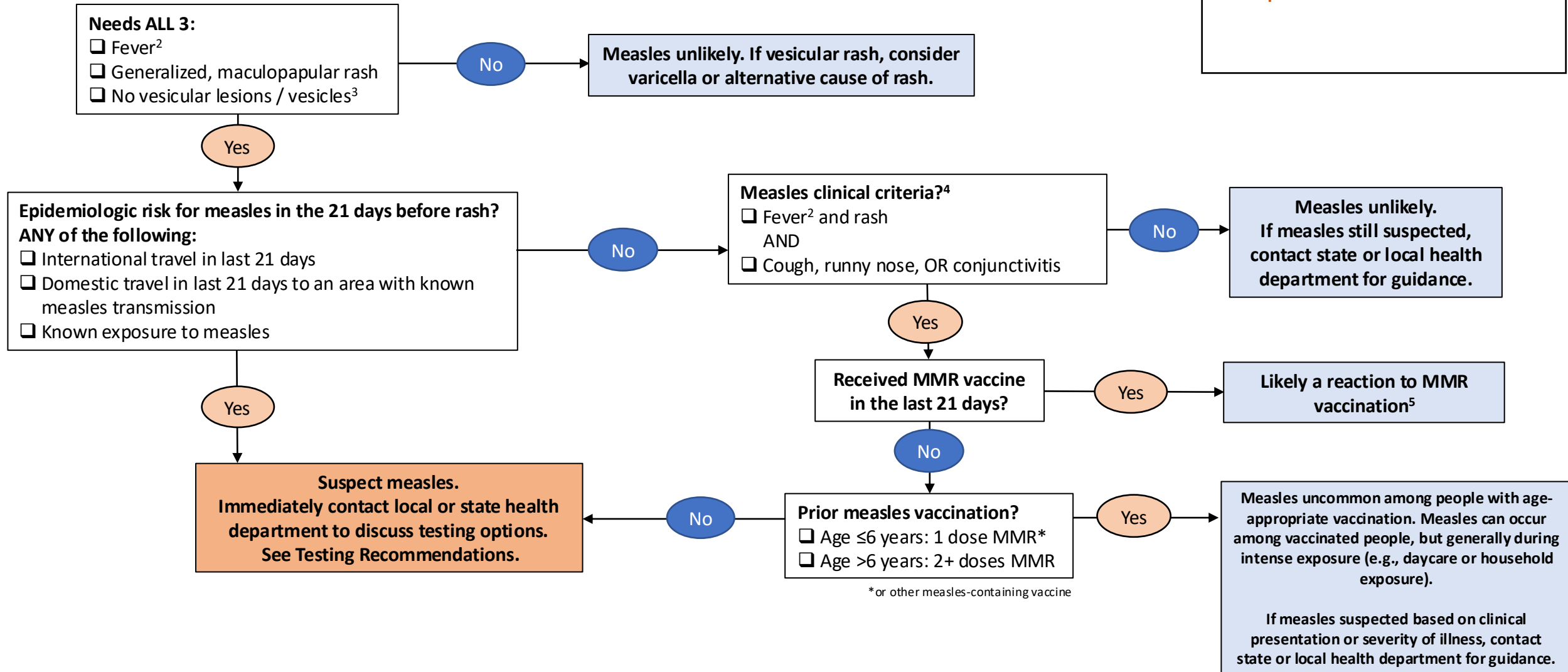


Evaluating a patient presenting with rash when there is no local measles transmission¹

Placeholder for state/local department contact info

START HERE



Notes

1. This testing algorithm is intended to be used by bedside providers in settings where there is not local measles transmission. This assumes that the pre-test probability for most people without known epidemiologic risk for measles and who do not meet case criteria will be low. In settings with active measles transmission, the threshold at which to pursue testing may be lower, and a more permissive algorithm could be considered.
2. 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).
3. A vesicular rash is not consistent with measles, and should prompt consideration for other causes of rash (e.g., varicella/chickenpox)
4. 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”)
5. Up to 5% of MMR recipients will get a short-lived, mild febrile rash. This is more common with the first dose of MMR. People who experience this vaccine reaction are not contagious to others around them. If a person has received MMR within 21 days before rash onset, but also has epidemiologic risk for measles, then specialized testing may be required and should be discussed with local or state public health authorities.

*CSTE: Council of State and Territorial Epidemiologists: <https://ndc.services.cdc.gov/case-definitions/measles-2013/>

Testing Recommendations

- ❑ Immediately contact the state or local health department to report a suspect measles case and arrange testing
- ❑ Collect a nasopharyngeal (NP) or oropharyngeal/throat (OP) swab for measles* RT-PCR
 - Follow state/local guidance for specimen collection (e.g., type of swab, media).
 - If directed by public health authorities, urine can also be obtained for measles PCR.
 - At least 50cc of urine should be voided into a sterile container and stored refrigerated (not frozen).
- ❑ Obtain serum for measles* IgM and IgG

*Measles virus is also referred to as “rubeola” in some lab orders, not to be confused with rubella virus

Measles Characteristics

- Classic symptoms
 - Fever (up to 105F) + generalized maculopapular rash + one of the “3 C’s”
 - 3 C’s: Cough, coryza (runny nose), conjunctivitis
 - Clues to measles:
 - Prodrome of fever and at least 1 of 3 C’s often starts 2–4 days before rash
 - Rash starts on head or face and spreads downwards
 - Fever continues through onset of rash, often peaking around the time when the rash starts
- Measles is rare in vaccinated people, especially with 2 prior doses of MMR
 - 1 dose generally provides 93% protection, and 2 doses provides 97% protection from measles infection

Other common causes of febrile rash in children

- **Parvovirus B-19 (“Fifth Disease”)**
 - Classic “slapped cheek” rash
 - More common in school-aged children than infants
- **Human Herpesvirus 6 (HHV-6, “Sixth Disease”, “Roseola”)**
 - Common cause of febrile rash in infants
 - Rash commonly starts on trunk (measles rash starts on face/hairline)
 - Fever often resolves before start of rash (measles fever peaks around time of rash onset)
- **Enteroviruses**
 - Common cause of Hand/Foot/Mouth, rash can involve hands/feet which are generally spared in measles
 - Rash can be urticarial, which is not typical for measles



“Slapped Cheek” rash



HFM



Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings

Updated July 2019

Table of Contents

Fundamental Elements to Prevent Measles Transmission.....	2
Recommendations.....	3
1. Ensure that all HCP have presumptive evidence of immunity to measles	3
2. Minimize potential measles exposures.....	3
A. Before arrival to a healthcare setting.....	3
B. Upon arrival to a healthcare setting.....	4
3. Adhere to standard and airborne precautions	4
A. Patient placement	4
B. Healthcare personnel	5
C. Transporting patients with known or suspected measles within and between healthcare facilities.....	6
D. Duration of airborne precautions.....	6
E. Manage visitor access and movement within the facility	6
F. Implement environmental infection control.....	7
4. Manage measles exposures.....	7
A. Management of exposed healthcare personnel	7
B. Management of healthcare personnel infected with measles	8
C. Management of patients exposed to measles who do not have presumptive evidence of measles immunity	8
5. Considerations for a measles outbreak	8
6. Train and educate healthcare personnel.....	9
7. Establish reporting within hospitals and to public health authorities.....	9
Appendix A: Considerations when Evaluating a Person for Exposure to Measles in a Healthcare Setting.....	10
Appendix B: Additional Information about Respirators	12

Fundamental Elements to Prevent Measles Transmission

Measles is most commonly acquired from persons in the household or community, but spread of measles can also occur in healthcare settings.¹ While the most important measure to prevent measles transmission in all settings is ensuring community immunization, core measles prevention in healthcare settings requires a multi-faceted approach including:

- Ensuring HCP have presumptive evidence of immunity to measles (see Recommendations, section 1 below)
- Rapidly identifying and isolating patients with known or suspected measles
- Adhering to Standard and Airborne Precautions for patients with known or suspected measles
- Routinely promoting and facilitating respiratory hygiene and cough etiquette
- Appropriately managing exposed and ill HCP

This interim guidance should be implemented in the context of a comprehensive infection prevention program to prevent transmission of all infectious agents among patients, HCP, and visitors.

Definition of healthcare personnel (HCP): “HCP” includes all paid and unpaid persons working in healthcare settings who have the potential for exposure to patients and/or to infectious materials, including body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air. HCP include but are not limited to, emergency medical service personnel, nurses, nursing assistants, physicians, technicians, therapists, phlebotomists, pharmacists, students and trainees, contractual staff not employed by the healthcare facility, and persons not directly involved in patient care, but who could be exposed to infectious agents that can be transmitted in the healthcare setting (e.g., clerical, dietary, environmental services, laundry, security, engineering and facilities management, administrative, billing, and volunteer personnel).

Definition of healthcare settings: “Healthcare settings” refers to places where healthcare is delivered and includes, but is not limited to, acute care facilities, long-term acute care facilities, inpatient rehabilitation facilities, nursing homes and assisted living facilities, home healthcare, vehicles where healthcare is delivered (e.g., mobile clinics), and outpatient facilities, such as dialysis centers, physician offices, and others.

¹ During 2001-2014, 6% of non-imported measles cases in the United States resulted from transmission in healthcare facilities. Fiebelkorn AP, Redd SB, Kuhar DT. Measles in Healthcare Facilities in the United States During the Postelimination Era, 2001-2014. *Clin Infect Dis*. 2015 Aug 15;61(4):615-8.

Definition of exposure to measles for HCP in healthcare settings: HCP exposures 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* See Appendix A.

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

Recommendations

1. Ensure that all HCP have presumptive evidence of immunity to measles

- Presumptive evidence of immunity to measles for HCP includes:
 - o 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
 - o Laboratory evidence of immunity (measles immunoglobulin G [IgG] in serum; equivocal results are considered negative); OR
 - o Laboratory confirmation of disease; OR
 - o Birth before 1957.
- Consider vaccinating HCP born before 1957 who do not have other evidence of immunity to measles.
- During a measles outbreak, 2 doses of measles virus-containing vaccine are recommended for all HCP, regardless of year of birth.
- [Recommendations on immunization of HCP for measles are maintained by CDC and ACIP](https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm) (<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm>).

2. Minimize potential measles exposures

A. Before arrival to a healthcare setting

- When scheduling appointments by phone:

- For persons with signs or symptoms of measles, provide instructions for arrival, including which entrance to use and the precautions to take (e.g., how to notify hospital staff, don a facemask upon entry, follow triage procedures).

Instruct Emergency Services to notify the receiving facility/accepting physician in advance when transporting a patient with known or suspected measles

B. Upon arrival to a healthcare setting

- Utilize existing triage stations for rapid identification and isolation of patients with measles.
 - Persons with signs or symptoms of measles should be identified, provided a facemask² to wear, and separated from other patients *prior to or as soon as possible after entry into a facility*.
- Facilitate adherence to respiratory hygiene, cough etiquette, hand hygiene, and triage procedures.
 - Post visual alerts (e.g., signs, posters) in appropriate languages about respiratory hygiene, cough etiquette, and hand hygiene at the facility entrance and in common areas (e.g., waiting areas, elevators, cafeterias).
 - Provide persons with signs or symptoms of measles with instructions on all relevant infection control expectations.
 - Make supplies to perform hand hygiene available to all persons in the facility.
 - Provide supplies (e.g., facemasks) near the visual alerts if possible.

3. Adhere to standard and airborne precautions

- Adhere to Standard Precautions, which are the foundation for preventing transmission of infectious agents in all healthcare settings.
- Adhere to Airborne Precautions when caring for patients with known or suspected measles.

For information on Standard and Airborne precautions, refer to the *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings* (<https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>).

A. Patient placement

- Immediately place patients with known or suspected measles in an airborne infection isolation room (AIIR).
 - The patient's facemask could be removed as long as they remain in the AIIR.

² A facemask is a term that applies collectively to items used to cover the nose and mouth and includes both procedure masks and surgical masks.

- If an AIIR is not available, transfer the patient as soon as possible to a facility where an AIIR is available.
 - Pending transfer, place the masked patient in a private room with the door closed. If feasible, the patient should continue to wear the mask for the duration of time spent in the non-AIIR room.
 - Preferably, the patient should be placed in a room where the exhaust is recirculated with high-efficiency particulate air (HEPA) filtration.
 - After the patient leaves the room, it should remain vacant for the appropriate time (up to 2 hours) to allow for 99.9% of airborne-contaminant removal. (See Appendix B, [Table B1.: Air changes/hour and time required for airborne-contaminant removal by efficiency](https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1) [<https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1>]).
- An AIIR should meet current standards, including:
 - 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.
- When an AIIR is in use for a patient on Airborne Precautions, monitor air pressure daily with visual indicators (e.g., smoke tubes, flutter strips), regardless of the presence of differential pressure sensing devices (e.g., manometers).
- Keep the AIIR door closed when not required for entry and exit.

For information on AIIR requirements, refer to the 2007 [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings - Glossary](https://www.cdc.gov/infectioncontrol/guidelines/isolation/glossary.html#A) (<https://www.cdc.gov/infectioncontrol/guidelines/isolation/glossary.html#A>).

B. Healthcare personnel

- 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 are available.
- Respiratory Protection:
 - HCP should use respiratory protection (i.e., a respirator) that is at least as protective as a fit-tested, NIOSH-certified disposable N95 filtering facepiece respirator, regardless of presumptive evidence of immunity, upon entry to the room or care area of a patient with known or suspected measles.
 - Respirator use must be in the context of a complete respiratory protection program in accordance with Occupational Safety and Health Administration (OSHA) [Respiratory](#)

[Protection Standard 29 CFR 1910.134](https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134) (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134>).

- o HCP should be medically cleared and fit-tested if using respirators with tight-fitting facepieces (e.g., a NIOSH-certified disposable N95) and trained in the proper use of respirators, safe removal and disposal, and medical contraindications to respirator use.

C. Transporting patients with known or suspected measles within and between healthcare facilities

- Limit transport of patients with known or suspected measles to essential purposes, such as diagnostic and therapeutic procedures that cannot be performed in the patient's room or in the facility.
- When transport within the facility is necessary,
 - o The patient should wear a facemask if tolerated.
 - o Use a transportation route and process that includes minimal contact with persons not essential for the patient's care.
- Notify HCP in the receiving area of the impending arrival of the patient and of the precautions necessary to prevent transmission. When transport outside the facility is necessary, inform the receiving facility and the transport vehicle HCP in advance about airborne precautions being used. Consider using an interfacility infection control transfer form (example available here: [Interfacility Infection Control Transfer Form \[PDF - 3 Pages\]](https://www.cdc.gov/hai/pdfs/toolkits/Interfacility-IC-Transfer-Form-508.pdf) [<https://www.cdc.gov/hai/pdfs/toolkits/Interfacility-IC-Transfer-Form-508.pdf>])

D. Duration of airborne precautions

- Patients with measles should remain in Airborne Precautions for 4 days after the onset of rash (with onset of rash considered to be Day 0).
- Immunocompromised patients with measles should remain in Airborne Precautions for the duration of illness due to prolonged virus shedding in these individuals.³

E. Manage visitor access and movement within the facility

- If there are persons with measles in your community, consider screening visitors for signs and

³ Severely immunocompromised patients include, but are not limited to, patients with severe primary immunodeficiency; patients who have received a bone marrow transplant until at least 12 months after finishing all immunosuppressive treatment, or longer in patients who have developed graft-versus-host disease; patients on treatment for acute lymphocytic leukemia within and until at least 6 months after completion of immunosuppressive chemotherapy; and patients with a diagnosis of AIDS or HIV-infected persons with severe immunosuppression defined as CD4 percent <15% (all ages) or CD4 count <200 lymphocytes/mm³ (aged >5 years) and those who have not received MMR vaccine since receiving effective ART. Some experts include HIV-infected persons who lack recent confirmation of immunologic status or measles immunity. The treating physician for the exposed individual should be consulted to determine if the patient is immunocompromised.

symptoms of measles before entering the facility.

- Visitors without acceptable presumptive evidence of immunity should not enter the room of a patient with known or suspected measles.
- Limit visitors to patients with known or suspected measles to those who are necessary for the patient's well-being and care.

F. Implement environmental infection control

- Standard cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying disinfectants to frequently touched surfaces or objects for indicated contact times) are adequate for measles virus environmental control in all healthcare settings.
- Use an EPA-registered disinfectant for healthcare settings, per manufacturer's instructions.
- Manage used, disposable PPE and other patient care items for measles patients as regulated medical waste according to federal and local regulations.

Detailed information on environmental cleaning in healthcare settings can be found in CDC's [Guidelines for Environmental Infection Control in Healthcare Facilities](https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html) (<https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html>) and [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings](https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html) (<https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>).

4. Manage measles exposures

- Evaluate exposed HCP, patients, and visitors for presumptive evidence of measles immunity. (For contact investigations, see Appendix A: Considerations when Evaluating a Person for Exposure to Measles in a Healthcare Setting.

A. Management of exposed healthcare personnel

- These recommendations have been updated and can be found in CDC's Infection Control in Healthcare Personnel: Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients
Diphtheria, Group A Streptococcus, Measles, Meningococcal Disease, Mumps, Pertussis, Rabies, Rubella, Varicella, and Special Populations: Pregnant Healthcare Personnel
Updated March 28, 2024
(<https://www.cdc.gov/infection-control/media/pdfs/Guideline-IC-HCP-H.pdf>).

B. Management of healthcare personnel infected with measles

- These recommendations have been updated and can be found in CDC's Infection Control in Healthcare Personnel: Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients
Diphtheria, Group A Streptococcus, Measles, Meningococcal Disease, Mumps, Pertussis, Rabies, Rubella, Varicella, and Special Populations: Pregnant Healthcare Personnel
Updated March 28, 2024
(<https://www.cdc.gov/infection-control/media/pdf/Guidelines-IC-HCP-H.pdf>).

C. Management of patients exposed to measles who do not have presumptive evidence of measles immunity

- Place the exposed patient without presumptive evidence of measles immunity on Airborne Precautions for 21 days after the last exposure, or until discharge, if earlier.
- Administer postexposure prophylaxis in accordance with CDC and ACIP recommendations.
- Notify public health authorities about measles-exposed patients who are being, or may have been, discharged so that appropriate follow-up can occur.

5. Considerations for a measles outbreak

In the event of an outbreak or exposure involving large numbers of patients who require Airborne Precautions:

- Consult infection control professionals before patient placement to determine the safety of alternative rooms that do not meet engineering requirements for an AIIR.
- Place together (cohort) patients who have confirmed measles in areas of the facility that are separated from the rest of the patient population which is important for protecting patients who are at increased risk for infection (e.g., immunocompromised patients).
- Use temporary portable solutions (e.g., exhaust fans) to create a negative pressure environment in the converted area of the facility to create [expedient patient isolation rooms](https://www.cdc.gov/niosh/topics/hcwcontrols/engcontrolsolutions/expedient-patient-isolation.html):

(<https://www.cdc.gov/niosh/topics/hcwcontrols/engcontrolsolutions/expedient-patient-isolation.html>)

- Discharge air directly to the outside, away from people and air intakes, OR
- Direct all air through HEPA filters before it is introduced to other air spaces.

6. Train and educate healthcare personnel

- Provide all HCP with job- or task-specific education and training, including refresher training, on preventing transmission of measles.
- Train, medically clear, and fit-test HCP for respiratory protection device use (e.g., N95 filtering facepiece respirators).
 - o Alternatively, train and medically clear HCP in the use of an alternative respiratory protection device (e.g., Powered Air-Purifying Respirator (PAPR)) whenever respirators are required.
 - o [OSHA Respiratory Training Videos](https://www.osha.gov/SLTC/respiratoryprotection/training_videos.html) (https://www.osha.gov/SLTC/respiratoryprotection/training_videos.html).
- Ensure that HCP are educated, trained, and can demonstrate competency in the use of appropriate PPE prior to caring for patients with known or suspected measles.

7. Establish reporting within hospitals and to public health authorities

- Implement mechanisms and policies that promptly alert key facility staff, including hospital leadership, infection control, healthcare epidemiology, occupational health, clinical laboratory, and frontline staff, about patients with suspected or known measles.
- Communicate and collaborate with public health authorities:
 - o Promptly notify public health authorities of patients with known or suspected measles.
 - o Designate specific persons within the facility who are responsible for:
 - Communication with public health officials, and
 - Dissemination of information to HCP.

Appendix A: Considerations when Evaluating a Person for Exposure to Measles in a Healthcare Setting

In healthcare settings, persons potentially exposed to measles include patients, visitors, and HCP who are not wearing recommended respiratory protection (regardless of presumptive evidence of measles immunity status) who are:

- 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

Based on frequently asked questions to CDC and State and local health departments, the following additional considerations are provided for determining follow-up needs for measles exposures in healthcare settings:

- Effectiveness of source control measures for measles have not been formally studied in healthcare settings. However, known measles transmission has not been reported in scenarios in which exposure risk could be considered low, but is technically not zero, such as in a triage area and transport route within a facility when a suspect measles patient is appropriately identified at entry, masked, and quickly transported to an AIIR.
- Examples of higher risk exposures to measles include, but are not limited to:
 - Susceptible HCP who are unprotected (i.e., not wearing recommended respiratory protection) and are providing face-to-face care to an unmasked patient
 - Persons in the waiting room with an unmasked measles patient for an extended period of time
- While masking patients does not eliminate the possibility of exposing others, it reduces respiratory aerosol generation.^{4,5,6}
- Defining what constitutes a shared air space:
 - Smaller spaces, such as the patient compartment of an ambulance, a single patient room, or a clinic waiting area, are shared air spaces
 - Different areas in a larger space or rooms that share a common air handling system, such as a large emergency department with patient waiting, triage, HCP work areas, or multiple individual patient rooms that share a common unfiltered air source, are also shared airspaces.
- Other factors in the shared air space also likely have an impact on the efficiency of measles transmission, including humidity and air flow dynamics between rooms.

⁴ John DF, Druce JD, Birch C, Grayson ML. A quantitative assessment of the efficacy of surgical and N95 masks to filter influenza virus in patients with acute influenza infection. *Clin Infect Dis*. 2009 Jul 15;49(2):275-7.

⁵ Milton DK, Fabian MP, Cowling BJ, Grantham ML, McDevitt JJ. Influenza virus aerosols in human exhaled breath: particle size, culturability, and effect of surgical masks. *PLoS Pathog*. 2013 Mar;9(3):e1003205.

⁶ Diaz KT, Smaldone GC. Quantifying exposure risk: Surgical masks and respirators. *Am J Infect Control*. 2010;38:501-8.

- However, distances farther from the source patient may pose decreased risk of transmission to others. HCP responsible for maintaining the building's air handling system(s) should be consulted when assessing exposure risk between different rooms or areas of a facility, e.g., to identify where ventilation return air is recirculated (without passing through HEPA filtration).
- Persons who are considered to be in a high-risk group for severe illness and complications from measles include severely immunocompromised persons, infants too young to be vaccinated, and pregnant women who do not have presumptive evidence of measles immunity. See [Measles \(Rubeola\) For Healthcare Professionals](https://www.cdc.gov/measles/hcp/index.html). (<https://www.cdc.gov/measles/hcp/index.html>).
- To better inform future guidance, health departments and facilities are encouraged to record and report details about the circumstances associated with healthcare-associated cases of measles, including adherence to recommended precautions and facility location(s) of index and secondary cases.

Appendix B: Additional Information about Respirators

- A respirator is a personal protective device that is worn on the face, covers at least the nose and mouth, and is used to reduce the wearer's risk of inhaling hazardous airborne particles (including dust particles and infectious agents), gases, or vapors.
- A commonly used respirator is a filtering facepiece respirator (commonly referred to as an N95).
 - o Respirators are certified by NIOSH, CDC.
 - o N95 respirators may also be cleared by FDA as medical devices, depending on the intended use.
- To work properly, respirators must be specially fitted for each person who wears one.
 - o This is called "fit-testing" and is usually done in a workplace where respirators are used.
- Respirator use must be in the context of a complete respiratory protection program in accordance with [OSHA Respiratory Protection Standard 29 CFR 1910.134](https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134) (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134>).
- HCP should be medically cleared and fit-tested if using respirators with tight-fitting facepieces (e.g., a NIOSH-certified disposable N95) and trained in proper respirator use, safe removal and disposal, and medical contraindications to use.
- Additional resources:
 - o US Food & Drug Administration (FDA), "[Masks and N95 Respirators:](https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/masks-and-n95-respirators)" (<https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/masks-and-n95-respirators>)
 - o [NIOSH information about respirators](https://www.cdc.gov/niosh/topics/respirators/) (<https://www.cdc.gov/niosh/topics/respirators/>)
 - o [OSHA Respiratory Protection eTool](https://www.osha.gov/SLTC/etools/respiratory/index.html) (<https://www.osha.gov/SLTC/etools/respiratory/index.html>)

Interventions to Control a Measles Outbreak

Public health interventions can prevent or slow the spread of measles in your community.



Isolation

for people who have symptoms



Quarantine

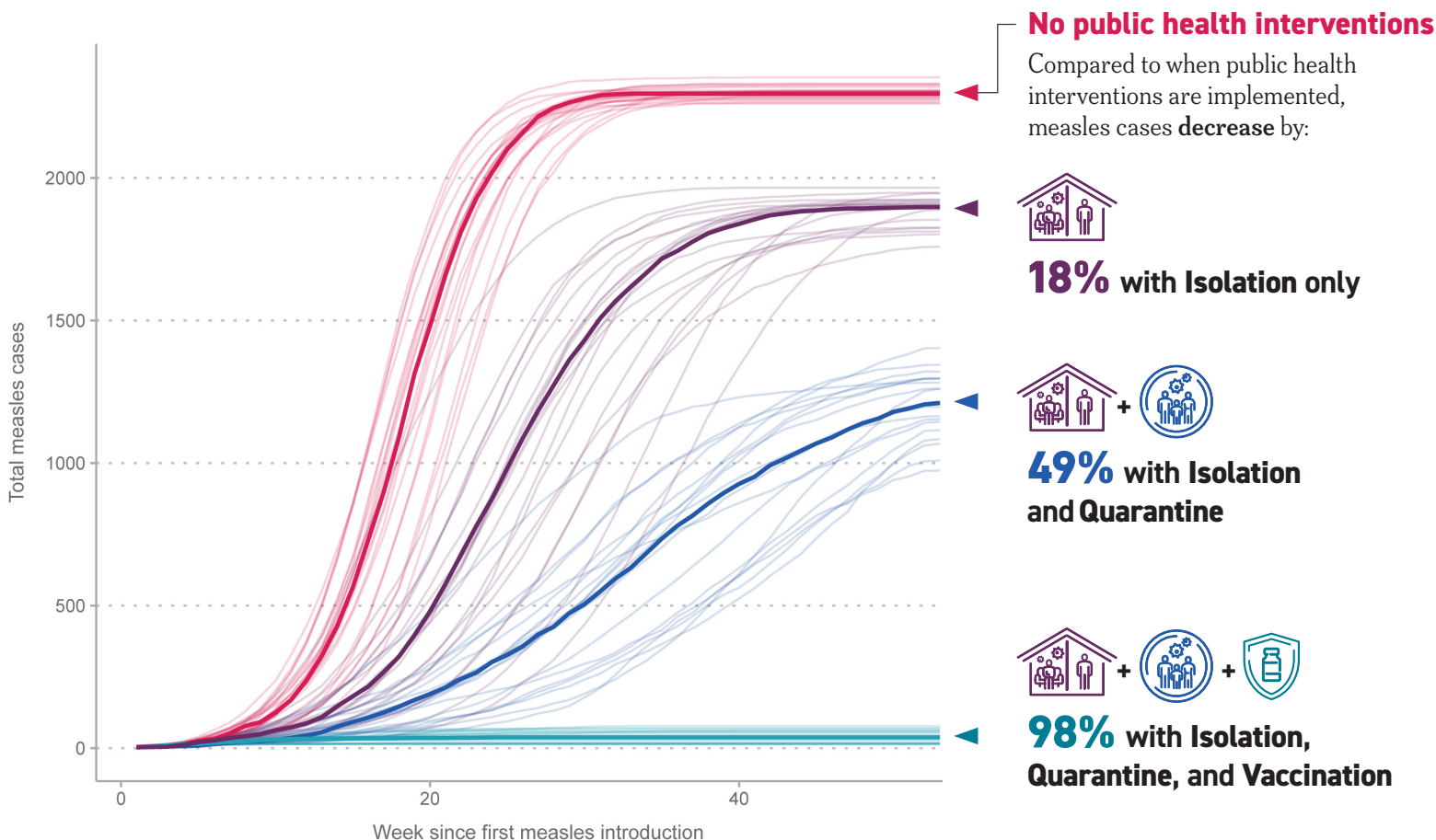
for people who have no evidence of protection from vaccination or prior immunity



Vaccination

for people who are eligible but not yet vaccinated

Isolation, Quarantine, and active Vaccination can substantially reduce the spread of measles, particularly in communities with low MMR vaccination coverage.



Modeling can illustrate the impact of public health interventions on the magnitude and timing of measles outbreaks following the introduction of measles into a community with low MMR vaccination coverage. This model is of a community with 15,000 total people, 5 initial infections, and 85% overall immunity against measles. The model assumes that interventions are implemented as soon as the measles introduction is identified and that 50% of the eligible population follows the public health intervention guidance.

DO YOU THINK YOUR CHILD HAS MEASLES?

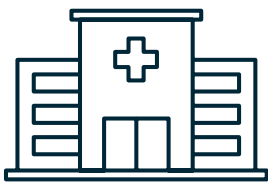
What to do if you think your child has measles

Measles usually starts with a fever, cough, runny nose, and red eyes that leads to a rash. If someone in your family has measles symptoms:

Keep them away from family members that are not sick.

Everyone in the house should stay home to not get your neighbors or people outside of your home sick.

Call a doctor or hospital right away to let them know someone in your home is sick with measles. They will give you instructions.



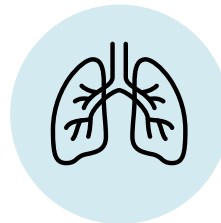
When to go to the emergency room

If the person who is sick gets rapidly worse or has any of symptoms below take them to the emergency department of a hospital immediately.

DO NOT WAIT.



Trouble breathing
(or breathing faster than normal)



Pain when breathing or coughing



Dehydration
(dry nose and mouth, urinating less, crying without making tears)



Fever or headache will not stop



Confusion, decreased alertness, or severe weakness



Blue color around the mouth, low energy, or difficulty feeding
(for young children)

Have someone call before you arrive. Let the hospital know a person with measles is coming.

BE READY FOR MEASLES
[cdc.gov/measles](https://www.cdc.gov/measles)



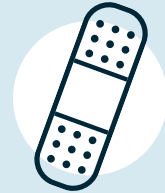
PREVENTING MEASLES

BEFORE AND AFTER TRAVEL



Measles can be dangerous, especially for babies and young children. Severe measles can lead to hospitalization and even death.

Measles is still common in many parts of the world. Anyone who is not fully vaccinated against measles and travels internationally or to a place with a measles outbreak is at risk.



You can protect yourself and your children against measles with the measles, mumps, rubella (MMR) vaccine.

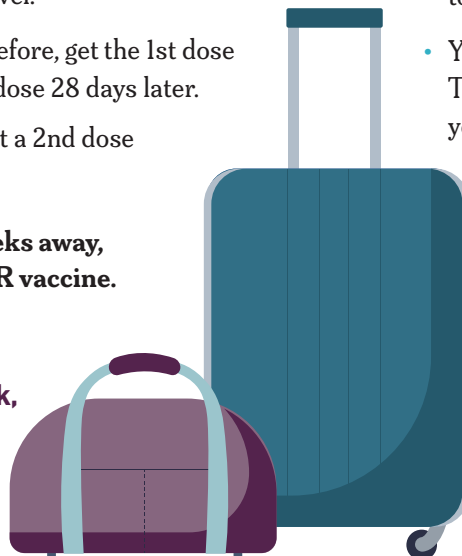
What to do **BEFORE** international travel

1. **Talk to your doctor, nurse, or clinic** to make sure everyone is protected against measles.
2. **Get the vaccine at least 2 weeks before you leave.**
 - Babies 6 through 11 months old should get a dose of the MMR vaccine.
 - Everyone 12 months and older (including adults) should get 2 total doses before travel.
 - If you haven't been vaccinated before, get the 1st dose right away. You can get the 2nd dose 28 days later.
 - If you've gotten 1 dose before, get a 2nd dose before travel.
3. **Even if your trip is less than 2 weeks away, you can still get 1 dose of the MMR vaccine.**

If you plan to travel to an area in the U.S. with a measles outbreak, talk to your doctor, nurse, or clinic to make sure everyone is protected against measles.

What to do **AFTER** international travel or travel to a place with a measles outbreak

1. **Watch for measles symptoms for 3 weeks** after you return. Measles is **very contagious** and can spread to others quickly.
2. **Call the doctor or clinic RIGHT AWAY if:**
 - You think you or your child have been exposed to measles.
 - You or your child gets sick with a rash and fever. Tell your doctor where you traveled, and if you and your child got the MMR vaccine.
3. **If you or your child is sick with a rash and fever stay home** until you talk to the doctor or clinic.



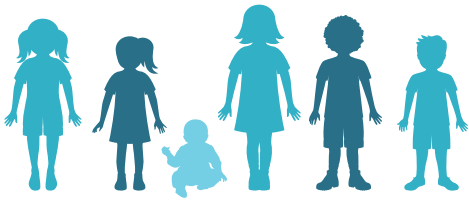
LEARN MORE

cdc.gov/measles/travel



MEASLES

IT ISN'T JUST A LITTLE RASH



Measles can be dangerous, especially for babies and young children.

Measles symptoms typically include:



High fever
(may spike to more than 104°F)



Cough



Runny nose



Red and/or watery eyes



Rash
(breaks out 3-5 days after symptoms begin)

Measles can be serious.

Measles can cause severe health complications, including pneumonia, swelling of the brain (encephalitis) and death.



1 out of 5 people who get measles will be hospitalized.



1 out of every 20 children with measles will get pneumonia, the most common cause of death from measles in young children.



1 out of every 1,000 people with measles will develop brain swelling, which may lead to brain damage.



1 to 3 out of 1,000 people with measles will die.

Long-term complications

A very rare, but deadly disease called subacute sclerosing panencephalitis can develop 7 to 10 years after a person has recovered from measles.



You have the power to protect your child.

Provide your children with safe and long-lasting protection against measles by making sure they get the measles-mumps-rubella (MMR) vaccine. Talk to your healthcare provider.



www.cdc.gov/measles