

Laboratory Testing for Varicella (Chickenpox) and Zoster (Shingles)

Testing for varicella

- Testing should be done for **all** cases of varicella because:
 - Clinical diagnosis is now less reliable. The classic maculopapular vesicular rash is seen less frequently, and rash in vaccinated patients may lack vesicles and resemble other viral rashes or even bug bites.
 - Recommendations for exclusion and post-exposure prophylaxis are diagnosis dependent.
- The MDH Public Health Laboratory (MDH-PHL) and most reference laboratories provide PCR testing for people with suspect varicella. However, MDH requests **specimens from lesions or dermal scrapings** be submitted to MDH-PHL for PCR.
- To request testing supplies for submitting specimens to MDH-PHL, please complete the [VPD Test Kit Requests \(https://redcap.health.state.mn.us/redcap/surveys/?s=JLLNAWXPXHHFWMNX\)](https://redcap.health.state.mn.us/redcap/surveys/?s=JLLNAWXPXHHFWMNX).

Testing for zoster

- Testing for suspected cases of zoster **should only be** sent to the MDH-PHL when:
 - Case is under 18 years of age.
 - Case of any age has history of vaccination for varicella-zoster virus (VZV) and no history of varicella disease.

Method	Where available	Best specimens for diagnosis	Advantages and disadvantages
VZV PCR (Recommended)	Most reference laboratories, MDH-PHL	Vesicular fluid, crusts/scabs, maculopapular scraping	Sensitive, specific, timely. MDH-PHL distinguishes wild-type from vaccine strain.
VZV DFA	Reference laboratories, virology laboratories	Vesicular scraping	Less sensitivity than PCR, but specific and timely.
Virus Culture	Reference laboratories, virology laboratories, MDH-PHL	Vesicular fluid, maculopapular scraping	Specific, but less sensitive and timely than PCR. Requires active (“live” virus) in viral transport medium. May detect other viruses causing rash.
Serology (VZV IgG)	Most reference laboratories	Serum	Recommended for testing for immunity. Not recommended for diagnosis of VZV infection. However, a four-fold or greater rise in serum varicella immunoglobulin G (IgG) antibody titer by any standard serologic assay between acute and convalescent sera meets laboratory criteria for current VZV infection.
Serology (VZV IgM) (Not recommended)	Most reference laboratories	Serum	Many commercial assays are unreliable. Not recommended for diagnosis of VZV infection, However, a positive VZV IgM result in the presence of varicella-like symptoms can indicate an acute VZV infection.

Collection instructions

- Collecting crusts (scabs).

- Crusts are an ideal specimen and can be lifted off the skin and placed in between two glass slides in a sturdy cardboard container or in a break-resistant, snap-cap or screw-top tube. Ship dry.
- Polyester swab method-vesicular lesions.
 - Use a sterile needle to unroof the top of the vesicle. Vigorously swab the base of the lesion, applying enough pressure to collect epithelial cells without causing bleeding-and collect vesicular fluid. Place swab into labeled tube. Ship dry. Do not place transport media into tube.
- Glass slide method-maculopapular lesions (if no vesicles are present).
 - Rake edge of a sterile slide over the maculopapular lesion, enough so skin cells are gathered on the slide. Then use a single swab to scrub the lesion and also to gather the material on the edge of the slide. Insert the swab into labeled tube. Ship dry. Do not place transport media into tube. Note: with young children, it may be less stressful if you ask them to help.

For information and a video on recommended techniques for collecting specimens from lesions, visit [CDC: Specimen Collection for Varicella Zoster Virus \(VZV\) Testing \(www.cdc.gov/chickenpox/php/laboratories/collecting-vzv-specimens.html\)](http://www.cdc.gov/chickenpox/php/laboratories/collecting-vzv-specimens.html).

Sending VZV specimens to MDH-PHL

- **Notify MDH** that specimens are being sent.
 - For varicella, visit [Reporting Varicella \(chickenpox\) \(www.health.state.mn.us/diseases/varicella/hcp/report.html\)](http://www.health.state.mn.us/diseases/varicella/hcp/report.html) for reporting options.
 - For zoster, use the [MDH Yellow Disease Report Card \(www.health.state.mn.us/diseases/reportable/forms/reptcard.html\)](http://www.health.state.mn.us/diseases/reportable/forms/reptcard.html).
- **Complete** the [Minnesota Department of Health IDL Submission Form \(www.health.state.mn.us/diseases/idlab/mdh_lab_submission.pdf\)](http://www.health.state.mn.us/diseases/idlab/mdh_lab_submission.pdf), also called the General Infectious Disease Laboratory Submission Form found on [Forms for the Infectious Disease Laboratory \(www.health.state.mn.us/diseases/idlab/forms.html\)](http://www.health.state.mn.us/diseases/idlab/forms.html) in the MDH submission, testing and supply order forms drop down (first in the list).
 - Each specimen requires its own form.
 - Samples submitted to MDH-PHL for suspect varicella-zoster virus testing will be run under a panel for common rash-like illnesses, including hand-foot-and-mouth disease (enteroviruses) and herpes simplex.
 - This panel is called “**Project 2094**”.
 - Enter **2094** in the "Submitter" section for "Project Number If Known".
 - Completely fill out the form and indicate which test is requested, including contact information for the patient.
- **Send** specimens to:
MDH Public Health Laboratory
Attn: Biological Accessioning
601 Robert Street N.
St. Paul, MN 55155-2531

Media, containers, and shipping conditions

Types of swabs

- Use sterile swabs that can be inserted into a protective holder/tube for transport. (Such as a throat swab.) The swab must be shipped dry.
- Do not use gel swabs, calcium alginate-tipped swabs, or those with wooden shafts.

Transport media

- Specimens may be shipped dry, without transport media.

Containers appropriate for specimen

- Vesicular fluid – put swab in a tube, dry.
- Crusts/scabs and maculopapular scrapings.
 - Swab tube, dry.
 - Sterile screw-capped vials.
 - Slides in sturdy cardboard container.

Storage and shipping temperatures

- Dry specimens: room temperature.

Results and turnaround

- Results for testing done at MDH-PHL will be sent via fax to the submitting laboratory.
- Turnaround time for PCR results is typically 2 business days after receipt of specimen(s)

Additional information

Visit [Varicella Information for Health Professionals](http://www.health.state.mn.us/diseases/varicella/hcp/index.html)
(www.health.state.mn.us/diseases/varicella/hcp/index.html).

Minnesota Department of Health
PO Box 64975
St. Paul, MN 55164-0975
651-201-5414
www.health.state.mn.us/immunize

05/20/2024

To obtain this information in a different format, call: 651-201-5414.