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www.dhd10.org



healthdept10

Dear Healthcare Partner,

February 29, 2024

Due to declines in immunizations, we are facing increasing concerns of vaccine preventable diseases (VPD) in the United States and Michigan, specifically measles and varicella. We are reaching out to our clinical partners with resources for evaluation and reporting of patients suspected of having a VPD, as well as increasing recommendations for immunizations.

Measles:

- Measles Provider Fact Sheet with resources <https://www.cdc.gov/measles/downloads/Measles-fact-sheet-508.pdf> (attached)
- Excellent CDC overview: Measles Clinical Presentation, Diagnosis, and Prevention (recorded webinar and PowerPoint Slides) https://emergency.cdc.gov/coca/calls/2023/callinfo_081723.asp
- Measles prevention for international travelers <https://www.cdc.gov/measles/plan-for-travel.html>
- Think Measles if traveling internationally (poster from Hawaii State DOH) <https://health.hawaii.gov/docd/files/2014/07/Think-Measles.jpg>

Varicella:

- Varicella Provider Fact Sheet with resources <https://www.cdc.gov/chickenpox/downloads/Varicella-diagnosis-fact-sheet-508.pdf> and Do You Know What Breakthrough Varicella (Chickenpox) Looks Like? <https://www.cdc.gov/chickenpox/downloads/Breakthrough-Varicella-fact-sheet-508.pdf> (attached)
- Video and written information on collecting samples from varicella lesions for PCR testing: <https://www.cdc.gov/chickenpox/lab-testing/collecting-specimens.html#genotyping>
- Chickenpox infographic: <https://www.cdc.gov/chickenpox/vaccine-infographic.html>

All VPD:

- Any suspected or confirmed diagnosis of a VPD must be reported to the local health department within 24 hours. See the [2023 Health Care Professional's Guide to Disease Reporting in Michigan \("Brick Book"\)](#) for rules.
 - Instructions for reporting, including after hours and weekends, are at <https://www.dhd10.org/healthcare-providers/communicable-disease-reporting-2/>
- A table of recommended testing for measles, varicella, pertussis, and mumps has been included at the end of this letter for your reference.
 - To avoid false-positive results, it is important to **only** use testing in the proper clinical and epidemiologic situation to **confirm** a diagnosis, **not to rule out** a diagnosis.
- Testing is available through most local laboratories and the medical technologists at your lab can answer questions you may have about sample collection and ordering specific to your lab system.
- Many tests can also be provided by the Michigan Department of Health and Human Services Michigan Bureau of Laboratories (MDHHS BOL). See <http://michigan.gov/mdhhs/bol>. We at the local health department can provide assistance as needed.
- For excellent images and videos of VPD, go to <https://www.immunize.org/clinical/image-library/> and click on the disease of interest on the left side of screen.
- More information can also be found at <https://www.cdc.gov/az/>, select the disease of interest, then select the "Healthcare Providers/Clinicians" section to find detailed information about clinical presentation, diagnosis, photos, and other information.

Increase Immunizations:

- [You and your staff are parents' most trusted source of vaccine information](#) – make strong and consistent vaccination recommendations at every visit.
 - See <https://www.immunize.org/clinical/vaccine-confidence/> for excellent resources to address vaccine confidence and concerns.
 - See <https://www.canr.msu.edu/vaccineeducation/Physician-Peer-Education-Program/> to arrange for tools and trainings to help you and your staff better address any immunization concerns.
 - Contact your local health department for any help or resources you need.

As always, we at the health department are here to help you and your patients in any way that we can. Please feel free to contact the branch office in your county or me directly if there is ever anything we can do or if you have any questions.

Sincerely,



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Medical Director
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The following tests are advised by the Centers for Disease Control and Prevention (CDC) to confirm diagnoses of Measles, Varicella, Pertussis, and Mumps in the appropriate clinical situations:

Disease	Test	Specimen	Timing	Notes
Measles	Measles IgM*	Serum	If IgM negative in serum collected less than 72 hours after rash onset, repeat serum collection and testing after 72 hours and before 30 days after onset of rash	Both serum AND NP/OP swabs for PCR should be collected for all suspect cases; Do not use IgM serology alone as there is a high change of false positive results
	AND Measles RNA by PCR*	Dacron/synthetic swab of throat or nasopharynx swab placed in viral transport media <i>AND (if available)</i> urine sample	Collect as soon as possible after rash development; do not collect after 10 days from onset of rash	
Varicella	Varicella PCR*	Dacron/synthetic swab of vesicular fluid by swabbing base of freshly opened vesicle. Can also test scabs or lesion crusts using a glass slide. For specimen collection guidance see Collecting Specimens for Varicella-Zoster Virus (Chickenpox and Shingles) Testing	When vesicles, scabs, or crust present	Commercial IgM assays are often not reliable and false negative results are common.
Pertussis	Pertussis PCR*	Dacron/synthetic swab posterior nasopharyngeal swab (not throat) For specimen collection guidance: https://www.cdc.gov/pertussis/clinical/diagnostic-testing/specimen-collection-diagnosis.html	Within the first 3 weeks of cough onset.	Serology testing is NOT RECOMMENDED; none in the US have been cleared by the FDA for diagnostic use.
Mumps	Mumps RT-PCR*	Dacron/synthetic swab of buccal mucosa near parotid salivary gland duct (opposite upper molars) or duct of other affected salivary gland (i.e. near swelling). Massage affected area (e.g. exterior cheek) for 30 seconds before swabbing. Swabs should be placed in viral transport media. For specimen collection guidance: https://www.cdc.gov/mumps/lab/detection-mumps.html	Perform buccal swab ASAP after parotitis onset. Collect for up to 9 days after parotitis onset. May be negative if collected longer than 9 days after parotitis onset.	IgM elevation in previously vaccinated persons may be absent, delayed, or transient.
	AND Mumps IgM	Serum	Obtain serum within 5 days of symptom onset; if negative, consider repeating test 1 to 3 weeks after onset of illness (especially in previously vaccinated individuals)	

*Preferred/most important test

MEASLES

R U B E O L A

Measles is a highly contagious respiratory virus that causes febrile rash illness. Measles has been eliminated (no sustained circulation) in the United States for decades. However, there can still be measles cases, as **it is easily imported by unvaccinated travelers and can spread in under-immunized communities.**

• DISEASE COURSE

The incubation period is typically 11–12 days from exposure to measles virus until the first symptoms appear (prodromal symptoms). A rash follows the prodromal symptoms 2–4 days later and usually lasts 5–6 days. Measles is infectious 4 days before and 4 days after rash onset.

• SYMPTOMS

Prodromal: Fever, cough, coryza, or conjunctivitis. Koplik spots (tiny white spots inside the mouth) may also appear 2–3 days after symptoms first appear.

Rash: A maculopapular rash (rash of both flat and raised skin lesions) begins on the head and face and then spreads downward to the neck, trunk, arms, legs, and feet. The spots may become joined together as they spread from the head to the body.

Fever may spike to more than 104° F when rash appears.

• COMPLICATIONS

Most common complications: Diarrhea and otitis media.

Most severe complications: Pneumonia, encephalitis, and death. Patients may require hospitalization. Children younger than 5, adults older than 20, pregnant women, and immunocompromised persons are at most risk of serious complications.

• WHAT TO DO IF YOU HAVE A SUSPECTED CASE

1. Immediately mask and isolate the patient in a room with a closed door (negative pressure room if available). Follow standard and airborne precautions.
2. Only allow health care workers with presumptive evidence of measles immunity* to attend the patient; they must use N-95 masks.
3. Evaluate the patient and order measles confirmatory testing (collect a throat or nasopharyngeal swab for RT-PCR and serum for IgM measles testing).
4. Contact infection control if available at your facility.
5. Immediately report this suspected case to your local and/or state health department.

For questions regarding specimen collection, storage, and shipment, please visit <https://www.cdc.gov/measles/lab-tools/rt-pcr.html>

• RESOURCES

Measles information for healthcare providers: <https://www.cdc.gov/measles/hcp/index.html>

Measles vaccine recommendations: <https://www.cdc.gov/measles/vaccination.html>

Infection control guidelines for measles: <https://www.cdc.gov/infectioncontrol/guidelines/measles/index.html>

Surveillance manual chapter on measles: <https://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.html>

Measles on the face



Measles on the trunk of body



*Presumptive evidence of measles immunity for healthcare workers (one of the following): documentation of two doses of measles-containing vaccine, laboratory evidence of immunity (positive IgG), laboratory evidence of disease, or birth before 1957. Self-reported doses and a history of vaccination provided by a parent or other caregiver, or a clinical diagnosis of measles, should not be accepted.



Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases

VARICELLA

CHICKENPOX

Varicella is a highly contagious disease caused by the varicella-zoster virus (VZV). It usually presents as a generalized pruritic maculopapulovesicular rash.

ABOUT VARICELLA

The incubation period is typically 14–16 days after exposure to the virus (range 10–21 days). Patients are contagious 1–2 days before rash onset until all lesions have crusted or, in vaccinated people with only maculopapular lesions, until no new lesions appear within a 24-hour period.

SYMPTOMS

Prodromal: Mild fever, malaise, anorexia or headache may occur 1–2 days before rash onset, particularly in adults. In children, the rash is often the first sign of disease.

Rash: The rash is generalized and pruritic. It progresses rapidly from macular to papular to vesicular lesions before crusting.

- Lesions are typically present in all stages of development at the same time.
- Usually appears first on the chest, back, and face, then spreads over the entire body.
- Typically lasts 4–7 days.
- Vaccinated persons may only have maculopapular lesions and usually have fewer number of lesions (and shorter duration of illness).

COMPLICATIONS

Most common complications: bacterial skin and soft tissue infection (children), viral pneumonia (adults).

Other severe complications can include: cerebellar ataxia, encephalitis, bacterial sepsis, dehydration/fluid and electrolyte imbalance, hemorrhagic conditions, and death.

Infants, adolescents, adults, pregnant women, and immunocompromised persons are at increased risk of complications.

WHAT TO DO IF YOU HAVE A SUSPECTED CASE

1. Isolate the patient in a room with a closed door (negative pressure room if available). Follow standard, airborne, and contact precautions until lesions are dry and crusted.
2. Only staff with evidence of varicella immunity (see below) should care for patients with varicella.
3. Contact the local and/or state health department to report cases and coordinate sending specimens for laboratory testing. The best method for laboratory confirmation of varicella is PCR testing of skin lesions (scabs and vesicular fluid). See lab resources on next page.

Typical varicella in unvaccinated person



Typical varicella in a vaccinated person (breakthrough varicella)*



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and Respiratory Diseases

* <https://www.cdc.gov/chickenpox/downloads/Breakthrough-Varicella-fact-sheet-508.pdf>

VARICELLA

CHICKENPOX

EVIDENCE OF VARICELLA IMMUNITY

Evidence of immunity to varicella includes any one of the following:

- Documentation of age-appropriate vaccination (one dose for preschool-aged children and two doses for school-aged children, adolescents, and adults).
- Laboratory evidence of immunity or laboratory confirmation of disease.
- Diagnosis or verification of history of varicella or herpes zoster by a healthcare provider.
- Birth in the United States before 1980.
(This should not be considered evidence of immunity for healthcare personnel, pregnant women, or immunocompromised persons.)

RESOURCES

Chickenpox (Varicella) for Healthcare Providers: <https://www.cdc.gov/chickenpox/hcp/index.html>

Laboratory Testing for VZV: <https://www.cdc.gov/chickenpox/lab-testing/index.html>

Infection Control in healthcare personnel: <https://www.cdc.gov/infectioncontrol/guidelines/healthcare-personnel/index.html>

Immunization of Health-Care Personnel: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>

VACCINE RECOMMENDATIONS

Two doses of the varicella vaccine are more than 90% effective at preventing varicella. Visit: <https://www.cdc.gov/vaccines/vpd/varicella/hcp/index.html>

Do You Know What Breakthrough Varicella (Chickenpox) Looks Like?

What is breakthrough varicella?

Breakthrough varicella is an infection with wild-type varicella zoster virus that occurs in a varicella vaccinated person more than 42 days after vaccination.

Varicella in an Unvaccinated Person



- 250–500 lesions
- Mostly vesicular
- Fever
- Illness for 5–7 days

Breakthrough Varicella



- <50 lesions
- Few or no vesicles
- No or low fever
- Shorter duration of illness

How is breakthrough varicella confirmed?

The best method to confirm breakthrough varicella is laboratory PCR testing of skin lesion specimens—scabs, vesicular fluid, or scrapings of maculopapular lesions.

www.cdc.gov/chickenpox/lab-testing/



Centers for Disease Control and Prevention
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Why is breakthrough varicella hard to diagnose?

The rash caused by breakthrough varicella looks similar to other rashes, so it is often difficult to diagnose clinically.

Breakthrough Varicella



Insect Bites



Poison Ivy



Ringworm

