

---

**Lab Dept:** Microbiology/Virology

**Test Name:** MEASLES PCR

---

***General Information***

**Lab Order Codes:** UMSP

**Synonyms:** Rubeola PCR

**CPT Codes:** 87798 – Infectious agent detection by nucleic acid (DNA or RNA) not otherwise specified; amplified probe technique, each organism

**Test Includes:** Measles Viral RT-PCR.

---

***Logistics***

**Test Indications:** Measles is a highly infectious disease. Although it is no longer endemic in the U.S., an imported case can spread rapidly. Suspected measles cases should be immediately reported to MDH to facilitate case confirmation and ensure a rapid public health response. Case confirmation is based on clinical presentation, epidemiologic factors, and laboratory test results.

Measles may be tested by one or more of the following methods in order of preference:

- Detection of the virus by reverse transcription-polymerase chain reaction (RT-PCR)
- A positive viral culture for measles
- A positive measles-specific IgM antibody\*(False positive or negative results can occur and further interpretation or testing may be needed.
- A significant rise in IgG antibody between acute and convalescent paired sera (not commonly done).

PCR (preferred method)

Measles PCR is a highly sensitive and timely laboratory test. A positive PCR result is considered confirmatory. The responsible provider must contact an MDH epidemiologist at 651-201-5414 or toll free at 1-877-676-5414 to notify MDH that specimens are being sent and to provide suspected case details:

- Patient name/date of birth
- Address/phone number
- Clinical presentation
- Known exposure, travel, or MMR history

Clinical specimens for PCR should be taken as soon as measles is suspected. Viral RNA is more likely to be detected when the specimens are collected within 3 days of rash onset; however it is acceptable to collect respiratory specimens for PCR up to 9 days past rash onset and urine

specimens up to 5 days post onset. Viral isolation requires the same specimens and may be done if PCR is negative.

Measles virus may be isolated from throat, urine, and nasopharyngeal/nares specimens.

Preferred specimens:

Day 0-5 of rash: throat swab

Day 6-9 of rash: throat swab and urine

**Lab Testing Sections:** Microbiology/Virology - Sendouts

**Referred to:** Minnesota Department of Health (MDH)

**Phone Number:** MIN Lab: 612-813-6280

STP Lab: 651-229-6550

**Test Availability:** Collection daily, 24 hours.

Reference lab accepts specimen deliveries Monday-Friday from 8 a.m. – 4 p.m., Saturdays from 8 a.m. to 12 p.m. Specimens must be received at testing lab by 11 a.m. to be set up on the day of receipt.

**Turnaround Time:** PCR results within 1-3 days

Culture may be done on a specimen with negative PCR results. Turnaround time for culture is a minimum of 3 weeks.

**Special Instructions:** Requisition must state **specific site** of specimen and **date/time of collection**. Collect specimens early in the course of illness to yield highest viral titers.

---

### ***Specimen***

**Specimen Type:** Throat; Urine; Nasopharynx/Nares

**Container:**

**Throat/Nasopharynx/Nares-** Swab transport system:

**Acceptable Swabs:** BBL Culture Swab, Culturettes, or Dacron swabs

**Acceptable Media:** Viral transport media (VTM), Universal transport media (UTM), M5, M4, Saline, PBS, Liquid Stuarts

Do not use wood-tipped applicators, cotton-tipped swabs, calcium-alginate tipped swabs, charcoal swabs, gel swabs

**Urine-** Sterile screw cap container

Caution: containers with tubing tend to leak compromising the specimen.

**Volume:**

Urine: >3 mL (minimum: 140 uL)

**Collection:****Throat:**

1. Depress the tongue with a tongue depressor so the swab does not touch the tongue.
2. Swab the posterior pharynx, tonsils, and inflamed areas with a sterile swab.
3. Replace the swab into the transport container (see [acceptable containers](#)), break shaft if needed, secure cap and send to the lab immediately.

**Urine:**

Collect >3 mL (140 uL minimum) of urine in a sterile container. Have patient void directly into container, collecting from the first part of the urine stream, if possible.

**Nasopharynx:**

1. Carefully insert a flexible-shaft dacron swab containing a dry tip into the nasopharyngeal cavity until resistance is encountered.
2. Rotate the swab slowly on the nasopharyngeal membrane for 5 – 10 seconds to absorb secretions.
3. Replace the swab into the swab transport medium and send to the lab immediately.

**Special Processing:**

Lab Staff:

Label tubes/containers with patient name, specimen source, date of birth, and date collected.

Swabs: Swab should be maintained in the appropriate [collection container](#).  
**Refrigerate.**

Urine: **Refrigerate**

Include an MDH Virology Specimen Submission Form for each specimen (submission forms are available at [Infectious Disease Laboratory - Forms](#))

Send to MDH Public Health Laboratory with daily courier.

Specimens should be kept and transported at refrigerated temperatures (2-8° C).

Send specimens to:

MDH Public Health Laboratory  
Attn: Biological Accessioning  
601 Robert St. N.  
St. Paul, MN 55155-2531

Specimens are stable at refrigerated temperatures for 7 days. Frozen specimens may be stable for up to one year.

**Transport/Storage:**

Transport to the Laboratory immediately to maintain specimen integrity.

**Sample Rejection:**

Specimen with a transit time exceeding 1 hour after collection without refrigeration; specimen not submitted in appropriate transport container; dry swabs; improperly labeled specimen; insufficient volume; leaking or non-sterile containers.

If an unacceptable specimen is received, lab staff must notify the patient's caregiver and another specimen will be requested before the specimen is discarded.

---

***Interpretive*****Reference Range:**

RNA not detected

**Critical Values:**

N/A

**Limitations:**

N/A

**Methodology:**

Reverse Transcription Polymerase Chain Reaction (RT - PCR)

**References:**

[Minnesota Department of Health](#) January 2024

[Lab Testing for Measles at the MDH Public Health Laboratory - MN Dept. of Health \(state.mn.us\)](#)

**Updates:**

6/3/2019: Rubella PCR is no longer available through MDH.

4/19/2023: Updated preferred specimen source, clarified transport container details, updated urine volume requirements, added specimen stability information

1/29/2024: Clarified delivery receiving times and testing cut off time.