

## A New Medicine Monitoring System Helps Prevent Antimalarial Stock-Outs in the Americas Region

USAID's regional program, the Amazon Malaria Initiative (AMI), was established to address malaria control in countries that form the Amazon Basin. Initial members included Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname. AMI and its partner organizations helped the countries introduce artemisinin-based combination therapies around 2006 to treat *Plasmodium falciparum* malaria, which causes the most severe malaria cases. *Plasmodium vivax*, the most common species of malaria in AMI countries, is still treated with traditional antimalarials, such as chloroquine.

While introducing the new treatment, the partners documented the countries' supply issues, such as over- and understocked antimalarials. Both types of malaria cases have declined in the region—from almost 1.2 million in 2000 to 560,000 cases in 2008, and that decrease has influenced antimalarial stock situations. Fewer cases made providers lose interest in supplying small quantities of medications, which contributed to understocking. In contrast, orders based on historically higher numbers of cases left countries with too much stock. In addition, countries with poorly functioning management information systems placed medication orders after buffer stocks had already been used, which caused stock-outs. Countries with too much stock risk losing valuable medicines to expiration, while stock-outs mean that sick patients do not receive needed treatment.

AMI countries reviewed stock levels in 2009 and discovered stock shortages in some countries and overstocks in others. To confront this problem, Management Sciences for Health's Strengthening Pharmaceutical Systems Program proposed a regional monitoring system for antimalarial stock with the following characteristics—

- One indicator based on information already available, to be used to compile a quarterly report.
- Two data collection points for the indicator—the central medical store and the regional store. In most countries, a stock-out in a peripheral facility can be corrected in 24 hours, but a stock-out in the central warehouse (usually due to deficient procurement practices) takes 6–12 months to correct, depending on the procurement cycle.
- Information immediately used at the data collection point to correct identified antimalarial supply problems.

### Intervention and Results

The indicator used was called *months of available medication according to distribution (MAMAD)*. It requires two pieces of data for each medication that should be routinely available at central and regional warehouses: 1) *stock level on the last day of the quarter* and 2) *average monthly distribution during the previous 12 months*. The stock level is divided by the average distribution, which equals MAMAD.

$$\text{Months of available medications} = \frac{\text{Stock level (measured in units) on the last day of the quarter}}{\text{Average distribution in previous 12 months}}$$



