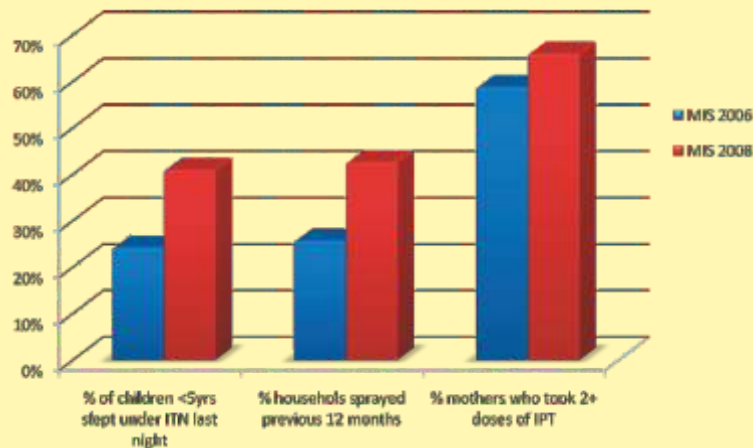


STRONGER DRUG SUPPLY CHAINS CAN SAVE THOUSANDS OF CHILDREN IN ZAMBIA AND BEYOND

BACKGROUND

The Zambian National Malaria Control Program has achieved remarkable success in expanding access to preventive services in recent years. The percentage of households owning at least one bednet increased from 50% in 2006 to 72% in 2008, the population covered by Indoor Residual Spraying increased from 1.2 million to 3.5 million during the same period and the share of mothers taking 2 doses of Intermittent Presumptive Treatment for malaria during pregnancy increased from 59% in 2006 to 66% in 2008 (2006 and 2008 Malaria Indicator Surveys [MIS]). The efforts to expand preventive services have translated into a significant drop in number of malaria cases and deaths caused by malaria.

Figure 1: Malaria prevention services have increased in recent years

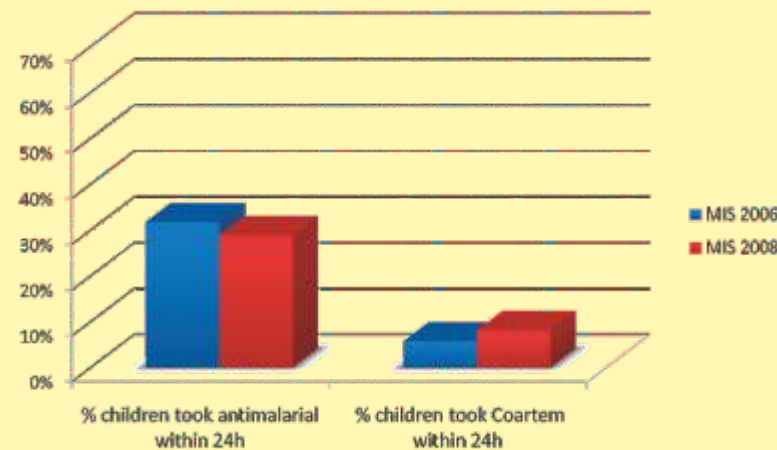


Source: Malaria Indicator Survey 2006 and 2008.

Treatment of malaria is lagging behind prevention efforts

Despite the fact that Zambia was one of the first countries in Africa to adopt Artemisinin-based combination therapy [ACT]) as the first line treatment for malaria, malaria case management has not made significant progress in recent years. According to the results from the 2008 MIS, only 29% of children under the age of five took an antimalarial within 24 hours of onset of symptom. Furthermore, only 11% of children under-five living in urban area and 7% of those in rural areas took an ACT within 24 hours of onset of fever.

Figure 2: Treatment indicators for malaria are stagnant



Source: Malaria Indicator Survey 2006 and 2008.

Rural public health centers: no drugs, needless deaths

An important reason for the lack of progress on malaria treatment in Zambia is the unavailability of ACTs in public health facilities. The problems in the supply chain also impact the availability of other drugs, such as lifesaving antibiotics.

PILOT PROGRAM

Partners join forces to strengthen drug supply chain

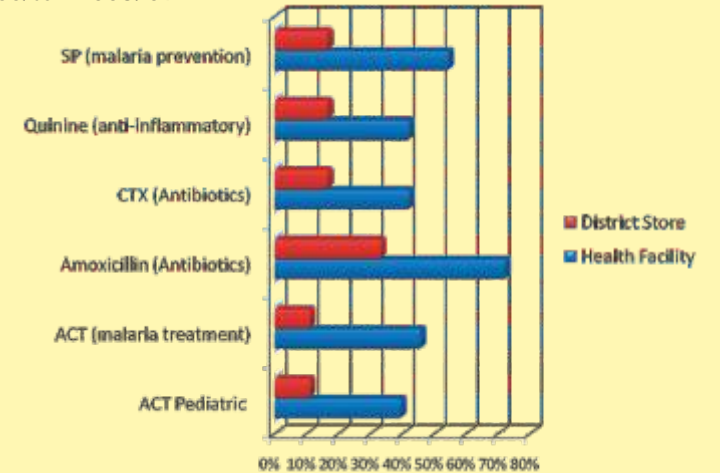
Recognizing that access to essential drugs needed to be stepped up the Ministry of Health with support from Medical Store Ltd (MSL)/Crown Agents, John Snow Inc., the UK's Department for International Development (DFID), the USAID and the World Bank joined forces to try out new drug distribution methods in 16 districts in Zambia.

Baseline survey identifies bottleneck at district storage facilities

The baseline survey of the pilot program conducted in Dec/Jan 08/09 shows that drug shipments get stuck in district storage facilities while health facilities experience large scale stockouts of critical drugs. At the time of the visit of the survey team:

- Pediatric ACT to cure malaria was unavailable in 40% of the facilities
- Sulfadoxine-Pyrimethamine (SP), preventive against malaria for pregnant women, was unavailable in 55% of the facilities
- Amoxicillin, an antibiotics, was unavailable in 72% of the facilities

Figure 3: Unavailability of lifesaving drugs before the pilot, Dec/Jan 2008/09

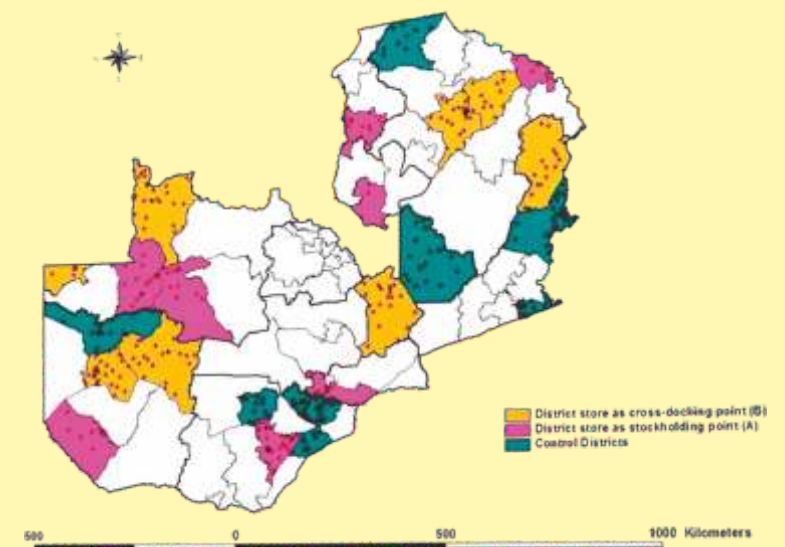


Source: Baseline data collected as part of the pilot in Dec/Jan 2008/09

A two pronged approach to improve the supply chain

The pilot program was designed to "identify the most cost-effective way to improve the availability of drugs through strengthening of the supply chain from district to health facility." The project compares the effectiveness of two different supply chain interventions (A and B) to select one (or a combination/variation) that can be rolled-out nationally. A total of 16 districts implemented model A and B (8 for each system), 8 districts were used as control areas.

Figure 4: Zambia by intervention and control districts



Simple but smart steps to grease the supply chain for lifesaving drugs

In Model A health facilities place orders to districts which transfer the order to MSL (the central level). A commodity planner responsible for logistics is added to the district team. The commodity planner works with the health centers to ensure that the right quantities of drugs are ordered and delivered. Procured drug kits are disaggregated into individual drugs at the central level and distributed to the district store. The Districts Health Management Office is responsible for assembling orders for the health facilities and delivery of drugs from district to health facilities.

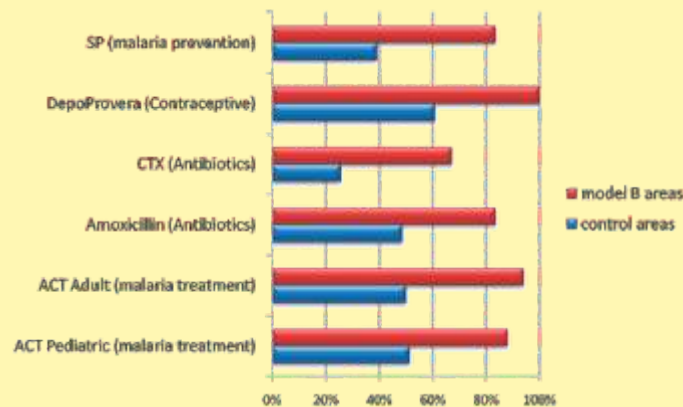
As previously described above, Model B also has a commodity planner with the same function as in Model A. Health facilities in Model B areas place monthly orders directly to MSL and the drugs are packed at the central level in sealed packages tailor-made for each individual facility. The District Health Management Office is only responsible for the transportation of the sealed package to each health facility.

RESULTS

Malaria drugs much more likely to be available in pilot areas

Model A resulted in some improvement of drug availability in the health facilities, while the Model B intervention dramatically improved the availability of essential medicines (see Figure 6 and 7 for information about the performance of A and B models). In pilot areas where model B was implemented the availability of pediatric ACT was as high as 88%. This is nearly double the 51 percent availability rate in the control districts.

Figure 5: The difference in availability of drugs between model B areas and control areas



Source: Baseline and endline data collected as part of the pilot.

Availability of other essential drugs also increased in pilot areas

Amoxicillin, a life-saving antibiotic that cures lower respiratory infections and other opportunistic infections caused by HIV/AIDS, was available 335 days of the year (92% of the time) in the districts with Model B, while it was only available 230 days in control districts (63% of the time). Similar improvements were observed for all essential drugs and supplies in the country, including malaria prophylaxis for pregnant women. The availability of Sulfadoxine-pyrimethamine (SP) increased to 84 percent in pilot areas, compared to 39 percent in control districts.

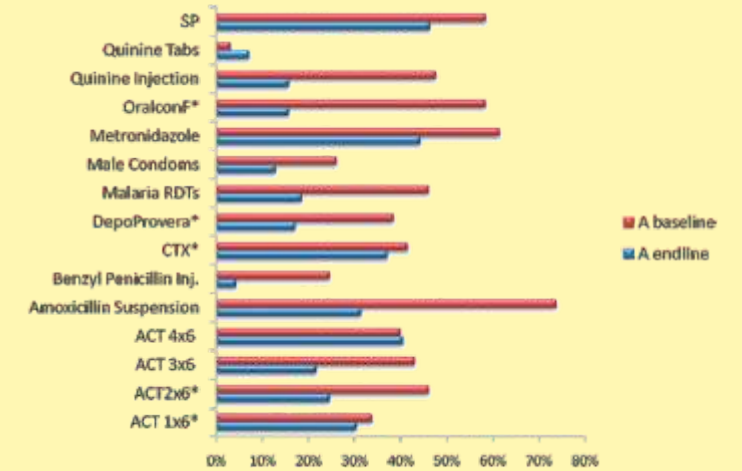
Scale up nationwide and save up to 27,000 children

Between now and 2015 it is estimated that as many as 27,000 children could be saved from dying from malaria if model B was scaled up nationwide. In fact, child mortality due to malaria could be cut by as much as 37 percent with these changes. Scaling up model B nationwide, would avert an estimated 5400 children death per year and an additional 110 000 children per year can receive the right treatment for malaria on time in rural public health centers. Taking into account the improvements in availability of lifesaving drugs other than ACTs the gain from scaling up the pilot program is even larger.



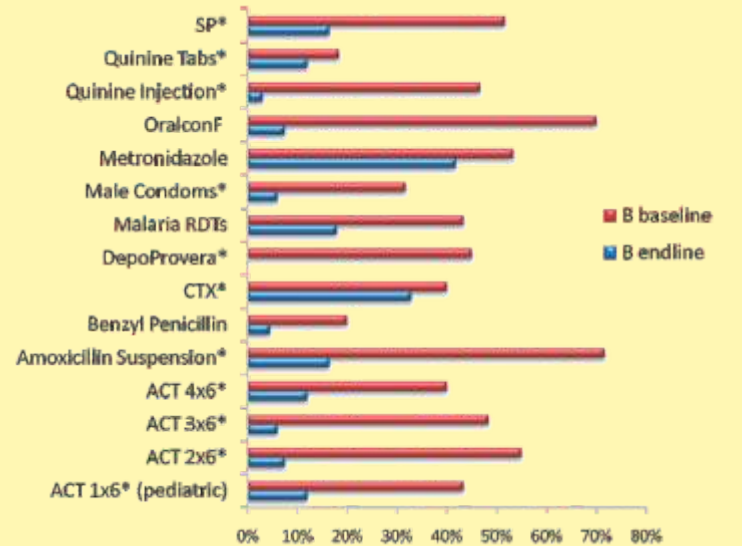
Likelihood of outages of drugs by Model A and Model B

Figure 6: Reduced likelihood of stockouts of essential drugs in A districts



Source: Baseline and endline data collected as part of the pilot. *the reduction in stockout rate is statistically significant with respect to any observed change in control districts.

Figure 7: Dramatically reduced likelihood of stockouts in essential drugs in B districts



Source: Baseline and follow up data collected as part of the pilot. *the reduction in stockout rate is statistically significant with respect to any observed change in control districts.