Renee Fister* (renee.fister@murraystate), Dept. of Mathematics and Statistics, 6C-5 Faculty Hall, Murray State University, Murray, KY 42071, and Glenna Buford, Bryce Norris, Suzanne Lenhart, Peng Zhong, Elsa Schaefer and Holly Gaff. Age Structured Investigation

of Cholera with Optimal Control. Preliminary report.

Cholera is a diarrheal disease that has caused significant loss of life and financial devastation. The question arises of how does one control it effectively without creating further harm to the persons infected. Initial work on control dynamics has shown promising scenarios with combination strategies. In this presentation, work on a two compartment cholera age-structured model is investigated with numerical analyses of the force of the infection with interactions of susceptible and infected populations. Calculations of R0, the number of secondary infections caused from a primary infected in a susceptible population, has been determined. Optimal control strategies for reduction of the disease are analyzed. (Received September 14, 2010)