Measles Resources for Clinics

Healthcare clinic leadership and staff should prepare for patients presenting with suspected or confirmed measles (rubeola). Clinics include but are not limited to adult and pediatric primary care or specialty clinics, college health clinics, immediate care clinics, or mobile clinics. Nebraska ICAP has developed this comprehensive resource to aid with rapid **Identification, Isolation, and Informing** processes.

These resources are to be used concurrently with the Centers for Disease Control and Prevention (CDC) **Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings** (link: https://www.cdc.gov/infectioncontrol/guidelines/measles/index.html)[1]. CDC guidelines should be reviewed frequently for updates. The key is to ensure that CDC guidelines are followed in addition to providing staff education specific to the measles preparedness plan. The focus is on patient safety, the safety of other patients accessing clinic services, and the safety of clinic staff.

Please contact Nebraska ICAP at 402-552-2881 or at https://icap.nebraskamed.com/ for questions or assistance with promoting appropriate infection control practices.

Sincerely,

The Nebraska ICAP Team

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Nebraska ICAP is funded by the Nebraska DHHS HAI/AR Program through a CDC grant.

How Clinics can Prepare for Measles

- Know your contact at the local health department (LHD) to communicate when a measles case is suspected or diagnosed.
- Have a line list template ready to be used for identifying all staff who interacted with the suspected measles patient in addition to other patients/visitors who were in proximity of the suspected measles patient.
- Plan for how specimen preparation and transport for testing will occur (if utilizing Nebraska Public Health Laboratory [NPHL] for testing, local health department will need to approve the test to be sent to NPHL).
- Prepare for an influx of phone calls/email communication from clinic patients looking to verify immunization history and requesting their records (e.g., are they current with the recommended MMR vaccine?)
- PPE inventory to include N95 respirators (for staff), face masks, gloves, and eye protection.
- Current guidance and recommendations indicate Standard and Airborne Precautions (which requires use of respirators)
    - Clinic leadership and staff may escalate to add Contact Precautions to the Standard and Airborne Precautions when there is a high risk of coming into contact with oral and respiratory secretions.
        - This additional risk mainly includes young children or developmentally delayed patients who cannot contain their oral secretions.
        - Other examples of situations where staff can be at increased risk for coming into contact with oral and respiratory secretions and may benefit from additional PPE (e.g., eye protection, gown, and gloves as a natural progression from Standard Precautions) include:
            - Initial contact/ such as rooming the patient and/or escorting the patient to and from their vehicle.
            - Interacting with the patient during the history, physical examination, and specimen collection (if indicated).
            - When cleaning and disinfecting a patient room after care has been provided, following the appropriate air exchange protocol.
- Evaluate environmental cleaner/disinfectants to ensure product is effective against measles virus: EPA List S[2]. (https://www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-bloodborne)
- Ensure signage for Respiratory Etiquette, facial tissues, face masks, and alcohol-based hand sanitizer are at clinic entrance. (https://stacks.cdc.gov/view/cdc/23304)
- Ensure staff are up to date with annual fit testing for N-95 masks according to the facility Respiratory Protection Plan.
    - For more information on a Respiratory Protection Program, visit NE ICAP: https://icap.nebraskamed.com/initiatives/respiratory-protection-resources/?highlight=Respiratory+Protection+Program
- Review vaccine inventory, purchasing and storage capacity.
- Ensure that all HCP have presumptive evidence of immunity to measles.[1]
    - Presumptive evidence of immunity to measles for HCP includes:

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- Written documentation of vaccination with 2 doses of measles virus-containing vaccine (the first dose administered at age ≥12 months; the second dose no earlier than 28 days after the first dose); OR
- Laboratory evidence of immunity (measles immunoglobulin G [IgG] in serum; equivocal results are considered negative); OR
- Laboratory confirmation of disease; OR
- Birth before 1957.

- Consider vaccinating HCP born before 1957 who do not have other evidence of immunity to measles.
- During an outbreak of measles, healthcare facilities should recommend two (2) doses of MMR vaccine at the appropriate interval for unvaccinated healthcare personnel regardless of birth year who lack laboratory evidence of measles immunity or laboratory confirmation of disease.
  - Similarly, serologic screening before vaccination is not recommended during outbreaks because rapid vaccination is necessary to halt disease transmission.
- Recommendations on immunization of HCP for measles are maintained by CDC and ACIP (https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm)

Clinic Scenario #1: Scheduled Suspected Measles Patient

Identification: Triage Call

- Staff screens patient for symptoms or exposure to measles. If suspected, staff schedules the appointment. Staff informs provider and all staff about scheduled appointment.
- Scheduling or triage staff instructs the patient to:
  - Call the clinic upon arrival to the parking lot of the clinic to let clinic staff know that they have arrived (if the patient is a child/infant, try to minimize to one adult to accompany the patient into the clinic).
  - Wait for the clinic staff to escort them into the clinic.
- Staff will place Airborne Precautions signage on the outside of the designated exam room.
- Staff will remove all non-essential supplies/items from exam room to prevent potential cross-contamination.

Isolation: Patient Arrival to Clinic

- Staff dons N95 and retrieves patient from vehicle. Additional PPE may be worn based on assessed risks (as described earlier) and facility policy.
- Staff provides a surgical mask to the patient before entry. If the patient cannot wear a surgical mask, other practical means of source containment should be implemented if can be done in a safe manner. (e.g., loose blanket or breathable pillowcase during transit through shared spaces).[3]
- Staff opens all doors for patient to enter the clinic and is immediately placed in the exam room.
  - Bypass waiting room if possible and do not allow the patient to remain the waiting/common areas of the clinic.
- Exam room door remains closed while conducting health history, exam, and specimen collection. Minimize staff entry/exit to the extent possible (use negative pressure room, if available).

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Isolation: Exam Room

- Staff/Provider dons N95 prior to entering the exam room. Additional PPE may be worn based on assessed risks and facility policy.
- If possible, use disposable equipment/supplies.
- Provider performs health history, exam, and specimen collection (if necessary).

Isolation: End of Examination and Specimen Collection

- If measles is suspected and a specimen is collected staff escorts patient back to their vehicle.
    - If patient refuses specimen collection, treat as a suspect case and escort back to their vehicle.
    - Exam room is closed for recommended time for adequate air exchange. If unknown, default to at least two hours. (https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1)
    - Signage is place outside of the exam room indicating how long it is out of service.
    - EVS/Clinic staff dons PPE to clean and disinfect exam room utilizing EPA List S approved products.[2] (https://www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-bloodborne)
- If measles is not suspected and a specimen is not collected: patient does not need escorting back to their vehicle.
    - Exam room does not need to be closed for recommended time for adequate air exchanges.
    - EVS/Clinic Staff can clean room following clinic protocol.

Informing: Communication and Specimen Preparation

- Clinic protocol is initiated regarding specimen handling/preparation/transportation based on communication process with local health department.
- Designated clinic staff informs local health department about suspected or confirmed measles case.

Clinic Scenario #2: Unannounced Suspected Measles Patient

Identification: Front Desk

- Staff screens patient for symptoms or exposure to measles. If suspected case or unvaccinated exposed patient:
    - Staff will immediately don a face mask and eye protection.
    - Staff will provide the patient with a mask and escort the patient to a designated exam room. If the patient cannot wear a surgical mask, other practical means of source containment should be
    - implemented if can be done in a safe manner. (e.g., loose blanket or breathable pillowcase during transit through shared spaces)[3]
- Patients who can keep mask on safely should refrain from removing it while in the exam room (except during examination if requested by the clinician) and the exam room door should be kept closed.
- Clinic should have a plan in place for unannounced patients with symptoms or exposure to measles.

Isolation: Exam Room

- Staff will place Airborne Precautions signage on the outside of the designated exam room (use negative pressure room, if available).
- Staff will immediately inform the provider of the patient to include reported symptoms/exposure, and exam room location.

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Isolation: Exam Room

- Staff/Provider dons N95 prior to entering the exam room. Additional PPE may be worn based on assessed risks and facility policy.
- Staff/Provider will gather specimen collection supplies prior to entering the exam room to avoid opening cabinet doors and cross-contaminating supplies.
    - If possible, use disposable equipment/supplies.
- Provider performs health history, exam, and specimen collection (if necessary).
- Exam room door remains closed while conducting health history, exam, and specimen collection. Minimize staff entry/exit to the extent possible.

Isolation: End of Examination and Specimen Collection

- If measles is suspected and a specimen is collected staff escorts patient back to their vehicle.
    - If patient refuses specimen collection, treat as a suspect case and escort back to their vehicle.
    - Exam room is closed for recommended time for adequate air exchange. If unknown, default to at least two hours. (https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1)
    - Signage is place outside of the exam room indicating how long it is out of service.

- EVS/Clinic staff dons PPE to clean and disinfect exam room utilizing EPA List S approved products.[2] (https://www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-bloodborne)

- If measles is not suspected and a specimen is not collected, the patient does not need escorting back to their vehicle.
    - Exam room does not need to be closed for recommended time for adequate air exchanges.
    - EVS/Clinic Staff can clean room following clinic protocol.

Informing: Communication and Specimen Preparation

- Clinic protocol is initiated regarding specimen handling/preparation/transportation based on communication process with local health department.
- Designated clinic staff informs local health department about suspected or confirmed measles case.

Additional Considerations for the Identification, Isolation, and Informing Process*

*Modified from Nebraska Medicine protocol with permission (August 2022)

Clinics should review each clinic scenario provided and adjust as needed based on available resources, staffing mix, clinic layout, availability of an airborne infection isolation room (e.g., negative pressure), hours of operation to include separation of sick/well visits, designated sick/well areas in the lobby, alternate entrances for patients with reported signs/symptoms or exposure to measles, and capacity to clean and disinfect the environment after discharging patients with suspected or confirmed measles.

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Identification

- Consider implementing universal masking and eye protection for all staff. This will help protect front desk staff when a patient walks in with/without an appointment.
- Educate all staff on the signs/symptoms of measles.
- Communication process within the clinic when a patient presents with/without an appointment.
- Identify a team lead for the day based on staffing mix and availability. This facilitates a clear communication pathway.

Isolation

- Identify a clinic exam room for scheduled and walk-in patients reporting symptoms or exposures to measles. If a negative pressure room is available, it should be used.
- Restrict the number of staff who need to enter the room by designating a primary caregiver. This will be determined by staffing mix/availability.
- Bundle tasks to avoid unnecessary entry into the room.
- Ensure Airborne Precautions signage is available and ready to use.
- Minimize traffic in the vicinity of the isolation room.
- Have appropriate donning and doffing areas with signage posted on the process.
- For scheduled appointments, determine if patient can enter through an alternate entrance to help minimize potential exposure to other patients.
- Keep all used equipment in the room until disinfected.
- Have cleaning and disinfection supplies available and consider having checklists to direct the process.
- Identify process for communication related to room cleaning and disinfection after a case of suspected measles.
- Be prepared to manage bodily fluid spills.

Informing

- Clinic leadership and staff should identify a communication and workflow process within the clinic in regarding:
    - Specimen collection/preparation/transport workflow. This process is established in conjunction with the local health department especially when utilizing NPHL for testing.
    - As previously described, all suspected or confirmed cases will be informed to local health department. There should also be a process to notify the local health department once results return positive.
    - Notify public health department of a positive measles result (Title 173 Communicable Diseases Chapter-01.pdf (nebraska.gov)

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Patient Screening Form: Suspected Measles

This form can be adapted based on the type of facility, patient population, services provided, and workflow.

Call-in/Front Desk: Any/all calls for patient reporting any of the below signs/symptoms, forward call to triage RN or Provider

Yes	No	Unk	Signs and/or Symptoms[4]	Date Started (if known)
			MMR vaccination status (age appropriate)	
			Details of possible exposure (Circle all that apply): • Household • Workplace • School/nursery • Unknown • Other, specify:	
			Recent Travel* (may need to check daily for accuracy)	
			Fever (as high as 105° F/40.6° C)	
			Malaise	
			Cough	
			Coryza (runny nose)	
			Conjunctivitis	
			Koplik spots (bluish/white spots on the inside of the mouth)	
			Maculopapular rash (combination of flat discolored spots (macules) and small, raised bumps (papules))	
			Other:	

Notes:

*CDC Link: Measles Cases and Outbreaks; Global Measles Outbreaks

If any of the above-mentioned categories are reported "Yes" or "Unknown" (Unk), further evaluation may be needed. Depending on the reported signs and symptoms and exposure risk, measles related infection prevention and control precautions may need to be initiated.

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Additional Patient Screening Considerations

Facilities will need to identify a process for screening patients for suspected/actual measles. The process is based on several factors, including but not limited to:

- Staffing and staffing mix (recognizing scope of practice limitations).
- Facility workflow and scheduling.
- Facility leadership and staff staying abreast of any changes in information published by the FDA, CDC, WHO and state/local health departments.
- Facilities may decide to include recent travel history within and outside of the United States during the screening process.

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CDC Transmission-Based Precautions Signage

(CDC recommends Standard and Airborne Precautions; however, Contact Precautions may be used according to facility's risk assessment) https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html#anchor_1564058235

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Signage for Exam Room Closure

Notice

Exam Room is Temporarily Closed. Cleaning and Disinfection can Occur at:

Place Sticky Note Here Indicating Date/Time Room can be Cleaned and Disinfected

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General Recommendations for Testing

Diagnostics:

- Inform local health department when testing a patient for measles. *
- In general:
  - PCR testing is preferred over serology.
  - Nasopharyngeal swabs and throat swabs are acceptable specimens for PCR testing.
  - Swabs should be collected with commercial swab products designed for the collection of throat/nasopharyngeal specimens or flocked polyester fiber swabs. Do not use cotton swabs.
  - Swabs should be placed in 2 mL of standard viral transport medium (VTM) and should not be allowed to dry out.
  - Sample should be shipped as a Category B

* If the test will be sent to The Nebraska Public Health Lab (NPHL), then the local health department must coordinate the process to ensure proper communication is in place.

CDC Air Exchanges Per Hour

Measles has been reported to survive in the air for up to 2 hours. For spaces with a defined rate of air changes per hour (ACH), see the following for additional considerations about estimating the time for 99.9% removal efficiency of airborne contaminants:

- Table B1 "Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency" from the 2003 CDC Guidelines for Environmental Infection Control in Health-Care Facilities (https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1)

Measles: Cleaning/Disinfection and Laundry/Waste

Cleaning and disinfection of the clinic exam room and reusable medical equipment should follow the Centers for Disease Control and Prevention (CDC) Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings guidance, which should be routinely reviewed for updates. (Link: https://www.cdc.gov/infectioncontrol/pdf/guidelines/Measles-Interim-IC-Recs-H.pdf)
Environmental cleaner/disinfectants identified on the EPAs List D are effective against measles the virus. (Link: https://www.epa.gov/pesticide-registration/list-d-epas-registered-antimicrobial-products-effective-against-human-hiv-1)

Room and Equipment Cleaning and Disinfection

- Exam rooms used for persons under investigation (including triage/vitals screening rooms) for measles must be cleaned and disinfected prior to being put back in service.
  - Refer to CDC Air Exchanges Per Hour guidance.
  - Standard cleaning and disinfection procedures should be performed using hospital approved disinfection wipes that have a claim for efficacy against the measles virus as identified on the United States Environmental Protection Agency (EPA) List S.

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- https://www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-bloodborne
- Follow the manufacturer's directions for concentration, contact time, care, and handling.

Linens, laundry, and waste:

- Following (CDC) Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings (pg. 7) (Link: https://www.cdc.gov/infectioncontrol/pdf/guidelines/Measles-Interim-IC-Recs-H.pdf), staff should manage used, disposable PPE and other patient care items for measles patient as regulated medical waste according to federal and local regulations.
  - When handling regulated medical waste, staff should don appropriate PPE based on assessment of risk exposure (e.g., gowns, gloves, eye protection).

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Potential Measles Exposure Log Sheet (Contact Tracing)

Identify all staff, patients, and visitors who were in the clinic during and two hours after the suspected measles patient was present. Information collected by the clinic staff/leadership may be shared with the local health department for contact tracing purposes. Additional information may be needed.

Date	First Name	Last name	Address	Phone #	Role/Location*	Comments

*Examples: Patient family member, patient/family/visitors present in clinic lobby (not affiliated with the case), front desk staff, staff/provider involved in direct care of suspected measles patient, staff in clinic not in proximity to suspected measles patient, or staff involved in cleaning/disinfecting/collecting laundry/waste of suspected measles patient.

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Definition of Exposure to Measles for Healthcare Personnel (HCP) in Healthcare Settings[1]

HCP exposures to measles in a healthcare setting include spending any time while unprotected (e.g., 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 (see CDC Air Exchanges per Hour

HCP without acceptable presumptive evidence of measles immunity should not enter a known or suspected measles patient's room if HCP with presumptive evidence of immunity is available.

Measles has been reported to survive in air for up to 2 hours. For spaces with a defined rate of air changes per hour (ACH), see the following for additional considerations about estimating the time for 99.9% removal efficiency of airborne contaminants:

- 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

1 CDC Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings (2019) https://www.cdc.gov/infectioncontrol/guidelines/measles/index.html

2 EPA List S: EPA's Registered Antimicrobial Products Effective Against Bloodborne Pathogens: Human immunodeficiency virus (HIV), Hepatitis B and Hepatitis C [List S] https://www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-bloodborne

3 California Department of Public Health Healthcare Facility Infection Control Recommendations for Suspect Measles Patients, April 2019 https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/Measles-HCFacilityICRecs.pdf

4 CDC Measles (Rubeola) For Healthcare Providers https://www.cdc.gov/measles/hcp/index.html?ACSTrackingID=DM120864-USCDC_1052&ACSTrackingLabel=COCA%20Now%3A%20Stay%20Alert%20for%20Measles%20Cases%20&deliveryName=DM120864-USCDC_1052

Additional Resources

APIC Measles Playbook https://apic.org/measles/

California Department of Public Health Healthcare Facility Infection Control Recommendations for Suspect Measles Patients, April 2019 https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/Measles-HCFacilityICRecs.pdf

CDC 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare settings (2023) https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html

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CDC Child and Adolescent Immunization Schedule by Age https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html

CDC Guidelines for Environmental Infection Control in Health-Care (2019) https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html

CDC Measles Outbreak Toolkit for Healthcare Providers https://www.cdc.gov/measles/toolkit/healthcare-providers.html

CDC The Pink Book: Measles https://www.cdc.gov/vaccines/pubs/pinkbook/meas.html#virus

CDC Routine Measles, Mumps, and Rubella Vaccination https://www.cdc.gov/vaccines/vpd/mmr/hcp/recommendations.html

CDC Vaccines and Preventable Diseases, Who Should Not Get Vaccinated with these Vaccines? (MMR (Measles, Mumps, and Rubella) vaccine) https://www.cdc.gov/vaccines/vpd/should-not-vacc.html

Children's Hospital Minnesota https://www.childrensmn.org/References/cds/measles-clinical-guidelines.pdf

Children's Hospital of Philadelphia https://www.chop.edu/clinical-pathway/suspected-measles-exposure-infection-clinical-pathway

Occupational Safety and Health Administration: Measles https://www.osha.gov/measles/control-prevention#generalguidance

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