California Department of Public Health
Viral and Rickettsial Disease Laboratory
September 2017

MEASLES LABORATORY TESTING GUIDANCE

Appropriate Clinical Specimens for Laboratory Testing*			
Testing Method	**Throat/Nasal/NP Swab†**	**Urine†**	**Serum**
PCR§¶	**Yes**	**Yes**	
IgM or IgG Serology			**Yes**

* Only patients with symptoms consistent with measles will be considered for PCR or IgM testing.
§ PCR is the preferred method for confirming an acute case.
† Collection of both a respiratory swab and urine within 2 weeks of rash onset improves the odds of detecting viral RNA.
¶ Sequencing will be performed on PCR-positive specimens to determine viral genotype.

Health care providers must contact their local public health department for measles virus consultation and testing approval. Many local public health laboratories provide measles RT-PCR testing services. Please contact your local health jurisdiction.

Throat (Oropharyngeal), Nasal or NP Swab

- Collect within 2 weeks of rash onset.
- Use a sterile synthetic swab (e.g., Dacron).
- Throat swab is the preferred respiratory specimen. Vigorously swab tonsillar areas and posterior nasopharynx with sterile Dacron swab.
- Nasopharyngeal swab: firmly rub nasopharyngeal passage with sterile Dacron swab.
- Place swab into ***liquid*** viral or universal transport medium.

Urine

- Collect 10-50 ml urine in a sterile container.
- Collect from the first part of the urine stream, within 2 weeks of onset. 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 by overnight delivery.

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 and ship on cold pack within 24 to 72 hours.
- For longer storage, process serum and urine, and store and ship all specimens at -70°C or colder.

Specimen shipment to VRDL requires *prior consultation* with your local public health department.

To ship specimens approved by your local public health laboratory:

- Complete the VRDL general purpose specimen submittal form for each specimen (available from VRDL Specimen Submittal Forms web page):
  - Indicate if the specimen(s) is from a suspect case OR from a contact (for IgG testing only).
  - For a suspect case, include date of rash onset and whether person is linked to a confirmed case.
  - For recent vaccine recipient, include vaccination date.
- Send submittal form **by secure email** to VRDL.submittal@cdph.ca.gov; include hard copy with specimens.
- Email package tracking number to expedite processing.
- Measles specimens should be packaged separately from other specimens sent to CDPH for testing.

Ship approved specimens to:
Specimen Receiving
CDPH VRDL
850 Marina Bay Parkway
Richmond, CA 94804

Notify CDPH that specimens are being submitted by emailing VRDL.submittal@cdph.ca.gov and measlesreport@cdph.ca.gov. Please include patient name and date of birth, and name and phone number of investigator in your jurisdiction who can provide additional information, if needed.

Other resources

- Clinical guidance for identification of suspect measles cases
- Measles case investigation "quicksheet"

Questions about specimen collection, submittal, or shipping: Please contact the VRDL Medical and Epidemiology Liaison Section at (510) 307-8585 or VRDL.submittal@cdph.ca.gov.

For questions about whether measles testing is appropriate or a priority, please contact the CDPH Immunization Branch at (510) 620-3737 and ask to be referred to the epidemiologist on-call.

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https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/VRDL.aspx

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