

Guidance for Health Care Providers Evaluating Patients with Fever and Rash

Key Points:

- Consider measles in patients of any age who have *a fever AND a rash* regardless of their travel history.
- In measles cases there *must be some fever*, even subjective fever, and the *rash must start on the head or neck*.
- Patients with measles usually have at least 1 or 2 of the “3 Cs” - *cough, coryza and conjunctivitis*.
- Isolate patient with acute febrile rash illnesses. Patients with rash and fever may have measles or other communicable diseases. The risk of transmission can be reduced if control measures are implemented immediately. For more info: [CA Department of Public Health Infection Control Recommendations](#)
- If measles testing is being considered, please contact your local health department immediately. Your local health department is your partner and will assist you.

Rash Assessment:

- If fever disappeared before rash onset without the use of antipyretics, the patient is unlikely to have measles.
- Measles rashes typically start on the forehead at the hairline and behind the ears and then spread downwards to the rest of the body; measles rashes in vaccinated people follow the same pattern but may be less intense and may not spread to the entire body.
- Measles rashes are initially erythematous and maculopapular but progress to confluence in the same manner as the spread of the rash. Confluence is most prominent on the face.
- The rash begins to clear on the third or fourth day in the same order it appeared; duration of the rash is usually 6-7 days. Rashes may resolve more quickly in vaccinated people.
- During the initial stages of the rash, it is red and blanches with pressure. As the rash fades, it takes on a coppery appearance, after which a brownish discoloration is seen that does not clear with pressure.

Note: The only people who have measles rashes that do not start on the head or neck are adults, who received killed measles vaccine during 1963-1967 and develop what is called “atypical” measles, but this is not common and testing should be prioritized to patients with typical measles rashes.

Alternative diagnoses to consider for persons with fever and rash:

- Drug eruption: history of current or recent medication, especially an antibiotic
- Other non-infectious rashes: hives or atopic dermatitis with coincidental febrile illness

- Varicella (chicken pox): vesicular lesions on erythematous base
- Enteroviruses (e.g., hand-foot-and-mouth disease): oral ulcers, rash on hands, feet, buttocks
- Mononucleosis syndrome (EBV, CMV, HIV): risk factors (young adulthood, MSM, IDU), sore throat or tonsillitis, prominent adenopathy, splenomegaly, atypical lymphocytosis
- Parvovirus B-19 (also known as erythema infectiosum, or 5th disease): slapped cheek appearance in children, arthritis and diffuse rash in adults
- HHV-6 (also known as roseola infantum, exanthem subitum, or 6th disease): disease of very young children (usually under 2 years of age), high fever followed by defervescence and the appearance of rash on trunk
- Rubella (German measles): history of international travel; mild illness with low-grade fever; arthralgias prominent in adults; prominent postauricular, posterior cervical, and suboccipital adenopathy
- Streptococcal infection (with scarlet fever rash): sore throat, “sandpapery” rash, circumoral pallor, strawberry tongue, positive strep test
- Meningococemia: abrupt onset of flu-like illness with marked myalgias (especially the legs); skin evolves from pallid or mottled with cold hands to petechial then hemorrhagic rash, severe headache and mental status change if meningitis present
- Kawasaki disease: children <5 years, fissured lips, strawberry tongue, erythema and edema of hands and feet, periungual desquamation, adenopathy
- Travel-, animal-, and tick-related: broad differential diagnosis of fever and rash

Laboratory testing for suspect measles cases - collect specimens for measles testing:

- For patients presenting <7 days of rash onset:
 - Obtain a throat swab or NP swab and urine for PCR testing; collect a blood specimen.
 - Collect 50-100 ml of urine in a sterile centrifuge tube or urine specimen container.
 - Draw 7-10 ml blood in a red-top or serum separator tube; spin down serum if possible.
 - For more detailed instructions, please see: https://www.colorado.gov/pacific/sites/default/files/CD_CD_VPD_Measles-Specimens-for-Diagnostic-Testing_1.pdf
- If patient presents >7 days of rash onset:
 - Obtain urine for PCR testing and blood for serology.
 - Collect 50-100 ml of urine in a sterile centrifuge tube or urine specimen container.
 - Draw 7-10 ml blood in a red-top or serum separator tube; spin down serum if possible.
 - Consult with public health to determine if a throat swab or NP swab is warranted.
 - For more detailed instructions, please see: https://www.colorado.gov/pacific/sites/default/files/CD_CD_VPD_Measles-Specimens-for-Diagnostic-Testing_1.pdf