



Malaria Prevention and Control Methods Proving Successful in Uganda



Malaria Prevention and Control Methods
Kabale District: "Indoor Residual Spraying"
Lira District: "Insecticide-Treated Nets"

Malaria, a parasitic disease transmitted by *Anopheles* mosquitoes, is endemic in 95% of Uganda. The disease is the leading cause of illness and death in the country, yet it is highly treatable and preventable. Vector control interventions such as insecticide-treated nets (ITNs) and indoor residual spraying (IRS) are proving effective to combat and prevent the disease in Uganda. RTI International has been working since 2005 to apply the two interventions, supported by the President's Malaria Initiative through the United States Agency for International Development (USAID) and the U.S. Centers for Disease Control and Prevention (CDC).

IRS in Southwestern Uganda

The Kabale District, located in the highlands region of southwestern Uganda, is one of the most malaria-prone districts in the nation. Significant epidemics occurred in February 2002, November 2003, and June–July 2005, and an estimated 93% of the population is at risk for contracting malaria.

Given its geographic attributes, malaria epidemiology, and prior experience using IRS, Kabale was selected to be the pilot site for a targeted large-scale IRS project that can be used to develop an IRS system for scaling-up activities in other parts of the country. With funding from USAID, RTI has been supporting the Uganda Ministry of Health National Malaria Control Program (MOH/NMCP) to implement the IRS program, covering about half a million people.

IRS involves applying to the interior walls and ceilings of homes a measured amount of an insecticide that leaves a residue. Female *Anopheles* mosquitoes that land on the walls and ceilings absorb a lethal dose and die before they are able to reproduce or to transmit the *Plasmodium* parasite that causes the disease.

A malaria situation analysis and needs assessment conducted with the MOH/NMCP in November 2005 helped determine the technical, financial, human capacity, and logistical needs required to implement the IRS activity in the district. Using findings from the assessment and discussions between the MOH/NMCP and various stakeholders, an agreement was reached to use ICON™ insecticide (10% WP lambda-cyhalothrin) for the spray activity. This insecticide was selected based on a number of criteria—it is registered in Uganda for use through IRS, per World Health Organization recommendation; it is low to moderate in toxicity, noncarcinogenic, and biodegradable; and the MOH has prior experience using the formulation.

Beginning in April 2006, RTI helped organize and train 379 spray operators, team leaders, supervisors, and other health officials for the spraying activities conducted between June and August 2006. The RTI team also conducted 139 district, subcounty, and community sensitization and mobilization meetings about IRS, taking advantage of educational methods such as films, radio talk shows, daily radio spots, and posters.



Launch of IRS Campaign in Kabale District. [PHOTO: RTI Staff]

(continued)

Families welcomed sprayers in more than 95% of the homes targeted. The project sprayed 103,329 houses, resulting in more than 488,502 residents being protected from malaria, including 82,275 children.

Additional activities included conducting entomological surveys to determine indoor and outdoor vector densities before spraying, and a baseline survey on environmental and human-health monitoring. Post-IRS surveys conducted in October–November 2006 will help to evaluate the persistence of the sprayed insecticide on treated surfaces and the impact, if any, of IRS on the environment, and to assess the spray operators' health after the spraying.

This program's findings and the lessons learned offer valuable information to the MOH/NMCP and stakeholders from other districts for determining if IRS can be extended and scaled-up throughout Uganda over the coming years.

Promoting Use of ITNs in Northern Uganda

In the Lira District, with funding from the CDC, RTI is working to increase the effective use of long-lasting ITNs in camps for internally displaced persons. This part of Uganda has suffered from internal conflict since 1986, leading to the displacement of many residents from their homes. Individuals living in camps are often at increased risk of exposure to malaria because of factors such as incomplete drainage, crowded conditions, and the open dwellings that are typical of temporary or informal housing.

ITNs are an effective and economical method to kill mosquitoes. The netting also acts as a protective barrier against bites, making it an ideal prevention mechanism in poor areas. Usage rates of ITNs, however, are often low. In Uganda, ownership is only 25%, with even lower rates in rural areas; a sizable proportion of owners do not use nets consistently or properly.

RTI, in collaboration with the Christian Children's Fund, analyzed factors that influence the effective use of ITNs to develop a malaria health education and free ITN distribution strategy to promote and facilitate the proper use of nets in the camps. In-depth interviews and focus-group discussions were conducted in October 2005 in Abia and Ogur camps to assess residents' perspectives about malaria and to develop a survey instrument for baseline data.

The project helped distribute 8,963 nets in the camps, and instructions on how to hang a net properly were provided at the time of distribution. Before this intervention, net ownership



Demonstration of proper net hanging. [PHOTO: RTI staff]

was under 7%. Two follow-up assessments (3 and 5 months after distribution) helped evaluate the effectiveness of the free ITN strategy. Generally, a very high retention of ITNs was observed in both camps. At 5 months after distribution, nearly all ITNs observed were in good condition.

These findings indicate that it is feasible to increase net use by vulnerable populations such as internally displaced persons in northern Uganda. Follow-up surveys (7 and 24 months after distribution) are planned in order to collect more information on net use and residents' attitudes on malaria prevention and control over time.

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