1098-92-154 **Zhilan Feng**, **Katharine Gurski*** (kgurski@howard.edu), **Carrie Manore**, **Angela Peace**, **Olivia Prosper** and **Miranda Teboh-Ewungkem**. *The Role of Intermittent Preventive Treatment (IPT) and the Spread of Drug Resistance to Malaria.* Preliminary report.

Intermittent Preventive Treatment (IPT) is a malaria control strategy in which vulnerable asymptomatic individuals are given a full curative dose of an antimalarial medication at specified intervals. Though the use of IPT in vulnerable humans has been shown to positively impact certain aspects of malaria transmission in these groups, this control strategy also faces the problem of drug resistance. Developing studies to understand how IPT impacts the spread of drug resistance is essential. However, because the same drug is used for both IPT and the treatment of symptomatic cases, determining which treatment protocol drives the spread of drug resistance is challenging to investigate experimentally, thus a mathematical model is beneficial. We develop a structured model to investigate the relationship between IPT and the spread of drug resistance to malaria to determine both the critical level of IPT treatment that would minimize the spread of drug resistance in addition to the IPT dose that will lead to invasion of a resistant parasite strain. Our model differs from that of O'Meara et al. (2006) in that the transmission dynamics of the vector population is explicitly modeled, as well as the dynamics of the resistant malaria strain. (Received January 22, 2014)