Pennsylvania
Department of Health

Case Definition for Measles-Associated Death

Using the measles 2013 published case definition and mirroring the content and format of RSV-, COVID-19- and influenza-associated mortality case definitions, the proposed measles-associated mortality case definition aligns with nationally recognized standards on disease and mortality reporting, including standards recognized by the Centers for Disease Control and Prevention (CDC). This definition includes clinical, laboratory, epidemiologic, and vital records criteria as is standard across nationally notifiable case definitions.

A surveillance case definition is a set of uniform criteria used to define a disease for public health surveillance. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient's health needs.

Clinical Criteria

Death in an individual resulting from a clinically compatible illness with measles defined by one of the following:

1. An acute illness characterized by:
    a. Generalized, maculopapular rash lasting ≥3 days; **AND**
    b. Fever (≥101°F or 38.3°C); **AND**
        i. Cough, **OR**
        ii. Coryza, **OR**
        iii. Conjunctivitis
2. Acute febrile rash illness of any duration† or other clinically relevant symptoms*

The death should occur within 30 days of clinically relevant symptom onset **AND**

- be determined that the death was not due to other unrelated causes (e.g., motor vehicle accident), **OR**
- be determined that after review and consultation there was no alternative agreed upon cause of death as evaluated by public health authorities.

Laboratory Criteria

- Isolation of measles virus‡ from a clinical specimen; **OR**
- Detection of measles-virus specific nucleic acid‡ from a clinical specimen using polymerase chain reaction (PCR); **OR**
- IgG seroconversion‡ or a significant rise in measles immunoglobulin G antibody‡ using any evaluated and validated method; **OR**
- A positive serologic test for measles immunoglobulin M antibody‡§

† Temperature does not need to reach ≥101°F/38.3°C and rash does not need to last ≥3 days.

‡ Not explained by MMR vaccination during the previous 6–45 days.

§ Not otherwise ruled out by other confirmatory testing or more specific measles testing in a public health laboratory.

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Epidemiologic Linkage Criteria

During the likely incubation period, meet one of the following:

1. Exposure to a measles case testing positive by one of the above laboratory criteria, **OR**
2. Living or working in a geographically defined area (e.g., county) where community transmission is occurring as determined by public health authorities. **OR**
3. Domestic or international travel, transit, or residence in a geographic area where community transmission is occurring

Vital Records Criteria

- A person whose death certificate lists measles as an underlying cause of death or a significant condition contributing to death.

Case Classification

Confirmed

- A death as defined in clinical criteria section meeting:
    - Clinical criteria 1 and the laboratory criteria **OR**
    - Clinical criteria 2, epidemiologic linkage criteria, and the laboratory criteria **OR**
    - Meeting vital record criteria, epidemiologic linkage criteria, and laboratory criteria.

***NOTE:** Measles cases associated with congenital measles (i.e., infection during pregnancy resulting in transmission to the baby before birth) may require further deliberation on the clinical criteria needed for case defining purposes given traditional measles symptoms may be muted or not present. Complicating conditions such as subacute sclerosing panencephalitis are likely to occur years after initial infection and a separate definition for this condition and deaths associated with this condition should be considered.