



# Measles Isolation Precautions and Testing Recommendations



## If an individual presents with rash and fever?

Query patients about a history of international travel, contact with foreign visitors, transit through an international airport, or possible exposure to a measles patient in the 3 weeks prior to symptom onset; suspect measles in patients with such a history.

## What immediate steps should be taken?

1. Mask suspect measles patients immediately. If a surgical mask cannot be tolerated, other practical means of containment should be implemented (e.g., place a blanket loosely over the heads of infants and young children suspected to have measles when they are in the waiting room or other common areas).
2. Do not allow suspect measles patients to remain in the waiting area or other common areas; isolate them immediately in a negative pressure room if one is available. If such a room is not available, place patient in a private room with the door closed. For additional infection control information, please see the CDC "Guideline for Isolation Precautions" at: <http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html>
3. If possible, allow only healthcare personnel with documentation of 2 doses of live measles vaccine or laboratory evidence of immunity (measles IgG positive) to enter the patient's room.
4. If possible, do not allow susceptible visitors in the patient room.
5. Do not use the examination room for at least two hours after the possibly infectious patient leaves.
6. If possible, schedule suspect measles patients at the end of the day.
- 7. Notify the local health department immediately of any suspect measles patients; arrange for measles testing at a public health laboratory (see pages 2-3).**
8. If the patient is being referred for additional clinical evaluation or laboratory testing, notify the staff about the patient's suspect measles status and do not refer suspect measles patients to other locations unless appropriate infection control measures can be implemented at those locations.
9. Instruct suspect measles patients and exposed persons to inform all healthcare providers of the possibility of measles prior to entering a healthcare facility so that appropriate infection control precautions can be implemented.
10. Make note of the staff and other patients who were in the area during the time the suspect measles patient was in the facility and for two hours after they left. If measles is confirmed in the suspect case, exposed people will need to be assessed for measles immunity.
11. For more information on measles and measles testing, please see: <http://www.cdc.gov/measles/index.html>

## Testing Recommendations

Contact the health department immediately to facilitate testing:

- Monday-Friday during normal working hours: **Enrique Ramirez at 312-746-5911**
- After hours, weekends, and holidays, call 311 and ask for the communicable disease physician on-call.

## **Measles Serology** (*via commercial reference laboratory*)

1. Detection of specific **IgM** antibodies in a serum sample collected within the first few days of rash onset can provide presumptive evidence of a current or recent measles virus infection. However, because no assay is 100% specific, serologic testing of non-measles cases using any assay will occasionally produce false positive IgM results.
2. Draw 1-2 ml blood in a red top tube; spin down serum if possible. NOTE: 50-100 µl of capillary blood (approximately 3 capillary tubes) may be collected in situations where venipuncture is not preferred, such as for young children.
3. Draw blood for **IgM** antibody testing as soon as possible. Occasionally, false-negative measles IgM results occur when blood specimens are collected within 72 hours after rash onset. A second blood sample, collected 72 hours after rash onset, should be tested in this situation. A positive serologic test result for measles IgM antibody indicates recent infection or recent vaccination.
4. Obtain acute and convalescent serum specimens for measles specific **IgG** antibody to confirm a measles diagnosis. Acute and convalescent specimens should be tested as paired sera. Draw blood for acute IgG as early as possible when measles infection is suspected. For convenience, the blood drawn for measles IgM antibody testing may be used for the acute IgG. Draw blood for convalescent IgG approximately 2 weeks after blood was drawn for the acute IgG.

## **Measles RT-PCR** (*Preferred Method at IDPH Laboratory*)

Measles RT-PCR can be performed at the IDPH Chicago laboratory on respiratory specimens *only*. The RT-PCR methodology has been validated by CDC and should be used in conjunction with serology testing. The preferred specimen for measles RT-PCR testing is a nasal wash (nasopharyngeal aspirate). Nasopharyngeal and throat swabs are also acceptable. Attempt to obtain the specimen as soon as possible after the onset of the rash. Samples collected more than five days after rash onset have much lower chances of successful viral detection.

### ***Instructions for Nasal Wash Collection***

1. The nasal wash (nasopharyngeal aspirate) is obtained using a syringe attached to a small piece of plastic tubing and about 3 mL of sterile saline. After placing saline in the nose, aspirate as much as possible and transfer to vial containing Viral Transport Media (VTM).
2. Label the specimen vial with the patient's name and collection date. Keep specimen on wet ice or at 4 C and ship as soon as possible on wet ice packs. Complete all the demographic information on the *Communicable Disease Laboratory Test Requisition* form.

### ***Instructions for Throat and Nasopharyngeal Swab Collection***

1. Store Starswabs (Dacron) with VTM in the refrigerator until use. Do not use if media has expired and **do not use calcium alginate swabs**.
2. Obtain specimens early in the acute phase of illness, preferably within three days of onset.
3. If collecting both a throat and a nasopharyngeal swab, both swabs should be combined in the same vial of viral transport medium. The virus is extremely cell-associated, so attempt to collect epithelial cells.
4. Aseptically remove sterile swab from package. Collect throat swabs by vigorous swabbing of the posterior pharynx and tonsil regions, using a rigid shaft swab. Aseptically remove cap from VTM. Place the swab in a tube of transport medium. Close tightly. Refrigerate immediately after collection.

5. Collect nasopharyngeal swabs by inserting a flexible wire swab through each nostril deeply into the nasopharynx (aiming towards the ear). The swab is rotated, removed and placed in a tube of transport medium.
6. Label the specimen vial with the patient's name and collection date. Keep specimen on wet ice or at 4 C and ship as soon as possible on wet ice packs.
7. Complete all the demographic information on the *Communicable Disease Laboratory Test Requisition* form.

### ***Instructions for Specimen Transport***

1. Specimens must be shipped on wet ice packs within 48 hours of collection (keep refrigerated before shipping). **When packaging for shipment, add wet ice packs to the shipping container.** Avoid shipping specimens over the weekend or holidays.
2. **Messenger/Courier by ground transport:** Place specimen(s) into a biohazard labeled bag and seal securely. Place the test requisition(s) on the outside of the biohazard labeled bag. Place the sealed biohazard bag and test requisition(s) inside the shipping container. The shipping container must be rigid, such as a cooler, and labeled with the UN 3373 Biological Substance Category B marking. Close securely.
3. **Commercial carrier by ground/air transport:** Place the specimen(s) inside a biohazard labeled bag and seal securely. Place the test requisition(s) on the outside of the biohazard labeled bag. Place the sealed bag and completed test requisitions(s) inside the outer shipping container and close securely. Label the outer shipping container with the appropriate Illinois Department of Public Health laboratory address. Complete the return address section to include the name of the person shipping the package, business name and address and a business phone number. The shipping container must include the UN3373 Biological Substance Category B marking.
4. When shipping **liquid** specimens by commercial carrier by ground/air transport, wrap specimens individually in absorbent material. Place the specimens in a biohazard labeled 95 kPa bag and seal according to the instructions on the bag.
5. Ship specimens by fastest delivery to the attention of the Clinical Microbiology Unit at the Chicago Laboratory. This can be accomplished by use of local courier, shipping corporations or U.S. Postal Service Overnight.

**NOTE: If it is not possible to ship specimens within 48 hours of collection, nasal wash specimens should be frozen at -70 C and shipped on dry ice. Swab specimens should be vortexed, swirled, or have the swab vigorously rubbed along the side of the specimen tube (to remove as much virus as possible from the swab) before being frozen at -70 C and shipped on dry ice.**

### **Ship Specimens To:**

**Illinois Department of Public Health Laboratory  
c/o Clinical Microbiology  
2121 W. Taylor Street  
Chicago, IL 60612  
Phone 312-793-4760**