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Potential for Dengue Infection Among Relief Workers Returning from Haiti

Summary: *The Centers for Disease Control and Prevention (CDC) has received reports of dengue fever among relief workers returning from Haiti, where the disease is endemic. Health-care providers in the United States should consider dengue in the differential diagnosis of febrile illness in any person who has recently been in Haiti or other countries where dengue is being transmitted, and are encouraged to submit samples to state health departments (available from AZ, CA, CT, FL, NY, PR, and TX) or the CDC for proper laboratory testing. In US areas with Aedes mosquitoes present, infected travelers may also present a risk for local spread of dengue virus(es).*

Background

The 7.0 magnitude earthquake that struck just outside Port-au-Prince, Haiti on January 12, 2010, caused extensive damage to homes and utilities and left many residents without proper shelter or access to important services such as electricity and water. Exposure to the elements and increased opportunities for mosquito breeding site proliferation have likely increased the risk of contact with vectors that may spread diseases such as dengue. Since dengue is endemic in Haiti and relief workers responding to previous disasters in Haiti reported high rates of dengue infection, the CDC Dengue Branch advises that physicians evaluate travelers returning with a febrile illness (or a recent history of febrile illness) from Haiti and report cases of suspected dengue to either their local health department or CDC.

Symptoms of Dengue Fever

Dengue fever (DF) is characterized by high fever plus two or more of the following: headache, retro-orbital pain, joint pain, muscle or bone pain, rash, mild hemorrhagic manifestations (e.g., nose or gum bleed, petechiae, or easy bruising), and leukopenia. The incubation period for DF ranges from 3 to 14 days but is typically about one week; therefore, illness may occur while the workers are stationed in Haiti or after they return to the US. Most dengue fever cases are self-limited and can be treated with bed rest, acetaminophen, and oral fluids.

A small proportion of patients develop dengue hemorrhagic fever (DHF), which is characterized by presence of resolving fever or a recent history of fever lasting 2–7 days, any hemorrhagic manifestation, thrombocytopenia (platelet count $<100,000/\text{mm}^3$), and abnormal vascular permeability evidenced by hemoconcentration, hypoalbuminemia, or abdominal or pleural effusions. DHF can result in circulatory instability or shock, and the risk for these complications may be increased among persons with prior dengue infection. Adequate management of DHF patients generally requires timely hospitalization and judicious administration of intravascular fluids and close monitoring of vital signs and hemodynamic status.

Recommendations

Physicians seeing a patient who has illness consistent with dengue, as described above, and who has recently traveled to Haiti should seriously consider laboratory testing. Initiation of supportive care should

not be delayed pending results of laboratory testing. Instead, laboratory results should be used to inform primary prevention efforts within the patient's household and community. The CDC Dengue Branch provides free diagnostic testing for physicians and confirmatory dengue testing for health department and private laboratories. While some commercial laboratories in the US offer diagnostic services for dengue, these commercial labs are not always able to provide results that can distinguish recent from past dengue infection.

Physicians should collect specimens from patients who have symptoms consistent with dengue infection and who have traveled to Haiti within the past 30 days and submit these specimens to their local health department or directly to the CDC Dengue Branch for dengue testing. A completed CDC Dengue Case Investigation Form with "Haiti Travel" printed on the heading of the form (<http://www.cdc.gov/Dengue/resources/caseformhaiti.pdf>) must accompany the specimens for each patient to be tested in the Dengue Branch.

- Public health departments that have the capacity to test for dengue are the following: AZ, CA, CT, FL, NY, PR, and TX.
- Physicians who practice in states not listed above should send the specimens directly to the CDC Dengue Branch (rather than to a private lab) and then notify the state health department of the case.

Whenever possible, physicians should submit paired acute and convalescent samples to facilitate optimal diagnostic testing.

Type of sample	Interval since onset of symptoms	Type of Analysis
Acute	until day 5	RT-PCR for dengue virus
Convalescent	6 to 30 days	ELISA for dengue IgM

2 cc. (ml) of centrifuged serum accompanied by a Dengue Case Investigation Form (<http://www.cdc.gov/Dengue/resources/caseformhaiti.pdf>) should be sent to:

Centers for Disease Control and Prevention
 Dengue Branch
 1324 Cañada Street
 San Juan, Puerto Rico 00920
 Tel: (787) 706-2399; fax (787) 706-2496

As of 2010, dengue virus infections, including dengue fever (DF) and dengue hemorrhagic fever (DHF), were added to the list of nationally notifiable conditions. Improved dengue surveillance, consistent with international public health reporting obligations under the revised International Health Regulations (IHR, 2005), will help detect and report dengue cases when they occur.

Many parts of the US have competent vectors for dengue viruses; therefore, infected travelers may also present a risk for potential local spread of dengue. Three states (Florida, Texas, and Hawaii) have had local outbreaks identified in the last decade.

For More Information:

- Criteria for the processing of dengue samples at the CDC Dengue Branch is available at: http://www.cdc.gov/Dengue/resources/TestpolEng_2.pdf.
- Additional information about dengue is available at: <http://www.cdc.gov/dengue/>
- Call CDC's toll-free information line, 800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, which is available 24 hours a day, every day.

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