**A One Health Case Study of Chikungunya: An Emerging Disease**

Renee Prater, DVM, MS, PhD; Teresa R. Johnson, MS, PhD; Alexis M. Stoner, MPH; Matthew D. Cannon, DO; Nammalwar Sriranganathan BVSc, MVSc, PhD, ACVM.

**CASE SYNOPSIS**

Because Chikungunya virus is an emerging infectious disease with a complex relationship between humans, animals, and the environment, it is a critical One-Health topic. Chikungunya virus is a single-stranded RNA alphavirus (family *Togaviridae*), spread through *Aedes* mosquitoes, that causes acute-onset fever, maculopapular rash, and severe polyarthralgia. People at increased risk include newborns, elderly, and patients with cardiovascular/metabolic disease. Chikungunya virus likely originated in the 1700s, but was first recognized in Tanzania in 1952 and has become endemic throughout Africa, Europe, and Asia. However in 2013, the disease emerged in St. Martin and quickly spread through the Caribbean into North/Central/South America, and as of April 2015, there have been over 1.4 million reported cases in the Caribbean, Latin America, and the southern U.S. This case study will require students to use critical thinking, epidemiologic principles, and diagnostic skills to understand the role of environment, vectors, animal and human carriers, and the importance of prevention in disease control, based on these factors: 1) Chikungunya virus causes large outbreaks with high attack rates that are interdependent upon infected vectors, animals, and humans; 2) while the disease typically follows a sylvatic life cycle (mosquitoes and asymptomatic animal reservoirs: monkeys, birds, cattle, rodents) with humans as accidental hosts, the virus is now spread through urban human-mosquito-human, or mother-child transmission, as virus persists in joint macrophages and spleen, and 3) environmental management (screens, insect repellents, clothing, standing water) may reduce disease transmission. Given the lack of vaccines and specific treatments other than symptomatic care, the case study will focus on prevention.