IOWA Health and Human Services

Measles Post-Exposure Prophylaxis
March 2025

Personal Preventive Measures/Education
Vaccination, including routine childhood vaccination, catch-up vaccination of adolescents, and targeted vaccination of high-risk adult groups (including international travelers), is the best preventive measure against measles. It is particularly important to vaccinate susceptible household contacts of high-risk non-immune persons who cannot themselves be vaccinated, such as immunocompromised individuals, pregnant women, and infants.

Recommendations During Outbreaks of Measles
During a measles outbreak, efforts should be made to ensure that all persons at risk for exposure and infection are vaccinated or have other acceptable evidence of immunity. Evidence of adequate vaccination for school-aged children, college students, and students in other postsecondary educational institutions who are at risk for exposure and infection during measles outbreaks consists of two doses of measles containing vaccine separated by at least 28 days. If the outbreak affects preschool-aged children (i.e.., aged ≥ 12 months) or adults with community-wide transmission, a second dose should be considered for children aged 1 through 4 years or adults who have received one dose. In addition, infants 6 months of age or older can receive MMR prior to international travel or in outbreak settings following state or local guidance.

CDC guidance for surveillance and outbreak control for measles can be found in the Manual for the Surveillance of Vaccine-Preventable Diseases.

Evidence of Measles Immunity
Persons who have documentation of adequate vaccination for measles at age ≥12 months, laboratory evidence of measles immunity, laboratory confirmation of disease, or were born before 1957 have acceptable presumptive evidence of measles immunity. Adequate vaccination for measles for preschool-aged children (i.e., aged ≥12 months) and adults not at high risk for exposure or transmission is documentation of vaccination with at least one dose of live measles virus-containing vaccine. For school-aged children in kindergarten through grade 12, students at post-high school educational institutions, health-care personnel, and international travelers, adequate vaccination for measles is documentation of vaccination with two doses of live measles virus-containing vaccine separated by at least 28 days. Adequate vaccination for measles for infants aged 6 through 11 months before international travel is one dose of live measles virus-containing vaccine.

Persons who have measles-specific IgG antibody detectable by any commonly used serologic assay are considered to have adequate laboratory evidence of measles immunity. Persons with an equivocal serologic test result do not have adequate presumptive evidence of immunity and should be considered susceptible, unless they have other evidence of measles immunity or subsequent testing indicates measles immunity.

Postexposure Prophylaxis with MMR Vaccine

MMR vaccine, if administered within 72 hours of initial measles exposure, might provide some protection or modify the clinical course of measles. For vaccine eligible persons aged ≥12 months exposed to measles, administration of MMR vaccine is preferable to using IG, if administered within 72 hours of initial exposure. If exposure does not cause infection, postexposure vaccination should induce protection against subsequent exposures. If exposure results in infection, no evidence indicates that administration of MMR vaccine during the presymptomatic or prodromal stage of illness increases the risk for vaccine-associated adverse events. Except in healthcare settings, unvaccinated persons who receive their first dose of MMR vaccine within 72 hours post exposure may return to child care, school, or work.

Postexposure Prophylaxis with Immune Globulin (IG)

If administered within six days of exposure, IG can prevent or modify measles in persons who are nonimmune. IG is not indicated for persons who have received one dose of measles-containing vaccine at age ≥12 months, unless they are severely immunocompromised (as defined later in this report in the subsection titled Immunocompromised patients). IG should not be used to control measles outbreaks, but rather to reduce the risk for infection and complications in the person receiving it. Any nonimmune person exposed to measles who received IG should subsequently receive MMR vaccine, which should be administered no earlier than six months after IGIM administration or eight months after IGIV administration, provided the person is then aged ≥12 months and the vaccine is not otherwise contraindicated.

Recommendations for Use of Immune Globulin for Postexposure Prophylaxis

The following patient groups are at risk for severe disease and complications from measles and should receive IG: infants aged <12 months, pregnant women without evidence of measles immunity, and severely immunocompromised persons.

***Infants aged <12 months*.** Because infants are at higher risk for severe measles and complications, and infants are susceptible to measles if mothers are nonimmune or their maternal antibodies to measles have waned, IGIM should be administered to all infants aged <12 months who have been exposed to measles. For infants aged 6 through 11 months, MMR vaccine can be administered in place of IG if administered within 72 hours of exposure.

***Pregnant women without evidence of measles immunity*.** Because pregnant women might be at higher risk for severe measles and complications, IGIV should be administered to pregnant women without evidence of measles immunity who have been exposed to measles. IGIV is recommended to administer doses high enough to achieve estimated protective levels of measles antibody titers.

Immunocompromised patients. Severely immunocompromised patients who are exposed to measles should receive IGIV prophylaxis regardless of immunologic or vaccination status because they might not be protected by the vaccine. Severely immunocompromised patients include 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 ALL within and until at least six 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/mm^3 (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.

For persons already receiving IGIV therapy, administration of at least 400 mg/kg body weight within three weeks before measles exposure should be sufficient to prevent measles infection. For patients receiving subcutaneous immune globulin (IGSC) therapy, administration of at least 200 mg/kg body weight for two consecutive weeks before measles exposure should be sufficient.

Recommended Dose of Immune Globulin for Postexposure Prophylaxis

The recommended dose of IG administered intramuscularly (IGIM) is 0.5 mL/kg of body weight (maximum dose = 15 mL) and the recommended dose of IG given intravenously (IGIV) is 400 mg/kg. A weight of 30 kg (66 lbs.) equates to the maximum IGIM dose of 15 mL.

Sources

- Prevention of Measles, Rubella, Congenital Rubella Syndrome, and Mumps, 2013: Summary Recommendations of the Advisory Committee on Immunization Practices (ACIP). *June 14, 2013.*
- General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). January 28, 2011
- Epidemiology and Prevention of Vaccine-Preventable Diseases- PinkBook - Measles Chapter
- Chapter 7: Measles | Manual for the Surveillance of Vaccine-Preventable Diseases | CDC