



DENGUE

1. **Agent:** Dengue 1, 2, 3, and 4, four serologically related viruses.
2. **Identification:**
 - a. **Symptoms:** Acute onset with fever, headache, body ache, eye pain, and often a maculopapular rash. Illness generally is self-limited and lasts about one week. Minor or severe bleeding manifestations occasionally occur. Dengue hemorrhagic fever, also called dengue shock syndrome, is mostly seen in children and is characterized by a 24–48 hour period where capillaries leak out their fluid component after the fever declines. A low platelet count of less than 100,000 and evidence of hemorrhagic manifestations are required for the diagnosis. Dengue shock syndrome frequently is fatal unless prompt, supportive treatment is given.
 - b. **Differential Diagnosis:** Dengue is easily confused in non-epidemic situations with common viral illnesses, e.g., enterovirus infection, influenza, measles, and rubella. Dengue can also resemble endemic WNV fever and flea-borne murine typhus. Dengue may be confused with Zika or chikungunya infection in travelers returning from areas endemic for or experiencing outbreaks of those viruses. Dengue hemorrhagic fever (dengue shock syndrome) may resemble bacterial sepsis, e.g., meningococcemia or rickettsial disease.
 - c. **Diagnosis:** Virus may be isolated from acute serum or detected by PCR; demonstration of a 4-fold antibody rise by testing paired sera (EIA hemagglutination inhibition, complement fixation) may also confirm the diagnosis. Past medical history, recent travel history, and vaccination records should be reviewed to rule out cross reactivity with other flaviviruses including West Nile, Zika, and chikungunya.
3. **Incubation:** Usually 4–7 days, range 3–14 days.
4. **Reservoir:** Humans and mosquitoes. In West Africa and Southeast Asia, monkeys may also serve as reservoirs.
5. **Source:** The mosquito becomes infectious 8–12 days after the viremic blood meal and remains so for life.
6. **Transmission:** Dengue virus is transmitted by the bite of infected *Aedes* mosquitoes, principally *A. aegypti*. *A. albopictus*. Transmission occurs when the mosquito feeds on an infected person during a 5–day period in which large amounts of virus are in that person's blood. This period typically begins slightly before the person experiences symptoms. However, some people never have significant symptoms, but can still infect mosquitoes.
7. **Communicability:** Not directly communicable from person to person. Patients are usually infective to mosquitoes from shortly before, to the end of the viremic period, which is an average of about 3–5 days.
8. **Specific Treatment:** None. Aspirin may exacerbate bleeding symptoms. Patients with dengue shock syndrome should be hospitalized and treated vigorously with fluid support.
9. **Immunity:** Permanent immunity for a specific virus, but infection with other serotypes can occur.

REPORTING PROCEDURES

1. Report any cases or suspected cases by telephone immediately to ACDC or Morbidity Unit (Title 17, Section 2500, *California Code of Regulations*).
2. **Report Forms:**
DENGUE CASE REPORT (CDPH 8670)
3. **Epidemiologic Data:**
 - a. Place of residence (be specific with regard to address, city, and state) and travel history during the 10 days prior to onset of



illness. A history of travel is important in interpreting results of serologic test.

- b. History of mosquito bites, noting time of day of bites. (*Aedes* mosquitoes are daytime biters.)
- c. Additional cases among household members, neighbors, fellow travelers.
- d. Previous dengue infections, and yellow fever and Japanese B encephalitis vaccination status.

CONTROL OF CASE, CONTACTS & CARRIERS

Investigate within 24 hours so that information can be shared with appropriate state or international vector control agencies. Telephone ACDC.

CASE:

Precautions: Patients should stay in a room with window screens for at least 5 days after onset.

CONTACTS: No specific measures other than case finding and education. No vaccine is presently available.

PREVENTION-EDUCATION

1. Reduce exposure to mosquitoes by using protective clothing, repellents, and avoid outdoor exposure at dawn and dusk.
2. Remove water on a regular basis from potential mosquito larval habitats, e.g., potted plants, old tires and pet water bowls.

DIAGNOSTIC PROCEDURES

Clinical and epidemiologic history is required to aid the laboratory in test selections.

1. **Serology:** Paired acute and convalescent venous or capillary sera recommended.

Container:

Red top or serum separator tube (SST, a red/gray top Vacutainer tube).

Laboratory Form: [CDPH – VRDL General Purpose Specimen Submittal Form](#)

Exam Requested: Dengue serology.

Material: Whole clotted blood or serum. Allow whole blood to clot at room temperature for a minimum of 30 minutes and centrifuge.

Amount: 5–7 mL blood.

Storage: Samples should be transported on cold packs as soon as possible following collection. If samples cannot be transported immediately, they may be held at 4–8°C for up to 72 hours before shipping. Otherwise, specimens should be frozen at –70°C and shipped on dry ice.

Remarks: Collect first (acute) blood as early as possible, preferably within 5 days after onset. Collect second (convalescent) blood 10–14 days after first blood is drawn. Label all specimens with name of patient. Testing for Zika and Chikungunya recommended.

2. **PCR:** Blood samples collected within the first 5 days of illness must be transported immediately under refrigeration to the Public Health Laboratory for shipment to the State.

Container:

Red top or serum separator tube (SST, a red/gray top Vacutainer tube).

Laboratory Form: [CDPH – VRDL General Purpose Specimen Submittal Form](#)

Exam Requested: Dengue PCR.

Material: Whole clotted blood or serum. Allow whole blood to clot at room temperature for a minimum of 30 minutes and centrifuge.

Amount: 5–7 mL blood.

Storage: Samples should be transported on cold packs as soon as possible following collection. If samples cannot be transported immediately, they may be held at 4–8°C for up to 72 hours before shipping. Otherwise, specimens should be frozen at –70°C and shipped on dry ice. Testing for Zika and Chikungunya recommend.