Malaria Drugs, the Coca-Cola Way

Most parents would buy the most effective drug they could afford to save their child’s life. But it’s not so simple if you are poor and living in Africa, where the local drugstore stocks a bewildering array of medicines, ranging in price from a few dimes to $10, usually with no information about which work and which don’t. There’s a good chance you would choose a cheap treatment—and that it would turn out to be totally ineffective.

That, in a nutshell, is the problem with a new generation of malaria drugs called artesinin-based combination therapies (ACTs). Although cheap by Western standards, they’re expensive to the world’s poorest, and in the private sector where most Africans buy their drugs, they face stiff competition. But on 7 November, the Board of the Global Fund to Fight AIDS, Tuberculosis and Malaria voted to adopt a new financing system aimed at bringing the best drugs to stores at rock-bottom prices—by letting the market do the work. “From an economics point of view, it’s going to be an incredibly exciting experiment,” says Barry Bloom, dean of the Harvard School of Public Health in Boston.

ACTs combine a drug derived from Artemisia annua, a plant used in Chinese medicine for centuries, with a second malaria drug to make it harder for the malaria parasite to develop resistance. Highly effective, ACTs have revived hope that the enormous burden of malaria can be slashed, but their rollout has been slow and difficult (Science, 26 October 2007, p. 560). The Global Fund, the World Bank, and others provide subsidies to poor countries that buy the drugs for their public health systems, but more than half of patients in Africa get their drugs from private outlets. Those drugstores often don’t carry ACTs, however, and if they do, they’re much more expensive than old, ineffective drugs like chloroquine, counterfeit drugs, and artesinin monotherapies. (Drug resistance to artesinin-based drugs—already emerging in Southeast Asia—is a huge worry, which is why global health leaders discourage the use of monotherapies.) A recent study by the Medicines for Malaria Venture and the Ugandan Ministry of Health shows just how expensive and difficult ACTs are to obtain in the private sector (see table).

In 2004, a U.S. National Academies’ Institute of Medicine (IOM) panel chaired by retired economist and Nobel laureate Kenneth Arrow proposed a solution. Pharmaceutical wholesalers in poor countries should be able to buy ACTs straight from the manufacturer for pennies instead of dollars, the panel said; donors would pay the difference directly to the manufacturer. That way, the drugs could be traded down the supply chain and be sold in even the smallest village at the same price or for less than the undesirable drugs—which would, with any luck, be pushed off the market. “For years, we’ve been saying in public health: If only we knew how Coca-Cola gets its cans into the most remote African villages, we could do the same for drugs,” says health economist Ramanan Laxminarayan of Resources for the Future in Washington, D.C., who sat on the IOM panel. “Well, this is how they do it—by relying on the market.”

Still, the idea is untested in global health, says Oliver Sabot, director of the Clinton Foundation Malaria Control Team. Some worry that, instead of passing the benefit on to patients, intermediaries will pocket most of the subsidy. Some also contend it’s better to expand access to the public health system than to subsidize the chaotic private sector. For those and other reasons, the U.S. government has opposed the plan so far. “This is an expensive proposition,” says Bernard Nahlen, deputy coordinator of the U.S. President’s Malaria Initiative. “We’d better have good evidence that it will work.”

Some evidence came earlier this year from a small-scale trial in Tanzania run by the Clinton Foundation. Wholesalers were sold the locally preferred ACT, artemether-lumefantrine, for about $0.12 per treatment course and were allowed to sell it in two rural districts. Researchers interviewed customers coming out of shops and audited stores’ inventories and sales data. The number of patients who came home with an ACT shot up from 1% to 44% in 4 months, and patients paid the same average price or even less for ACTs than for older drugs. Nahlen calls the results “encouraging” but adds, “You can’t extrapolate from two districts in Tanzania to the entire world.”

Many organizations, including the World Bank and even the Global Fund, were initially skeptical, says Laxminarayan, but they have come on board. In 2007, Roll Back Malaria, an international partnership of governments, organizations, and companies, threw its weight behind the idea, which is now called the Affordable Medicines Facility for malaria (AMFm). And in New Delhi on 7 November, the Global Fund’s board approved a plan to host and manage AMFm, starting with a 2-year pilot project in 10 African countries and in Cambodia. (The United States, whose delegation was divided on the issue, ended up abstaining.)

So far, the U.K. government has pledged $60 million of the projected $350 million needed for the pilot. The board of UNITAID, an international fund that raises money from taxes on airline tickets, is expected to approve a large contribution on 25 November. (Both the Global Fund and UNITAID declined to comment for this story pending that decision.)

Arrow, 87, who knew next to nothing about malaria before 2004 but has become quite the expert, says he’s “very happy” that his panel’s idea is becoming reality. “I’m only disappointed that it took so long.”

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