1067-92-936 **James M Hyman*** (mhyman@tulane.edu), Tulane University, Dept. of Mathematics, New Orleans, LA 70118, **Nakul Chitnis** (Nakul.Chitnis@unibas.ch), Swiss Tropical Institute, Department of Public Health and Epidemiology, Basel, Switzerland, Switzerland, and **Carrie Manore** (manorec@math.oregonstate.edu), Department of Mathematics, Oregon State University, Corvallis, OR 97330. *Modeling Vertical Transmission in Mosquito-Transmitted Diseases.*

We will describe how mathematical modeling can be used to better understand the effectiveness of intervention strategies for stopping emerging and re-emerging vector-borne infectious diseases, including: malaria, dengue fever, and West Nile virus, and Rift Valley Fever (RVF). We will present and analyze a new model for mosquito-transmitted disease that includes vertical transmission mechanisms from an infected mosquito mother to infected offspring. We analyze the importance of vertical transmission in predicting the spread of RVF and discuss how modeling can reduce the uncertainty of the estimates of disease prevalence, and thus facilitate estimating the cost/benefit analysis of projected interventions. (Received September 16, 2010)