1116-92-2119 **Lauren M Childs*** (lchilds@hsph.harvard.edu) and **Caroline Buckee**. *Modeling the impact of coinfection on persistence and infectivity of malaria.*

Each year nearly 200 million people are infected with the malaria parasite, *Plasmodium falciparum*. One of its most notable features is the variable course and duration of infection experienced by different individuals, ranging from high parasite density, acute and often severe infections to persistent, chronic infections that are often undetectable by standard methods. Levels of acute and chronic infections vary, and what disturbs the delicate balance between parasite growth and immune control, leading to bursts of parasite growth or clearance of an infection, remains an open question. Here, we develop a difference equation model of blood-stage parasite dynamics including innate and adaptive immune responses. We analyze simulated output to examine how coinfecting genotypes, particularly ones that elicit overlapping immune responses, impact infection length and infectiousness. We find that the level of both innate and adaptive immune responses present at the time of coinfection as well as the similarity of the coinfecting genotypes significantly alters the duration of infection, particularly in chronic infections. Timing of coinfection also influences the infectivity of the coinfecting genotypes, likely altering transmission patterns at a population level. (Received September 21, 2015)