MEASLES/RUBEOLA PROTOCOL

1. Cause/Epidemiology

Measles is an acute, highly communicable viral infection. The primary site of infection is the respiratory epithelium of the nasopharynx.

Humans are the only reservoir and source: An asymptomatic carrier state has not been documented.

Note: Measles / Rubeola is sometimes referred to as "Red Measles" and should not be confused with:

1. Rubella, which is sometimes referred to as "German Measles" or
2. Roseola Infantum, which is sometimes referred to as "Infant Measles."

2. Definitions

2.1. Contact

Someone who shared the same airspace (no minimum length of time) with a measles case during the infectious period [8.3] from the time of admission until two hours after the measles case either left the unit or was isolated. [8.4]

2.2. Susceptible Contact [8.3]

A Contact (defined above) includes individuals born during or after 1970 who do **NOT** meet the following criteria for patient immunity:

- Adults who have received at least one dose of Measles, Mumps, Rubella vaccine (MMR);

OR

- Children 12 months to 17 years of age who have received two doses of MMR;

OR

- Laboratory documentation of antibodies to measles.

2.3. High Risk Susceptible Contact [8.2, 8.3]

A Susceptible Contact (as defined above) who meets one or more of the following criteria:

- Immunocompromised
- Pregnant
- Infant less than 12 months of age
- Other valid contraindication to receipt of measles vaccine (e.g., allergy to vaccine component)

3. Clinical Presentation

Measles can be divided into four periods of illness:

3.1. Incubation Period: Following exposure to the onset of the prodromal period. This is usually 8-12 days, but can be slightly longer in adults. Immune globulin given for passive protection in the incubation period may extend the incubation period rather than prevent disease.

3.2. **Prodromal Period:** The prodromal period begins 8-12 days after exposure and can resemble a severe respiratory infection characterized by malaise, fever, anorexia, conjunctivitis, cough and runny nose. Diarrhea may also be present but is more common in infants. Koplik spots, which are unique to measles, may appear toward the end of the prodromal phase, just prior to the onset of rash. They typically appear as clustered white papules on the buccal mucosa opposite the first and second molars but can occur on the conjunctiva, vaginal mucosa and gastrointestinal mucosa.

3.3. **Exanthem (Rash) Period:** The characteristic maculopapular rash associated with measles begins on the face and progresses down the body to the extremities including the palms and soles of the feet. The rash typically presents 14 days after exposure and can last 5 days. Patients tend to be most ill on the first or second day of the rash. The rash fades in the same sequence as it appeared, from head to extremities.
NOTE: Rash may not develop in patients who are immunocompromised.

3.4. **Recovery Period:** The fourth stage of illness, during which, a cough may persist for one to two weeks after the rash resolves.[8.5]

4. Complications

Complications disproportionately affect persons suffering from malnutrition, immunodeficiency and pregnant women. They are also more common among children younger than five years and adults 20 years and greater.

Complications can include:

- Otitis media
- Pneumonia
- Laryngotracheobronchitis (croup)
- Diarrhea in young children
- Acute encephalitis, which may result in permanent neurologic damage, occurs in approximately 1 out of every 1,000 cases
- Spontaneous abortion, premature delivery in pregnant women

5. Transmission

Measles is spread by airborne transmission, and/or direct (close personal) contact with nasal or throat secretions of infected persons. Transmission can occur from person to person by coughing, sneezing or sharing food or drinks.
All persons who have not had the disease or who have not been successfully immunized are susceptible. Acquired immunity after the illness is permanent.
Measles is one of the most highly communicable diseases in humans. It is most infectious during the late prodromal phase when cough and runny nose are at their peak. The virus can spread for approximately four days before the onset of rash (i.e., one to two days before onset of fever) until approximately four days after rash onset (longer in immunocompromised patients).

6. Infection Prevention and Control Practices

6.1. **Reporting:** Measles is a reportable disease. Refer to Reporting of a Communicable Disease to Manitoba Health by Infection Prevention & Control in Hospitals Operational Directives.

6.2. Contact follow up: Notify site Infection Prevention and Control of positive cases and any susceptible contacts. Conduct contact follow up in collaboration with Infection Prevention and Control and Population Public Health is required.

6.3. **Case Management:** Implement Airborne Precautions immediately for a patient with Measles/Rubeola. Maintain Airborne Precautions until 4 days after start of rash; or for the duration of symptoms in immune compromised patients. Only immune healthcare workers, caretakers and visitors should enter the room. N-95 respirators required for non-immune persons who must enter. Precautions should be taken with neonates born to mothers with measles infection at delivery. Refer to *"Airborne Precautions"* in the Additional Precautions section.

6.4. Contact Management: Implement Airborne Precautions for a patient who is a susceptible contact to Measles from day 5 after their first exposure to day 21 after their last exposure regardless of post-exposure prophylaxis. Ensure susceptible contacts receive immunoprophylaxis unless contraindicated. Only immune healthcare workers, caretakers and visitors should enter the room. N-95 respirators required for non-immune persons who must enter. Precautions should be taken with neonates born to mothers with measles infection at delivery. Refer to *"Airborne Precautions"* in the Additional Precautions section.

7. Occupational Health

Contact Occupational and Environmental Safety and Health (OESH) for staff assessment and/or concerns.

8. References

8.1. Guidelines for the Prevention and Control of Measles Outbreaks in Canada. Public Health Agency of Canada. (2013 September). Available at: http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/13vol39/acs-dcc-3/index-eng.php.

8.2. Measles (Rubeola). Communicable Disease Management Protocol. Manitoba Health. (2010, July). Available at: http://www.gov.mb.ca/health/publichealth/cdc/protocol/measles.pdf.

8.3. Measles (Rubeola) Conference Call with Public Health and WRHA IP&C. (2014, March 14) Dr. Tim Hilderman, Medical Lead, Communicable Diseases, Province of Manitoba. Expert Opinion.

8.4. Measles (Rubeola) Email communication. (2016, October 17) Dr. Joanne Embree, WRHA Pediatric Infectious Disease Physician. Expert Opinion.

8.5. Sarah J. White, Ph.D. et al., (2012, June). Measles, Mumps, and Rubeola. Clin Obstet Gynecol. PMCID: PMC3334858. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3334858/.

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