1127-34-72 **Zhilan Feng*** (fengz@purdue.edu), 150 N. University Street, Department of Mathematics, Purdue University, West Lafayette, IN 47907, and **Yiqiang Zheng**, **Nancy Hernandez-Ceron**, **Henry Zhao**, **John Glasser** and **Andrew Hill**. *Mathematical models of Ebola—Consequences of underlying assumptions.*

Mathematical models have been used to study Ebola disease transmission dynamics and control for the recent epidemics in West Africa. Many of the models used in these studies are based on the model of Legrand et al. (Epidemiol. Infec., 2007), and most failed to accurately project the outbreak's course. Although there could be many reasons for this, including incomplete and unreliable data on Ebola epidemiology and lack of empirical data on how disease-control measures quantitatively affect Ebola transmission, we examine the underlying assumptions of the Legrand model, and provide alternate formulations that are simpler and provide additional information regarding the epidemiology of Ebola during an outbreak. We developed three models with different assumptions about disease stage durations, one of which simplifies to the Legrand model while the others have more realistic distributions. Control and basic reproduction numbers for all three models are derived and shown to provide threshold conditions for outbreak control and prevention. (Received January 22, 2017)