RBM Partnership Consensus Statement on Insecticide Treated Netting and Indoor Residual Spraying

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The RBM Partnership has received questions enquiring whether nation-wide application of indoor residual insecticide (house) spraying (IRS) for vector control might be a better option for malaria prevention in countries in the WHO Region for Africa (AFRO), rather than insecticide treated nets (ITNs).

In Africa, ITNs and IRS are both very effective for malaria vector control. There is mixed evidence concerning the relative cost-effectiveness of these two interventions: in some cases IRS appears to have been more cost-effective than ITNs, while in other cases the reverse was found. It is not therefore possible to make any generalized assertion, for the region as a whole, that either of these interventions will normally be more cost-effective than the other.

In any case, the choice between these two interventions depends not only on short-term epidemiological impact, but also on considerations of feasibility and sustainability in the long-term and at the large-scale, and on the availability of appropriate delivery systems.

For example, in some countries, especially in Southern Africa and in the Horn of Africa, proportions of the population are exposed to unstable or epidemic malaria. In these circumstances, IRS has some important advantages: it has rapid and reliable short-term impact, and it can be targeted to the communities at highest risk, on an annual basis and in response to changing transmission patterns. IRS is, on the other hand, relatively demanding in terms of the logistics, infrastructure, skills, planning systems and coverage levels that are needed for a successful and effective operation. Nevertheless, such systems have been successfully and effectively maintained for many years in some African countries, especially those that contain large populations exposed to unstable malaria. Every effort should be made to sustain these systems in the future.

However, in most countries of Africa south of the Sahara, the vast majority of the rural population is exposed to stable malaria and the systems needed for large-scale IRS do not exist. In these countries, the critical question is not whether one intervention is slightly more powerful than the other, but which of the two offers better prospects of achieving high nationwide coverage and long-term sustainability. In these circumstances, ITNs have important advantages. As well as being less demanding than IRS in terms of infrastructure and organization, ITNs allow vector control resources to be targeted toward those most at risk in stable endemic settings, i.e. pregnant women and young children, hence best use can be made of initial resources. ITNs protect people who use them, and they also have community-level benefits, giving protection to people without nets in nearby houses. These benefits are thought to increase incrementally with coverage, across all coverage levels, and will contribute to early gains in equity as programmes scale up. The minimum coverage at which ITNs might have a significant community effect at programme level is not yet established. ITNs can give protection of longer duration than IRS since a net in good condition gives reduced but still significant protection to the user even after the insecticide has worn off. This advantage will be further strengthened by the emerging development of Long Lasting Insecticidal Net (LLIN) technology, which greatly extends the effective life of the insecticide.

In high transmission and stable endemic malaria settings of Africa south of the Sahara, facing a choice of methods to implement and scale up, RBM strongly recommends that countries and RBM partners focus preventive vector control efforts on increasing coverage of insecticide-treated nets (ITNs) rather than investing in the creation of new large-scale IRS programmes.