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Buddhi R Pantha* (pantha@math.utk.edu), 2718 Painter Avenue, Apt A-104, Knoxville, TN 37919, and **Suzanne Lenhart**. *Optimal Control in an ODE/DE Model for a Massive anthrax Outbreak: A preliminary Report*. Preliminary report.

Anthrax is a rapidly fatal, infectious disease which occurs in many animal species, particularly herbivore mammals and is one of the main causes of population decline in several national parks worldwide. Since the anthrax spores can survive in soil and these spores can be found in most parts of the world, clearing anthrax spores from the environment is practically impossible. As the infected animals face inevitable death and each carcass contributes bacteria in the surrounding environment, controlling new infection and proper disposal of the carcasses are the only feasible ways to control the disease. In this project, we extend an existing mathematical model for anthrax epizootic by introducing two commonly used controls in the wild : vaccination and carcass removal. We also introduce a new compartment for vaccinated animals. Model parameters are estimated using real data . We investigate the effect of allocating effort to vaccination and carcasses removal on disease transmission. Preliminary numerical results will be presented. (Received August 15, 2014)