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Kamuela E Yong* (kamuela.yong@hawaii.edu), 91-1001 Farrington Highway, Kapolei, HI 96707. *A mathematical model of the transmission and lifecycle of *Angiostrongylus cantonensis**. Preliminary report.

Angiostrongylus cantonensis (AC) is a parasitic nematode with a complex lifecycle. Adult worms reproduce in the lungs and pulmonary artery of rats (*Rattus* sp.). Larvae exit rats through their feces which are consumed by gastropods such as snails. Gastropods become infected by consuming rat feces. Rats consume these snails and support the late-stage development of the larval worms in their brain. AC completes its lifecycle when worms leave the brain and mature in the cardiopulmonary region. Humans become infected by accidentally consuming infectious snails or produce contaminated by infectious snails. AC infection in humans causes rat lungworm disease (angiostrongyliasis) that may manifest with severe eosinophilic meningitis leading to chronic neurological abnormality. Although rat lungworm disease is an emerging public health problem, ecological drivers of AC transmission are poorly described. In this paper, we develop a mathematical model to represent the transmission of AC through its life cycle. Numerical simulations are conducted to determine the factors that have the most impact on the transmission of AC. The results have important implications for understanding AC transmission and informing mitigation strategies to suppress infection rates in human populations. (Received September 16, 2018)