
Rubella: Questions and Answers

Information about the disease and vaccines

What causes rubella?

Rubella is caused by a virus.

How does rubella spread?

Rubella spreads from person to person through the air. Rubella is contagious but less so than measles and chickenpox.

How long does it take to show signs of rubella after being exposed?

The incubation period varies from 12 to 23 days (average, 14 days). Symptoms are often mild and may be inapparent up to half of the time.

What are the symptoms of rubella?

Children with rubella usually first break out in a rash, which starts on the face and progresses down the body. Older children and adults usually first suffer from low-grade fever, swollen glands in the neck or behind the ears, and upper respiratory infection before they develop a rash. Adult women often develop pain and stiffness in their finger, wrist, and knee joints, which may last up to a month. Up to half of people infected with rubella virus have no symptoms at all.

How serious is rubella?

Rubella is usually a mild disease in children; adults tend to have more complications. The main concern with rubella disease, however, is the effect it has on an infected pregnant woman. Rubella infection in the first trimester of pregnancy can lead to fetal death, premature delivery, and serious birth defects.

What are possible complications from rubella?

Encephalitis (brain infection) occurs in one in 6,000 cases, usually in adults. Temporary blood problems, including low platelet levels and hemorrhage, also occur rarely. Up to 70% of adult women with rubella have pain and/or swelling of the joints, which is usually temporary.

The most serious complication of rubella infection is Congenital Rubella Syndrome (CRS), the result when the rubella virus attacks a developing fetus. Up to 85% of infants infected during the first trimester of pregnancy will be born with some type of birth defect, including deafness, eye defects, heart defects, mental retardation, and more. Infection early in the

pregnancy (less than 12 weeks gestation) is the most dangerous; defects are rare when infection occurs after 20 weeks gestation.

Is there a treatment for rubella?

There is no “cure” for rubella, only supportive treatment (e.g., bed rest, fluids, and fever reduction).

How do I know if my child has rubella?

Because the rubella rash looks similar to other rashes, the only sure way to diagnose rubella is by a laboratory test.

How long is a person with rubella contagious?

The disease is most contagious when the rash is erupting, but the virus can be spread from seven days before, to 5–7 days after the rash begins. Persons with cases without symptoms can also transmit the virus.

If I think my child has been exposed to rubella, what should I do?

If your child has not been vaccinated against rubella, receiving the vaccine after exposure to the virus will not help prevent disease if the child has already been infected. However, if the child did not become infected after this particular exposure, the vaccine will help protect him or her against future exposure to rubella.

How common is rubella in the United States?

Due to good immunization coverage, rubella and CRS are rare in the United States at the present time. However, outbreaks continue to occur in groups of susceptible individuals who refuse immunization for religious or philosophic reasons and among some foreign-born immigrants, who come from areas where rubella vaccine is not routinely used. Rubella can be imported into the United States at any time.

Rubella outbreaks are unfortunately followed by an increase in CRS. Two rubella outbreaks in 1990–1991, in California and Pennsylvania, resulted in the birth of 58 infants with CRS.

Can you get rubella more than once?

Second cases of rubella are believed to be very rare.

Why do people call rubella “German measles”?

Rubella was first described as a separate disease in the German medical literature in 1814, and the rash is similar to measles.

When did rubella vaccine become available?

Three rubella vaccines were licensed in the United States in 1969. In January 1979, the currently used rubella vaccine was licensed and the others were discontinued.

What kind of vaccine is it?

The rubella vaccine is a live attenuated (weakened) virus. Although it is available as a single preparation, it is recommended that it be given as part of the MMR vaccine, which protects against measles, mumps, and rubella (German measles) or the MMRV vaccine (MMR plus varicella [chickenpox] vaccine) when age-appropriate (MMRV is licensed for use only from age 12 months through age 12 years).

How is this vaccine given?

This vaccine is a shot given subcutaneously (in the fatty tissue of the arm or leg).

Who should get this vaccine?

Rubella vaccine is recommended for all children and for adolescents and adults without documented evidence of immunity. It is especially important to verify that all women of child-bearing age are immune to rubella before they get pregnant.

At what age should my baby get his first rubella shot?

The first dose of MMR or MMRV should be given on or after the first birthday; the recommended range is from 12-15 months. A dose given before 12 months of age may not be counted, so the child’s medical appointment should be scheduled with this in mind.

When should my child get his second MMR/MMRV shot?

The second dose is usually given when the child is 4-6 years old, or before he or she enters kindergarten or first grade. However, the second dose can be given anytime as long as it is at least four weeks after the first dose. MMRV can only be given through age 12 years.

Who recommends this vaccine?

The Centers for Disease Control and Prevention (CDC), the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP) have all recommended this vaccine.

How safe is this vaccine?

Rubella is a very safe vaccine. Most adverse events are mild.

What side effects have been reported with this vaccine?

Fever is the most common side effect, occurring in 5%–15% of vaccine recipients. About 5% of persons develop a mild rash. When they occur, fever and rash appear 7–12 days after vaccination. About 25% of adult women receiving MMR vaccine develop temporary joint pain. Joint pain only occurs in women who are not immune to rubella at the time of vaccination. MMR vaccine may cause thrombocytopenia (low platelet count) at the rate of about 1 case per 30,000–40,000 vaccinated people. Cases are almost always temporary and benign.

More severe reactions, including allergic reactions, are rare. About one person per million develops inflammation of the brain, which is probably caused by the measles vaccine virus.

How effective is this vaccine?

Approximately 95% of individuals become immune to rubella after a single dose of vaccine. The second dose of MMR vaccine is intended to produce immunity in the 5% of persons who did not respond to the first dose.

Who should NOT receive rubella vaccine?

Anyone who experiences a severe allergic reaction (e.g., hives, swelling of the mouth or throat, difficulty breathing) following the first dose of MMR should not receive a second dose. Anyone knowing they are allergic to an MMR component (gelatin, neomycin) should not receive this vaccine. Women known to be pregnant should not receive the MMR vaccine, and pregnancy should be avoided for four weeks following vaccination with MMR. This is because the vaccine contains live virus. (See the following question for further information on pregnancy and rubella vaccination.)

Severely immunocompromised persons should not be given MMR vaccine. This includes persons with a variety of conditions, including congenital immunodeficiency, AIDS, leukemia, lymphoma, generalized malignancy, or those undergoing immunosuppressive therapy or taking large doses of steroids. However, healthy people who live in the same household of an immunocompromised person can AND SHOULD receive MMR vaccine. There is no risk of transmission of the vaccine virus to the immunocompromised

person. Persons with asymptomatic HIV infection should be considered for rubella vaccination.

What if I was pregnant but didn't know it and got vaccinated against rubella?

Women are advised not to receive the rubella vaccine during pregnancy as a safety precaution based on the theoretical possibility of a live vaccine causing disease, in this case "congenital rubella syndrome" (CRS).

Because a number of women have inadvertently received this vaccine while pregnant or soon before conception, the Centers for Disease Control and Prevention has collected data about the outcomes of their births. From 1971–1989, no evidence of CRS occurred in the 324 infants born to 321 women who received rubella vaccine while pregnant and continued pregnancy to term. As any risk to the fetus from rubella vaccine appears to be extremely low or zero, individual counseling of women in this situation is recommended, rather than routine termination of pregnancy.

I was born before 1957. Can I assume I've had rubella?

While individuals can generally assume they are immune to rubella if they were born before 1957, birth before 1957 is not acceptable evidence of rubella immunity for women who might become pregnant, nor for healthcare workers.

Because CRS is such a serious consequence of rubella infection in pregnant women, it is very important that every woman of child-bearing age be immune to rubella before becoming pregnant. A past history of rubella is not reliable, because other rash illnesses may look like rubella infection. A woman without a documented history of appropriate vaccination against rubella should both be tested for evidence of antibodies and vaccinated if needed, or just vaccinated without prior screening. All unvaccinated healthcare workers born before 1957, both men and women, who do not have either laboratory evidence of rubella immunity or laboratory confirmation of disease, are recommended to receive two doses of MMR vaccine.

Can the vaccine cause rubella?

No. The live virus in the vaccine is attenuated, and can cause symptoms like rash and fever, but cannot cause rubella disease.

Does the MMR vaccine cause autism?

There is no scientific evidence that measles, MMR, or any other vaccine causes autism. The question about a possible link between MMR vaccine and autism has been extensively reviewed by independent groups of experts in the U.S. including the National Academy of Sciences' Institute of Medicine. These reviews have concluded that the available epidemiologic evidence does not support a causal link between MMR vaccine and autism.

The MMR-autism theory had its origins in research by Andrew Wakefield and colleagues in England. They suggested that inflammatory bowel disease (IBD) is linked to persistent viral infection. In 1993, Wakefield and colleagues reported isolating measles virus in the intestinal tissue of persons with IBD. The validity of this finding was later called into question when it could not be reproduced by other researchers. In addition, the findings were further discredited when an investigation found that Wakefield did not disclose he was being funded for his research by lawyers seeking evidence to use against vaccine manufacturers.

The studies that suggest a cause-and-effect relationship exists between MMR vaccine and autism have received a lot of attention by the media. However, these studies have significant weaknesses and are far outweighed by many population studies that have consistently failed to show a causal relationship between MMR vaccine and autism.

For a summary of the issues on this topic, please read "Vaccines and Autism," by Paul A. Offit, MD, Director, Vaccine Education Center, Children's Hospital of Philadelphia. This discussion can be accessed online at <http://www.chop.edu/consumer/jsp/division/generic.jsp?id=84662>.

"MMR vaccine does not cause autism. Examine the evidence!" lists all the major studies related to this issue with links to journal article abstracts: <http://www.immunize.org/catg.d/p4026.pdf>

Dr. Ari Brown has written a good piece for parents questioning the safety of vaccines. To access "Clear Answers & Smart Advice About Your Baby's Shots," go to: <http://www.immunize.org/catg.d/p2068.pdf>

For more information, visit CDC's web page about MMR vaccine safety at http://www.cdc.gov/vaccine-safety/updates/mmr_vaccine.htm