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M E M O R A N D U M

To: Illinois physicians, other clinicians, infection control professionals, Emergency Departments, and other healthcare providers

From: Craig Conover, M.D., Medical Director, Office of Health Protection, Illinois Department of Public Health
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Subject: Second Confirmed Measles Case in Illinois

Date: May 23, 2008

The Illinois Department of Public Health has confirmed a second case of measles in an Illinois resident. This most recent case has occurred in a grade school age child. Previously, a case was confirmed in a visitor from Europe.

Healthcare providers and facilities should continue to be alert for possible measles cases. Measles is highly contagious and is spread through the airborne route, so non-immune patients, staff, and hospital visitors are at risk of being exposed to measles. Please be certain that health care workers have documented evidence of measles immunity as published by the Advisory Committee on Immunization Practices (ACIP).

Measles should be considered in any patient with fever, conjunctivitis, cough, coryza, and malaise, as well as any patient who presents with fever and a morbiliform rash. Please note that a small percentage of people born before 1957 are susceptible to measles.

Patients with measles have a prodrome of fever, conjunctivitis, cough, coryza, and malaise for 3-5 days <u>before</u> the rash appears on their face and upper body, and then spreads down over the entire body over the following 3-4 days. Immunocompromised patients may not exhibit rash.

Any hospitalized patient who is suspected of having measles should be immediately placed in airborne isolation.

Please contact your local health department immediately if you suspect that a patient may have measles. Measles testing with serology and viral culture can be facilitated by your local health department. Unimmunized contacts of measles cases can be

vaccinated within 3 days of exposure, or given gamma globulin within 6 days of exposure to prevent or ameliorate the illness.

Please find attached a detailed Aide Memoire on measles diagnosis for use by health care providers. An additional attachment is also provided regarding laboratory specimen collection and submission.

KJM/kjm

Attachments

Measles: Summary for Health Care Providers

PRODROME

Typically starts 3-4 days (range 1-8 days) before rash onset. Fever typically reaches 101° F by day of rash onset.

- Conjunctivitis, may be accompanied by lacrimation and photophobia
- Cough
- Coryza
- Cases typically feel very sick from 2 days before to at least 2 days after rash onset
- Koplik's spots: 1-3 mm whitish, grayish, or bluish white dots on buccal mucosa opposite molar teeth on an erythematous mucosal background ("grains of salt on a red background). Can spread further in mouth. Present 2 days before to 2 days after rash onset. Considered pathognomonic for measles.[1] (Images are available online, e.g. http://www.lib.uiowa.edu/HARDIN/MD/cdc/measles.html)

RASH

Distribution and progression—starts at hairline (eg behind ears) and extends to face and neck on day 1, spreads to trunk on day 2, and extremities on day 3. Usually spares palms and soles. Starts to fade on face on day on day 4, then fades on trunk and extremities. Usually lasts 4-7 days.

Character- maculopapular, erythematous, blanching; becomes confluent in blotches especially in areas where the rash develops first. Palms and soles rarely involved. Bright red, often raised, and "velvety" to touch on day 1-2. Begins on fade on day 3-4, may turn brownish, followed by fine desquamation.

CHRONOLOGY DIAGRAM

Exposure	Fever, cough, conjunctivitis, coryza onset	Rash onset	Rash fades
11 to 17 days prior to rash onset	2 to 4 days prior to rash onset	Day 0	4 to 7 days after rash onset

<u>Minimal clinical criteria:</u> the vast majority of cases are classical and meet the minimum clinical criteria

- Generalized rash lasting 3+ days
- At least one of the following: cough, coryza, or conjunctivitis
- Temperature of 101°F (38.3^{o}C); occurrence of measles with fever lasting beyond the third day of rash suggests possibility of a measles associated complication

[1] Fordyce spots are tiny yellow white granules that can be found on the lip or buccal mucosa. They typically do not occur on an erythematous base.

Differential diagnosis: includes but not limited rubella, fifth disease (parvovirus B19), HHV-6 infection, toxic shock, enterovirus or adenovirus infection, mononucleosis, scarlet fever, roseola, Kawasaki's disease, RMSF, and drug reaction.

INCUBATION PERIOD: About 10 days, but may be 7-18 days from exposure to onset of fever, usually about 14 days until rash appears.

PERIOD OF COMMUNICABILITY: From one day before beginning of the prodromal period (usually about 4 days before onset) to 4 days after rash appearance.

DIAGNOSIS:
Laboratory testing for measles is available via IDPH that is not available elsewhere, including PCR and a highly sensitive and specific IgM test performed by the CDC.

Anti- measles IgM may be undetectable on the day the rash appears; repeat testing may be indicated.

False positive and negative results have been reported with IgM tests.

Recent measles immunization produces essentially the same antibody responses as natural measles infection.

See attached for information about specimen collection.

REMEMBER
- Report all suspected cases of measles to your local health department immediately.
- Arrange testing through your local health department.
- Isolate suspected cases—healthcare workers with known immunity to measles should be the only staff who have contact with patients suspected of having measles.
- In addition to infection control procedures, prevention of the spread of measles depends on prompt immunization of people at risk of exposure or people already exposed who cannot readily provide documentation of measles immunity.

MEASLES (rubeola)

Lab Criteria for Diagnosis

- Isolation of measles virus from a nasopharyngeal specimen (collected within 5 days of rash onset) or urine (collected within 14 days of rash onset).
- Positive serologic test for measles IgM antibody in serum collected 2-28 days after rash onset.
- Significant (four-fold) rise in measles antibody level using paired acute and convalescent sera drawn at least two weeks apart.

Lab Tests

Specimens to Collect:

Acute and convalescent sera
- Collect acute serum 2-28 days after rash onset.
- Collect convalescent serum at least two weeks after the acute serum was collected.

Nasopharyngeal specimen
- Collect the specimen within 5 days of rash onset.
- After collecting the specimen, place swab in a tube containing 2-3 mls of viral transport medium (VTM)

Urine
- Collect 5-10 mls from clean catch urine and store in a screw top sterile container, preferably a 15 ml centrifuge tube.

It is important that laboratory testing be done for measles disease. For testing through Illinois Department of Public Health, please contact your local health department or IDPH for appropriate guidance on serological testing, or for testing on NP/throat/urine specimens. IDPH Immunization Section may be reached at 217-785-1455.