



HIV worldwide

Developing solutions

There is more to combating HIV in the developing world than providing affordable drugs. **T. V. Padma** looks at the innovative new strategies being employed.

“Mambo?”

The single Kiswahili word for “How are you?” arrives in a weekly text message from the AIDS clinic in Nairobi.

From Kajiado, 200 miles away, the clinic’s patients, mostly members of pastoral Maa-sai communities, respond with “*Sawa*” (OK) or “*Shida*” (problem). If, after two days, the patient does not respond, a nurse follows up with a telephone call. This simple system confirms that patients remember to take their drugs and are feeling well.

The scheme, which began in May 2007, takes advantage of the fact that, even though the roads between Kajiado and Nairobi are poor, the mobile telephone service is inexpensive and reliable.

The texting scheme is the brainchild of researcher Richard Lester, who noticed that about one-half of his patients in Nairobi owned mobile telephones and about 90% had access to a shared telephone.

With funds from the US President’s Emergency Plan for AIDS Relief (PEPFAR), Lester and the University of Nairobi in 2007 launched a randomized trial to test whether mobile telephones can help improve follow-up and outcome in patients in remote rural areas. Preliminary analysis of the data suggests that those who participate have lower viral loads, making

them less likely to develop drug resistance or transmit the infection.

“This has huge implications,” says Lester, assistant clinical professor at the University of British Columbia. Hospitals and clinics in Kenya and Ethiopia are planning to adopt the scheme, he says.

Mobile telephones are just the latest strategy in the developing world’s fight against HIV/AIDS. In the past three decades, these countries have launched awareness campaigns, built testing and counselling facilities, expanded their research capacity, collaborated in international trials and negotiated for better access to drugs. With no vaccine or microbicide in sight, governments are devising innovative approaches, including door-to-door testing and social networking sites.

Innovative approaches

In April this year, South Africa, until recently the ‘poster child’ for AIDS denialism, launched the country’s biggest HIV testing programme. President Jacob Zuma publicly disclosed his HIV status — negative — to lessen the stigma. The government also announced free male-circumcision services as part of its prevention programme.

To those who have been on the front lines of the disease from the beginning, the landscape is dramatically different.

“When as a very young doctor I saw my first HIV patient with Kaposi’s sarcoma, I thought it was something unique. I did not anticipate the devastation that would unfold before me,” says Salim Abdool Karim, director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA). Yet, “[if] I have seen the devastation, I have also seen the miracle of hope offered by antiretrovirals,” Karim says.

Despite undeniable gains, however, the course of the epidemic remains largely unchanged. In sub-Saharan Africa, for every person who gains access to antiretroviral drugs, two get infected with HIV, Karim says.

New complications arise all the time. HIV has revived tuberculosis (TB; see page S18),

making room for deadlier, drug-resistant versions. As in richer nations (see page S14), doctors in some developing countries are seeing early heart attacks and kidney failure in HIV-positive individuals.

“It’s like we are running backwards on the treadmill,” Karim says. “We are not stemming the tide of the epidemic.”

Broken promises

Prevention programmes in most developing countries rely largely on international funds, which are vulnerable to ‘donor fatigue’ and the global economic downturn.

Despite lofty promises, many donor agencies have not delivered. For example, the Global Fund to Fight AIDS, Tuberculosis and Malaria pledged US\$10 billion a year when it was set up in 2001, but has delivered only US\$3 billion a year so far.

In 2009, funds from US-based charities — except from the Bill & Melinda Gates Foundation — had decreased by 3% since 2007/2008, and funds from

European charities had decreased by 7% since 2006, according to an April 2010 report from the International Treatment Preparedness Coalition of HIV-infected people and their supporters.

“Abandoning the AIDS response now will inevitably lead to a return to headlines about people dying of AIDS that we read at the beginning of the decade,” the report warns.

PEPFAR is one of the few schemes to have maintained funding. Launched in 2003 by then-President George Bush, it was extended for a further five years in 2008. This legislation authorizes up to US\$48 billion to combat global HIV/AIDS, TB and malaria.

“In a time of tightening budgets and economic constraints, this request for the eighth year of PEPFAR is the largest request to date in a president’s budget,” says Eric Goosby, PEPFAR’s US global AIDS coordinator.

PEPFAR programmes continue to scale up prevention, treatment and care for HIV/AIDS. According to a September 2009 analysis, PEPFAR has directly supported antiretroviral therapy for more than 2.4 million infected individuals.

As welcome as donor aid is, however, it can skew national priorities. As an example, Karim points to South Africa, where HIV research infrastructure expanded impressively, with international studies on both basic and clinical research.

“But much of the research agenda meets international rather than domestic priorities,” Karim notes. For example, South Africa is researching HIV vaccines, but not the high

“We are not stemming the tide of the epidemic.”



Text messages sent to mobile telephones are helping clinics in Nairobi follow up on patients in remote villages.



Despite undeniable gains against the epidemic, in countries like India (pictured above) and Pakistan, the epidemic is spreading to heterosexual couples.

levels of infection among its young women or why a substantial increase in condom distribution — from 8 million in 1994 to 376 million in 2006 — has not reduced its rate of new infections in high-risk groups.

National governments are no better at funding their AIDS programmes. At an April 2001 summit in Abuja, Nigeria, 52 African countries pledged to allocate at least 15% of their national budgets for health. In 2007, only three (Botswana, Djibouti and Rwanda) were on track, and three others (Burkina Faso, Liberia and Malawi) had reached some targets.

These slow and bureaucratic governments are no match for the rapid shifts in the epidemic.

HIV/AIDS in Central and Southeast Asia has spread from injecting drug users to their sexual partners. In countries such as India and Pakistan, the epidemic once spread mainly through commercial sex work and drug use, but is increasingly affecting heterosexual couples.

Affordable drugs

Developing countries also need to sustain and expand treatment programmes that depend on cheap HIV drugs, the demand for which continues to grow.

Over past years, international charities have taken the lead in providing cheap medicines to the poor. For example, the Clinton Foundation has negotiated lower prices with 8 firms on 40 drug formulations and with 12 suppliers for testing kits. This has translated into cheaper drugs for two million people, nearly one-half of the infected population in developing countries.

Much credit also goes to India and Brazil, which thumbed their noses at drug companies and encouraged other developing nations to do the same.

Before 2005, Indian laws recognized patents only for the process used to make a drug, not

for the drug itself. Indian companies used this loophole to produce cheap generic versions of expensive antiretroviral drugs.

These days, 92% of those receiving treatment in low- and middle-income countries take generic drugs made in India — the ‘pharmacy of the developing world’.

In 2000, Brazil threatened to issue a compulsory license — a clause in international patent law that allows countries to waive patents during national health emergencies — arguing that its growing AIDS epidemic was a national emergency.

It carried out its threat in 2007, issuing a compulsory license to import efavirenz — which prevents HIV from replicating — from an Indian firm. In 2008, Brazil’s patent office also rejected a patent for tenofovir.

Following in Brazil’s defiant footsteps, about a dozen developing countries have issued compulsory licenses. “Brazil revolutionized global AIDS treatment and shaped global AIDS treatment policy,” says Amy Nunn, assistant professor of medicine at Brown University in Rhode Island.

Things could go wrong again, however. In 2005, India agreed to recognize international patents, meaning its companies can produce only generic drugs that are already on the market. In five or ten years, this is likely to create a serious shortfall in affordable drugs.

“It is a very complex issue,” says Mauro Schechter, professor of infectious diseases at the University of Rio de Janeiro. “We need more innovation but at the same time, people should have access to treatment,” Schechter says. “How do you do both at the same time? We have not found the answer.”

One potential solution is UNITAID, a not-for-profit patent pool set up in March 2010, in which drug companies forgo their

patent rights in selected countries, and allow local firms to make medicines with mutually agreeable licence fees.

Networks of hope

Developing countries are also coming up with innovative solutions to their own, and others’, problems in different arenas.

For example, in the late 1990s, the Boston-based non-profit group Partners in Health founded the HIV Equity Initiative to provide treatment and care to infected people in Haiti. This small charity has grown into a network of nine health centres that serve 1.2 million people under a national programme supported by Haiti’s health ministry.

In 2007, a doctor from Haiti set up a similar rural clinic with volunteers in the mountains of Lesotho, an African country with no medical school and about 80 doctors to attend to its two million people.

India, Brazil and South Africa are also collaborating on research projects, including HIV vaccines, combating HIV-TB and creating maps of viral diversity.

Brazil provides locally made HIV drugs to almost a dozen countries in Central and South America, and in Africa. In March this year, several Portuguese-speaking countries together set up a network on HIV and sexually transmitted diseases.

At an individual level, too, the urge to help and support each other is obvious. In Kajiado, for example, those who receive the weekly “Mambo?” text forward it to relatives who are not part of the Kenyan trial.

“As people become more connected, they become more hopeful,” says Lester. “Hope removes stigma.”

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