

HEALTH ALERT

Measles Cases in Ohio:

Recommendations for Identification and Prevention

December 1, 2022

Summary and Action Items

- Columbus Public Health, Ohio Department of Health (ODH), Centers for Disease Control and Prevention (CDC), and other local public health jurisdictions are working closely with clinical and community partners to respond to an ongoing outbreak of measles in central Ohio.
- Worldwide, there is [evidence](#) of recent declines in routine immunization coverage with measles-containing vaccine (MCV), and large outbreaks of measles have occurred in [multiple countries](#) during 2022.
- Healthcare providers should be alert for [signs and symptoms of measles](#), particularly among persons who have not yet received MCV, including those who may have postponed or missed doses. Providers should also consider outreach to patients who are eligible for MCV to encourage routine immunization.
- Measles is a [Class A reportable disease](#). If measles is suspected, facilities should implement appropriate infection prevention and control measures and report any case, suspected case, or positive laboratory result [immediately via telephone](#) to the [local public health department](#) in which the patient resides.
- Measles virus testing is available at the Ohio Department of Health Laboratory (ODHL) for [eligible clinical specimens](#) upon approval.

Background

Measles is a highly contagious viral respiratory illness. The virus is transmitted through airborne spread of droplet nuclei or direct contact with nasal or throat secretions of infected persons; droplet nuclei can remain suspended in the air for up to two hours. The average incubation period for measles is 14 days, with a range of 7-21 days.

Globally, there is evidence of recent declines in routine immunization coverage with MCV. Cases of measles and large outbreaks continue to be identified in multiple countries, and the risk of measles importations into the U.S. is ongoing.

In early November 2022, ODH was notified of two children presenting to a local pediatric hospital emergency department in Columbus with rash illness consistent with measles. Public health interviews revealed that neither child had documented receipt of MCV, neither child was a contact of a known individual with measles, and neither child had recently traveled domestically or internationally. Both children tested positive for measles by polymerase chain reaction (PCR) testing. Subsequent contact investigations, testing, and epidemiologically linked clinical reports have identified over 40 additional cases in the central Ohio area. Identified cases in the current outbreak have occurred among unvaccinated persons; some individuals were not eligible for any doses because of their age.

Clinical Recognition

Measles is characterized by an initial prodrome that typically includes high fever, cough, coryza, and conjunctivitis, followed by the appearance of a [maculopapular rash](#). Communicability is greatest from four days before the onset of rash until four days after the onset of rash.

Given currently [elevated respiratory virus activity](#), suspicion for measles should be heightened among patients with clinically compatible measles symptoms who have not yet received MCV, including those who may have postponed or missed doses. For additional clinical information for healthcare providers, please visit the [CDC website](#).

Diagnostic Testing

The most common methods for confirmatory measles testing are detection of IgM antibody in serum and detection of RNA by real-time PCR (RT-PCR) in a respiratory specimen. The preferred specimens for RT-PCR or virus isolation are throat and nasopharyngeal swabs. Clinical specimens for RT-PCR and virus isolation should be collected at the same time as samples for serologic testing. *Specimens for virus isolation and RNA detection should be collected within three days of rash onset.* Detection of measles RNA and measles virus isolation are most successful when samples are collected on the first day of rash through the 3 days following onset of rash. Detection of measles RNA by RT-PCR may be successful as late as 10–14 days post rash onset.

IgM tests are often positive on the day of rash onset. However, up to 20% of tests for IgM may give false-negative results in the first 72 hours of rash onset. Therefore, IgM tests that are negative in the first 72 hours after rash onset should be repeated when there is a high clinical index of suspicion for measles. IgM obtained four days after the onset of rash is the preferred laboratory diagnostic procedure. IgM is detectable for at least 28 days after rash onset. If the titer is negative at that time, it can be repeated at seven days, or paired acute and convalescent sera can be tested for an increase in IgG antibody. The acute specimen should be taken as close to rash onset as possible, and the convalescent specimen drawn two weeks after the acute. The latter method is less desirable because of the delay in definitive diagnosis.

Testing for measles virus is available through ODHL for [eligible clinical specimens](#). To request approval for testing at ODHL:

- Healthcare providers should contact the [local public health department](#) in which the patient resides.
- Local health departments should contact the Bureau of Infectious Diseases Vaccine Preventable Disease Epidemiology program to request specimen approvals using established chains of communication.

Instructions for collection, storage, and shipping of **approved specimens:**

- For each specimen, fill out the following forms as completely as possible (fill out separate forms for each specimen). Forms can be found in the [Infectious Disease Control Manual \(IDCM\)](#).
 - For serum specimens (serology testing) complete each of the following:
 - [Ohio Department of Health Laboratory Microbiology Specimen Submission Form](#) - Indicate "Measles" in the Comments section.
 - [CDC Specimen Submission Form 50.34](#) - Test order name: Measles Serology
Test order code: CDC-10244 Suspected agent: Measles Virus.
 - For additional details please regarding collection and storage, please see CDC information on [measles serology](#).
 - For swab specimens (PCR and/or measles genotyping) complete each of the following:

- [Ohio Department of Health Laboratory Microbiology Specimen Submission Form](#)
 - Indicate "Measles PCR Testing" in the Comments section.
- Pack and ship all specimens in accordance with the U.S. Department of Transportation's Hazardous Materials Regulations (DOT 49 CFR Parts 171-180) and with the International Air Transport Association's Dangerous Goods Regulations (IATA) for Category B Biological Substances.
- Overnight shipment is preferred for receipt within 24 hours. Store specimens that can be received within 24 hours at 4°C until they are shipped. Specimens that cannot be processed within 24 hours should be frozen at -40°C or lower (preferably -70°C) and shipped on dry ice. Follow protocols for standard interstate shipment of etiologic agents.
- Ship the specimen to the following address:
Ohio Department of Health Laboratory Attn: Virology - Measles
8995 Main St., Building # 22
Reynoldsburg, OH 43068

Infection Prevention and Control

Measles is a vaccine preventable disease. The measles vaccine is highly protective; one dose of measles-mumps-rubella (MMR) vaccine provides 93% protection against measles and two doses provide 97% protection. Children are eligible for [routine MMR vaccination](#) beginning at 12 months of age or [earlier if traveling internationally](#).

Persons with suspected or confirmed measles infection should be isolated, including exclusion from school or childcare center, for four days following the onset of rash. Contacts who might be susceptible should be immunized with measles vaccine as soon as possible after exposure. Measles vaccine given within 72 hours after exposure may prevent or reduce the severity of disease. Immune globulin (IG) can prevent or modify measles in a susceptible person if given within six days of exposure. IG may be especially indicated for susceptible household contacts <1 year of age, pregnant women, or immunocompromised persons, for whom the risk of complications is increased.

To minimize the risk of measles transmission in healthcare settings, healthcare personnel should do the following:

1. Query patients with a febrile rash illness about a history of international travel, contact with foreign visitors, transit through an international airport, or possible exposure to a person with measles in the 3 weeks prior to symptom onset. Possibility of measles should be considered for patients with such a history and symptoms consistent with measles.
2. Patients with suspected measles should immediately be provided a face mask to wear, if tolerated. Encourage respiratory etiquette.
3. Do not allow patients with suspected measles to remain in the waiting room or other common areas; isolate patients with suspected measles immediately in an airborne infection isolation room if one is available. If such a room is not available, place the patient in a private room with the door closed. For additional infection control information, please refer to the [CDC's control measures for measles](#).
4. If possible, allow only healthcare personnel with documentation of two doses of MMR vaccine or laboratory evidence of immunity to measles (i.e., measles IgG positive) to enter the patient's room.

5. Healthcare personnel should wear an N95 or higher-level respirator regardless of presumptive evidence of immunity. (A user seal check should be performed each time the respirator is donned.)
6. If possible, do not allow susceptible visitors in the patient room.
7. Do not use the examination room for at least two hours after the possibly infectious patient leaves.
8. If possible, schedule patients with suspected measles at the end of the day.
9. Notify the local health department in whose jurisdiction the patient resides immediately by telephone about any patients with suspected measles.
10. Notify any location where the patient is being referred for additional clinical evaluation or laboratory testing about the patient's suspected measles status, and do not refer patients with suspected measles to other locations unless appropriate infection control measures can be implemented at those locations. The patient must wear a mask, if feasible.
11. Instruct patients with suspected measles and exposed persons to inform all healthcare providers of the possibility of measles prior to entering a healthcare facility so appropriate infection control precautions can be implemented.
12. Make note of the staff and other patients who were in the area during the time the patient with suspected measles was in the facility and for two hours after they left. If measles is confirmed, exposed people will need to be assessed for measles immunity.

Please see the [Measles Chapter in the ODH Infectious Disease Control Manual](#) and [CDC website](#) for additional guidance on the public health management of cases and contacts and infection prevention and control measures.

Contact

For general questions related to measles, healthcare providers and facilities should contact their [local health department](#). Ohio local health departments should contact the ODH Bureau of Infectious Diseases at 614-995-5599 or VPDEpi@odh.ohio.gov.