

Key Facts about Measles



Images courtesy of Public Health Image Library and Department of Paediatrics and Adolescent Medicine, Princess Margaret Hospital, Hong Kong

Although measles has been eliminated from the United States, it remains endemic and poorly controlled elsewhere in the world. Cases are imported every year, sometimes resulting in further spread and outbreaks domestically. In 2011, the U.S. recorded 222 cases, the highest number in 15 years and nearly 4 times the annual average in recent years. International travel and sub-optimal immunization are critical factors in the importation and spread of measles.

Achieving and sustaining high levels of population immunity, through routine immunization, are essential to maintaining elimination of measles in the U.S. Early recognition and appropriate response are keys to limiting spread of this highly contagious disease. Health care providers are advised to be familiar with this important though rare disease and its prevention & control.

Disease

- Acute viral infection resulting in febrile rash illness
- High fever: increases in stepwise fashion, often peaking as high as 103-105 degrees F (39.4-40.5 degrees C)
- Prodrome: fever, cough, coryza (runny nose), conjunctivitis (red, inflamed eyes), Koplik spots (punctate blue-white spots on the bright red background of the buccal mucosa, appearing 1-2 days before body rash)
- Rash: macular-papular (red, raised), starts on head and face, progresses down body involving trunk and extremities; discrete lesions become confluent (blotchy) and may darken
- A clinical case of measles is defined as an illness characterized by:
 - a generalized rash lasting 3 or more days, and
 - a temperature of 101 degrees F or higher (38.3 degrees C or higher) and
 - cough, coryza, and/or conjunctivitis
- Incubation: 10-12 days

- Transmission: airborne, respiratory (respiratory droplets through sneezing, coughing); highly communicable (4 days before through 4 after rash onset)
- Photos of measles rash – see above
Additional info at CDC Measles web page: <http://www.cdc.gov/measles>

Diagnosis and Testing

- Laboratory confirmation essential; isolate patient, prevent exposing others in clinical and other settings; contact health department
- Obtain clinical specimens as follows:
 - **Serum** for measles IgM and/or paired IgG assays (if IgM negative on serum collected less than 3 days after rash onset, obtain more serum and repeat IgM)
 - **Throat, nasopharyngeal, and/or nasal swab** – essential for characterization of molecular epidemiology; submit in viral transport media; arrangements for testing made through local/state health departments
 - **Urine** - 50 ml, clean catch mid-stream, sterile container
- Additional diagnostic & testing info at MDCH Measles Investigation Guidelines - http://www.michigan.gov/documents/mdch/3Measles_Rev2008_231440_7.pdf

Reporting and Public Health Response

- Isolate patient at home; in a medical setting use negative-pressure room
- Report suspect cases to local health department: for Michigan local health department contact info, go to <http://www.michigan.gov/mdch/0,1607,7-132--96747--,00.html>
- Identify susceptible contacts (those lacking documentation of 2 MMR doses or physician-verified history of measles; persons born before 1957 can generally be considered immune).
- Post-exposure prophylaxis
 - Within/up to 3 days of exposure: MMR vaccine (preferred)
 - Within/up to 6 days of exposure: Immune globulin (IG) 0.25ml/kg [0.11ml/lb] intramuscularly
- Occurrence of measles is considered a public health emergency in U.S.; endemic occurrence and transmission of measles has been eliminated as of 2000.
- Be proactive:
 - Assure that your patients are protected against measles (use the [Michigan Care Improvement Registry - MCIR](#))
 - Assure that all office staff have immunity to measles
 - Implement procedures ahead of time for seeing ill, potentially contagious patients in a manner that prevents exposing others
 - Consider measles in the assessment of fever, rash, and history of foreign travel

- Stock appropriate diagnostic supplies (swabs, viral transport media, etc.)
- Additional prevention/control and public health response info at MDCH Measles Investigation Guidelines:
http://www.michigan.gov/documents/mdch/3Measles_Rev2008_231440_7.pdf

Routine vaccination and prevention – Measles, mumps, rubella (MMR) vaccine

- Children: 2 doses,
 - Dose 1: 12-15 months of age
 - Dose 2: 4-6 years of age
- Adults: at least 1 dose measles (MMR) vaccine; immunize adults lacking documentation of immunity (documented receipt of vaccine; physician verified disease; measles IgG immunity titer)
- Health Care Personnel: 2 doses measles (MMR vaccine, doses spaced 28 days apart) or other documentation of measles immunity

Note: ACIP recommends a second dose of MMR for any adult born during 1957 or later who:

- is a student in a post-secondary educational institution
- is a healthcare worker
- plans to travel internationally
- is exposed to measles in an outbreak setting
- was previously vaccinated with killed measles vaccine
- was vaccinated with an unknown type of measles vaccine during 1963-1967

ACIP also recommends a second dose of MMR vaccine to healthcare workers exposed to measles or mumps in an outbreak setting, regardless of age.

- International travel: For those who travel abroad, CDC recommends that all U.S. residents older than 6 months be protected from measles and receive MMR vaccine, if needed, prior to departure
 - **Children 6–11 months of age who are traveling outside the United States**
 - Children in this age group should receive at least 1 dose of MMR.
 - MMR vaccines given before 12 months of age should not be counted as part of the routine series. Children who receive MMR vaccines before age 12 months will need 2 more doses of MMR, the first of which should be administered when the child is 12 through 15 months of age and the second at least 28 days later or at the recommended age of 4-6 years.
 - **Children 12 months or older, adolescents, and adults who are traveling outside the United States**
 - 2 doses of MMR or other live measles-containing vaccine are considered immune to measles.
 - Considered immune to measles if they have had the diagnosis of measles documented by a physician, have laboratory evidence of immunity, or were born before 1957.
 - Those not immune should receive 2 doses of measles-containing vaccine (separated by at least 28 days).