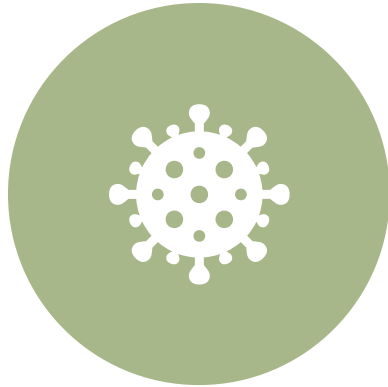


# Measles Overview

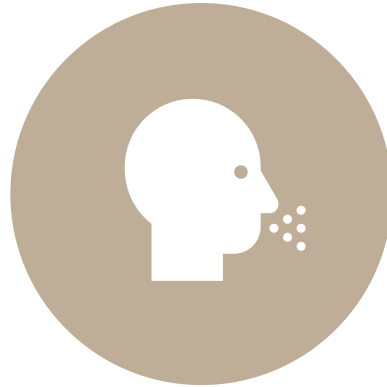
---

# Measles

---



**CAUSES**



**SYMPTOMS**



**TREATMENT**

# Measles (paramyxovirus)

---

Acute viral infectious disease.

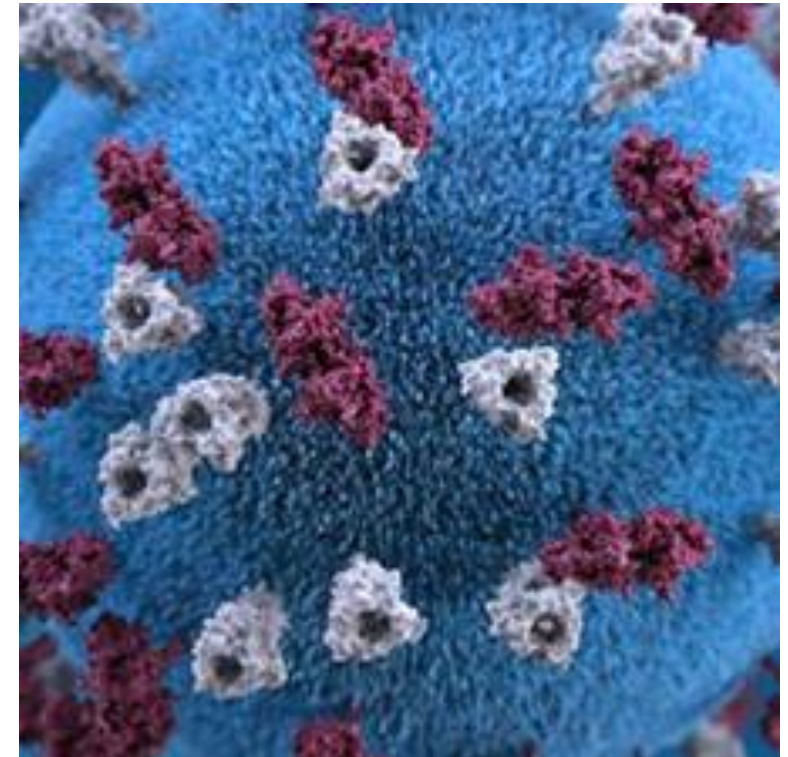
First described in 7th century.

Persian physician Rhazes in the 10th century as  
“more to be dreaded than smallpox.”

Vaccines first licensed include measles in 1963, MMR  
in 1971, and MMRV in 2005.

Infection nearly universal during childhood in pre-  
vaccine era.

Still common and often fatal in developing countries.



# Causes

---

Measles is a highly contagious virus that lives in the nose and throat mucus of an infected person. It can spread to others through *coughing and sneezing*.

If other people breathe the contaminated air or touch the infected surface, then touch their eyes, noses, or mouths, they can become infected.

Animals do not get or spread measles.



# Highly Contagious

*Measles is so contagious that if one person has it, up to 90% of the people close to that person who are not immune will also become infected.*

Infected people can spread measles to others from four days before through four days after the rash appears.

Measles virus can live for up to two hours in an airspace after an infected person leaves an area.



## People and groups at risk:

- Children younger than 5 years of age
- Adults older than 20 years of age
- Pregnant women
- People with compromised immune systems, such as from leukemia or HIV infection.

## Common complications:

- **Ear infections** occur in about one out of every 10 children with measles.
- **Diarrhea** is reported in less than one out of 10 people with measles.
- **Long-term complications:** Subacute sclerosing panencephalitis (SSPE) 7 to 10 years after a person has measles.

## Severe complications in children and adults

Some people may suffer from severe complications, such as pneumonia (infection of the lungs) and encephalitis (swelling of the brain). They may need to be hospitalized and could die.



**Hospitalization.** About 1 in 5 unvaccinated people in the U.S. who get measles is hospitalized.



**Pneumonia.** As many as 1 out of every 20 children with measles gets pneumonia, the most common cause of **death from measles in young children.**



**Encephalitis.** About 1 child out of every 1,000 who get measles will develop encephalitis (swelling of the brain) that can lead to convulsions and can **leave the child deaf or with intellectual disability.**

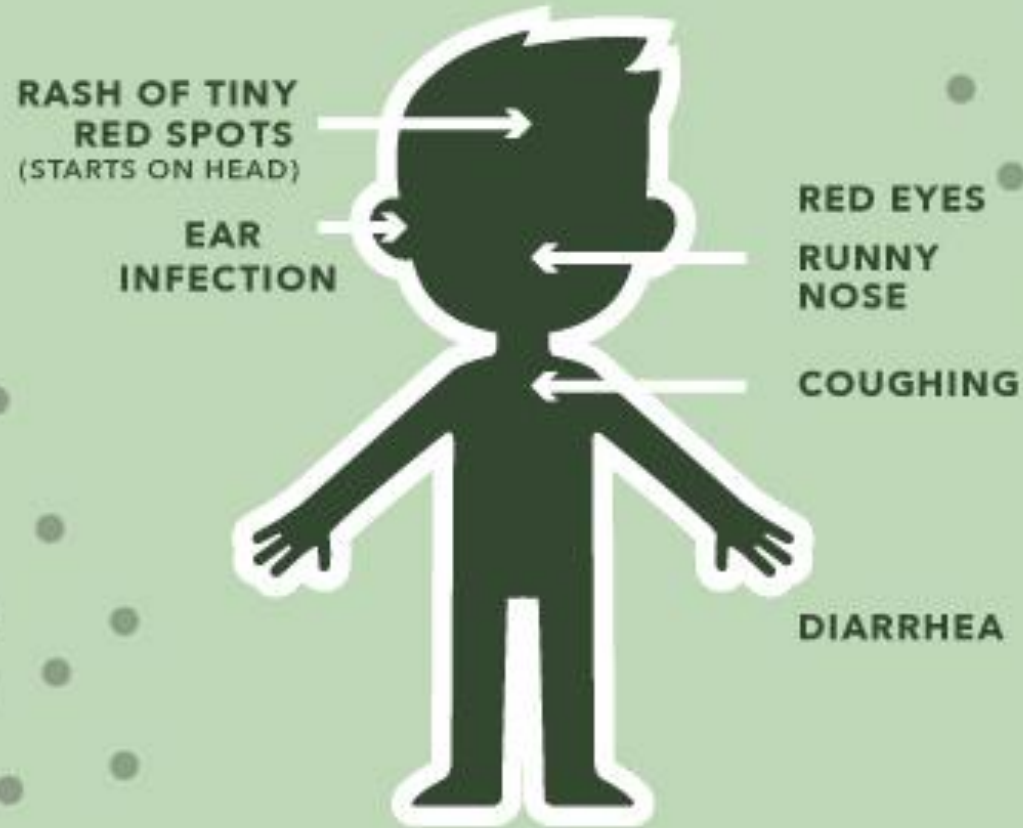


**Death.** Nearly 1 to 3 of every 1,000 children who become infected with measles will **die from respiratory and neurologic complications.**



**Complications during pregnancy.** Measles may cause [pregnant women who have not had the MMR vaccine](#) to **give birth prematurely, or have a low-birth-weight baby.**

## SYMPTOMS OF MEASLES



## Symptoms

---

Measles symptoms appear 7 to 14 days after contact with the virus and typically include high fever, cough, runny nose, and watery eyes.

Measles rash appears 3 to 5 days after the first symptoms.

7 -14 days  
after exposure

2 -3 days after  
symptoms

3 -5 days after  
symptoms

### 1st symptoms

- High fever (may spike to more than 104°)
- Cough
- Runny nose (coryza)
- Red, watery eyes

### Koplik Spots

- Tiny white spots (Koplik spots) may appear inside the mouth two to three days after symptoms begin.

### Rash

Usually begins as flat red spots that appear on the face at the hairline and spread downward to the neck, trunk, 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.



# School Exclusion

---

## **Contagious Period:**

4 days before to 4 days after rash onset

## **Contacts:**

Exclude contacts lacking documentation of immunity until 21 days after last onset

## **Exclusions:**

Exclude until 4 days after rash onset



**Koplik's Spots**

# Treatment

---

Treatment includes providing ***comfort measures*** to relieve symptoms such as rest and treating or preventing complications. (i.e., fever reducers, antibiotics for secondary infections such as pneumonia or ear infection, Vitamin A, etc.)

- **Post-exposure vaccination.** People without immunity to measles, including infants, may be given the measles vaccine within 72 hours of exposure to the measles virus to provide protection against it. If measles still develops, it usually has milder symptoms and lasts for a shorter time.
- **Immune serum globulin.** Pregnant women, infants and people with weakened immune systems who are exposed to the virus may receive an injection of proteins (antibodies) called immune serum globulin. When given within six days of exposure to the virus, these antibodies can prevent measles or make symptoms less severe.



Children should be vaccinated on schedule with MMR vaccine.

CDC recommends getting vaccinated with two doses of measles-mumps-rubella (MMR) vaccine according to the routine immunization schedule.

If you're traveling internationally, everyone in your family should be fully vaccinated against measles before departure.

### Schedule for MMR vaccine if you're not traveling

	First Dose	Second Dose
Children*	Age 12-15 months	Age 4-6 years
Teenagers and adults with no evidence of immunity**	As soon as possible	N/A

\* CDC recommends this schedule for children 12 months and older. **Infants 6-11 months and children 12 months and older traveling outside the U.S. should [follow another schedule](#).**

\*\* 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, or birth in the United States before 1957.



*For more guidance:*

**WHO Measles Outbreaks - Strategic Response Plan**

<https://bit.ly/3ZaptK8>

**WHO Measles Outbreak Guide:**

<https://bit.ly/3RauTD0>

Measles outbreak prevention, preparedness, response and recovery

## **MEASLES OUTBREAKS STRATEGIC RESPONSE PLAN**

2021–2023



 World Health  
Organization

## **MEASLES OUTBREAK GUIDE**

