

Georgia Division of Public Health

Vaccine Preventable Disease Epidemiology Unit

Measles: Specimen Collection and Shipping Instructions

A case of measles is a **public health emergency**. Contact public health **immediately** of any suspect cases. 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) and a four-fold rise in serum immunoglobulin G (IgG) titer between acute and convalescent phase specimens.

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 for viral isolation/polymerase chain reaction testing (PCR) 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) -collect and send immediately
Convalescent serum (second IgG) -collect 2-4 weeks after rash onset
- SST tubes must be centrifuged and the serum poured 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, but up to 7 days after rash onset is acceptable. If it's been a few days since resolution of the rash collect only a urine specimen.

Throat Swabs

- Use a **viral transport kit** if possible (such as what's used to isolate influenza or herpes simplex virus)
- Collect a throat swab by rubbing the posterior nasal passages 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:

- Notify County or District Public Health Office **immediately** for coordination.
- Label specimen transport tube with the patient name and date of birth
- **UNAPPROVED OR UNLABELED SPECIMENS WILL NOT BE TESTED**
- Complete Immunology, Molecular Biology and Virology lab forms at:
<http://health.state.ga.us/pdfs/lab/manual/Immunology%20Form%203432.pdf>

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<http://health.state.ga.us/pdfs/lab/manual/Molecular%20Form%203409.pdf>

<http://health.state.ga.us/pdfs/lab/manual/Virology%20Form%203595.pdf>

with the following information:

- Submitter code (if known), address, phone number, and contact name
 - Patient name, address, date of birth, sex, race and ethnicity (if available)
 - Date of specimen collection, type of specimen, reason for testing, date of illness onset
 - Immunology Form: Test requested (NOTE: Be sure to check *Rubeola (Measles) IgG* and *IgM* boxes **AND** *Rubella IgG* and *IgM* boxes)
 - Molecular Biology Form: Test requested (NOTE: Beside *Other* be sure to write in *Measles PCR*)
 - Virology Form: Test requested (NOTE: Beside *Viral Culture/Identification* (Please Specify) be sure to write *Measles Culture*.
- Ship specimen and accompanying lab form to the following address:
Georgia Public Health Laboratory
1749 Clairmont Road
Decatur, GA 30033-4050
ATTN: Immunology and Virology Laboratories

Contact Information:

- For specimen outfit requests call the Georgia Public Health Laboratory at 404-327-7921
- Additional lab forms available at <http://health.state.ga.us/programs/lab/manual.asp> in Appendix B
- For questions related to specimen collection and transport contact local public health or the State 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 four-fold rise observed in convalescent serum specimen.
- PCR
 - Sequence analysis of a RT-PCR product derived from a virus isolate or from a clinical material confirms the presumptive positive PCR results and provides epidemiologically important information
- Viral Culture
 - Isolation of measles virus from any clinical specimen constitutes laboratory confirmation of measles