An award was made in July 2010 to the London School of Hygiene and Tropical Medicine (LSHTM), in partnership with the National Institute for Medical Research and the Kilimanjaro Christian Medical College in Tanzania, to study whether high coverage of long-lasting insecticide treated bednets (LLINs) can reduce the need for indoor residual spraying of insecticides (IRS). The research aims to determine whether the use of LLINs alone is equally effective as the combined use of IRS plus LLINs.

Background
Malaria is a significant threat to health globally, affecting more than 500 million people a year and causing nearly 800,000 deaths. The U.S. President’s Malaria Initiative (PMI), established in 2005, and other international groups have dedicated significant resources to combating malaria, especially in Africa where the malaria burden is very high. LLINs and IRS have both been promoted as effective strategies for reducing malaria transmission. However, research comparing the efficacy of LLINs to IRS or IRS combined with LLINs is lacking.

Research Setting
The research is being conducted in the Muleba district of the Kagera region in northwestern Tanzania. An IRS operation in the region had achieved 90% coverage by the beginning of the study, and LLIN coverage was approximately 40%. LLIN coverage is steadily increasing in the region as a result of the Tanzanian government’s prioritization of achieving universal LLIN coverage in Kagera, defined as two LLINs per household.
Research Design
For this research award, LSHTM is conducting a two-arm randomized trial over the course of two years:

- Arm 1 of the trial will provide IRS and LLINs to the target groups throughout both the first and second years of the study.
- Arm 2 of the trial will provide IRS and LLINs to the target groups during the first year of the study. During the second year of the study, IRS will be withdrawn so that groups in this arm receive only LLINs during year two.
- At the end of year two, the prevalence of malaria infection will be estimated among the groups in each study arm to determine the effectiveness of using LLINs alone to the combined use of LLINs and IRS.

Data Collection
Data is being collected using household surveys; washable markers to monitor bednet washing; electronic data loggers and direct observation to determine actual net usage; light trap catches and exit traps to measure mosquito populations and behaviors; bioassays to assess insecticide efficacy; cross-sectional surveys to determine malaria prevalence; monitoring of village reports and facility records to determine incidence of re-infection; and questionnaires to assess perceptions of LLINs and IRS.

Research Applications
Results from the research will provide valuable information about whether the use of LLINs alone is equally effective as the combined use of LLINs plus IRS in preventing malaria transmission, which can inform decisions about whether IRS can be phased out without sacrificing malaria control. PMI and national malaria control programs can use the information to design future malaria control strategies and ensure that resources are used efficiently.

TRAction Project Overview
The Translating Research into Action (TRAction) Project, funded by the U.S. Agency for International Development (USAID), funds studies to develop, test, and compare approaches to more effectively deliver health interventions, increase utilization, achieve coverage, and scale-up evidence-based interventions for priority health problems. Through implementation research, the TRAction Project addresses “know-do” gaps, or delays between discovery of effective ways to combat the causes of poor health and the application of these proven interventions on a wide scale. TRAction research aims to close these “know-do” gaps so that each country’s Millennium Development Health Goals can be met in the targeted timeframes. TRAction emphasizes local ownership and partnerships in order to scale up equitable and sustainable efforts to “do what works.”

For more information on the TRAction Project:
301-941-8483 • tracinfo@urc-chs.com • www.tractionproject.org