

Measles Frequently Asked Questions

Clinical and Public Health Response

What should a provider do if they suspect someone of having measles?

If they have not yet arrived at the healthcare facility, ask the patient to wear a mask and bring them directly into a room where they will have limited interactions with others. Standard and airborne precautions, including an airborne infection isolation room (AIIR) should be used, if available. If an AIIR is not available, the patient should be placed in a private room with the door closed. If tolerated, all patients older than two years should wear a facemask at all times while not in an AIIR. Those younger than two can be tented with a blanket or towel.

Obtain an immunization history (total number of MMR doses and timing, with documentation if possible). In addition, contact your local health department to report a suspect case and coordinate testing. If a measles case is confirmed, the local health department can assist with identifying susceptible contacts and provide recommendations for isolation, quarantine, and post-exposure prophylaxis.

There is no specific antiviral medication for measles treatment. Supportive care should be provided as needed, including for measles complications such as pneumonia. Vitamin A deficiency can lead to higher risk of measles complications and delayed recovery; CDC recommends vitamin A supplementation for hospitalized children. More information can be found here: [For Healthcare Professionals - Diagnosing and Treating Measles | CDC](#)

If someone is suspected of having measles, what tests should be ordered?

For diagnosis of measles, the most important test to order is a nasopharyngeal (NP) or throat (OP) swab for PCR. A blood sample for IgM is also recommended. Urine can also be collected for PCR but should only be collected along with an NP/OP swab. PCR testing is most commonly done by local or state health departments. More information on testing is here: [Measles Lab Tools | CDC](#)

Can individuals who are vaccinated against measles still develop measles symptoms? If so, would the clinical signs/symptoms be different in vaccinated individuals?

The MMR vaccine is very effective at preventing measles; it is uncommon for someone who is fully vaccinated to develop measles. However, if someone who has pre-existing immunity does develop measles, the initial clinical presentation is typically milder than measles in an unvaccinated patient. They may also have a more subtle rash, though the rash can look exactly like measles in unvaccinated people. People with pre-existing immunity are also nearly 70% less likely to develop complications or severe disease from measles. In addition, fully vaccinated people seem less likely to spread the disease to other people, including people who can't get vaccinated because they are too young or have weakened immune systems.

Do travelers have to be symptomatic to spread measles?

Persons with measles are usually considered infectious from four days before until four days after onset of rash, with the day of rash onset considered as 'day zero'. People with measles can transmit the virus during their prodromal period before they develop a rash, but there's no evidence to suggest patients are infectious while completely asymptomatic. However, because there can be variability in how reliable a person can tell exactly when symptoms started, especially mild symptoms at the beginning of the prodromal phase of illness, the infectious period is defined as 4 days before rash onset, not by the start of symptoms.

Can adults be considered immune to measles even if their titer levels are low?

CDC considers adults born after 1957 with one documented dose of MMR to have presumptive evidence of immunity. Two doses of MMR are recommended for some adults, such as those traveling internationally, working in healthcare facilities, or attending post-secondary educational institutions. Titers are not recommended to evaluate immunity for people with two documented MMR doses, as long as those two doses are given after 12 months of age and separated by at least 28 days. An additional MMR dose is not required if titers are low or equivocal for people with two documented MMR doses. If the individual is a healthcare worker, the healthcare system of employment may have further guidance or requirements.

Who should receive Immune Globulin after a measles exposure?

The MMR vaccine, if administered within 72 hours of initial measles exposure, or immunoglobulin (IG), if administered within six days of exposure, may provide some protection or modify the clinical course of disease among susceptible persons. Only one of these products is needed for post-exposure prophylaxis in a susceptible person.

Individuals who are at risk for severe disease and complications from measles should receive IG: this includes infants <12 months of age, pregnant women without evidence of measles immunity, and severely immunocompromised persons regardless of vaccination status because they might not be protected by the vaccine, or the vaccine is contraindicated.

IG administered intramuscularly (IGIM) is recommended for infants <12 months of age, and IG administered intravenously (IGIV) is recommended for severely immunocompromised persons and pregnant women who are exposed to measles. For infants 6–11 months of age, the American Academy of Pediatrics (AAP) recommends that MMR vaccine is preferred over IG, if administered within 72 hours of exposure. If more than 72 hours after exposure, IGIM should be given within 6 days of exposure to infants 6–11 months of age, if possible. Although MMR vaccination is preferred, IGIM can also be given to children 12 months and older who do not have evidence of measles immunity and weigh less than 30kg; priority should be given to persons exposed in settings with intense, prolonged, close contact (e.g., household, daycare, classroom, medical waiting room).

If someone is given Immune Globulin after an exposure to measles, but has not received MMR vaccine before, do they still need to be vaccinated?

For unvaccinated individuals who receive Immune Globulin (IG) after a measles exposure, the measles vaccine series should be given at a later date, as long as there are no contraindications to MMR. The MMR vaccine should be delayed by 6 months after administration of intramuscular IG (IGIM) and delayed 8 months after administration of intravenous IG (IGIV).

If measles is eliminated, why are we still having outbreaks in the United States?

Every year, unvaccinated travelers get measles while they are in other countries and bring it into the United States. Typically, 2 out of 3 of these unvaccinated travelers are US residents. Measles cases that occur among people who are exposed to measles outside the US are called imported cases. Imported cases can result in spread of measles to other people in the US who are not protected against measles, which sometimes leads to outbreaks. This can occur in communities with unvaccinated people.

Most people in the United States are protected against measles through vaccination. Measles cases in the US are uncommon now compared to the number of cases that occurred before a vaccine was available. Since 2000, when public health officials declared measles eliminated from the US, the median number of cases reported annually has been fewer than 100; the annual number of people reported to have measles ranged from a low of 37 people in 2004 to a high of 1,282 in 2019.

What are the recommendations for pregnant people in the setting of measles transmissions or outbreaks?

ACOG (the American College of Obstetrics and Gynecologists) has summarized their recommendations for pregnant persons here: [Management of Obstetric–Gynecologic Patients During a Measles Outbreak | ACOG](#)

Measles vaccines

How safe is measles vaccination?

The MMR vaccine is very safe, and it is effective at preventing measles, mumps, and rubella. Most people who get MMR vaccine do not have any serious problems, and getting an MMR vaccine is much safer than getting measles, mumps, or rubella.

Common side effects from an MMR vaccine include a sore arm, mild fever or rash, and temporary pain and stiffness in the joints, mostly in teenage or adult women who did not already have immunity to the rubella component of the vaccine.

MMR vaccine has been linked with a very small risk of febrile seizures. Febrile seizures following MMR vaccination are rare and are not associated with any long-term effects.

Some people may experience swelling in the cheeks or neck. MMR vaccine rarely causes a temporary low platelet count, which can cause a bleeding disorder that usually goes away without treatment and is not life threatening.

Extremely rarely, a person may have a serious allergic reaction to MMR vaccine. Anyone who has ever had a life-threatening allergic reaction to the antibiotic neomycin, or any other component of MMR vaccine, should not get the vaccine.

How effective is the measles vaccine?

The measles vaccine is very effective. Two doses of measles vaccine are about 97% effective at preventing measles if exposed to the virus. One dose is about 93% effective.

How do we protect people who will be traveling in the near future, including people who cannot receive the MMR vaccine?

Children 6–11 months of age who travel internationally should receive one dose of MMR vaccine, optimally at least two weeks prior to travel. Children vaccinated before age 12 months should receive two additional doses of MMR or MMRV vaccine on or after their first birthday according to the routine recommended schedule.

Children ≥ 12 months of age and adults who plan to travel outside the United States should receive a total two doses of MMR vaccine, separated by at least 28 days.

Immune Globulin can be administered for short-term protection for people with severe immunocompromising conditions who are facing a high risk of measles exposure and for whom MMR vaccine is contraindicated.

Can children who are over 12 months of age and planning international travel receive the second MMR dose prior to the recommended age (4–6 years)?

Children 12 months of age and adults who plan to travel outside the United States should receive a total of two doses of MMR vaccine prior to travel, separated by at least 28 days. For example, for a child who received a routine dose at 12–15 months of age, but is not yet 4–6 years old, this would mean one additional dose of MMR vaccine should be given prior to travel. Giving the 2nd dose before 4–6 years of age does not have any negative impact on measles immunity.

Do individuals with two documented MMR doses but low/negative titers need additional doses of MMR vaccine?

Titers are not required to evaluate immunity for people with two documented MMR doses, as long as those two doses are given after 12 months of age and separated by at least 28 days. An additional MMR dose is not required if titers are low or equivocal for people with two documented MMR doses. If the individual is a healthcare worker, the healthcare system of employment may have further guidance or requirements.

How can providers encourage MMR vaccine among parents who may be hesitant or have questions about vaccination?

A strong recommendation from a trusted source, like their child's healthcare provider, is the best way to encourage confidence in routine childhood vaccines.

CDC has resources that can help providers with questions parents may have:

<https://www.cdc.gov/vaccines/hcp/conversations/preparing-for-parent-vaccine-questions.html>

<https://www.cdc.gov/vaccines/partners/routine-immunizations-lets-rise.html>

Does CDC recommend MMR boosters for older adults?

CDC considers people who received two doses of measles vaccine as children according to the US vaccination schedule protected for life, and they do not ever need a booster dose. There are no recommendations for a 3rd dose of MMR vaccine to improve protection against measles. Generally, adults without high risk for measles exposure who have received 1 documented dose of MMR are considered up to date on MMR vaccination. Certain adults, such as those planning to travel internationally, those who work in healthcare settings, or adults who attend college or other educational settings beyond high school, are recommended to have 2 total doses of MMR.

CDC also considers adults born before 1957 to have presumptive evidence of immunity to measles. Prior to the introduction of measles vaccines, nearly every child born globally was infected with measles, and immunity to measles is considered to be lifelong after infection with measles. Older adults may receive MMR vaccine if there is high risk for a measles exposure as long as there are no contraindications.

Does CDC recommend MMR boosters for people who are unable to determine their vaccination status?

If an individual is unsure about their vaccination status, they should first try to find vaccination records or documentation of measles immunity. If they are unable to locate written documentation of measles immunity or are unsure if they received an MMR vaccine previously, they should talk to their doctor about receiving an MMR vaccine now or getting a measles IgG titer drawn to determine if they need an MMR vaccine. There is no harm in getting another dose of MMR vaccine if an individual may already be immune to measles (or mumps or rubella). There may be additional considerations for healthcare providers, those with upcoming international travel, or in an outbreak setting.

Who is considered protected/immune to measles?

CDC considers you protected from measles if you have written documentation (records) showing at least **one** of the following:

- You received **two** doses of measles-containing vaccine, and you are a(n) —
 - school-aged child (grades K-12)
 - adult who will be in a setting that poses a high risk for measles transmission, including students at post-high school education institutions, healthcare personnel, and international travelers.
- You received **one** dose of measles-containing vaccine, and you are a(n) —
 - preschool-aged child
 - adult who will not be in a high-risk setting for measles transmission.
- A laboratory confirmed that you had measles at some point in your life.
- A laboratory confirmed that you are immune to measles.
- You were born before 1957.

For international travelers, CDC considers you protected from measles if you have written documentation (records) showing at least one of the following:

- You received one dose of measles-containing vaccine, and you are an infant aged 6–11 months
- You received two doses of measles-containing vaccine, and you are a person 12 months or older
- A laboratory confirmed that you had measles at some point in your life
- A laboratory confirmed that you are immune to measles
- You were born before 1957

If an adult only has one dose of MMR vaccine, do they need a second dose?

The measles vaccine is very effective. Two doses of measles vaccine are about 97% effective at preventing measles if exposed to the virus. One dose is about 93% effective.

If an adult was born after 1957, one dose of measles vaccine is sufficient to be considered protected from measles. Certain adults may need 2 doses. Adults who are going to be in a setting that poses a high risk for measles exposure and transmission should make sure they have had two doses separated by at least 28 days. These adults include: students at post-high school education institutions; healthcare personnel; international travelers; people who public health authorities determine are at increased risk for getting measles during a measles outbreak

Do I need to wear a mask if I'm in an area with a measles outbreak?

No, masking is not required in areas with a measles outbreak. However, if you visit a healthcare facility with measles symptoms, you should wear a mask. The best protection from measles is vaccination.

Why must the MMR and varicella vaccines be given either at the same time or 28 days apart?

Both MMR and varicella vaccine are live vaccines and the recommended interval for administration of live vaccines is either simultaneous administration or administration at least 28 days apart. The immune response to one live-virus vaccine might be impaired if administered within 28 days of another live-virus vaccine. If two live vaccines are administered fewer than 28 days apart, the second vaccine administered should not be counted and the dose should be repeated at least 4 weeks later.

Additional information about measles can be found at the following links:

- Overall measles references and resources: <https://www.cdc.gov/measles>
- Manual for the Surveillance of Vaccine-Preventable Diseases, Measles chapter: <https://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.html>
- Measles Outbreak Toolkits: <https://www.cdc.gov/measles/toolkit/state-health-departments.html>
- Measles vaccination: <https://www.cdc.gov/measles/vaccination.html>
- Cases and outbreaks: <https://www.cdc.gov/measles/cases-outbreaks.html>
- Assessing measles outbreak risk in the US: <https://www.cdc.gov/ncird/whats-new/measles-outbreak-risk-in-us.html>
- Global measles: <https://www.cdc.gov/globalhealth/measles/index.html>
- Global measles travel alerts: <https://wwwnc.cdc.gov/travel/notices/level1/measles-globe>
- Measles and travel vaccine assessment: <https://www.cdc.gov/measles/travel-vaccine-assessment/index.html>
- Measles and plans for travel: <https://www.cdc.gov/measles/plan-for-travel.html>
- Measles FAQs: <https://www.cdc.gov/measles/about/faqs.html>
- Measles Health Alert Network (HAN): <https://emergency.cdc.gov/han/2024/han00504.asp>
- Measles COCA Now: <https://emergency.cdc.gov/newsletters/coca/2024/012524.html>