



County of San Diego

PHYSICIANS' BULLETIN

Health and Human Services Agency ♦ P.O. Box 85222, San Diego, CA ♦ 92186-5222 ♦ www.co.san-diego.ca.us/city/cntydepts/health

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ARTHROPOD AND VERTEBRATE BORNE DISEASES

With the seasonal rise in outdoor activities and associated increased human exposure to arthropod and vertebrate borne diseases, a number of illnesses should be considered when seeing patients who have a recent history of travel to endemic areas within and outside the United States and/or exposure to arthropods, rodents and other vertebrates of public health significance. Enzootic occurrence of mosquito-borne encephalitis, Lyme Disease, plague, hantavirus, and rabies among other arthropod and vertebrate borne diseases, as well as malaria have been documented in San Diego County.

MOSQUITO-BORNE ENCEPHALITIS: The two main mosquito-borne virus agents of encephalitis in Southern California are Saint Louis encephalitis (SLE) and western equine encephalitis (WEE). Most infections are asymptomatic or may present as nonspecific flu-like syndromes. Mild cases of SLE and WEE occur as viral meningitis. Severe infections may include acute onset of headache, high fever, meningeal signs, stupor, disorientation, coma, tremors, occasionally convulsions in infants, coma, and spastic, but rarely flaccid paralysis. Physicians are encouraged to submit blood specimens on suspect cases of meningoencephalitis. The usual procedure in viral serologic tests is to hold the acute phase serum specimen until the convalescent specimen is collected and then submit them as a pair for testing to demonstrate a rise in antibody levels. If **arboviral encephalitis** is part of the differential diagnosis, however, the **acute phase specimen should be submitted directly to the Public Health Laboratory** [(619) 692-8500] for testing to **detect IgM antibodies to St. Louis encephalitis (SLE) or western equine encephalitis (WEE)**. The initial serum usually has IgM antibodies that can be readily identified by the indirect immunofluorescent antibody (IFA) test.

MALARIA: Four Plasmodium parasites infect humans: *P. falciparum*, *P. vivax*, *P. ovale* and *P. malariae*. Anophelene vector mosquitoes are relatively common in San Diego County. A history of mosquito bites should be reviewed in patients presenting with symptoms compatible with malaria, which include shaking chills, high fever, sweats, and headache. Because of the cyclic nature of this disease, persons with mild symptoms should return when symptoms intensify and the parasite, which is not evident in the blood during mild symptoms, is once again present. If malaria is suspected, a thick and thin smear of peripheral blood should be obtained and examined for the presence of malaria parasites. The blood should be collected prior to therapy. Optimal results are obtained with blood collected during spikes of fever and with smears prepared from freshly collected uncoagulated blood. The smears and the blood (in purple top tubes with EDTA anticoagulant) should be delivered or sent to the Public Health Laboratory.

LYME DISEASE: The primary vector for Lyme Disease in California, the Western Black Legged tick (*Ixodes pacificus*) is fairly common in San Diego County although only a small percent harbor *Borrelia*

burgdorferi, the Lyme Disease agent. Initial symptoms of Lyme Disease which follow the bite of an infected tick may include skin lesion/rash, frequently, but not always, annular (erythema migrans - EM), accompanied by flu-like symptoms, fever and muscle aches. Some individuals exhibit swollen lymph glands. Most persons treated with appropriate antibiotics at this stage will have a quick recovery. Lack of treatment of Lyme Disease may result in long-term complications including disorders of the heart or nervous system, and arthritis. Because serological tests are not standardized, and their sensitivity is unclear, the patient should be treated based on clinical observations. For a fee, the County Veterinarian's Office will test *Ixodes* ticks for the Lyme Disease agent – Call (858) 694-2838 for instructions.

PLAGUE: Plague has been documented in San Diego County in wild animals, primarily ground squirrels. Patients should be asked about possible exposures to fleas and/or their wild animal hosts, particularly in rural and mountainous areas if symptoms are consistent for plague. The most common presentation in humans is lymphadenitis in nodes of the inguinal, axillary or cervical area. The involved nodes are swollen and tender and may suppurate. Fever is often present. For directions on collection and submission of cultures and other appropriate specimens, call the Public Health Laboratory.

HANTAVIRUS: Wild rodents are the primary reservoirs for hantavirus. Infected rodents shed virus in their saliva, urine and feces. Infection primarily occurs when dried or fresh materials contaminated by rodent saliva or excreta are disturbed and inhaled as aerosols or are directly introduced into broken skin. Infection has also occurred through the bite of an infected rodent. Initial symptoms are similar to less severe viral infections, with most cases experiencing fever, myalgia and chills. Other symptoms include dyspnea, nonproductive cough, headache, nausea, vomiting, diarrhea and malaise. The illness progresses rapidly to severe respiratory failure and shock. The mortality rate is approximately 40%-50%. Testing for antibody to the viral agent that causes hantavirus pulmonary syndrome (HPS) can be done by the State Viral and Rickettsial Disease Laboratory (VRDL). An acute blood (5-10 ml in a red/gray top tube) and a case report questionnaire should be submitted to the Public Health Laboratory which will forward the specimen to the State. A convalescent serology at 10 to 14 days

should be collected as well.

RABIES: This is an invariably fatal, acute viral encephalomyelitis, transmitted through virus-laden saliva of rabid animals. Bats are most commonly rabies-infected species locally. Initial symptoms are nonspecific and include onset of apprehension, headache, fever, malaise and sensory changes. The disease progresses with neurological symptoms, which may include insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation, difficulty swallowing, and hydrophobia. Death usually occurs within days of the onset of symptoms. Human rabies can be

prevented by eliminating exposure to rabid animals and appropriate pre-exposure and post-exposure prophylaxis. The diagnosis of rabies should be considered seriously in cases of encephalitis where the patient has lived in an area where rabies is enzootic, even in the absence of a significant exposure history. For directions on collection and submission of appropriate specimens, call the Public Health Laboratory at 692-8500. For the latest California Compendium on Rabies Control call (619) 515-6620, FAX: (619) 515-6644 or visit the California Department of Health Services website at: www.dhs.ca.gov/ps/dcdc/html/publicat.htm.

Vector Borne Diseases Reported to San Diego County Office of Public Health By Calendar Year (1998 – 2000)

Disease	Number of Human Cases*			Disease	Number of Human Cases*		
	CY 1998	CY 1999	CY 2000		CY 1998	CY 1999	CY 2000
Babesiosis	0	1	0	Malaria	11	23	11
Colorado Tick Fever	0	0	0	Plague	0	0	0
Dengue Fever	3	1	2	Q Fever	0	0	0
Ehrlichiosis	0	0	0	Relapsing Fever	3	0	0
Hantavirus Infection	0	0	0	Rocky Mt. Spotted Fever	0	0	0
Leptospirosis	1	0	3	Tularaemia	0	0	0
Lyme Disease	0	16	9	Typhus Fever	0	1	0

* Except for one case of Lyme Disease in each of 1999 and 2000 and one case of Typhus in 1999 (which may have been locally acquired), reported cases of vector-borne illness were imported.

- LABORATORY -
 The San Diego County Health & Human Services Agency's Public Health Laboratory offers testing for selected vector-borne diseases. For information and specific instructions on collection and submission of appropriate specimens, call the Public Health Laboratory at (619) 692-8500.

- VECTOR PREVENTION AND CONTROL -
 Physicians may refer clients to the San Diego County Department of Environmental Health's Vector Surveillance and Control Program for information and advice on the prevention and control of invertebrate and vertebrate vectors at (858) 694-2888.

**PESTICIDE-RELATED ILLNESSES AND INJURIES
 REMINDER TO REPORT**

Seasonal increases in vector and other pest infestations are accompanied by greater use of pesticides. This raises the potential for pesticide-related illnesses and injuries. Physicians are reminded to report known or suspected pesticide illnesses or injuries to the Health Officer within twenty-four (24) hrs. In addition to reporting pesticide injury or illness to the Health Officer, if the pesticide illness is a result of an occupational exposure, a "Doctor's First Report of Occupational Injury or Illness" must also be filed with the worker's compensation insurance carrier or the self-insured employer, within five (5) days after initial examination, and a copy sent to the California Division of Labor Statistics and Research.

REPORTING REMINDER

Health care providers are urged to promptly notify the County Health and Human Services Agency, Community Epidemiology Division of any reportable illness, condition or unusual disease at:

- (619) 515-6620, Monday through Friday from 8:00 AM to 5:00 PM
- FAX (619) 515-6644.
- (858) 565-5255, on evenings and weekends (Station M)

The Physicians' Bulletin is published on an as needed basis by the County of San Diego Health and Human Services Agency to provide updated information on health issues of concern to San Diego County's medical community.

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