Malaria

Malaria is a preventable and treatable infectious disease, transmitted by mosquitoes, that kills more than half a million people each year. Though more than 3 billion people in 109 countries are at risk of infection and disease, malaria-related morbidity and mortality rates are highest in sub-Saharan Africa, where it is the leading cause of death for children under 5 years of age. The burden of malaria contributes significantly to perpetuating global poverty and underdevelopment; Africa's economy alone is estimated to lose $12 billion annually to malaria. The disease burden disproportionately affects women, young children, and the most poor and vulnerable—implicating health care delivery systems, as well as vector management practices, in the battle to reduce and eliminate malaria transmission.

RTI International is a global leader in malaria prevention, control, and elimination. Since 1998, RTI has been partnering with US and multilateral donors, host country governments, and private-sector stakeholders to scale up the fight against malaria. We have worked in Africa, Asia, and Latin America to improve approaches to prevention, patient case management, and vector control, as well as to build sustainable platforms for country-led programs. Our strengths lie in working with country counterparts to develop technical and operational strategies that build on structures in place, integrating program implementation and capacity building based on best-practice evidence of what works. We have also broken new ground in using mobile-based technologies for more efficient operations, planning and budgeting for country-level malaria control programs, disease surveillance, environmental management and monitoring, and community-based diagnosis and treatment.

RTI is a lead partner in all major international fora where technical aspects of malaria programming are considered. We are core members of malaria consultative expert and advocacy committees, focused on the development of program guidelines, vector control, monitoring and evaluation (M&E) strategies for overall malaria program effectiveness, and development of new innovative tools and approaches required for malaria prevention, control, and elimination.

Large-Scale Malaria Programming

RTI is an expert in large-scale malaria prevention and control programming, ranging from indoor residual spraying of households with insecticide (IRS) and distribution of long-lasting insecticide bednets (LLINs) to diagnosis and treatment at facility or community levels to M&E and surveillance. We work in close partnership with host government ministries of health and their national malaria control programs (NMCPs) as well as in-country stakeholders, including multilateral and bilateral donors, international and local nongovernmental organizations, and private sector and academic research institutions.
Completing the Epidemiological Map
Disease mapping is a necessary step in determining a country's epidemiological map for malaria. RTI has experience assessing the distribution and burden of malaria as well as the distribution and abundance of malaria vectors. Since mapping an entire country can be a costly endeavor, we developed and are testing innovative strategies for coordinated mapping, results of which will help in prioritizing and targeting various malaria interventions.

Commodity Quantification and Forecasting
As a leader in supply chain management for malaria-related commodities, RTI's team of global supply chain, logistics, and procurement experts are highly experienced in commodity purchasing and delivery for large-scale malaria programs worldwide. In many projects, we have been successful at transitioning procurement of program commodities from US to local suppliers, greatly reducing transaction times and lowering costs. Our technical experts are highly experienced in quantification methods and geographical reconnaissance, which provides for more accurate and efficient project work planning, procurement planning, and purchasing. In many cases, we have been able to ensure that NMCPs and our clients benefit from negotiation of master supply agreements that allow for flexible but stable financial arrangements, cost savings through bulk procurement, and ample lead times for on-time delivery.

Data for Program Performance
Tracking program performance and documenting impact is critical for successful programs. Therefore, RTI developed a full set of M&E tools that is being used by USAID, NMCPs, and other stakeholders.

Tool for Integrated Programming and Costing (TIPAC).
RTI has adapted the TIPAC, first developed under the USAID-funded Neglected Tropical Disease Program, to guide NMCP officials in planning and costing malaria program activities based on inputs from all sources, including in-kind local contributions. TIPAC provides a mechanism for enhanced multi-donor and cross-sector collaboration between NMCPs and private/civil society sector stakeholders. The tool allows ministries of health and NMCPs to understand actual program costs and human resource needs, identify program funding gaps, and to allocate sufficient resources for program needs.

Data Quality Assessments. RTI has developed a protocol and tools to evaluate the quality of reported data and data management systems at different administrative levels of the health system.

Assessing Impact and Disease Surveillance. RTI works with countries to ensure that they are on track to demonstrate impact and document achievement toward country and global goals. Since countries have implemented malaria programs at full scale for several years, the demand for technical expertise to conduct assessments and ensure ongoing disease surveillance is exponentially increasing. RTI expertise ensures assessments are well coordinated and of high quality. We promote coordination with NMCPs and other in-country stakeholders and help disseminate results in order to share best practices and investigate issues that may contribute to districts' failure to achieve targets. Thus, in Tanzania, in collaboration with the NMCP and U.S. President's Malaria Initiative (PMI), RTI developed the Malaria Early Epidemic Detection System (MEEDS), an internationally acclaimed, state-of-the-art tool that allows for comprehensive malaria case detection, reporting, and surveillance. Using SMS (text messaging) technology to report malaria cases, MEEDS provides local public health officials with real-time information about malaria “hotspots,” allowing them to intervene and prevent resurgence of the disease.

Malaria Case Management
RTI supports the scale up of facility-based laboratory malaria diagnosis as well as community case management of malaria by training and equipping health workers in using microscopy and/or rapid diagnostic tests to detect malaria cases. We also provide technical assistance in building health worker capacity to ensure the community is knowledgeable about malaria prevention and case management.
Vector Control

RTI has extensive experience in the management of large-scale IRS operations, distribution of LLINs, environmental compliance, entomological surveillance, and insecticide resistance monitoring. Our PMI-supported vector control programs in Tanzania and Zanzibar are among the most successful in Africa, reducing malaria prevalence to near zero in some areas and dramatically lowering malaria-related hospital and clinic admissions. Since 2006, we have worked side by side with NMCPs in over 20 countries to plan, implement, and manage IRS programs, protecting more than 75 million people. RTI also provides technical assistance in program design, implementation, and monitoring of LLIN distribution programs such as the PMI-funded program in Guinea, where we are working in collaboration with the NMCP to train personnel and distribute over 2 million LLINs throughout the country, and in Tanzania, where we support the NMCP’s school net distribution program. In addition to implementation management and support, we have supported NMCPs in 8 countries to conduct vector control needs assessments, and also worked in numerous countries to develop national policies and strategies on integrated vector management (IVM) and other intervention-specific strategies.

Capacity Building for National Malaria Control Programs

The foundation of our program implementation approach is centered on capacity building of host country counterparts so that they have the skills and expertise needed to fully plan and manage programs according to globally recognized best practice. From day one, RTI staff work side by side with NMCP leadership in all stages of the program cycle so that skills and responsibilities can be transferred as capacity is built. RTI has worked with more than 20 NMCPs in Africa and Latin America to build management capacity as well as the necessary critical mass of vector control program personnel in each country with knowledge and skills needed to carry out vector control. For example, from 2006–2012, we helped NMCPs in 17 countries train over 71,000 IRS trainers and spray personnel. Through our efforts in Guinea, approximately 11,000 people were trained in LLIN distribution in 2014. We have developed training manuals, best practice guidelines, and tools for planning, M&E, and supervision of IVM programs, all of which are tailored to individual program needs.

Malaria Operational Research and Policy

RTI facilitates the link between NMCPs and malaria researchers in promoting best implementation approaches. We actively engage with ministries of health, partners, and donors interested in operational research to explore policies and strategies that will help countries effectively reach targets for malaria prevention, control, and elimination. Examples are:

- In collaboration with PMI, London School of Hygiene and Tropical Medicine, and Tanzania National Institute of Medical Research, RTI is currently evaluating the efficacy of insecticide-treated wall liners.
- In collaboration with WHO, RTI helped to publish WHO handbooks on IVM training and policy making (2013).
- In collaboration with PAHO and USAID, RTI published a peer-reviewed in-service training manual for district-level entomologists and vector control technicians (2012).
- With the Swiss Tropical Institute of Public Health and Tanzania’s NMCP, RTI conducted applied larviciding research in Dar es Salaam, documenting impact and effectiveness (2006).
- RTI’s Global Health Division staff has been taking part in numerous malaria research projects around the globe and authored over 75 malaria-related articles for publication in peer-reviewed journals.
The project provided worldwide technical assistance to improve environmental conditions and reduce people’s exposure to disease agents, including malaria and other vector-borne diseases.

Selected Projects

StopPalu (USAID, 2013–2017)
RTI assists the Government of Guinea to achieve the target of reducing malaria morbidity and mortality through multiple interventions in prevention, diagnosis and treatment, and capacity building of the Ministry of Health and NMCP. The program supports mass LLIN distribution, provides technical assistance in case management, and builds capacity of the NMCP in malaria diagnostics.

Tanzania Vector Control Scale-Up Project (USAID, 2009–2015)
The project works with the NMCP and the Zanzibar Malaria Elimination Program to implement IRS, distribute LLINs, and perform malaria surveillance in mainland Tanzania and Zanzibar.

IRS 2, Kenya (USAID, 2010–2013)
RTI provided technical, operational, and managerial support to Kenya’s NMCP and other national and district level stakeholders to build local and regional IRS management and quality assurance capacity. The project implemented three rounds of IRS in four endemic districts of Rachuonyo, Nyando, Migori, and Homa Bay, protecting approximately 2.4 million people.

SanteNet 2 (USAID, 2008–2013)
The project strengthened community-level health service provision and addressed bottlenecks in the Ministry of Health and Family Planning’s strategy to decentralize the national health system. Malaria activities focused on strengthening case management supervisory systems, improving patient referral mechanisms, and epidemic surveillance.

IRS 1 and 2, Global (USAID, 2006–2012)
RTI provided technical and financial support to NMCPs in 15 countries in order to expand the use of IRS for malaria prevention and control. Under the projects, approximately 18 million structures were sprayed, protecting 78 million people in total from malaria.

IVM 1 and 2 (USAID, 2004–2012)
Serving as a primary partner for the WHO, RTI supported institutional capacity strengthening for IVM of malaria and other vector-borne diseases such as dengue, lymphatic filariasis, and leishmaniasis.

Environmental Health Project (USAID, 2004–2009)
The project provided worldwide technical assistance to improve environmental conditions and reduce people’s exposure to disease agents, including malaria and other vector-borne diseases.

RTI International is one of the world’s leading research institutes, dedicated to improving the human condition by turning knowledge into practice. Our staff of more than 3,700 provides research and technical services to governments and businesses in more than 75 countries in the areas of health and pharmaceuticals, education and training, surveys and statistics, advanced technology, international development, economic and social policy, energy and the environment, and laboratory testing and chemical analysis. For more information, visit www.rti.org.

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