1067-92-163   **Gabriel T Davis*** (`davisg@carleton.edu`), 300 North College Street, Northfield, MN 55057, and **Jay Walton** (`jwalton@math.tamu.edu`) and **May Boggess** (`mboggess@math.tamu.edu`). *Mathematical models for the effect of transmission-blocking vaccines on malaria.*

Malaria is an enormous global health problem, resulting in 3 million deaths each year. It is also both a major cause and an effect of poverty. New transmission-blocking vaccines (TBVs) which prevent the transmission of the parasite from vaccinated humans to susceptible mosquitoes, may offer new hope for the eradication of malaria in communities in Africa and elsewhere. However, mathematical models of the vaccine's effects are needed. We present an ODE model that can be generalized to show the effect of the vaccine on small isolated communities, and assess its effectiveness as an eradication tool. We also present a complementary stochastic model. From the model we conclude that TBVs alone are unlikely to be a solution, but may form part of a long-term, multi-prong eradication effort. The stochastic model allows assessment of the long-term usefulness of the model by giving an estimate of the variance over time. (Received July 28, 2010)