Important Information for Providers

Evaluation of suspected Measles infection

We are receiving questions regarding appropriate testing for patients in whom measles infection is suspected. Attached please find relevant information from the Minnesota Department of Health and the CDC regarding handling these suspect cases.

From the Minnesota Department of Health (see attached PDF):

If you suspect measles in a patient:

- Call MDH at 651-201-5414 or toll-free at 1-877-676-5414
- Provide clinical details
- Collect specimens for PCR testing

Health care facilities are required by law to report suspect cases of measles immediately to MDH. Call while the patient is still in the office to ensure timely reporting and correct specimen collection.

Follow infection prevention guidelines to minimize measles transmission in health care settings.

Information regarding how to order appropriate diagnostic testing through Allina Health Laboratories is also attached. Note that this testing is NOT performed at Allina Health facilities. RT-PCR testing is performed through the MN Department of Health and serological studies for measles IgM antibodies (indicative of acute infection) are available through Mayo Medical Labs.

Per the CDC:

Measles Diagnosis and Laboratory Testing

Healthcare providers should consider measles in patients presenting with febrile rash illness and clinically compatible measles symptoms, especially if the person recently traveled internationally or was exposed to a person with
febrile rash illness. Healthcare providers should report suspected measles cases to their local health department within 24 hours.

Laboratory confirmation is essential for all sporadic measles cases and all outbreaks. Detection of measles-specific IgM antibody and measles RNA by real-time polymerase chain reaction (RT-PCR) are the most common methods for confirming measles infection. Healthcare providers should obtain both a serum sample and a throat swab (or nasopharyngeal swab) from patients suspected to have measles at first contact with them. Urine samples may also contain virus, and when feasible to do so, collecting both respiratory and urine samples can increase the likelihood of detecting measles virus. For more information, see:

[Measles Lab Tools](http://www.cdc.gov/measles/lab-tools/index.html)

### To order diagnostic testing for suspect cases of Measles:

Contact the Minnesota Dept Of Health while the patient is still in the office to ensure timely reporting and correct specimen collection.

Please note that specimens are to be refrigerated.

For testing to go to MDH use the following order codes and specimen collection guidelines, as discussed with MDH:

<table>
<thead>
<tr>
<th>Test Name:</th>
<th>Measles - MDH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Number:</td>
<td>LAB994</td>
</tr>
<tr>
<td>Collect:</td>
<td>Throat Swab &amp; 5 ml Random Urine</td>
</tr>
<tr>
<td>Container:</td>
<td>Viral Transport - RT M4 &amp; Sterile Urine Container</td>
</tr>
<tr>
<td>Processing:</td>
<td>Submit Entire Specimen</td>
</tr>
<tr>
<td>Transport/Stability:</td>
<td>Refrigerated</td>
</tr>
<tr>
<td>Alternate Names:</td>
<td>MSO</td>
</tr>
<tr>
<td>Performing Lab:</td>
<td>MDH</td>
</tr>
<tr>
<td>Days Set Up:</td>
<td>Daily</td>
</tr>
<tr>
<td>Expected TAT:</td>
<td>24 - 48 hours</td>
</tr>
<tr>
<td>Ref. Ranges:</td>
<td>Provider will be called by Infection Control if Positive.</td>
</tr>
<tr>
<td>Collection/Processing Details:</td>
<td><a href="http://www.cdc.gov/measles/lab-tools/index.html">MDH Information</a></td>
</tr>
<tr>
<td>Method:</td>
<td>PCR &amp; Culture</td>
</tr>
</tbody>
</table>
The CDC recommends both RT-PCR studies and serologic testing for Measles IgM antibodies. Serologic studies are available through Mayo Medical Labs (see following pages). The utility of serologic testing, versus possible false positive results, may be discussed with MDH prior to ordering.

Order a **miscellaneous send out (MSO/LAB994)** and fill in the COMMENT section with MML test ID information. Further interpretive information regarding this testing as performed at Mayo Medical Laboratories (MML) is provided below for your convenience.

**Measles (Rubeola) Antibodies, IgM, Serum**

**MML Test ID:** ROM or 80979

**Specimen Type:** Serum  
**Preferred:** Red top  
**Acceptable:** Serum gel  
**Specimen Volume:** 0.5 mL  
**Specimen Minimum Volume** 0.2 mL

**Reject Due To:**

- Hemolysis: Mild OK; Gross reject  
- Lipemia: Mild OK; Gross reject  
- Icterus: NA  
- Other: Heat-inactivated specimen

**Specimen Stability Information**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum</td>
<td>Refrigerated (preferred)</td>
<td>14 days</td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>14 days</td>
</tr>
</tbody>
</table>

**Useful For**

Determining acute-phase infection with rubeola (measles) virus

As an aid in identifying nonimmune individuals

**Clinical Information**

Measles (rubeola) virus is a member of the family paramyxoviridae, which also includes mumps, respiratory syncytial virus, and parainfluenza viruses. Clinical infection with measles virus is characterized by a prodromal phase of high fever, cough, coryza, conjunctivitis, malaise, and Koplik's spots on the buccal mucosa. An erythematous rash then develops behind the ears and over the forehead, spreading to the trunk.
Measles virus is highly contagious; pregnant women, immuno-compromised, and nutritionally deficient individuals are at particularly high risk for serious complications of pneumonia and central nervous system involvement.(1-3)

Since intensive immunization began in the United States more than 2 decades ago, the incidence of measles infection has been reduced from approximately 1/2 million cases annually in the 1960s to fewer than 500 cases in recent years. Atypical measles can occur in patients who received killed measles virus vaccine and subsequently have been infected with the wild type strain of the virus.(4) In addition, many individuals remain susceptible to measles virus because of vaccine failure or nonimmunization. Screening for antibody to measles virus will aid in identifying these nonimmune individuals.

**Reference Values**

Negative (reported as negative or positive)

**Interpretation**

Positive IgM results, with or without positive IgG results, indicate a recent infection with measles virus.

Positive IgG results coupled with a negative IgM result indicate previous exposure to measles virus and immunity to this viral infection.

Negative IgG and IgM results indicate the absence of prior exposure to rubeola and nonimmunity.

Equivocal results should be followed up with a new serum specimen within 10 to 14 days.

**Cautions**

Grossly contaminated, hemolyzed, hyperlipemic, or icteric serum may yield unreliable results. Serum specimens must not be heat-inactivated prior to testing.

A serum specimen drawn during the acute phase of infection when only low titers of IgM are present may yield negative results by this procedure.

Rare heterotypic responses with rubella virus and varicella virus have been reported from measles virus. (5)

**Clinical Reference**

1. Liebert UG: Measles virus infections of the central nervous system. Intervirology 1997;40:176-184

*For questions, comments, or suggestions about this newsletter or other laboratory issues, please contact Lauren Anthony, MD, Medical Director of Allina Health Laboratory, (612) 863-0409 or Lauren.Anthony@allina.com*