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

Testing for varicella and zoster

Varicella and zoster are diseases, which are both caused by the varicella-zoster virus (VZV).

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 varicella cases. However, MDH requests specimens from lesions be submitted to MDH-PHL for PCR.

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 VZV and no history of varicella disease.

<table>
<thead>
<tr>
<th>Method</th>
<th>Where available</th>
<th>Best specimens for diagnosis</th>
<th>Advantages and disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>VZV PCR (Recommended)</td>
<td>Most reference laboratories, MDH-PHL</td>
<td>Vesicular fluid, crusts/scabs, maculopapular scraping</td>
<td>Sensitive, specific, timely. MDH-PHL distinguishes wild-type from vaccine strain.</td>
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<tr>
<td>VZV DFA</td>
<td>Reference laboratories, virology laboratories</td>
<td>Vesicular scraping</td>
<td>Less sensitivity than PCR, but specific and timely.</td>
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<tr>
<td>Virus Culture</td>
<td>Reference laboratories, virology laboratories, MDH-PHL</td>
<td>Vesicular fluid, maculopapular scraping</td>
<td>Specific, but less sensitive and timely than PCR. Requires active (“live” virus) in viral transport medium. May detect other viruses causing rash.</td>
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<tr>
<td>Serology (VZV IgG)</td>
<td>Most reference laboratories</td>
<td>Serum</td>
<td>Recommended for testing for immunity, but not for diagnosis of disease.</td>
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<tr>
<td>Serology (VZV IgM) (Not recommended)</td>
<td>Most reference laboratories</td>
<td>Serum</td>
<td>Many commercial assays are unreliable.</td>
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</tbody>
</table>

Collection instructions

For information and a video on recommended techniques for collecting specimens from lesions, see CDC’s Collecting Specimens for Varicella Zoster Virus (VZV) Testing (www.cdc.gov/chickenpox/lab-testing/collection-specimens.html) website.
LABORATORY TESTING FOR VARICELLA (CHICKENPOX) AND ZOSTER (SHINGLES)

Sending VZV specimens to MDH-PHL

- Notify MDH that specimens are being sent.
  - For varicella, use the Varicella Reporting Form (www.health.state.mn.us/divs/idepc/dtopics/reportable/forms/varicellaform.html).
  - For zoster, use the MDH Yellow Disease Report Card (www.health.state.mn.us/divs/idepc/dtopics/reportable/forms/reptcard.html).
- Complete a “Clinical Testing and Submission Form” from Infectious Disease Laboratory – Forms (www.health.state.mn.us/divs/phl/clin/forms.html).
  - Each specimen requires its own form.
  - Completely fill out the form and indicate which test is requested.
- 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 either dry or in an accepted transport media.)
- Do not use gel swabs, calcium alginate-tipped swabs, or those with wooden shafts.

Transport media

- Specimens may be shipped dry, without transport media.
- If transport media are used, types used for viral specimens are acceptable (M4, M5, UTM, VTM).
- Do not use charcoal-containing media.

Containers appropriate for specimen type

- Vesicular fluid – put swab in a tube, either dry or in an accepted transport media.
- Crusts/scabs and maculopapular scrapings.
  - Swab tube, either dry or in an acceptable transport media.
  - Sterile screw-capped vials.
  - Slides in sturdy cardboard container.

Storage and shipping temperature

- Dry specimens: room temperature.
- Specimens in transport media: refrigerator 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

For more information about clinical features, post-exposure prophylaxis, and vaccine information, visit Varicella Information for Health Professionals (www.health.state.mn.us/divs/idepc/diseases/varicella/hcp/).

Vaccine Preventable Disease Section
PO Box 64975, St. Paul, MN 55164
651-201-5414
www.health.state.mn.us/immunize
To obtain this information in a different format, call: 651-201-5414.

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