1056-J5-1600 **Sonja Sandberg*** (`ssandberg@framingham.edu`), 100 State Street, Framingham, MA 01701. *The US blood supply, bioterrorism and mathematics.*

Recent concern about bioterrorism has abated as worry about the economy and swine flu has taken over people's thoughts. Nonetheless, bioterrorism is still a real threat. In the case of a smallpox bioterrorism event, the 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. One consequence of a vaccination program is the loss of blood donors due to a deferral period of 21 days following vaccination.

A mathematical model was developed to explore various scenarios to predict the impact of the 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 would have a serious deleterious effect on the blood supply. Implementing both increased donations and reduced use would 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, 2009)