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Christina Joy Edholm* (cedholm@utk.edu). *Modeling the role of superspreaders in infectious disease outbreaks*. Preliminary report.

In an infectious disease outbreak, individuals who transmit the disease to a large number of susceptible individuals are known as superspreaders. To investigate the role superspreaders play in an outbreak, we construct both deterministic and stochastic models with two classes of individuals, superspreaders and nonsuperspreaders. We analyze these models and then run numerical simulations for the cases of Middle East respiratory syndrome (MERS) and Ebola. From the analysis and simulations, we gain insight into superspreaders role in the outbreak timeline and severity of the outbreak. (Received September 24, 2017)