



2018 Measles Outbreak—Information for Clinicians

Date: January 16, 2019

Overview of issue/event

Between October 2018 and January 2019, the New Jersey Department of Health (NJDOH) and local health officials worked together to investigate an outbreak of measles. As of January 16, two incubation periods (a total of 42 days) have passed from the last day the last known case was infectious. Because no new cases have been identified during this period, the New Jersey outbreak is being considered over. A total of 33 outbreak-associated cases were identified, including 30 confirmed cases in Ocean County residents and 3 cases in one Passaic County household that had a direct epidemiologic link to the outbreak community.

- Rash onset date range: October 17 to November 30
- Age range: 6 months to 59 years, 88% of cases were 18 years of age or younger
- Vaccination status: 82% of cases had no documentation of measles-containing vaccine; 3% had 1 documented dose; and 15% had 2 documented doses

The NJDOH's priority is to protect the health of children, adolescents, and adults, and to reduce the occurrence of vaccine-preventable diseases. Therefore, the Department urges providers to maintain vigilance for suspect cases of measles and have a high index of suspicion for measles in persons with a clinically compatible illness as there might be undiagnosed or unreported cases within the community and there are still ongoing outbreaks occurring in parts of New York and other countries. NJDOH continues to recommend that providers ensure that patients are fully vaccinated according to the U.S. immunization schedule.

The NJDOH continues to stress basic infection prevention activities such as covering your mouth and nose when coughing or sneezing, cleaning your hands, and ensuring you're up to date with vaccinations. Since outbreaks are still ongoing in parts of New York and in other countries, individuals should continue to monitor themselves for signs and symptoms of measles. Individuals who are ill should not attend school or work to prevent the spread of disease to others.

For more information, visit the NJDOH measles page:
<https://www.state.nj.us/health/cd/topics/measles.shtml>

Public Health recommendations for health care providers

Providers treating patients who are part of the communities impacted by measles outbreaks (Ocean and Passaic Counties in New Jersey, Brooklyn and Rockland and Orange Counties in New York) or who have patients traveling internationally should consider the following recommendations:

- Consider offering an MMR vaccine to all infants 6-11 months of age without contraindications. Infants who get one dose of MMR vaccine before their first birthday should get two more doses (one dose at 12 through 15 months of age and another dose separated by at least 28 days). See further details at the “**Frequently Asked Questions—Clinical**” section.
 - Offer MMR vaccine at the earliest opportunity to all unvaccinated eligible patients 12 months and older.
 - Offer a second dose of MMR vaccine to eligible patients 1 year and older who have previously received one dose of vaccine, separated by at least 28 days.
 - Offer teenagers and adults who do not have evidence of immunity against measles two doses of MMR vaccine separated by at least 28 days. If proof of immunity is not readily available, do not delay administering MMR to persons without contraindications. Extra doses of MMR are not harmful.
- When obtaining the medical history of a patient with a febrile rash illness consistent with measles, please inquire as to whether the person visited any of the exposure locations listed above during the times specified or has any other risk factors. Additionally, please inquire if the patient visited Ocean County, Passaic County, New York (Brooklyn or Rockland and/or Ocean Counties) or traveled internationally.
 - Do not accept verbal reports of previous vaccination, previous disease or immunity tests as proof of immunity. Providers must review written documentation when assessing proof of immunity.
 - Report all suspect measles cases (febrile illness accompanied by generalized maculopapular rash) **immediately** (DO NOT WAIT FOR LABORATORY CONFIRMATION) to the local health department where the patient resides. If unable to reach the local health department, notify the NJDOH during regular business hours at (609) 826-5964. After business hours, or on the weekend, call NJDOH at (609) 392-2020. A directory of local health departments is available at www.localhealth.nj.gov
 - Place all patients with suspected measles in airborne isolation immediately. If tolerated, place a procedure mask on the patient. As an added precaution, health care facilities are encouraged to provide signage which directs staff and/or patients to identify anyone presenting with fever and rash. All staff, including those with proof of immunity,

should wear a fit-tested particulate respirator when caring for patients with suspected/confirmed measles.

- Obtain appropriate clinical specimens: blood (for both IgM and IgG to measles), urine, and nasopharyngeal/throat swabs for diagnostic testing (https://www.state.nj.us/health/cd/documents/topics/measles/quickguide_measles_specimen_collection_testing.pdf)
- Determine the immune status of contacts. Offer measles vaccine or immune globulin to susceptible exposed contacts as appropriate. Quarantine contacts who cannot produce documentation of immunity from day 5 through day 21 following exposure.
- Assure that all those eligible for MMR vaccine receive appropriate and timely vaccination.
- All health care personnel should have documented evidence of measles immunity on file at their work location. Having high levels of measles immunity among health care personnel and such documentation on file minimizes the work needed in response to measles exposures, which cannot be anticipated. Health care facilities should review their current policies regarding acceptable proof of immunization for health care personnel. Please view the MMWR for the ACIP/CDC current recommendations:
<https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mmr.html>
- For Measles Exposure Guidance pertaining to clinical staff and the general public, please visit: http://www.nj.gov/health/cd/documents/topics/measles/measles_exposures_guidance_01_2015.pdf

Frequently Asked Questions--Clinical

MMR Vaccine Questions

Is it possible to get measles even if a person is fully vaccinated?

Very few people—about three out of 100—who get two doses of measles vaccine will still get measles if exposed to the virus. Experts aren't sure why. It could be that their immune systems didn't respond as well as they should have to the vaccine. But the good news is, fully vaccinated people who get measles are much more likely to have a milder illness. And fully vaccinated people are also less likely to spread the disease to other people, including people who can't get vaccinated because they are too young or have weakened immune systems.

Many people age 60 years and older do not have records indicating what type of measles vaccine they received as children in the early 1960s. What measles vaccine was most frequently given in that time period? That guidance would assist many older people who would prefer not to be revaccinated.

Both killed and live attenuated measles vaccines became available in 1963. Live attenuated vaccine was used more often than killed vaccine. The killed vaccine was found to be not effective and people who received it should be revaccinated with live vaccine. Without a written record, it is not possible to know what type of vaccine an individual may have received. So persons born during or after 1957 who received killed measles vaccine or measles vaccine of unknown type, or who cannot document having been vaccinated or having laboratory-confirmed measles disease should receive at least 1 dose of MMR. Some people at increased risk of exposure to measles (such as health care professionals, international travelers, and during outbreaks) should receive 2 doses of MMR separated by at least 4 weeks.

Do people who received MMR in the 1960s need to have their dose repeated?

Not necessarily. People who have documentation of receiving live measles vaccine in the 1960s do not need to be revaccinated. People who were vaccinated prior to 1968 with either inactivated (killed) measles vaccine or measles vaccine of unknown type should be revaccinated with at least one dose of live attenuated measles vaccine. This recommendation is intended to protect people who may have received killed measles vaccine which was available in the United States in 1963 through 1967 and was not effective.

I have patients who claim to remember receiving MMR vaccine but have no written record, or whose parents report the patient has been vaccinated. Should I accept this as evidence of vaccination?

No. Self-reported doses and history of vaccination provided by a parent or other caregiver are not considered to be valid. You should only accept a written, dated record as evidence of vaccination.

If I give MMR to an infant traveler younger than age 1 year, will that dose be considered valid for the U.S. immunization schedule?

No. A measles-containing vaccine administered before the first birthday should not be counted as part of the series. MMR should be repeated when the child is age 12 through 15 months (12 months if the child remains in an area where disease risk is high). The second dose should be administered at least 28 days after the first dose.

If I administer the MMR vaccine to patients 6 through 11 months of age, how will this be recorded in the New Jersey Immunization Information System (NJIIS)?

A dose of MMR vaccine administered before 12 months of age will be recorded as an invalid dose. It is recommended to leave a note in the "Add Comments" section of the child's NJIIS record stating that this dose was administered during a measles outbreak and/or prior to international travel. Please note, this dose would NOT count as part of the 2-dose series and will NOT fulfill New Jersey's immunization requirements for school attendance.

Can MMR be given on the same day as other live virus vaccines?

Yes. However, if two parenteral or intranasal live vaccines (MMR, varicella, live zoster, LAIV and/or yellow fever) are not administered on the same day, they should be separated by an interval of at least 28 days. Maintaining a 28-day minimum interval between live virus vaccines ensures optimal protection. Please keep this in mind when administering vaccines during the outbreak. The priority is to get everyone in the community optimally protected against measles. However, we also want to be sure that people are protected against influenza so please keep minimum intervals in mind when choosing the influenza vaccine you administer.

What are the contraindications and precautions for MMR vaccine?

Contraindications:

- history of a severe (anaphylactic) reaction to neomycin (or other vaccine component) or following previous dose of MMR
- pregnancy
- severe immunosuppression from either disease or therapy

Precautions:

- receipt of an antibody-containing blood product in the previous 3–11 months, depending on the type of blood product received. See <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html>, Table 3–5 for more information on this issue
- moderate or severe acute illness with or without fever
- history of thrombocytopenia or thrombocytopenic purpura

Important details about the contraindications and precautions for MMR vaccine are in the current MMR ACIP statement, available at www.cdc.gov/mmwr/pdf/rr/rr6204.pdf

Can I give MMR to a child whose sibling is receiving chemotherapy for leukemia?

Yes. MMR and varicella vaccines should be given to the healthy household contacts of immunosuppressed children.

Can I give MMR to a breastfeeding mother or to a breastfed infant?

Yes. Breastfeeding does not interfere with the response to MMR vaccine. Vaccination of a woman who is breastfeeding poses no risk to the infant being breastfed. Although it is believed that rubella vaccine virus, in rare instances, may be transmitted via breast milk, the infection in the infant is asymptomatic.

Is it acceptable practice to administer MMR, Tdap, and influenza vaccines to a postpartum mom at the same time as administering RhoGam?

Yes. Receipt of RhoGam is not a reason to delay vaccination. For more information see the ACIP General Best Practice Guidelines for Immunization, available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html.

What is the recommended length of time a woman should wait after receiving MMR vaccine before becoming pregnant?

Although the MMR package insert recommends a 3-month deferral of pregnancy after MMR vaccination ACIP recommends deferral of pregnancy for four weeks. For details on this issue see the most recent MMR ACIP statement available at <https://www.cdc.gov/mmwr/pdf/rr/rr6204.pdf>.

We received a call from a health care provider who inadvertently administered MMR vaccine to a woman who was 2 months pregnant. Please advise as to appropriate action steps.

No specific action needs to be taken other than to reassure the woman that no adverse outcomes are expected as a result of this vaccination. MMR vaccination during pregnancy alone is not a reason to terminate the pregnancy. You should consult with the provider to determine if there is a way to avoid such vaccination errors in the future. Detailed information about MMR vaccination in pregnancy is included in the most recent MMR ACIP statement, available at www.cdc.gov/mmwr/pdf/rr/rr6204.pdf.

Can we give an MMR to a 15-month-old whose mother is 2 months pregnant?

Yes. Measles, mumps, and rubella vaccine viruses are not transmitted from the vaccinated person, so MMR vaccination of a household contact does not pose a risk to a pregnant household member.

We require a pregnancy test for all women before giving an MMR. Is this necessary?

No. ACIP recommends that women of childbearing age be asked if they are currently pregnant or attempting to become pregnant. Vaccination should be

deferred for those who answer "yes." Those who answer "no" should be advised to avoid pregnancy for one month following vaccination.

How soon after delivery can MMR be given?

MMR can be administered any time after delivery. The vaccine should be administered to a woman who is susceptible to either measles, mumps, or rubella before hospital discharge, even if she has received RhoGam during the hospital stay, leaves in less than 24 hours, or is breastfeeding.

Is it harmful to administer extra doses of MMR if the person does not have proof of immunity?

No. Additional doses of MMR administered to people without contraindications are not harmful. In order to optimally protect the community during the outbreak, health care providers should not delay the administration of MMR to check serology or await records if the vaccination status of the patient is uncertain.

Measles Exposures Questions

Why is the measles outbreak in Ocean County considered to be over?

The NJDOH declared the measles outbreak to be over since two full incubation periods (a total of 42 days) have passed from the last day the last known case would have been infectious.

The NJDOH waits two incubations periods (42 days) without any additional cases before declaring an outbreak over. The Department uses this extended time frame to help make sure we aren't missing any additional cases. The Department urges providers to maintain vigilance for suspect cases of measles and have a high index of suspicion for measles in persons with a clinically compatible illness as there might be undiagnosed or unreported cases within the community and there are still ongoing outbreaks occurring in parts of New York and other countries.

We have measles cases in our community. 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 is recommended for infants age 6 through 11 months. Give infants this age a dose of MMR before international travel. In addition, consider measles vaccination for infants as young as age 6 months as a control measure during a U.S. measles outbreak. The New Jersey Department of Health is recommending that health care providers consider vaccinating infants 6 through 11 months of age within the outbreak community or traveling to other areas experiencing an outbreak. Do not count any dose of

MMR vaccine as part of the 2-dose series if it is administered before a child's first birthday. Instead, repeat the dose when the child is age 12 months.

During the outbreak, the New Jersey Department of Health is also recommending 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 contraindicate measles immunization depend on high MMR vaccination coverage among those around them. Be sure to encourage all your patients and their family members to get vaccinated if they are not immune.

How do I manage people who do not have proof of immunity who have an exposure to measles?

People exposed to measles who cannot readily show that they have evidence of immunity against measles should be offered post-exposure prophylaxis (PEP) or be excluded from the setting (school, hospital, childcare). MMR vaccine, if administered within 72 hours of initial measles exposure, or immunoglobulin (IG), if administered within six days of exposure, may provide some protection or modify the clinical course of disease among susceptible persons.

To whom should I administer immunoglobulin (IG) as post-exposure prophylaxis?

People who are at risk for severe illness and complications from measles, such as infants younger than 12 months of age, pregnant women without evidence of measles immunity, and people with severely compromised immune systems, should receive IG. Intramuscular IG (IGIM) should be given to all infants younger than 12 months of age who have been exposed to measles. For infants aged 6 through 11 months, MMR vaccine can be given in place of IG, if administered within 72 hours of exposure. Because pregnant women might be at higher risk for severe measles and complications, intravenous IG (IGIV) should be administered to pregnant women without evidence of measles immunity who have been exposed to measles. People with severely compromised immune systems who are exposed to measles should receive IGIV regardless of immunologic or vaccination status because they might not be protected by MMR vaccine.

IG should not be used to control measles outbreaks, but rather to reduce the risk for infection and complications in the people receiving it. IGIM can be given to other people who do not have evidence of immunity against measles, but priority should be given to people exposed in settings with intense,

prolonged, close contact, such as a household, daycare, or classroom where the risk of transmission is highest.

If I administered MMR vaccine within 72 hours of exposure, can the patient go back to work and/or engage in public activities?

Except in health care settings, unvaccinated people who receive their first dose of measles-containing vaccine within 72 hours generally may return to childcare, school, or work. Factors such as immune status, intense or prolonged contact, and presence of populations at risk should be taken into consideration before allowing people to return. Please consult with your local health department for additional guidance. For Measles Exposure Guidance pertaining to clinical staff and the general public, please visit http://www.nj.gov/health/cd/documents/topics/measles/measles_exposures_guidance_01_2015.pdf.

When can people with measles go back to childcare, school or work?

People with measles are infectious for 4 days before rash onset, the day the rash begins and for 4 days after rash onset. They should remain in isolation away from others during this period of time. If in a healthcare setting, people with measles should be placed in airborne isolation. People can return to childcare, school or work on the 5th day after rash onset. All cases of measles must be immediately reported to public health authorities who will determine the date the person can be safely released from isolation.

For more information

- **NJDOH Measles**
<http://www.nj.gov/health/cd/topics/measles.shtml>
- **New Jersey School Immunization Requirements**
https://nj.gov/health/cd/imm_requirements
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/measles/index.html>