1067-O1-2087 **Sonja Sandberg*** (ssandberg@framingham.edu) and **Steven Anderson**. *The US blood supply, bioterrorism and mathematics.*

Concern about bioterrorism has abated as worry about the economy has taken over people's thoughts. Nonetheless, bioterrorism continues to be a real threat. In the case of a smallpox bioterrorism event, the initial focus would be on minimizing the number of illnesses and deaths. A mass vaccination program would likely be mounted as soon as possible after the threat is detected and the federal government is now stockpiling smallpox vaccine for this purpose. One consequence of a vaccination program is the loss of blood donors due to a deferral period following vaccination.

A mathematical model was developed to explore various scenarios to predict the impact of a vaccination campaign on the blood supply. Campaign lengths of 10, 21, 30 and 45 days were considered. Intervention strategies of doubling blood donations for 30 days and/or eliminating elective uses of blood were modeled. The computer simulations indicate that a mass smallpox vaccination campaign could have a serious deleterious effect on the blood supply. Implementing both interventions could ensure that there is enough blood for critical, life-threatening needs, while implementing only one would be inadequate. The results could be used to preserve essential medical services during a health crisis involving smallpox. (Received September 22, 2010)