March 22, 2019

HEALTH ALERT: Measles

Dear Colleagues,

Attached is a Health Alert received from the Michigan Department of Health and Human Services regarding additional cases of measles here in Michigan, as well as the locations of possible exposure.

Although we have not had any cases of measles here in Ottawa County all medical providers are encouraged to have an increased level of awareness for this disease and to contact the Ottawa County Department of Public Health with any concerns.

If you have further questions, please contact me at 616-494-5548.

Sincerely,

Paul A. Heidel, MD, MPH
Medical Director
Ottawa County Department of Public Health
Additional Measles Cases Confirmed in Oakland County

Pontiac, Mich. – Michigan Department of Health and Human Services and Oakland County Health Division today received confirmation of four additional measles cases in Oakland County. Three other cases are currently under investigation. These cases follow a confirmed travel-related measles case announced by the Health Division on March 13, 2019.

"Measles is in the community and highly contagious. You need to get vaccinated if you are unsure whether you have been vaccinated or unsure if you have had measles in the past," said Leigh-Anne Stafford, health officer for Oakland County. "If symptoms develop, do not visit your doctor or emergency room unless you call ahead so they can take precautions to prevent exposure to other individuals."

**Exposures may have occurred at the following locations, dates, and times:**

March 14 – March 19

- **Congregation B’Nai Israel**: 15400 W. 10 Mile Rd., Oak Park
- **Ahavas Olam**: 15620 W 10 Mile Rd., Southfield
- **Yeshiva Gedolah of Greater Detroit**: 24600 Greenfield Rd., Oak Park
- **Kollee Institute of Greater Detroit**: 15230 Lincoln St., Oak Park

March 15 – March 18

- **One Stop Kosher Food Market**: 25155 Greenfield Rd., Southfield

March 15

- **Young Israel of Oak Park**: 15140 W. 10 Mile Rd., Oak Park, After 1:00 – 6:00 p.m.
- **Kroger**: 23675 Greenfield Rd.: Southfield, 12:00 – 3:00 p.m.

March 16

- **Huntington Woods Minyan**: 14130 Balfour St., Oak Park, 8:30 a.m. – 2:00 p.m.

March 17

- **Yeshivas Darchei Torah School**: 21550 W. 12 Mile Rd., Southfield, 9:00 a.m. – 3:00 p.m.

March 18

- **Kroger**: 19853 W. 12 Mile Rd., Southfield, 8:00 – 11:00 p.m.
- **Berkley Medical Center**: 1695 W. 12 Mile Rd., Berkley, 11:15 a.m. – 3:00 p.m.
- **Meijer**: 28800 Telegraph Rd., Southfield, 1:00 – 4:30p
- **Yeshivas Darchei Torah School**: 21550 W. 12 Mile Rd., Southfield, 9:00 a.m. – 3:30 p.m.
March 20

- **Brede, Inc.**: 19000 Glendale Ave., Detroit, 12:00 – 7:30 p.m.

**Potential exposures may have occurred at the following locations.** OCHD will update [www.oakgov.com/health](http://www.oakgov.com/health) as more information becomes available.

March 15

- **Beaumont Reference Lab**: 3601 13 Mile Rd., Royal Oak, 10:00 a.m. – 2:00 p.m.
- **SKLD Bloomfield Hills**: 2975 N. Adams Rd., Bloomfield Hills, 12:00 – 3:00 p.m.
- **Westborn Market**: 27659 Woodward Ave., Berkley, 12:30 – 3:30 p.m.
- **Jax Kar Wash**: 27054 Woodward Ave., Royal Oak, 1:00 – 4:00 PM

March 16

- **Beth Tefilo**: 24225 Greenfield Rd., Southfield, 8:00 p.m. – 11:00 p.m.

March 17

- **Beth Tefilo**: 24225 Greenfield Rd., Southfield, 8:00 – 11:00 a.m.
- **Lowe’s Home Improvement**: 28650 Telegraph Rd., Southfield, 12:20 – 3:30 p.m.
- **Lowe’s Home Improvement**: 434 W. East 12 Mile Rd., Madison Heights, 3:00 – 7:00 p.m.
- **Home Depot**: 660 W. 12 Mile Rd., Madison Heights, 4:30 – 7:00 p.m.

March 18

- **Oakland County Circuit Court Building**: 1200 N. Telegraph Rd., Bldg.12E, Pontiac, 1:30 – 5:00 p.m.
- **ABC Warehouse**: 24725 Southfield Rd., Southfield, 3:30 – 7:00 p.m.
- **Universal Plumbing Supply**: 14511 W. 11 Mile Rd., Southfield, 4:40 – 7:30 p.m.

March 19

- **Building at 211 W. Fort St., Detroit**, 10:00 a.m. – 2:00 p.m. This building includes Detroit Economic Club, U.S. Department of Labor, U.S. Passport Office, and more.

March 20

- **Beaumont Reference Laboratory**: 3601 13 Mile Rd., Royal Oak, after 3:00 p.m.
- **Providence Park Novi Medical Building**: 26850 Providence Parkway, Novi, after 1:00 p.m.

The measles vaccine is available through some health providers, Oakland County Health Division offices in Southfield and Pontiac, and many pharmacies. Health Division offices are open Monday: 8:30 a.m.- 6:00 p.m. and Tuesday-Friday 8:30 a.m.- 5:00 p.m. and are located at the following addresses:
The Health Division will host a special measles vaccination clinic open to the public. No other vaccines will be available at the following clinic:

- **Saturday, March 23, 10 a.m. – 2 p.m.** at the South Oakland Health Center, 27725 Greenfield Rd., Southfield.

Oakland County Health Division’s Nurse on Call phone line will be open 10 a.m. to 2 p.m. on Saturday to answer any questions. Please call 800-848-5533 or email noc@oakgov.com.

Unvaccinated individuals need to get vaccinated. If you are unsure whether you have been vaccinated or have had measles in the past, contact your healthcare provider. Watch for symptoms for 21 days after potential exposure. Vaccine is effective within 72 hours of exposure to prevent illness. In addition, Immune Globulin (Ig) treatment is effective within 6 days of exposure for high-risk individuals. Talk to your preferred healthcare provider to determine if Immune Globulin is right for you and if it is available. High-risk individuals include those who are unvaccinated or unsure about vaccination status, pregnant women and those who are immune-compromised (have a weakened immune system due to illness and disease like diabetes or HIV, malnutrition, and/or medications).

Measles is a highly contagious, vaccine-preventable disease that is spread by direct person-to-person contact, and through the air. The virus can live for up to two hours in the air where the infected person was present. Symptoms of measles usually begin 7-14 days after exposure, but can appear up to 21 days after exposure and may include:

- High fever (may spike to over 104°F)
- Cough
- Runny nose
- Red, watery eyes (conjunctivitis)
- Tiny white spots on the inner cheeks, gums, and roof of the mouth (Koplik Spots) 2-3 days after symptoms begin
- A rash that is red, raised, blotchy; usually starts on face, spreads to trunk, arms, and legs 3-5 days after symptoms begin
March 28, 2019

HEALTH ALERT: Measles

Dear Colleagues,

As the measles outbreak continues to spread it is important that we provide you with the latest updates from the Michigan Department of Health and Human Services (MDHHS). Attached are the most recent communications provided to us by MDHHS, and although these attachments are rather lengthy, they cover in detail the measles information pertinent to medical providers.

Currently there have been no reported cases of measles in Ottawa County; however, medical providers are encouraged to maintain a high level of awareness for this disease. Please note that if a case of measles is suspected, it is extremely important to confirm the diagnosis with a throat swab for measles PCR and serum for measles IgM. Details for obtaining and submitting samples for testing are included with this correspondence.

Thank you for your help in containing this outbreak. If you have further questions please contact me at 616-494-5548.

Sincerely,

Paul A. Heidel, MD, MPH
Medical Director
Ottawa County Department of Public Health
2019 Michigan Measles Outbreak – March 27, 2019 Update from MDHHS

This health alert message is being posted to the Michigan healthcare and public health communities. Please share within any associated distribution networks.

Michigan public health officials are continuing to respond to an increase in confirmed measles cases in Southeast Michigan. The Michigan Department of Health and Human Services (MDHHS) announced that, to date, 22 cases of measles have been confirmed since the first case became ill on March 10, 2019. That individual arrived in Michigan after having spent time in New York City, the site of an ongoing outbreak in the Orthodox Jewish community. No deaths or hospitalizations have been associated with the Michigan outbreak. To date, all of the Michigan cases have been residents of Oakland and Wayne counties.

Attached to this post, please find the MDHHS Vaccine Preventable Disease Investigation Guidelines for Measles and guidance on Measles Testing at Michigan Bureau of Laboratories

Measles Information:

- Measles is transmitted by airborne particles, droplets, and direct contact with the respiratory secretions of an infected person;
- Measles virus can remain infectious in the air for up to two hours after an infected person leaves an area;
- Symptoms usually appear 10 to 12 days after exposure to measles, and in some cases, symptoms can start as early as seven days or as late as 21 days following exposure;
- Early symptoms include fever, cough, runny nose, and red, watery eyes;
- Koplik spots, small, white spots (often on a reddened background) occur on the inside of the cheeks early in the course of measles.
- Rash and fever are the defining symptoms of measles and usually occur four days following the early symptoms. The rash usually starts on the face and proceeds down the body and can persist for several days;
- Infected individuals are contagious from four days before rash onset through the fourth day after rash appearance;
- Any susceptible (unvaccinated) person can contract the measles;
- People at high risk for severe illness and complications from measles include:
  - Infants and children aged younger than 5 years
  - Adults aged 20 years or over
  - Pregnant women
  - People with compromised immune systems, such as from leukemia and HIV infection

Measles Prevention:

- Promote routine vaccination with MMR vaccine. One dose of MMR vaccine is approximately 95% effective at preventing measles; two doses are approximately 97% effective;
• Recognize that there are large outbreaks of measles in Europe and Israel, as well as in
countries in South America, Africa, and Asia;
  o Promote MMR vaccination for travelers to these regions.
  o Adequate vaccination of persons who travel outside the U.S. is two doses of
    MMR.
  o Inquire about travel history from presenting patients.
  o Infants aged 6 through 11 months should also be vaccinated with one dose of
    MMR prior to international travel;

Clinical Response to Suspect Cases:

When a patient presents with symptoms that are clinically-compatible with measles, control
measures should be implemented immediately without waiting for lab results to be available.

When patients make appointments for rash illness with fever and potential exposure to measles
they should be presumed to be infected with measles (regardless of any pending laboratory
confirmation). Consider:

• Meeting the patient in the car when they arrive and providing a mask;
• Advising the patient to enter the clinic through an alternate entrance and placing the
  patient immediately into an exam room to avoid exposing other patients. Note: Exam
  rooms should not be used for other patients for at least two hours after the measles
  suspect leaves because the measles virus can live for up to two hours in an airspace where
  an infected person coughed or sneezed;
• Clinicians are advised to take the following actions in assessing patients with significant
  fever, cough, coryza, and/or conjunctivitis and presenting with a macular/papular body
  rash:
    o Isolate the patient immediately - use a negative pressure room if available;
    o Avoid exposure to other patients;
    o Assess patient's immunization history
      • Only doses of vaccine with written documentation of the date of receipt
        should be accepted as valid. Self-reported doses or a parental report of
        vaccination is not considered adequate documentation.
    o Assess patient’s risk factors including recent travel or recent contact with
      person(s) having febrile rash illness;
    o Obtain serum for measles IgM and a throat swab for measles PCR (the latter to be
      collected with a synthetic swab and placed in viral transport medium);
    o Infected people should be isolated for four days after they develop a rash;
      airborne precautions should be followed in healthcare settings;
    o Report suspect cases to the local health department immediately.

Laboratory Testing (see attached guidance):

Clinicians are advised to include measles in their differential diagnosis for any patients
presenting with clinically compatible symptoms with residence or history of travel to Southeast
Michigan or any area experiencing active measles transmission.
All testing must be coordinated through your local public health department. Local health department staff will work with the MDHHS to facilitate testing.

Clinical specimen collection and transport are addressed in the attached document. As a reminder, be certain that all collection containers are appropriately sealed prior to transport to prevent leakage and the potential incidental contamination of transport vehicles and the testing laboratory. Leaking specimen containers will be disposed of with no testing.

Testing is conducted on weekdays at the MDHHS Bureau of Laboratories, but specimens must arrive before 9am to be included in that day’s run. Test results are generally available by the end of the same day as the testing run.

**Vaccine Availability:**

There are no shortages with MMR vaccine. Public vaccine is available to local health departments for response to measles cases and vaccination in areas were exposures have occurred.

**Occupational Health**

Health Care Providers should have evidence of immunity to measles which includes:

- Written documentation of vaccination with 2 doses of live measles or MMR vaccine administered at least 28 days apart, or:
- Laboratory evidence of immunity, or;
- Laboratory confirmation of disease.

Measles

CLINICAL CASE DEFINITION
An illness characterized by all of the following:

- a generalized rash lasting at least 3 days AND
- a temperature of 101° F (38.3°C) or higher AND
- at least one of:
  - cough,
  - coryza (runny nose), or
  - conjunctivitis (redness and inflammation of the conjunctiva which lines the eyelid and covers the eyeball)

CASE CLASSIFICATION

- **Suspect:** Rash illness with fever
- **Probable:** A case that meets the clinical case definition, has non-contributory or no serologic or virologic testing, and is not epidemiologically linked to a confirmed case.
- **Confirmed:** A case that is laboratory confirmed (see LABORATORY CONFIRMATION, below), or that meets the clinical case definition AND is epidemiologically linked to a confirmed case. A laboratory-confirmed case does not need to meet the clinical case definition.

TRANSMISSION

- Person-to-person via airborne transmission or droplets from the respiratory secretions of infected persons.
- Droplets can become aerosolized and remain suspended in the air for an extended period of time (documented up to 2 hours). Measles is highly communicable.

INCUBATION PERIOD
From exposure to prodrome (symptoms preceding rash) the average incubation is 10 – 12 days. From exposure to rash onset the average is 14 days (range 7 – 18). See Measles Timeline, below.

PERIOD OF COMMUNICABILITY
From 4 days before rash onset to 4 days after.

REPORTING/INVESTIGATION

- Health care providers should immediately report any possible case of measles to local health department of the patient’s residence.

- Local health department responsibilities:
  - Contact case/guardian and health care provider.
  - Determine if case meets clinical case definition. If definition met (probable or confirmed cases), investigate using report form/surveillance worksheet and control guidelines below.
  - Measles is an important public health concern; if clinical presentation suggests a likely measles case(s), notify MDHHS Immunization Division by phone 517/335-8159.
  - Report/ensure reporting of case to the Michigan Disease Surveillance System (MDSS).
**CDC Measles Surveillance Worksheet** may be helpful in field investigation to collect and capture data. Obtain immunization history information from provider record or MI Care Improvement Registry (MCIR - state immunization registry).

- Update the MDSS record in a timely manner with new or additional info as it becomes available. Finalize MDSS record when case investigation is complete.
- In the event of a measles-related death, obtain and send copies of hospital discharge summary, death certificate, and autopsy report to MDHHS Immunization Division.

### LABORATORY CONFIRMATION

Essential; should be attempted for all potential cases meeting the clinical case definition. Collect serum and viral specimen (throat swab, urine, etc). Laboratory confirmation for measles is defined as one of the following:

- Positive serologic test for measles-specific IgM antibody (this is the preferred confirmation)

  **NOTE:** Measles IgM tests that are negative and were collected less than 72 hours after the rash onset should be repeated using sera collected 72 or more hours after rash onset.

- Significant rise in measles IgG antibody by any standard serologic assay
  
  - Collection of sera for these paired assays should be appropriately spaced: 10 or more days should separate the collection of the acute and convalescent sera.
  
  - Sera should be tested in parallel (i.e., run together in the same test/assay batch).

- Isolation of measles virus from a clinical specimen.

- Detection of measles-virus-specific nucleic acid by polymerase chain reaction (PCR).

Serum and viral (culture, PCR testing for virus RNA and sequencing) specimens should be collected from suspected cases. See additional information under **LABORATORY SPECIMENS: PROCEDURES AND CONSIDERATIONS**, below.

Measles testing is available through the MDHHS laboratory but is subject to reagent availability. Pre-approval arrangements must be made through the MDHHS VPD Surveillance Coordinator at 517/335-8159. Measles testing (serologic and virologic) is also available through commercial clinical laboratories.

### IMMUNITY/SUSCEPTIBILITY

Individuals should be considered immune (protected against) measles only if they meet one or more of the following conditions:

- Born before 1957 (exceptions are women who might become pregnant and health care workers; these groups should have documentation of immunity by one of the methods immediately following below)

- Laboratory confirmation of a measles disease diagnosis;

- Serologic (lab) evidence of immunity to measles

- Documentation of receipt of 2 doses of measles-containing vaccine administered at least 28 days apart (1 dose is acceptable for preschool-age children and adults not considered at high risk, ie.
adults who do not work in healthcare, who do not travel internationally, and who are not students at post-high school educational institutions).

NOTE: All persons who work in a health care setting in any capacity should have evidence of immunity to measles, mumps, rubella, varicella, pertussis, hepatitis B, and seasonal influenza.

CONTROL MEASURES

♦ Investigate reports of possible measles immediately.

♦ If Clinical Case Definition is met, regard as true measles case; implement control actions unless measles is ruled out by lab testing or other information.

♦ Cases should be excluded and isolated from group activity settings (e.g. schools, day-care centers, work place, camps, etc.) immediately and through the 4th day after the onset of rash to limit further exposures. In health care settings, use of Airborne Precautions is recommended.

♦ Identify exposed contacts. Measles is highly communicable. Measles cases are communicable (contagious) starting 3-5 days before rash onset through the 4th day after rash onset, exposure includes household contact and same-room contact.

♦ Assess susceptibility of contacts (see Immunity/Susceptibility, above). Measles vaccine is universally recommended as part of the routine childhood immunization schedule, thus persons ≥ 4 years of age and born after 1956 should have a history of 2 doses of MMR vaccine, and persons ≥ 1 year and < 4 years of age should have a history of at least 1 dose of MMR vaccine.

♦ Susceptible contacts should be recommended to receive post-exposure prophylaxis with either:
  - Measles (MMR) vaccine, if given within 72 hours of exposure
  - Immune globulin (IG), if given within 6 days of exposure

Comment: In most situations vaccine is preferable to use of immune globulin, provided vaccine can be given within 72 hours. However, IG, rather than vaccine, should be used for infants under 6 months of age, pregnant women, and severely immunocompromised persons:

- Infants aged < 12 months who have been exposed to measles should receive 0.5 mL/kg [0.11 ml/lb] of body weight of IG given intramuscularly (IGIM) (maximum dose = 15 mL). Alternatively, MMR vaccine can be given instead of IGIM, to infants age 6–11 months, if it can be given within 72 hours of exposure.
- Pregnant women without evidence of measles immunity who are exposed to measles should receive 400 mg/kg of IG given intravenously (IGIV).
- Severely immunocompromised‡ persons who have been exposed to measles should receive 400 mg/kg of IG given intravenously (IGIV), even if they have past evidence of measles immunity.
- Other people who do not have evidence of measles immunity can receive an IG dose of 0.5 mL/kg of body weight. Give priority to people who were exposed to measles in settings where they have intense, prolonged close contact (e.g., household, child care, classroom, etc.). Give IG intramuscularly; the maximum dose is 15 mL.

♦ Exclusion of exposed, susceptible contacts: Exposed persons attending group-activity settings (e.g. schools, day-care centers, work place, camps) who cannot provide documentation of...
measles immunity (including those with medical, religious and philosophical exemptions) should be vaccinated as soon as possible.

- Those who are receiving their 1st dose of measles vaccine (MMR or MMRV) and are receiving it within 72 hours of exposure to measles may in general be re-admitted to the activity setting (however the local health officer may opt not to grant readmission until 21 days after the last known case onset, depending on the situation). The 2nd dose of measles vaccine in should be scheduled for 28 days after the first dose.

- Those who had received one dose of measles-containing vaccine prior to the exposure and who now receive a second dose following the exposure do not need to be excluded from public settings or group activities.

- Those who refuse vaccination, and those who receive vaccine more than 72 hours after exposure, should be excluded from the setting for 21 days after the onset of the final case of measles in the group activity outbreak setting.

- Although the 2nd dose of measles, mumps, rubella vaccines is not routinely given until 4 – 6 years of age, in outbreak situations involving day care, pre-school, and other settings with children under 4 years of age, consideration should be given to requiring the 2nd dose as a control measure, following appropriate minimum intervals between doses.

Provide information about measles to persons at risk and/or the general public. An excellent Question-&-Answer measles information sheet in .PDF format is available from the Immunization Action Coalition (http://www.immunize.org/catg.d/p4209.pdf)

LABORATORY SPECIMENS: PROCEDURES AND CONSIDERATIONS

- Collect a serum and specimen(s) for PCR/viral isolation/molecular epidemiology testing (a respiratory specimen, such as throat or nasopharyngeal swab; urine can also be considered). Collect specimens at the same time. See below for details.

- Laboratory support for measles case investigations fulfills 2 important and distinct objectives:
  1) confirmation of cases which improves overall surveillance
  2) characterization of circulating measles virus strains

- It is important to pursue both serologic and virologic testing; i.e., it is important to collect both serum and viral specimens from suspected cases.

- To obtain MDHHS serology and virology specimen collection and container kits, call MDHHS Laboratory Support Unit: 517-335-9040.

MEASLES SEROLOGY

Purpose: to confirm a case of measles by detecting measles-specific antibodies.

Specimen needed: serum, 2 ml.

MDHHS lab kit: unit 8

Specimen container description: plastic serum tube with skirted cap

MDHHS lab form: DCH-0583
Preferred test: measles IgM antibody. This test is available at or through MDHHS laboratory, using highly sensitive and highly specific direct capture ELISA (EIA) methodology.

Alternate tests: other methods of measles IgM; paired IgG demonstrating significant rise in measles IgG antibody.

Specimen collection/submission procedure:

♦ Collect at least 5 ml of whole blood in red-top or other tube without anticoagulant. Separate serum from blood by centrifugation and pour into PLASTIC serum tube, store at 2 - 8 C, or freeze serum if it cannot be shipped and received in MDHHS lab within 3 days. Do not freeze whole blood.

♦ Timing of specimen collection
  o For IgM testing: collect one serum between the 3rd and 30th day after onset of rash.
  o NOTE: Measles IgM tests that are negative and were collected less than 72 hours after the rash onset should be repeated using sera collected 72 or more hours after rash onset.
  o For paired IgG testing; note that IgG testing requires 2 serum specimens, acute phase and convalescent phase:
    • Acute-phase specimen - collect as soon after rash onset as possible;
    • Convalescent-phase specimen - collect 10-30 days (no earlier than 10 days) after acute-phase specimen.
  Test will be done when both specimens are received (specimens can be sent individually or acute can be held at 2 - 8°C and sent to lab with convalescent specimen). If the specimens are sent to MDHHS lab separately, be sure to indicated on the Lab Request form that this is an acute serum and that the convalescent specimen will follow in approximately 10 -14 days.

☐ Label tube(s) with patient name, date of birth, and date of specimen collection.

♦ Complete MDHHS Virology Test Requisitions Form DCH-0593; complete all information in the Patient Information and Specimen Information sections.
  o Request 'measles IgM' and 'rubella IgM' in the Test Requested area
  o NOTE: testing for rubella is encouraged for all suspected measles cases (likewise, testing for measles is encouraged for all suspected rubella cases).

♦ Be sure MDHHS Immunization Division has been notified of the case investigation.

♦ Ship specimens on a cold pack by overnight delivery if possible.

♦ Mail specimens to:
  Michigan Department Health & Human Services
  Bureau of Laboratories
  3350 N. Martin Luther King Blvd.
  Building 44, Room 155
  Lansing, MI  48909

MEASLES VIROLOGY/MOLECULAR EPIDEMIOLOGY TESTING

Collect a respiratory specimen for PCR/viral isolation in addition to the serum described above).
Use a synthetic swab (not cotton).

Purpose:
Virus isolates and viral RNA detection/sequencing can confirm a measles case, and are also important for molecular epidemiologic surveillance, specifically to help determine:

♦ the geographic origin of the virus,
♦ the viral strains circulating in the U.S., and
♦ whether these strains have become endemic in the U.S.

Note: Specimens for measles virology should be routinely collected along with serum when investigating potential measles cases. Do not delay collection of viral specimens until serologic confirmation is obtained, since the success of virus isolation is greatest for specimens collected within 7 days of rash onset. Do not collect viral specimens if more than 10 days have elapsed since rash onset.

Specimens:
♦ Respiratory specimen - throat swabs (oropharyngeal) or nasopharyngeal (NP) swabs are the preferred samples for virus isolation or detection of measles RNA by RT–PCR
♦ Urine - Urine samples may also contain virus and when feasible to do so, collection of both throat swab and urine can increase the likelihood of detecting the virus

MDHHS lab kit: 45

Specimen container(s)
♦ Throat swabs and other respiratory specimens: Viral Transport Media test tube
♦ Urine: 50 ml centrifuge tube or other sterile container

Specimen collection/submission procedure:
Label all specimen containers used with patient name, date of birth, and date of specimen collection.

Respiratory specimens: throat swab (preferred), nasopharyngeal swab, nasal swab, or nasal wash
♦ Collect as soon as possible after onset of rash (no later than 10 days after rash onset).

♦ Throat swabs (and/or nasal or NP swab): Use sterile Dacron (or other synthetic) swab to swab back of throat or the nasopharynx; if collecting more than one specimen use separate Dacron/synthetic swabs. Try to collect epithelial cells. Place swab(s) in a tube containing 2-3 ml of viral transport medium; submerge swab in transport medium and express the swab against the inside wall of the specimen container. Swab may be left in tube but make sure tube cap is securely screwed on; swab shaft may need to be cut down in order to fit if swab is to be left in tube.

♦ Nasal wash: use syringe with small plastic tube and 3-5 ml of Viral Transport Medium (VTM). Tilt head back, instill VTM in one nostril, holding other nostril closed; aspirate VTM fluid and specimen material quickly and gently. Rinse the tube with approximately 2ml of VTM to obtain any residual specimen.

♦ Keep specimens at 4°C (refrigerated).

♦ Ship specimens on cold pack by overnight delivery if possible.

If immediate cold shipment (within 48 hours) cannot be arranged or is not convenient:
- Nasal wash specimens can be centrifuged at 500 x g (approximately 1500 rpm) for 5 minutes, preferably at 4°C, and the pellet re-suspended in 1 ml of cell culture medium.
possible, the supernatant can be saved in a separate tube. The samples should be frozen and shipped at -70° C (dry ice). If centrifugation is not available, the whole specimen can be frozen (preferably at -70°C) and shipped on dry ice.

☐ **Nose and throat swabs** can be removed from the transport medium after allowing some time for elution of virus. The specimen can then be frozen at -70°C and shipped on dry ice.

**Urine specimens:**
- Collect within the first week after rash onset.
- Collect 50-100 ml or urine in a clean urine specimen container (50 ml centrifuge tubes work well); first morning void is preferable, collect urine “clean catch mid-stream.”
  - If centrifugation is available: Centrifuge at 500xg (approximately 1500 rpm) for 5 to 10 minutes to pellet the sediment. The supernatant should be discarded; re-suspend the sediment in 2-3 ml of viral transport medium or any cell culture medium. Ship frozen at -70°C on dry ice. If dry ice is not available, store at 4°C and ship on cold pack within 48 hours.
  - If centrifugation is not available, do not freeze the urine sample. The entire urine specimen should be stored at 4°C and shipped to the lab on cold pack.

- Complete a MDHHS Virology Test Requisition Form **DCH-0583** for each specimen. Indicate "measles virus by culture/PCR" in the "other" section of the Test Requested area.

- Mail specimens on a cold pack to:
  
  Michigan Department Health & Human Services
  Bureau of Laboratories
  3350 N. Martin Luther King Blvd.
  Building 44, Room 155
  Lansing, MI 48909

  •
Measles Testing at Michigan Bureau of Laboratories
The MDHHS Bureau of Laboratories (BOL) performs PCR on throat and nasopharyngeal specimens and measles IgM antibodies on serum. To request testing a DCH-0583 test requisition form must be completed.

https://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_5103_5278-14806--,00.html

- When requesting Measles IgM please also request Rubella IgM.
- Measles PCR is not on the test form. Please write in measles PCR in the other box under virology section of form.
- If Urine is sent in it will be forwarded to Wisconsin State Laboratory of Hygiene (WSLH-VPD Reference Center) for testing.
- All positive PCR specimens will also be forwarded to WSLH for genotyping.

Testing is conducted daily:
Monday-Friday
Must arrive to the State Lab by 9am
Results will be provided to counties by end of day

Special allowances will be considered for possible weekend testing if needed, e.g. possible flight exposure.

SPECIMEN PACKAGING FOR COURIER DELIVERY:


Specimen type for PCR: Dacron tip with an aluminum or plastic shaft eluted in 3 ml viral transport medium in a plastic container.
Specimen type for IgM serology: 1 ml serum

1. Primary container (NP or throat swab placed in viral transport media or a serum sample).
   a. Ensure cap is securely tightened
   b. Parafilm cap to prevent leakage
   c. Must be labeled properly with patient’s first and last name and another unique patient identifier

2. Place absorbent material around primary container (enough to be able to drink up all the fluid if the whole container spilled out)
3. Place primary container (with absorbent material) in secondary bag and seal.
4. Keep serum and swab specimens refrigerated until ready to send to the state laboratory. Specimens must be transported at refrigerated temperatures (or on cold packs).

5. When ready to send to the state laboratory, place test requisition on outside of secondary container

   a. Some secondary container bags have a separate outer pouch for the test requisition
   b. Do NOT place the test requisition in with the same bag as the specimen

6. Please make sure outside container is labelled “Refrigerate upon receipt”.

7. Place secondary container in outside container (many times it is a cooler in the courier car)

For Category B shipping and packaging instructions via FedEx or UPS or US Postal Service
https://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_5103_5278---,00.html

Questions for packaging and shipping can be referred to Shannon Sharp at the MI-BOL sharps1@michigan.gov

All other questions can be referred to Dr. Diana Riner Bureau of Laboratories Virology Section Manager rinerd@michigan.gov 517-335-8099 or cell 517-230-7828
Figure 12. Packaging of scrum samples.
A - individual samples in a sealed bag or pouch.
B - multiple samples in an insulated container.

https://www.who.int/ihr/elibrary/manual_diagn_lab_meas_rub_en.pdf