What Is Measles?

Measles (rubeola) is an infection caused by a highly contagious virus primarily spread by respiratory droplets.

How Common Is Measles and How Contagious Is It?
Measles is currently rare in the US because highly effective vaccines are given as part of routine childhood immunizations. Over the past 2 decades, sporadic outbreaks of measles have occurred in the US, ranging from 37 cases in 2004 to 1282 in 2019. Measles outbreaks in the US often originate from an individual who becomes infected while in another country and then spreads the virus to unvaccinated individuals in the US.

Measles is one of the most contagious infections to affect humans. The virus is spread through airborne droplets or by direct inoculation through the nose, mouth, or eyes after touching an infected surface. People with measles can spread the virus starting about 4 days before the onset of rash through 4 days after their rash appears.

What Are the Common Signs and Symptoms of Measles?
Common symptoms of measles are fever, cough, runny nose, red and watery eyes (conjunctivitis), and rash. Small white spots typically appear on the inside of the cheek 2 to 3 days before the rash starts. The measles rash consists of flat red spots that spread from the head to the lower extremities.

What Are Potential Complications and Who Is at Risk?
Measles can cause pneumonia, ear and upper airway infection, pain and sores in the mouth, and diarrhea. Rare but serious neurologic complications include swelling of the brain and spinal cord or progressive neurologic disorders that develop weeks to years after measles infection. Approximately 1 to 3 per 1000 people infected with measles die from respiratory or neurologic complications.

People at highest risk of developing complications from measles include unvaccinated individuals younger than 5 years or older than 20 years and those who are immunocompromised or pregnant. Measles acquired during pregnancy can result in preterm labor and low infant birth weight.

How Is Measles Diagnosed?
Measles is most commonly diagnosed by identifying the virus in throat or nasopharyngeal swabs, saliva, or urine using a laboratory test that identifies genetic material in a sample (RT-PCR).

How Can Measles Be Prevented?
Vaccination is safe and highly protective against measles. The CDC recommends that all children receive 2 doses of the measles-mumps-rubella (MMR) vaccine: the first dose at 12 to 15 months and the second at 4 to 6 years. The measles, mumps, rubella, and varicella (MMRV) vaccine also protects against measles and can be given to children aged 12 months to 12 years. College and university students without prior measles vaccination or infection should receive 2 doses of MMR vaccine, spaced at least 28 days apart. Adults born in 1957 or later without evidence of immunity against measles should be given at least 1 dose of MMR vaccine.

How Are Patients and People Exposed to Measles Treated?
There are no proven effective antiviral treatments for measles. Infected individuals should be isolated and monitored closely for complications. The CDC recommends vitamin A supplementation for children hospitalized with measles. People without previous measles vaccination or infection should receive the MMR vaccine within 72 hours or immunoglobulin (derived from donated blood that contains antibodies to measles) within 6 days of exposure to a patient with measles.