

HIV Epidemic Restructuring Africa's Population:

A missing generation - a population of orphans - a shortage of women

The HIV epidemic raging across Africa is a tragedy of epic proportions, one that is altering the region's demographic future. It is reducing life expectancy, raising mortality, lowering fertility, creating an excess of men over women, and leaving millions of orphans in its wake. This year began with 24 million Africans infected with the virus. In the absence of a medical miracle, nearly all will die before 2010. Each day, 6,000 Africans die from AIDS. Each day, an additional 11,000 are infected. The epidemic has proceeded much faster in some countries than in others. In Botswana, 36 percent of the adult population is HIV-positive. In Zimbabwe and Swaziland, the infection rate is 25 percent. Lesotho is at 24 percent. In Namibia, South Africa, and Zambia, the figure is 20 percent. In none of these countries has the spread of the virus been checked.

Life expectancy, a sentinel indicator of economic progress, is falling precipitously. In Zimbabwe, without AIDS, life expectancy in 2010 would be 70 years, but with AIDS, it is expected to fall below 35 years. Botswana's life expectancy is projected to fall from 66 years to 33 years by 2010. For South Africa, it will fall from 68 years to 48 years, and for Zambia, from 60 to 30 years. These life expectancies are more akin to those of the Middle Ages than of the modern age.

The demography of this epidemic is not well understood simply because, in contrast to most infectious diseases, which take their heaviest toll among the elderly and the very young, this virus takes its greatest toll among young adults. The effect on mortality is most easily understood. In the absence of a low-cost cure, infection leads to death. The time from infection until death for adults in Africa is estimated at 7 to 10 years. This means that Botswana can expect to lose the 36 percent of its adult population that is HIV-positive within this decade, plus the additional numbers who will be infected within the

next year or two. The HIV toll, plus normal deaths among adults, means that close to half of the adults in Botswana today will be dead by 2010.

Other countries with high infection rates, such as South Africa, Swaziland, and Zimbabwe, will likely lose nearly a third of their adults by 2010. Adults are not the only ones dying from AIDS. In Africa, infants of mothers who are HIV-positive have a 30 to 60 percent chance of being born with the virus. Their life expectancy is typically less than 2 years. Many more infants acquire the virus through breastfeeding. Few of them will reach school age. Thus far, attention has focused on the effect of rising mortality on future population trends, but the virus also reduces fertility. Research is limited, but early evidence indicates that from the time of infection onward, fertility among infected women slowly declines. By the time symptoms of AIDS appear, women are 70 percent less likely to be pregnant than those who are not infected. Females are infected at an earlier age than males because they have sexual relations with older men who are more likely to be HIV-positive.

Female infection rates are also higher than those of males. Among 15- to 19-year-olds, five times as many females are infected as males. Because they are infected so early in life, many women will die before completing their reproductive years, further reducing births. A demographically detailed study in Kisumu, Kenya, found that 8 percent of 15-year-old girls are HIV-positive. For 16-year-olds, the figure is 18 percent; and by age 19, it is 33 percent. Among the 19-year-olds, the average age of infection was roughly 17 years. With a life expectancy of perhaps nine years after infection, the average woman in this group will die at age 26, long before her childbearing years are over.

Much work remains to be done in analysing the effects of the HIV epi-

dem on fertility, but we do know that with other social traumas, such as famine, the effect of fertility decline on population size can equal the effect of rising mortality. For example, in the 1959-61 famine in China, some 30 million Chinese starved to death, but the actual reduction in China's population as a result of the famine was closer to 60 million. The reasons are well understood. In a famished population, the level of sexual activity declines, many women stop ovulating, and even the women who do conceive often abort spontaneously. In a prolonged famine, the fall in births can contribute as much to the population decline as the rise in mortality. How much the HIV epidemic will eventually reduce fertility no one knows.

One thing is known: The wholesale death of young adults in Africa is creating millions of orphans. By 2010, Africa is expected to have 40 million orphans. Although Africa's extended family system is highly resilient and capable of caring for children left alone when parents die, it will be staggered by this challenge. There is a real possibility that millions of orphans will become street children, trying to survive by whatever means they can. Africa is also facing a gender imbalance, a unique shortage of women. After wars, countries often face a severe shortage of males, as Russia did after World War II. This epidemic, however, is claiming more females than males in Africa, promising a future where men will outnumber women 11 to 9. This will leave many males either destined to bachelorhood or forced to migrate to countries outside the region in search of a wife. The demographic effects of the HIV epidemic on Africa will be visible for generations to come.

Until recently, the official projections at the United Nations indicated continuing population growth in all countries in Africa. Now this may be changing as the United Nations acknowledges that populations could

decline in some countries. If the new U.N. biennial update of world population numbers and projections, due out before the end of this year, includes the full effect of the epidemic on fertility as well as on mortality, it will likely show future population declines for many African countries, including Botswana, Zimbabwe, South Africa, and Zambia.

There are many unknowns in the effects of the HIV epidemic on the demographic equation. Will health care systems, overwhelmed by AIDS victims, be able to meet the need for basic health care? How will the loss of so many adults in rural communities affect food security? What will be the effect on fertility of women surrounded by death? What will be the

social effects of the missing generation of young adults unable to rear their children or to care for their parents? Even though the HIV epidemic may claim more lives in Africa than World War II claimed worldwide, the epidemic is simply not being given the priority it deserves either within the countries most affected or within the international community.

The challenge is to reduce the number of new infections as rapidly as possible. Nothing should deter societies from this goal. One of the earliest countries hit by the epidemic, Uganda, has become a model for other countries as the infected share of its adult population has dropped from 14 percent in the early 1990s to 8 percent in 2000, a dramatic achieve-

ment. In Zambia, which has mobilized the health, education, agricultural, and industrial sectors, plus church groups, in the effort to curb the spread of the virus, the infected share of young females in some cities has dropped by nearly half since 1993. Zambia may soon turn the HIV tide. If all African countries can do what Uganda has done and what Zambia appears to be doing -- namely, reduce the number of new infections below that of AIDS deaths -- they may set the stage for ending this history-altering epidemic.

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"Worldwatch Issue Alert 2000 - 10"
<http://www.worldwatch.org/alerts/indexia.html>

Letters to the Editor

Research in Nine and a Half Minutes

To the Editor: One of the tasks that loom over the heads of anyone involved in post-graduate education is the "dreaded" research project. The terms are confusing, the statistics are frightening and the reading is overwhelming. By the time you have decided what to research, written a protocol, constructed a questionnaire, drawn up a budget, got the approval of the ethics committee, conducted the survey, analyzed the data and written it all up, your wife is threatening to divorce you, your kids are questioning you sanity and the dog no longer even wags his tail when you come home. Is it any wonder that many give up before even beginning?

The best way of learning about research is to do it! Like travel, once you have successfully completed the first journey, the bug bites and you are rearing to set off again. For those who have to teach research methodology and inspire students to get started, I would like to suggest 2 short games, which will help to break the ice on the first day of the research workshop. They are fun, they teach valuable lessons and they

can be completed in nine and a half minutes.

You need an apple, a piece of string and two chocolates. The apple is inedible. It's not a Mackintosh. It's actually a timer. Any timer will do. The one I use just happens to look like an apple.

Project 1 is to research a piece of string. The instructions are simple. The students work in pairs and each pair gets a short piece of string. They have seven and a half minutes to conduct the research and write a report. Anything goes and the prize is awarded to the pair with the most amusing report.

It is amazing to see the variety of options that are explored. The analytical ones measure it, test its properties and think up lists of uses, both probable and improbable, from trying shoes to strangling chickens! The imaginative ones suggest exploring string as a substitute for dental floss and plan to carry out the project at the entrance to the local shopping mall. The winners decide to do an in-depth interview with Mr. String to

assess whether he is fulfilled in his job. After inquiring about his numerous roles, the researchers explore how he feels about his length. Would he like to be shorter or longer? Did he feel separated from the rest of the string? Had he had a choice in being cut off? Mr. String says he feels he is unraveling. The researchers recommend that Mr. String be linked in a support group by being knotted to other strings.

Project 2 is a beauty contest. After the awkward giggling has subsided, get the whole group to stand around a table. Each one places their left little finger on the table and holds their right index finger in the air. On the command of "Go", each votes by touching the finger they consider the most beautiful. The result is usually total chaos and much laughter.

There you have it, two research projects completed in less than ten minutes. Everyone has had a good laugh and has been inspired to be more creative.

David Cameron
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