

Modeling the Spread of La Crosse Virus between Humans and Mosquitoes

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In Appalachia, La Crosse virus (LACV) is a leading pediatric arbovirus for children under 16 years. LACV is transmitted via the bite of an infected *Aedes* mosquito. The most severe cases occur in children and may result in encephalitis. Using entomological data collected from Knox County, Tennessee in 2013, we present an environmentally-driven system of ordinary differential equations for the mosquito population dynamics over a single season. Appropriate infected compartments to represent LACV transmission within the mosquito population were included. Then we show our extended system with temperature and precipitation in some rates to model the transmission of LACV between humans and mosquitoes. Human case data from Tennessee and North Carolina are used to calibrate the model.

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