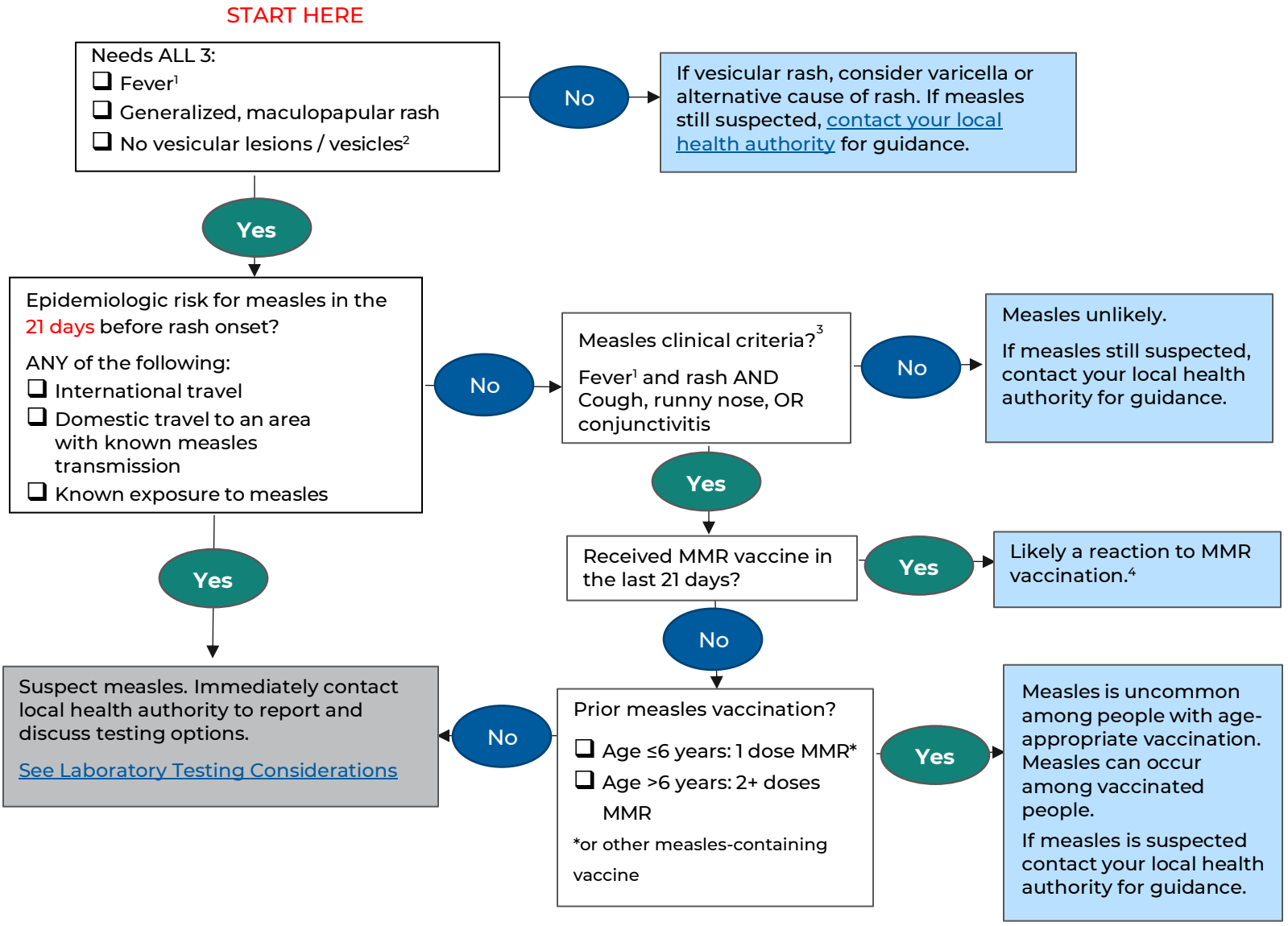
NEVADA DIVISION of PUBLIC and BEHAVIORAL HEALTH

MEASLES TESTING AND REPORTING

*Per NAC 41A.225 , all suspect and confirmed cases of measles should be reported within 24 hours (but as soon as possible is preferred) to public health in Nevada.

Evaluating a patient presenting with febrile rash for potential measles



Adapted from Illinois Department of Public Health and Centers for Disease Control and Prevention

Notes:

Contact information for the local health authority overseeing the county where your facility resides (see Table 1). This testing algorithm is intended to be used by bedside providers in

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settings where there is no local measles transmission. This assumes that the pre-test probability for most people without known epidemiologic risk for measles and who do not meet case criteria will be low. In settings with active measles transmission, the threshold at which to pursue testing may be lower, and a more permissive algorithm could be considered. In a setting with active measles transmission, please have a low threshold to discuss a suspected case with the local health authority.

1. Fever - either a measured or patient/family-reported fever is adequate; fever may not be measured at the time of healthcare evaluation due to normal fluctuation or to use of antipyretics (e.g., ibuprofen).

2. A vesicular rash is not consistent with measles, and should prompt consideration for other causes of rash (e.g., varicella/chickenpox)

3. Measles clinical criteria (per CSTE* case definition) include ALL of the following:

- ❑ Generalized maculopapular rash
- ❑ Fever
- ❑ Cough, coryza (runny nose), or conjunctivitis (also known as the "3 C's")

*CSTE: Council of State and Territorial Epidemiologists: https://ndc.services.cdc.gov/case-definitions/measles-2013/

4. Up to 5% of MMR recipients will get a short-lived, mild febrile rash. This is more common with the first dose of MMR. People who experience this vaccine reaction are not contagious to others around them. If a person has received MMR within 21 days before rash onset, but also has epidemiologic risk for measles, then specialized testing may be required and should be discussed with local or state public health authorities.

Measles testing algorithm**

Below are scenarios and measles testing recommendations considering exposure history, symptom(s), and immunity status.

Scenario	Exposure History	Symptom History	Immunity Status	Testing recommendations†
1	Contact with confirmed or suspected measles case[1]	Meets clinical criteria of fever, rash, and 3 C's (cough, coryza, or conjunctivitis)	Susceptible[2] OR presumptively immune[3]	Nasopharyngeal (NP) or Throat (OP) swab and urine for RT-PCR Serology: measles IgM and IgG
2	Contact with confirmed or suspected measles case[1]	No rash but symptoms consistent with prodrome[4]	Susceptible[2]	NP or OP swab and urine for RT-PCR Serology: measles IgM and IgG
3	Contact with confirmed or suspected measles case[1]	No rash but symptoms consistent with prodrome[4]	Has evidence of presumptive immunity[3]	Only if admitting to hospital: collect for RT-PCR and serology. If rash onset, see testing recommendation in scenario 1.
4	Outbreak region/international travel[5]	Meets clinical criteria of fever, rash, and 3 C's (cough, coryza, or conjunctivitis)	Susceptible[2]	NP or OP swab and urine for RT-PCR Serology: measles IgM and IgG
5	Outbreak region/international travel[5]	No rash but symptoms consistent with prodrome[4]	Susceptible[2]	Consult with public health** (see Table 1) If rash onset, see testing recommendation in scenario 4.
6	Outbreak region/international travel[5]	No rash but symptoms consistent	Has evidence of presumptively immune[3]	Only if admitting to hospital: collect for RT-PCR and serology.

		with prodrome[4]		If rash onset, see testing recommendation in scenario 4.
7	No specific risk factor	Meets clinical criteria of fever, rash, and 3 C's (cough, coryza, or conjunctivitis)	Susceptible[2]	Consult with public health** (see Table 1)
8	No specific risk factor	Does not meet clinical criteria, may meet prodrome[5]	Susceptible[2] OR presumptively immune[3]	None

Adapted from Illinois Department of Public Health, Dekalb County Health Department

** Important note: With the rise in the measles cases there have been reports of fully vaccinated individuals presenting with modified measles and symptoms less severe than what you would see with classic measles presentation. It is important to take into consideration travel and exposure history to guide testing. For questions related to measles and testing recommendations please reach out to the local health authority overseeing the county where your facility is located (see Table 1).

Definitions:

1. Contact with confirmed or suspected measles case - known close contact of a measles case or was at known exposure site (location and time) when confirmed or suspected case of measles was infectious. Infectious period is 4 days before and 4 days after rash onset.
2. Susceptible – lacks presumptive evidence of immunity. See #3.
3. Presumptive evidence of immunity
    - Documentation of age-appropriate vaccination CDC | Routine Measles, Mumps, and Rubella Vaccination
    - Laboratory evidence of immunity
    - Laboratory confirmation of disease
    - Born before 1957
4. Prodrome (early symptoms) – acute fever, conjunctivitis, corzya, cough, Koplik spots (not always present). Rash is not part of the prodrome for measles.
5. Outbreak region/international travel – travel to a region (domestic or international) in the last 21 days where there have been measles cases. CDC | Measles Cases and Outbreaks in the U.S. and CDC | Global Measles Outbreaks

†Laboratory Testing considerations:

RT-PCR and serology should be performed together for all suspected measles cases
Preferred specimen collection <72 hours and up to 10 days after rash onset:

- Nasopharyngeal (NP) or throat (OP) swab for RT-PCR AND
- Urine for RT-PCR

Note: RT-PCR is generally not recommended >10 days after rash onset.

Serum specimen most sensitive ≥72 hours after rash onset:

- Serum for measles specific IgM and IgG

  Note: IgM detection is most sensitive 3 or more days after rash onset, so a negative IgM within 3 days of rash onset should be interpreted with caution.

The Nevada State Public Health Laboratory performs RT-PCR for measles Measles Virus RNA Real-time (TaqMan®) RT-PCR

Serology IgM and IgG can be done with a commercial lab. Please contact your local health authority overseeing the county where your facility is located (see Table 1) for additional guidance.

Infection control considerations:

Measles is a highly contagious airborne illness and some measures to keep patients and staff safe include:

- Triage. Screen febrile rash illness by phone or immediately upon arrival to clinic; avoid having patient in waiting room.
- Source control. Place face mask on patient immediately upon arrival if they do not have one on.
- Practice standard and airborne precautions. If airborne infection isolation room is not available place patient in private room with door closed. Ensure that the room patient was in can be left vacant for up to 2 hours after patient leaves.
- Personal protective equipment (PPE). PPE should include a fit-tested NIOSH-certified N95 or higher-level respirator for all healthcare personnel.
- Limit transport. Avoid unnecessary transport of patient and restrict susceptible personnel from entering room where patient is.
- If susceptible healthcare personnel is exposed a measles case without proper PPE, post-exposure prophylaxis should be administered in according with CDC and ACIP recommendations. CDC | Infection Control in Healthcare Personnel: Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients

For more info: CDC | Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings

Table 1. Health Authorities in Nevada

Health Authority	Counties	Disease Reporting Phone	Disease Reporting Fax
Carson City Health & Human Services	Carson City Douglas Lyon	(775) 434-1690 (775) 887-2190 (after hours)	(775) 887-2138
Central Nevada Health District	Churchill Mineral Eureka Pershing	(775) 866-7535	(877) 513-3442
Nevada Division of Public and Behavioral Health Rural Health Services	Elko Esmeralda Humboldt Lander Lincoln Nye Storey White Pine	(775) 400-0333	(775)684-5999
Southern Nevada Health District	Clark	(702) 759-1300	(702) 759-1414
Northern Nevada Public Health	Washoe	(775) 328-2447	(775) 328-3764