

## Researching Vector-borne Disease Control in Kenya

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Mosquito transmitted diseases (VBD), such as malaria are a major health problem in Kenya. It is estimated that about 34,000 deaths occur each year in Kenya due to malaria alone, the main casualties being children under five, pregnant women and HIV infected persons. The Kenyan government has made serious efforts to fight malaria transmission through the provision of subsidized medicines at local health centers, distribution of free insecticide treated bed nets, and lately, with support from the US governments' Presidents Malaria Initiative (PMI), indoor residual spraying of insecticides. These three malaria management methods are bearing fruit as seen in the reducing cases of malaria in many areas around the country. However, sustainability is and will remain a major challenge because the Kenya government relies on donor support to fund these malaria interventions (medicines, bed nets and insecticides). My research in Kenya advocates malaria management practices that do not have a huge price tag, that are sustainable and usable widely and routinely within households once they are adopted by communities. Over the last 7 years, working with Kenyan collaborators, we developed a model demonstration field site within a rice agro-ecosystem (Mwea Tebere) in central Kenya for parasite control studies. In this area, we conducted a knowledge, attitudes and practices (KAP) survey that collected data from approximately 400 households; we were able to show a significant correlation between removal of stagnant water and clearing of bushes (also called environmental management) in and around households and the reduction of indoor resting malaria mosquito densities. This finding is very significant in terms of understanding malaria reduction in Mwea because the fewer mosquitoes rest inside houses the lower the risk of contracting malaria. The power of environmental management at a household level on malaria control needs to be emphasized; My research is investigating innovative 'grass roots' methods to scale up environmental management methods of mosquito control to the county and district level in Kenya as a sustainable addition to the progressive achievements seen in malaria control in Kenya.



In Kenya, current estimates of malaria deaths are at 34,000 according to the Division of Malaria Control reports. The primary strategy to prevent the malaria transmission is through treatment of cases, scaling up use of insecticide treated bed nets (ITN), and indoor residual sprays (IRS). The latter strategy focuses mainly on reducing the population of malaria mosquitoes to lower the risk of transmission. In Kenya, there is a limited human resource capacity at the sub-national and county levels to assess the efficacy of such intervention in diverse epidemiological settings. This inadequacy impacts negatively monitoring and evaluation capacity which has downstream effects on data flow between district, provincial and national teams and is a major stumbling block to the success of malaria control activities. I collaborate with the Ministry of Health in Kenya in developing a training program to meet the need for malaria control monitoring and evaluation at the district level. This district-level training of malaria control personnel is critical for the overall success and sustainability of operational malaria

control in the Kenya. Trained personnel will support scaling up IRS in different epidemiological settings and provide the missing links at the county level for M&E of malaria control in Kenya. Local government agencies have committed to this training program and plan to include it in their national malaria control strategy so as to increase sustainability in the management, implementation, and monitoring and evaluation capacity for malaria control in Kenya.



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