus vaccine. It can be administered on the same day as other vaccines, including other live vaccines. If not administered on the same day, other live-virus vaccines, like live LAIV (live, attenuated influenza vaccine) or MMR, should be administered 28 days from administration of varicella vaccine.
- MMRV is another live-virus vaccine that contains MMR and varicella vaccine. It has the same dosing schedule as MMR and varicella vaccines. For children age 12 to 47 months, it is recommended to administer MMR and varicella vaccines separately. This is due to a slight increased risk of febrile seizures; this increased risk is no longer present by age 4 years. MMRV may be used if parents or caregivers express a preference.

After vaccination

Side effects usually are mild and go away on their own. If these reactions occur, they usually begin within 2 weeks after the shot. They occur less often after the second dose.

Possible side effects

- Some people may experience the following after vaccination.
  - » Sore arm from the injection.
  - » Fever.
  - » Redness or rash at the injection site.
- Serious side effects are rare. They include
  - » Seizure (jerking or staring) is often associated with fever.
  - » Infection of the lungs (pneumonia) or the brain and spinal cord coverings (meningitis).
  - » Rash similar to chickenpox all over the body. A person who develops a rash after chickenpox vaccination can spread the weakened varicella virus of the vaccine to an unprotected person. Anyone who gets a rash after vaccination should stay away from people with weakened immune systems and unvaccinated infants until the rash is gone.

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VARICELLA (CHICKENPOX) VACCINE

CHICKENPOX
IS CAUSED BY A VIRUS

OTHER SYMPTOMS OF CHICKENPOX INCLUDE

Fever

Tiredness

Loss of appetite

Headache

CHICKENPOX CAN LEAD TO

Children missing a week of activities.

A hospital stay.

Shingles, a disease that causes a painful rash, is caused by the same virus that causes chickenpox. It occurs later in life.

THE CHICKENPOX VACCINE LOWERS THESE RISKS & SAVES LIVES.

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HEPATITIS A (HepA) VACCINE

Use the conversation starters here with the accompanying infographics for families.

Why vaccinate against hepatitis A (HepA)?

- HepA vaccination is the best way to prevent infection. After HepA vaccine was recommended in the United States in 1996, the number of cases reported each year dropped. Since 2016, outbreaks of hepatitis A have been identified in several states in unvaccinated people.
- HepA is a serious liver disease caused by HepA virus.
- Symptoms of HepA can include
  - » Fever.
  - » Fatigue.
  - » Loss of appetite, nausea and vomiting.
  - » Joint pain.
  - » Severe stomach pain and diarrhea (mainly in children).
  - » Jaundice (yellow skin or eyes, dark urine, clay-colored bowel movements).
- Children with the virus often don't have symptoms, but they can easily pass the disease to others, including their unvaccinated parents or caregivers who can become seriously ill.

How does HepA virus spread?

- HepA virus usually spreads from person to person through contact with the stool of people who are infected.
  - » This can happen easily because of improper handwashing.
  - » Caregivers can get infected through dirty diapers.
- You can also get HepA by consuming food or water prepared by someone with HepA or by touching objects or surfaces contaminated with the virus.

HepA vaccine

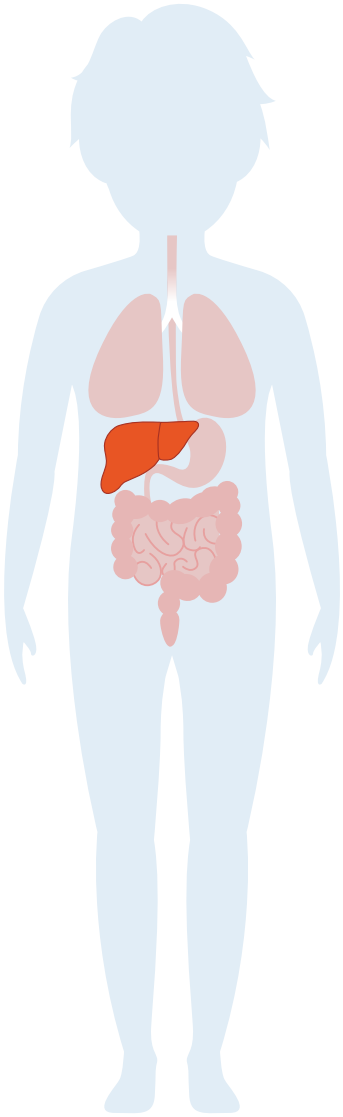
- Two doses of HepA vaccine are routinely recommended for children.
  - » The first dose should be given between 12 and 23 months of age.
  - » The second dose should be given at least 6 months after the first dose.
- The HepA vaccine is recommended for all people age 6 months and older before international travel to countries where hepatitis A is common.

After vaccination

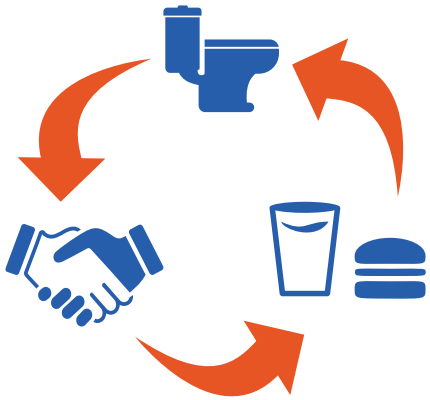
Side effects are usually mild and go away on their own. They may begin soon after vaccination and last 1 to 2 days.

- Some children may experience
  - » Soreness or redness where the shot was given.
  - » Low-grade fever.
  - » Headache.
  - » Tiredness.

HEPATITIS A (HepA) VACCINE



HEPATITIS A IS A SERIOUS LIVER DISEASE



HepA virus spreads through contact with the stool of infected people

- This can happen easily because of poor handwashing.
- You can also get hepatitis A from food, water or objects handled by people who are infected.

HEPATITIS A VACCINE
is recommended to all people age 6 months and older before international travel to areas where HepA is common.

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