Chikungunya and Dengue Virus Infections Among United States Community Volunteers Returning from the Dominican Republic, 2014

Author: Alex Millman
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Summary: In late 2013, chikungunya virus, a mosquito-borne disease, was identified for the first time in the Americas in the Caribbean region. In August 2014, nearly half of the service volunteers who worked with an organization in the Dominican Republic during the summer months tested positive for Chikungunya virus infection.

Abstract:

Background: Chikungunya has rapidly spread throughout the Dominican Republic (DR) since it was first reported in March 2014. In June 2014, a US-based volunteer service organization operating in the DR reported chikungunya-like illnesses among its staff. We sought to determine chikungunya virus (CHIKV) and dengue virus (DENV) infection prevalence and consequent illness among volunteers/staff deployed on 4–8 week assignments in the DR and to evaluate adherence to recommended mosquito avoidance measures.

Methods: Service organization volunteers/staff returning to the United States in July and August were offered participation. Consenting participants completed a questionnaire surveying information on mosquito exposures and avoidance behaviors and febrile illness episodes; and provided serum for CHIKV and DENV diagnostic testing.

Results: Of the 147 volunteers/staff, 127 volunteers were eligible; 102 participated. Most (76%) were female; median age was 17 years. All attended the service organization's health trainings, and 89 (87%) sought pre-travel medical consultation. Ninety-six (94%) wore insect repellent and ninety-six (96%) used bed nets; however, <5% stayed in domiciles with window/door screens. In total, 47 (46%) were CHIKV infected; two (1%) were DENV infected. Forty (85%) of 47 infected with CHIKV reported ≥1 febrile illness; 38 (95%) of 40 reported rash and joint pain. All DENV infected individuals reported ≥1 febrile illness; one (50%) of two reported rash and one (50%) reported joint pain. Forty-two (71%) of 59 reported febrile illnesses were associated with CHIKV or DENV infection.

Conclusions: CHIKV infections were common among these volunteers working in the DR during a large chikungunya outbreak. Clinicians should discuss chikungunya with travelers visiting areas with ongoing CHIKV outbreaks and should consider chikungunya when diagnosing febrile illnesses in travelers returning from those areas.