

Measles Testing & Specimen Routing Procedures

Background

Alameda County Public Health Laboratory (ACPHL) now has the capacity to conduct rubeola (measles) nucleic acid amplification testing by polymerase chain reaction (PCR) on upper respiratory specimens and urine specimens. Measles PCR testing is highly sensitive if oropharyngeal (OP) swab and urine specimens are collected within 3 days of rash onset, though detection may be successful as late as 10-14 days after rash onset. If a case is identified later in their disease course (i.e., more than 7 days after rash onset) serologic testing for rubeola IgM should be pursued in addition to PCR testing of OP/NP swab, and urine specimens. At present, ACPHL is not offering serologic testing for rubeola IgM or rubeola IgG. Serologic testing for persons suspected of having measles must be performed by the Viral and Rickettsial Diseases Laboratory (VRDL) at the California Department of Public Health (CDPH) in Richmond. Rubeola IgG testing of *contacts of confirmed measles cases* may be performed at a commercial or hospital laboratory if there is a need to establish evidence of immunity.

Purpose

These procedures should be used by healthcare providers and clinical labs in healthcare facilities pursuing testing for measles to determine which specimens should be routed to the ACPHL and which should be routed directly to the CDPH VRDL. **Please note that testing for measles must be approved by Alameda County Public Health Department prior to specimen collection and routing.** For testing approval, call (510) 267-3250, M-F 8:30-5PM. After hours and on weekends, please call the Alameda County Fire Dispatch at (925) 422-7595 and ask to speak with the Public Health Duty Officer on call.

Specimen Collection

- (1) Throat (Oropharyngeal/OP) or NP Swab (OP/throat swab is the preferred respiratory specimen):
 - OP swab: Use a sterile synthetic swab (e.g., Dacron) and vigorously swab tonsillar areas with sterile Dacron swab
 - NP swab: Firmly rub posterior nasopharynx with sterile Dacron swab
 - Place OP/NP swab into a tube with liquid viral or universal transport media. Do not use bacterial transport media.
- (2) Urine:
 - Collect 10-50 ml urine in a sterile container
 - Collect from the first part of the urine stream. The first morning void is ideal.
 - Process the urine: Centrifuge at 500-600 x g for 10 minutes at 4°C. Resuspend the pellet in 2-3 ml of viral transport medium. If processing is not possible, store and ship the sample at 2°- 8°C within 24 hours.
- (3) Serum IgM or IgG testing:
 - Collect 7-10 ml of blood in a red top or serum separator tube.
 - Capillary blood (finger or heel stick) can be used for pediatric patients, if necessary; at least 3-5 capillary tubes are needed.
 - The optimal time for collecting acute blood is at least 72 hours after rash onset. Serum collected before then may be falsely negative but can be tested.

- *If initial IgM testing is negative in an unvaccinated person and measles is strongly suspected, a second serum sample and specimens for PCR should be collected.*
- IgG testing can be done on case contacts to determine prior exposure to the virus.

Specimen storage and shipping

Store all specimens at 4°C. For storage longer than 24 hours, process serum and urine. Ship all specimens on cold pack within 24 to 72 hours.

Samples for Measles Testing	Testing laboratory	Shipping Instructions
OP/NP swab, urine	ACPHL	<p>Ship approved specimens to: ACPHL 2901 Peralta Oaks Ct #206 San Leandro, CA 94577</p> <p>Hours of operation: M-F, 8:30 am – 5:00 pm</p> <p>Samples must arrive with completed ACPHL specimen submittal form at specimen receiving window at or before 4:30 pm, M-F.</p>
Serum (Measles IgM and IgG)	CDPH-VRDL	<p>Ship approved specimens to: Specimen Receiving CDPH VRDL 850 Marina Bay Parkway Richmond, CA 94804</p> <p>Samples must arrive with completed VRDL specimen submittal form and be received by 4 pm, M-F.</p>

References

1. CDPH VRDL Measles Laboratory Testing Guidance. Available at:
<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Measles-Testing-InformationVRDL.pdf>