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Fighting HIV/AIDS in Africa: A Progress Report on HHS/CDC Efforts

Statement of

Jonathan H. Mermin, M.D., M.P.H.

Public Health Epidemiologist
Country Director for GAP Uganda
Centers for Disease Control and Prevention
Department of Health and Human Services

Good afternoon, Mr. Chairman and members of the Subcommittee on African Affairs. I am grateful to have a chance to talk with you today about fighting HIV/AIDS in Africa. My

name is Jonathan Mermin. I am a Department of Health and Human Services (HHS) physician and a public health epidemiologist at the Centers for Disease Control and Prevention (CDC). Since 1999, I have lived and worked in Uganda, where I run the local HHS/CDC Global AIDS Program (GAP). In Uganda our program has piloted comprehensive care and treatment projects that include strong preventive components. Information from these programs lays the groundwork for full-scale implementation of The President's Emergency Plan for AIDS Relief (Emergency Plan).

I thank you and your colleagues on the Subcommittee on African Affairs, and the larger Foreign Relations Committee, for bringing attention to this important issue. My colleagues and I have been honored by several congressional visits to our program and, on behalf of the HHS Secretary Tommy G. Thomson and the Global AIDS Coordinator Ambassador Randall Tobias, I would like you to know that we welcome future visits from you and your colleagues.

Under the guidance of the Global AIDS Coordinator's Office, HHS/GAP's commitment in the fight against global HIV/AIDS is part of a collaborative United States (U.S.) Government effort. HHS/GAP helps resource-constrained countries prevent HIV infection, improve treatment, care, and support for people living with HIV; and build capacity and infrastructure to address the global HIV/AIDS pandemic in 25 priority countries in Africa, Asia, Latin America, and the Caribbean.

In Uganda, as in all of the HHS/GAP countries, HHS/GAP works with U.S. Agency for International Development (USAID) and other U.S. Government agencies, as well as with host-country governments and non-governmental partners to help people with HIV/AIDS live longer and healthier lives and to prevent the spread of HIV.

Background

Uganda is an under-developed country, with a per capita Gross Domestic Product (GDP) of $280 per year. Earnings are even less for persons living in rural areas, where 85 percent of Ugandans live. The health infrastructure is worse now than 30 years ago. Most hospitals do not have working x-ray machines, basic laboratory testing, or a reliable supply of simple medicine. On any given day in Uganda, only five percent of health facilities can perform a HIV test and only 20 percent can diagnose and treat tuberculosis—the leading cause of death for persons with HIV in Africa.

In 2001, the Joint United Nations Program on HIV/AIDS (UNAIDS) estimated that there were 600,000 persons living with HIV and AIDS in Uganda, including 100,000 under the age of 15, out of a population of 24 million. There were 880,000 children orphaned by AIDS and an estimated 84,000 AIDS-related deaths. UNAIDS currently estimates life expectancy in Uganda to be 42 years mostly because of AIDS.

Even with these statistics and extreme poverty, Uganda was the first country in the world to show a decrease in HIV prevalence-- a decrease of 50 percent since 1992. Uganda's success in mitigating HIV infection now frequently informs the many global efforts to combat HIV and often serves as a model. This success was in large part because of early, high-level political leadership in addressing HIV, resulting in a broad response that included many innovative prevention programs such as the promotion of the *ABC* method*, A* for *abstinence*, *B* for *being faithful*, and *C* for *condoms,* as appropriate. The President's Emergency Plan has adopted the promotion of the ABC method as a key component of its prevention strategy.

HHS/GAP Uganda, a part of this historic, broad multi-sectoral response, has developed a wide range of indigenous partners whose HIV/AIDS effort and expertise are critical to success in fighting the epidemic. These partners include The AIDS Support Organization (TASO), the first and largest indigenous organization in Africa providing care and support to people living with

HIV/AIDS. With TASO and other key partners, HHS/GAP is studying how people living in rural, resource-limited settings can best access quality, comprehensive HIV care, treatment and preventive servies that includes antiretroviral therapy (ART). This research study is known as the *Home-Based Care Program* and is based in the rural Tororo and Busia districts in eastern Uganda near the border with Kenya. Components of this program are further highlighted below.

Building upon these types of projects, the Ugandan Government, with the help of HHS and others, has embarked on the next stage-- delivering effective treatment to the hundreds of thousands of Ugandans with HIV who currently live with almost no access to basic medical care and who have no experience with taking medicine on a daily basis to prevent illness. The challenges to this task are best understood from the perspective of people living in Uganda. As many of you know, Secretary Thompson and Ambassador Tobias led a delegation of over 100 government, business, faith, and charitable leaders to Africa in December, when they visited Tororo and met many of our patients in their homes; some of you have heard Secretary Thompson speak of the two HIV-positive people he met, Samson and Rosemary. I'm going to share with you the stories of some other clients, every bit as sobering, yet hopeful.

For example, Margaret Akware is HIV-positive and her husband died of AIDS in 1996. Margaret is a subsistence farmer, living in a thatch-roofed home with her two children. In addition to these two children, she takes care of five AIDS orphans. She lives several miles from the nearest health center and her family cannot afford even a bicycle for transportation. She is a unique individual, but her story represents millions of people living with HIV in Africa.

Margaret speaks in public about having HIV and participates in community drama groups and educational sessions throughout her District, encouraging people to get tested for HIV and to support people with AIDS. She lives each day knowing that if she dies, her seven children will have no place to live. Without the ART she is receiving through the U.S.-supported *Home-*

Based Care Program described above, she most certainly would have died. In addition to ART, she also receives counseling to prevent transmission of HIV and a basic preventive care package consisting of a method for making safe drinking water, mosquito nets, and a simple antibiotic that prevents infections. With the help of this program, Margaret will stay alive longer and will help educate others while continuing to support her seven children. Like Margaret's family, 74 percent of children living with the 30,000 TASO clients in Uganda are at immediate risk of becoming orphans, because all of their living parents. Effective HIV treatment is one of the best orphan prevention programs in the world.

Components of a *Home-Based Care Program*

Family-centered Basic Preventive Care Package

In Uganda, HHS/GAP and its partners have focused on a family-centered approach to care and prevention. Working with families increases the chance for success because it utilizes the family's support systems, encourages disclosure of HIV status, and emphasizes the benefits to the whole household of providing effective care for a family member with HIV. Through a home-based, family-centered, delivery approach, HHS/GAP is focusing on expanding HIV testing and counseling, providing a standardized, effective basic care package to all persons with HIV, and expanding access to ART.

HIV counseling and testing

HIV counseling and testing is the first step to introducing people to effective HIV/AIDS care. However, a national study in Uganda showed that 70 percent of adults reported wanting to receive testing; only 10 percent had actually been tested. Currently about 50 percent of people hospitalized in Uganda have HIV infection, but HIV testing is rarely available in hospitals and almost never offered to patients.

Another reason HIV counseling and testing is critical in Uganda is for couples where one spouse is HIV infected and the other is not. Among HIV-infected members of TASO, 35 percent of married clients have HIV-negative spouses. Because the spouses have not been tested, many couples think that both husband and wife have HIV and are, therefore, not taking precautions to prevent infection. In Uganda, an estimated 40 percent of new HIV infections are occurring among married couples because they do not know that they or their partners are at high risk of infection. These data call for widespread, family-based testing, as well as what is known as "prevention with positives" counseling, i.e. working with HIV-infected persons to change their behavior to reduce the chance that they will spread the virus to others. In addition, HIV testing and counseling is the first step to introducing people to effective AIDS care.

HHS/GAP Uganda has developed a three-tiered testing program. Its goals are to expand traditional counseling and testing sites so that people can have easy access to testing; to begin routine, voluntary HIV counseling and testing at clinics and hospitals throughout the country; and to explore door-to-door, home-based testing and counseling using mobile teams to increase access to testing and, if needed, link people to care. When offered home-based HIV testing and counseling, over 95 percent of more than 5,000 family members of persons living with HIV in rural Uganda have already been tested.

Additional tools for care

While ART is essential for those living with HIV, a comprehensive package of care needs to include more than just antiretroviral therapy. There are several other inexpensive, effective treatments that are critical for preventing illness and death which are discussed below.

For example, in Africa, according to the World Health Organization (WHO), diarrhea is responsible for as much as eight percent of all deaths regardless of HIV infection status. A

capful of diluted chlorine solution added to water and stored in a plastic vessel reduces diarrhea among persons with HIV by 35 percent. This provides the whole family with clean water and costs less than $10 a year.

Malaria is a life-threatening parasitic disease transmitted from person to person through the bite of a mosquito. According to the WHO, the disease exerts its heaviest toll in Africa, where around 90 percent of the more than one million deaths from malaria worldwide occur each year,. Malaria is twice as common among adults and children living with HIV. Insecticide-treated mosquito nets can prevent malaria and cost about $5 a piece.

Additionally, a simple antibiotic, known as cotrimoxazole or Bactrim, can be used to help prevent both diarrhea and malaria and prolong life. It is available even in the most rural villages in Africa and when purchased in bulk, treatment costs only $6 a year per person. When taken daily by persons with HIV in Africa, this drug reduces death by nearly 50 percent, malaria by 70 percent, and diarrhea and hospitalizations by 30 percent. HHS/GAP is working with the Ugandan Ministry of Health to develop a policy regarding its use. Currently over 30,000 people are taking it every day, and with funding from President Bush's Emergency Plan, it is expected that this number will increase to 300,000 in the next four years.

In Uganda, HHS/GAP, as well as its partners in the President's Emergency Plan, are promoting the aforementioned strategies- a comprehensive package of care, that uses a family-centered approach that includes these simple, life-extending interventions -- a method for making safe drinking water, mosquito nets, cotrimaxazole, testing and counseling, and ART, which is discussed in the next section. The strategies discussed above highlight the existence of simple interventions that prevent illness and death and can be rapidly implemented. However, the impact of these interventions is modest when compared to the life-extending, life-improving effects of ART.

Antiretroviral therapy

When AIDS was first recognized in 1981, patients with the disease were unlikely to live longer than a year or two. Since then, scientists have developed an effective arsenal of drugs that can help many people infected with HIV live longer and healthier lives. These drugs are called antiretroviral drugs because they attack HIV, which is a retrovirus. Antiretroviral therapy (ART) can significantly affect the disease progression of HIV/AIDS. The diagnosis of AIDS occurs when the count of a person's CD4 cells (a critical part of a person's immune system) is less than 200. As a comparison, a healthy HIV-negative person has a CD4 cell count of about 1,000. The death rate for persons with CD4 cell counts of less than 200 is 50 percent per year; however, the death rate is reduced to less than five percent per year with ART.

Nevertheless, there are many challenges to developing rural ART-based care in resource-limited settings. Drug adherence presents potential difficulties, leaving the possibility for the development of viral resistance. CD4 cell count and HIV viral load monitoring are traditional tools used to monitor the health of those living with HIV and to assess drug resistance, but providing this testing presents challenges in settings with limited infrastructure and trained personnel. There is often no system for sustained distribution of drugs. There is extreme poverty with no access to electricity. Sanitation and clean water are limited, and access to transportation is often unavailable creating a tremendous barrier for this widely dispersed population.

In the U.S., persons with HIV started taking zidovudine, also known as AZT, when it was first developed, and later, with treatment advances, people had the opportunity to take two drugs at a time. While people with AIDS lived longer taking two drugs, it was soon realized that taking three drugs at a time was the optimal drug regimen to keep people alive longer and

prevent the emergence of drug resistance. This is one of the reasons, in addition to adherence issues, that the United States is currently coping with the burden of multi-drug resistant cases of HIV infection. Governments, physicians, and people with HIV in Africa are concerned that they might have similar difficulties with drug resistance, especially since Africa does not have the sophisticated resistance testing available in other countries. In Africa we are starting with triple-therapy antiretroviral drugs (ARVs). This means that emergence of resistance will be delayed if people can adhere to the drug regimen. Adhering to the appropriate drug regimen is easier now than ever before - most regimens can be taken twice a day instead of four times a day as was the case 10 years ago. Even though most people in Africa are not used to taking pills to prevent illness, we have found that, when provided education on the importance of following drug regimens, people adhere extremely well.

However, the traditional tools used for assessing drug resistance, CD4 cell count and HIV viral load monitoring, present challenges. In most African countries the cost of traditional CD4 cell count and HIV viral load monitoring is greater than the cost of ARV drugs. In addition, the machines for conducting the testing are usually available in only one or two laboratories in the country. To make the situation even more difficult, manufacturers of these testing machines currently recommend that CD4 cell counts must be conducted within two days of blood draw.

HHS/CDC has spent the past four years developing less expensive ways of conducting CD4 cell counts. Now, using state-of-the-art technology, HHS/GAP Uganda has reduced the cost of a CD4 cell count from $15 to $3 and has shown that the blood can wait five days to be tested with completely accurate results. This allows transport of blood specimens once a week from remote sites to a central or regional laboratory. HHS/GAP is also conducting a study to see whether laboratory monitoring is necessary at all. It is possible that, through weekly or monthly monitoring by a trained lay person who also delivers the ART to a person’s home, signs of drug

failure such as weight loss and yeast infections can be detected quickly and the need to change drug regimens can be evaluated. These types of practical evaluations are necessary if we are to adapt effective interventions to the complexities of life in Africa.

HHS/GAP has found that the biggest obstacle to ART, especially in rural areas, is the inability to travel to a clinic to receive medication. Many people live so far from clinics that transportation by bicycle or bus to pick up drugs is not available along the paths that lead to their homes. If transportation is available, it is too expensive. Many people with HIV have died at home simply because they could not afford to come to the clinic when they were sick or they could not afford their medication.

To address this barrier, HHS/GAP and its partners have brought the health care system to people these rural areas, using the *Home-Based Care Program*, the project Secretary Thompson and Ambassador Tobias visited in December. In this project, community health workers travel to people's homes on motorcycles to provide home-based HIV testing and counseling, cotrimoxazole prophylaxis, mosquito nets, clean water, Tuberculosis treatment, prevention with positives counseling, and ART. They deliver drugs, ask a short, standardized symptom questionnaire, and support adherence to drug treatment. The project is based at one District hospital and is already treating over 1,000 persons in two Districts. Many Emergency Plan partners are applying some of the same interventions in other Ugandan areas.

Time

Much of the initial work in setting up a program that delivers HIV testing, basic care, and ART in Africa is spent on planning the program, developing counseling protocols and drug distribution systems, purchasing infrastructure and hiring staff. Because HHS/GAP developed many of its own tools, the *Home-based Care Program* in Tororo took a year to begin

implementation. However, now that it is in place, rapid expansion depends almost solely on funding. For example, a HHS/GAP-supported program in urban Kampala, a faith-based initiative called *Reach Out*, provided its first person ART using Emergency Plan funds only five weeks after Congress passed the FY2004 budget. Since this program had already planned for a family-centered program that adopted many of the interventions and materials that HHS/GAP had developed, they could immediately implement the program.

Let me convey the importance of home-based care in the provision of ART through the story of Jennifer Birungi, one of the first persons to receive ART funded by the President's Emergency Plan. Jennifer is a 36-year old woman with HIV and she is a widow with two children. Last month, she was diagnosed with cryptococcal meningitis, a painful and devastating infection for people with HIV. Without treatment, her life expectancy would have been six days. However, she was started on a drug for her meningitis infection as well as ART and has greatly improved. Although she has never attended school, lives in a one room house with no blankets or furniture, and struggles to find enough food for her children, she has taken every dose of her medicine on time.

Christopher Omoit is a client of the *Home-Based Care Program.* He is 53 years old and lives in rural Uganda with his wife, Florence, their five biologic children, and two orphans from his sister who died of AIDS. He was a laboratory technologist until 1999, when he became too sick to continue working and tested positive for HIV. Through U.S. government support, his whole family was provided HIV testing and counseling. His wife was HIV-negative because they were counseled about how to prevent transmission, and today, she remains negative. HHS/GAP provided him with a basic care package, and since then he has reported, "I used to get sick a lot with diarrhea and malaria, but now I can do my work without falling sick."

The basic care package helped Christopher, but his CD4 cell count was 13 and he knew he would not live on the basic care package alone. At this point, to survive, ART was absolutely necessary. Just six months ago, his field officer came on a motorcycle and provided him with his first supply of ART. He has since established a support group for people taking ART and the group has started income-generating activities. Because he is part of a home-based program that focuses on preventive care, he rarely becomes ill, can avoid having to walk four miles to the nearest clinic, he and his family stay healthy, and he is strong enough to work. Because his ARVs are delivered to him on a regular basis and his family has been educated to help him remember to take his drugs, he is adhering to his regimen better than the average person with HIV in the United States.

Within the next year, partially or wholly supported by U.S. Government funds, over 24,000 Ugandans like Christopher will be taking antiretroviral drugs, over 100,000 people with HIV will be receiving effective basic care, and thousands of infections will have been prevented. As the President's Emergency Plan is implemented, these numbers will increase. What is currently working in Uganda will work even better on a larger scale, and we can continue to make progress addressing the worst epidemic in recorded history.

Lastly, the success of home-based care in Uganda is in large part stems from the efforts President Bush and Congress have devoted to global AIDS over the past decade. The tremendous leadership of President Bush and members of Congress and their contribution towards the fight against global AIDS cannot be overstated. On behalf of my HHS and State Department colleagues and all those who work to combat global AIDS, I would like to thank Congress for the role you have played in helping to fight this global pandemic.

In conclusion, I thank you for the opportunity to speak today and I would be pleased to answer any questions.