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Modeling Wolbachia-Based Strategies for Controlling Mosquito-Borne Diseases

Mosquito borne infections, most notably malaria and dengue, kill over a million people every year. Traditional control measures (such as insecticides) against these infections in developing countries have had mixed success. A novel avenue of attack involves the production and release of mosquitoes that have been manipulated or genetically engineered to be less able, or even unable, to transmit infection.

Mathematical modelling is playing an important role in several large-scale projects that are currently under way to assess the feasibility of these techniques. In this talk I shall discuss the biology of one approach that uses the bacterial symbiont *Wolbachia* and the accompanying modelling work, illustrating how a number of different models are being used as the projects move along the path from lab-based studies to field deployment.