

Measles Prevention and Exposure Guidance for Healthcare Personnel

Healthcare Personnel at Increased Risk of Exposure to Measles

Persons who work in health care settings (including volunteers, trainees, nurses, physicians, technicians, receptionists, and other clerical and support staff) are at increased risk of exposure to measles and at increased risk of transmission to persons at high risk of severe measles. All persons who work in such settings and have the potential for exposure to potentially infectious patients or materials (e.g., contaminated air) should have presumptive evidence of immunity to measles to prevent any potential outbreak.

Presumptive Evidence of Immunity Acceptable for Healthcare Personnel During a Measles Outbreak

All healthcare personnel (HCP) should have presumptive evidence of immunity to measles. This information should be documented and readily available (ideally through electronic medical records) at the work location as well as in the Michigan Care Improvement Registry (MCIR). Presumptive evidence of immunity and routine vaccine recommendations for HCP have slightly different criteria.

Presumptive evidence of immunity to measles, for health care personnel, includes any of the following:

- Written documentation of 2 doses of live measles or MMR vaccine administered at least 28 days apart
- Laboratory evidence of immunity
- Laboratory confirmation of disease

Birth before 1957 may be considered as presumptive evidence of immunity to measles for HCP in non-outbreak settings. Most persons born before 1957 are likely to have been infected naturally and may be presumed immune, depending on current state or local requirements. Healthcare facilities should consider vaccination, with 2 doses of MMR vaccine at the appropriate interval, of all unvaccinated HCP who were born before 1957 and who lack laboratory evidence of measles immunity or laboratory confirmation of disease. **During an outbreak of measles**, healthcare facilities **should** recommend 2 doses of MMR vaccine for unvaccinated personnel born before 1957 who lack laboratory evidence of measles or laboratory confirmation of diseases.

Serologic Testing of Healthcare Personnel

Centers for Disease Control (CDC) and Advisory Committee on Immunization Practices (ACIP) do not recommend serologic screening of HCP during an outbreak to determine measles immunity prior to vaccination. In non-outbreak settings, pre-vaccination antibody screening before measles, mumps, or rubella vaccination for HCP, who do not have adequate presumptive evidence of immunity, is not necessary unless the medical

facility considers it cost effective. For HCP who have 2 documented doses of measles- and mumps- containing vaccine and 1 documented dose of rubella-containing vaccine or other acceptable evidence of measles, mumps, and rubella immunity, serologic testing for immunity is not recommended.

If HCP who have 2 documented doses of measles- or mumps- containing vaccine are tested serologically and have negative or equivocal titer results for measles or mumps, it is not recommended that they receive an additional dose of MMR vaccine. Documented age-appropriate vaccination supersedes the results of subsequent serologic testing. Such persons should be considered to have acceptable evidence of measles and mumps immunity

HCP who do not have documentation of MMR vaccination and whose serologic test is interpreted as "indeterminate" or "equivocal" should be considered not immune and should receive 2 doses of MMR vaccine. ACIP does not recommend serologic testing after vaccination.

Interpretation of If a healthcare worker develops a rash and low-grade fever after MMR vaccine, is s/he infectious?

Approximately 5 to 15% of susceptible people who receive MMR vaccine will develop a low-grade fever and/or mild rash 7 to 12 days after vaccination. However, the person is not infectious, and no special precautions (such as exclusion from work) need to be taken.

Prevention and Control Strategies in Medical Settings

In a medical setting, both the occupational health and infection prevention and control practitioners have a role. When a measles case occurs in a health care setting, including outpatient and long-term care facilities, the following measures should be undertaken:

- Implementation of airborne and standard precautions for patients in whom measles is suspected or confirmed.
- Airborne precautions include isolation in a negative air pressure isolation room, also known as airborne infection isolation (AII) or airborne infection isolation room (AIIR). In clinic settings where a negative air pressure isolation room may not be available, a single room with the door closed and away from susceptible contacts may be used when evaluating persons in whom measles is suspected.
- In addition, suspect or confirmed measles patients should be asked to wear a medical mask.
- Immediate review of evidence of measles immunity in all exposed staff (see "Presumptive evidence of immunity acceptable for health care personnel").

Exclusion of Healthcare Personnel with Measles

Healthcare personnel who develop measles should be relieved from all patient contact and excluded from work for four days after they develop rash.

Exclusion of Asymptomatic Healthcare Providers without Evidence of Immunity

Healthcare personnel without presumptive evidence of immunity who have been exposed should be offered the first dose of MMR vaccine and excluded from work from day 5 after the first exposure to day 21 following their last exposure, regardless of whether they received vaccine or intramuscular immune globulin after the exposure. Hospital patients who are a contact of a case, and who do not have presumptive evidence of measles immunity, should be vaccinated or offered immune globulin or placed on airborne precautions until 21 days after their last exposure to the case-patient or four days after the onset of rash should they develop measles. If immune globulin is administered to an exposed person, observations should continue for signs and symptoms of measles for 28 days after exposure since immune globulin may prolong the incubation period.

An effective vaccination program is the best approach to prevent health care associated measles transmission. Health Care Infection Control Practices Advisory Committee (HICPAC) and CDC have recommended that secure, preferably computerized, systems should be used to manage vaccination records for HCP so records can be retrieved easily as needed. The use of MCIR is encouraged. It benefits health care organizations by consolidating immunization information from multiple providers into a comprehensive immunization record. Failure to have such records can be costly and can increase resources needed to respond to the outbreak.

If a measles case or an outbreak occurs within or in the areas served by a hospital, clinic, or other medical or nursing facility, all personnel regardless of birth year, should receive two doses of MMR vaccine, unless they have other documentation of measles immunity. **Birth year before 1957 is not acceptable presumptive evidence of immunity during an outbreak.** Health care facilities should provide MMR vaccine to all personnel without presumptive evidence of measles immunity at no charge. HCP who have been recently vaccinated (i.e., prior to exposure or the outbreak) do not require any restriction in their work activities. Those with documentation of one vaccine dose may remain at work and should receive the second dose. Because of the possibility, albeit low, of measles vaccine failure in HCP, all staff entering the room of a person with suspect or confirmed measles should use respiratory protection consistent with airborne infection control precautions (i.e., use of an N95 respirator), regardless of presumptive immunity status. **Serologic screening of HCP during an outbreak to determine measles immunity prior to vaccination is not recommended.** Preventing measles transmission requires the rapid vaccination of HCP without presumptive evidence of immunity, which can be impeded by the need to screen, wait for results, and then

contact and vaccinate susceptible persons. Results from serological testing, if performed, can inform on need for the second MMR vaccine dose.

Resources

CDC VPD Surveillance Manual. Measles: Chapter 7.17-7.19.

Available at: <https://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.pdf>

Recommendations of the Advisory Committee on Immunization Practices (ACIP): Immunization of Health-Care Personnel. MMWR. November 25, 2011. 60(7):12-14.

Available at: <https://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf>

Summary Recommendations of the Advisory Committee on Immunization Practices (ACIP): Prevention of Measles, Rubella, Congenital Rubella Syndrome, and Mumps, 2013. MMWR. June 14, 2013. 62(4):23-26. Available at:

<https://www.cdc.gov/mmwr/pdf/rr/rr6204.pdf>

Immunization Action Coalition – Ask the Experts: Measles, Mumps, and Rubella

Available at: http://www.immunize.org/askexperts/experts_mmr.asp#hcw

If you have questions, please contact the Michigan Department of Health and Human Services Immunization Division at: 517-335-8159.

