Measles Prevention and Treatment Overview

Information for Healthcare Providers

Overview

- MMR vaccination is the best way to prevent measles and its complications.
- There is no specific antiviral therapy that is approved by the Food and Drug Administration (FDA-approved) for management of measles.
- Medical care is generally supportive to help relieve symptoms.
- Measles can cause serious illness requiring hospitalization, and complications such as pneumonia and secondary bacterial infections should be promptly managed under the supervision of a healthcare provider.

Prevention

- Vaccines are the best defense we have against measles. The benefits of measles, mumps, and rubella (MMR vaccination far outweigh the risks. Two doses of MMR vaccine are 97% effective at protecting against measles.
- MMR vaccine is given as a routine childhood vaccine, with a first dose recommended at age 12–15 months and a second dose at age 4–6 years prior to school entry.
- Early administration of MMR vaccine for infants 6–11 months of age is recommended prior to international travel and may be recommended by state or local health departments to prevent measles during an outbreak (defined as 3 or more related cases).
- For those who cannot or prefer not to get vaccinated, risks of measles infection and severe illness during an outbreak are higher.
- Post-exposure prophylaxis (PEP) for measles, when provided promptly after initial measles exposure, may provide protection against measles infection or reduce the risk of serious illness among susceptible people MMR vaccine can be administered as PEP within 72 hours of initial measles exposure for individuals without evidence of immunity.
- Immune globulin (IG), also referred to as immunoglobulin, is typically reserved for certain vulnerable populations, and can be administered within 6 days of initial measles exposure. IG is prioritized for close contacts of measles cases who cannot get the MMR vaccine and have been exposed to measles including infants younger than 6 months of age, pregnant women, and severely immunocompromised people or people who have other medical contraindications to vaccination.

Isolation

- People who are infected with measles and are seeking emergency care should call the healthcare facility prior to arrival. This helps ensure appropriate infection control procedures can be implemented at the facility.
- People who are infected with measles should be isolated for 4 days after they develop a rash.
- If the patient is isolated in a healthcare setting, airborne precautions should be put in place.
- The preferred placement for patients who require airborne precautions is in a single-patient airborne infection isolation room (AIIR). Regardless of presumptive immunity status, all healthcare staff entering the room should use respiratory protection consistent with airborne infection control precautions. This includes use of an N95 respirator or a respirator with similar effectiveness in preventing airborne transmission.

Testing

- Laboratory confirmation is essential for all sporadic measles cases and all outbreaks. The most common methods for confirming measles infection are (1) measles RNA by RT-PCR in a respiratory specimen or (2) detection of measles-specific IgM antibody in serum.

Measles Complications

- People at high risk for complications include infants and children younger than 5 years, adults aged 20 and older, pregnant women, and people with weakened immune systems, such as from leukemia and HIV infection complicated by severe immunosuppression.
- Even in previously healthy people, measles can cause serious illness requiring hospitalization.
- Measles infection may also be complicated by coinfections with other viral pathogens, and by secondary bacterial infections.
- Common complications from measles include otitis media, pneumonia, laryngotracheobronchitis, and diarrhea.

Medical Management of Measles

Vitamin A

- Vitamin A supplementation does not prevent measles and is not a substitute for vaccination.
- Vitamin A supplementation has been found to reduce both overall measles mortality and pneumonia specific measles mortality in children living in areas with high rates of vitamin A deficiency. In the United States, prevalence of vitamin A deficiency is very low.
- While the evidence about vitamin A for measles is primarily from countries with a higher prevalence of vitamin A deficiency, vitamin A may be administered to infants and children in the United States with measles under the supervision of a healthcare provider as part of supportive management.
- Overuse of vitamin A can lead to toxicity and cause damage to the liver, bones, central nervous system, and skin. Pregnant women should avoid taking high levels of vitamin A as it has been linked to severe birth defects.
- If vitamin A is recommended by a healthcare provider, it should be administered immediately upon diagnosis and repeated the next day for a total of 2 doses. The recommended age-specific daily doses are:
    - 50,000 IU for infants younger than 6 months of age
    - 100,000 IU for infants 6–11 months of age
    - 200,000 IU for children 12 months of age and older

Ribavirin

- Ribavirin is a broad-spectrum antiviral that has been used to treat other respiratory infections; ribavirin demonstrates in vitro activity against measles virus. While ribavirin has been used to treat patients with severe measles disease or severely immunocompromising conditions, clinical data are lacking regarding its efficacy.
- Ribavirin is not FDA-approved to treat measles. Oral ribavirin is available commercially and intravenous ribavirin is available only through an Emergency Investigational New Drug (EIND) application via FDA.

Antibiotics

- There is no evidence to support routine use of antibiotics for measles treatment.
- Measles may be complicated by secondary bacterial infections for which antibiotic treatment is indicated Treatment decisions for infections should be based on the clinical assessment of a healthcare provider, taking into account type of infection, illness severity, and other patient factors.