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HEALTH ALERT

JANUARY 30, 2009

MEASLES in SAN FRANCISCO

One confirmed case of measles and one probable case of measles have been reported in San Francisco residents this week. The confirmed case occurred in an adult who was exposed in England. The probable case is in a child who is a close contact to the confirmed case. The San Francisco Department of Public Health (SFDPH) has identified the majority of the individuals and groups who were exposed to these two cases during their infectious period, and is working with them to prevent further transmission. However, additional measles cases may occur from exposures to these cases, or in the future, to measles contracted overseas. Because measles is extremely contagious and can be life threatening to susceptible individuals we are alerting clinicians and Infection Control Professionals and requesting they follow these recommendations.

This Health Alert and documents with information on measles and public health interventions to prevent its transmission is posted on the San Francisco Department of Public Health (SFDPH) website at <http://www.sfdcdep.org/healthalerts>.

ACTIONS REQUESTED OF ALL CLINICIANS:

1. **Be alert** for cases of measles. Consider measles in any patient with fever and **morbilloform** rash, especially in people with known exposure to a case of measles, with recent international travel or with exposure to a visitor from abroad or a US resident who has recently returned from international travel.
2. Implement **airborne precautions** immediately for all patients with **fever and morbilliform and/or vesicular rash: identify, isolate** and provide a face mask for the patient to wear.
3. **Immediately report** suspect cases to the Communicable Disease Control Unit (CDCU) at 415-554-2830 [or your Local Health Department if you are not in San Francisco County]; in addition, if the case is or was in the hospital or hospital based clinic, report to your hospital Infection Control Professional (ICP).
4. Coordinate **diagnostic testing** of suspected cases with the **CDCU**.
5. Work with your ICP (if in a hospital) or the CDCU (if in other settings) to **identify exposed susceptible contacts** and assess them for **post-exposure prophylaxis** and the need for **exclusion from work or quarantine**.
6. **Provide post-exposure prophylaxis** for susceptible contacts identified by SFDPH or **laboratory testing for measles immunity for contacts** who cannot document receipt of 2 doses of measles-containing vaccine or who have received only 1 dose.

Description of measles:

Due to a successful vaccination program, measles is rare in the US. However, since 2008, there has been a significant rise in cases due to outbreaks in several states. San Francisco has had other confirmed cases within the last year. Clinicians should suspect measles in patients presenting with fever and morbilliform rash and should ask patients about recent travel and other possible exposures.

Measles is a highly infectious, acute viral disease characterized by a prodrome of fever (which can be as high as 103-105 °F), malaise, cough, coryza and conjunctivitis, which usually occurs 10-12 (range 7 to 21) days after exposure. After 1-4 days of prodrome an erythematous maculopapular rash develops that usually begins on the

Categories of urgency levels

Health Alert: conveys the highest level of importance; warrants immediate action or attention

Health Advisory: provides important information for a specific incident or situation; may not require immediate action

Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action

face and upper neck and then progresses downward and outward. Pathognomonic enanthem (Koplik spots) may occur. People who have received vaccinations against measles can have a more mild clinical presentation (modified measles) and people who have received antibodies (e.g. newborns receiving maternal Ab and people who have received Ig) can have an atypical presentation (rash progresses in opposite fashion). Complications of measles include bronchitis, pneumonia, encephalitis, and death.

Infection Control:

Measles is transmitted person-to-person via large respiratory droplets and via aerosolized droplet nuclei. People with measles are infectious from 4 days before rash onset to 4 days after rash onset. Airborne precautions should be used immediately with all suspect cases. Patients should be given a surgical mask to wear at all times and should be placed in a private negative air pressure room. If an airborne isolation room is not available, the patient should be placed in a private room with the door closed. Remind triage staff to identify and request assistance for patients with fever and a morbilliform and/or vesicular rash. These airborne precautions should be used for any patient with fever and a morbilliform and/or vesicular rash. For additional guidance in the hospital setting, please see previous Measles Health Alerts: <http://www.sfdcp.org/healthalerts.html>.

Notifications and responsibilities:

Immediately report **all suspect cases directly** to the SFDPH Communicable Disease Control Unit (CDCU) at 415-554-2830 [or your Local Health Department if you are in a county other than San Francisco]. In addition, if the case is or was in the hospital, notify the hospital ICP. Do not wait for laboratory results before notifications.

Diagnosis:

Testing via the Public Health Laboratory system should be pursued immediately for all suspect cases. Do not delay diagnosis by sending specimens to commercial laboratories. Measles can be diagnosed by serology (a positive IgM [collected 2-28 days after rash] or a significant rise in IgG), and by isolation and/or nucleic acid amplification testing from nasopharyngeal or urine specimens. Obtain serum in a serum separator tube, a nasopharyngeal swab on a Dacron-tipped swab placed in viral transport media and a urine sample in a sterile cup. After consultation with CDCU, specimens should be sent to the SFDPH Public Health Lab. Go to our website to download the laboratory form: <http://www.sfdcp.org/diseasereporting.html>.

Identification of exposed persons (contacts):

All contacts of suspect measles cases should be identified, their susceptibility determined and reported to CDCU. In the hospital setting, ICPs will usually coordinate this process. In clinics and offices, clinicians should collaborate with CDCU. In non-medical settings, CDCU manages identification of contacts. CDCU is identifying the contacts of the current confirmed and suspect cases and has already or will communicate with the contacts directly if specific interventions are recommended.

A person is considered a contact if during the case's infectious period they:

- a) lived with the case,
- b) have shared air space during the time or for up to two hours after the case was present and were not masked.

Identification of susceptibility or immunity:

A person is considered susceptible to measles if they answer "No" to ALL the questions below. A person is considered immune if they answer "Yes" to any of these questions.

- a) Were you born before 1957?
- b) Do you have documentation of 2 doses of measles vaccine?
- c) Do you have a history of measles with a physician's documentation of the infection?
- d) Do you have laboratory evidence of measles immunity?

Some contacts to a measles case are unable to produce documentation of receipt of two doses of measles-containing vaccine, and some have received only one dose of measles containing vaccine. These persons may

request measles serology testing (IgG) to assess for immunity. Providing this testing may prevent or shorten the duration of quarantine if immunity to measles can be demonstrated by serologic testing.

Post-exposure prophylaxis:

If additional cases occur and are promptly recognized, PEP should be pursued for exposed susceptible contacts:

- a. Measles-mumps-rubella (MMR) vaccine is recommended as PEP for most susceptible persons aged ≥ 12 months. Administration of MMR is preferable to using IG, except as noted below. If administered within 72 hours of initial exposure, MMR or other measles containing vaccine (MCV) may provide some protection. MCV is available in monovalent (measles only) formulation and in combination formulations, such as measles-rubella (MR) and measles-mumps-rubella (MMR) vaccines.
 - MMR may be given before 12 months of age but should not be counted as a valid dose. An MMR dose administered before 12 months of age may provide protection from current exposure, but repeat vaccination is still recommended. For young infants, you may wish to consult with a pediatric infectious disease specialist.
 - A second dose of MMR may be given any time at least 4 weeks after the 1st dose. It may boost antibody titers in some persons.
- b. Immune globulin (IG) can prevent or modify measles in a non-immune person if given within 6 days of exposure. IG is indicated for susceptible contacts at high risk for developing severe measles, including some infants < 12 months old, pregnant women, immunocompromised persons and others for whom the vaccine is contra-indicated. Severely immunocompromised patients and other symptomatic HIV-infected patients exposed to measles should receive IG, regardless of vaccination status because they may not be protected by the vaccine. Infants < 6 months old are usually immune because of passively acquired maternal antibodies. However, if measles is diagnosed in a mother, unvaccinated children in the household who lack evidence of measles immunity should receive IG.

Additional Resources:

Measles FAQs and information about the public health response to measles cases and contacts are posted on our website: www.sfdcp.org/healthalerts.

Measles Chapter. Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Atkinson W, Hamborsky J, McIntyre L, Wolfe S, eds. 10th ed. 2nd printing, Washington DC: Public Health Foundation, 2008
<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/meas-508.pdf>