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**MALARIA
CONTROL
IN CAMBODIA**

TECHNICAL BRIEF

MALARIA CONTROL IN CAMBODIA: Community Mobilization for Malaria Prevention, Diagnosis, and Treatment

Malaria places a significant health burden on Cambodia. High prevalence areas are primarily in the western provinces near the Thai border, where multidrug resistant malaria has been documented. Malaria is most common in remote, rural communities with high concentrations of mobile workers and migrants. These communities have poor road conditions, limited means of communication, and a high number of migrant workers who are linked to cross-border economic activities.

In the context of high malaria incidence in remote communities, community networks play a critical role. Village malaria workers (VMWs) are an important source of information because they are easily accessible and are often considered a local health authority. Cambodia's National Malaria Control Program (CNM) requires that VMWs be present in malaria-endemic villages that are more than 5 km from a health facility or more than an hour's walking distance. VMWs reach out to community members with malaria information, provide them with malaria nets, diagnose malaria cases with rapid diagnostic tests (RDTs), provide malaria treatment, and refer severe malaria cases to health facilities.

The URC-MCC Approach

Recognizing the critical role of VMWs in malaria control in high prevalence areas and working closely with CNM, URC-MCC adopted a multi-pronged approach to strengthen the network of VMWs in the two provinces in Malaria Containment Zone 1, where resistance of *Plasmodium falciparum* to artemisinin has been documented, and two provinces in Zone 2, where resistant parasites have yet to be formally detected. The approach strives to improve VHW recruitment, VHW training, VHW interaction with health centers, and other means, as follows.

Improved recruitment

Ideally, each village would have two VMWs to ensure that services are reliably available. However, URC-MCC's baseline assessment found that most malaria-endemic villages in the five operational districts (ODs) surveyed had no VMWs present. MCC recruited 532 VMWs to work in these villages, using the following selection criteria: 1) residence in the community, 2) reading and writing skills, 3) interest in volunteering, and 4) being elected to the position by the community. In many cases, both a male and a female VMW are trained for each site, often a husband and wife. As women in these villages are less inclined to travel far from home, this approach tends to result in a more consistent service.

Strengthened interaction with health centers

URC-MCC facilitated regular supervision of VMWs by health center staff through monthly meetings: health center staff update the VMWs' knowledge and find solutions to problems as they surface. In addition, meetings are held at each health center to enable the VMWs and facility staff to exchange information about health issues in the community. The VMWs submit malaria data to the facility and receive health education tools, RDTs, and drugs. Approximately 500 VMWs attend these meetings each month.

Improved supply of malaria drugs and commodities

VMW activities were limited by the irregular supply of antimalarial drugs and RDTs from CNM. URC-MCC and CNM organized a workshop bringing together health managers and logistics staff from provincial and OD health offices to develop a process for including supplies for VMWs in quarterly shipments from the OD office to health facilities. URC-MCC also worked with health centers, ODs, the CNM, and the Central Medical Store to improve forecasting and reduce supply interruptions. As a result, the supply of RDTs, drugs, and health education tools to VMWs improved significantly.

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Results

During the two years of VMW-strengthening activities, the proportion of confirmed malaria cases treated by VMWs doubled, increasing from less than 30% to almost 60% (Figure 1). Since the deployment of VMWs in Containment Zone 1 in 2008, the number of severe malaria cases and the malaria case fatality rate (CFR) reported by health centers has declined, indicating that malaria patients are being diagnosed and treated earlier (Figure 2).

Figure 1. Percent of confirmed malaria cases treated by VMWs

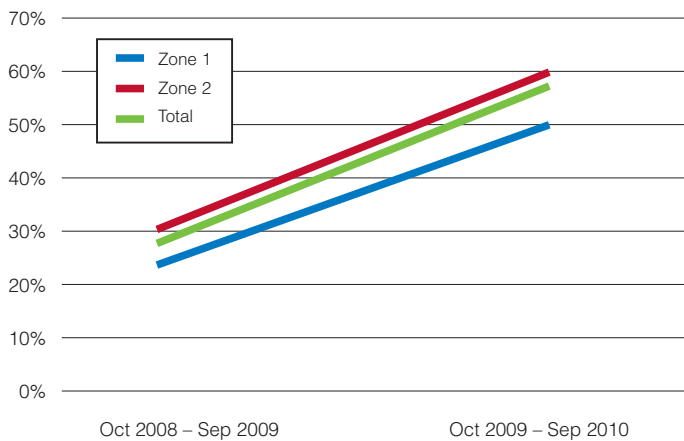
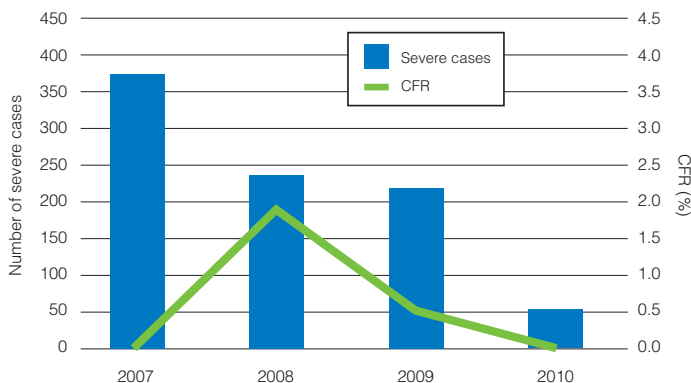


Figure 2. Severe malaria and CFR reported by public health facilities, Zone 1



Lessons Learned

Because they can reach where public health workers cannot, community-level volunteers can be an effective aspect of a malaria control program, but they must be integrated into the public health system. They need continuous support for motivation; skills and knowledge updates; and supplies, such as education materials, RDTs, and antimalarial drugs.

The main challenge was VMW turnover and low motivation. Using husband and wife teams is an effective solution, as they can support each other and effectively reach both men and women. Linking VMWs at monthly meetings with the health center in the catchment area helps keep them motivated through interaction with VMWs from other villages and health center staff. Motivation is also sustained by giving VMWs per diems to attend meetings and reimbursement for transportation costs. In addition, the government provides free health services to VMWs and their families. Motivation was also increased by recognizing the contribution of VMWs at annual CNM conferences and World Malaria Day events.

Effective work by volunteers requires a well-functioning logistics system, a task beyond the control of volunteers. On several occasions, health centers experienced a shortage of antimalarials for VMWs. URC-MCC stepped in to monitor the supply of antimalarials and diagnostic materials from the central level to the target districts. It also helped the OD team request additional antimalarials and lab supplies from the Central Medical Store and transport them to the field.

Next Steps

The results of strengthening the VMW network for malaria control in remote areas are promising, and the multi-pronged approach will likely be scaled up to other remote areas. Long-term sustainability, however, will require ongoing commitment from CNM to more fully integrate VMWs into the public health system and to ensure their ongoing support. Because of their success, the role of VMWs may be expanded to include treatment for diarrhea and acute respiratory infection. Further expansion, however, should be carefully planned, given the challenges with maintaining motivation.

The Malaria Control in Cambodia (MCC) Project, implemented by University Research Co. LLC (URC), is a community-based malaria control and prevention project that aims to reduce malaria in the Western part of Cambodia, home to drug-resistant malaria. Funded by the United States Agency for International Development Regional Development Mission for Asia (USAID/RDMA) since October 2007, the project provides technical assistance and support to Cambodia's National Malaria Control Program (CNM), in collaboration with Partners for Development and other non-governmental organizations working to control malaria.

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