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Work Shouldn't Hurt

Measles Update: Occupational Health Guidance for AFT Healthcare Members

March 2025

Measles is spreading in Western Texas and in several states. Healthcare employers and personnel need to be prepared for this very serious disease. The employer should have an infectious disease preparedness plan and a set of protocols for measles. Now is the time for employers to ensure the plan is up to date and staff are trained to use it.

Measles is one of the most contagious diseases known. It is well-established that it is spread primarily through aerosol transmission, as well as through contact transmission. One infected person will infect 90 percent of the unvaccinated people around them.

The disease had been declared eliminated in the United States in 2000, meaning that there was no ongoing transmission and cases that did occur were related to international travel. Unfortunately, vaccination rates among children have been falling due to misinformation about their safety. When vaccination rates drop below 93 to 95 percent of the local population, we no longer have herd immunity for people who can't be vaccinated.

Measles was very common before the vaccine became available in 1963. In the decade before that, nearly all children were infected by age 15. In each of those years:

- 3-4 million people were infected;
- An average of 48,000 were hospitalized;
- 400 to 500 died; and
- 1,000 suffered from encephalitis, causing intellectual disability, loss of vision, or loss of hearing.¹

We now know that measles also destroys immune memory, leaving survivors vulnerable to diseases they had previously established immunity for. Researchers speculate that the true death toll from measles among children is much higher than previously thought.²

Spread, Incubation Period and Symptoms

The measles virus (rubeola) is transmitted through respiratory aerosols, as well as through contact with contaminated surfaces. Viral particles remain suspended in the air for at least two hours.

The incubation period from exposure to the virus to onset of the rash ranges from seven to 21 days. People are infectious from four days before the onset of the rash to four days after, although some people with acute measles continue to shed the virus for weeks or months.

Symptoms begin with a runny nose, cough, conjunctivitis and a stepwise fever ($\geq 101^{\circ}\text{F}$). Patients may develop Koplik spots in their mouths. The rash usually starts two to four days after other symptoms, beginning on the face and upper neck and spreading to the lower extremities. Some people do not develop the rash. Ear infections and diarrhea are common complications.

Pneumonia and encephalitis can develop. Roughly 20 percent of unvaccinated people are hospitalized. The risk of complications is high for babies and children under age 5, pregnant people, adults over 20, and people with compromised immune systems. Measles during pregnancy can result in miscarriage and pre-term birth.³

Information About the Vaccine and Immunity

Because measles is airborne and very contagious, the best way to protect yourself and your community is through vaccination. The first shot works quickly to provide 93 percent protection, and the second is 97 percent effective.

The safety and effectiveness of the MMR and MMRV (measles, mumps, rubella, varicella [chicken pox]) vaccines have been well studied and continue to be studied. Extensive, unbiased empirical studies have not found any link to autism. The medical community, including the American Academy of Pediatrics, stands behind the safety and benefits of the vaccines. The Centers for Disease Control and Prevention has been tracking vaccine reactions since 1990 and has provided open access to the data for researchers and other members of the public through the Vaccine Adverse Event Reporting System.⁴

Most people born in the U.S. after 1963 received the MMR or MMRV vaccine as children. People born before 1957 are assumed to have natural immunity. Healthcare employers require staff to provide proof of immunity, either through vaccine records or titer testing.

Immunity does wane over time. Breakthrough infections in healthcare workers have been documented.^{5,6} It is safe to be vaccinated again if you are concerned about your immunity. You can also get titer testing for confirmation of immunity. Healthcare employers should provide vaccination and immunity testing at no cost to the worker.

The following people should not receive the MMR or MMRV vaccine:

- People who have had an allergic reaction to the MMR or MMRV or have severe, life-threatening allergies;
- People who are pregnant or plan to conceive within the next month;
- People with weakened immune systems due to disease or medical treatment, or a family member with a weakened immune system;
- People who have ever had a condition that makes them bleed or bruise easily; and
- People with tuberculosis.

People should consult with their healthcare provider and may need to wait to receive the vaccine if they:

- Have recently had a blood transfusion or other blood products;
- Have had any other vaccines in the past four weeks;
- Have a history of seizures, or a parent or sibling with seizures;
- Are taking or plan to take salicylates (such as aspirin); or
- Are feeling sick.

Workplace Protection

Vaccination is the most effective control we have for measles, but healthcare employers must use isolation and personal protective equipment to reduce the risk of infection among staff and nosocomial infection among patients.⁷ The employer is required by the Centers for Medicare & Medicaid Services and the Joint Commission to have an infectious disease control plan for measles and other pathogens.

Now is a good time to request the employer's infectious disease policy to ensure that workers' protections are adequately addressed. Staff should feel confident that they are prepared in the event a measles case is found in the community or an outbreak is spreading closer. The plan and training should include:

Airborne Isolation Precautions

- Refresher training for clinical staff to recognize symptoms and initiate patient isolation rapidly;
- Screening for patients and visitors during an outbreak;
- Patients with suspected measles must be given a mask for source control and moved to an airborne infectious disease room (AIIR);
- If no AIIR is available, the patient must still be isolated in a room with air outputs captured in a filtration system or vented to the outdoors.^{8,9} If a temporary isolation and air ventilation solution cannot be provided, the patient should be transported to a facility that does have an AIIR; and
- The AIIR should provide 6 to 12 air exchanges per hour in accordance with ASHRAE 170. Ventilation in waiting rooms, lobbies, and other areas should be improved and meet ASHRAE 26.2.

Respiratory Protection and Other Airborne Transmission Precautions

- N95 (or stronger) respirators must be provided to any staff entering the isolation room. Staff using respirators must have been trained and medically evaluated, with annual fit-testing in accordance with the Occupational Safety and Health Administration respiratory protection standard.¹⁰
- N95s must be disposed of upon leaving the isolation room. They must not be reused.
- Medical masks will not protect the wearer and should only be used for source control for the patient during transport outside the AIIR.
- Gloves and gowns for airborne and contact precautions should be worn.¹¹
- Environmental service staff and other non-clinical staff should not be required to work the patient care area unless provided with and trained on PPE.

Cleaning

- Wet cleaning methods should be used with Environmental Protection Agency-registered disinfectants.
- Terminal cleaning should be conducted after at least 12 air exchanges have occurred. Otherwise, environmental service staff should be provided with respiratory protection, gloves, gown and eye protection.

Exposure Notification, Contact Tracing, Paid Precautionary Medical Leave

- The employer should notify exposed staff within 24 hours. While incubation from infection to onset of symptoms can be as long as 21 days, the infectious period begins four days before the rash appears.
- Offer prophylactic vaccination and treatment, at no cost, to the worker.
- Provide medical leave for workers who were exposed in the workplace.

Immunity Testing and Vaccination

- The employer should offer free titer testing for employees who are concerned about their immunity status.
- Vaccination should be offered at no cost to employees without evidence of immunity and at low cost for employees who want to boost their immunity.
- Workers who cannot be vaccinated or are immunocompromised should be offered an alternative assignment during an outbreak.

For more information, contact the AFT Health and Safety Team at 4healthandsafety@aft.org.

¹ [History of Measles | Measles \(Rubeola\) | CDC](#)

² [Long-term measles-induced immunomodulation increases overall childhood infectious disease mortality | Science](#)

³ [Measles Symptoms and Complications | Measles \(Rubeola\) | CDC](#)

⁴ [Vaccine Adverse Event Reporting System \(VAERS\)](#)

⁵ K. Gibney, et al. "Emergence of Attenuated Measles Illness Among IgG-positive/IgM-negative Measles Cases: Victoria, Australia, 2008–2017," *Clinical Infectious Diseases*, Vol. 70, Issue 6, March 15, 2020, pp. 1060–1067, <https://doi.org/10.1093/cid/ciz363>.

⁶ J. Schenk, et al. "Immunogenicity and Persistence of Trivalent Measles, Mumps, and Rubella Vaccines: A Systematic Review and Meta-analysis," *The Lancet Infectious Diseases*, Vol. 21, Issue 2, 2021, pp 286-295, ISSN 1473-3099, [https://doi.org/10.1016/S1473-3099\(20\)30442-4](https://doi.org/10.1016/S1473-3099(20)30442-4).

⁷ [Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings | Infection Control | CDC](#)

⁸ [Expedient Patient Isolation Rooms | Healthcare Workers | CDC](#)

⁹ [Ventilated Headboards | Healthcare Workers | CDC](#)

¹⁰ [1910.134 - Respiratory protection. | Occupational Safety and Health Administration](#)

¹¹ [Transmission-Based Precautions | Infection Control | CDC](#)