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Dawit Denu* (dbd0005@auburn.edu), Auburn University, Department of Mathematics and Statistics, 221 Parker hall, Auburn, AL 36849. *Vector-host epidemic model with direct transmission in random environment*. Preliminary report.

In this presentation, we consider a stochastic vector-host epidemic model with direct transmission under regime-switching. First we examine the existence of a unique positive global solution. Then we study some stability conditions, such as almost sure exponential stability, p th moment exponential stability and stochastic asymptotic stability. These stabilities will help us to determine when the infection will die out. Additionally, we provide conditions for the existence and uniqueness of a stationary distribution. Finally, we present numerical simulations to illustrate some of the theoretical results. (Received September 19, 2016)