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Jemal Mohammed-Awel*, 1500 North Patterson Street, Mathematics and Computer Science Department, Valdosta State University, Valdosta, GA. *The effect of Intermittent Preventive Treatment on antimalarial drug resistance spread in areas with population movement.* Preliminary report.

The use of Intermittent Preventive Treatment in pregnant women (IPTp), children (IPTc) and infant (IPTi) is an increasingly popular preventive strategy aimed at reducing malaria incidence in these vulnerable groups. Studies to understand how this preventive intervention can affect the spread of antimalarial drug resistance are important especially when there is movement between neighboring low and high transmission areas. We expanded a previously published model by O'Meara, Smith and McKenzie to include movement between neighboring high and low transmission areas. Our results suggest that population movement results in resistance spreading fastest in high transmission areas, and that the more complete the antimalarial resistance the faster the resistant parasite will spread through a population. Our results also indicate that the demography of infection in low transmission areas tends to change to reflect the demography of high transmission areas when regions are connected by movement. Overall, our results suggest that in the fight to monitor and control drug resistance, different anti-malarial monitoring and management policies are needed when the area in question is an isolated high or low transmission area, or when there is movement between high and low transmission areas. (Received January 29, 2014)