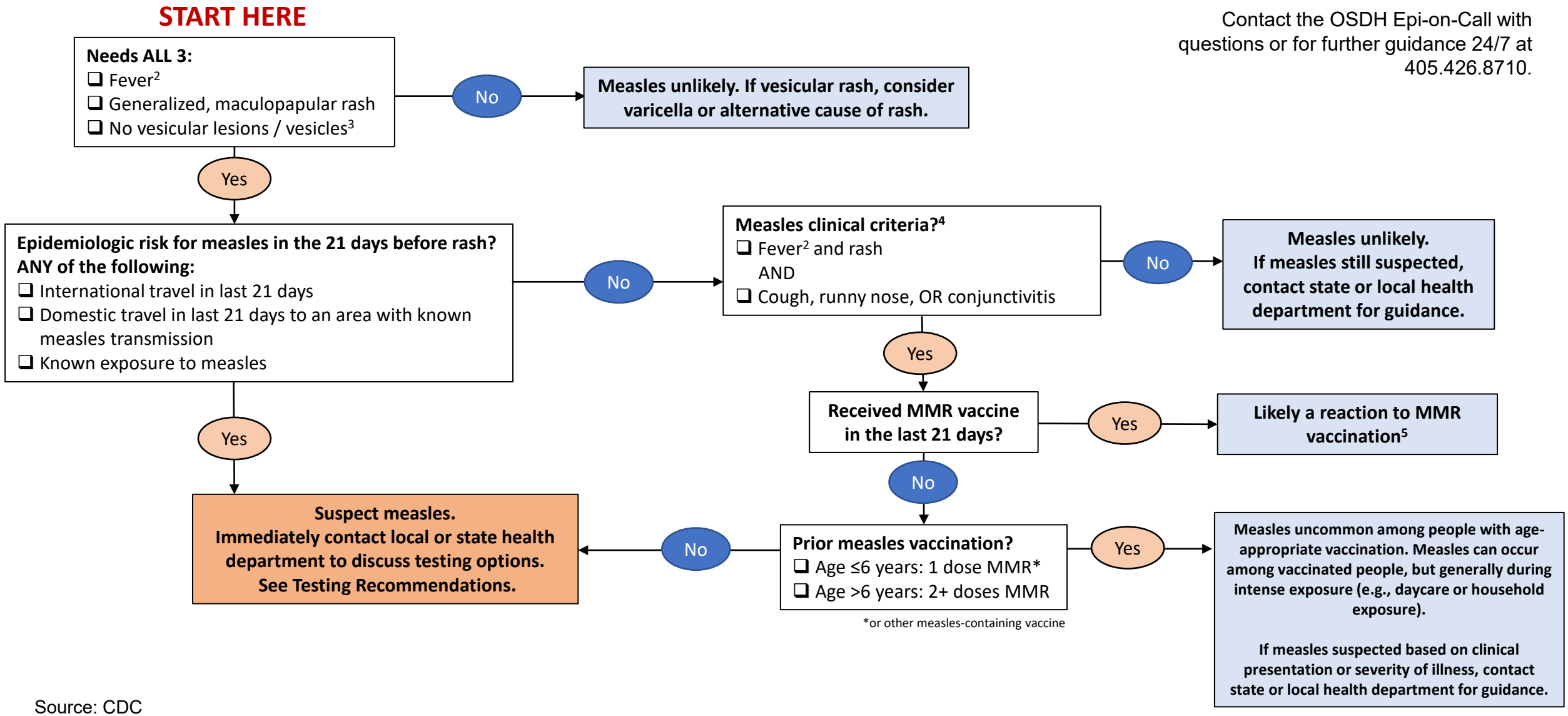
Evaluating a patient presenting with rash when there is no local measles transmission[1]

OKLAHOMA State Department of Health

Contact the OSDH Epi-on-Call with questions or for further guidance 24/7 at 405.426.8710.



Source: CDC

Notes

1. This testing algorithm is intended to be used by bedside providers in settings where there is not 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.
2. 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 anitpyretics (e.g., ibuprofen).
3. A vesicular rash is not consistent with measles, and should prompt consideration for other causes of rash (e.g., varicella/chickenpox)
4. 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”)
5. Up to 5 - 15% of MMR vaccine recipients will get a short-lived, vaccine-associate illness.** 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.

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

** Identifying Vaccine-associated Rash Illness Amidst a Large Measles Outbreak: Minnesota, 2017: https:/academic.oup.com/cid/article/71/9/e517/5739707

Testing Recommendations

- The OSDH epidemiologist-on-call will advise on the epidemiologic risk for measles and whether testing is recommended to ensure rapid public health response. The OSDH will facilitate testing to ensure timely, actionable test results for the patient, health care provider, and appropriate public health response. Laboratory confirmation is essential for all sporadic measles cases and all outbreaks.
  - Detection of measles-specific IgM antibody in serum and measles RNA by real-time polymerase chain reaction (RT-PCR) in a respiratory specimen (throat swab preferred) are the most common methods for confirming measles infection. Urine samples may also contain virus, and when feasible to do so, collecting both respiratory and urine samples can increase likelihood of detecting measles RNA by RT-PCR.
  - The OSDH epidemiologist-on-call will advise on whether specimens should be collected and sent to the Oklahoma Public Health Laboratory (PHL). If the epidemiologist-on-call does not recommend testing, a health care provider may decide to test the patient using a reference laboratory.

*Measles virus is also referred to as “rubeola” in some lab orders, not to be confused with rubella virus

Measles Characteristics

- Classic symptoms
  - Fever (up to 105F) + generalized maculopapular rash + one of the “3 C’s”
    - 3 C’s: Cough, coryza (runny nose), conjunctivitis
  - Clues to measles:
    - Prodrome of fever and at least 1 of 3 C’s often starts 2–4 days before rash
    - Rash starts on head or face and spreads downwards
    - Fever continues through onset of rash, often peaking around the time when the rash starts
- Measles is rare in vaccinated people, especially with 2 prior doses of MMR
    - 1 dose generally provides 93% protection, and 2 doses provides 97% protection from measles infection

Other common causes of febrile rash in children

- **Parvovirus B-19 (“Fifth Disease”)**
  - Classic “slapped cheek” rash
  - More common in school-aged children than infants
- **Human Herpesvirus 6 (HHV-6, “Sixth Disease”, “Roseola”)**
  - Common cause of febrile rash in infants
  - Rash commonly starts on trunk (measles rash starts on face/hairline)
  - Fever often resolves before start of rash (measles fever peaks around time of rash onset)
- **Enteroviruses**
  - Common cause of Hand/Foot/Mouth, rash can involve hands/feet which are generally spared in measles
  - Rash can be urticarial, which is not typical for measles

“Slapped Cheek” rash

HFM