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**Lab Dept:** Microbiology/Virology

**Test Name:** MEASLES PCR

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***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.

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***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. Contact an MDH epidemiologist at 651-201-5414 or toll free at 1-877-676-5414 to facilitate testing for situations in which rapid case confirmation is critical.

PCR test specimens

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 specimens for PCR up to 9 days past rash onset. Viral isolation requires the same specimens and may be done if PCR is negative.

Measles virus can best be isolated from – in order of preference: throat, urine, and nasal specimens. Ideally, all three specimens should be

collected.

<b>Lab Testing Sections:</b>	Microbiology/Virology - Sendouts
<b>Referred to:</b>	Minnesota Department of Health (MDH)
<b>Phone Number:</b>	MIN Lab: 612-813-6280 STP Lab: 651-229-6550
<b>Test Availability:</b>	Specimens accepted daily, 24 hours
<b>Turnaround Time:</b>	Results within 2 – 7 days
<b>Special Instructions:</b>	Requisition must state <b>specific site</b> of specimen and <b>date/time of collection</b> . Collect specimens early in the course of illness to yield highest viral titers. Do not use calcium alginate swabs.

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### ***Specimen***

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

**Container:** Urine: Sterile screw cap container  
Throat/Nasopharynx: Swab transport system

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

**Volume:** Urine: >1 mL (suggested: 10 – 40 mL)

**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. Remove the swab, place in swab transport medium and send to the lab immediately.

**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. Remove the swab, place in swab transport medium and send to the lab immediately.

**Urine:**

Collect >1 mL (suggested 10-40 mL) of urine in a Sterile container (50 mL centrifuge tube or urine specimen container). Have patient void directly into container, collecting from the first part of the urine stream, if possible.

**Special Processing:**

Lab Staff:

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

- NP swabs; place into VTM. Swabs should remain in the VTM by cutting the wire shafts. Vortex, refrigerate.
- Swabs: Place into viral transport media (VTM). Vortex and 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 refrigeration temperature (2-8° C).

Send specimens to:

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

**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, the patient's caregiver will be notified and another specimen will be requested before the specimen is discarded

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***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](#) August 2015

**Updates:**

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