



POLICY STATEMENT

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EMS Measles Response Guidance

This document is designed to provide guidance to Emergency Medical Services (EMS) providers, agencies and systems responding to a patient with suspected measles. This guidance should be considered for the development of measles response plans and is not intended to supersede any infectious disease response plan that has been developed and approved by local, State or Federal authorities legally charged to do so. This guidance does not constitute a response protocol but serves as a reference for general considerations and the protection of responders.

EMS agencies are encouraged to adopt policies and procedures regarding response and treatment of all patients with communicable diseases. EMS agencies should ensure that all personnel are provided with factual information regarding the measles virus and any necessary personal protective equipment (PPE), such as N95 respirators, including guidelines for the use of such PPE.

Measles Epidemiology

Measles is a severe, highly contagious viral illness; following exposure, up to 90% of susceptible individuals will develop the disease. The virus is transmitted by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes, as well as direct contact with infectious respiratory secretions or contaminated surfaces.

Measles virus can remain infectious in the air and on surfaces for up to two (2) hours after an infected person leaves the ambulance or another enclosed space. The incubation period from exposure to the onset of initial symptoms averages eleven (11) to twelve (12) days, with the characteristic rash typically appearing around fourteen (14) days with a range of 7 to 21 days. Individuals with measles are infectious from 4 days before rash onset through 4 days after rash onset.

Clinical Features

Measles signs and symptoms

Symptom Description	Symptom Timeline
• High fever (may spike to more than 104 degrees F) • Runny nose (coryza) • Cough • Red, watery eyes (conjunctivitis)	• 7 to 14 days after a measles exposure
• Koplik spots (blue-white spots on the bright red background of the buccal mucosa may be present, often before the rash develops, but are often not seen and are not required for the diagnosis of measles)	• 2–3 days after symptoms begin (Koplik spots may appear prior to rash, but do not always appear)
• Rash ○ Usually begins as flat red spots that appear on the face at the hairline and spread downward to the neck, trunk, arms, hands, legs, and feet ○ Small, raised bumps may appear on top of the flat red spots ○ The spots may become joined together as they spread from the head to the rest of the body	• 3–5 days after symptoms begin

The rash is usually discrete but may become confluent on the upper body; it resolves in the same order that it appeared.

Anyone with measles can have serious complications but those under five (5) years old and those older than twenty (20) are at greatest risk, along with pregnant women and any immunocompromised individuals. Complications may include ear infections, diarrhea, pneumonia, encephalitis, pre- term labor, deafness, or death.

EMS personnel

EMS providers are at increased risk of exposure to measles and there is increased risk for transmission from EMS personnel to high-risk individuals. It is recommended that all agencies have documented evidence of immunity against measles on file for all first responders, including EMS personnel, to protect personnel and prevent any potential spread to other susceptible patients.

In accordance with NYCRR Title 10, Sections 405.3 (hospitals), 415.26 (nursing homes), 751.6 (diagnostic and treatment centers), 763.13 (certified home health agencies and programs), 766.11 (licensed home care services agencies) and 794.3 (hospices), presumptive evidence of measles immunity for healthcare providers includes any of the following:

- A certificate of immunization against measles for all personnel born on or after January 1, 1957, which means:
 - a document prepared by a physician, physician's assistant, specialist's

- assistant, nurse practitioner, licensed midwife or a laboratory possessing a laboratory permit, demonstrating serologic evidence of measles antibodies; or
- a document indicating two doses of live virus measles vaccine were administered with the first dose administered on or after the age of 12 months and the second dose administered more than 30 days after the first dose but after 15 months of age showing the product administered and the date of administration, and prepared by the health practitioner who administered the immunization; or
- a document, indicating a diagnosis of the employee as having had measles disease prepared by the physician, physician's assistant, specialist's assistant, licensed midwife or nurse practitioner who diagnosed the employee's measles; or
- Birth before 1957¹

For healthcare personnel who have had two documented doses of MMR vaccine, serologic testing for immunity is not recommended. In the event that a Health Care Provider who has two documented doses of MMR vaccine is tested serologically and determined to have negative or equivocal measles titer results, it is not recommended that the person receive an additional dose of MMR vaccine. Such persons should be considered to have presumptive evidence of measles immunity. Documented age-appropriate vaccination supersedes the results of subsequent serologic testing.

Assessment & Screening

EMS providers should suspect measles in clinically compatible cases, especially those individuals who reside in or have spent time in the geographic areas experiencing measles outbreaks, have recently traveled internationally, or who were exposed to a person with a febrile rash illness. This is particularly important in those who report that they are not fully vaccinated. It is important to remember that individuals who were exposed and not immune to measles could develop signs and symptoms of measles 7-21 days after the initial exposure. To identify areas where measles outbreaks may be occurring, please visit the local health department webpage where the patient resides or regularly spends time.

- When possible, only those with known immunity should treat patients who are suspected to have measles.
- EMS agencies should work with dispatch centers and Public Safety Answering Points, where feasible, to identify callers reporting fever with rash, known measles exposure, recent international travel, or other clinical or epidemiological risk factors so responding personnel can do appropriate personal protective equipment prior to patient contact.
- Consider restricting entry of unnecessary EMS personnel to the scene and ambulance if no life-threatening symptoms are present, to decrease first responder exposure.
- Conduct a “doorway evaluation” if possible. If the patient is stable and verbal, minimize contact with the patient until appropriate personal protective equipment is donned.
- The level of personal protective equipment required should be based on the patient’s history, along with any signs and symptoms. Change to standard precautions if there is

- no suspicion of measles.
- Perform hand hygiene before and after all patient care activities.

Infection Control

To expedite public health containment strategies, EMS providers should implement appropriate infection control measures, including airborne precautions, when measles is suspected.

Providers should remain vigilant for persons presenting with a febrile rash illness particularly among people who reside in or have spent time in geographic areas experiencing measles outbreaks, have recently traveled internationally, or who were exposed to a person with febrile rash illness.

- Measles is spread via airborne transmission and direct contact with infectious droplets.
- EMS providers should institute standard and airborne precautions using an N95 respirator.²
- Place a well-fitting medical/procedure mask on the patient, if tolerated, for source control. The patient should remain masked throughout EMS care and transport whenever clinically appropriate.
- The receiving facility must be notified prior to arrival so that appropriate infection control precautions can be implemented, as the preferred placement for patients who require airborne precautions is in a single-patient airborne infection isolation room (AIIR).

Personal Protective Equipment

PPE carried by EMS agencies shall be utilized to provide protection from a suspected measles patient. In addition to these considerations, EMS providers are required to follow their local infectious disease emergency response plan. The following PPE is recommended for use by EMS when treating a patient with suspected measles infection:

- Standard Precautions
- Disposable National Institute for Occupational Safety and Health-approved, fit-tested N95 respirator.
 - EMS agencies may use powered air purifying respirators (PAPRs) with full hood and high efficiency particulate air (HEPA) filter for airborne precautions for employees that cannot safely fit test on N95 respirators due to facial hair, facial structure, etc.
- Provide a surgical mask for all patients with febrile rash illness.
 - Patients who are intubated should be ventilated with a bag-valve device or ventilator equipped with a high-efficiency particulate air filter on exhalation port
- Provide tissues to patients for secretion control and encourage patient hand hygiene and cough etiquette practices.

Transport Considerations

- Standard transportation to appropriate hospital receiving facility.
- It is recommended to have the patient compartment exhaust vent on high and to isolate the driver compartment from the patient compartment. It is also recommended to have

- the driver compartment ventilation fan set to high without recirculation.
- If driver/pilot compartment is not isolated from the patient compartment, the vehicle operator should don a National Institute for Occupational Safety and Health-approved, fit-tested N95 respirator.
- The receiving facility must be notified prior to arrival so that appropriate infection control precautions can be implemented.
- When providing notification, please indicate if any family or supports are accompanying the patient, as they, too, may need to be isolated. EMS agencies should minimize, whenever possible, family members from accompanying the family member to prevent crew and additional family exposures.
 - Special consideration should be given to pediatric patients and patients who require a caregiver or support person. The receiving facility should be notified when another person accompanies the patient because that individual may also require evaluation or isolation. Accompanying persons should wear a well-fitting medical/procedure mask, if tolerated.
- Suspected measles should be reported immediately to the local health department serving the jurisdiction where the patient is located, in accordance with applicable public health reporting requirements. EMS agencies should not wait for laboratory confirmation before making required notification.
- Complete the Measles Contact Form for any suspected measles-related ambulance transport and submit it to New York State Department of Health Division of State EMS.
 - EMS Forms Page:
 - <https://apps.health.ny.gov/pubpal/builder/EMSForms>
- EMS personnel must notify the receiving hospital before arrival if they are transporting a patient with fever and a rash, to their facility.

Agency officers should speak with hospital personnel in advance to discuss what procedures are in place for accepting such patients. Hospitals may request EMS personnel transport such patient(s) through a separate secure entrance.

A hospital may not refuse patients with suspected measles infection unless a municipal response plan designed to do so has been activated.

Decontamination Considerations

- Any visibly soiled surface must first be decontaminated using an Environmental Protection Agency (EPA)-registered hospital disinfectant according to directions on the label.
- Disinfect all potentially contaminated/high touch surfaces including the stretcher with an EPA-registered hospital disinfectant according to directions on the label.
- Medical equipment (stethoscope, blood pressure cuff, etc.) in contact with the patient should be disposable or cleaned and disinfected before use on another patient.
- Consideration should be given, when feasible, to placing the transporting vehicle out of service for that period to protect EMS personnel and subsequent patients.
- Measles has been reported to survive in the air for up to two hours, therefore, the ambulance used to transport a patient with suspected measles infection should not be used for a period of two (2) hours after the patient exits the vehicle. Additional factors

may be considered in the development of decontamination policies and procedures to reduce vehicle downtime. EMS agencies are encouraged to consult with the ambulance manufacturer to determine the vehicle's passenger compartment air changes per hour (ACH) for 99.9% removal of airborne contaminants to establish a safe time for reintroduction of unoccupied vehicle for less than the two (2) hour recommendation.³

If an EMS agency is using less than two (2) hour recommendation after speaking with the ambulance manufacturer, documentation from the ambulance manufacturer and the agency policy and procedure should be maintained on file.

Post Exposure Follow-up

Confirm EMS personnel immunity status and, if unsure, consult with designated Infection Control Officer, Medical Director, and/or personal health care provider for guidance. If potentially exposed, notify the appropriate contact per your agency's policies and procedures. Even those with evidence of immunity should watch for signs/symptoms of measles for 21 days following an exposure and should immediately report if they become ill.

EMS personnel status	Recommended action
Presumptive evidence of immunity	No post-exposure prophylaxis or work restriction; monitor for symptoms from Day 5 after first exposure through Day 21 after last exposure
No presumptive evidence of immunity	Notify agency infection control; evaluate promptly for post-exposure prophylaxis; exclude from duty as directed by public health/occupational health
Immunoglobulin administered	Monitoring/exclusion may extend through Day 28
Develops compatible symptoms	Immediately stop working, avoid patient/public contact, and contact appropriate public health/occupational health authority

Agency Training

To ensure field readiness, agencies should make sure all EMS agency policies are updated and then conduct regular in-services focused on practical application of agency policies and patient care. These trainings should include but not be limited to:

- Review of Document about EMS Measles Response Guidance below
- Review identification of early onset symptoms
- Post-exposure prophylaxis and Equipment Preparation and Lab
- Vehicle Considerations and Transport Management
- Hospital Intake Procedures
- Staff Immunity & Post-Exposure Plans
- Vehicle Decontamination and Downtime Procedures.
- Public Health Reporting to Local and State Health Departments

Key Training Points for EMS Providers when Measles is suspected:

1. Limit personnel entering the patient-care area.
2. Don a fit-tested N95 or higher-level respirator before patient contact.
3. Place a medical/procedure mask on the patient, if tolerated.
4. Notify the receiving hospital before arrival.
5. Limit unnecessary accompanying persons.
6. Notify the appropriate local health department.
7. Following transport, restrict access to the patient compartment for the applicable airborne clearance period and complete cleaning/disinfection.
8. Identify potentially exposed personnel and initiate exposure follow-up.
9. Complete required Division of State EMS reporting form.

Document Citations:

¹ For healthcare personnel born before 1957 who lack other evidence of immunity, consider administering two doses of MMR outside of the outbreak areas. Whereas, for healthcare personnel born before 1957 who are in outbreak areas or caring for persons from outbreak areas, recommend two documented doses of MMR. Alternatively, assess serologic testing for evidence of immunity.

² Regardless of presumptive immunity status, all healthcare staff should use respiratory protection consistent with airborne infection control precautions (use of an N95 respirator or a respirator with similar effectiveness in preventing airborne transmission). Because of the possibility, albeit low, of MMR vaccine failure in healthcare providers exposed to infected patients, they should all observe airborne precautions in caring for patients with measles.

³ Table B1 “Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency” from the 2003 Guidelines for Environmental Infection Control in Health-Care Facilities

<https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1>

References

ATTACHMENT: One Page EMS Provider Guidance for Suspected Measles Patients

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