MEASLES FAQ

Public Health
Prevent. Promote. Protect.
Linn County, Iowa

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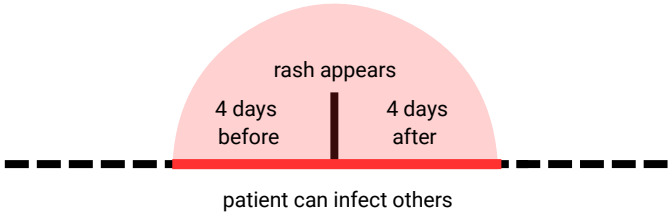
GENERAL INFORMATION

1. What is measles?

- Measles is a highly contagious virus spread through the air.
- It can live in the air for up to two hours after an infected person leaves a space.
- **90% of people without immunity who are exposed to measles will get the disease.**
- It causes fever, cough, runny nose, red eyes, and a spreading rash. Serious complications like pneumonia and encephalitis can occur.

2. How does measles spread?

Measles is spread through the air by droplets from the nose, throat, and mouth of an infected person. A person may breathe in the droplets or touch a surface contaminated with the droplets. An infected person is able to spread measles from 4 days before the rash starts through 4 days after the rash appears.



3. Is measles dangerous?

Yes, measles can be dangerous, especially for babies, pregnant people, and immunocompromised individuals.

How common are complications?

- **Hospitalization**: happens to about 1 in 5 unvaccinated people who get measles
- **Pneumonia**: as many as 1 out of every 20 children with measles gets pneumonia. **Pneumonia is the most common cause of death from measles in young children.**
- **Encephalitis**: 1 child out of every 1,000 will develop encephalitis (swelling of the brain). This can lead to convulsions or permanent brain damage. It can also leave the child deaf or with an intellectual disability.
- **Death:** 1–3 of every 1,000 children who become infected with measles will die from respiratory and neurologic complications.
- **Complications during pregnancy:** If you are pregnant and have not had the MMR vaccine, measles may cause you to give birth prematurely, or result in a low-birth-weight baby.

List continues on page 2.

- **Subacute sclerosing panencephalitis (SSPE)**
  - SSPE is a very rare but fatal disease of the central nervous system. It results from a measles virus infection acquired earlier in life.
  - SSPE generally develops 7 to 10 years after a person has measles, even though the person seems to have fully recovered from the illness.
  - Since measles was eliminated in 2000, SSPE is rarely reported in the United States.
  - Among people who contracted measles during the resurgence in the United States from 1989–1991, 7 to 11 out of every 100,000 were estimated to be at risk for developing SSPE.
  - The risk of developing SSPE may be higher for a person who gets measles before they are 2 years of age.

4. What is the treatment for measles?

There is no specific treatment for measles. Complications/symptoms should be managed by a healthcare provider.

5. Is measles the same as German measles?

No. German measles (rubella) and measles (rubeola) are both viral infections; however, they are different.

Feature	Measles (Rubeola)	German Measles (Rubella)
Contagiousness	Very contagious (up to 90% of unimmune close contacts); 4 days before and after rash appears	Contagious but less so than measles; 7 days before and after rash appears
Tranmission	Airborne droplets; virus lingers up to 2 hours	Airborne droplets; similar but less persistent
Incubation Period	7–14 days (range: 7–21 days)	14–21 days
Initial Symptoms	High fever (>104°F), cough, runny nose, red eyes	Low-grade fever, swollen lymph nodes, headache, mild conjunctivitis
Unique Symptoms	Koplik spots (white spots inside the mouth)	Posterior auricular lymphadenopathy (swollen nodes behind ears)

Chart continues on page 3.

Feature	Measles (Rubeola)	German Measles (Rubella)
Rash characteristics	Starts at hairline, spreads downward. **Bright red rash**	Starts on face, spreads to body; **rash is usually mild and pink**
Duration of Rash	5–6 days, fades in the same order as it appeared	3 days (often called the “three-day measles”)
Complications	Pneumonia, encephalitis, SSPE, death	Joint pain (adults), birth defects in pregnancy
Risk in Pregnancy	May cause severe illness but not congenital defects	Can cause congenital rubella syndrome (CRS)
Eradication in U.S	Declared eliminated in 2000; still has outbreaks	Declared eliminated in 2004; rare in the U.S.

SIGNS, SYMPTOMS & CHARACTERISTICS

6. What are the symptoms of measles?

- High fever (can spike over 104°F)
- Cough
- Runny nose
- Red, watery eyes
- A rash that spreads from the head downward. Rash appears 3–5 days after the first symptoms start
- Tiny white spots inside the mouth (Koplik spots)

7. What is the incubation period (how long does it take to develop symptoms after exposure)?

7-21 days. Most show symptoms 7–14 days post-exposure.

8. Timeline of symptom onset

- The first measles symptoms usually appear 7 to 14 days after contact with the virus.
- 2–3 days after the first symptoms begin: Tiny white spots (Koplik spots) may appear inside the mouth.
- 3–5 days after symptoms begin:
  - Measles rash usually appears. It usually begins as flat red spots that appear on the face at the hairline. The spots then spread downward to the neck, torso, arms, legs, and feet.
  - Small, raised bumps may also appear on top of the flat red spots.
  - The spots may become joined together as they spread from the head to the rest of the body.
  - When the rash appears, a person's fever may spike to more than 104° Fahrenheit.

VACCINATION & IMMUNITY

9. Who is considered immune?

Immunity can come from three things:

1. A documented dose of live MMR vaccine
2. Lab-confirmed measles immunity/previous infection from the disease
3. Being born in 1957 or earlier (U.S.-born only)

Immunity must be documented. Someone who claims they have been vaccinated but does not have documentation is not considered immune.

Immunity to rubella (German measles) does not count. Lab-confirmed immunity must be for rubeola (measles.) Rubella immunity does not protect against measles.

10. What if I am vaccinated, but I don't have documentation?

OR

What if I don't know my vaccination status?

- Try to find records – Reach out to your medical provider/primary care physician.
- If you received your vaccines in Iowa, you can call your local health department to obtain a copy of your vaccination records.
- Individuals can also request a copy of their immunization certificate from Iowa HHS by emailing the IRIS Program at irisenrollment@idph.iowa.gov. A copy of your drivers license is needed with the request form, located at record_request.pdf.
- You may also request a blood test for immunity.
- Ultimately, if you are unsure, it is safe to receive another dose.

11. Who needs the MMR vaccine?

- All adults born in 1957 or after.
- All adolescents and children older than 12 months.
- Healthcare personnel and international travelers are considered higher risk and should be fully vaccinated with 2 doses.
  - Travelers should plan to be fully vaccinated against measles at least 2 weeks before departure. If their trip is less than 2 weeks away and they're not protected, they should still get a dose of MMR.
  - Infants 6–11 months traveling internationally should receive 1 early dose and complete the vaccine series after age 1. That means getting 2 doses *after* they are 12 months old.
  - The CDC does not recommend the measles vaccine for infants younger than 6 months of age.

Women should NOT receive the MMR vaccine during pregnancy.

Year Vaccinated	Recommendation
Before 1957	No vaccine needed. Measles was so widespread during this time that natural immunity is assumed.
1963 --1967	If you received a measles vaccine in the 1960s, you may or may not need to be revaccinated. • People who have documentation of receiving LIVE measles vaccine in the 1960s do not need to be revaccinated. • **People vaccinated prior to 1968 with either inactivated (killed) measles vaccine or measles vaccine of unknown type should be revaccinated.** They should get at least 1 dose of live attenuated measles vaccine. This recommendation is intended to protect those who may have received killed measles vaccine. This vaccine was available in 1963–1967 and was not effective.
Before 1989	MMR was recommended as a single dose during this time (which is still 93% effective). You do not need a second dose unless you are considered higher risk (you work in health care, you're a college student, or you are traveling internationally.)
After 1989	You are protected with two doses of MMR or MMRV.

MMR Dose Decision Tree

START HERE
Has the patient ever had a dose of the MMR or MMRV vaccine?

If NO, find out when they were born...

Is the patient younger than 12 months?

no — They should get vaccinated (unless born before 1957).

yes — No action needed for now.

The patient should get vaccinated when they turn 12 months old. They can then get the second dose as soon as 28 days later.

Special Circumstance:

In the case of international travel, an infant can receive the MMR vaccine as early as 6 months.

However, if an infant receives a dose before they are 12 months old, they will need two doses AFTER they turn 12 months.

Was the patient born in 1957 or earlier?

no — They should get vaccinated.

yes — No action needed! Measles was widespread during this time. The patient is likely immune and does not need to be vaccinated.

yes

When were they vaccinated?

before 1968

If a patient received a measles vaccine in the 1960s, they may or may not need to be revaccinated.

- People who have documentation of receiving LIVE measles vaccine in the 1960s do not need to be revaccinated.
- **People vaccinated prior to 1968 with either inactivated (killed) measles vaccine or measles vaccine of unknown type should be revaccinated.** They should get at least 1 dose of live attenuated measles vaccine. This recommendation is intended to protect those who may have received killed measles vaccine. This vaccine was available in 1963–1967 and was not effective.

In general:

While one dose of live measles vaccine offers 93% protection, an individual can get a second dose to be considered fully vaccinated.

after 1968

Before 1989, the MMR vaccine was recommended as a one-dose vaccine. One dose is 93% effective at preventing measles. However, there are some high-risk groups who will need a second dose if they only received one. Those high-risk populations include health care professionals, college students, and people traveling internationally.

For those vaccinated after 1989, they should have received two doses of MMR or MMRV. They are protected and do not need to take action.

12. What vaccines are available?

- MMR: For ages 12 months and older. Protects against measles, mumps, and rubella. There are two types of MMR vaccines on the market, both equally recommended.
- MMRV: For children 12 months through 12 years (also protects against varicella/chickenpox)

13. When should children be vaccinated?

- First dose: Due to the recent resurgence of measles, health officials are currently recommending children get the first dose of the MMR vaccine as soon as they are 12 months old.
- Second dose: Providers can then offer to administer the second dose as soon as 28 days after the first dose.

A third dose of MMR vaccine is not necessary if the first dose of MMR was given at 12 months or after and the interval between the first and second doses meet the minimum spacing requirements.

	First Dose	Second Dose	Third Dose
MMR	12 months old	As soon as 28 days after first dose	not needed if the first dose was given at 12 months of age or after AND there was the correct minimal interval between doses
MMRV	12 months old	3 months after first dose	_____

Special Circumstance:

In the case of international travel, an infant can receive the MMR vaccine as early as 6 months.

However, if an infant receives a dose before they are 12 months old, they will need two doses AFTER they turn 12 months.

The CDC does not recommend the measles vaccine for infants younger than 6 months of age.

14. What is the effectiveness of the MMR vaccine?

- Dose 1: One dose provides 93% protection
- Dose 2: Two doses increases the protection to 97%
- Approximately 5% of measles cases occur among fully vaccinated individuals nationwide.

15. Do the benefits of the vaccine really outweigh the risks?

Yes, the benefits of the MMR vaccine *greatly* outweigh the risks.

Here is data taken from a Nov. 2024 publication of *Your Local Epidemiologist*, a public health newsletter.

Complications from 10,000 children getting measles	**Complications from 10,000 children getting the MMR vaccine**
2,000 hospitalizations • 10 cases of brain swelling • 10–30 child deaths	3 fever-related seizures
1,000 ear infections with potential permanent hearing loss	0-1 cases of abnormal blood clotting
500 cases of pneumonia	0.035 allergic reactions

Most people will have no problem with the vaccine. However, **90% of people will get sick if they are exposed to the disease and don't have immunity.**

It is much safer to use the MMR vaccine that causes very few problems, than to risk the disease itself, which can cause a lot of problems.

16. Do I need to get a booster?

No, once two doses are completed you are considered fully vaccinated. If you are not sure whether you are fully vaccinated, talk with your healthcare provider.

Exceptions:

- A minority of people vaccinated in the 1960s who received only one dose of the inactivated vaccine should get a second dose. See Who needs the MMR vaccine? on pg. 5 or MMR Dose Decision Tree on pg. 6.
- Infants who got a dose before they were 12 months old will need two doses *after* they reach 12 months. Infants 6–11 months old might have gotten an early dose if they were travelling internationally.

17. Is it too late to get vaccinated?

No. It is never too late to get vaccinated. Protection helps reduce the risk of severe illness and outbreaks.

18. Can people get vaccinated after exposure?

Yes. People who are at risk of developing measles after exposure may benefit from what is called post-exposure prophylaxis (PEP). There are two types of PEP that can be administered after an exposure to measles:

1. MMR vaccine
2. Immune globulin (IG)

There is limited data regarding the effectiveness of MMR vaccine and immunoglobulin (IG) as post-exposure prophylaxis (PEP) against disease prevention. Thus, individuals who receive MMR vaccine or IG as PEP will be monitored for signs and symptoms consistent with measles by public health on a weekly basis.

- Since IG may prolong the incubation period, individuals who receive IG will be monitored weekly for 28 days from exposure.

MMR

- Except in healthcare settings, **unvaccinated persons who receive their first dose of MMR vaccine within 72 hours post exposure may return to child care, school, or work.**

IG

- Immunoglobulin (IG) within 6 days can reduce severity. The recommended dose for intramuscular immunoglobulin (IMIG) is 0.5mL/kg, regardless of a person's immunity status.
    - **Individuals who are at risk for severe disease and complications from measles** (e.g., 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) **should receive IG.**
        - After receiving IG, individuals cannot return to work in healthcare settings.
        - In other settings—such as childcare, school, or work—factors such as immune status, intensity or duration of contact, and presence of populations at risk, should be taken into consideration before allowing these individuals to return. These factors may decrease the effectiveness of IG or increase the risk of disease and complications depending on the setting to which they are returning.

19. Can the MMR vaccine and IG be given together?

No, this would invalidate the vaccine. IG can interfere with the effectiveness of the MMR vaccine. If IG is needed, it should be given either before the MMR vaccine or delayed until antibodies from the IG have waned.

ISOLATION AND QUARANTINE

20. What do I do if I think I have measles?

If you have been exposed to measles or are experiencing symptoms:

- Isolate yourself.
  - Individuals with confirmed measles cases should stay away from other people, especially those who may not be vaccinated. This is to prevent the spread of the virus, which can remain infectious in the air for up to 2 hours after an infected person leaves an area.
  - Isolation is required from 4 days before the rash appears to 4 days after the rash onset.

- **Call BEFORE going to a provider, urgent care, or the emergency room**. The healthcare facility may have you use a separate entrance or the provider may see you in the parking lot. Measles is highly contagious, so these measures are needed to help prevent others from being exposed, including to those who are not vaccinated (like babies).

- Quarantine is needed for your contacts who cannot provide proof of immunity with written documentation or a blood test.
  - If a person was 1) exposed to measles, 2) born after 1957 and 3) does not have evidence of immunity, this person will be quarantined from the 5 days after their earliest exposure through 21 days after their last exposure. They may return to normal activities on the 22nd day.

21. What is the difference between quarantine and isolation?

- Isolation separates someone who is ill with a contagious disease from others who are not sick. People in isolation should not leave their location of isolation for the full duration of the isolation.
- Quarantine separates or restricts the movement of individuals who were exposed to a contagious disease.

22. How long would I be in quarantine if listed as a contact for a measles case?
People with exposure to a confirmed case of measles may be placed in quarantine.

- **Individuals who are not vaccinated or have no evidence of measles immunity** and are exposed to measles should be quarantined for 21 days after the last exposure. This time period may be extended due to health concerns or medications that extend the incubation period of the infection. Local public health will be calling or checking in with you each day while you are in quarantine to see if any symptoms have developed and to provide education and resources.

- **Contacts who 1) do not show symptoms and 2) who have evidence of immunity will not need to quarantine.** They will receive weekly monitoring for symptoms through the 21st day following their last exposure to the infected individual.

- PEP: If post-exposure prophylaxis (PEP) is administered (MMR or IG) within the appropriate timeframe, quarantine may not be needed or may be reduced. Except for healthcare settings, unvaccinated persons who receive their first dose of MMR vaccine within 72 hours post exposure may return to childcare, school, or work. (See **Can people get vaccinated after exposure?** on pg. 9 for more details on PEP.)

23. What if I am a household contact, but I am vaccinated and feel fine. Can I leave the house?
Public health will provide guidance to all members of the household where a case of measles is residing. Guidance will depend on verification of immunity and health status. Please work with your local public health for more information.

24. Twenty-one days is a long time. What if I lose my job?
According to state law, employers are not allowed to dismiss employees who are placed under a Public Health Order.

139A.13A Employment protection.
1. An employer shall not discharge an employee, or take or fail to take action regarding an employee's promotion or proposed promotion, or take action to reduce an employee's wages or benefits for actual time worked, due to the compliance of an employee with a quarantine or isolation order or voluntary confinement request issued by the department, a local board, or the centers for disease control and prevention of the United States department of health and human services.
2. An employee whose employer violates this section may petition the court for imposition of a cease and desist order against the person's employer and for reinstatement to the person's previous position of employment. This section does not create a private cause of action for relief of money damages.
2006 Acts, ch 1184, §85; 2007 Acts, ch 159, §25

During isolation or quarantine, if you are in need of assistance with food, shelter, or communication, please contact the Linn County Public Health Community Health Care Coordinator at 319-892-6095 or 319-892-6076.

TRAVEL

25. How should I protect myself from measles while traveling?

When traveling, the best way to protect yourself and your loved ones is by getting the measles, mumps, and rubella (MMR) vaccine.

You should plan to be fully vaccinated against measles at least 2 weeks before you depart. If your trip is less than 2 weeks away and you're not protected, you should still get a dose of MMR.

The MMR vaccine protects against all 3 diseases.

- Two doses of MMR vaccine provide 97% protection against measles.
- One dose provides 93% protection.
- Call your doctor or your local health department, or locate a health center or clinic near you to schedule an appointment for the MMR vaccine.

Vaccine Recommendations by Age

Age Group	Recommendation
Infants less than 12 months of age	• Infants 6-11 months old can get an early dose • When an infant turns 12 months, they should follow the recommended schedule: ▪ Another dose at 12 months ▪ A final dose 28 days or greater from the last dose. The CDC does not recommend the measles vaccine for infants younger than 6 months of age.
Infants 12 months or older	Children 12 months of age or older should: ▪ Get the first dose immediately ▪ Get the second dose 28 days after first dose
Teens and adults without evidence of immunity	Teens and adults without evidence of immunity should: ▪ Get the first dose immediately. ▪ Get a second dose 28 days after first dose.

Chart continues on page 13.

Teens and adults without evidence of immunity CONTINUED	Acceptable evidence of immunity against measles includes at least one of the following: ▪ Written documentation of adequate vaccination ▪ Laboratory evidence of immunity ▪ Laboratory confirmation of measles ▪ Birth in the United States before 1957

For more information, see the **Who needs the MMR vaccine section?** on page 5.

Where can I get more information?

1. Iowa Department of Health and Human Services Disease Information
2. Iowa Department of Health and Human Services Control the Spread
3. State Hygienic Laboratory (SHL)
4. Centers for Disease Control and Prevention Measles
5. UnityPoint Health How Deadly is Measles?
6. Mercy Cedar Rapids What You Need to Know About Measles
7. University of Iowa Measles

If you have questions or concerns, please contact:
Linn County Public Health
normal business hours: 319-892-6095
after hours: 319-892-6050

Iowa Department of Health and Human Services
normal business hours: 515-242-5935
after hours: 515-323-4360. The call is answered by the Iowa State Patrol Communications Division in Des Moines. Ask for the epidemiologist on call to contact you.