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Chicago Department of Public Health

Guidelines for Management of Measles in Healthcare Settings

Chicago residents suspected of having measles should be reported to the Chicago Department of Public Health (CDPH). This document will guide you through reporting, testing, and infection prevention and control practices.

Clinical Features

Measles is an acute viral respiratory illness. It is characterized by a prodrome of fever (as high as 105°F) and malaise, cough, coryza (runny nose), and conjunctivitis - the three "C"s -, Koplik spots (white spots on the buccal mucosa) followed by a maculopapular rash. The rash spreads from the head to the trunk to the lower extremities. The rash on the head may be proximate to the hairline.

Transmission of Measles

The virus is transmitted by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes. Measles virus can remain infectious in the air for up to two hours after an infected person leaves an area. Patients are contagious starting four days before through four days after rash onset (with rash onset date being day zero). Measles vaccination is highly protective against measles acquisition.

Reporting Measles in Chicago

Providers should notify CDPH immediately upon suspicion of measles. To report a suspected case and request testing, complete this online form: https://redcap.link/reportmeasles. Additionally, providers should inform their institution's Infection Prevention and Control Department (or delegated department).

Isolation Precautions for Patients with Measles

Setting-specific guidance is provided below and may depend on physical characteristics of the space (e.g., availability of airborne isolation rooms, private rooms, negative pressure, etc.).

Hospitals and Emergency Departments

1) Screen persons for signs and symptoms of measles. Refer to Appendix A to identify a suspected measles case.
2) Persons reporting signs and symptoms of measles and any accompanying members should be masked with a standard facemask (e.g., an isolation mask or surgical mask) immediately and moved into a private room, ideally an airborne infection isolation room (AIIR)*, with the door closed.

   a) If an AIIR is not available, the masked persons should remain in a private room with the door closed until they can be moved to an AIIR. If high-efficiency particulate air (HEPA) filtration is available, it should be used.
3) Report a suspected case of measles and request testing by completing the online form: https://redcap.link/reportmeasles.
4) Healthcare personnel (HCP) entering the room should be immune to measles^ and wear a fit-tested N95 respirator or a powered air purifying respirator (PAPR).
5) Transportation within the facility should be avoided, but if necessary, done using the most direct route and process that includes minimal contact with persons not essential for the patient's care and the patient should wear a standard facemask. Accompanying HCP should wear a fit-tested N95 respirator.
6) Standard and Airborne Precautions should be observed until day four after the onset of rash (with onset of rash considered day zero). For example, if rash onset is on March 1st, airborne precautions should be observed *through* March 5th and are no longer needed on March 6th.
7) After the patient leaves the room, it should remain vacant for the appropriate time (up to two hours) to allow for 99.9% of airborne-contaminant removal (air changes/hour and time required for removal of airborne-contaminants).
8) Room surfaces should be terminally cleaned with a hospital-approved disinfectant. In general, EPA-registered disinfectants suitable for hepatitis B viruses and HIV (EPA list S) will be effective against the measles virus.
9) Manage used, disposable PPE and other patient care items for measles patients as regulated medical waste according to federal and local regulations.

If advance notice is given about a person who is suspected to have measles:
1) An AIIR should be cleared to receive the person and they should be placed immediately in an AIIR.
2) Remaining actions should proceed as indicated in step #3 above.

Ambulatory/Outpatient Clinics and Urgent Care Clinics

1) Screen persons for signs and symptoms of measles. Refer to Appendix A to identify a suspected measles case.
2) Persons reporting signs and symptoms of measles and any accompanying members should be masked immediately with a standard facemask (e.g., an isolation mask or surgical mask) and moved into a private room (closest to the point of entry), ideally an airborne infection isolation room (AIIR)*, with the door closed.
   a) If an AIIR is not available, the masked persons should remain in a private room with the door closed. If high-efficiency particulate air (HEPA) filtration is available, it should be used.
3) Report a suspected case of measles and request testing by completing the online form: https://redcap.link/reportmeasles.
4) Depending on the person's clinical presentation, they may be transferred to an acute care hospital for additional evaluation or discharged home after specimens have been obtained for testing. When transfer is necessary, inform the receiving facility and the transport vehicle HCP in advance about airborne precautions being used for suspected measles.

5) HCP entering the room should be immune to measles^ and wear a fit-tested N95 respirator or a powered air purifying respirator (PAPR).
6) The person and any accompanying members should wear a standard facemask when in any public areas of the facility and should be asked to stay in the room.
7) The person with suspected measles exiting the facility should leave via an alternate exit, if available, to avoid passing through the main entrance and waiting room.
8) After the patient leaves the room, it should remain vacant for the appropriate time (up to two hours) to allow for 99.9% of airborne-contaminant removal (air changes/hour and time required for removal of airborne-contaminants).
9) Room surfaces should be terminally cleaned with a hospital-approved disinfectant. In general, EPA-registered disinfectants suitable for hepatitis B viruses and HIV (EPA list S) will be effective against the measles virus.

Laboratory Testing

Please note that authorization codes are required for all specimens submitted for testing. To report a suspected case and request testing, complete this online form: https://redcap.link/reportmeasles. If approved for RT-PCR testing, you will receive submission instructions and an authorization code. *Promptly collect a specimen (see instructions below) however WAIT FOR CDPH approval to submit the specimen.* Refer to Measles Testing Job Aid for more details.

Specimen Collection and Shipment Preparation:

1) Please refer to IDPH Instructions for Measles Virus Submission
2) Samples must be properly collected using a Nasopharyngeal or Oropharyngeal swab and placed into Viral Transport Media (VTM), Viral Carrier Media (VCM), or Universal Transport Media (UTM).
3) Label each specimen container with:
    a) Patient Name, Date of Birth, and Date of Collection.
4) Place specimen(s) into a biohazard labeled bag and seal securely.
5) Place the test requisition(s) on the outside of the biohazard labeled bag. Failing to include the following information may result in a rejected specimen:
    a) The CDPH issued authorization number is **required.** It must be entered into the top left portion of the form.
    b) A central fax number is **required** on the form. Individual provider faxes are not acceptable and may result in significant delays.
6) Place the sealed biohazard bag and test requisition(s) inside the shipping container.
7) **If the specimen is collected and will arrive at the IDPH laboratory within <24 hours:**
    a) No cold packs are required in the leak-proof outer container.
8) **If the specimen is collected and will arrive at the IDPH laboratory after 24 hours:**
    a) Place cold packs, which have been frozen for at least 24 hours, in the leak-proof outer container.
9) The shipping container must be rigid, such as a Styrofoam cooler, and labeled with the UN 3373 Biological Substance Category B marking.

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Management of HCP with Measles Exposure or Illness Due to Measles

Persons exposed to measles in a healthcare setting include spending any time while unprotected (i.e., not wearing recommended respiratory protection):
- In a shared air space with an infectious measles patient at the same time, or
- In a shared air space vacated by an infectious measles patient within the prior 2 hours

CDPH will request lists of exposed HCP and non-HCP (e.g., patients and visitors) as part of the public health response. Some steps and recommendations may change depending upon the situation and information available.

Exposed HCP

- Identify and create a list of HCP who were exposed at your facility.
- Notify exposed HCP and check immune status.^
- *For HCP with measles immunity:*
  a) Postexposure prophylaxis is not necessary.
  b) Work restrictions are not necessary.
  c) Implement daily monitoring for signs and symptoms of measles infection (fever, cough, coryza, conjunctivitis, rash) for 21 days after the last exposure; have awareness that previously vaccinated individuals may have a modified disease presentation.
  d) If HCP gets sick and needs medical attention due to signs and symptoms concerning for measles, HCP should call ahead to tell the healthcare facility (e.g., clinic, ER, immediate care, etc.) that the HCP may have measles before going for evaluation.
- *For HCP without measles immunity, including personnel who cannot provide presumptive evidence of measles immunity:*
  a) Administer postexposure prophylaxis in accordance with CDC and ACIP recommendations (https://www.cdc.gov/measles/hcp/index.html#prophylaxis).
     (1) MMR vaccine within 72 hours of first exposure, unless contraindicated.
     (2) If indicated, immune globulin within 6 days of first exposure.
  b) Immediately notify the HCP and exclude from work from the 5th day after the first exposure until the 21st day after the last exposure. Quarantine at home with no visitors and avoidance of all public settings (e.g., grocery, religious services, etc.) for the full 21 days.
  c) HCP who received the first dose of MMR vaccine prior to exposure may remain at work and should receive the second dose of MMR vaccine, at least 28 days after the first dose.
     (1) Implement daily monitoring for signs and symptoms of measles infection (fever, cough, coryza, conjunctivitis, rash) for 21 days after the last exposure.

Exposed non-HCP (patients and visitors)

- Identify and create a list of non-HCP who were exposed at your facility.
- Non-HCP should be notified of exposure as soon as possible.
- Individuals should monitor for signs and symptoms of measles infection (fever, cough, coryza, conjunctivitis, rash) for 21 days after the last exposure. Those without immunity to measles should quarantine.
- If non-HCP gets sick and needs medical attention due to signs and symptoms concerning for measles, they should call ahead to tell the healthcare facility (e.g., clinic, ER, immediate care, etc.) that they may have measles.

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CDPH Follow Up Needs

- CDPH will provide a line list template spreadsheet to be completed for exposed HCP and non-HCP.

Definitions

[*]Definition of an Airborne Infection Isolation Room:

- Providing at least six (existing facility) or 12 (new construction/renovation) air changes per hour.
- Directing exhaust of air to the outside.
- If an AIIR does not directly exhaust to the outside, the air may be returned to the air-handling system or adjacent spaces if all air is directed through HEPA filters.

[^]Presumptive evidence of measles immunity includes:

- Documentation of vaccination with two doses of live measles virus-containing vaccine
- Laboratory evidence of immunity
- Laboratory confirmation of disease
- Born before 1957 – For unvaccinated personnel born before 1957 who lack laboratory evidence of measles, rubella, or mumps immunity of laboratory confirmation of disease, health-care facilities should consider vaccinating personnel with two doses of MMR vaccine at the appropriate interval (for measles and mumps) and 1 dose of MMR vaccine (for rubella), respectively.

Additional Information and References

https://www.cdc.gov/measles/hcp/index.html

Interim Measles Infection Prevention Recommendations in Healthcare Settings | CDC

https://www.osha.gov/measles/control-prevention

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm

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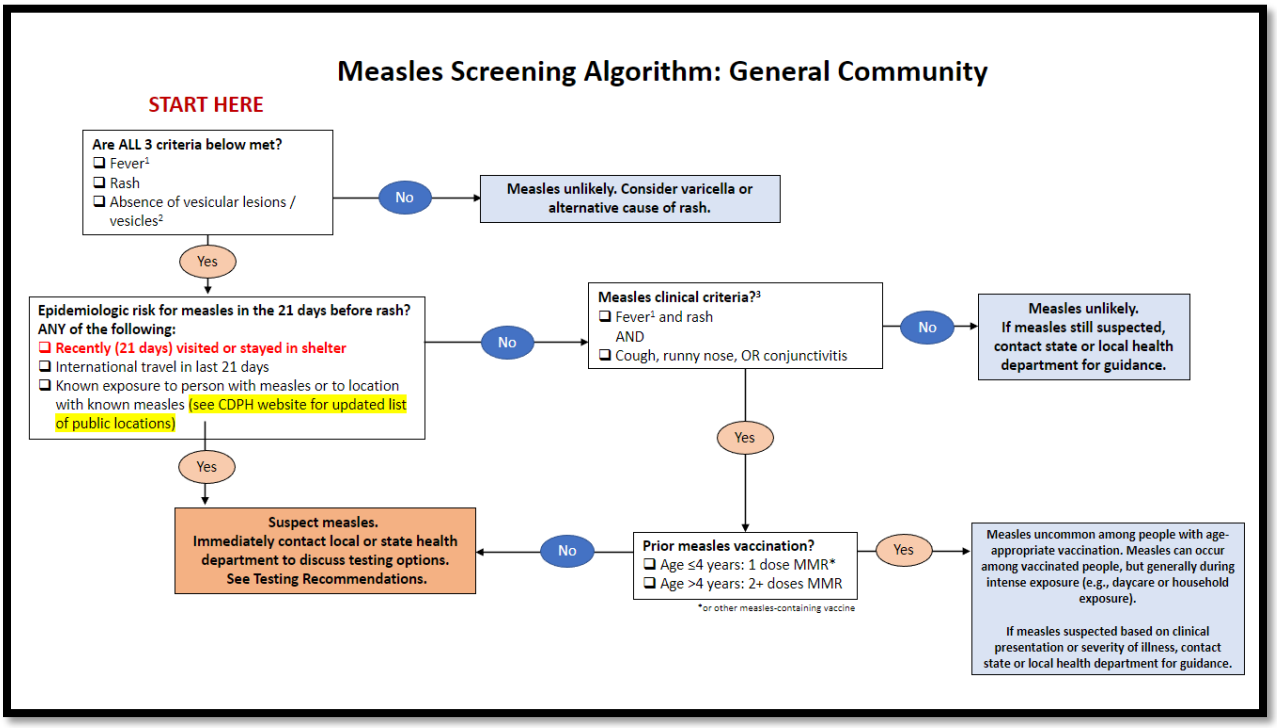
Appendix A



Footnotes:
1. 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/