

THE MOCHUDI PROJECT: A COMMUNITY APPROACH TO AIDS PREVENTION

When the United Nations presented their 2009 Progress Report on HIV/AIDS in late September, there was good news. Over a million people in the developing world began treatment with antiretroviral drugs (ARVs) last year. Tremendous strides have been made in preventing mother-to-child transmission of HIV. Yet the news was tempered by the fact that 2.7 million people became newly infected in 2007, the last year for which estimates exist. Preventing new adult infections has been a losing battle in Africa and elsewhere.

Only by preventing new infections in sexually active teenagers and adults will we begin to see a true end to the AIDS epidemic. The Mochudi Project is designed to address exactly this problem.

Mochudi, a village of about 40,000 people in southern Botswana, is the site of a new research project by the Harvard AIDS Initiative. The village has an adult HIV



Nurses at the Mochudi Hospital

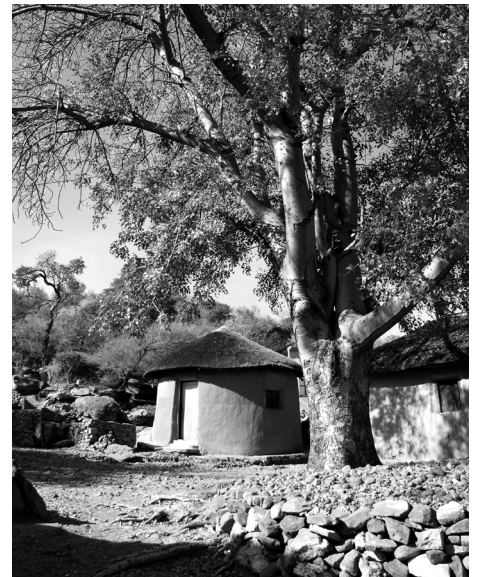
prevalence of 25%. The Mochudi Project will take a comprehensive, community-based approach to HIV prevention. It combines established prevention methods, along with several innovative methods that will be tested for the first time.

Treating Acute Infection

The Project will emphasize the detection and treatment of acute (recent) HIV infections. When a person is infected with HIV, his or her viral load (the amount of HIV virus in the body) climbs steeply in the first weeks of infection. In the usual course of HIV infection, the body's immune system brings the viral load under control after several weeks or months, dramatically reducing the level of HIV for a number of years. When viral load drops, the risk of transmission also drops. Yet until this happens, a person with acute infection is more likely to infect others, especially if he or she is involved in more than one relationship.

An added concern is that about 25% of people infected with HIV-1C, the virus of southern Africa, seem to have high viral loads that are prolonged for up to one or two years after infection, much longer than others. This subset of highly infectious people may be responsible for the majority of transmissions, making them an important group to reach with prevention programs. This is a hypothesis that researchers will test.

By identifying men and women recently infected with HIV and starting them on antiretroviral treatment to reduce their viral load, we hope to prevent new adult infections. This "test and treat" strategy is similar in principle to the successful strategy of giving pregnant women ARVs to prevent them from passing the virus to their infants. By targeting therapy to the most infectious individuals, we hope to significantly reduce the rate of new infections in the village.



Traditional thatch-roofed rondavel

Contact Tracing and Viral Sequencing

We will also use new tools in genetics to map how HIV spreads within a community. By comparing viral genetic sequences of new infections, we will be able to tell how closely related they are to each other. Comparing viral sequences will help us investigate the tendency of people with new infections to group together in what is known as a Transmission Cluster. In effect, we will be able to draw an anonymous map of how HIV actually spreads within a village. This information will be crucial in helping to adapt prevention efforts to what is actually happening in Mochudi.

Using What Works

Though the Project will evaluate several promising new strategies for HIV prevention, it also incorporates interventions already in use, including Voluntary Counseling and Testing (VCT), condom use, male circumcision, and education about risk reduction with respect to number of sexual partners. Recent

(continues on back)



MAX ESSEX

Dr. Max Essex is the Lasker Professor of Health Sciences at Harvard University. He is Chair of both the Harvard AIDS Initiative (HAI) and the Botswana–Harvard Partnership (BHP). Essex is the Principal Investigator of the Mochudi Project, leading an accomplished team of virologists, behavioral scientists, infectious disease clinicians, epidemiologists, mathematical modelers, and biostatisticians.

SPOTLIGHT: Though there has been tremendous progress in treating people with HIV, programs to prevent new infections have been less successful. How is the Mochudi Project different?

ESSEX: The Mochudi Project uses the best information that we've gained from treatment, as well as from prevention of mother-to-child transmission of HIV, for an entirely new approach to prevention

in adults. It also incorporates our knowledge of how HIV evolves along with knowledge of the human genome, combined with more established approaches such as male circumcision and behavior modification. All of these are used together to see if we can reduce the rates of new infections in an entire village—Mochudi.

SPOTLIGHT: What do you see as the greatest challenge to ensuring that the Mochudi Project successfully prevents new HIV infections?

ESSEX: One of the biggest challenges is implementation of the testing plan in an entire village of about 40,000 in a relatively short period of time (one year). The other major challenge is to determine the relative importance of each of the individual interventions. For this we have recruited some of the very best mathematical modelers and biostatisticians.

SPOTLIGHT: How soon will the Mochudi Project get underway?

ESSEX: It has already begun in the sense of getting the necessary approvals, designing forms and questionnaires, and working in partnership with village leaders. The work of collecting blood samples, analyzing the samples, and providing interventions will begin in about ten months. ●



Max Essex (right) in Mochudi

VILLAGE OF MOCHUDI

Mochudi, one of Botswana's largest villages, is located about twenty miles from the capital city, Gaborone. In the center of the village is the *kgotla*, surrounded by traditional homes, including *rondavels*, thatch-roofed round houses made from local materials. A government hospital is within walking distance of the *kgotla*.

Mochudi was settled by the Tswana people in 1871. In Setswana, Mochudi means “a person who dishes out food from a pot,” and refers to the traditional Tswana hospitality towards visitors. Cattle raising and subsistence farming are the foundation of the local economy. Precious Ramotswe, the fictional heroine of Alexander McCall Smith's *No. 1 Ladies Detective Agency* books, is a native of Mochudi. ●



Photo by Mirko Raner

KGAFELA: LOOKING FORWARD AND BACK

To carry out innovative HIV/AIDS prevention work in Mochudi, strong local leadership is needed. That leadership is provided by the young Kgosi Kgolo Kgafela, leader of the Bakgatla tribe. As *kgosi*, the hereditary king of a tribe, Kgafela is responsible for providing leadership for his people, as well as maintaining law and order. He presides over the *kgotla*, the assembly where visitors are received, tribal issues are discussed, and disputes are aired.

Kgafela was born in Washington, DC in 1971 when his father, Kgosi Linchwe II, was Botswana's Ambassador to the U.S. In 1982 Kgafela participated in *bogwera*, the traditional boys' initiation ceremony, which marks the passage from childhood into manhood. He earned a law degree from the University of Botswana and has been a litigation attorney for 12 years. An advocate for human rights, Kgafela has worked on a number of high-profile death penalty cases.

After his father's death, Kgafela was coronated in an elaborate ceremony in September 2008. This included his being draped in a leopard skin by chiefs from two other tribes, one of whom was Botswana's President Ian Khama, who leads the neighboring Bangwato tribe.

A creative leader, Kgafela has re-energized the Bakgatla people by introducing new business and cultural initiatives and, at the

same time, reinstating traditional practices. He is a man who feels equally at ease wearing a business suit or the ceremonial dress of a chief.

This June he revived *bojale*, the girls' initiation ceremony, which had not been practiced since 1989. The ceremony stresses the collective responsibility of the community, including social, economic and political duties. "These values are as valid today as they were a hundred years ago," said Kgafela. "They are eternal for the common good. For the modern woman, these values have never been more urgent."¹ Over a thousand women took part in the ceremony. Although girls are traditionally initiated in their teens, this year's group contained women of all ages eager to take part in a rite of passage they had missed in their own youth. The group included grandmothers, Kgafela's own wife, and Unity Dow, the first female Justice on Botswana's high court.

Kgafela also revived *bogwera*, the boys' initiation ceremony. Like *bojale*, the last *bogwera* took place in 1989. This year's ceremony attracted more than 1,800 participants, among them CEOs and university professors. Though the younger boys were encouraged to undergo circumcision, a traditional part of *bogwera*, at the local hospital, Kgosi Kgafela emphasized that it was not mandatory.

Consistent with his passion for social



Photo by Dr. Karl J. Stahl

Justice Unity Dow and Kgosi Kgafela at the *bojale* initiation ceremony.

justice, Kgafela is outspoken about AIDS. He clearly sees the toll that the epidemic has taken on his community. He is an advocate for holistic and complementary approaches to the AIDS problem, an approach that encourages information sharing and examining alternate views. Addressing a church gathering this August, he remarked, "In this month of prayer against AIDS, I urge you to pray for three things: the power of love, reverence/respect for one another, and above all the quest for knowledge."²

Innovative science and strong local leadership are two essential components of a successful HIV prevention program. The Mochudi Project would not be possible without the support of Kgosi Kgafela. ●

1. *Mmegi*, 5/29/09, "Bakgatla Women Go on Bojale Tomorrow"
2. *Mmegi*, 9/4/09, "Botswana: AIDS is a Devil's Weapon—Kgosi Kgafela"

MOCHUDI IN FICTION



were the cattle posts, the land of men and boys, where the cattle were kept and boys learnt to be men and men lived quietly missing their women and daughters."

- *Juggling Truths*, Unity Dow

"Through the village a river flowed, bringing lots of life—fish in its waters and wild spinach along its banks—and around the village, hills stood, solid and reliable. Beyond the hills were the lands, where we ploughed maize, millet, sorghum, watermelons, beans, sweet reed and many other foods. Beyond the lands

spotlight

is published by the
HARVARD SCHOOL OF PUBLIC HEALTH
AIDS INITIATIVE
651 Huntington Avenue, 6th Floor
Boston, MA 02115

Phone: 617-432-6106

Fax: 617-432-4545

Email: mshenry@hsph.harvard.edu

Web: www.aids.harvard.edu

Chair: Dr. Max Essex

Executive Director: Dr. Richard Marlink

PUBLICATIONS STAFF

Editor: Martha Henry

Print & Web Designer: Kim Morrisseau

Thanks to: Unity Dow, Lendsey Melton, and Danae Roumis

The Mochudi Project *(continued from front)*

studies about the effect of circumcision have been promising. Three randomized trials in sub-Saharan Africa designed to measure the impact of male circumcision on HIV infection among heterosexual men showed a strong protective effect, with about a 60% reduction in the risk of infection.

Another important component of the Mochudi Project is to quantify the effectiveness of several different prevention methods being used at the same time. To accomplish this, mathematical models will be developed to identify synergies among prevention methods. Evaluation of the

cost-effectiveness of combined methods will also be performed.

Ambitious in scope, the Mochudi Project combines the best of what we already know about HIV/AIDS prevention with promising new methods. The ultimate goal of the Project is to evaluate prevention interventions that could be scaled up for Botswana and southern Africa. The more local goal is to slow and eventually stop the spread of HIV/AIDS in one village in Botswana.

The Mochudi Project has received initial funding from the National Institutes of Health (NIH) to demonstrate the

feasibility and acceptability of the program. We are seeking additional funding to carry the program through to completion. ●



The *kgotla*, Mochudi's tribal meeting place



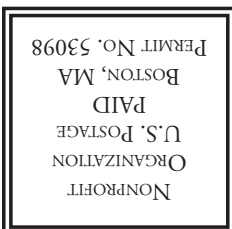
Photo by Dr. Karl J. Stahl

the mochudi issue

Around the world, about 7,400 people are newly infected with HIV every day. Without effective programs to prevent new HIV infections, the AIDS epidemic will continue its relentless toll of deaths. This issue of *Spotlight* focuses on the Mochudi Project, a comprehensive community-based approach to AIDS prevention now underway in Mochudi, a village of about 40,000 people in southern Botswana.

spotlight
fall 2009

HAL is dedicated to research and education to end the AIDS epidemic in Africa and developing countries. For two decades, HAL has been at the forefront of HIV/AIDS laboratory research, clinical trials, education, and leadership.



Harvard School of Public Health
AIDS INITIATIVE
651 Huntington Avenue
Boston, MA 02115
USA
HAL