

1124-92-311

**Burcu Adivar\*** (badivar1@uncfsu.edu), 1200 Murchison Rd., Fayetteville, NC 28301, and  
**Kursad Tosun** (kursadtosun@mu.edu.tr), , Turkey. *Simulation of Control Policies for  
Bioterrorist Smallpox Epidemic*. Preliminary report.

In this study, we focus on modelling potential responses to bioterrorist smallpox attack. Our goal is to predict the impacts of vaccination, quarantine and isolation, and thereby to provide guidance to policy makers on how to efficiently allocate resources during smallpox epidemic. We developed models by considering disease transmissions between Susceptible, Exposed, Quarantined, Prodromal, Infected, Isolated, Vaccinated, and Removed classes. Although these models are designed for smallpox, they can be easily adapted for similar diseases. We studied asymptotic stability of disease free equilibria, and relationship between the stability conditions and the basic reproduction numbers. Simulation results under realistic scenarios and potential policies are presented. (Received September 12, 2016)