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**Olivia F Prosper\*** (olivia.f.prosper@dartmouth.edu), **Nick Ruktanonchai** and **Maia Martcheva**. *An evaluation of malaria vaccines as a control strategy in regions with naturally acquired immunity.*

Following over two decades of research, the malaria vaccine candidate RTS,S has completed the final stages of vaccine trials, demonstrating an efficacy of roughly 50% in young children. Regions with high malaria prevalence tend to have high levels of naturally acquired immunity (NAI) to severe malaria; NAI is caused by repeated exposure to infectious bites and results in large asymptomatic populations. In this talk, I will introduce the malaria model we developed to address concerns about how these vaccines will perform in regions with existing NAI, discuss some analytic results and their public health implications, and reframe our question as an optimal control problem. (Received September 12, 2014)