

Measles: Specimen Collection and Shipping Instructions

A case of measles is a **public health emergency**. Contact public health **immediately** when the diagnosis of measles is suspected.. A clinical diagnosis of measles is unreliable; suspect cases of measles must be laboratory confirmed. Confirmation of acute infection can be determined by the presence of serum immunoglobulin M (IgM), a four-fold rise in serum immunoglobulin G (IgG) titer between acute and convalescent phase specimens, a positive PCR, and/or the isolation of measles virus from a throat or urine specimen.

The Georgia Division of Public Health strongly recommends the **collection of serum for measles IgM/IgG AND collection of a throat swab and urine specimen to confirm a measles case**. To coordinate specimen collection and laboratory submission, call your District or County Health Department. **Please do not send specimens directly to the Georgia Public Health Laboratory (GPHL) or the Centers for Disease Control and Prevention (CDC).**

Specimen Collection Instructions

Serologic Testing: Collect as soon as possible when measles infection is suspected, preferably at the onset of rash.

- Collect 7-10 ml of blood in a red top or serum separator tube (SST)
Acute serum (IgM and first IgG)
Convalescent serum (second IgG)
- SST tubes must be centrifuged and the serum transferred into a transport tube for shipment.
- Keep specimens cold (4° C or 39° F) and ship overnight service. **Do not freeze serum samples.**

Viral Testing: Collect a urine and throat swab at the same time as serology. Virus is most frequently recovered within the first 3 days following rash onset, but up to 7 days after rash onset is acceptable. If a few days have passed since resolution of the rash collect only a urine specimen.

Throat Swabs

- Use a **viral transport kit** if possible (such as that used to isolate influenza or herpes simplex virus)
- Collect a throat swab by rubbing the posterior oropharynx with a dry sterile cotton swab
- Place swab in a tube containing 2-3 mls of viral transport medium or other sterile isotonic solution (phosphate buffered saline or cell culture medium).
- Keep samples cold (4° C or 39° F)
- Ship the viral specimens using ice packs or dry ice*. Avoid freeze-thaw cycles.

Urine Specimens

- Collect 10-15 ml of urine in a screw top sterile container
- Keep samples cold (4° C or 39° F)
- Ship the viral specimens using ice packs or dry ice*. Avoid freeze-thaw cycles.

*If shipment contains both serum and viral specimens, ship together by overnight service on cold packs (do not freeze serum)

Laboratory Submission Instructions

1. Notify your District Public Health Office or the Vaccine Preventable Disease Epidemiology Unit **immediately**.
2. Label the specimen containers (transport media, urine, and/or blood) with the patient's name, date of birth, and date of specimen collection (**UNAPPROVED OR UNLABELED SPECIMENS WILL NOT BE TESTED**)
3. Complete the Georgia Public Health Laboratory Submission Form found at:
http://dph.georgia.gov/sites/dph.georgia.gov/files/related_files/site_page/GPHL%20FINAL%20Lab%20Submission%20Form_Non-Fillable%204-1-2014.pdf with the following information:
 - a. Submitter code (if known), address, phone and fax number, and contact name



- b. Patient name, address, phone number, date of birth, sex, race, and ethnicity (if available)
 - c. Date of specimen collection, source, type of specimen, clinical history and information
 - d. If requesting IgM and/or IgG, under "Immunology" check **ALL** of the following boxes: 1510 Rubella IgG; 1515 Rubella IgM; 1520 Rubeola IgG; and 1525 Rubeola IgM
 - e. If requesting a culture, under "Virology" check the box labeled 62040 Measles Culture/IFA
 - f. If requesting a PCR, under "Molecular Biology" check the box labeled 416000 Measles (RT-PCR)
- NOTE:** A separate submission form needs to be completed for **EACH** specimen submitted (i.e. if two specimens are collected – one for culture and one for PCR , two GPHL submission forms need to be completed).
4. Ship specimens overnight by courier or Federal Express on ice packs. If the shipment is delayed, refrigerate specimens at 2-8 °C (or 36-46 °F) and transport the next day on ice packs by first class mail, common carrier, or courier.
 5. Ship specimens to the following address:

Georgia Public Health Laboratory
1749 Clairmont Road
Decatur, GA 30033-4050
ATTN: Bacteriology Laboratory

Contact Information

- For specimen outfit requests call the Georgia Public Health Laboratory at 404-327-7921
- For questions related to specimen collection and transport: contact local or district public health or the State VPD Epidemiology Unit, 404-657-2588

Interpretation of Measles Laboratory Test Results

- Serology
 - IgM: Measles infection is confirmed using measles IgM antibody testing of serum samples collected as soon as possible after symptom onset. A positive IgM test result indicates current/very recent infection or reinfection. As with any lab test, there can be false positive test results.
 - IgG: IgG alone is not diagnostic unless you obtain both an acute (can be done as soon after onset as the patient is seen, but ideally four to five days after onset of symptoms) and convalescent (from two to four weeks after onset) blood specimen for serologic tests to determine if a four-fold rise in IgG antibody titer has occurred (e.g., from 1:40 to 1:320). In vaccinated persons it may not be possible to detect a four-fold rise in measles IgG antibody titer in paired serum samples (acute and convalescent). In such persons, the existing IgG will begin to rise soon after exposure and infection. At the time of onset of symptoms and collection of the acute serum, the IgG may already be quite elevated, and obviate the 4fold rise observed in the convalescent serum specimen.
- PCR
 - Sequence analysis of an RT-PCR product derived from a virus isolate or from clinical material confirms a presumptive positive PCR result and provides epidemiologically important information
- Viral Culture
 - Isolation of measles virus from any clinical specimen constitutes laboratory confirmation of measles