

1116-37-125

Buddhi Pantha* (pantha@math.utk.edu), 301 Woodlawn Pike, Apt E9, Knoxville, TN 37920, and **Judy Day** and **Suzanne Lenhart**. *Early Disease Dynamics in an Inhalational Anthrax Infection*.

Buddhi Pantha

Department of Mathematics, University of Tennessee, Knoxville

Email: pantha@math.utk.edu

Inhalational *anthrax* is one of the most fatal forms of all anthrax which starts after the inhaled spores are phagocytosed by lung's macrophages and transported to nearby lymph nodes where the spores germinate. We formulate a mathematical model consisting of a system of ODEs as a way to understand the early disease dynamics of an inhalational anthrax infection. We focus on the three main processes that take place right after infection: uptake, germination and killing. We investigate whether the initial spore load plays a significant role in these processes as well as growth of the survived bacteria. Experimental data are used to estimate parameters and simulation results of the ODEs are presented. (Received August 03, 2015)