

## **Malaria Matters: Issue 12, June 2003**

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### **Malaria Control in Emergencies: IRS, ITNs and LLITNs**

**By Richard Allan, Matthew Burns, Caroline Lynch, Mikkel Vestergaard Frandsen**

#### **Background**

Over 180 million people in Africa alone are living in countries affected by conflict, where infrastructure breakdown, destitution, poor access to effective health care and basic food supplies have become the norm and where ongoing insecurity prevents economic recovery or meaningful development. These crisis-affected populations are amongst the most vulnerable in the world. In these situations disease and malnutrition thrive, usually killing more people than war injuries<sup>1</sup>.

The five most important causes of death normally associated with emergencies are in fact the same as in non-emergency situations in most developing countries; malaria, pneumonia, diarrhoeal diseases, measles and malnutrition. However, in emergencies mortality and morbidity rates due to these diseases often rise significantly. Often malaria causes death and suffering long after the initial crisis is over. Over 30% of the world's malaria deaths occur in areas of long term crisis. Ready to use, available and context specific effective malaria control tools are essential to improving humanitarian response capacity and reaching the RBM partnership goal of halving malaria amongst the world's most vulnerable populations.

#### **Insecticide Treated Nets - a reality check**

Many man made emergencies last several years, even decades in some cases. Where security allows access and community relations to be built up effectively insecticide treated materials such as nets are considered more suitable and can be more cost effective than repeated insecticide residual spraying (IRS). ITNs have been widely evaluated by international groups and there is no doubt that used correctly, these can be highly effective in providing personal protection from malaria. However, despite the efficacy of ITNs for malaria protection, plus increasing commercial availability of ITNs, coverage remains below 5% in many malaria endemic countries. In most crisis-affected countries ITN coverage is lower still.

Washing removes the insecticide of nets that have been treated by a simple dipping process. The insecticidal residual efficacy of conventionally dipped nets varies according to the insecticide used, the netting materials, the number of washes and use of soap and abrasives. In real life situations this may be as little as three months, or as much as 6-10 months, but rarely longer. Retreatment of ITNs with insecticide every three to ten months is required to remain effective, however retreatment rates for ITNs rarely exceed 25% on a regular basis. Untreated nets are approximately 75% less protective against malaria. In emergencies, insecurity often severely restricts access to (or for) affected communities. With communities fleeing conflict there may be only one point of contact before they flee again. This can make this tool an expensive short-term option.

#### **Long Lasting Insecticidal Nets**

At least two new technical approaches to treating polyester (PermaNet) and polyethylene (Olyset) with insecticide at an early stage of net production have been developed by commercial partners and both offer longer insecticide residual life than standard dipped nets<sup>2</sup>, and development is ongoing to extend the effective life span. Long lasting ITNs that remove the need for insecticide retreatment every few months in the field is the clear objective for responsible manufacturers, emergency programme managers and the end users. Long lasting ITNs (LLITNs) that achieve an effective residual insecticide life of several years will clearly make this important tool far more acceptable and effective in both relevant emergency and stable situations.

#### **Fresh ideas and hope for displaced communities**

ITNs have clear applications and clear limitations within emergency and stable situations. For example, mass population displacement into temporary camps presents major logistical and cost challenges that are particular to this emergency setting. ITN programmes in these circumstances often suffer low retention, very high ITN resale problems, and very low retreatment rates (where conventional nets are distributed). Both these settings need new solutions.

New innovative RBM partnerships formed in recent years between responsible public sector agencies involved in emergencies and private sector groups aim to jointly develop context specific tools designed to meet some of these needs. The first of these significant new tools development partnerships is focused on the fast track development of insecticide treated plastic sheeting (ITPS) for provision of refugee shelters combined with effective malaria control in complex emergencies.

Vestergaard Frandsen, a key commercial partner, has built the first of these tools. Danish and French WHO laboratory partners conducted phase I tests and the London School of Tropical Hygiene and Medicine conducted the Phase II experimental evaluation. Today the Johns Hopkins MENTOR Initiative with UNHCR is conducting the full scale Phase III real life evaluation in emergency settings with field partners in West Africa to inform policy development for shelter and health emergency agencies.

This important new tool is likely to address the key shelter and malaria control constraints faced by emergency partners supporting displaced populations. By making a dual purpose tool that is context specific and meets both technical and operational requirements (protection from weather and malaria) significant time and cost savings should be realised.

### **Conclusion**

These are exciting times. The opportunity for rolling back malaria amongst the most severely affected populations in the world today has never been greater, despite the enormous constraints that partners face in complex emergencies. Political commitment and support for country level action is essential but these country partnerships must be supported with effective tools, funding and field level practical technical support if the RBM Partnership are to turn rhetoric into lives saved.

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