

1116-AA-774 **Suzanne Lenhart*** (1lenhart@math.utk.edu), University of Tennessee and NIMBioS, Knoxville, TN 37996. *Canine Distemper Outbreak Modeled in an Animal Shelter*. Preliminary report.

Canine distemper virus is a highly contagious virus that can cause outbreaks, specifically in crowding situations, such as an animal shelter, in which a large number of susceptible dogs are brought together. Introduction of this virus into a shelter can have devastating effects, with the potential to result in shelter canine depopulation. Motivated by recent outbreaks in Tennessee, a mathematical model was constructed to find relevant factors that could assist in preventing or reducing outbreaks. We derived a system of ordinary differential equations that models the spread of this virus through S-E-I-R classes as well as a vaccinated and two different infectious classes. Our model was adapted to represent a local Knoxville shelter. The effect of vaccination on disease spread was investigated. The research was from an REU project at the National Institute for Mathematical and Biological Synthesis. (Received September 12, 2015)