

*A rubber tapper in a plantation in Mon state*

# PROJECT BRIEF

## Preference and acceptability of permethrin insecticide-treated clothing in Myanmar

The aim of this study is to determine the type of insecticide-treated clothing appropriate for large-scale targeted distribution to rubber tappers and other potential groups to contribute to the success of the expanded malaria control and elimination programme in Myanmar.

### Project outline

Core vector control methods such as long-lasting insecticidal nets (LLINs), insecticide-treated nets (ITNs) and indoor-residual spraying (IRS) are a key component of the National Malaria Control Programme (NMCP) in Myanmar. However, even when overall coverage of core interventions is high, transmission of malaria can persist due to gaps in protection before sleeping time (before people enter their bed nets) and when people work or spend time outdoors throughout the night. Widespread use of IRS, ITNs/LLINs can also contribute to and extend these gaps by causing shifts in vector behaviour and vector species.

Rubber tappers are a key risk group because they work in rubber plantations at night when potentially infective anopheline vectors such as *Anopheles dirus* and *An. minimus* are most active. Reducing the incidence of malaria in rubber plantation communities will not only reduce malaria morbidity and mortality, but also reduce the number of working days lost, increase economic productivity and reduce the socio-economic burden on the household. Addressing 'residual' transmission of malaria is increasingly important as countries move towards malaria elimination. Finding additional, complementary vector control measures that target outdoor and early-feeding

#### Country

*Myanmar*

#### Donor

*President's Malaria Initiative/Centers for Disease Control, USAID*

*UK Department for International Development*

#### Length of project

*January 2015 to March 2016*

#### Partners

*National Malaria Control Programme, Myanmar*

*Department of Medical Research, Myanmar*

*Mahidol University, Bangkok, Thailand*

*Arthropod Control Product Test Centre (arctec), UK*



Male rubber tappers take part in a focus group discussion

mosquitoes and are acceptable to the populations at risk will be essential in the achievement of this goal.

Insecticide-treated clothing (ITC) is one such possible measure. Unlike repellents, which offer a short-term solution (providing protection for around five hours after application), ITC can remain active for one to three months, depending on frequency of use and washes. The most common insecticide applied to clothing is permethrin, a synthetic pyrethroid which has low mammalian toxicity and has been used safely on clothing and other materials that contact the skin for decades. As a result of its safety record, permethrin is registered with the US Environmental Protection Agency and the World Health Organization (WHO) has recommended its use in fabrics and clothing.

Studies show that wearing permethrin-treated clothing can reduce biting rates of *Aedes* (vector of dengue, chikungunya and yellow fever) by over 90 percent in the areas covered by the clothing as well as impact on malaria transmission. However, application has mostly been limited to military and recreational markets (Insect Shield; Skintex) and has not reached the community level. More information is required, specifically on user perceptions, acceptability of the clothing for personal protection, how acceptability affects use, as well as cost-effectiveness, in order to assess its potential as an intervention and to inform policymakers on scale-up and targeted distribution.

This study will assess preference and acceptability of ITC versus identical, untreated clothing (NTC) for personal protection against malaria among rubber tappers. The clothing will be long-sleeved cotton shirts and trousers, treated with a long-lasting permethrin formulation (0.52% w/w  $\pm$ 10% permethrin and a polymer) using a factory proprietary method and made in Myanmar. ITC and NTC will

be identical in shape, colour, size and material, the only difference being the insecticide treatment, which is odourless. Double blinding of participants and field teams will be maintained.

In addition to assessing preference and acceptability of the clothing, this study will also perform a supply, demand and costing analysis, and investigate bioefficacy of ITC versus NTC worn by rubber tappers enrolled in the study.

Preference and acceptability will be assessed through a structured questionnaire and focus group discussions administered at baseline and four follow-up visits. Protective efficacy of the clothing will be measured through laboratory tests to assess knockdown and mortality of vector species. Results will be used to formulate policy recommendations for the Ministry of Health and NMCP and feed into a national level dissemination workshop involving key stakeholders from public and private sectors and civil society.

If shown to be acceptable, efficacious and cost-effective, ITC has potential to be a successful strategy for personal protection among key populations at risk of malaria such as rubber tappers in Myanmar.

## Project objectives

The primary objective of the project is to determine the preference and acceptability of insecticide treated clothing by rubber plantation workers.

The project also aims:

- » To investigate user perceptions related to ITC use in order to inform the protective efficacy study and future social marketing or ITC distribution programmes
- » To investigate whether the acceptability and preference of new ITC change over a three-month period
- » To conduct a costing analysis of ITC

### This project supports efforts to deliver:

- ✓ Malaria control
- ✓ Health systems strengthening
- ✓ Operational research
- ✓ Policy change / advocacy



President's Malaria Initiative



#### Malaria Consortium

Development House 56-64 Leonard Street,  
London EC2A 4LT, United Kingdom  
info@malariaconsortium.org / www.malariaconsortium.org  
UK Registered Charity No: 1099776

#### Malaria Consortium Regional Office for Asia

Room No. 805, Faculty of Tropical  
Medicine, Mahidol University,  
420/6 Rajavithi Road  
Bangkok 10400, Thailand

malaria consortium

disease control, better health