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Clinical Advisory - 11 March 2025
Update regarding the spread of measles in the United States

One year ago, the Massachusetts Department of Public Health (MDPH) distributed a Health Alert Network (HAN) Health Advisory from CDC alerting healthcare providers to the global and domestic increase in measles cases and to provide recommendations about how to reduce the occurrence of new measles cases and outbreaks in the US. Late last week, CDC issued an updated HAN. This Clinical Advisory also provides an update and addresses some of the questions we have recently received from providers (see the FAQs below).

As of December 31, 2024, there were 285 measles cases reported for 2024 by 33 jurisdictions including Massachusetts, New Hampshire, Vermont, New York City and New York State. Cases were seen primarily in young people (42% of cases under five years of age – 31% age 5-19 years). Almost 90% of cases were unvaccinated or had unknown vaccination history. 40% of cases were hospitalized for isolation or management of measles complications. Massachusetts had a single case in an adult with unknown vaccination history who had known close contact to a confirmed measles case during international travel.

Unfortunately, measles cases continue to surge in 2025, with over 220 measles cases reported by March 6, 2025, by twelve jurisdictions including New York City and Rhode Island. These data are evolving rapidly and are likely to increase over the next few weeks. The majority (~198) of the cases are associated with a large outbreak among unvaccinated young children in the "South Plains" region of west Texas. 32% of cases in west Texas are in children under five years of age; 45% are in youth between the age of five and seventeen. Ninety-seven percent of cases are not vaccinated or had unknown vaccination status. This outbreak in Texas has received a good deal of media attention, which in turn has created concern in Massachusetts about susceptibility to measles among those traveling to Texas, traveling internationally, or generalized concern, irrespective of travel.

Vaccination is the best protection against measles:

- CDC states that two doses of MMR vaccine are about 97% effective at preventing measles, and protection is long-lasting. One dose is about 93% effective. Schools, early childhood education providers, and healthcare providers should work to ensure patients are current with MMR vaccine. Official vaccination guidance concerning measles has not changed: providers should continue to follow the ACIP Immunization Schedules and associated guidance. Measles-specific vaccination recommendations from CDC are also available.

- *Please see the FAQs below for answers to many of the questions which have been raised recently in relation to providing MMR vaccine to susceptible patients.*

Recommendations for healthcare providers

- Consider measles as a diagnosis in anyone with fever (≥101°F or 38.3°C) and a generalized maculopapular rash with cough, coryza, or conjunctivitis who has recently been abroad, especially in countries with ongoing outbreaks, or with travel to US locations where outbreaks are occurring. When considering measles, then:
    - **Isolate:** Do not allow patients with suspected measles to remain in the waiting room or other common areas of a healthcare facility; isolate patients with suspected measles immediately, ideally in a single-patient airborne infection isolation room (AIIR) if available, or in a private room with a closed door until an AIIR is available. Healthcare providers should be adequately protected against measles and should adhere to standard and airborne precautions when evaluating suspect cases, regardless of their vaccination status. Offer testing outside of facilities to avoid transmission in healthcare settings. Call ahead to ensure immediate isolation for patients referred to hospitals for a higher level of care.
    - **Notify:** Immediately call the **MDPH 24/7 Epi line: 617-983-6800** to report any suspected case of measles to ensure rapid testing and investigation. States report measles cases to CDC and share information about suspected cases with local boards of health.
    - **Test:** Collect either a nasopharyngeal swab (preferred) or throat swab for reverse transcription polymerase chain reaction (RT-PCR) and a blood specimen for serology from all patients with clinical features compatible with measles. Urine may be submitted as a back-up specimen. RT-PCR is available at the Massachusetts State Public Health Laboratory. The turnaround time is typically 24-48 hours after the specimens are received. Turnaround time for serologic testing is usually longer. Given potential shortages in IgM test kits, providers should be vigilant in contacting their state or local health department for guidance on testing.
    - **Manage:** In coordination with local or state health departments, provide appropriate measles post-exposure prophylaxis (PEP) as soon as possible after exposure to close contacts without evidence of immunity, either with MMR (within 72 hours) or immunoglobulin (within 6 days). The choice of PEP is based on elapsed time from exposure or medical contraindications to vaccination.
    - **Review vaccination records:** The best time to review vaccination records of staff and patients is before exposures occur. Exposed healthcare providers without presumptive evidence of immunity to measles will be excluded from work and other public activities from day 5 after the first exposure until day 21 following their last exposure. Exclusion parameters for non-healthcare workers exposed to measles are similar, resulting in missed days of school, daycare, work, vacation and so on.
    - **Watch for symptoms after travel:** After domestic travel to an area with an ongoing outbreak or international travel, patients should be advised to watch for signs and symptoms of measles for 3 weeks after return. Patients developing fever and rash during this period should call their healthcare provider and tell them about the recent travel and symptoms so the provider can arrange to evaluate the patient without exposing others.

Measles Vaccination Frequently Asked Questions

(also refer to the more comprehensive list of Q&As at Ask The Experts About Vaccines: MMR (Measles, Mumps, and Rubella) | Immunize.org)

Which providers can get state-supplied measles-mumps-rubella (MMR) vaccine, and which patients can it be given to?

State-supplied MMR vaccine is readily available for ordering by enrolled Vaccine Program provider sites in the MIIS. All children (18 years and younger) are eligible to receive a state-supplied MMR vaccine according to national recommendations by the Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics (AAP). Additionally, providers enrolled as a public site (ex: Community Health Centers, Local Boards of Health, etc.) can administer state-supplied MMR vaccine to uninsured and underinsured adult patients (19+ years of age), as described in the 2025 Adult Vaccine Availability table.

What is considered acceptable evidence of immunity to measles?

Acceptable evidence of presumptive immunity against measles includes at least one of the following:

- written documentation of adequate vaccination:
    - one or more doses of live-virus measles containing vaccine administered on or after the first birthday for preschool-age children and adults not at high risk
    - two doses of live-virus measles containing vaccine for school-age children, adolescents, and adults at high risk, including college students, healthcare personnel, and international travelers
- laboratory evidence of immunity
- laboratory confirmation of measles (verbal history of measles does not count)
- birth before 1957

Although birth before 1957 is considered acceptable evidence of measles immunity, healthcare facilities should consider vaccinating unvaccinated personnel born before 1957 who do not have other evidence of immunity with 2 doses of MMR vaccine (minimum interval 28 days).
Prior to hiring, healthcare facilities should require 2 doses of MMR vaccine at the appropriate interval for unvaccinated healthcare personnel regardless of birth year if they lack laboratory evidence of measles immunity.

Do I need an MMR vaccination?

This depends on multiple things including your age, health, vaccination status, and risk factors. It is a personal decision that should be made with the guidance of trusted healthcare professionals. Current guidance includes the following:

- ***If you were born prior to 1957***, the measles rates were so high that it is presumed everyone either got the measles and is immune or was exposed to the measles and developed immunity without becoming symptomatic. Unless you work in healthcare, if born before 1957 you are considered to have presumptive immunity to measles even without vaccination.
- **If you were born after 1957 and vaccinated prior to 1968,** you may be recommended to get one dose of MMR vaccine. Between 1963 and 1967 an inactivated measles vaccine was sometimes used. It was found to induce a less robust immune response and was replaced

in 1968 by the live attenuated version in use today. People who were vaccinated prior to 1968 with either inactivated measles vaccine or measles vaccine of unknown type should be revaccinated with at least one dose of MMR vaccine. However, not many people fall into this group; the inactivated measles vaccine was given to fewer than 1 million people before being replaced by the currently used measles vaccine. If you're unsure whether you fall into this group, you should first try to find your vaccination records or documentation of measles immunity. If you do not have written documentation of measles immunity, you should get vaccinated with MMR) vaccine. There is no harm in getting a dose of MMR vaccine if you may already be immune to measles (or mumps or rubella). Another option is to have a healthcare provider test your blood to determine whether you're immune, but this is generally not recommended.

- ***If you were born after 1968 to the present*,** please follow the US Immunization Schedule. If you cannot find your vaccine records, you should get vaccinated. The MMR vaccine is safe to receive even if you already have immunity to measles, mumps, or rubella.

Under what circumstances should we consider testing for measles-specific antibody (getting titers) prior to vaccinating?

Persons without evidence of presumptive immunity and no contraindications to MMR vaccine can be vaccinated without testing. Persons without evidence of presumptive immunity might be considered for testing for measles-specific IgG antibody, but testing is not needed prior to vaccination, and insurance coverage for it varies.

ACIP does not recommend measles antibody testing after MMR vaccination to verify the patient's immune response to vaccination.

Two documented doses of MMR vaccine given on or after the first birthday and separated by at least 28 days is considered evidence of presumptive immunity, according to ACIP. Documentation of appropriate vaccination supersedes the results of serologic testing for measles, mumps, rubella, and varicella.

How can I best protect the young children in my practice?

First, make sure all your patients are fully vaccinated according to the U.S. immunization schedule. In certain circumstances, MMR vaccine is recommended for infants aged 6 through 11 months. Give infants this age a dose of MMR vaccine before international travel, or travel to areas of the US with a current outbreak. Do not count any dose of MMR vaccine as part of the 2-dose series if it is administered more than 4 days before a child's first birthday. Instead, repeat the dose when the child is 12 months.

If a young child is travelling internationally or to an area in the US with an outbreak, you might consider vaccinating children age 12 months and older at the minimum age (12 months, instead of 12 through 15 months) and giving the second dose 4 weeks later (at the minimum interval) instead of waiting until age 4 through 6 years.

Finally, remember that infants too young for routine vaccination and people with medical conditions that prevent them from being immunized for measles, depend on high MMR vaccination coverage among those around them for protection. Be sure to encourage all your patients and their family members to get vaccinated if they are not immune.

If there is an outbreak in my area, can we vaccinate children younger than 12 months?
MMR can be given to children as young as 6 months of age who are at high risk of exposure such as during international travel or a community outbreak. However, doses given BEFORE 12 months of age cannot be counted toward the 2-dose series for MMR vaccination.

Should I get an MMR vaccine if I am an adult and was vaccinated as a kid?
The MMR vaccine we use today (and have used since 1968) is 97% effective after the two-dose series. For most people, the US Adult Immunization Schedule recommends that if you don't have written documentation that you received the two-dose series in childhood, or laboratory evidence of immunity, you should get one dose of MMR vaccine. High-risk people without proof of immunity need 2 doses of vaccine, given 4 weeks apart. High risk people include healthcare personnel, international travelers, and students attending post-high school educational institutions.

For which adults are 0, 1, or 2 doses of MMR vaccine recommended to prevent measles?
Zero, one, or two doses of MMR vaccine are needed for the adults described below.

Zero doses:

- adults born before 1957 except healthcare personnel*
- adults born 1957 or later who are at low risk (i.e., not an international traveler or healthcare worker, or person attending college or other post-high school educational institution) and who have already received one or more documented doses of live measles vaccine
- adults with laboratory evidence of immunity or laboratory confirmation of measles

One dose of MMR vaccine:

- adults born in 1957 or later who are at low risk (i.e., not an international traveler, healthcare worker, or person attending college or other post-high school educational institution) and have no documented vaccination with live measles vaccine and no laboratory evidence of immunity or prior measles infection

Two doses of MMR vaccine:

- high-risk adults without any prior documented live measles vaccination and no laboratory evidence of immunity or prior measles infection, including:
    - healthcare personnel*
    - international travelers born in 1957 or later
    - people attending colleges and other post-high school educational institutions

People who previously received a dose of measles vaccine in 1963–1967 and are unsure which type of vaccine it was, or are sure it was inactivated measles vaccine, should be revaccinated with either one (if low-risk) or two (if high-risk) doses of MMR vaccine.

* Healthcare personnel born before 1957 should be considered for MMR vaccination in the absence of an outbreak but are recommended for MMR vaccination during outbreaks.

Do any adults or children need "booster" doses of MMR vaccine to prevent measles?
No. Persons with evidence of presumptive immunity do not need any further vaccines. No "booster" doses of MMR vaccine are recommended for either adults or children. There are no recommendations for a 3rd dose of MMR vaccine to improve protection against measles. People

are considered to have life-long immunity once they have received the recommended number of MMR vaccine doses or have other evidence of immunity.

Would you consider healthcare personnel with 2 documented doses of MMR vaccine to be immune even if their serology for 1 or more of the antigens comes back negative?
Yes. Healthcare personnel (HCP) with 2 documented doses of MMR vaccine are considered to be immune regardless of the results of a subsequent serologic test for measles, mumps, or rubella. Documented age-appropriate vaccination supersedes the results of subsequent serologic testing. In contrast, 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 (minimum interval 28 days). ACIP does not recommend serologic testing after vaccination. For more information, see ACIP's recommendations on the use of MMR vaccine at www.cdc.gov/mmwr/pdf/rr/rr6204.pdf, page 22.

We have many patients who are immunocompromised and cannot get the MMR vaccine. How should we advise our patients?
People with medical conditions that contraindicate measles immunization depend on high MMR vaccination coverage among those around them to protect them. To help prevent the spread of measles virus, make sure all your staff and patients who can be vaccinated are fully vaccinated according to the U.S. immunization schedule. Also, encourage patients to remind their family members and other close contacts to get vaccinated if they are not immune.
If patients who cannot get MMR vaccine are exposed to measles, CDC has guidelines for immune globulin for post-exposure prophylaxis which can be found at www.cdc.gov/mmwr/pdf/rr/rr6204.pdf

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When is it appropriate to use MMR vaccine for measles post-exposure prophylaxis?
MMR vaccine given to susceptible individuals within 72 hours of initial measles exposure can reduce the risk of getting sick or reduce the severity of symptoms. Another option for exposed, measles-susceptible individuals at high risk of complications who cannot be vaccinated is to give immunoglobulin (IG) within six days of exposure. Do not administer MMR vaccine and IG simultaneously, as the IG invalidates the vaccine.

More information on post-exposure prophylaxis for measles can be found in the 2013 ACIP guidance at www.cdc.gov/mmwr/pdf/rr/rr6204.pdf, page 24.

Measles disease FAQs

What are the signs and symptoms healthcare providers should look for in diagnosing measles?
Healthcare providers should suspect measles in patients with febrile rash illness and the clinically compatible symptoms of cough, coryza (runny nose), and/or conjunctivitis (red, watery eyes). The illness begins with a prodrome of fever and malaise before rash onset. A clinical case of measles is defined as an illness characterized by

- a generalized rash lasting 3 or more days, and
- a temperature of 101°F or higher (38.3°C or higher), and
- cough, coryza, and/or conjunctivitis.

Koplik spots, a rash present on mucous membranes, are considered pathognomonic for measles. Koplik spots occur from 1 to 2 days before the measles rash appears to 1 to 2 days afterward. They appear as punctate blue-white spots on the bright red background of the buccal mucosa. Pictures

of measles rash and Koplik spots can be found at www.immunize.org/clinical/image-library/measles/.

Providers should be especially aware of the possibility of measles in people with fever and rash who have recently traveled abroad or who have had contact with international travelers or who have traveled to parts of the US where a measles outbreak is occurring. Providers should immediately isolate, and report suspected measles cases to their local health department and obtain specimens for measles testing, including viral specimens for confirmation and genotyping. Providers should also collect blood for serologic testing during the first clinical encounter with a person who has suspected or probable measles.

What should our clinic do if we suspect a patient has measles?
Measles is highly contagious. A person with measles is infectious up to 4 days before through 4 days after the day of rash onset. Patients with suspected measles should be **isolated immediately** and kept in isolation until 4 days after they develop a rash (or until measles is ruled out). Airborne precautions should be followed in healthcare settings by all healthcare personnel. The preferred placement for patients who require airborne precautions is in a single-patient airborne infection isolation room. **Providers should immediately isolate the patient, and report suspected measles cases to MDPH at 617-983-6800 and obtain specimens for measles testing, including serum sample for measles serologic testing and a nasopharyngeal swab (preferred) or throat swab for viral confirmation.**

Measles is a nationally notifiable disease in the U.S.; healthcare providers should report all cases of suspected measles to public health authorities immediately to help reduce the number of secondary cases. Do not wait for the results of laboratory testing to report clinically suspected measles to MDPH at 617-983-6800.

More information on measles disease, diagnostic testing, and infection control can be found at www.cdc.gov/measles/hcp/clinical-overview/index.html.

How long does it take to show signs of measles after being exposed?
For measles, there is an average of 10 to 12 days from exposure to the appearance of the first symptom, which is usually fever. The measles rash doesn't usually appear until approximately 14 days after exposure (range: 7 to 21 days), and the rash typically begins 2 to 4 days after the fever begins.