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HEALTH UPDATE

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Hantavirus Pulmonary Syndrome in California

SITUATION: The California Department of Public Health (CDPH) has reported 8 confirmed cases of Hantavirus Pulmonary Syndrome (HPS) in visitors who stayed in Yosemite National Park since June of this year. Three of the cases have died. Seven of the cases stayed in the Signature Cabins of the Boystown area of Curry Village and one case stayed at several locations in the Tuolumne Meadows area. CDC and the California Department of Public Health (CDPH) are working with the NPS in responding to the situation.

ACTIONS REQUESTED OF CLINICIANS

1. **EDUCATE** patients that HPS is a rare disease that is best prevented by avoiding contact with rodents and their excreta, and that testing of well or mildly ill persons is not beneficial.
2. **REPORT and CONSIDER TESTING** for HPS in patients with severe febrile cardiopulmonary disease and a history of contact with rodents in rural areas. Call SFDPH at (415) 554-2830 Monday through Friday, 8:00 am to 5:00pm for consultation and approval before sending specimens to the Public Health Laboratory.
3. **CONSULT** an infectious disease specialist and/or the CDC webpage for clinical information: <http://www.cdc.gov/hantavirus/technical/hps/clinical-manifestation.html>.
4. **DIRECT** patients with questions regarding the hantavirus situation in Yosemite National Park to their phone line, (209) 372-0822 or for general questions about HPS and hantavirus, to the following resources: CDC (<http://www.cdc.gov/hantavirus>); CDC Hantavirus Hotline number (877)232-3322 and (404)639-1510; CDPH (<http://www.cdph.ca.gov/HealthInfo/discond/Pages/HantavirusPulmonarySyndrome.aspx>).

BACKGROUND: HPS is a rare disease. From 1993, when HPS was first identified, 63 cases have been diagnosed in CA and 590 nationally. After an incubation period of 1-6 weeks, HPS patients present with a 3-5 day prodrome of fever, chills, and myalgia, often with headache, vomiting, abdominal pain, and/or diarrhea, that is clinically indistinguishable from other viral illnesses. Cough, tachypnea, and shortness of breath begin 2-7 days after the prodrome, progressing rapidly to hypotension, pulmonary edema, pleural effusions and hypoxia. CXR findings rapidly evolve from pulmonary edema to extensive bibasilar or perihilar airspace disease. Leukocytosis with a left shift and circulating myelocytes is typical, and 80% of patients develop significant thrombocytopenia. There is no specific therapy; treatment is supportive. The case fatality rate is 30-40%. The diagnosis is made by serologic assays for antibodies to Sin Nombre Virus (SNV), the specific Hantavirus that causes HPS in the western US. The presence of IgM antibodies or a 4-fold rise in IgG antibodies to SNV in a patient with compatible signs is diagnostic. Serologic assays generally become positive when a patient develops cardiopulmonary disease.

Testing asymptomatic or mildly ill patients is not recommended. Serologic testing for hospitalized patients with severe cardiopulmonary symptoms is available from California's Public Health Laboratory network, with prior approval from the SFDPH Communicable Disease Control Unit. For patients who do not meet public health criteria for testing, a commercial serologic test may be an option.

In the western US, SNV is carried and shed by the deer mouse. Other rodents (e.g. squirrels, chipmunks, rats, house mice) do not pose a risk of HPS to humans. Infected deer mice shed SNV in their urine, droppings and saliva, which can cause human infection if aerosolized and inhaled, as may occur in when cleaning a confined space. When in the wilderness or in places harboring mice, people should keep food in tightly sealed containers, seal holes where mice could enter the dwelling, air out an enclosed space before entering or cleaning it, and spray areas contaminated with rodent droppings and urine with a 10% bleach solution or other disinfectant for 15 minutes before cleaning it up. Persons who clean rodent excreta should wear disposable gloves, seal waste tightly in plastic bags, and wash their hands. Wearing a face mask (ideally an N-95 or higher rating) may provide some additional protection but does not replace the other precautions of wetting contaminated areas, wearing gloves, and washing hands.