Measles Contact Tracing for Healthcare Organizations

West Virginia Department of HEALTH
BUREAU FOR PUBLIC HEALTH

Purpose: Provide guidance for healthcare organizations to contact trace individuals exposed to a lab-confirmed measles case.

Identify

Exposure criteria:

Anyone not wearing a fit tested N95 respirator in the same airspace as a positive measles case including two hours after the case has left the facility. A person with measles is contagious four days before their rash appears until four days after the rash appears.

Who to trace:

Trace: all patients and staff exposed
Report: any patients, staff, and visitors exposed to your local health department immediately.

Collect exposed contacts, their demographics, and vaccine records to trace

Inform

Call each contact (see Appendix A)

- ☐ Make a minimum of three attempts to call each exposed patient.
- ☐ Ask the caller if anyone else was present with them at the time of exposure. If yes, add their name, date of birth, and contact number to the bottom of the contact tracing list and notify your local health department as soon as possible.
- ☐ Document all call details in the contact tracing sheet including relevant details in the notes section.

Manage exposed contacts (see tables 1, 2, 3)

Asymptomatic exposed contacts do not need testing. If an exposed contact develops febrile rash illness, treat them as a suspect case and call your local health department to report the case and coordinate testing through the state public health laboratory or private commercial laboratory.

Measles vaccine should be considered in all exposed individuals who are vaccine-eligible and have not been vaccinated or only received one dose.

Measles vaccine administered to susceptible individuals within 72 hours of exposure can provide protection or disease modification. Even if not in time for post exposure prophylaxis (PEP), the vaccine can provide protection against future exposures.

Quarantine should be considered for exposed individuals not eligible for PEP according to criteria in tables 1, 2, and 3.

Additional information and resources on measles is available on the OEPS Measles Webpage.

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Table 1: Management of exposed contacts

AGE RANGE	MEASLES IMMUNE STATUS	PEP TYPE DEPENDING ON TIME AFTER INITIAL EXPOSURE		
		≤3 DAYS	4-6 DAYS	>6 DAYS
All ages	Immune (2MMR doses, born before 1957, IgG positive)	PEP not indicated and no quarantine needed.		
<6 months	Non-immune due to age.	Give IMIG. Home quarantine for 28 days after last exposure.		PEP not indicated (too late). Home quarantine for 21 days after last exposure, self-monitor for symptoms.
6-11 months	Non-immune due to age	Give MMR (preferred over IG). No quarantine needed.	Give intramuscular immunoglobulin (IMIG). Home quarantine for 28 days after last exposure.	PEP not indicated (too late). Home quarantine for 21 days after last exposure, self-monitor for symptoms.
	1 early dose of MMR vaccine	PEP not indicated and no quarantine needed.		
≥12 months	Non-immune (zero doses of MMR or IgG negative)	Give MMR. No quarantine needed.	PEP not indicated (too late). Home quarantine for 21 days after last exposure, self-monitor for symptoms. Two doses of MMR vaccine, given at least 28 days apart, recommended to protect against <u>future</u> exposures.	
≥12 months	1 dose of MMR vaccine	Give 2nd MMR dose if ≥28 days from last dose of live vaccine. No quarantine needed.	Give 2nd MMR if not up to date. No quarantine needed, but self-monitor for symptoms for 21 days after last exposure.	
Adults	Unknown measles immunity status	Give MMR vaccine. No quarantine needed if MMR PEP given.	Obtain IgG titers to determine immunity, home quarantine while awaiting results. If IgG titer is negative, quarantine for 21 days after last exposure. Two doses of MMR, given at least 28 days apart, recommended to protect against <u>future</u> exposures.	

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Table 2: Management of immunocompromised contacts

Category	MEASLES IMMUNE STATUS	PEP TYPE DEPENDING ON TIME AFTER INITIAL EXPOSURE		
		≤3 DAYS	4-6 DAYS	>6 DAYS
Severely immunocompromised*	Need IG regardless of measles immune status**	Give intramuscular immunoglobulin (IMIG) if <12 months old, or intravenous immunoglobulin (IVIG) if ≥12 months old. Home quarantine for 28 days after last exposure.		PEP not indicated (too late). Home quarantine for 21 days after last exposure, self- monitor for symptoms.
Pregnant	Immune (IgG positive or 2 MMR doses)	PEP not indicated, exposed person has documented immunity.		
	Non-immune (IgG negative)	Give intravenous immunoglobulin (IVIG)and home quarantine for 28 days after last exposure.		PEP not indicated (too late). Home quarantine for 21 days after last exposure, self- monitor for symptoms.
	Unknown measles immunity status	Obtain IgG titers to determine immunity, home quarantine while awaiting results. Proceed using Table 1 based on titer results.		PEP not indicated (too late). Obtain IgG titers to determine risk of infection/risk to infant, home quarantine while awaiting results. Proceed using Table 1 based on titer results.

Tables 1 and 2 Adapted from Red Book 2024-2027 Report of the Committee on Infectious Diseases, 33rd edition

* Management of immunocompromised persons can be challenging and may require individualized decisions with provider based on immunocompromising condition or medications. Severely immuno-compromising conditions (per ACIP and IDSA)* include:

- Severe primary immunodeficiency;
- Bone marrow transplant until >12 months after finishing all immunosuppressive treatment, and maybe longer in patients who have developed graft-versus-host disease;
- On treatment for acute lymphoblastic leukemia (ALL) within and until ◆six months after completion of immunosuppressive chemotherapy;
- On cancer chemotherapy**
- Post solid organ transplantation**
- Receiving daily corticosteroid therapy with a dose ◆20mg (or >2 mg/kg/day for patients who weigh <10 kg) of prednisone or equivalent for ◆14 days
- Receiving certain biologic immune modulators, such as tumor necrosis factor-alpha (TNF-a) blockers or rituximab**
- After hematopoietic stem cell transplant, duration of high-level immunosuppression is highly variable and depends on type of transplant (longer for allogenic than autologous), type of donor and stem cell source, and post-transplant complications such as graft vs. host disease and their treatments**
- AIDS or HIV with severe immunosuppression defined as CD4 <15% (all ages) or CD4 count <200 lymphocytes/mm3 (age > five years).

Low-level immunosuppression: In the absence of published guidance on exposed persons with low-level immunosuppression, consider assessing presumptive immunity to measles (measles IgG positive or two MMR vaccine doses) to determine if PEP is indicated. If not immune to measles, give PEP as MMR (if not contraindicated^ and within 72 hours of initial exposure). Consider intravenous IG if MMR is contraindicated^ or if it is too late for MMR (day four to six after initial exposure) with home quarantine for 28 days after last exposure. If no PEP is given because it is too late, home quarantine for 21 days after last exposure.

** If a severely immunocompromised person has a new positive IgG titer collected on or after the date of exposure, quarantine is not required. The person should still monitor for symptoms for 21 days from the date of exposure, or 28 days if IVIG or IMIG was administered.

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For healthcare workers:

- The Centers for Disease Control and Prevention recommend all healthcare workers have presumptive evidence of immunity to measles. Those without evidence of immunity should be vaccinated, including those born before 1957 without other proof of immunity.

- Asymptomatic healthcare workers exposed to measles should follow the guidance in Table 3 to determine post-exposure prophylaxis and return to work needs.

Table 3: PEP and Return to Work criteria for asymptomatic healthcare workers exposed to measles

HCW Vaccine status	PEP	Work restrictions	Symptom monitoring	Return to work
Immune (2 MMR doses, IgG positive)	None	None	From day 5 after first exposure through day 21 after last exposure.	Immediately
Non-immune (zero doses of MMR or IgG negative)				
≤3 days post-exposure	Give MMR	Exclude from workday 5 after first exposure through day 21 after last exposure.	From day 5 after first exposure through day 21 after last exposure.	Day 22 post-exposure. Two doses of MMR, given at least 28 days apart, recommended to protect against future exposures.
≥4 days post-exposure	Not indicated	Exclude from workday 5 after first exposure through day 21 after last exposure.	From day 5 after first exposure through day 21 after last exposure.	Day 22 post-exposure. Two doses of MMR, given at least 28 days apart, recommended to protect against future exposures.
One dose of MMR				
≤3 days post-exposure	Give 2nd MMR dose if at least 28 days since last dose of live vaccine.	None	From day 5 after first exposure through day 21 after last exposure.	Immediately
≥4 days post-exposure	Not indicated	Exclude from workday 5 after first exposure through day 21 after last exposure.	From day 5 after first exposure through day 21 after last exposure.	Day 22 post-exposure. Two doses of MMR, given at least 28 days apart, recommended to protect against future exposures.

Adapted from Measles | Infection Control | CDC

- Exposed healthcare workers with known or suspected measles should be excluded from work through day four after the rash appears. They can return to work on day five after the rash appears.
    - Immunocompromised healthcare workers with known or suspected measles should be excluded from work for the duration of their illness.

- Healthcare workers adhering to airborne isolation precautions including use of a fit-tested, NIOSH-certified disposable N95 respirator for the duration of exposure to a patient with measles are not considered exposed.

- Healthcare workers without evidence of immunity to measles should not care for patients with measles if workers with evidence of immunity to measles are available.

- Exposed healthcare workers who are fully vaccinated and asymptomatic cannot expose their family members at home. If they do develop prodrome, fever, or rash, they need to stay home, follow organizational policy to report exposure-related illness, AND call their local health department immediately.

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Appendix A: Contact Tracing Scripting

Call script

“Hi, I am calling from [organization]. The reason for my call is to notify you that you/your child were exposed to someone who tested positive for measles on [date] at [location]. I would like to ask you some questions to make sure you get the right follow-up to this exposure.

☐Verify demographic information for the caller

☐Verify vaccination history

☐Determine the patient’s exposure using table 1

- Pregnant or immunocompromised contacts may need additional evaluation

☐Determine if they are symptomatic or not

- Prodrome 3C’s (cough, coryza, conjunctivitis)
- Fever
- Maculopapular rash starting on the head

☐Give appropriate follow-up guidance based on exposure level, vaccine history, and symptom status (PEP, quarantine, symptom monitor) (see table 1).

☐If a person in the home of an exposed person is unvaccinated or under vaccinated, they should be vaccinated ASAP.

“We understand that this may be alarming to hear, but [your organization] and the West Virginia Department of Health are committed to working with you to ensure you receive necessary care.”

Voicemail script

"Hi, this is [name] with [organization]. I'm calling with urgent health related information for you/your child. Please return our call at [phone number]. Please ask for [NAME] when you call back, so you'll be connected back with me."

Important Talking Points

- The following groups do not need to stay home from work/school, and can be active as normal, BUT if they develop any symptoms of measles (fever, rash, etc.) they need to stay home and call you back immediately:
  - You received two doses of measles-containing vaccine, and you are a school-aged child (grades k-12) or an adult who will be in a setting that poses a high risk for measles transmission (healthcare workers, attending college, international travel).
  - You received one dose of measles-containing vaccine, and you are: a preschool-aged child or an adult who will not be in a high-risk setting.
  - Laboratory evidence of immunity.
  - History of laboratory confirmation of measles via PCR testing.
  - Birth before 1957(birth before 1957 is NOT considered evidence of immunity for healthcare workers)

- Measles incubation period is typically eight to 12 days from exposure to the first symptoms appearing (prodromal symptoms). A rash follows the prodromal symptoms two to four days later and usually lasts five to six days. Measles is infectious four days before and four days after rash onset. People should be aware that a rash is NOT the first symptom of measles and that they can be contagious before the rash appears.
- Measles PCR testing of asymptomatic contacts is not recommended. If an exposed contact develops febrile rash illness, treat as a suspect case. Testing of febrile people without a rash is not recommended and may lead to false negative results. The PCR test is unlikely to detect measles virus until the onset of rash.
- Contacts of contacts are not considered exposed and do not need monitoring. Discussion of measles risk from community exposures and getting caught up with vaccines is encouraged.
- If an exposed contact develops symptoms and needs healthcare at an urgent care, emergency room, or primary care provider, they need to call ahead to let the facility know they're an exposed measles contact. They should also wear a procedural mask when in a healthcare facility.

Appendix B: Template measles exposure notification letter for patients or staff

Date: [insert date]

Dear [insert name],

This letter is to notify you that a person with measles was present at [facility name] on the following date(s):

- [date 1]
- [date 2, etc.]

Measles is a highly contagious virus that spreads through the air and respiratory droplets. The virus can remain in the air for up to two hours after a person with measles leaves the room. Children and adults who have not had measles or who have not received the MMR vaccine are at high risk of developing measles after being exposed. About 90% of people who are not protected against measles and are exposed to the virus will get infected. Children younger than five years old, adults older than 20 years old, and people who are pregnant or have weakened immune systems are at higher risk of complications.

What should you do?

[Healthcare facility], in collaboration with the West Virginia Department of Health (WVDH), strongly encourages you to review your vaccination status. Children usually receive the MMR vaccine at 12–15 months and again at four to six years of age. Talk to your healthcare provider if you are unsure of your vaccination status, if you have only had one dose of the MMR vaccine, or if you have not received the MMR vaccine.

Protection provided by the measles vaccine is usually permanent. However, about three in 100 people who have received two doses of MMR vaccine will still get measles if exposed to the virus. Therefore, we want to provide you with information about measles, and the signs and symptoms to look for:

- Fever
- Cough
- Runny nose
- Red, watery eyes (conjunctivitis/pink eye)
- Tiny white spots inside the mouth
- Rash (flat, dry spots)
    - The rash may appear red or pink on fair skin but may have no change in color on darker skin.

If you or anyone in your household currently has symptoms that look like measles, contact your healthcare provider. Notify your local health department immediately about any suspected cases of measles.

Anyone who has the measles should stay home and avoid contact with others through four days after their rash began. They should not attend work, parties, and/or other gatherings. They may return to work on day five after their rash began.

Those who were exposed to measles and who are unvaccinated should not attend work, parties, and/or other gatherings through 21 days after they were exposed. They may return to work on day 22 after exposure.

If you or anyone else in your household has a weakened immune system or is pregnant and has never had measles or the measles vaccine, talk with your doctor immediately.

If you have questions regarding exposure, symptoms, or measles in general please call [insert employee health representative] at [employee health contact information] or your local health department at [LHD contact number].

Best Regards,

[healthcare facility]