CAHAN San Diego
California HEALTH ALERT NETWORK

To: CAHAN San Diego Participants
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Tick-borne Disease in San Diego County

This alert describes a recently recognized human pathogen detected in ticks in San Diego County, *Rickettsia philipii* (formerly known as *Rickettsia* 364D), and provides an update on other tick-borne diseases in the region.

An eschar-associated illness caused by Spotted Fever group (SFG) *Rickettsia*, *R. philipii* was first recognized in a Northern California resident in 2008. Cases have since been reported in both adults and children. A bite from the Pacific Coast tick (*Dermacentor occidentalis*) can transmit the infection.

The most prominent clinical feature of *R. philipii* infection is development of an isolated ulcer with raised erythematous margins and core black eschar, usually with surrounding generalized edema and erythema. The eschar typically develops 3-14 days at the site of a known or presumed tick bite.

Health care providers should obtain a detailed history from patients presenting with isolated ulcers and/or eschars, which includes exposure to grassy or wooded areas during the 3-14 days prior to symptom onset. Patients may not report a tick bite.

The CDC clinical criteria for spotted fever rickettsiosis are any reported fever and one or more of the following: rash, eschar, headache, myalgia, anemia, thrombocytopenia, or any hepatic transaminase elevation. The full clinical spectrum of *R. philipii* illness is unknown. Cases described in the literature were mild and some were associated with fever, headache, neck pain, fatigue, and myalgia. Recent cases reported to the California Department of Public Health (CDPH) were more severe, with one requiring intensive care management and three others requiring hospitalization.

Spotted fever rickettsioses are best detected by polymerase chain reaction (PCR) and immunohisto-chemical methods (IHC) in skin biopsy specimens. Clinicians are encouraged to submit specimens (serum and eschar swabs) from suspect cases to the CDPH Viral and Rickettsial Disease Laboratory by first contacting the Epidemiology Program at 619-692-8499 to assist with specimen submission and to report suspect cases. Acute infection may also be confirmed by paired sera demonstrating a four-fold rise in IgG antibody titer reactive for *R. rickettsia* or other rickettsial antigen. An antibody response may not be detectable in initial samples and serology cannot differentiate between *Rickettsia* species.

Clinicians should **never delay treatment** for suspect spotted fever rickettsiosis while awaiting laboratory confirmation. Doxycycline is the antibiotic of choice for patients of all ages. The adult dose is 100 mg bid for 14 days or until 3 days after fever subsides. The pediatric dose is 2.2mg/kg (up to 100 mg) bid.

In 2012, 19 San Diego County residents were reported with confirmed or probable tick-borne illnesses (14 cases of Lyme disease, two cases of Rocky Mountain spotted fever, two cases of other rickettsial diseases, and one case of Ehrlichiosis). Most cases did not recall a tick bite, and the majority of those with known tick exposures occurred outside of the county.

Although ticks are more numerous in the summer months in many parts of the United States, the cooler, wetter weather causes tick populations to increase in San Diego County between November and May. Tick surveillance by the San Diego County Department of Environmental Health Vector Control Program during the last two tick seasons indicates that local ticks harbor SFG *Rickettsia*. Approximately 5% of Pacific Coast ticks may harbor *R. philipii*. *Borrelia burgdorferi*, the agent of Lyme disease, and *Francisella tularensis*, the cause of tularemia, have occasionally been found in ticks in San Diego County. In addition, clinicians should be aware of recent reports of rickettsial disease transmitted by the brown dog tick (*Rhipicephalus sanguineus*) in the northern Baja California.

Most tick-borne illnesses, including *R. philipii*, are reportable under California Code of Regulations Title 17. For more information on the symptoms, diagnosis, treatment, and prevention of tick-borne diseases, please visit the Centers for Disease Control and Prevention website at www.cdc.gov/ticks/. Information on ticks and the County's Vector Control Program can be found at www.sdvector.org.

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