



Country AIDS Policy Analysis Project

HIV/AIDS in Tanzania

Lisa Garbus, MPP

AIDS Policy Research Center, University of California San Francisco

Published July 2004.

© 2004 Regents of the University of California. All Rights Reserved.

Table of Contents

(click on page number to go directly to that section)

PREFACE	4
ACKNOWLEDGMENTS	4
EXECUTIVE SUMMARY	6
EPIDEMIOLOGY	8
HIV SENTINEL SURVEILLANCE	8
METHODOLOGY	8
TRANSMISSION PATTERNS	10
HIV INCIDENCE	10
BLOOD DONORS	11
AIDS CASES	12
AIDS MORTALITY	12
U.N. ESTIMATES	13
POLITICAL ECONOMY AND SOCIOBEHAVIORAL CONTEXT	16
OVERVIEW	17
COLONIAL ERA	18
POSTCOLONIAL CONTEXT	18
ECONOMY	19
POVERTY	20
DEBT	21
GOVERNANCE	22
POPULATION DYNAMICS	23
HUMAN DEVELOPMENT	23
MOBILE AND DISPLACED POPULATIONS	24
EDUCATION	28
HEALTH SYSTEM	28
SEXUAL & REPRODUCTIVE HEALTH	30
SEXUALLY TRANSMITTED INFECTIONS	33
TUBERCULOSIS	35
GENDER	35
SEXUAL VIOLENCE	38
STIGMA AND DISCRIMINATION	40
AWARENESS AND KNOWLEDGE OF HIV/AIDS	41
SEXUAL BEHAVIOR	42
TRANSACTIONAL SEX	46
SEX WORK	47
MALE CIRCUMCISION	48
ALCOHOL AND DRUG USE	49
IMPACT	51
DEMOGRAPHIC	51
MACROECONOMIC	53
HEALTH SECTOR	54
HOUSEHOLDS	54
ORPHANS AND OTHER VULNERABLE CHILDREN	55
EDUCATION	57
AGRICULTURE	57
INDUSTRY	58

RESPONSE	59
GOVERNMENT	59
MULTISECTORAL RESPONSE.....	59
HUMAN RIGHTS.....	61
NONHEALTH MINISTRIES.....	63
ZANZIBAR	64
BUDGETS.....	64
CIVIL SOCIETY	70
EXTERNAL DONORS	71
CONDOMS.....	76
VCT	76
PTMCT.....	79
CARE AND SUPPORT	80
OPPORTUNISTIC INFECTIONS	81
ANTIRETROVIRAL THERAPY	81
HIV PREVENTION TRIALS NETWORK (HPTN)	82
FEMALE-CONTROLLED PREVENTION TECHNOLOGIES.....	83
MILITARY.....	83
ASSESSMENT OF GOVERNMENT RESPONSE	83
COMMERCIAL SECTOR RESPONSE	84
REFERENCES	86

Preface

The Country AIDS Policy Analysis Project is managed by the AIDS Policy Research Center at the University of California San Francisco. The project is funded by the U.S. Agency for International Development, Cooperative Agreement PHN-A-00-01-00001-00. Stephen F. Morin, PhD, is the project's principal investigator. The project received additional support from the International Training and Education Center on HIV (I-TECH), a collaboration of the University of Washington and UCSF funded through a cooperative agreement with the HIV/AIDS Bureau of the U.S. Health Resources and Services Administration. The views expressed in the outputs of the Country AIDS Policy Analysis Project do not necessarily reflect those of USAID or I-TECH.

The Country AIDS Policy Analysis Project is designed to inform planning and prioritizing of effective and equitable HIV/AIDS prevention and treatment interventions through multidisciplinary research on HIV/AIDS. The project evolved from the acute need for analysis of the epidemiology of HIV/AIDS in tandem with analysis of countries' political economy and sociobehavioral context—at household, sectoral, and macro levels. This multidisciplinary analysis aims to:

- help inform national HIV/AIDS policies
- strengthen ability to plan, prioritize, and implement effective interventions
- highlight the range of sectoral interventions that may affect or be affected by HIV/AIDS
- facilitate multisectoral/interministerial coordination
- facilitate intercountry information sharing
- increase national and subregional capacity for effective partnerships

The project develops and disseminates online analyses of HIV/AIDS in 12 USAID priority countries: Ethiopia, Kenya, Malawi, Senegal, South Africa, Uganda, Tanzania, Zambia, Zimbabwe, Brazil, Cambodia, and India <<http://ari.ucsf.edu/ARI/policy/countries.htm>> Each analysis is linked with national strategic plans for HIV/AIDS prevention, care, and support. Analyses also include a comparative table of 70 key HIV/AIDS and socioeconomic indicators.

The primary audience for the country analyses is in-country HIV/AIDS planners, including those from government ministries and agencies, multi- and bilateral donors, international and local NGOs, health care institutions, prevention programs, academia, affected communities, and the private sector. International investigators and policymakers also report using the analyses in their work.

All country analyses undergo peer review at the AIDS Research Institute of the University of California San Francisco. In addition, two in-country experts from each profiled country serve as peer reviewers. A scientific advisory board also reviews all analyses.

Acknowledgments

The following individuals served as peer reviewers and provided valuable inputs to this paper: Dr. Ariane van der Straten, University of California San Francisco; Dr. Jessie Mbwambo,

Muhimbili University College of Health Sciences, Dar es Salaam, Tanzania; and Dr. Frank F. Mosha, National Institute for Medical Research, Mwanza, Tanzania. They are not responsible for any errors of fact or judgment.

Executive Summary

The first AIDS cases in Tanzania were reported in the Kagera region in 1983. By 1987, all regions of the country had reported AIDS cases. HIV sentinel surveillance (HSS) from 2002 found an overall prevalence of 9.6 percent. Comparison with earlier HSS findings and discernment of trends are rendered difficult as prior to the introduction of a standardized HSS system in 2001, sites used a variety of methods to test for HIV and report findings. UNAIDS estimated that 1.6 million Tanzanians were living with HIV/AIDS at the end of 2003; of them, 1.5 million were adults, and adult HIV prevalence was 8.8 percent. Women comprised 56 percent of Tanzanian adults with HIV/AIDS.

Although the recent performance of Tanzania's macroeconomy has been impressive, transforming macroperformance into microlevel benefits remains a major challenge. Tanzania remains one of the world's poorest countries, with 2002 GNI of US\$290. Despite debt relief under HIPC, the country's debt sustainability prospects are tenuous. Access to health care is constrained by distance to facilities, poor road infrastructure, and lack of vehicles for transportation. Most public dispensaries do not have sufficient funds to provide proper facilities and services, and the poor cannot afford private facilities. The country's high maternal mortality ratio is an indication not only of poor reproductive health, but also of women's low status and poor access to basic health services. Tanzania had the world's 14th-highest burden of TB. Up to 50 percent of TB patients are coinfecting with HIV, and TB is the leading cause of death among AIDS patients.

Stigma and discrimination remain major barriers to HIV/AIDS prevention and care. Misperceptions about HIV transmission persist. Despite generally widespread knowledge of condoms, urban-rural differentials with regard to ability to obtain condoms are high among both men and women.

AIDS is projected to reduce life expectancy by up to 17 percent and population size by up to 15 percent. AIDS has already increased mortality by 11 percent. HIV/AIDS has resulted in welfare losses equivalent to 47.2 percent of GDP. The epidemic continues to impose a heavy burden on the health care system. Households affected by AIDS are experiencing significant reductions in income and increases in health expenditures. The percent of orphans attributed to AIDS rose from 4 percent in 1990 to 42 percent in 2001; it is projected to increase to 54 percent by 2010.

In 1985, the government established a national AIDS task force. In 1987, it created the National AIDS Control Program, which subsequently established AIDS coordinators in each of the country's districts. The initial response failed to reverse the trend of the epidemic at national level. Active political commitment began to accelerate in late 1999, when President Mkapa declared HIV/AIDS a national disaster and called for the entire nation—particularly political, civil, and religious leaders—to ramp up efforts to combat HIV/AIDS.

In 2001, the *National Policy on HIV/AIDS* was approved. Its overall goal is to provide a framework for leadership and coordination of the national multisectoral response to the epidemic. In 2002, the Tanzania Commission for AIDS was established. The *National*

Multisectoral Strategic Framework on HIV/AIDS 2003-2007 delineates the basic approaches and principles that guide the national response.

There are numerous NGOs and CBOs—including associations of PLWHA—providing critical prevention and care services. Current capacity to treat OIs is highly constrained, with wide variability in availability of OI drugs. Few Tanzanians who are clinically eligible for ART can afford treatment. Other factors that contribute to low uptake include lack of social support networks and confidentiality issues.

The government of Tanzania is strongly committed to addressing HIV/AIDS. It has made significant progress in establishing an institutional framework required to scale up the response. All districts have prepared HIV/AIDS plans. The country has successfully secured major external financing, including World Bank loans and GFATM grants, to scale up HIV/AIDS interventions.

Among the country's challenges in addressing HIV/AIDS:

- Data from Tanzania's HSS have not been reliable. Therefore, it is difficult to determine the epidemic's dynamics and thus plan adequately for them.
- Currently, the HIV/AIDS response does not appear to be targeting prevention interventions at populations at high risk of acquiring HIV. Specific at-risk populations—such as highly mobile populations, sex workers, truck drivers, fishermen, MSM, and prisoners—have little or no access to prevention programs in general, much less to programs tailored to their needs.
- Although ministerial and district AIDS committees have been established, most of them are not yet effective.
- The current lack of structured and comprehensive school-based HIV/AIDS programs is a major constraint.
- Much of Tanzania's institutional infrastructure has limited capacity to respond to HIV/AIDS. Constraints include providers' knowledge gaps, limited human and financial resources, commodity shortages, and poor management capacity. Personnel and other human resource limitations are likely to become increasingly acute as the response to the epidemic is scaled up and flows of HIV/AIDS funds into the country increase.
- There are no laws to protect the rights of PLWHA.
- Despite macroeconomic progress, Tanzania remains one of the world's poorest countries. Its HIV/AIDS activities continue to be heavily reliant on external donors, a scenario that raises concerns regarding sustainability.

Epidemiology

HIV Sentinel Surveillance

The first AIDS cases in Tanzania were reported in the Kagera region in 1983.[1] By 1987, all regions of the country had reported AIDS cases. In that year, the National AIDS Control Program (NACP) was established.[2]

In the late 1980s, HIV and syphilis serosurveillance in antenatal clinics (ANCs) was initiated in one region.[1] In 1990, HIV and syphilis sentinel surveillance among ANC attendees was established in 24 sites spanning 11 of mainland Tanzania's regions.[3]

Some HIV sentinel surveillance (HSS) has been conducted annually since 1992. There are, however, few clinics for which a consistent time series can be constructed; moreover, in the second half of the 1990s, fewer clinics reported than had done so in earlier years. Kagera, Mwanza, Arusha, Kilimanjaro and Mbeya regions and Dar es Salaam have more extensive information than other regions.[4] No ANC surveillance survey was conducted in 2001, presumably because NACP was in the midst of designing a new HSS system, as discussed below.

Collaborating with WHO and CDC[5], NACP examined the strengths and weaknesses of the existing HSS system in 1999. The assessment resulted in revised and improved methods for HIV and syphilis sentinel surveillance. Using these and other resources, NACP revised the protocol for ANC surveillance. New methods resulting from this revision included a three-month data collection period, the introduction of dried blood spot filter paper cards technology, standardization of HIV tests, and quality assurance measures.[1]

Methodology

NACP follows the WHO recommendations for sampling and HIV testing, and currently collaborates with the U.S. Centers for Disease Control and Prevention (CDC) on HIV testing protocols.[1, 3] The surveillance population comprises pregnant women attending ANCs for the first time for a particular pregnancy at a sentinel site. A blood sample drawn for routine estimation of hemoglobin and syphilis screening is subjected to unlinked anonymous HIV testing using the ELISA test.[3]

2000 Findings

A total of 6,505 ANC attendees were recruited from 28 sites. Prevalence ranged from 4.2 percent (95% CI: 1.0-12.7) in Igekemaja (Mwanza) to 32.1 percent (95% CI: 24.9-40.1) in Ipogoro (Iringa). Of the 28 sites, 22 (78.6 percent) reported HIV prevalence over 10 percent. HIV prevalence was highest in the younger age groups (14-24 and 25-34).[3]

In comparing 2000 findings with those from earlier HSS, one must bear in mind that NACP's plan to strengthen HSS through a new system of site selection and quality assurance took effect

after the 2000 HSS.[3] Sites did not use standardized procedures for blood collection and other surveillance methods, impeding the reliability and quality of data collected.[1] Moreover, many sites created in 1990 had been replaced by new ones by 2000.[3]

During the 1990s, prevalence across sites fluctuated greatly. For example, in the Mbeya sites, prevalence rose from 15.4 percent in 1992 to 20.3 percent in 1994, fell back to 15.4 in 1998, and rose to 18.6 in 2000. At the Iringa Reg Hospital site, prevalence rose from 24.9 percent in 1998 to 40.1 percent in 1999, falling to 4.6 percent in 2000.[3] One might infer that the weaknesses in the HSS system accounted for some portion of these fluctuations.

Extrapolating the 2000 findings to the Tanzania mainland adult population, 1,810,353 persons ages 15 and above (690,779 males and 1,119,574 females) were living with HIV. Of them, 1,506,703 (561,258 males and 945,445 females) were ages 15 to 49.[3]

2002 Findings

As mentioned above, to strengthen HSS, NACP established a new system of site selection from 2001 onward, wherein four sentinel sites in each of six selected regions are chosen. These regions are sampled to represent various geographical areas of the country. The four sites in each region include one urban site, one semiurban or roadside site, and two rural sites (located in a rural health center, dispensary, or independent clinic).[1, 3]

Between January and April 2002, a new round of HIV and syphilis serosurveillance was conducted at 24 ANC sites located in six regions: Dar es Salaam, Dodoma, Kagera, Kilimanjaro, Mbeya and Mtwara. Serosurveillance was conducted at urban, semiurban, and rural clinics.[1]

A total of 7,275 ANC attendees were sampled. The number of enrollees ranged from 862 in Mtwara to 1,697 in Dar es Salaam. A total of 695 women tested HIV-positive, for an overall HIV prevalence of 9.6 percent (95% CI: 8.9-10.2). HIV prevalence ranged from 5.6 percent in Kagera (95% CI: 4.4-6.7) to 16.0% in Mbeya (95% CI: 13.9-17.8). Across the Dar es Salaam sites, HIV prevalence was 12.8 percent (95% CI: 11.3–14.4).[1]

Of the 24 ANC sites participating in the study, eight (33.3 percent) reported HIV prevalence greater than 10 percent: one clinic in Mtwara (urban), one in Dodoma (semiurban-roadside), two in Mbeya (urban and border), and all four urban clinics in Dar es Salaam. Attendees from clinics located in urban areas had higher HIV prevalence than those recruited from rural clinics ($p<0.001$).[1]

In all regions, HIV prevalence was highest among women ages 25 to 34. Single women had higher prevalence than married women ($p<0.001$). Prevalence among single women who had been pregnant before (18.3 percent) was nearly twice that of married women who had previously been pregnant (9.8 percent) ($p<0.0001$). (NB: Most HIV-positive attendees in this study had previous pregnancies). Women who reported some or more than primary education had higher prevalence in some regions than women with no education ($p<0.0001$). Over 80 percent of women coinfecting with HIV and syphilis were married, had formal education, and lived in urban areas.[1]

Comparison of 2002 findings with previous HSS is difficult, as the 2002 HSS occurred under the new NACP system previously described. Overall HIV prevalence among ANC attendees in 2002 was 9.6 percent, ranging from 5.6 to 16.0 percent across six regions—dramatically lower than findings from the previous HSS in 2000, in which regional prevalences ranged from 4.0 to 32.1 percent. Note, however, that as discussed above, comparisons are hindered by past use of a variety of nonstandardized methodologies and substandard quality control measures. [1]

Zanzibar

The first three AIDS cases in Zanzibar were identified in 1986 at Mnazimmoja Hospital. HSS among ANC attendees has been conducted since 1987, with site sample sizes varying by year. In 1998, a standardized HSS protocol was developed.[6] Thus, findings must be viewed in the context of nonstandardized data collection and lack of quality assurance measures.

HSS indicated that HIV prevalence among ANC sites rose from 0.3 percent in 1987 to 0.7 percent in 1999, peaking at 3.8 percent in 1995.[6] According to a June 2003 study completed by Tanzania's MOH with participation and support from WHO, UNDP, UNICEF, and Muhimbili University College of Health Sciences, HIV prevalence in Zanzibar was estimated at 0.6 percent for the general population.[7]

Transmission Patterns

In January 2004, Tanzania's Global Fund Country Coordinating Mechanism reported that heterosexual transmission accounted for 82 percent of HIV infections; transmission from mother to child represented 6 percent of infections.[8]

Among AIDS cases reported in 2000, heterosexual transmission was the primary mode of infection (77.2 percent). MTCT accounted for 3.4 percent of AIDS cases; transmission via infected blood/blood products accounted for 0.4 percent. For 19 percent of cases, the transmission mode was not stated.[3] There are no published data on HIV transmission via MSM or IDU.

HIV Incidence

Given the difficulty in discerning trends in HIV prevalence due to lack of standardization across HSS cycles, making inferences about HIV incidence using prevalence data from the youngest age groups must be approached with caution. A study conducted by researchers from the German Agency for Technical Cooperation (GTZ), Tanzanian Ministry of Health, London School of Hygiene and Tropical Medicine, University of Munich, and Technical University of Berlin analyzed age-specific trends in HIV seroprevalence among ANC attendees in four areas of Mbeya region between 1988 and 2000 and in one area of Rukwa region between 1991 and 1999. (NB: As mentioned above, Kagera and Mbeya are among the regions having the most extensive HSS data.[4]) Indicators measuring behavioral change and attendance rate of patients with STIs were monitored using findings from routine surveillance, complemented by two Knowledge, Attitude, and Practice (KAP) surveys in 1995 and 1999. The researchers found increasing HIV

prevalence from 1988 through 1994-95 for women ages 15-24 across all strata. Between 1994-95 and 2000, prevalence declined significantly in all strata for this age group in Mbeya region, with diverse patterns in infection spread along with a significant decrease in positive syphilis serology, high rate of condom use, significant delay in sexual début among primary school pupils, and high treatment rate for STIs. However, the increasing trend in HIV prevalence in Rukwa region continued. The study concluded that declining trends in HIV prevalence among women ages 15-24 may correspond to reduced incidence, partly attributable to behavior change and reduction in a biologic factor influencing HIV transmission—outcomes to which Mbeya's large-scale HIV prevention activities (implemented since 1988) may have contributed.[9]

Reductions in HIV incidence trends would provide the most convincing evidence of a decrease in epidemic size, but large, long-term, longitudinal studies (cohort studies, which can measure both incidence as well as prevalence) are needed to obtain such evidence.[10]

Mwanza Cohort Study

The Mwanza Cohort Study was a community-randomized trial to investigate the impact of an STI treatment program on HIV incidence (for detail on the trial, see, inter alia, Grosskurth et al. "Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania: randomized controlled trial." *Lancet* 1995 Aug 26;346(8974):530-6.) In a retrospective study nested within the Mwanza trial, researchers followed a cohort of 1,802 couples for two years, with HIV status of each couple assessed at baseline and follow-up. At baseline, 96.7 percent of couples were concordant-negative, 0.9 percent were concordant-positive, 1.2 percent were discordant with the male partner being HIV-positive, and 1.2 percent were discordant with the female partner being HIV-positive. Individuals living with an HIV-positive partner were more likely to be HIV-positive at baseline (women: OR: 75.7, 95% CI: 33.4-172; men: OR: 62.4, CI: 28.5-137). Seroincidence rates in discordant couples were 10 per 100 person-years (py) and 5 per 100 py for women and men, respectively (RR: 2.0, CI: 0.28-22.1). In concordant-negative couples, seroincidence rates were 0.17 per 100 py in women and 0.45 per 100 py in men (RR: 0.38, CI: 0.12-1.04). Individuals living in discordant couples were at a greatly increased risk of infection compared with individuals in concordant-negative couples (RR: 57.9, CI: 12.0-244 for women; RR: 11.0, CI: 1.2-47.5 for men). It appeared that men were more likely than women to introduce HIV infection in concordant-negative partnerships. In discordant couples, incidence in HIV-negative women was twice as high as in men.[11]

Police Officers Cohort Study in Dar es Salaam

HIV prevalence among females was 18.0 percent, compared to 13.3 percent among males. The incidence of HIV was 19.6 and 22.4 per 1,000 person years at risk for males and females, respectively.[3]

Blood Donors

Blood donor screening was introduced on the Tanzanian mainland in 1987. Initially, screening was done at regional and referral hospitals. In 1990, this activity was extended to all hospitals providing blood transfusion services. Donors are screened using either rapid tests in peripheral

hospitals or the ELISA test in regional and referral hospitals. Test results are filled in blood donor HIV register forms made available to the hospitals from the MOH through the regional medical office. Copies of completed forms are returned to NACP for processing and reporting.[3]

In 2000, a total of 128,595 individuals donated blood on the mainland. Persons under age 15 and those whose information on HIV test results was missing were excluded from analysis, resulting in 128,366 individuals as the basis for analysis. Of them, 107,593 (83.8 percent) were males, 20,619 (16.1 percent) were females, and for 153 individuals, sex was not specified. Overall prevalence among blood donors was 9.9 percent (95% CI: 9.7-10.1). As in past years, prevalence among males was significantly lower than among females: 9.2 percent (95% CI: 9.0-9.4) versus 13.3 percent (95% CI: 12.8-13.7), respectively.[3]

In Zanzibar, there are eight hospitals that provide blood transfusion services, three in Unguja and five in Pemba. They screen blood donations and report results to ZACP. A questionnaire is usually administered to potential donors, almost all male, to exclude those with self-reported high-risk behavior, thus reducing reported prevalence among this group. Prevalence increased from 0.5 percent in 1987 to 1.5 percent in 1998. During the first half of 1999, prevalence was 1.4 percent.[6]

AIDS Cases

AIDS cases diagnosed by hospitals are reported quarterly to NACP. Reporting is done using forms distributed to all hospitals through regional medical officers (RMOs). Information collected includes name of reporting hospital, district of usual residence, sociodemographic characteristics of the diagnosed case, case definition criteria used to make the diagnosis, possible source of infection, and whether an HIV test was conducted.[3]

Since 1983 through December 2000, there have been a cumulative total of 130,386 AIDS cases reported to NACP. During 2000, 11,673 AIDS cases were reported to NACP from the Tanzania mainland. Because of underutilization of health services, underdiagnosis, underreporting, and delays in reporting, NACP estimates that only 20 percent of AIDS cases are reported to it.[3] In 2000, among reported AIDS cases, 44.2 percent were married, and 24.2 percent were single. The remaining cases were divorced (6.6 percent), separated (4.2 percent), cohabiting (1.9 percent), or widowed (1.3 percent). For about 12.6 percent of cases, marital status was not stated. Ninety-four percent of cases were above age 15. Among women, AIDS cases peaked in the 25-34 age group; among men, they peaked in the 30-39 age group, suggesting a large portion of HIV transmission from older males to younger females.[3] (See the Age Mixing section below.)

According to the 2000 data, the region with the highest cumulative case rate was Mbeya, followed by Dar es Salaam and Coast. The region with the lowest case rate was Mara.[3] However, these data should be viewed with caution, as Mara has a high rate of *underutilization* of health services compared with other regions.[12]

AIDS Mortality

According to UNAIDS, during 2003, there were 160,000 AIDS deaths (adults and children) in Tanzania.[13]

Health facility-based data compiled in the *Tanzania Health Statistics Abstract* in 1999 indicated that the leading causes of mortality among those age 5 and above were malaria (22.0 percent), AIDS (17.0 percent), TB (9.0 percent), pneumonia (6.5 percent), and anemia (5.5 percent).[2]

See the Impact section for more detailed discussion.

U.N. Estimates

At the end of 2003, UNAIDS estimated that 1.6 million Tanzanians were living with HIV/AIDS (estimate range: 1.2 million to 2.3 million). Of them, 1.5 million were adults (ages 15-49), and adult HIV prevalence was 8.8 percent. Of adults living with HIV/AIDS, UNAIDS estimated that 840,000 (or 56.0 percent) were women.[13]

The U.N. Population Division believes that HIV prevalence in Tanzania peaked in 1997 at 8.8 percent. It projects that prevalence in 2050 will be 1.9 percent. [14]

Sexually Transmitted Infections

During 2000, a total of 1,974 women attending ANC's for the first time for a particular pregnancy were screened for syphilis. Across sites, prevalence of syphilis ranged from 0.0 to 44.5 percent, compared with 0.4 to 32.6 percent in 1999. Some sites reported declines in prevalence, whereas others reported dramatic increases. As discussed above, however, irregularities in screening and testing procedures likely explain at least part of these fluctuations. Generally, however, data from various sites have indicated a decreasing trend in syphilis prevalence from 1990 to 2000.[3]

In 2002, a total of 7,201 ANC attendees were tested for syphilis (under improved surveillance procedures, as discussed above). A total of 590 women tested positive, for an overall syphilis prevalence of 8.2 percent (95% CI: 7.6-8.8). Syphilis prevalence ranged from 3.0 (95% CI: 1.9-4.1) in Kilimanjaro to 12.3 percent (95% CI: 10.1-14.4) in Dodoma. Across Dar es Salaam sites, prevalence was 4.8 percent (95% CI: 3.8 -5.9).[1]

Women living in rural areas had higher syphilis prevalence than those in urban areas ($p < 0.0001$). Marital status did not appear to influence syphilis prevalence. Women ages 25-34 were more likely to have syphilis than women less than 25 years ($p = 0.015$). In contrast to the 2002 HIV sentinel surveillance findings discussed above, women with no education were more likely to be infected with syphilis than were women with some education ($p < 0.0001$).[1]

In 2002, overall, 12.4 percent of ANC attendees were coinfectd with syphilis and HIV. Of those coinfectd, 89 percent lived in an urban area, 60 percent were ages 25-34, 86 percent were married, and 86 percent had some education. The highest proportion of coinfectd attendees was observed in Mtwara (24.6 percent).[1]

The above STI data refer to the Tanzanian mainland. In Zanzibar, ZACP reports that among STI patients, HIV prevalence has fluctuated from 22.0 percent in 1994 to 31.4 percent in 1996, falling to 25.8 percent in 1997 and rising to 55.5 percent in 1998.[6]

Data Quality Issues

ANC data currently serve as Tanzania's primary sentinel surveillance of HIV. Limitations of ANC data (see box 1) include that comparative studies have shown that the HIV prevalence among pregnant women in sub-Saharan Africa underestimates prevalence in women of reproductive age because fertility among HIV-positive women is substantially lower than among uninfected women.[15] For example, Gregson et al. have found 25 to 40 percent lower fertility in women with HIV in high-prevalence African countries; they attribute about half of this "subfertility" directly to HIV infection.[16]

A team comprising researchers from LSHTM, the Tanzania-Netherlands Project to Support HIV/AIDS Control in Mwanza, and the University of North Carolina at Chapel Hill examined the association between HIV and fertility in Kisesa. (Kisesa is a rural ward in the Mwanza region of northern Tanzania. The ward's population is about 20,000 and is located along the main road to Kenya. The Kisesa cohort study began in 1994.[17]) They used data from a demographic surveillance system in Kisesa during 1994-98 and two large serosurveys of all residents in 1994-95 and 1996-97. HIV-associated fertility reduction among women was investigated by estimating fertility rates by HIV status and HIV prevalence rates by fertility status. A substantial reduction (29 percent) was observed in fertility among HIV-infected women compared with HIV-uninfected women. The fertility reduction was most pronounced during the terminal stages of infection, but no clear association with duration of infection was observed. Use of modern contraception was higher among HIV-infected women. However, among both contracepting and noncontracepting women, a substantial reduction in fertility was seen among HIV-infected women.[18]

In a study using several Tanzanian datasets, Ainsworth and her World Bank colleagues found that the death of an adult female household member and the death of a sibling or a husband were associated with lower recent fertility for surviving women. The reasons that surviving women have lower fertility in areas of high adult mortality might include reduced long-run economic benefits of higher demand for women's time; lower income following an adult death; and the need to absorb orphaned children, which might reduce a household's own demand for children.[19]

Another issue is reliability of HIV testing, standardization of data collection procedures, and quality assurance. As discussed above, prior to the introduction of a standardized HSS system in 2001, sites used a variety of methods to test for HIV and report findings; quality assurance was often lacking. Thus, comparison of findings and discernment of trends are rendered very difficult. Compounding this scenario is that there has been no national behavioral survey since 1999 (and that itself was an interim study) that could aid in validating prevalence dynamics.

Box 1. HIV Sentinel Surveillance: Evaluating Data from Antenatal Clinics

In many developing countries, estimates on the magnitude of and trends in the HIV epidemic are obtained through HIV seroprevalence surveys. These surveys are primarily conducted using sentinel populations. The most frequently used sentinel populations are women attending antenatal clinics and persons attending clinics for diagnosis and treatment of sexually transmitted infections. The objectives of sentinel seroprevalence surveys include:

1. obtaining information on the prevalence of HIV infection in the sentinel population
2. monitoring trends in HIV prevalence in the sentinel population
3. providing information for estimating future number of AIDS cases
4. providing information for program planning and evaluation of interventions

Seroprevalence surveys are usually conducted annually at preselected clinics or hospitals. Surveys of women attending antenatal clinics can provide a reasonable estimate of HIV prevalence within the general population. The surveys are conducted among women ages 15 to 49 years attending the antenatal clinic for the first time during a current pregnancy. Surveys are usually conducted in an unlinked manner, in which serum remaining from routine syphilis screening is tested for HIV infection after all personal identifying information is removed from the specimen. Sampling is usually conducted during an 8- to 12-week period, and all eligible women are sampled consecutively until the desired sample size is achieved. In general, samples of 250 and 400 women are usually sufficiently large as to provide reasonable estimates of HIV prevalence over time.

Although these surveys are extremely useful, there are several limitations to consider when interpreting the survey results. The surveys are not based upon a probability sample and therefore may not be representative of the population as a whole. True population-based surveys have found antenatal clinic data may overestimate or underestimate HIV prevalence.

Moreover, the ANC studies do not provide information on mortality or HIV-associated morbidity. In addition, although monitoring trends in HIV prevalence provide information on the magnitude of the HIV epidemic, trends in prevalence cannot be relied upon to indicate trends in HIV incidence. However, examining trends in HIV prevalence in younger populations, particularly 15- to 19-year-olds, may provide some indication of trends in recently acquired HIV infection, as this group is unlikely to have been infected for a long period of time.

Prepared by Sandy Schwarcz, MD, MPH

Director, HIV/AIDS Statistics and Epidemiology Section, San Francisco Department of Public Health

Adjunct Assistant Professor, Department of Epidemiology and Biostatistics, University of California San Francisco

Political Economy and Sociobehavioral Context

In a paper prepared for the WHO Commission on Macroeconomics and Health, David Bloom and his colleagues note that:

"Existing data provide some indication that the relationship between poverty and HIV is growing stronger over time, both between and within continents. But it is not possible to infer causality from these data. That is, it is difficult to tell whether poverty causes AIDS or vice versa—or whether another variable, such as war, inadequate health, or poor education, explains the relationship....In sum, the link between economic status and AIDS is complex."[20]

Håkan Björkman, senior adviser on HIV/AIDS to UNDP's Bureau for Development Policy, states that:

"HIV/AIDS is not strictly speaking a "disease of poverty" as it affects people at all income levels. But evidence from some countries at advanced states of the epidemic shows that new HIV infections disproportionately affect poor people, unskilled workers, and those lacking literacy skills—especially young women in each of these categories. The relationship among poverty, gender, and HIV vulnerability has important policy implications."[21]

According to UNFPA:

"For Tanzania and most developing countries, the last quarter of the 20th century was characterized by the latest round of a series of sharp and often long-term development shocks. Three related shocks are frequently cited: oil price hikes, debt crises and structural adjustment programs (SAPs). In addition, many countries suffered droughts and/or flooding as well as armed conflicts. The majorities in many affected countries saw their lives deteriorate in every way, while local and international elites enriched themselves ever more. Indeed, disillusionment and despair became widespread in contrast to the period of optimism when many nations won their independence from colonial rule. While no one would argue that these shocks "caused" the AIDS epidemic, they did help create an environment highly conducive to its spread into the general population of an STI, and did so just at the time when HIV was entering into societies around the world."[22]

This section analyzes key political economy and sociobehavioral contextual elements to highlight the range of sectoral policies and interventions that may affect or be affected by HIV/AIDS. (In addition to the comparative table of key HIV/AIDS and socioeconomic indicators that accompanies this analysis, readers may also want to consult the 2003 indicators related to Tanzania's progress on achieving the Millennium Development Goals, which are published by UNDP [<http://www.undp.org/hdr2003/indicator/index_indicators.html>.](http://www.undp.org/hdr2003/indicator/index_indicators.html))

The section examines individual as well as community characteristics, as increasingly, risk of HIV infection is recognized as related to individual as well as community variables. Shalah

Bloom of the University of North Carolina at Chapel Hill and her colleagues investigated the effect of community characteristics on HIV prevalence and incidence using data from the Kisesa cohort study. Kisesa ward is composed of six villages, divided into 47 subvillages—a subvillage is the smallest administrative unit of the government (*kitongoji*). The ward includes a trading center (also called Kisesa) located on the main road to Kenya. The population of subvillages ranges from 58 people in the more rural areas to 461 in the trading center. Using subvillages as the unit of analysis, community factors investigated were level of social and economic activity, ratio of bar workers per male population ages 18-59, level of community mobility, and distance to the nearest town. Logistic and Cox regression models were used to estimate community effects, controlling for multiple individual factors. All four community factors had strong effects on risk of HIV. Men who lived in subvillages with the highest level of social and economic activity were about five times more likely to be HIV-positive (OR: 4.71, 95% CI: 2.89 to 6.71) than those in places with low levels of activity; women in these subvillages were twice as likely to be HIV-positive (OR: 1.92, 95% CI: 1.27 to 2.92). After controlling for community effects, the effects of some individual factors on the risk of HIV—education, male circumcision, type of work, and number of household assets—changed notably. The association between HIV incidence and community factors was in the expected direction, but did not reach statistical significance (RR = 2.07, $p = 0.10$). A relatively robust and mobile economy appeared to elevate a community's risk of HIV because the local population comes into contact with a larger sexual network, some of whom may already be infected. Although the researchers found that community risk factors did not displace individual risk factors as an explanation for HIV infection, they concluded that individual risk does rise and fall with community risk.[17]

Overview

Formed in 1964, the United Republic of Tanzania is a union between Tanganyika and Zanzibar. The country is divided into 26 regions: 21 on the mainland and five on Zanzibar.[1] Tanzania has the largest land area of any country in East Africa, occupying 945,087 km². It borders eight countries: Kenya and Uganda to the north; Rwanda, Burundi, and Democratic Republic of Congo to the west, and Zambia, Malawi, and Mozambique to the south.[1] Surrounded by many nations in conflict, Tanzania is one of the most politically stable countries in Africa.[23]

Population distribution in Tanzania is extremely uneven. Density varies from 1 person per km² highlands and 134 per km² on Zanzibar.[24] Seventy-eight percent of the population is rural.[25] Dar es Salaam is the capital and largest city; Dodoma, located in the center of Tanzania, has been designated the new capital, although action to move the capital has stalled. [24] Mwanza is the second-largest city in Tanzania.[17]

Islam and Christianity each account for 45 percent of the population, with the remaining 10 percent adhering to indigenous beliefs. The Asian community, including Hindus, Sikhs, Shi'a and Sunni Muslims, and Goans, has declined by 50 percent in the past decade to 50,000 on the mainland and 4,000 on Zanzibar. The African population comprises over 120 ethnic groups, of which the Sukuma, Haya, Nyakyusa, Nyamwezi, and Chaga have over 1 million members.[24]

Colonial Era

In 1886 and 1890, Anglo-German agreements were negotiated that delineated the British and German spheres of influence in the interior of East Africa and along the coastal strip previously claimed by the Omani sultan of Zanzibar. In 1891, the German Government took over direct administration of the territory from the German East Africa Company and appointed a governor with headquarters at Dar es Salaam. German colonial domination of Tanganyika ended after World War I, when control of most of the territory passed to the U.K. under a League of Nations mandate. After World War II, Tanganyika became a U.N. trust territory under British control.[24]

In 1954, Julius K. Nyerere, a school teacher who was then one of only two Tanganyikans educated abroad at the university level, organized a political party, the Tanganyika African National Union (TANU). TANU-supported candidates were victorious in the Legislative Council elections of September 1958 and February 1959. In December 1959, the U.K. agreed to the establishment of internal self-government, with general elections to be held in August 1960. Nyerere was named chief minister of the subsequent government. In May 1961, Tanganyika became autonomous, and Nyerere became prime minister under a new constitution. Full independence was achieved in December 1961. Nyerere was elected president when Tanganyika became a republic within the Commonwealth a year after independence. [24]

Zanzibar was an early Persian trading center. The Anglo-German agreement of 1890 made Zanzibar and Pemba a British protectorate. In July 1957, elections for six nongovernment members to the Legislative Council were held. Two parties were formed: the Zanzibar Nationalist Party (ZNP), representing the dominant Arab and "Arabized" minority, and the Afro-Shirazi Party (ASP), led by Abeid Karume and representing the Shirazis and the African majority. The ASP won three of the six elected seats, with the remainder going to independents. Following the election, the ASP split; some of its Shirazi supporters left to form the Zanzibar and Pemba People's Party (ZPPP). In December 1963, Zanzibar became independent from the U.K., as a constitutional monarchy under the sultan. In January 1964, the African majority revolted against the sultan and a new government was formed with the ASP leader, Abeid Karume, as president of Zanzibar and chairman of the Revolutionary Council..[24] (President Karume was assassinated in April 1972.[12]) The Tanganyika union with Zanzibar to form the United Republic of Tanganyika and Zanzibar occurred in April 1964; in October of that year, it was renamed the United Republic of Tanzania. Under the terms of its political union with Tanganyika in April 1964, the Zanzibar government retains considerable local autonomy.[24]

Postcolonial Context

One of Africa's best-known elder statesmen, Nyerere was also one of the founding members of the Non-Aligned Movement. Under Nyerere, Tanzania was a one-party state, with a socialist model of economic development. In 1977, Nyerere merged TANU with the Zanzibar ruling party, the ASP, to form the CCM as the sole ruling party in both parts of the union. In 1985, President Nyerere was succeeded by Ali Hassan Mwinyi. Nyerere retained his position as chairman of the ruling party for five more years and was influential in Tanzanian politics until his death in October 1999.[24]

Under Ali Hassan Mwinyi, Tanzania undertook a number of political and economic reforms. In early 1992, the government decided to adopt multiparty democracy. Legal and constitutional changes led to the registration of 11 political parties. Two parliamentary byelections (won by CCM) in early 1994 were the first multiparty elections in Tanzanian history. Tanzania's current president, Benjamin Mkapa of the ruling CCM, was elected in 1995. In October 2000, Mkapa was reelected, and CCM won 202 of the 232 elected seats in Parliament.

Zanzibar President Salmin Amour was elected in single-party elections in 1990. In 1995, he was named the winner of Zanzibar's first multiparty elections, a victory widely deemed to have been tainted by fraud. In the 2000 Zanzibar presidential election, Abeid Amani Karume, the son of former President Abeid Karume, defeated CUF candidate Seif Sharif Hamad. The election was marred by irregularities, and subsequent political violence claimed at least 23 lives in January 2001, mostly on Pemba island. In October 2001, the CCM and the CUF parties signed a reconciliation agreement that called for electoral reforms and establishes a commission of inquiry to investigate the deaths that occurred in January 2001 on Pemba.[24]

Tanzania is helping to broker peace talks to end conflict in Burundi and supports the Lusaka agreement concerning the conflict in the DRC. Tanzania is the only country in East Africa that is also a member of the Southern African Development Community (SADC).[24]

Economy

Agriculture accounts for 80 percent of the workforce and 48 percent of GDP. Industry accounts for 8.3 percent of GDP and includes textiles, agribusiness, light manufacturing, oil refining, and construction. Natural resources include coal, iron, gold, natural gas, nickel, diamonds, and other gemstones. Main exports are coffee, cotton, tea, sisal, diamonds, cashew nuts, tobacco, flowers, seaweed, fish, and cloves.[24]

In the 1990s, Tanzania's export economy changed dramatically. During the first half of the decade, coffee was the most significant export; by the end of the decade, however, it had been replaced by gold and diamonds. The growing importance of mining in the Tanzanian economy brings in significant resources from abroad and provides employment; however, mining also entails separation from family and exposure to new sexual networks, which may facilitate risk of HIV acquisition.[26] (See Mobile and Displaced Populations section below.)

Macroeconomic Reform

In 1986, the government of Tanzania embarked on an adjustment program to dismantle state economic controls and encourage more active participation of the private sector in the economy. The program included a comprehensive package of policies to reduce the budget deficit, improve monetary control, liberalize trade regime, remove most price controls, ease restrictions on the marketing of food crops, free interest rates, and initiate restructuring of the financial sector.[27]

The recent performance of Tanzania's macroeconomy has been impressive. GDP growth rose from 5.7 percent in 2001 to 6.2 percent in 2002, related to relatively strong performances in

agriculture, mining, manufacturing, as well as wholesale and retail trade. Inflation declined from 4.5 percent in June 2002 to 4.3 percent in April 2003.[27]

Improvements in fiscal performance have enabled the government to steadily increase budget allocations to education, health, water, agriculture, and rural roads. The Household Budget Survey 2000/01 indicated improvements in housing conditions; increased possession of consumer durables; and decreased distance to markets, shops, public transport, etc.[28]

However, transforming impressive macroperformance into microlevel benefits remains a major challenge for the government.[28] Tanzania remains one of the world's poorest countries. In 2002, gross national income (GNI) per capita (terminology that has replaced GDP per capita) was US\$290. This figure is lower than that for the SSA region (US\$450) and for all low-income countries (US\$430).[29]

A 1997 ILO workshop on gender and structural adjustment in Tanzania found that structural adjustment appeared to have worsened gender disparities in access to employment and economic opportunities, particularly in the formal sector. Although both men and women are affected by the retrenchment and personnel reduction that structural adjustment involves, these processes had a greater impact on women. [30]

Luisa Ferreira of the World Bank notes that structural adjustment appears to have benefited many poor households; those near the poverty line benefited the most. However, those with extremely low incomes appear to have become somewhat *poorer*. She notes how increases in the inequality of income distribution eroded some of the potential for poverty reduction that would have otherwise resulted from growth. Moreover, structural adjustment rewarded those with education, excluding those with little education. [31]

Poor pricing and unreliable cash flow to farmers continue to constrain the agricultural sector. Tanzania's industrial sector is one of the smallest in Africa. It has been heavily affected by persistent power shortages caused by low rainfall in the hydroelectric dam catchment area, a condition compounded by years of neglect and poor management at the state-controlled electric company. Foreign exchange shortages and mismanagement continue to deprive factories of much-needed spare parts and have reduced factory capacity to less than 30 percent. Despite Tanzania's past record of political stability, an unattractive investment climate has discouraged foreign investment. Zanzibar's economy is based primarily on the production of cloves, the principal foreign exchange earner. Exports have suffered with the downturn in the clove market.[24]

Poverty

Using the Household Budget Survey 2000-01, the 2000-01 Integrated Labor Force Survey, and other selected studies finds that 18.7 percent of Tanzanians live below the national food poverty line and 35.7 percent live below the national basic needs poverty line.[28]

The overall poverty level in urban areas (particularly in Dar es Salaam) is substantially lower than that in rural areas. Among the total poor population, the proportion of the urban poor is only 13 percent, compared to 87 percent in rural areas.[28]

Using international poverty markers, 19.9 percent of the population lived below US\$1 a day during 1990-2001, and 59.7 percent lived below US\$2 a day during the same period.[32]

A team from Tulane investigated the concentration of poverty at the community level in Tanzania and its association with availability and quality of primary health care services, utilization of primary health care services, and health outcomes among both poor and nonpoor households. It found that on average, both poor and nonpoor households living in low poverty concentration areas had better health outcomes and service utilization rates than their counterparts living in high poverty concentration clusters. Consistent with these findings, high poverty concentration areas were found to be farther away from facilities offering primary health care than were low poverty concentration areas. Moreover, the facilities closest to high poverty concentration areas had fewer doctors, medical equipment, and drugs. Although the study did not directly measure quality, the characteristics that differentiate high poverty from low poverty concentration clusters indicated that quality was more important than physical access among the study population. Therefore, the team surmised, one possible way to improve the health status of the population in poor clusters is to provide better quality services from existing health facilities; distance to the health center did not appear to be the critical factor.[33]

Debt

Tanzania qualified for debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative.[34] However, William Easterly of the Center for Global Development states that, "The IMF and World Bank declaring a country eligible for debt relief is an admission that past loans, including adjustment loans, did not bring enough current account adjustment and export and GDP growth in that country to keep debt ratios within reasonable bounds." [35] Tanzania reached the HIPC completion point in November 2001. It received debt relief equivalent to US\$2.026 billion in net present value (NPV) terms.[36] The Bank and IMF project that HIPC assistance, in conjunction with comparable action by other creditors, will allow Tanzania to redirect resources to priority poverty reduction efforts. Part of HIPC debt relief was used to abolish user fees for primary education. As mentioned above, expenditures on health, nontertiary education, basic sanitation, and certain rural development and urban development programs have increased. These social expenditures as a percent of government revenue were projected to increase from 42.8 percent in 1999 to 58.0 percent in 2001. Although this percentage is projected to increase to 84.9 percent by 2003, it is projected to begin *declining* in 2004, to 82.9 percent in 2004 and 77.9 percent in 2005. And as a percentage of GDP, these expenditures, although rising to 10.6 percent in 2003, will stagnate at that level through 2005.[37]

HIPC is not debt cancellation; rather it is a restructuring of debt repayment through provision of grants. Tanzania is required to continue servicing its debt. Moreover, HIPC does not preclude that a country will have to continue to borrow indefinitely. Tanzania, for example, is and will continue to be heavily dependent on donors and foreign creditors.[37] The country also faces a

scenario in which some donors predicate their own assistance on continuation of IMF support as a sign of commitment to macroeconomic reform. As the Bank and IMF note:

"While Tanzania has achieved commendable progress in implementing macroeconomic and structural reforms in the last seven years, the country still faces a substantial reform agenda and other policy challenges that will require continued Fund engagement. The exit from Fund financial support may also be constrained by the linkage of donor support to a Fund-supported program." [37]

Many NGOs have argued that the assumptions underlying HIPC are highly unrealistic. Jubilee Plus, for example, a U.K.-based social justice NGO, notes that HIPC assesses whether a country can afford to pay its debts by looking primarily at its export earnings and often making very optimistic assumptions about them. Countries such as Tanzania are highly vulnerable to external shocks such as changes in the price of and demand for export commodities as well as climatic fluctuations. [38] Indeed, a 2003 study by the World Bank's Operations Evaluation Department found that Tanzania's "long-run debt sustainability prospects are tenuous." [39] In a September 2003 paper, Fedelino and Kudina of the IMF presented a model to examine the impact of fiscal policies on debt sustainability in African HIPC countries. They found that:

"The nonsustainability of the four post-HIPCs is quite telling: as these countries have made considerable progress in macroeconomic stabilization, they are now 'allowed' to increase their expenditure levels to address poverty reduction needs. For example, Tanzania is projected to increase its expenditure level by more than 4 percent of GDP, to above 22 percent of GDP, in 2002/03 relative to the previous fiscal year. However, based on our framework, this may result in this country's swinging back into unsustainable debt levels." [40]

Governance

Corruption

According to Transparency International's *Corruption Perceptions Index 2003*, Tanzania ranked as the 36th-most corrupt country in the world, scoring 2.5 (on a scale of 0 [highly corrupt] to 10 [highly clean], based on perception of the degree of corruption as viewed by businesspeople, academics, and risk analysts). [41]

Tanzania's dependence on foreign aid has subjected it to pressure from donors to introduce effective anticorruption bodies. Tanzania now has a national anticorruption strategy and a minister for good governance. However, anticorruption bodies are generally underfunded and lack effective powers. [42]

Conflict provides wide opportunities for corruption in the region. In 2002, Tanzania was added to the list of governments involved in covert activity in DRC, with reports of close business ties between Tanzanian officials and army officers in the supply of military equipment to rebel factions in Burundi and Rwanda. [42]

Law Enforcement and Judiciary

According to a recent World Bank report, the quality of legal and judicial services in Tanzania remains low, as reflected in:

- a legal and regulatory framework that is fragmented, excessively bureaucratic, and outdated
- inordinate delays in resolving disputes and dispensing justice
- limited access to legal services for the majority of citizens
- limited public trust in the legal and judicial system
- weak management and coordination of legal sector institutions
- low competence, morale, and integrity of public sector legal personnel
- inadequate numbers of professionally trained legal personnel
- constrained administrative independence of the judiciary[43]

Population Dynamics

Tanzania's mid-2003 population was 35.4 million. The population is projected to increase to 52.0 million by 2025 and to 73.8 million by 2050.[25] According to the U.N. Population Division, Tanzania's population growth rate will fall from 1.93 percent during 2000-05 to 1.81 percent during 2010-15, and to 0.79 percent during 2045-2050.[14]

Tanzania has a very young population. In 2000, the median age in the country was 16.8.[14] Forty-five percent of the population is below age 15 (compared to a median 44 percent in sub-Saharan Africa and 33 percent in all developing countries).[44] The percentage of the population ages 15-59 will rise from 50.3 percent in 2000 to 65.5 percent by 2050.[14]

The Tanzanian government has noted that although ongoing reforms have resulted in economic growth, such growth does not seem to have made a substantive improvement in enhancing access to productive and quality employment among the majority of Tanzanians, especially youth.[28]

Human Development

One method of tracking human development is to analyze trends in a country's Human Development Index. The HDI was created by UNDP to measure average achievements in life expectancy at birth; adult literacy and combined primary, secondary, and tertiary gross enrollment ratios; and gross national income (which may be thought of as average income). An HDI of 0.800 or above = high human development; 0.500 - 0.799 = medium human development; less than 0.500 = low human development.[32]

In 2001, Tanzania's HDI value was 0.400, ranking it 160 out of 175 countries for which UNDP calculated an HDI. The country's HDI is below that for the sub-Saharan Africa region (0.468) as well as all low-income countries (0.561). More worrying, Tanzania's HDI value, already very low, has been *decreasing* since 1990, when it stood at 0.408.[32] Although the government's spending on health rose during the 1990s, clearly the enormous impact of AIDS mortality (see Impact section) drastically reduced the life expectancy component of the HDI value. Moreover,

as discussed above, despite notable macroeconomic gains, the country's GNI per capita remains very low.

A critical indicator of the well-being of children is the under-five mortality rate. Since independence, Tanzania has made great strides in improving child health. In 1960, its under-five mortality rate was 241 per 1,000 live births; by 2002, it had fallen to 165, below the rate for sub-Saharan Africa (174) though higher than for all least-developed countries (158). Of the 193 countries for which UNICEF provided under-five mortality rates, Tanzania had the world's 24th-highest under-five mortality rate. Infant mortality, another key human development indicator, fell from 142 in 1960 to 104 by 2002, again below the rate for the region (106) though somewhat higher than for all least-developed countries (99).[45]

Another critical human development indicator is the maternal mortality ratio (MMR), the number of deaths to women per 100,000 live births that result from conditions related to pregnancy, delivery, and related complications. According to the most recent estimates by WHO, UNICEF and UNFPA, Tanzania accounted for 3.97 percent (21,000) of the world's 529,000 maternal deaths in 2000. Tanzania had the world's 6th-highest number of maternal deaths during that year. Its MMR was 1,500 (estimate range: 910-2,200). A Tanzanian woman's lifetime risk of maternal death was 1 in 10.[46] In its *State of World Population 2003*, UNFPA estimated that Tanzania's MMR was 1,408.[44]

Mobile and Displaced Populations

Tanzania's mobile and displaced populations include:

- refugees and internally displaced persons
- people affected by drought, flood, and other natural disasters
- migrant workers
- military personnel
- transport workers
- tourism-related workers
- bar workers
- sex workers
- miners
- merchants/traders/vendors
- orphans (who may be sent to live with relatives residing in other regions of the country) and other vulnerable children (e.g., street children, child laborers)
- humanitarian and relief workers
- prisoners

There is high mobility among urban, rural, and mining areas, within Tanzania as well as the continent. Much of this movement is dominated by men and, in eastern and southern Africa, has been facilitated by a well-developed transport infrastructure. Another factor is the retrenchment associated with structural adjustment, which has often pushed young men out of rural areas searching for income opportunities in urban areas.[30] Migrant labor separates men from their families, places them in close proximity to "high-risk" sexual networks, and may result in their

having an increased number of sexual contacts. Concurrently, it may also lead to women's reliance on sex to supplement their incomes while their male partners are away for long periods.[47]

Below are data for several of these subpopulations. See also the Sex Work section below.

Mining Areas

As mentioned above, mining is becoming increasingly important in Tanzania, both in terms of employing large numbers of workers and providing a significant amount of Tanzania's foreign exchange. Recent changes in Tanzanian law allow foreign businesses to invest in Tanzanian mines.[26]

Tanzania has a long history of artisanal gold mining. As the country has opened up its largely unexploited gold reserves, "gold rushes," and the influx of money and people they entail, have increased.[48]

Researchers from the African Medical and Research Foundation (AMREF) used cross-sectional surveys among adults ages 16-54 from different sectors of communities neighboring two newly opened, large-scale gold mines near Lake Victoria. Mine workers, men, women, and female food and recreational facility workers (FRFWs) from the community were randomly selected for interviews and HIV and STI testing. The study enrolled 207 male Tanzanian mine workers, 206 FRFWs, and 202 other male and 205 female community members. Overall, 42 percent of FRFWs were HIV-positive, compared to 6 percent of male mine workers, and 16 percent and 18 percent of other community men and women, respectively. HIV prevalence in FRFWs was significantly associated with alcohol consumption (AOR: 2.5, 95% CI: 1.1 to 5.5), past or present syphilis (AOR: 2.7, 95% CI: 1.4 to 5.1), and single status (AOR: 3.8, 95% CI: 1.2 to 11.9). Among FRFWs, 24 percent had active syphilis, 9 percent chlamydia, and 4 percent gonorrhea. Overall, 50 percent of FRFWs and 50 percent of community men reported never using condoms during sex; 55 percent of mineworkers and 61 and 20 percent of male and female community members, respectively, reported receiving/giving payment for sex during the previous year.[49]

Women Working at Truckstops

In 1997, AMREF published results of a study involving 1,330 women (mean age: 27.3 years) recruited from seven highway truckstops. Most study participants were local brew sellers (47.2 percent), bar/guest house attendants (27 percent), or petty traders (21.1 percent). Overall HIV prevalence was 50 percent.[50]

Refugees

Most refugees in Tanzania are from the Great Lakes region.[51] During April 1994, in the wake of genocide, an estimated 300,000 Rwandan refugees settled in two large camps in Ngara district in the northwest.[52] Wars in DRC and Burundi led to citizens of these countries to seek refuge in Tanzania as well.[53]

Ascertaining the exact number of refugees in Tanzania is difficult. According to UNDP, at the end of 2001, the country hosted 647,000 refugees.[32] According to the U.N. Standing Committee on Nutrition, at the end of 2002, Tanzania had 519,373 refugees.[51] In April 2003, Refugees International estimated that Tanzania had over 700,000 refugees, 500,000 of whom were concentrated in camps along its western border. The remaining 200,000, inhabitants of the Rukwa region since 1972, are from Burundi and live self-sufficiently, although without permanent citizenship in Tanzania.[53]

Refugee camps suffer from serious food shortages, and health and safety problems. The transportation system to the camps, both road and rail, is poor, adding to the cost of delivering aid. Moreover, international support to aid refugees remains insufficient, and Tanzania's refugee policy limits refugees' ability to work and till arable land. Violence in camps is a serious problem, including rape and domestic violence.[53] (Also see the Sexual Violence section below.)

Between 1994 and 1996, AMREF managed an HIV/AIDS project in the Rwandan refugee camps in Ngara district as well as the surrounding Tanzanian communities. Among the key findings of rapid STI and behavioral surveys undertaken among Rwandan refugees:

- About 31 percent of women attending ANCs were infected with trichomoniasis; 27 percent with candida; and 16 percent with bacterial vaginosis. Three percent of women were infected with gonorrhea; no chlamydial infection was detected.
- The prevalence of biological urethritis was about 10 percent in men, of whom one-third had a gonorrheal and/or chlamydial infection.
- The prevalence of active syphilis was 4 percent among women and 6 percent among men
- Men reported risky sexual behavior before the exodus from Rwanda, with 10 percent indicating that they had paid for sex at some time in their lives. There was, however, a marked reduction in sexual activity during the actual period of exodus and establishment of the camps in Tanzania.
- Despite a high level of knowledge of HIV transmission and ways to prevent it, only 16 percent of men reported using condoms during casual sex. This finding appeared to be partly related to various myths surrounding the use of condoms.
- Although AIDS was generally acknowledged as a serious problem in the community, it was also perceived as a stigmatizing condition.[52]

People Affected by Drought

Food shortages can spur population dislocation, and large movements of people also entail exposure to new sexual networks and thus may heighten vulnerability to HIV. The World Food Program (WFP) reports that over 40 percent of Tanzanians live in chronic food-deficit regions, where irregular rainfall patterns cause repeated food shortages.[54] In September 2003, WFP estimated that from December 2003 to April 2004, 1.9 million Tanzanians would be facing food shortages because of drought.[55]

Child Laborers

See also the Gender section below.

The 2000-2001 National Labor Force and Child Survey found that 4.7 million children ages 5-17 were engaged in economic activities. Of them, an estimated 1.2 million were engaged in commercial agriculture, mining, sex work, and domestic service.[56]

A multiagency government task force coordinates anti-child labor programs. There are public awareness campaigns regarding the dangers of child labor and exploitation. Tanzania is one of three countries participating in an ILO-supported, U.S.-funded pilot program to eliminate the worst forms of child labor. The program brings together government agencies, trade unions, and legal and social welfare organizations to combat child labor, including trafficking.[57]

Trafficking

Tanzania is a source country for women and children trafficked for sexual exploitation and forced labor. Tanzanian girls are internally trafficked for forced domestic servitude and, to a lesser extent, for sex work in the Middle East, South Africa, and Europe. Tanzania is a destination country for women and children from India, Kenya, Burundi, and DRC who are trafficked for forced agricultural labor and forced sex work.

According to the U.S. Department of State, the Government of Tanzania does not fully comply with the minimum standards for the elimination of trafficking, although it is making significant efforts to do so. Tanzanian law criminalizes trafficking for sexual purposes, but the country lacks a comprehensive antitrafficking law that addresses trafficking for the purposes of forced labor. Forced labor is, however, prohibited by the Constitution.[58]

Prisons

Tanzania's Legal and Human Rights Center notes lack of funding, poor living conditions, and disrespect for human rights in prisons. UNDP also highlights the problems of overcrowding and the lack of facilities for remand prisoners, who in some nonremand facilities comprise 90 percent of the prisoner population.[59]

The Bugando Medical Center in Mwanza treats inmates in the Butimba prison. The center examined the extent of smear-positive TB among prisoners, using a retrospective cohort study of 501 prisoners from January 1994 to December 1997. The proportion of smear-positive TB in this study was high—204 prisoners (40.7 percent). Among them, 25.9 percent were coinfecting with HIV. The mean length of imprisonment at the time of diagnosis was 19 months.[60]

Tanzania's National Policy on HIV/AIDS states that:

"Prison inmates have the right to basic HIV/AIDS information, voluntary counseling and testing, and care, including treatment of STIs."[61]

The policy does not mention making condoms available to prisoners. Tanzania's Penal Code criminalizes homosexual acts between men[62]; thus, distribution of condoms in prisons is prohibited.

Education

See also the accompanying table of indicators as well as the Gender section below. Public spending on education fell during the 1990s, from 3.2 to 2.1 percent of GDP.[32] The abolition of user fees for primary education and subsequent increased enrollment ratios are straining the education system and threatening the quality of services.[28]

School attendance ratios are low in Tanzania, with only slightly more than half of primary-school-age children attending primary school. Attendance is higher for children in Zanzibar than for those on the mainland (67 versus 53 percent). It is also higher for urban than for rural children and for older children. Educational attainment is higher in Zanzibar than on the mainland. (Compulsory education in Zanzibar incorporates three years of secondary education.)[63]

Health System

Tanzania has 4,961 government health facilities and 1,926 facilities owned by NGOs, parastatals, voluntary agencies, and the commercial sector. Approximately 65,000 people are involved in health care delivery, 70 percent of whom are in the public sector. About 64 percent of the recurrent public health budget is spent on human resources.[2]

At the primary level, there are dispensaries, health centers, and district hospitals. The secondary level comprises regional hospitals, which provide both basic and specialized services. There are six tertiary hospitals in the country.[2]

Access to health care is constrained by distance to facility, poor road infrastructure, and lack of vehicles for transportation.[64] Most public dispensaries do not have sufficient funds to provide proper facilities and services, and the poor cannot afford private facilities.[65] (See also the Tulane study on poverty and health services discussed above.)

Schellenberg of the Ifakara Health Research and Development Center and her colleagues found that health care-seeking behavior was lower in poorer than in relatively rich families in a rural community in southern Tanzania that might be assumed to be uniformly poor. Using cluster samples of 2,006 children under age 5 in four rural districts (Kilombero, Morogoro Rural, Rufiji, and Ulanga), they found that 1,026 (52 percent) of 1,968 children reported having been ill in the two weeks prior to the survey. Wealthier families were more likely to bring their sick children to a health facility ($p=0.02$). Their children were more likely than poorer children to have received antimalarials and antibiotics for pneumonia ($p=0.0001$ and 0.0048 , respectively).[66]

In January 2004, Tanzania's Global Fund Country Coordinating Mechanism reported that:

"The human resource shortage in the health sector is a major concern in Tanzania. It was identified during the recent Health Sector Review as a key issue for the next year. The Care and Treatment Plan estimates that 10,000 additional Full time equivalents (FTEs), most of the Counselors of various types, will be needed. Part of this shortage has been created by the hiring freeze that was in effect in all sectors as part of the IMF structural adjustment measures. The hiring freeze has been partially relaxed for the health sector, but major recruitment has not yet begun; recent classes of medical graduates are still without jobs. A comprehensive HR study is planned for Q2 of 2004, and will better inform current capacity, while also exploring ways to increase capacity (through hiring and retaining higher numbers, and improving productivity)."[8]

Health Status

See also the accompanying comparative table of key indicators.

During the 1990s, there was an increase in the use of improved water sources in rural areas; in Dar es Salaam, however, the proportion of households using improved water sources fell, and other urban areas reported little change.[28]

Since the early 1990s, overall vaccination coverage has declined slightly.[63] Little progress was achieved during the 1990s with regard to improvement of nutrition rates for children. There are significant disparities in undernutrition between rural and urban areas, and between children from poorer and richer households. For example, children from the poorest quintile of households are four times more likely to be severely underweight than children from the richest quintile.[28]

During the 1990s, there was no substantial progress in reducing infant and under-five mortality. There are even indications of slight increases in recent years, likely related to the HIV/AIDS epidemic.[28] (See also the MMR data above.)

Health facility-based data compiled in the *Tanzania Health Statistics Abstract* in 1999 indicated that the leading causes of mortality among those age 5 and above were malaria (22.0 percent), AIDS (17.0 percent), TB (9.0 percent), pneumonia (6.5 percent), and anemia (5.5 percent).[2]

Reform and Decentralization

In the early 1990s, Tanzania launched a process of health sector reform to address capacity and performance problems such as:

- shortage of trained personnel
- low morale because of a downward spiral in real incomes
- heavy political influence in appointments
- poor management systems and controls[43]

Reforms focus on decentralizing the administration of district hospitals to local councils, shifting resources from curative to preventive care, and creating insurance schemes for employees.

Overall, the government hopes to redefine its role as provider of health care to that of "facilitator." [43]

In a 1999 survey of district health management teams (DHMTs) in Tanzania, Hutchison of the University of North Carolina at Chapel Hill sought to monitor the extent of the decentralization process and to collect information on decentralization's achievements and limitations to date. His survey found that although decentralization had been ongoing for over a decade, less than half of DHMTs reported that decentralization was under way in their districts and that the actual transfer of administrative and fiscal responsibilities was still limited for the majority of districts. Most districts were heavily reliant on external funding and reported that they had control over only a small proportion of their budgets. For those districts in which decentralization was ongoing, the decentralization process was reported to be associated with improvements in a variety of areas: availability of district funds, coordination with donors, ability to attract and retain staff, and utilization of government health services. [67]

In 1995, the MOH introduced a cost-sharing policy for health services. Previously free health care services subsidized by the government now require fee payment. ANC and family planning services are exempt from user fees. Often, no fees are imposed on pregnant women, children under five, or the very poor [7,19]. However, other areas of reproductive health (e.g., treatment of STIs) are not exempt. [28]. According to the U.S.-based Center for Reproductive Rights, this policy has made it difficult for the poor to acquire medical treatment. Many are unable to afford doctors' consultation fees of Tsh500, or more expensive diagnostic tests, which can cost up to Tsh120,000. [65]

Expenditures

During the 1990s, public expenditures on health rose from 1.6 to 2.8 percent of GDP. [32] During 2000-01, the government spent US\$5.88 per capita on health. Total health spending was US\$178.6 million, of which 55 percent was provided by external donors. [2] Although the absolute amount of public spending on health care has increased, the percentage of the government budget allocated to health has declined, from 15 percent in 1996-97 to 11 percent in 1999-2000. [2, 32] In 2000, private health expenditure represented 2.5 percent of GDP. [32]

Sexual & Reproductive Health

UNFPA ranks Tanzania a Category "A" Country, meaning that it is furthest from achieving the goals of the International Conference on Population and Development (ICPD), held in Cairo in 1994, and has low levels of development. Group A countries have the greatest need for external assistance and the lowest capabilities for mobilizing domestic resources to close this gap. [68] According to the U.N. Population Division:

"In the late 1990s, the cumulative impact of HIV/AIDS, the influx of Rwandan refugees, the burden of debt servicing and deteriorating socio-economic conditions resulted in a general deterioration of the sexual and reproductive health of women and adolescents. Illegal abortion and maternal mortality as a result of complications from abortion are reportedly on the rise." [69]

Antenatal Care and Delivery

(The last Tanzania Demographic and Health Survey [TDHS] was undertaken in 1996. [The 2003 DHS is currently in process.]. In 2000, an interim DHS was published, *Tanzania Reproductive and Child Health Survey 1999* (TRCHS). The 1999 TRCHS sampled 4,029 women ages 15-49 and 3,542 men ages 15-59.)

The 1999 TRCHS found that almost all pregnant women in Tanzania (98 percent) receive antenatal care. Health aides provide 44 percent of ANC, nurses and midwives 43 percent, doctors and medical assistants 6 percent, and birth attendants 1 percent. There is significant variation in ANC between rural and urban areas. Urban women are more likely than rural women to receive ANC from a doctor, nurse, or midwife (76 versus 41 percent). Half of pregnant women in rural areas receive ANC from a less-trained rural medical aide or maternal and child health aide, likely because rural populations receive most of their health care services from dispensaries that are run by MCH aides. On the mainland, a greater percentage of ANC is provided by nurses and midwives than in Zanzibar (44 versus 14 percent); in Zanzibar, three-quarters of antenatal care is provided by health aides.[63]

The 1999 TRCHS found 44 percent of births are delivered at some type of health facility, whereas 56 percent are delivered at home. The proportion of births delivered in health facilities has been declining.[63] According to the most recent data from UNFPA, 36 percent of births are attended by a skilled health attendant.[44] Births to younger women, first births, and births to urban women are much more likely than others to take place in a health facility.[63]

Maternal Mortality

As mentioned above, WHO, UNICEF and UNFPA estimate that Tanzania accounted for 3.97 percent (21,000) of the world's 529,000 maternal deaths in 2000. Tanzania had the world's 6th-highest number of maternal deaths during that year. Its MMR was 1,500 (estimate range: 910-2,200). A Tanzanian woman's lifetime risk of maternal death was 1 in 10.[46] (The 1996 TDHS calculated the MMR using the reported survivorship of sisters. It found that between 1987 and 1996, the MMR was 529 per 100,000 live births.[70])

Abortion

Abortion legislation in Tanzania is based on the English Offences Against the Person Act of 1861 and the Infant Life (Preservation) Act of 1929. Under the Revised Penal Code of Tanzania (chapter 16, sections 150-152), the performance of abortions is generally prohibited. An abortion may be performed to save the life of a pregnant woman. In addition, Tanzania, as do a number of Commonwealth countries whose legal systems are based on English common law, follows the holding of the 1938 English *Rex v. Bourne* decision in determining whether an abortion performed for health reasons is lawful; the decision set a precedent for future abortion cases performed on the grounds of preserving the pregnant woman's physical and mental health.

Although abortion is restricted by law, there is overwhelming evidence that it is widely practiced. The government has expressed concern about the high incidence of illegal abortion because of its effect on maternal morbidity and mortality. Studies show that illegal abortion is one of the major causes of maternal mortality. A study conducted in the Southern Highlands in 1983 estimated that 17 percent of maternal deaths were directly associated with abortion. Another study carried out in the Kilimanjaro region suggested that about 21 per cent of maternal deaths were related to abortion. In a study undertaken in 1987 at Muhimbili Medical Center, the teaching hospital in Dar es Salaam, it was determined that in a random sample of 300 women admitted to the hospital for early pregnancy loss, 31 percent had had an induced abortion.[69]

Fertility

Tanzania's total fertility rate for 2002 was 5.2, somewhat lower than that for the sub-Saharan African region (5.5). (TFR = the average number of children a woman would have assuming that current age-specific birth rates remain constant throughout her childbearing years, usually considered to be ages 15 to 49).[71] UNFPA estimates that the country's TFR for 2000-05 is 5.11.[44] The 1999 TRCHS found that on average, rural women have three more children than their urban counterparts.[63]

Contraception

According to UNFPA, during the 1990s, contraceptive prevalence among women in a union was 25.0 percent for any methods and 17.0 percent for modern methods. These rates are much lower than those for all developing countries (59 percent and 54 percent, respectively) and slightly higher than those for the East Africa region (21 percent and 16 percent, respectively).[44]

The 1999 TRCHS found that the modern methods most commonly used by women were the pill (16 percent), injectables (12 percent), and male condoms (11 percent); traditional methods were withdrawal (11 percent), periodic abstinence (8 percent) and lactational amenorrhea (4 percent). Overall, 17 percent of women have an unmet need for family planning, of which 12 percent is for spacing and 6 percent is for limiting births.[63]

Adolescents

See also the Population Dynamics section above.

Young Tanzanian women bear a large burden of fertility. According to UNFPA, in 2003, there were 120 births per 1,000 women ages 15-19. The comparable figure for East Africa was 117 and for all developing countries, it was 53.[44]

Most Tanzanian women become mothers before they reach the age of 20. The median age at first birth has increased slightly from around 18 or 19 for older women to over 19 for women in their early 20s.[63]

Sexually Transmitted Infections

See also the Sex Work section below for several studies on bar workers and HIV/STIs.

Mwanza Cohort Study

In 1995, researchers reported that improved syndromic management of STIs in Mwanza had reduced HIV incidence by 38 percent in intervention compared to control communities.[72] (For detail on the Mwanza trial, see, inter alia, Grosskurth et al. "Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania: randomized controlled trial." *Lancet* 1995 Aug 26;346(8974):530-6.)

Two community randomized controlled trials in Uganda (Masaka and Rakai) did not find that STI interventions affected HIV incidence.[73] Various hypotheses have been offered to explain the Mwanza, Masaka, and Rakai findings, including differences in the epidemic's maturity, STI patterns, and effectiveness of the interventions assessed.[74]

A study undertaken by Tanzanian and Ugandan researchers sought to determine the extent to which the higher impact of STI treatment on HIV incidence in Mwanza could be explained by baseline differences among the trial populations. The researchers reanalyzed baseline data from the three trial populations comparing demography, sexual risk behavior and HIV/STI epidemiology. Data were compared after age-standardization and adjustments for sample selection where necessary. STI rates were also adjusted for the sensitivities and specificities of the diagnostic techniques used. The researchers found that apart from the effects of AIDS on fertility and mortality (including widowhood) in Uganda, demographic patterns were similar across populations. Higher sexual risk behaviors, including younger age of sexual debut, higher numbers of recent partners, and lower frequency of condom use, were apparent in Mwanza compared to Masaka and Rakai. High-titre serological syphilis, gonorrhea, chlamydia infection, and trichomoniasis were all more prevalent in Mwanza, except for chlamydia infection in males. There was little difference between sites in the seroprevalence of herpes simplex virus type-2 (HSV-2). Age patterns in the prevalence of short-duration STI and current risk behaviors were similar across sites, although all-titre serological syphilis was more prevalent among older participants in Rakai and Masaka than in Mwanza. The study team concluded that differences among trial populations included higher reported risk behavior and higher rates of curable STI in Mwanza compared to Rakai and Masaka. The team posited that these differences probably related to previous reductions in risk behavior in Uganda and may explain, at least in part, the contrasting results of these trials.[75]

The Mwanza research team sought to quantify the association between prevalent or incident HSV-2 and the incidence of HIV seroconversion among adults in the general population of Mwanza. Participants included 127 cases that seroconverted to HIV during the two-year follow-up period and 636 randomly selected controls that remained HIV-negative. After adjusting for confounding factors, a strong association between HSV-2 infection and HIV seroconversion was observed in men (test for trend: $P < 0.001$), with AOR of 6.12 (95% CI: 2.52-14.9) in those HSV-2 positive at baseline, and 16.8 (95% CI: 6.06-46.3) in those acquiring HSV-2 infection during follow-up. A weaker association was observed in women (tests for trend: $P = 0.14$), with

AOR of 1.32 (95% CI: 0.62-2.78) and 2.36 (95% CI: 0.81-6.84), respectively. Population attributable fractions of incident HIV infection due to HSV-2 were estimated as 74 percent in men and 22 percent in women.[76]

The Mwanza researchers also examined the prevalence of HIV and chlamydia trachomatis (CT) infections among adolescents. They enrolled 9,445 15- to 19-year-olds. HIV prevalence was 0.6 percent (95% CI: 0.4-0.8) in males and 2.4 percent (95% CI: 2.0-2.8) in females, and increased steeply with age (trend: $P < 0.006$ and $P < 0.001$, respectively). After adjustment for age, risk of HIV infection was significantly associated with female sex (OR: 4.3), never having been to primary school in males (OR: 2.7), and current symptoms of genital discharge (OR: 2.3) or genital ulcer (OR: 5.3) in females. The prevalence of CT was 1.0 percent (95% CI: 0.8-1.4) in males and 2.4 percent (95% CI: 2.0-2.9) in females. After adjustment for age, CT infection was associated with female sex (OR: 2.4), reported current symptoms of STI (males OR: 2.5, females OR: 1.9), and positive leucocyte esterase test (males OR: 3.1, females OR: 2.6). Eighty-two percent of males and 79 percent of females with CT were asymptomatic. There was no association between CT and HIV infection in either sex. [77]

The Mwanza team also the prevalence and incidence of syphilis. Two unmatched case-control studies nested within the cohort provide information on potential risk factors. The prevalence of active syphilis (TPHA positive and RPR positive any titre) was 7.5 percent in men and 9.1 percent in women; among those ages 15-19, prevalence among women was 6.6 percent and in men, 2.0 percent. The incidence of TPHA seroconversion was highest in women ages 15-19 at 3.4 percent annually, and about 2 percent per year at all ages among men. A higher prevalence of syphilis was found in those currently divorced or widowed (men: OR: 1.61, women: OR: 2.78), and those previously divorced or widowed (men: OR: 1.51, women: OR: 1.85). Among men, prevalence was associated with lack of circumcision (OR=1.89), traditional religion (OR: 1.55), and reporting five or more partners during the past year (OR: 1.81), whereas incidence was associated with no primary education (OR: 2.17), farming (OR: 3.85), and a self-perceived high risk of STI (OR: 3.56). In women, prevalence was associated with no primary education (OR: 2.13), early sexual debut (OR: 1.59), and a self-perceived high risk of STI (OR: 3.57), whereas incidence was associated with living away from the community (OR: 2.72).[78]

Other Studies

- A team comprising researchers from the University of Oslo and Kilimanjaro Christian Medical Center and College sought to determine the seroprevalence of HSV-2 and to identify clinical, demographic, and behavioral correlates among women attending primary health care clinics. They used a cross-sectional survey of 382 randomly chosen women ages 15 to 49. They found that seroprevalence of HSV-2 was 39 percent. HSV-2 was associated with antibody to HIV-1 (OR: 2.3 CI: 1.1-4.7), syphilis (OR: 4.7 CI: 1.4-4.7), and genital ulcers (OR: 9.7 CI: 2.5-36.9). Age, sexual debut, number of sex partners, and history of spontaneous abortion were found to be significantly associated with HSV-2. Eighty-two percent of the women with genital ulcers were HSV-2-seropositive, whereas syphilis accounted for 6 percent of cases. The researchers posited that HSV-2 may be the most common cause of genital ulcers in this population.[79]

- A study undertaken by researchers from the University of Goteborg, Muhimbili University College of Health Sciences, and Dar es Salaam Infectious Diseases Clinic examined genital ulcer disease (GUD) and prevalence of HIV infection in patients with GUD in urban areas of Tanzania. A total of 102 clinical specimens were collected from 52 and 50 patients with GUD in Dar es Salaam and Mbeya, respectively, and from 93 patients with genital discharge in a cross-sectional study. Overall, 9 percent of the 102 patients with GUD were infected with HSV-2. Among HIV-seropositive GUD patients, 71 and 46 percent ($P < 0.003$) were coinfecting with HSV-2 in Dar es Salaam and Mbeya, respectively. Women with HSV-2 in Dar es Salaam were significantly more likely to be HIV-infected than men (60 versus 39 percent; $P \leq 0.006$).[80]

Tuberculosis

According to WHO, in 2002, Tanzania had the world's 14th highest burden of TB in terms of new cases. The TB incidence rate was 363 (all) cases per 100,000 population. An estimated 1.2 percent of new cases were multidrug-resistant.[81]

Geographically, all of Tanzania is covered by DOTS. The National Tuberculosis and Leprosy Program has achieved a treatment success rate of 81 percent (2001).[81] However, up to 50 percent of TB patients in Tanzania are coinfecting with HIV (WHO put this figure at 34 percent for 2002). This has led to increased death rates among coinfecting TB patients, rendering it difficult for the NTLP to reach the WHO cure rate target of 85 percent. TB is the leading cause of death among AIDS patients.[2, 81, 82]

Gender

UNDP measures gender inequality by using the unweighted average of three component indices: life expectancy, education, and income. Its Gender-related Development Index (GDI) value ranges from 0 (lowest gender equality) to 1 (highest gender equality). UNDP calculated Tanzania's GDI value at 0.396 for 2001, ranking it 130 out of 144 countries for which UNDP calculated a GDI.[32]

The country's high MMR (see above) is also an indication not only of poor reproductive health, but also of women's low status and poor access to basic health services.

Female-headed Households

The 1999 TRCHS found that 23 percent of women ages 15-49 and 36 percent of men ages 15-59 have never married; 66 percent of women and 58 percent of men were currently in unions; and 11 percent of women and 5 percent of men were divorced, separated, or widowed. The survey found that 27 percent of urban and 21.7 percent of rural households are headed by women.[63] van Vuuren of the Dutch institute Afrika-Studiecentrum found that in Tanzania:

- For female-headed households (FHH), the value of their harvested crops is less than that for male-headed households (MHH).
- FHH own less livestock than MHH.

- About 40 percent of MHH have members with paying (cash) jobs; for FHH, this figure is only 20 percent.
- More MHH receive gifts from relatives than do FHH (56 vs. 34 percent). However, for FHH, these gifts are of greater importance to household income than they are for MHH. For 24 percent of FHH, kin gifts are the main source of income (the corresponding figure for MHH is 5 percent).
- MHH have greater ability to remit money to other households than do FHH.[83]

Polygyny

According to the 1996 Tanzania DHS, 29 percent of married women and 15 percent of all men are in polygynous unions. The practice of polygyny increases with age among women, from 22 percent among teenagers to 38 percent among those ages 45-49. Overall, older women are more likely to be in polygynous unions than younger women. The proportion of women in polygynous unions is slightly higher on the mainland than in Zanzibar (29 vs. 28 percent), whereas the proportion of men in polygynous unions is higher in Zanzibar than on the mainland (21 vs. 15 percent). The highest level of polygynous unions is found in the Southern Highland zone. Nationally, the proportion of currently married women in a polygynous union decreases from 39 percent among women with no formal education to 22 percent among those who have completed primary education.[70]

Education

See also the table of indicators attached.

There is a strong differential in educational attainment between the sexes, especially as age increases. The 1999 TRCHS found that overall, 40 percent of women in Tanzania have never been to school, compared with 31 percent of men. The proportion with no education increases with age. For example, the proportion of women who have never had any formal schooling increases from 17 percent in the 20-24 age group to 88 percent among those age 65 and older. For men, the proportion increases from 11 percent (age group 15-19) to 66 percent (age group 65 and older). The median number of years of schooling is 1.1 for women and 2.6 for men. Thirty-six percent of women are illiterate, compared with only 22 percent of men.[63]

In the past, girls who became pregnant were expelled from school. A 1996 law permits pregnant adolescents to continue their education following maternity absences. In practice, however, pregnant adolescents are often still forced out of school. No specific law or policy has been enacted to combat the practice of expelling pregnant adolescents from school, although the Minister of Education has stated that it is not proper for educators to do so. The government has thus far failed to issue a binding pronouncement to schools to stop the practice of expelling pregnant girls.[65]

Employment

A 1997 ILO workshop found that women's wages continue to be lower than those of men; this is partly due to women's employment in jobs with lower remuneration levels, but is also related to gender discrimination within job categories that employ both men and women.[30]

The 1999 TRCHS found that 24 percent of women report being unemployed. The proportion not working is higher among younger women and those residing in urban areas. Most women who work do so on a seasonal basis. Thirty-seven percent of working women are self-employed, 9 percent work for others, and 54 percent work in a family business. Most working women (73 percent) earn cash for their work. Rural working women are more likely to work in a family business, whereas urban women are more likely to work for others or for themselves. Urban women who work are also more likely than rural women to receive cash earnings (88 vs. 68 percent). Women in Zanzibar who work are more likely to be self-employed or to work for an employer and are less likely to work in family businesses than women on the mainland.[63]

Seventy-two percent of employed women are involved in agricultural activities, mostly working on their own or family-owned land. Twenty percent of working women are involved in unskilled manual jobs. Only 2 percent of women are doing professional, managerial, or technical jobs.[63]

The Tanzania Media Women's Association conducted a survey of 737 housemaids from 14 Regions: Mtwara, Mbeya, Arusha, Kigoma, Kagera and Mwanza, Urban West, Unguja West, Unguja South, Pemba South, Dar es Salaam, Kilimanjaro, Iringa, and Singida. The findings indicated that 60 percent of maids reported having sex with male members of the families employing them; reasons included being promised gifts and being threatened with nonpayment of wages or termination of employment. About 30 percent of respondents reported that their male employees (or their sons or male relatives) had forced them to have sex.[84](NB: These results were reported in the popular press and should therefore be viewed with caution.)

Widows

The 1999 TRCHS found that 3.2 percent of Tanzanian women are widowed. Property "grabbing" is a phenomenon wherein relatives forcefully take possession of the deceased's household goods, land, livestock, clothes, and other assets. This scenario exacerbates the already precarious economic (and social) situation of widows and their children. It is not known how prevalent this practice is in Tanzania, although the World Bank-financed AIDS project discussed below does single out widows as key project beneficiaries.[85]

Among organizations that have been active in addressing women's land rights and inheritance issues are the Tanzania Women's Legal Aid Center, Tanzania Women Lawyers Association, and Environmental, Human Rights Care and Gender Organization. More detail on their activities may be found in:

- Richard S. Strickland. *To Have and to Hold: Women's Property and Inheritance Rights in the Context of HIV/AIDS in Sub-Saharan Africa*. Washington, DC: International Center for Research on Women and Global Coalition on Women and AIDS, 2004
<http://www.icrw.org/docs/2004_paper_haveandhold.pdf>

- FAO and Oxfam. *Report Of The FAO/Oxfam GB Workshop On Women's Land Rights In Southern And Eastern Africa*, held in Pretoria, June 17-19, 2003. Pretoria: Southern African Regional Poverty Network, October 2003
<http://www.sarpn.org.za/documents/d0000583/P537_WLR_SandE-Africa.pdf>

Female Genital Mutilation

According to the 1996 TDHS, 18 percent of Tanzanian women were circumcised. Younger women (ages 15-19), women living in Zanzibar, and those living in urban areas on the mainland were less likely to be circumcised than other women. A higher proportion of circumcised women lived in the Arusha (81 percent), Dodoma (68 percent), and Mara (44 percent) regions. Twenty to forty percent of circumcised women were found in the Kilimanjaro (37 percent), Iringa (27 percent), Singida and Tanga (25 percent), and Morogoro (20 percent) regions. In the rest of the regions, less than 5 percent of women were circumcised.[70]

(The Sexual Offences Special Provisions Act of 1998 outlaws the act of female genital mutilation, terming the offense “cruelty to children.” The act stipulates that “any person who, having the custody, charge or care of any person under eighteen years of age...causes female genital mutilation” is subject to five to 15 years imprisonment. Offenders may also be liable for a fine of up to Tsh300,000 as well as compensation for injuries caused.[65])

Sexual Violence

The Sexual Offences Act of 1998 criminalizes rape and sexual assault against minors. The act considers rape to include sexual intercourse with a girl or woman “with or without her consent when she is under eighteen years of age.” If the perpetrator is married to the victim and she is over the age of 15, the act is not applicable.[65]

According to Tanzania’s report on the implementation of the Beijing Platform for Action, the government acknowledges that despite severe punishment for offenders instituted with the passing of the 1998 act, high incidence of reported violence against women persists.[65]

In 1999, researchers from Muhimbili University College of Health Sciences in Dar es Salaam and Johns Hopkins University investigated the attitudes and experiences related to partner violence and HIV serostatus disclosure of women who seek VCT at the Muhimbili Health Information Center (MHIC), a VCT clinic in Dar es Salaam. The study first collected qualitative data from women, men, and couples (n=67) who were MHIC clients. In the second phase, researchers enrolled 340 women after pretest counseling and prior to collection of test results; 245 of women were followed and interviewed three months after enrollment and testing. Nearly one-third of the sample was HIV-positive, almost half were married, and 50 percent were between the ages of 18 and 29 and had less than seven years of education.[86] Among key findings:

- The major reason for nondisclosure of HIV test results among all women, regardless of HIV serostatus, was fear of a partner’s reaction, principally fear of abuse or abandonment.

- Over 25 percent of women interviewed agreed with the statement, “Violence is a major problem in my life.” Male and female informants described violence as a way to “correct” or “educate” women, and reported that violence that does not leave a physical mark on a woman is justifiable.
- When asked about lifetime violence by an intimate partner, 38.5 percent of women reported at least one partner who had been physically abusive and 16.7 percent had had at least one partner who had been sexually abusive. Physical violence by a current partner was also commonly reported.
- Nearly one-third of women had experienced at least one physically violent episode perpetrated by a current partner, such as slapping, twisting an arm, grabbing, punching, and kicking, in the three months period prior to testing.
- Women’s HIV status was strongly associated with partner violence. Without adjusting for other variables, HIV-positive women were 2.68 times more likely than HIV-negative women to have experienced a violent episode by a current partner. Examining the interaction between women’s age and HIV status and controlling for other sociodemographic variables, young HIV-positive women (ages 18-29) were ten times more likely to report partner violence than young HIV-negative women.
- Most women reported that partners showed support and understanding when told test results. However, the proportion of women who reported this positive reaction was significantly greater among HIV-negative women compared to HIV-positive women.
- Many women lack autonomy with regard to decisionmaking about HIV testing. Male and female informants frequently referred to the need for women to “seek permission” from partners prior to testing. Men, however, generally made the decision to test on their own without soliciting prior consent.[86]

Refugees

Women in refugee camps face particular risks. They are vulnerable to rape, sexual assault, and other forms of sexual violence. Levels of domestic violence are also high in many refugee communities, as pressures regarding housing, food, security, and other resources often strain domestic situations and erupt in violence. Extended networks of family, neighbors, and community leaders that may have acted as a deterrent to abuse under normal circumstances no longer exist in refugee camps. Generally, female refugees have limited—or no—legal remedies against sexual and domestic violence.[87]

Human Rights Watch began monitoring the situation of Burundian refugees in Tanzanian camps in 1997. They have found that Burundian women refugees in the Tanzanian camps were subject to high levels of sexual and domestic violence. They were vulnerable to rape by both male refugees and local Tanzanian nationals. [87] In May 1999, Refugees International estimated that one in four Burundian refugee women in Tanzania had been the victim of rape or serious sexual

harassment. In 1998, the International Rescue Committee documented 122 cases of rape and 613 cases of domestic violence in four camps: Kanembwa, Mkugwa, Mtendeli, and Nduta; in 1999, these figures were 111 and 764, respectively. Some of the rape cases had been referred to police for investigation.[87] In 1999, UNHCR began to address violence against women in these four camps more systematically.[87]

Stigma and Discrimination

In January 2004, Tanzania's Global Fund Country Coordinating Mechanism reported that:

"Stigma and discrimination are still major barriers to prevention and care in Tanzania. Often stigma is internalized so that people do not seek diagnostic or treatment services, nor the means to protect themselves. Stigma also is continuing to limit or crush the circulation of information about the epidemic, about options for care, and for communication within couples about risks. Fear of discrimination deters workers from seeking VCT even when it is encouraged by employers, similarly fear of discrimination has greatly limited disclosure and witnessing of PLHAs as compared to Uganda or Zimbabwe." [8]

Among women who participated in the 1999 TRCHS, 63 percent replied that they knew someone with HIV/AIDS or someone who had died of AIDS (an increase from the 1996 figure of 48 percent); for men, these figures were 68 and 52 percent, respectively.[63]

A part of a three-year study on HIV/AIDS-related stigma in Tanzania, Ethiopia, and Zambia conducted from April 2001 to September 2003, the International Center for Research on Women collected data in Kimara and Bunju wards, Dar es Salaam, and as well as at a stand-alone VCT center in Dar es Salaam. Structured text analysis of 730 qualitative transcripts (650 interviews and 80 focus group discussions) and quantitative analysis of 400 survey respondents from rural and urban areas in the three countries found that:

- The main causes of stigma involve incomplete knowledge, fears of death and disease, sexual norms, and a lack of recognition of stigma. The combination of insufficient and inaccurate knowledge and fears of death and disease perpetuate beliefs in casual transmission and thus avoidance of those with HIV. The knowledge that HIV can be transmitted sexually and an association of HIV with socially "improper" sex lead to scenarios in which PLWHA are stigmatized for their perceived immoral behavior. Moreover, people often do not realize that their words or actions are stigmatizing.
- Socioeconomic status, age, and gender all influence the experience of stigma. Although the poor are blamed less for their infection than the rich, they face greater stigma because they have fewer resources with which to hide HIV-positive status. Youth are often blamed for spreading HIV through their perceived highly risky sexual behavior. Although both men and women are stigmatized for breaking sexual norms, women are blamed more easily. Concurrently, the consequences of HIV infection, disclosure, stigma, and the burden of care are higher for women than for men.

- Many PLWHA face physical and social isolation from family, friends, and community; gossip, name-calling, and voyeurism; and a loss of rights, decisionmaking power, and access to resources and livelihoods. PLWHA internalize these experiences and consequently feel guilty, ashamed, and inferior. As a result, they may isolate themselves and lose hope. Those associated with PLWHA—particularly family members, friends, and caregivers—face many similar experiences in the form of secondary stigma.
- PLWHA and their families develop various strategies to cope with stigma. Decisions around disclosure depend on whether disclosing would help to cope (through care) or render the situation worse (through added stigma). Some cope by participating in PLWHA networks and actively working in the field of HIV or by confronting stigma in their communities.
- Stigma hinders various programmatic efforts. Although testing, disclosure, prevention, and care & support for PLWHA are advocated, they are all often impeded by stigma. Available care & support are often accompanied by judgmental attitudes and isolating behavior, which can lead to delaying care.
- The study also found numerous positive aspects regarding how people deal with HIV and stigma. Many people recognize that their limited knowledge has a role in perpetuating stigma and are eager to learn more about HIV/AIDS. Many families, religious organizations, and communities provide care, empathy, and support for PLWHA. Finally, some PLWHA overcome the stigma they face to challenge stigmatizing social norms.[88]

Other studies have found that TB patients face high stigma, as they are often automatically labelled as also having AIDS.[2, 82]

Awareness and Knowledge of HIV/AIDS

As mentioned above, the last Tanzania DHS was undertaken in 1996. The 2003 DHS is currently in process.

According to *Tanzania Reproductive and Child Health Survey 1999*, 97 percent of women and 99 percent of men had heard of HIV/AIDS. Ninety-four percent of women and 96 percent of men believed that AIDS can be avoided. (In the 1996 TDHS, these figures were 88 percent and 90 percent, respectively.) Among women, 98 percent of urban residents, 92 percent of rural residents, and 96 percent of those residing in Zanzibar replied that AIDS can be avoided; among men, these figures were 98, 96, and 97 percent, respectively.[63]

Using findings from the 1996 TDHS and 1999 TRCHS indicates that knowledge about ways to avoid HIV/AIDS increased significantly. For example, in 1996, only 39 percent of women spontaneously mentioned condom use as a means of HIV prevention; in 1999, this figure was 56 percent. Among men, 71 percent spontaneously mentioned condoms in 1999, up from 55 percent in 1996. Almost half of women (47 percent) and men (48 percent) mentioned that having only one sexual partner helps to prevent contracting HIV. Other means of prevention spontaneously cited by sizeable proportions of both women and men were abstinence (28 percent of women; 31

percent of men), limiting the number of partners (19 percent; 17 percent), and avoiding injections (11 percent; 10 percent). Notable differentials in knowledge of prevention methods included urban versus rural residence: 73 percent of urban women mentioned condoms, compared with 49 percent of rural women. Among men, these figures were 82 and 67 percent, respectively. Fifty-six of women on the mainland mentioned condoms, versus 32 percent in Zanzibar; among men, these figures were 72 and 44 percent, respectively. For women with no formal education, 32 percent mentioned condoms; 68 percent of those who had completed primary education did so; the comparable figures for men were 49 and 80 percent, respectively.[63]

With regard to *prompted* questions on the three main ways to avoid HIV/AIDS, 49 percent of women interviewed in the 1999 TRCHS knew all three methods, 81 percent knew at least one method, and 17 percent knew of no method. Seventy-one percent of women had correct knowledge of abstinence, 68 percent of having only one partner, and 66 percent of condoms. (Comparable data for men were not included in the 1999 TRCHS report.)[63]

In the 1999 TRCHS, 79 percent of women knew that HIV can be transmitted from mother to child (90 percent of urban women vs. 75 percent of rural women); 61 percent knew that MTCT can occur at delivery, 70 percent through breastmilk, and 74 percent during pregnancy. Fifty-five percent of women knew all three transmission modes. Among men, 81 percent knew that HIV can be transmitted from mother to child (88 percent of urban men vs. 78 percent of rural men). (More detailed data on men's knowledge of MTCT were not included in the 1999 TRCHS report.)[63]

With regard to personal risk assessment, 52 percent of women and 63 percent of men believed that they had no or a small risk of contracting HIV. Among women, reasons for this perception included has only one partner (64 percent), abstains from sex (23 percent), partner has no other partner (12 percent), and uses condoms (6 percent); for men, these figures were 60, 19, 0, and 22 percent, respectively. Twenty-six percent of women and 23 percent of men believed that they had a moderate to great risk of contracting HIV. Among women, reasons for this belief included partner has other partner (55 percent), doesn't use condoms (34 percent), and has multiple sex partners (percent); for men these figures were 25, 43, and 34 percent, respectively.[63]

Misconceptions

Among women, 59 percent knew that HIV cannot be transmitted by sharing food (73 percent of urban women vs. 51 percent of rural women), 54 percent knew that it cannot be transmitted by mosquito bites (71 vs. 48 percent), and 69 percent knew that it is possible for a healthy-looking person to be infected with HIV (86 vs. 63 percent). Differentials by level of education were high: 39 percent of women with no formal education knew that HIV cannot be transmitted by sharing food, versus 69 percent of women who had completed primary school. The comparable figures for transmission via mosquito bites were 34 vs. 65 percent, and for knowledge on whether a healthy-looking person to be infected with HIV, 48 vs. 80 percent. (Comparable data for men were not included in the 1999 TRCHS report.)[63]

Sexual Behavior

Age at First Intercourse

According to the 1999 TRCHS, median age at first intercourse for women was just under 17 years. By age 15, about 20 percent of women had had sexual intercourse and by age 18—the legal age of marriage—68 percent of women had had sexual intercourse, whereas 46 percent of them had married. By age 20, 85 percent of women had had sexual intercourse, with 67 percent married by that age.[63]

The median age at first intercourse among men was about 18. On average, men entered into marriage six years later than women, but they started sexual relations only about one year later than women. Although the median age at first intercourse had increased slightly from 16.2 years among women ages 45-49 to 16.8 years among those ages 25-29, that of men declined from 18.1 years among those ages 55-59 to 17.5 years among those ages 20-24 years.[63]

Irrespective of age, the median age at first intercourse among urban women was slightly higher than that of rural women. There was no apparent urban-rural differential among men. Although the median age at first sexual intercourse was slightly higher among women in Zanzibar than for those on the mainland, the difference was much larger among men; men in Zanzibar initiated sex about three years later than men on the mainland.[63]

Age at First Marriage

According to the 1999 TRCHS, overall, almost half of women married before age 18 and two-thirds married before age 20. Although the median age at first marriage appeared to have risen from 17 among women ages 45-49 to about 19 among women ages 20-24, much of this increase could be because of recall error on the part of older respondents. Compared with the 1991-92 and 1996 TDHS results, the median age at first marriage for women remained almost the same at slightly over 18 years.[63]

Men married considerably later than women. The median age at first marriage for men ages 25-59 was 24, almost six years later than the median of 18 for women. Only 19 percent of men ages 25-59 were married by age 20, compared with 69 percent of women ages 25-49. Compared with the 1996 TDHS results, the median age at first marriage for men had declined by one year, from 25 to 24.[63]

Recent Sexual Activity

In the four weeks prior to the 1999 TRCHS, 59 percent of women ages 15-49 years were sexually active, 12 percent were practicing postpartum abstinence, 17 percent were abstaining from sex for reasons other than having recently given birth, and 12 percent had never had sexual intercourse. The proportion of women who were sexually active varied little by age, except that those in the youngest age group were far less likely to be sexually active. The proportion of women who were sexually active was higher on the mainland than in Zanzibar. Two-thirds of men interviewed were sexually active in the four weeks prior to the TRCHS. As with women, men in Zanzibar were less likely than men on the mainland to have had sex in the four weeks before the survey.[63]

Multiple Partners

The 1999 TRCHS found that among married women, 7 percent had had two or more partners in the year prior to the survey, including their husbands. Among unmarried women, 11 percent had had two or more partners, whereas almost half were not sexually active at all in the prior 12 months. Men reported having more sexual partners than women; 29 percent of married men and 25 percent of unmarried men reported having had two or more partners in the 12 months before the survey. The proportion of men with two or more sexual partners was higher in rural areas than in urban areas; it was also higher among men on the mainland than in Zanzibar.[63]

The 1999 TRCHS notes that:

"Although it appears as if there has been an increase since 1996 in the percentage of both women and men who have had two or more partners during the year before the survey, the differences could be due to a change in the line of questioning about sexual behavior. In the 1996 TDHS, married respondents were first asked about the last time they had had sex with their spouse. They were then asked if they had had any sexual partner other than their spouse, a particularly sensitive question. In the 1999 TRCHS, all respondents were asked about the last time they had had sex, the type of relationship they had with that partner (spouse, girlfriend/boyfriend, casual acquaintance, etc.), and then whether they had had sex with anyone else in the previous 12 months. It is likely that this 'softer' series of questions that did not directly inquire about extramarital relationships elicited more honest reporting of the number of partners." [63]

Given that in population-based surveys on sexual behavior, men consistently report higher numbers of sexual partners than women—which may be associated with male exaggeration or female underreporting or with issues related to sampling, such as exclusion of female sex workers—a study involving researchers from Tanzania's National Institute for Medical Research, the University of North Carolina at Chapel Hill, and LSHTM analyzed data collected in the context of the Mwanza cohort study. The study design included all men and women of reproductive ages and did not involve sampling. The team used these data to compare the consistency of aggregate measures of sexual behavior between men and women living in the same villages. Analysis indicated that nonmarital partnerships were common among single men and women; about 70 percent of unmarried men and women reported at least one sexual partner in the last year. However, 40 percent of married men also reported having nonmarital partners, but only 3 percent of married women did so. Single women reported about half as many multiple partnerships in the last year as men. Underreporting of nonmarital partnerships was much more common among single women than among married women and men. Furthermore, women were more likely to report longer duration partnerships and partnerships with urban men or more educated men than with others. When a woman reported multiple partners, biologic data indicated that she was at high risk of contracting HIV. For men, however, there was a weak association between number of partnerships and risk of HIV, a finding that led the research team to posit that men—especially single men—may exaggerate their number of sexual partners.[89]

See also the AMREF study on gold mining communities discussed above.[49]

Condom Use

Overall, the 1999 TRCHS found widespread knowledge of condoms: 92 percent of women and 96 percent of men who had ever had sex knew about condoms. However, urban-rural differentials with regard to ability to obtain condoms were high: among women who had ever had sex and had heard of condoms, 51 percent in rural areas did not know a source for obtaining condoms, compared with 21 percent in urban areas. The comparable figures for men were 28 and 9 percent, respectively.[63]

Of respondents who were sexually active during the year prior to the survey, only 16 percent of women and 37 percent of men had ever used condoms, primarily for family planning rather than disease prevention.[63]

Eight percent of women and 16 percent of men reported that they had used a condom at last sex. Figures were considerably higher for sexual relations outside marriage: Whereas only 4 percent of women and 5 percent of men reported that they had used condoms at last sex with their spouse, these figures rose to 22-24 percent and 34 percent, respectively, for condom use at last sex with either a regular partner (boyfriend or girlfriend) or someone else.[63]

Since 1996, women have reported increasing use of condoms. In 1996, only 5 percent of women reported condom use at last sex; in 1999, this figure had increased to 8 percent. The proportion of women who reported condom use at last sex with someone other than their husband increased from 17 percent in 1996 to about 23 percent in 1999. The proportion of men who reported condom use at last sex had not increased since 1996.[63]

In 1999, 49 percent women believed that in general, it was all right for a woman to ask a man to use a condom; 55 percent of women believed that it was all right for a wife to ask her husband to use a condom or to refuse to have sex with him if he had an STI. The level of acceptance in both scenarios was high among those who were formerly in a union, better educated, and living in urban areas.[63]

In general, 56 percent of men believed that it was acceptable for a woman to ask a man to use a condom; 58 percent believed that it was all right for a wife to ask her husband to use a condom or to refuse to have sex with him if he had an STI.[63]

Researchers from the University of North Carolina at Chapel Hill examined the relationships between individual-, household-, and community-level variables and condom use to prevent HIV infection in women and men in Tanzania (and Uganda) using multilevel modeling. Analyzing data from the 1996 TDHS (and 1995 UDHS), as well as data collected by the MEASURE Evaluation Project at the Carolina Population Center for Tanzania (1996 and 1999), the study found heterogeneity in condom use among different clusters for both women and men; women and men living in clusters with higher indicators of development were more likely to use condoms to prevent HIV infection. In addition, condom use was much more prevalent in areas where health care services were nearby (0-5 km). Condom use was more common among

women (but not men) who lived in clusters where HIV/AIDS testing, counseling, and treatment were provided. The researchers found that although education improved condom use, the effect of education was considerably reduced in models that included HIV/AIDS knowledge and cluster-level variables. The positive effect of household wealth on condom use diminished after controlling for the effects of the knowledge and cluster-level factors. Knowledge about HIV and perceiving oneself to be at risk for contracting HIV improved condom use.[90]

Age Mixing

Using data from the Kisesa (Mwanza region) cohort study, the University of North Carolina at Chapel Hill found that overall, men were about seven years older than their wives, and about five to six years older than their nonmarital sexual partners. Girls under 20 reported sexual partners who were on average 5.3 years older than themselves; 9 percent had a nonmarital partner age 30 and over, and 20 percent had a spouse age 30 and older. Older men (30 and over) tended to have nonmarital partners who were younger than their wives.[91]

A study on cross-generational and transactional sex in sub-Saharan Africa undertaken by the International Center for Research on Women and Population Services International, highlighted several studies from Tanzania:

- Two studies found that between 27 and 40 percent of girls' (ages 15-19) most recent sexual partners were over 25 years old. Two additional studies reported that the median age difference between girls and young women and their most recent sexual partners was approximately six years.
- Two projects conducted in-depth interviews with all girls who presented for induced abortions at urban hospitals in Dar es Salaam. One project reported that 73 percent of girls' (ages 15-19) partners (most often the partner by whom they had become pregnant) were over age 30, and 28 percent were over age 40. In the other study, 31 percent of girls' (ages 14-17) partners (who were responsible for the pregnancy) were over age 45.[92]

Transactional Sex

The same ICRW-PSI study highlighted that a study in rural Tanzania found that 52 percent of female primary school students and 10 percent of female secondary school students reported the reason for having sex was for money or presents.[92]

A study by the National Institute for Medical Research in Mwanza examined premarital sexual behavior among out-of-school adolescents residing in rural communities from farming and lakeshore settings in Magu district. The study found that large numbers of out-of-school adolescents were sexually experienced, that the period from acquaintance or dating to sexual relations was typically short, and that sexual encounters were typically risky. The exchange of money and gifts for sex was reported by both female and male adolescents, although related perceptions and interpretations differed widely. Males perceived that females engage in sex

largely for material gain, whereas females view sex as a display of a partner's love or commitment.[93]

Sex Work

See also the STI section above.

A study (the findings of which were published in 1991) conducted by the Kilimanjaro Christian Medical Center and College in Moshi among 106 sex workers (ages 17-70) in Arusha and Moshi found that HIV prevalence was 73 percent. Fifty-one percent of women had evidence of gonorrhea infection, 74 percent had a positive TPFA, and 27 percent had a positive RPR. Of 47 women tested, 25 percent had chlamydia. No significant statistical association was found between the presence of any of the STIs investigated and HIV seropositivity.[94]

There have been several studies among bar and hotel workers in Tanzania. Researchers from the Royal Tropical Institute in Amsterdam undertook a study among female bar workers in Magu district in the northwest; they published their findings in 1997. The study team highlights that:

"Although the women are still partially dependent on the financial support provided by sexual partners and sexual relations tend to be based on exchange, bar workers cannot simply be equated with prostitutes. Some have a regular partner and the odd casual partner while others may have large numbers of casual contacts. Regular partners are almost always married and often itinerant."[95]

In 1993, the team interviewed or enrolled in focus group discussions 33 of the approximately 80 bar, brew shop, and guest house workers in Magu town. In 1994, follow-up interviews were conducted with 27 of the women. The average age of study respondents was 25 years. Bar workers in Magu are predominantly divorced or unmarried and have a high degree of geographic mobility. They select bar work as an alternative to financial dependence on their families. However, because bar workers earn an average of only Tsh 3,000 a month (versus the national average monthly income of Tsh 10,000), they remain partially dependent on the financial support of sexual partners. The difference between regular and casual partners was expressed by respondents primarily in financial terms. Regular partners, who are usually married, support a woman over an extended period and provide assistance in times of acute need (e.g., illness, school fees), whereas casual partners exchange a predetermined amount of money for a single sexual encounter. The distinction between regular and casual partners is based on the nature and extent of financial support; it is also related to condom use and therefore to risk. Women report being able to insist on condom use with casual partners but not with regular partners. Although women report that their regular partners "can be trusted," they do admit feeling at risk of HIV and STIs with these partners..[95]

Researchers from Harvard School of Public Health and Kilimanjaro Christian Medical Center and College conducted a study to determine the prevalence and risk factors for HIV infection among women (n = 312) working in bars and hotels in Moshi. They assumed that some percent of study participants were also engaged in sex work with males whom they met in the course of their bar and hotel jobs. Their findings, published in 2002, indicated that HIV prevalence was

26.3 percent (95% CI: 21.4-31.2). In multivariate analyses, the risk of HIV increased with increasing age (p value, test for linear trend <.001) and the number of sexual partners during the last five years (p value, test for linear trend <.03). Another significant predictor was consuming alcohol more than two days each week (AOR: 2.56; 95% CI: 1.12-5.88). The risk of HIV also significantly increased in women with bacterial vaginosis (AOR: 2.37; 95% CI: 1.09-5.13) and in those with HSV-2 (AOR, 2.48; 95% CI: 1.24-4.98).[96]

The Harvard-Kilimanjaro Christian Medical Center and College team interviewed bar and hotel workers (n = 519) to obtain information about potential predictors of condom use (consistent condom use was defined as always using condoms with sexual partners in the past five years). The findings, published in October 2003, indicated that overall, consistent condom use among those interviewed was 14.1 percent. In multivariate analyses, consistent condom use was inversely associated with low condom self-efficacy (AOR: 0.20; 95% CI: 0.06-0.71), low condom knowledge (AOR: 0.11; CI: 0.01-0.80), and having more than three children (AOR: 0.23; 95% CI: 0.09-0.54). Other significant predictors included perceived condom acceptability and using condoms at last exchange of sex for money or gift.[97]

A study undertaken by researchers from LSHTM, Mbeya Regional Medical, Mbeya Consultant Hospital, Ludwig-Maximilians-University in Munich, and St. George's Hospital in London. determined baseline prevalence of STIs and other reproductive tract infections (RTIs) and their association with HIV as well as sociodemographic and behavioral characteristics in a newly recruited cohort of female bar workers in Mbeya. From September to November 2000, 600 female bar workers were recruited from 17 communities and underwent gynecological examination, laboratory testing for HIV/STI, and interviews using structured questionnaires. HIV seroprevalence was 68 percent. Prevalences of STI/RTI were high: titre syphilis (TPPA/RPR $\geq 1/8$): 9 percent; HSV-2: 87 percent; chlamydia: 12 percent; gonorrhea: 22 percent; trichomoniasis: 24 percent; and bacterial vaginosis: 40 percent. HIV infection was associated with TPPA and HSV-2 seropositivity; bacterial vaginosis; and clinically diagnosed genital ulcers, blisters, and warts. Having multiple casual partners during the past year was associated with prevalent STI.[98]

Lockhart of the University of Western Australia interviewed 75 street boys ages 8-20 in Mwanza. Results suggested that almost all were involved in a sexual network in which homosexual and heterosexual behavior occurs. Lockhart describes MSM behavior in this context as rooted in a complex set of behaviors and ideologies known as *kunyenga*, which is a situated aspect of life on the streets and helps maintain boys' strong dependence on one another. A key aspect of the boys' sexual histories involved a decrease in *kunyenga* activity as they approached age 18 and an increase in heterosexual encounters after age 11. Lockhart noted a critical period between these ages during which heterosexual and *kunyenga* activities overlap, suggesting that boys between these ages represent a potential bridge for HIV infection between the general population and the relatively enclosed sexual network of street boys.[99]

Male Circumcision

Male circumcision is a customary practice among Muslims and a large number of ethnic groups in Tanzania.[4] Using the Mwanza cohort study, researchers found that 21 percent of 3,491 men

reported themselves as having been circumcised. Male circumcision appears to have become more popular in recent years, as an increase in circumcision rates was observed in the cohort study from 1994 to 1997 (although reporting inconsistencies are common). Circumcision rates were higher among men with higher levels of education and in Muslim men. Men were often circumcised in their late teens or twenties. The reasons for the increasing popularity of circumcision were investigated in group discussions and in-depth interviews. The most frequently mentioned reason was health-related; circumcision was thought to enhance penile hygiene, reduce STI incidence, and improve STI cure rates.[100]

The study by Bloom et al. in Kisesa ward (Mwanza region) mentioned above found that when controlling for community characteristics, the age-adjusted individual factors for education, type of work, household assets, and male circumcision demonstrated changes in the likelihood of being HIV positive. Among men, the effects of education, type of work, and household assets were attenuated and lost statistical significance, whereas the protective effect of male circumcision was more and marginally significant (OR: 0.66; 95% CI: 0.44 to 0.99).[17]

The study by Todd et al. examining syphilis within the Mwanza cohort, discussed in the STI section above, found that among men, syphilis prevalence was associated with, inter alia, lack of circumcision (OR: 1.89).[78]

In a study examining the prevalence and incidence of HIV and other STIs in two lake-island and eight rural mainland communities in Mwanza, the prevalence and incidence of HIV and syphilis were lower on the islands, but this pattern was not observed for HSV-2, gonorrhea, chlamydia, male urethritis, or ANC prevalences of trichomonas. Island men reported fewer sexual partners than mainland men, but no differences were found for women. In addition to differences in marriage patterns between island and mainland participants, island men were more likely to be circumcised, and island women had lower mobility. The researchers posited that possible explanations for the differences in HIV and syphilis prevalences include slower introduction of HIV into the islands because of geographic isolation, more core-group sexual contact on the mainland, higher prevalence of male circumcision on the islands, and differences in marital status.[101]

Alcohol and Drug Use

See also the AMREF study discussed in the Mining section above, as well as the study of bar workers in Moshi discussed in the Sex Work section.

Using the Kisesa ward (Mwanza region) cohort data, researchers from the University of North Carolina at Chapel Hill found that Kisesa trading center had almost three times more bars and *pombe* (bootleg liquor) shops per 1,000 population than other locales in the ward, and alcohol use was more commonly reported by survey respondents in the trading center. The number of bar workers or women frequenting bars was about twice as high in Kisesa trading center compared with rural villages. HIV prevalence among these women was higher than among other women, whereas bar workers in the rural areas had lower HIV prevalence than those in the villages surrounding the trading center.[102]

According to the U.N. Office on Drugs and Crime, Tanzania is a prime target for drug trafficking. Criminal groups based in Dar es Salaam appear to be linked to associates in Kenya, Zambia, and South Africa and involved in the growing drug trade.[103]

The U.N. also reports that the drug abuse situation in Tanzania is increasing, with herbal cannabis abuse rising throughout the country; heroin abuse, including intravenous use, is increasing in Dar-es-Salaam and Zanzibar. Cocaine is available, but its high cost restricts its abuse to the affluent sections of the community. *Khat* is being used, particularly by Somali and coastal communities. Despite that Tanzania is a major transit country for methaqualone (mandrax) and cannabis resin (hashish), there is currently little evidence of abuse of these drugs.[103]

Impact

Demographic

Life Expectancy at Birth

The U.N. Population Division estimates that although Tanzania's life expectancy is projected to increase, AIDS will reduce life expectancy by 17 percent during 2000-05, by 14 percent during 2010-15, and by 7 percent during 2045-50 (table 1).

Table 1. Life Expectancy at Birth with and without AIDS, 2000-2005, 2010-2015, and 2045-2050

Period											
2000-2005				2010-2015				2045-2050			
With AIDS	Without AIDS	Reduction in Life Expectancy	Percentage Reduction	With AIDS	Without AIDS	Reduction in Life Expectancy	Percentage Reduction	With AIDS	Without AIDS	Reduction in Life Expectancy	Percentage Reduction
43.3	52.1	9	17	46.5	54.1	8	14	63.3	67.8	5	7

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. *World Population Prospects: The 2002 Revision. Highlights*. New York: February 2003 <<http://www.un.org/esa/population/publications/wpp2002/wpp2002annextables.PDF>>

Population

The U.N. Population Division examined population under a "no-AIDS" scenario. Because of continued high fertility, Tanzania's population will continue to increase substantially, to over 69 million by 2050. However, the population will be up to 15 percent smaller than it would have been in a "no-AIDS" scenario (tables 2 and 3).[14] Factors include AIDS deaths, as well as reduction in fertility due to condom use to prevent infection, fewer births because of a smaller reproductive age population, and fertility reduction associated with HIV infection (see also the Epidemiology section above).

Table 2. Projected Population with and without AIDS, 2000, 2015, and 2050 (Thousands)

Period					
2000		2015		2050	
With AIDS	Without AIDS	With AIDS	Without AIDS	With AIDS	Without AIDS
34,837	35,836	45,909	50,404	69,112	81,362

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. *World Population Prospects: The 2002 Revision. Highlights*. New York: February 2003
<<http://www.un.org/esa/population/publications/wpp2002/wpp2002annextables.PDF>>

Table 3. Projected Population Reductions, 2000, 2015, and 2050

Period		
2000	2015	2050

Population Reduction (Thousands)	Percentage Reduction	Population Reduction (Thousands)	Percentage Reduction	Population Reduction (Thousands)	Percentage Reduction
999	3	4,495	9	12,250	15
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. <i>World Population Prospects: The 2002 Revision. Highlights</i> . New York: February 2003 < http://www.un.org/esa/population/publications/wpp2002/wpp2002annextables.PDF >					

Mortality

As previously mentioned, UNAIDS estimated that during 2003, there were 160,000 AIDS deaths (adults and children) in Tanzania.[13] According to the U.N. Population Division, AIDS has already increased the number of deaths in Tanzania by 11 percent. By 2000, there had been 807,000 AIDS deaths in Tanzania. The division projects an additional 5 million AIDS deaths by 2050, with AIDS increasing the number of deaths in the country by 29 percent during 2000-15 and by 14 percent during 2015-50 (tables 4 and 5).[14]

Table 4. Projected Number of Deaths with and without AIDS, 1980-2000, 2000-2015, and 2015-2050 (Thousands)					
Period					
1980-2000		2000-2015		2015-2050	
With AIDS	Without AIDS	With AIDS	Without AIDS	With AIDS	Without AIDS
8,071	7,265	10,269	7,944	23,021	20,140
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. <i>World Population Prospects: The 2002 Revision. Highlights</i> . New York: February 2003 < http://www.un.org/esa/population/publications/wpp2002/wpp2002annextables.PDF >					

Table 5. Excess Deaths Because of AIDS, 1980-2000, 2000-2015, and 2015-2050					
Period					
1980-2000		2000-2015		2015-2050	
Excess Deaths (Thousands)	Percentage Increase	Excess Deaths (Thousands)	Percentage Increase	Excess Deaths (Thousands)	Percentage Increase
807	11	2,325	29	2,881	14
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. <i>World Population Prospects: The 2002 Revision. Highlights</i> . New York: February 2003 < http://www.un.org/esa/population/publications/wpp2002/wpp2002annextables.PDF >					

Research undertaken by UNAIDS and WHO found that for Tanzania, the HIV-attributable under-5 mortality rate (per 1,000 and corrected for competing causes of mortality) was 15.6 during the 1990s. (Rates among the 39 countries studies ranged from Madagascar [0.2] to Botswana [57.7].) The HIV-related population proportional attributable risk of dying before age 5 (i.e., the proportion of all-cause under-5 mortality attributable to HIV) was 12.3 percent; the

average for the 39 sub-Saharan African countries studied was 7.7 percent, ranging from 0.1 percent in Madagascar to 42.4 percent in Botswana.[105]

Researchers from the Kisesa ward (Mwanza region) cohort examined the impact of HIV on child mortality using HIV data for 4,273 mothers from three rounds of serologic testing (1994, 1996, 1999), linked to survival information for 6,049 children born between 1994 and 2001, contributing 10,002 person-years of observation and 584 child deaths. They used hazard analysis to assess the impacts of maternal survival and HIV status on child mortality. Infant mortality for children of HIV-positive mothers was 158 per 1,000 live births, compared with 79 per 1,000 for children of uninfected mothers; under-five mortality rates were 270 per 1,000 live births and 135 per 1,000, respectively. Fifty-one deaths were observed among child-bearing women, 14 to HIV-positive mothers. Infant mortality among children whose mothers had died was 489 per 1,000 live births, compared with 84 per 1,000 for children of surviving mothers. Maternal death effects were statistically independent of HIV status. Allowing for age, sex, twinning, birth interval, maternal education, and residence, the child death hazard ratio for maternal HIV infection was 2.3 (1.7-3.3); the hazard ratio associated with maternal death was 4.8 (2.7-8.4). The HIV-attributable fraction of infant mortality was 8.3 percent in a population in which HIV prevalence among women giving birth was about 6.2 percent.[106]

Macroeconomic

According to a June 2003 report from the World Bank, previous studies have grossly underestimated the economic impact of the AIDS epidemic, failing to factor in the impact of education and parenting on the economy. The authors underscore that by killing primarily young adults, AIDS does more than destroy the human capital embodied in them; it also deprives their children of the requirements to become economically productive adults: their parents' care, knowledge, and capacity to finance education. This weakening of the mechanism through which human capital is transmitted and accumulated across generations becomes apparent only after a long time lag, and it is progressively cumulative in its effects. [107]

Crafts and Haacker of the IMF have sought to quantify the welfare losses associated with HIV/AIDS. They used estimates and projections of the impact of the epidemic on mortality and life expectancy, as well as existing studies on the value of statistical life. They estimated welfare loss as the loss in per capita income that would have the same effect on lifetime utility as the increase in mortality, expressed in percentage of GDP. They do note numerous limitations of their study. For Tanzania, they found that HIV/AIDS has already resulted in welfare losses equivalent to 47.2 percent of GDP.[108]

Bonnerjee of the World Bank posits that Tanzania's new pension system may not have planned adequately for HIV/AIDS. He notes that as many orphans were cared for by grandmothers (see section below), the epidemic has further increased the dependency burden and jeopardized the future welfare of the surviving older generation. There is therefore an increased need for income security in old age. Under these circumstances, bolstering the incomes of the elderly, many of whom are caretakers of orphans, could have a significant welfare effect on orphan well-being.[109]

Health Sector

A USAID-led mission undertaken in late 2003 reported that:

"HIV continues to impose a heavy burden on the Tanzanian health care system. It is estimated that an HIV-positive adult will have about seventeen illness episodes before death, and that the health care costs can be twice the Tanzanian GDP per capita. An estimated 50 percent to 60 percent of hospital beds are occupied by patients with HIV/AIDS-related illness and, in some hospitals, this proportion may be even higher. For example, in a random survey of twenty male and female patients at one district hospital, about 75 percent were infected with HIV. In a survey of four consultant hospitals (Bugando Medical Center, Muhimbili National Hospital, Mbeya Referral Hospital, and Kilimanjaro Christian Medical Center), during 1999 or 2000, HIV/AIDS ranked among the five top causes of adult admissions. At Muhimbili National Hospital, Mbeya Referral Hospital, the private nonprofit Hindu Mandal Hospital, and Kilimanjaro Christian Medical Center, HIV/AIDS was the number-one cause of death in 1999. A recent USAID-supported consultation on home-based care concluded that the effect of diseases due to HIV/AIDS has been enormous and continues to grow on an already overburdened health care system. This report concluded that although the majority of people living with HIV do not know that they are infected, most need and seek treatment for opportunistic infections, including tuberculosis and other HIV related illnesses. Hospitals are becoming increasingly overcrowded, leading to reduced or poor quality of care for all patients. For example, a number of districts (e.g., Same and Kasulu) have constructed new wards to accommodate the increasing demand of HIV/AIDS-related admissions." [7]

Households

When considering household impact data, it is useful to bear in mind that some households dissolve after the death of main income earners. Consequently, impact surveys often do not capture such households and thus may underestimate the magnitude of impact. [22]

The Kisesa (Mwanza region) cohort data indicate that during terminal illness, people with AIDS made extensive use of both traditional and modern health services, more so than people who died from other causes. The main factor associated with this difference was the longer duration of illness. Expenses associated with HIV/AIDS terminal illness were higher than those for other causes of death, largely because of the longer duration of illness. The direct medical costs were about 1.5 times higher than funeral costs; the sum of the medical and funeral costs exceeded estimated annual household income per capita. Almost half of all AIDS deaths were not admitted to hospitals during their terminal illness, and only a small proportion died in hospitals. [110]

The Kagera Health and Development Survey (KHDS) is a longitudinal living standards survey of over 800 households incorporating four waves of data collected at roughly six-month intervals from 1991 to 1994. The survey, conducted by the World Bank and the University of Dar es Salaam, was designed to observe the impact of the deaths of prime-aged adults (defined as those ages 15 to 50) on the welfare of surviving household members; therefore, the sample was heavily

stratified to include a sufficient number of households likely to suffer the death of an adult during the short time frame of the panel (two and a half years).[111]

In Kagera, households spent less during a member's AIDS-related illness (given lost income); spending on clothing, soap, batteries, other nonfood items, and food declined by one-third from prior levels, whereas the percentage of household expenditures spent on medical care rose. Attendance at funerals had become both commonplace and disruptive to both business operations and small-scale farmers and merchants.[22]

Case studies have found that Tanzanian households with a chronically ill member experience 30 to 35 percent reductions in average annual income. Through the time of death, adult mortality costs households the equivalent of about two years of labor. KHDS found that two to three years after the death of an income earner, households continued to struggle to recapture their former income level. For female-, child- and elder-headed households, such recovery took more time, if it occurred at all.[22] Mutangadura et al. have found that among families that have lost breadwinners, 90 percent of their material and other assistance came from family and community groups.[112]

Using the KDHS data, the Population Council found that the elderly population is severely affected by increased mortality rates among young adults. Caring for AIDS patients places an additional burden on the elderly, resulting in adverse health impacts and loss of wages. A significant proportion of adults suffering from AIDS return to their parents' home shortly before death. Time spent by the elderly performing household chores rises following an adult's death, and their participation in wage employment falls.[111]

Orphans and Other Vulnerable Children

Tanzania's 2001 National Policy on HIV/AIDS defined an orphan as a child ages 0-15 who has lost both parents.[61]

According to UNAIDS, there were 980,000 AIDS orphans (ages 0-17) living in Tanzania at the end of 2003. (UNAIDS defines an AIDS orphan as a child ages 0-17 who has lost one or both parents to AIDS.)[13] *Children on the Brink 2002*, a report on AIDS orphans undertaken by USAID, UNAIDS, and UNICEF, estimated that the percent of Tanzania's orphans that could be attributed to AIDS rose from 4.2 percent in 1990 to 18.8 percent in 1995 to 42.3 percent in 2001. This percentage is projected to increase to 50.8 percent in 2005 and to 54.2 percent in 2010.[113]

In Tanzania's 1978 census, 2.23 percent of children below age 15 had lost their mother or both parents. The 1994 TDHS found that this figure had risen to 2.80 percent.[114] The 1999 TRCHS found that 17 percent of children under age 15 were living with their mothers (but not with their fathers), 5 percent were living with their fathers (but not with their mothers), and 14 percent were living with neither of their natural parents. Of children under 15, 6 percent had lost their fathers and 3 percent had lost their mothers. One percent of children had lost both their natural parents. Twenty-two percent of Tanzania households had foster children, that is, children under age 15 living in a household with neither their biological mother nor father present.[63]

Using data collected between November 2001 and February 2002 in rural and urban districts of Iringa and Dodoma regions, Huber and Gould of the University of Liverpool found that the largest proportion—around 40 percent—of orphans and of children from disjointed families (a term they use to express the spatial separation of a child from at least one of his or her biological parents) live in households headed by their mothers rather than by members of their extended families. About 30 to 40 percent of these mothers were the only adults above age 18 years in the household. Moreover, few of them were receiving outside help for their children's education. The second-largest group of household heads who were caring for orphans and children from disjointed families were members of the extended family, namely grandmothers and aunts. Together, they cared for 20 to 30 percent of orphans and about 17 percent of children from disjointed families. Most grandmothers tended to be the only adults in their households, and both grandmothers and aunts tended to receive no help for orphans' education.[115]

Ainsworth of the World Bank and Semali of Muhimbili University College of Health Sciences in Dar es Salaam highlight that increased mortality of prime-aged adults may also have important consequences for the health of orphaned children and other coresident young people. Using the Kagera household data (discussed above) and controlling for individual characteristics, household assets, and community variables, Ainsworth and Semali found that orphanhood (from one or both parents) and recent deaths of adults in the household (who may or may not be parents) have independent impacts on increasing morbidity and reducing height for age of children under five. Children from the poorest households, those whose parents were uneducated, and those with the least access to health care were the most severely affected. Although the impact of adult deaths on reducing height for age was delayed (not appearing until four to six months after an adult death, it was substantial. There was no significant relationship between adult mortality (or most other explanatory variables) and weight for height.[116]

Ainsworth and her colleagues, again using data from Kagera, assessed whether orphans or children in households with an adult death are less likely to be enrolled in primary school. They found that Tanzanian households are coping with adult deaths by delaying enrollment of young children, while maintaining enrollment of older children. Among orphans, only maternal orphans are being held back. The practice of delaying enrollment of primary-age children is already the norm in Tanzania; studies have found that over 80 percent of primary-age children have delayed enrollment. Reasons for delayed schooling include the opportunity costs of children's time, overcrowding in schools, low returns to primary schooling, and limited opportunities for secondary schooling. Controlling for these factors and for household wealth, Ainsworth et al. found that maternal orphan status and adult deaths have a separate and independent effect on delayed schooling of the youngest children. There was no evidence that older orphans or older children in households with an adult death drop out of primary school. Children and orphans in households headed by grandparents were equally likely to be enrolled as children of heads of household, and more likely to be enrolled than children in households headed by relatives other than the parent or grandparent.[117]

Ainsworth et al. suggest several explanations for these findings. First, household coping mechanisms may buffer any long-term impact on enrollment. Extended families and support networks may be effectively fostering children or transferring resources so that children can remain in school after a death occurs. Second, the opportunity cost of children's time in school

may be lower than anticipated. The researchers found an increase in participation rates in housework only for the youngest children, consistent with their delayed enrollment. The participation rates of children ages 11-14 in most activities were unaffected by either orphan status or an adult death. These results are for primary schooling only; the impact of adult deaths on secondary enrollment (which is very low; see accompanying indicator table) are yet to be studied. In addition, children in secondary school are much older, and the opportunity cost of their time is greater in the event of an adult death. Third, targeted assistance from organizations to orphans and households with a death may help keep children in school. Among children currently enrolled, Ainsworth et al. found that orphans were significantly more likely to be receiving assistance from organizations (but not from individuals) for educational costs. However, many orphans do not receive assistance, whereas many nonorphans do receive assistance. Assistance also seems to be targeted to households with an adult death, although not exclusively.[117]

The Huber and Gould study mentioned above found that orphans are neither a homogeneous group nor are they the only vulnerable group. Whether orphans are less likely to attend school depends strongly on their place of residence. Whereas in rural areas orphans are only very slightly overrepresented among irregular attendees and never attendees, both in roadside settlements and in urban areas they are strongly overrepresented among dropouts and never attendees. In roadside settlements, orphans are significantly more likely never to have attended school, and in urban areas they are significantly more likely to have dropped out of school than children who live with both parents.[115]

Education

HIV/AIDS affects both the demand for and supply of education. Gould and Huber of the University of Liverpool found that when high and low population reduction estimates of the effects of HIV/AIDS are integrated into projections of school-age populations and of school enrollment scenarios, the impacts for educational planning in Tanzania are substantial. The net effect of HIV/AIDS will be to reduce the school-age population by over 15 percent, compared with a "no-HIV/AIDS scenario." However, given continuing high (though declining) fertility, absolute cohort sizes will continue to grow at about 1 percent annually.[118]

On the supply side, the World Bank indicates that 14,460 teachers in Tanzania could die because of AIDS by 2010.[119]

Agriculture

According to FAO, between 1985 and 2020, Tanzania will have lost 13 percent of its agricultural labor force because of AIDS.[120] Topouzis of FAO has found long-term changes in farming systems, as household cultivation shifts from cash and labor-intensive crops to subsistence crops. In Bukoba district, for example, the intensely managed banana/coffee/bean farming system has been replaced by a low-input cassava/sweet potato farming system. Major changes in livestock management have also been recorded.[121]

Industry

See also the Response section below. Productive sectors of the economy are experiencing a loss of skilled labor, increasing recruitment costs, sick leave costs, and reduced revenue. Economic sectors such as transport and mining are particularly hard-hit; business closures related to the HIV/AIDS impact on personnel have been noted by the Tanzania Chamber of Commerce and Industry and by the Government of Tanzania.[2]

Response

Government

The first AIDS cases in Tanzania were reported in the Kagera region in 1983.[1] In 1985, a national AIDS Task Force was established. It developed a short-term plan (1985-86), which was primarily aimed at the mobilization of the health sector through training of health workers and establishment of blood safety measures.[4]

By 1987, all regions of the country had reported AIDS cases. In that year, with technical support from WHO's then Global Program on HIV/AIDS, the MOH established the National AIDS Control Program (NACP).[2, 61] The NACP subsequently established AIDS coordinators in each of the country's districts.[26]

Three medium-term plans were developed for the periods 1987-91, 1992-96, and 1998-2002.[4] The first medium-term plan included a more complete set of interventions and the first steps for decentralizing the program. The second adopted a multisectoral approach and focused on reducing transmission of HIV and mitigating the personal and social consequences of the epidemic.[122]

Assessment of Initial Response

According to Tanzania's *National Multisectoral Strategic Framework on HIV/AIDS 2003-2007*, the initial response failed to reverse the trend of the epidemic at national level. Past efforts of the MOH and NACP were constrained by structural factors: low implementation rate; lack of human and financial resources; inadequate capacity of implementing institutions; excessive bureaucracy and centralization; insufficient coordination; and limited integration of development partner activities.[123]

Multisectoral Response

According to Tanzania's Global Fund Country Coordinating Mechanism, "active political commitment" vis-à-vis HIV/AIDS began to accelerate in December 1999, when President Mkapa declared HIV/AIDS a national disaster and called for the entire nation, especially political, civil, and religious leaders, to take new measures "on a war footing" against HIV/AIDS. On World AIDS Day 2000, the president announced the formation of the Tanzania Commission for AIDS (TACAIDS) to lead the multisectoral response to the epidemic (see below).[2]

National Policy on HIV/AIDS

In 1991, a review of NACP called for the development of a national policy that would provide guidelines for dealing with AIDS. The review identified the following major issues:

- care of people with AIDS
- pre- and posttest HIV counseling

- AIDS orphans
- AIDS education in schools[122]

The second medium-term plan reiterated the need for a national policy and added several additional policy issues that needed to be addressed, including:

- support for family members of people who have died from AIDS
- loss of productivity
- protection of the legal rights of AIDS patients and people living with HIV and AIDS
- use of condoms[122]

With the absence of a supportive legal framework for many AIDS programs, the need for a national policy became evident. It was difficult to change laws and regulations to create a supportive legal framework without a government policy requiring those changes. Therefore, the government mandated NACP to develop a national policy. NACP commissioned experts to write papers on 11 key components. The experts then presented these papers at a national policy formulation workshop in 1995. However, as of mid-1999, the policy had still not been approved. The lack of widespread participation in the development of the policy may have contributed to a lack of momentum for approval.[122]

In November 2001, the *National Policy on HIV/AIDS* was approved. Its overall goal is to provide a framework for leadership and coordination of the national multisectoral response to the epidemic.[61] Specific objectives:

- prevention of transmission of HIV/AIDS
- HIV testing
- care of PLWHA
- sectoral roles and financing
- research
- legislation and legal issues[61]

These issues are addressed in more detail below.

TACAIDS

In January 2002, an Act of Parliament was passed that formally established the Tanzania Commission for AIDS (TACAIDS). Placed within the prime minister's office, TACAIDS' role is to intensify the national response through strategic leadership; policy guidance; and coordination of the public, voluntary, private and community efforts. TACAIDS led the development of the *National Policy on HIV/AIDS* that was approved by Parliament in 2001.[2] In February 2003, TACAIDS' commissioners were inaugurated, comprising mainly civil society representatives. Key staff posts within its secretariat were filled in late 2002, and the secretariat was fully staffed by January 2003.[85]

TACAIDS is not an implementing agency.[85] Rather, its role is to coordinate all partners and efforts associated with the epidemic. It provides broad policy guidance to NACP and coordinates

with stakeholders both within and outside government on policy issues related to the overall national response to HIV/AIDS.[85]

National Multisectoral Strategic Framework on HIV/AIDS 2003-2007 (NMSF)

The NMSF translates the *National Policy of HIV/AIDS* by providing strategic guidance to the planning of programs, projects, and interventions by various stakeholders. It delineates the basic approaches and principles that guide the national response and identifies goals, objectives, and strategies. It also outlines a monitoring & evaluation system and the institutional, coordination, and financial frameworks of the national response.[123]

The NMSF has nine goals:

1. reduce the spread of HIV
2. reduce HIV transmission to infants
3. ensure that political and government leaders consistently give high visibility to HIV/AIDS in their proceedings and public appearances
4. ensure that political leaders, public and private programs, projects, and interventions address stigma and discrimination and take the human rights of PLWHA into account
5. ensure that HIV/AIDS concerns are fully integrated and prioritized in the National Poverty Reduction Strategy and World Bank Tanzania Country Assistance Strategy
6. reduce the prevalence of STIs
7. increase knowledge of HIV transmission
8. increase the number of PLWHA with access to a continuum of care and support from home and community to hospital levels (including ARVs)
9. reduce the adverse effects of HIV /AIDS on orphans[123]

Tanzania Association of Parliamentarians against AIDS Coalition (TAPAC)

The Tanzania Association of Parliamentarians against AIDS Coalition (TAPAC) brings together members of Parliament to provide cross-cutting policy and budgetary oversight, advocacy, and lobbying.[2]

Human Rights

Tanzania's *National Policy on HIV/AIDS* states that:

"Communities and individuals have the right to legal protection from willful and intentional acts of spreading HIV/AIDS while safeguarding the rights of PLHAs and other affected members by providing counseling and social support."[61]

"PLHAs have the right to comprehensive health care and other social services, including legal protection against all forms of discrimination and human rights abuse. However, PLHAs may be required to meet some of the cost of the Highly Active Anti Retroviral Therapy (HAART)."[61]

The policy's objectives include creating a legal framework by enacting a law on HIV/AIDS, addressing legal and ethical issues in HIV/AIDS, and revising the legal status of families affected by HIV/AIDS to provide them with access to family property after the death of a parent(s). Another is to identify HIV/AIDS-related human rights abuses and to protect PLWHA against all forms of discrimination and social injustice.[61]

The policy upholds rights to:

- nondiscrimination, equal protection, and equality before the law
- seek and enjoy asylum
- liberty and security of person
- highest attainable standard of physical and mental health
- privacy
- freedom of association
- freedom of opinion and expression and to freely receive and impart information
- marry and establish a family; work; equal access to education; adequate standard of living; social security, assistance, and welfare
- share in scientific advancement and its benefits
- be free from torture and cruel, inhuman, or degrading treatment or punishment[61]

However, there are no laws or other legal instruments to implement these principles. Some employees are being discriminated against based on their HIV status. Employers interviewed in a POLICY Project study revealed that employees are being fired when their HIV status becomes known (more detail below). A key legal issue concerns mandatory HIV testing. Despite that this practice is prohibited by the *National Policy on HIV/AIDS* (which, however, is not legally binding), it is regularly practiced. One legal justification for such testing cited by employers is Tanzania's 1963 Infectious Disease Ordinance, which allows employers to confirm the health of employees prior to their employment.[26] (It appears that the Infectious Disease Ordinance was amended in 1986 to include AIDS as a notifiable disease.[124].)

Confidentiality and Consent

See also the VCT section below.

The *National Policy on HIV/AIDS* outlines that:

"All HIV Testing shall be confidential. Nevertheless, public health legislation shall be made to authorize health care professionals to decide on the basis of each individual case and ethical considerations, to inform their patients or sexual partners of the HIV status of their patients. Such a decision shall only be made in accordance with the following criteria:"[61]

- "The HIV-positive person in question has been thoroughly counseled.
- Counseling of the HIV-positive person has failed to achieve appropriate behavioral changes, including:
 - The notification of his/her partner.
 - A real risk of HIV transmission to the partner(s) exists.
 - The HIV-positive person is given reasonable advance notice.

→ Follow-up is provided to ensure support to those involved, as necessary."[61]

"Informed consent following adequate counseling shall be obtained from the person before HIV testing can be done. Hospitalized patients or ambulatory patients in semiconscious states and those deemed to be of unsound mind, may not be able to give informed consent. Counseling shall involve a close relative or the next of kin in order to obtain the consent before proceeding with diagnostic testing, treatment, and clinical care."[61]

"Physicians and other health workers are not allowed to notify or inform any person other than the individual tested of the test results without his or her consent. Counseling shall emphasize the duty to inform sexual partners and married couples will be encouraged to be tested together. In the event of refusal of the person tested to inform any other person, the decision to inform the third party shall adhere to the conditions laid down in section 3.2(b) on Confidentiality. Partners who cannot be involved in the same counseling session with the tested person, shall be persuaded to go for counseling before they can be notified of the tested person's HIV test results."[61]

Again, however, the provisions of the *National Policy on HIV/AIDS* are not legally binding.

Premarital HIV Testing

The *National Policy on HIV/AIDS* states that:

"Premarital testing shall be promoted and made accessible and affordable all over the country. Like all other testing it should be voluntary with pre- and post-test counseling."[61]

Nonhealth Ministries

- The Ministry of Justice and Constitutional Affairs is currently drafting legislation on HIV/AIDS.[125]
- The Ministry of Education is charged with technical leadership for introducing information and education on reproductive health, HIV/AIDS, and TB into the primary and secondary school curricula and into peer groups for students and teachers. [2]
- The Ministry of Agriculture and Cooperation (MoAaC) seeks to integrate HIV/AIDS into agricultural research and the agricultural extension system; create a databank to provide information on various aspects of the epidemic; and strengthen the analytical capability of planners to project the socioeconomic impacts of the epidemic on rural households, communities, and the nation. However, the main constraint for the MoAaC is that it does not have the resources to implement its plan of action.[121]
- The Ministry of Labor, Youth Development & Sport addresses HIV prevention, impact mitigation, orphans and other vulnerable children, and workplace programs.[8]

- The President's Office of Regional Administration and Local Government is charged with coordinating district-level responses to HIV/AIDS.[8]
- The Tanzania Peoples Defense Force/Ministry of Defense Health Services is a partner in the World Bank MAP loan as well as GFATM-financed activities (see below).
- Under the World Bank MAP loan, nonhealth ministries with HIV/AIDS workplans will receive support for their implementation.[85] (See also the World Bank section below.)

Zanzibar

In 1987, Zanzibar established an AIDS Control Program (ZACP) under the MOHSW as the implementing and coordinating body for HIV/AIDS activities. In June 2002, the government enacted a law that established the Zanzibar AIDS Commission (ZAC) to assume responsibility for advocacy, resource mobilization, monitoring & evaluation, and coordination. ZACP now acts as the secretariat for the ZAC and is also responsible for strengthening the health sector response.[85]

Budgets

In its approved GFATM round-4 proposal (January 2004), Tanzania's Global Fund Country Coordinating Mechanism presented the following tables with regard to HIV/AIDS-related resources.

Table 6. Financial Contributions to National HIV/AIDS Response

	In Million US\$							
	2001	2002	2003	2004	2005	2006	2007	2008
Domestic	\$3	\$7	\$22	\$62	\$73	\$77	\$8	\$8
External	\$14	\$40	\$46	\$108	\$113	\$90	\$23	\$23
Total resources available	\$17	\$47	\$69	\$170	\$185	\$168	\$30	\$30
<i>Source: Tanzania Global Fund Country Coordinating Mechanism. Round 4 Proposal: Filling critical gaps for Mainland Tanzania in the national response to HIV/AIDS in impact mitigation for Orphans & Vulnerable Children, Condom Procurement, Care & Treatment, Monitoring and Evaluation, and National Coordination. Dar es Salaam, 2004</i> http://www.theglobalfund.org/search/docs/4TNZH_824_0_full.pdf								

Table 7. Total Resource Needs for National HIV/AIDS Response

	In Million US\$				
	2004	2005	2006	2007	2008
Total resources available	\$170	\$185	\$168	\$30	\$30
Total need	\$371	\$507	\$636	\$779	\$925

Unmet need	\$201	\$322	\$468	\$749	\$895
<i>Source: Tanzania Global Fund Country Coordinating Mechanism. Round 4 Proposal: Filling critical gaps for Mainland Tanzania in the national response to HIV/AIDS in impact mitigation for Orphans & Vulnerable Children, Condom Procurement, Care & Treatment, Monitoring and Evaluation, and National Coordination. Dar es Salaam, 2004</i> http://www.theglobalfund.org/search/docs/4TNZH_824_0_full.pdf					

In January 2004, the Government of Tanzania released new public expenditure guidelines creating a crosscutting HIV/AIDS budget as a "priority sector" for all ministries, agencies, and local governments. The recommended government budget ceiling on HIV/AIDS for FY2004-05 is US\$58.7 million. (This amount is separate from the health sector ceiling of US\$171 million for government spending.) Henceforth, HIV/AIDS is to be included in the Poverty Reduction Strategy work and annual reports. There will also be an annual HIV/AIDS Public Expenditure Review.[8]

In its approved GFATM round-3 proposal (March 2003), Tanzania's Global Fund Country Coordinating Mechanism presented the following table of the main national and international agencies involved in the national response to HIV/AIDS (and TB).

Table 8. HIV/AIDS and TB Financing

Name of Agency	Type of Agency (e.g., Government, NGO, private, bilateral, multilateral, etc.)	Main programs (for example, comprehensive HIV/AIDS prevention; DOTS expansion over 3 years, etc.)	Budget (Specify time period) All amounts in US\$
Tanzania Commission for AIDS (TACAIDS)	Multi-sectoral semi-autonomous commission	Strategic leadership, policy guidance, resource mobilisation, coordination of the national response	\$19 million (2002-2003)
National AIDS Control Programme	Government	Technical leadership for surveillance monitoring, blood safety, clinical and support standards, supervision and oversight including guidelines, curriculum, monitoring, evaluation	\$8.1 million (FY 2002-2003)
National TB & Leprosy Control Programme	Government	Facilitate early diagnosis, treatment and cure of TB through the successful DOTS strategy in public and private sectors	\$5.2 million (2002-2003)
National Malaria Control Programme	Government	Technical leadership in prevention and treatment of malaria especially for vulnerable populations of pregnant women and children under five.	\$5.9 million (2002-2003)
Ministry of Education	Government	Technical leadership for introduction of information and education on reproductive health, HIV/AIDS and TB into the primary and secondary school curriculums and peer groups for students, teachers	n/a
UNAIDS	Multi-lateral	Strategic planning, M&E, surveillance, advocacy, networking, human rights, district response.	\$1 million (2002-2003)
UNICEF	Multi-lateral	Vulnerable youth activities and orphan support	\$11 million (2003-2006)
UNDP	Multi-lateral	Capacity strengthening for mainstreaming HIV/AIDS in national development, formulation of national strategic plan, and strengthening coordination of the multisectoral response.	\$3.3 million (2002-2006)
Donor Assistance Committee and its HIV/AIDS Working Group	Multi-lateral, local coordination group of donors	Coordinate the efforts of donors in Tanzania to provide rational support for all areas including TB, Malaria and HIV/AIDS	<i>Funds from individual donors as below</i>
DFID	Bilateral	Basket funding and PER/MTEF support	\$3 million (2002)
GTZ	Bilateral executing agency	Comprehensive AIDS Control in 4 regions (Tanga, Mbeya, Lindi, Mtwara)	\$3 million (2002-2004)
Italian Cooperation	Bilateral through Italian executing agencies (CUAMM, LVIA, CMSR)	STD control, Prevention and containment strategies for HIV/AIDS	\$2.2 million (2003-2005)

USAID	Bilateral	Voluntary Sector Health Program 3 years through 9/2003) Angaza – Scaling up VCT (three years through 9/2003) Policy activities (advocacy, legislation, institutional arrangements) (funded on annual basis) Development of logistics management systems within MOH for HIV/AIDS commodities (two years through 9/2003) Condom social marketing (1992 through 9/2003) Administrative costs (shared with RNE and DFID) for social marketing of bednets Behavior change communication (national HIV/AIDS campaigns and BCC activities in support of refocused antenatal care for presumptive treatment of malaria in pregnancy) Impact mitigation – Social Action Trust Fund (support for education for children orphaned by HIV/AIDS) PMTCT in collaboration with MOH and CDC	\$28 million (2003-2005)
Irish AID	Bilateral	Basket Funding, ISHI IEC Campaign, Strategic planning for HIV/AIDS	\$4.9 million (2003-2005)
World Food Programme	Multi-lateral	Food supplementation for affected families	\$2.8 million (2002-2006)
Canadian CIDA	Bilateral	Strategic planning and limited support in 1 district	\$750,000 (2002-2005)
Belgium	Bilateral	Support for home based care and syndromic management of STIs	\$3.5 million (2002-2006)
World Health Organization	Multi-lateral	HIV/AIDS: STI, VCT, HBC, blood safety and surveillance TB: Support for workshops, seminars and training courses, in-country technical assistance, anti-TB drug sensitivity research, Regional TB managers' training in active case detection Malaria: Training of health workers and tutors, regional pharmacists, on clinical management guidelines, strengthening capacity of ten epidemic-prone districts in forecasting, early detection and rapid containment of epidemics, institutional development, popularize ITN use among health workers, and conduct IEC campaigns on IPT	\$5 million (2002-2004)
JICA	Bilateral	HIV test kits and other commodities Malaria AO diagnostic training	\$9 million (2003-2005)
Finnish Aid	Bilateral	Limited support for HIV/AIDS	\$200,000 (2002-2003)
Swiss Agency for Development Cooperation	Bilateral	Support for programmes in Zanzibar and 1 district on the Mainland	\$1.5 million (2002-2003)
U.S. Centers for Disease Control and Prevention	Executing agency for bilateral	HIV/AIDS: technical and financial support of surveillance testing and blood safety	\$4 million (2002-2003)

Royal Netherlands Embassy	Bilateral	Social marketing of condoms; significant support for tuberculosis treatment	\$11 million (2002-2004)
World Bank	Multi-lateral	Not earmarked for specific intervention	\$65 million (2003-2007)
<p><i>Source: Tanzania Global Fund Country Coordinating Mechanism. Round 3 Proposal: Scaling-up access to quality VCT as an entry point to comprehensive care and support services for TB and HIV/AIDS in Tanzania Mainland through a coordinated multi-sectoral partnership. Dar es Salaam: 2003</i></p> <p><http://www.theglobalfund.org/search/docs/3TNZHT_747_0_full.pdf></p>			

See also the External Donors section below.

Tanzania's Global Fund Country Coordinating Mechanism included a more comprehensive list of key agencies providing technical assistance to the country's national HIV/AIDS response, though without budget information (see table 4.3.9, pp. 30-33 of Tanzania Global Fund Country Coordinating Mechanism. *Round 4 Proposal: Filling critical gaps for Mainland Tanzania in the national response to HIV/AIDS in impact mitigation for Orphans & Vulnerable Children, Condom Procurement, Care & Treatment, Monitoring and Evaluation, and National Coordination*. Dar es Salaam: 2004

<http://www.theglobalfund.org/search/docs/4TNZH_824_0_full.pdf>). Among key donors not listed in table 8 above are the William J. Clinton Presidential Foundation's HIV/AIDS Initiative and the U.S. President's Emergency Plan for AIDS Relief (both discussed below).

Civil Society

The Tanzania Association of Nongovernmental Organizations (TANGO) is the largest and longest-standing national umbrella organization serving the Tanzanian NGO community. TANGO was founded in 1988 by 22 NGOs. It now has over 580 member organizations.

<<http://www.tango.or.tz/>>

There are numerous NGOs and CBOs providing critical prevention and care services, including associations of PLWHA. These include:

- Healthscope Tanzania
- Kwetu Counseling Center Association of PLWHA
- Medical Women Association of Tanzania (MEWATA)
- PLHA Council
- Service Health & Development for People Living with HIV/AIDS (SHDEPHA+)
- Tanzania Network of People with HIV/AIDS (TANOPHA)
- Tanzania Gender Networking Program
- Tanzania Public Health Association
- Tanzanian Red Cross Society
- UMATI (International Planned Parenthood Federation affiliate)

International NGOs/PVOs working on HIV/AIDS in Tanzania include:

- ActionAID
- AMREF
- CARE
- CUAMM (Italian International College for Health Cooperation in Developing Countries)
- Medicos del Mundo (Spain)
- Médecins du Monde (France)
- PharmAccess International
- World Vision

National Academic and Research Institutes

- National Institute for Medical Research
- Muhimbili University College of Health Sciences
- Muhimbili National Hospital
- Shree Hindu Mandal Hospital
- University of Dar es Salaam
- Kilimanjaro Christian Medical Center and College

Tanzanian researchers also collaborate with academic institutions around the world.

Religious Organizations

The major religious organizations addressing HIV/AIDS include:

- Anglican Medical Service
- Anglican Church of Tanzania
- Christian Social Services Commission
- Churches United in the Struggle against HIV/AIDS in Southern and Eastern Africa
- Evangelical Lutheran Church in Tanzania
- National Muslim Council of Tanzania (BAKWATA)
- Pastoral Activities and Services for People with AIDS in Dar es Salaam Archdiocese
- Religious Network for AIDS Control
- Salvation Army
- Tanzania Episcopal Conference

In September 2003, Churches United in the Struggle against HIV/AIDS in Southern and Eastern Africa (CUAHA), a coalition of Finnish and African churches, met in Dar es Salaam to pool resources and create a strategy in the battle against HIV/AIDS. CUAHA, established in 2002 and largely funded by the Finnish Ministry for Foreign Affairs, has concentrated on five focal areas: theology and ethics of HIV/AIDS; the caring ministry; education and training; information and communication; and networking. CUAHA members acknowledge that there is a need to overcome the churches' initial reluctance to tackle HIV/AIDS. Regarding the controversy over whether churches should be seen to advocate the use of condoms, CUAHA said that theologians were still discussing the issue.[126]

Indigenous Knowledge and Practices

In Tanzania, there has been some integration of traditional healers in HIV/AIDS prevention and mitigation strategies.[85] For detail, including a case study examining the Tanga AIDS Working Group's collaboration with traditional healers, see UNAIDS. *Ancient Remedies, New Disease: Involving Traditional Healers in Increasing Access to AIDS Care and Prevention in East Africa*. Geneva: June 2002 <http://www.unaids.org/html/pub/publications/irc-pub02/jc761-ancientremedies_en_pdf.pdf>.

External Donors

See also the Budgets section above.

External donors supporting HIV/AIDS activities in Tanzania include DFID, U.S. government, World Bank, Global Fund to Fight AIDS, TB & Malaria, JICA, GTZ, Royal Netherlands Embassy, Swiss Development, CIDA (Canada), NORAD, Finnish AID, DANIDA, Belgium Embassy, UNAIDS, WHO, UNDP, and UNICEF.[8]

World Bank

The Bank lends money to Tanzania through the International Development Association, which makes loans to the world's poorest countries at zero interest with 10-year grace period and maturities of 35 to 40 years. Tanzania has qualified for the World Bank's Multicountry HIV/AIDS Program for Africa (MAP). To qualify for MAP, Tanzania had to meet the following criteria:

1. satisfactory evidence of a strategic approach to HIV/AIDS, developed in a participatory manner
2. existence of a high-level HIV/AIDS coordinating body, with broad representation of key stakeholders from all sectors, including people living with HIV/AIDS
3. government commitment to quick implementation arrangements, including channeling grant funds for HIV/AIDS activities directly to communities, civil society, and the private sector
4. agreement by the government to use multiple implementation agencies, especially NGOs and CBOs[85]

Tanzania's MAP, approved in July 2003 and scheduled to run through September 2008, will provide an IDA credit of US\$70 million to finance the national HIV/AIDS programs of both the mainland and Zanzibar governments.[127]

Output Indicators

1. All public and private primary, secondary, and high schools are using school curricula that incorporate HIV/AIDS in a skills-based learning approach by the end of the second year of the project.
2. The number of reported PLWHA receiving some form of home- or community-based support increases by 25 percent in the first year, 50 percent in the second year, and over 75 percent by the end of the project.
3. All participating ministries are implementing their respective HIV/AIDS workplans by the end of the first year of the project.
4. HIV-positive pregnant women have access to preventive treatment for PMTCT in 30 percent of public hospitals by the second year of the project.
5. The number of condoms sold through social marketing outlets or distributed in Tanzania increases (TBD after baseline exercise).
6. Seventy-five percent of districts are implementing their respective HIV/AIDS plans formulated with stakeholder and community participation by the end of the second year.

7. The proportion of districts in which VCT services are provided increases to 100 percent by the end of the project.[85]

Process Indicators

1. Adequate quantities of essential drugs for treatment of STIs are available in all public health facilities.
2. The total value of project contracts with communities, NGOs, associations of PLWHA, private sector agencies, etc, increases by 30 percent each year.
3. The number of districts submitting acceptable accounting and expenditure reports increases by 30 percent each year.[85]

Impact Indicators

1. HIV prevalence among women attending ANC clinics reduced (TBD after baseline exercise).
2. The number of men ages 15-49 years treated for STIs in the previous 12 months increases (TBD after baseline exercise).
3. The proportion of 15- to 19-year-old boys and girls that report being sexually active reduced (TBD after baseline exercise).
4. The proportion of men and women ages 15-49 who report using a condom in their last act of sexual intercourse with a nonregular partner during the previous 12 months increases (TBD after baseline exercise).
5. The percentage of sexually active people reporting having nonregular sexual partners over the previous 12 months reduced (TBD after baseline exercise).[85]

Global Fund to Fight AIDS, Tuberculosis & Malaria

In the first round, Tanzania's HIV/AIDS (mainland) and malaria (mainland and Zanzibar) proposals were approved. The HIV/AIDS proposal (submitted January 2002) did not include ART. The proposal, entitled "Scaling Up Effective District HIV/AIDS Response Focusing on Communities, Primary Schools and the Informal Sector in Tanzania," was approved for US\$5.4 million. In July 2003, a grant agreement was signed with the GFATM and as of June 2004, US\$1.8 million had been disbursed.[128]

The Zanzibar AIDS Commission's second-round proposal entitled "Participatory Response to HIV/AIDS for Youth in Zanzibar" was approved for US\$2.3 million, pending clarifications. This is a five-year proposal seeking to reduce the prevalence of HIV among young people through multisectoral, participatory approaches. Educational programs will be developed through the support and inclusion of religious groups to establish and strengthen new and existing youth facilities as well as to strengthen the surveillance and monitoring system at the district level. A grant agreement was signed in July 2003 and US\$358,093 had been disbursed through June 2004.[128]

In round 3, Tanzania's HIV/AIDS proposal entitled "Scaling-Up Access To Quality VCT As An Entry Point To Comprehensive Preventive, Care And Support Services For TB And HIV/AIDS

In Tanzania Mainland Through Coordinated Multisectoral Partnership" (which had been rejected in round 2) was approved for US\$23,951,034 over two years (no grant agreement has yet been signed). The proposal's five main objectives are to:

1. scale up VCT in 45 of 121 districts to attain a coverage rate of 5 sites/100,000 sexually active population.
2. provide PLWHA and TB patients with a comprehensive package of care and support services, including VCT, Isoniazid Preventive Therapy (IPT), Cotrimoxazole Preventive Therapy (CPT), DOTS, treatment of OIs, home-based care and psychosocial support. At regional and tertiary levels, additional services will include PMTCT, HAART and PEP.
3. integrate TB and HIV/AIDS activities to increase the number of VCT clients and TB patients screened for both conditions and treated according to national protocols. TB screening will be offered in VCT sites and VCT services will be offered through DOTS programs.
4. increase the number of community care and support groups for PLWHA and PLWHA/TB. Specific efforts will address stigma and gender imbalance in demand for services.
5. strengthen the capacity of the MOH and partner institutions to coordinate, plan, monitor, and evaluate the execution of an integrated HIV/TB program. Expansion of VCT and care and support services will be phased in over a five-year period.[128]

The general target is the sexually active population of the 45 targeted districts (6.2 million people). An estimated 67,500 patients will receive CPT/IPT; 25,000 pregnant women will benefit from PMTCT; and 12,500 HIV-infected individuals will receive HAART. Expected results include an increase in the demand for VCT services, a reduction in the stigma associated with HIV/AIDS, decrease in morbidity and mortality due to earlier case detection, and access to a comprehensive package of care and support.[128]

In June 2004, Tanzania's round-4 proposal entitled "Filling Critical Gaps For Mainland Tanzania In The National Response To HIV/AIDS In Impact Mitigation For Orphans And Vulnerable Children, Condom Procurement, Care & Treatment And National Coordination" was approved for US\$103,191,298 over two years.[128] This proposal addresses five critical gaps in scaling up the national response:

1. impact mitigation for orphans and vulnerable children: proposal targets 24 new districts in a second phase of the Government's most vulnerable children program; districts identified as having high HIV prevalence rates, high levels of poverty, and in some cases serious food insecurity. A network of 20 NGO/FBO partners will work with the DSW and local councils to implement the program. Communities will conduct the identification process and develop support mechanisms to respond to the 300,000 most vulnerable children in these districts. Will establish structures and mechanisms for ensuring the security and protection of children at risk of abuse, exploitation and HIV, through incorporating psychosocial support and legal services for children and families, encouraging families to plan for the future and safeguard the rights of children in

inheritance and succession. With the aim of potentially replicating this program in the remaining 73 districts of Tanzania, a situation analysis will be conducted in a sample of those districts, the findings of which will contribute to the development of the costed national plan.

2. adequate supply of condoms through the public and social marketing sectors to prevent new infections through sexual transmission: proposal posits three-fold strategy: (1) ensuring condom security (i.e., an uninterrupted supply of male condoms) to ensure continuous access in the public sector; (2) expanding and ensuring private sector access to male and female condoms through social marketing; and (3) developing capacity in the Medical Stores Department (MSD) to manage condom procurement. Over five years, this subcomponent will permit condom distribution in the public sector to expand by 10 percent annually and in the social marketing sector by 20 percent annually, with the female condoms market growing annually at 30 percent. It is expected that condom utilization will increase an average of 2 percent annually over the baseline for 2004. Total procurement of male condoms is projected to rise from 55.6 million units in 2003 to 181.2 million in 2009; for female condoms, procurement will rise from 165,000 units in 2003 to 1,035,000 in 2009. Concurrently, personnel at MSD will be trained and mentored in condom procurement. By year 3, it is expected that MSD will be able to procure condoms with minimum additional technical support.
3. support for the National Care & Treatment Plan, incorporating the WHO 3x5 Initiative to scale up ART: proposal seeks to (1) decrease the transmission of HIV among the general population in 121 districts of mainland Tanzania by linking HIV prevention and care services; (2) decrease HIV-related morbidity and mortality among PLWHA in 121 districts by providing a comprehensive package of clinical care; (3) strengthen the capacity of the MOH and its partner institutions to coordinate, plan for, monitor, and evaluate the scale up of comprehensive HIV care to 121 districts in mainland Tanzania. By the end of 2005, the number of people on ART should reach 220,000. The percent of HIV-positive pregnant women receiving prophylaxis through PMTCT should rise to 60 percent. This objective will require opening 3,084 additional VCT sites throughout the country, and training 6,784 VCT counselors to screen 3 million to 4 million people within the first two years. For ART, 158 care and treatment teams will be trained (2,844 individuals) and their hospitals and clinics will be certified to provide the comprehensive treatment package.
4. initiating of a system for monitoring ART program impact and uptake that could be applied throughout Tanzania: initiation of a cohort study for monitoring and evaluating ART to be carried out in Kisesa ward (Mwanza region) in conjunction with the delivery of HAART at the Bugando Medical Center, the zonal referral hospital.
5. national coordination of multisectoral partners in response to the epidemic: scale up existing program of work of the Tanzania Commission for AIDS by enabling it to increase staff to provide better coordination of Global Fund, World Bank, and other projects and activities within the national response. Support to operationalize the national M&E framework and access information through the National HIV/AIDS Database.[8]

United States

In addition to the activities of USAID and CDC mentioned above, Tanzania has been included as a priority country in the President's Emergency Plan for AIDS Relief.[129] Detail on the plan may be found in the document that the Office of the U.S. Global AIDS Coordinator (Department of State) sent to Congress in February 2004: *The President's Emergency Plan for AIDS Relief: U.S. Five-Year Global HIV/AIDS Strategy*. Washington, DC: 2004
<<http://www.state.gov/documents/organization/29831.pdf>>.

Numerous HIV/AIDS and reproductive health organizations have criticized the plan; see, for example, Center for Health and Gender Equity. *Debunking The Myths in the U.S. Global AIDS Strategy: An Evidence-Based Analysis*. Takoma Park, Md.: March 2004
<<http://www.genderhealth.org/pubs/AIDS5-YearStratAnalysisMar-04.pdf>>.

In February 2004, the Harvard School of Public Health was among the first of the plan's grant recipients, receiving US\$107 million to treat PLWHA in Tanzania, Nigeria, and Botswana. With the grant, Harvard planned to start treatment for 3,000 PLWHA in Tanzania. [130]

Foundations

- In February 2003, the Clinton Foundation announced support to Tanzania. The foundation's work in Tanzania focuses on raising funds to support the country's ART plan (which it assisted in preparing, see below), channeling financing primarily through government agencies and basket funds as appropriate. Objectives include provision of VCT and PMTCT in all maternal & child health clinics, routine VCT within the health care system, and establishment of links between TB and STI services. The foundation is assisting Tanzania in creating a care and treatment unit within NACP, with a long-term goal of providing basic training in care and treatment for PLWHA, including ART, for all health care personnel. As of late 2003, US\$539,000 had been earmarked for this initiative over a five-year period.[7, 131, 132]
- The Elizabeth Glaser Pediatric AIDS Foundation funds PMTCT projects in Tanzania (see PMTCT section below).

Condoms

Social marketing of Salama male condoms began in 1993; social marketing of Care female condoms began in 1998.[63] See the GFATM section above for detail on Tanzania's planned condom procurement activities and objectives.

VCT

See also the GFATM section above.

Efficacy

The Voluntary HIV Counseling and Testing Efficacy Study Group involved Dar es Salaam as well as Nairobi and Port of Spain, Trinidad. A total of 3,120 individuals and 586 couples were enrolled. Individual or couple participants were randomly assigned VCT or basic health information. At first follow-up (mean 7.3 months after baseline), health information participants were offered VCT, and all VCT participants were offered retesting. STIs were diagnosed and treated at first follow-up. The second follow-up (mean 13.9 months after baseline) involved only behavioral assessment, and all participants were again offered VCT. The proportion of individuals reporting unprotected intercourse with nonprimary partners declined significantly more for those receiving VCT than those receiving health information (men: 35 percent reduction with VCT versus 13 percent reduction with health information; women: 39 percent reduction with VCT versus 17 percent reduction with health information); these results were maintained at the second follow-up. Couples assigned VCT reduced unprotected intercourse with their enrolment partners significantly more than couples assigned health information; however, no differences were found in unprotected intercourse with nonenrollment partners. Couples in which one or both members were diagnosed with HIV were more likely to reduce unprotected intercourse with each other than couples in which both members were uninfected.[133]

As a follow-up to the study, researchers from Muhimbili University College of Health Sciences and JHU are conducting a community-randomized, controlled trial to test the hypothesis that communities receiving 2-1/2 years of community-based VCT, relative to communities receiving 2-1/2 years of standard, clinic-based SVCT, will have significantly lower HIV incidence. (This trial is part of an NIMH-funded, multisite study; more information may be found at: <http://www.cbvct.med.ucla.edu/>.)

Current Providers

The Muhimbili VCT clinic pioneered the provision of HIV counseling and testing in Tanzania and from its inception has been a venue for VCT-related research, and training on the adaptation of VCT to the Tanzanian cultural context.[134]

The Angaza campaign (AMREF-led, USAID-funded) involves social marketing of VCT. The government plans to use it as a model for scaling up VCT in the country.[2]

In its approved GFATM proposal focusing on VCT, Tanzania indicated that the following organizations would be involved in scaling up VCT and providing care and treatment for PLWHA:

- Tanzania Peoples Defense Force, Ministry of Defense Health Services
- Tanzanian Occupational Health Service
- Tanzania Food and Nutrition Center
- ActionAID
- AMREF
- CARE Tanzania
- CUAMM
- Medicos del Mundo (Spain)

- Médecins du Monde (France)
- UMATI with World Vision
- University of Dar es Salaam
- Shree Hindu Mandal Hospital with PharmAccess International
- SHDEPHA+
- Muhimbili University College of Health Sciences
- Anglican Church of Tanzania
- Christian Social Services Commission
- Evangelical Lutheran Church in Kagera
- Kilimanjaro Christian Medical Center and College
- People with AIDS in Dar es Salaam Archdiocese (PASADA)
- Bugando Hospital and College[2]

Coverage

Tanzania's *Reproductive and Child Health Survey 1999* found that 6.5 percent of women and 12.2 percent of men had been tested for HIV, representing a slight increase from 1996 (4 and 11 percent, respectively). In 1999, among women, 63.7 percent reported that they would like to be tested for HIV; among men, this figure was 62.7 percent. Major reasons reported for not getting tested were not knowing where to go and not having the time to go.[63]

According to WHO, during 2001, 25,049 clients received VCT services at Tanzania's 92 public/NGO VCT sites. This represented 4 percent of the population in need of VCT.[135]

In March 2003, public health facility-based VCT services had been established in about 78 out of 121 districts.[2]

Cost

The Voluntary HIV Counseling and Testing Efficacy Study Group estimated the cost-effectiveness of HIV VCT for a hypothetical cohort of 10,000 people seeking VCT in urban east Africa. Outcomes were modeled based on results from a randomized controlled trial of HIV-1 VCT in Tanzania and Kenya. HIV VCT was estimated to avert 895 HIV-1 infections in Tanzania during the subsequent year. The cost per HIV infection averted in Tanzania was US\$346, and the cost per DALY saved was \$17.78. The intervention was most cost-effective for HIV-infected people and those who received VCT as a couple. The cost-effectiveness of VCT was robust, with a range for the average cost per DALY saved of US\$6.58-45.03 in Tanzania. Analysis of targeting showed that increasing the proportion of couples to 70 percent reduced the cost per DALY saved to US\$13.39 in Tanzania.[136]

According to Tanzania's *National Policy on HIV/AIDS*:

"Individuals requesting voluntary HIV testing may be required to contribute to the cost of counseling and testing. The cost of HIV testing in hospitals and other testing centers shall depend on the policy of that particular hospital or testing center."[61]

In March 2003, Tanzania's Global Fund Country Coordinating Mechanism reported that VCT services cost an average US\$2.50 per test, and that this price constituted a barrier to access. The MOH has promised free HIV testing services for health workers, youth, and poor populations.[2]

Confidentiality and Consent

See the Human Rights section above for detail on how these issues are outlined in the *National Policy on HIV/AIDS*. Although Tanzania upholds the principle of voluntary testing and states that pre- and posttest counseling should be provided where testing is done, its policy—unlike those of other countries in the Southern African Development Community—is to inform blood donors and surveillance participants if they are found to be HIV-positive.[137]

Plans to Scale Up

See detail on Tanzania's approved round-3 proposal in the GFATM section above.

PMTCT

Of 800,000 women who delivered in health care facilities nationwide during 2000, 106,400 (13.3 percent) were infected with HIV.[3] (Note, however, that the proportion of births delivered in health facilities has been declining[63], a scenario that may impede ability to implement effective PMTCT.)

According to WHO, during 2001, 1,961 clients received PMTCT services in Tanzania, representing less than 1 percent of the population in need of such services. At the end of that year, the country had five public/NGO PMTCT sites.[135]

In July 2001, the Tanzania government, in a major initiative to prevent MTCT, began a program that seeks to make ARVs available for PMTCT at no charge to all HIV-positive pregnant women over the next five years.[118] As of March 2003, one regional and four referral hospitals were providing PMTCT services. The approved GFATM round-3 proposal discussed above seeks to expand the number of health care facilities offering PMTCT interventions as part of a comprehensive care-plus package (including linkage to HAART) to 15 by 2008, with an estimated 25,000 pregnant women benefiting from PMTCT.[2]

The Elizabeth Glaser Pediatric AIDS Foundation's Call to Action Project is supporting/plans to support PMTCT programs in:

- Arumeru: Arumeru District Hospital, Selian Hospital, and an MOH facility.
- Dar es Salaam: six maternal & child health clinics in Kinondoni municipality.
- Hai District: Will cover the entire Hai District, which includes 3 hospitals, 4 health centers, 57 dispensaries, 70 village health posts, 287 traditional birth attendants, and 113 community based health workers.
- Kilombero District: Covers the entire Kilombero District of Tanzania, which includes 2 hospitals—St. Francis Hospital Ifakara and Kilombero sugar factory hospital; 4 health centers; and 36 dispensaries operated by government, voluntary, and commercial sectors.

- Sikonge: Sikonge Moravian Hospital and four mission dispensaries.[138]

Breastfeeding Practices

The 1999 TRCHS found a relatively long duration of breastfeeding, with a median duration of 21 months. The 1999 TRCHS data indicated that supplementation of breastfeeding with other liquids and foods occurs too early in Tanzania. For example, among newborns less than four months of age, 60 percent are already receiving complementary foods or liquids.[63]

A study conducted by researchers from the Harvard School of Public Health and Muhimbili University College of Health Sciences on breastfeeding and maternal HIV disease progression and mortality among HIV-infected women in Dar es Salaam found insufficient evidence to support the hypothesis that breastfeeding is detrimental to the health of HIV-infected women. The researchers, who published their findings in April 2004, used a cohort study design with Cox proportional hazards models. They found that the relative risk of death comparing women who recently had been breastfeeding to those who were not breastfeeding was 0.47 (95% CI: 0.18-1.20). In multivariate analyses, neither breastfeeding status nor the duration of exclusive or partial breastfeeding was associated with HIV disease progression, represented by death or development of a low CD4 cell count, anemia, or excessive weight loss. These associations remained insignificant when women with relatively low and high CD4 cell counts were analyzed separately.[139]

Care and Support

As mentioned above, numerous Tanzanian NGOs are providing critical care and support to PLWHA. The sections above have outlined the country's plans for scaling up these services.

Researchers from the Harvard School of Public Health and Muhimbili University College of Health Services enrolled 1,078 pregnant women infected with HIV in a double-blind, placebo-controlled trial in Dar es Salaam to examine the effects of daily supplements of vitamin A (preformed vitamin A and beta carotene), multivitamins (vitamins B, C, and E), or both on progression of HIV disease, using survival models. The median follow-up with respect to survival was 71 months (interquartile range: 46 to 80). Their results, published in July 2004, found that of 271 women who received multivitamins, 67 had progression to WHO stage 4 disease or died—the primary outcome—compared with 83 of 267 women who received placebo (24.7 percent vs. 31.1 percent; RR: 0.71; 95% CI: 0.51 to 0.98; P=0.04). This regimen was also associated with reductions in the relative risk of death related to acquired immunodeficiency syndrome (0.73; 95% CI: 0.51 to 1.04; P=0.09), progression to WHO stage 4 (0.50; 95% CI: 0.28 to 0.90; P=0.02), or progression to stage 3 or higher (0.72; 95% CI: 0.58 to 0.90; P=0.003). Multivitamins also resulted in significantly higher CD4+ and CD8+ cell counts and significantly lower viral loads. The effects of receiving vitamin A alone were smaller and for the most part not significantly different from those produced by placebo. Adding vitamin A to the multivitamin regimen reduced the benefit with regard to some of the end points examined. The researchers concluded that multivitamin supplements delay the progression of HIV disease and provide an effective, low-cost means of delaying the initiation of antiretroviral therapy in HIV-infected women.[140]

Opportunistic Infections

In April 2002, under the leadership of Professor P.K. Pallangyo, dean of the Faculty of Medicine at Muhimbili University College of Health Sciences, a workshop involving approximately 70 health professionals from throughout Tanzania discussed the first draft of *National Guidelines for the Clinical Management of HIV/AIDS*. These guidelines were edited and finalized by a committee of nine Tanzanian experts, including representatives from Muhimbili University College of Health Sciences, Muhimbili National Hospital, NACT, and WHO.[7]

No or extremely limited OI services are available in periurban and rural areas.[2] A USAID-led study in late 2003 found that the current capacity to treat OIs throughout the health system is highly constrained, with wide variability in availability of OI drugs.[7]

The MOH is working with Pfizer on a Diflucan program.[2] The World Bank MAP may finance research on the cost-effectiveness of alternative interventions for the clinical management of OIs.[85] The Accredited Drug Dispensing Outlet (ADDO) program is funded by the Bill and Melinda Gates Foundation, and managed by Management Sciences for Health. The objective of the program is to establish a regulated system of profitable ADDOs to provide a range of quality drugs and professional services to underserved populations, in collaboration with the Tanzanian Pharmacy Board. (Tanzania has only 350 pharmacies, primarily located in major urban areas, whereas it has over 4,000 drugs shops [*duka la dawa baridi*]. Drug shops are licensed only to sell over-the-counter drugs, but sell prescription drugs as well.) The initiative has import for HIV/AIDS as it seeks to render quality drugs for OI treatment more accessible in rural areas and underserved populations. . This important initiative linked to other existing and planned accreditation and certification interventions will certainly contribute to building a culture of quality in Tanzania.[7]

Antiretroviral Therapy

According to WHO, during 2001, there were no Tanzanians receiving ART. [135] During 2003, estimates of the number of Tanzanians receiving ART ranged from 700 to 1,500.[141] In January 2004, Tanzania's Global Fund Country Coordinating Mechanism reported that 0.5 percent of people with "advanced HIV infection" were receiving HAART.[8] Few Tanzanians who are clinically eligible for HAART can afford treatment. Other factors that contribute to low uptake include lack of social support networks and issues of confidentiality.[2]

In March 2003, the MOH elaborated the *Health Sector HIV/AIDS Strategy for 2003-08*. Based upon this document, the MOH created the *National Care and Treatment Plan for PLWHA*, in collaboration with the Clinton Foundation and other partners. The Cabinet approved the plan, which serves as a coordinating framework for all care and treatment programs and projects. With partners including the Clinton Foundation, World Bank, GFATM, and Axios Foundation, the Tanzanian Commission for HIV/AIDS and the MOH have laid out a medium-term goal of funding ART for 440,000 PLWHA.[7, 8, 132] More detail on the government's plans for scaling up access to ART are described in the External Donors section above.

Over the next five years, Abbott Laboratories will partner with the MOH to restore Muhimbili University's laboratory capacity; build an HIV center that includes a day hospital, outpatient clinic, and counseling and psychosocial support facilities; create a national HIV teaching center; and introduce pharmacy, health information, and management systems. Abbott will also enhance the laboratory capabilities of 20 hospitals throughout Tanzania. The precise figure earmarked for this initiative has not been indicated.[7]

With regard to the World Bank MAP project, the Bank appeared to be very cautious with regard to using the loan to finance ART. One might infer that the Bank is reluctant to finance ART because of, inter alia, problems with Tanzania's drug procurement agency, the Medical Stores Department. According to the Bank:

"The knowledge of procurement rules and capacity to apply these rules is very poor in most of the procuring entities. Procurement audits are seldom performed and the consequences for breach of procurement rules, outside corruption cases, are minimal....At present, the Central Tender Board (CTB) holds both executive and regulatory powers, which contributes to an unstable situation where the CTB on one hand participates in the procurement procedure and on the other hand monitors the same procedures. The executive role of the CTB also leads to lack of accountability and responsibility at the level of the ministerial tender boards and the ministerial Accounting Officers, who are otherwise responsible for the budget, but not for procurement under that body....Based on the CPAR findings, the procedures and practices of procurement in Zanzibar are fallacy; they lack proper legal framework. At present procurement, apart from donor funded procurement, is conducted on an ad hoc basis leaving extensive discretion to the Accounting Officers in the Ministries. While some of the procuring entities are applying the rules of the new Treasury Instructions, others have simply adopted their own procedures. Procurement is carried out in accordance with former and now void rules. The legal framework for public procurement is inadequate due to deficiencies in the present Act and missing regulations. There is an Act to establish a Central Tender Board (CTB), but the Act only provides for the organization, and does not deal with any of the procedures of procurement." [85]

HIV Prevention Trials Network (HPTN)

Studies in Tanzania (either under way or in development) include:

- HIVNET 024: Phase III Trial of Antibiotics to Reduce Chorioamnionitis-Related Perinatal HIV Transmission
- HPTN 046: Phase III Trial to Determine the Efficacy and Safety of an Extended Regimen of Nevirapine in Infants Born to HIV Infected Women to Prevent Vertical HIV Transmission During Breastfeeding
- HPTN 055: HIV Prevention Preparedness Study: to prepare for implementation of HPTN 035, A Phase II/III Safety and Effectiveness Study of the Vaginal Microbicides BufferGel and PRO 2000/5 Gel (P) for the Prevention of HIV Infection in Women

- HPTN 035: Phase II/IIb Safety and Effectiveness Study of the Vaginal Microbicides BufferGel and 0.5% PRO2000/5 Gel (P) for the Prevention of HIV Infection in Women (in development)[142]

Female-controlled Prevention Technologies

See also the Condoms section above.

A site in Moshi is participating in a phase 2/2B Safety and Effectiveness Study of the Vaginal Microbicides BufferGel and PRO 2000/5 Gel (P) (see HPTN 035 above).[143]

Military

The Tanzania Peoples Defense Force is increasingly involved in HIV/AIDS interventions. As mentioned above, it will be involved in the Bank MAP project and will play a major role in GFATM-financed VCT activities.

The U.S. Military HIV Research Program is working in the Mbeya Region on a collaborative effort with the Mbeya Regional Medical Office, the European Commission, and the University of Munich.[144]

Assessment of Government Response

Achievements

The government of Tanzania is strongly committed to addressing HIV/AIDS. It has made significant progress in establishing an institutional framework required to scale up the response.[85] All districts have prepared HIV/AIDS plans.[28]

As discussed above, Tanzania has successfully secured major external financing, including World Bank loans and GFATM grants, to scale up HIV/AIDS interventions.

Challenges

- As outlined in the Epidemiology section above, data from Tanzania's HSS have not been reliable. Therefore, it is difficult to determine the epidemic's dynamics and thus plan adequately for them.
- Currently, the HIV/AIDS response does not appear to be targeting prevention interventions at populations at high risk of acquiring HIV. Specific at-risk populations—such as highly mobile populations, sex workers, truck drivers, fishermen, MSM, and prisoners—have little or no access to prevention programs in general, much less to programs tailored to their needs.[7]

- The World Bank notes that despite strategic plans covering all sectors, there has been little progress in actually mounting a multisectoral effort to address the epidemic. Although ministerial and district AIDS committees have been established, most of them are not yet effective.[85]
- The current lack of structured and comprehensive school-based HIV/AIDS programs is a major constraint. (In-school programs have become a critical priority for TACAIDS, and the Ministry of Education and Culture completed a draft HIV/AIDS strategic plan in August 2003 that addresses this issue.)[7]
- Much of Tanzania's institutional infrastructure has limited capacity to respond to HIV/AIDS. Constraints include providers' knowledge gaps, limited human and financial resources, commodity shortages, and poor management capacity. Personnel and other human resource limitations are likely to become increasingly acute as the response to the epidemic is scaled up and flows of HIV/AIDS funds into the country increase.[7]
- There are no laws to protect the rights of PLWHA.
- Despite macroeconomic progress, Tanzania remains one of the world's poorest countries. Its HIV/AIDS activities continue to be heavily reliant on external donors, a scenario that raises concerns regarding sustainability.

Commercial Sector Response

In 2002, Forsythe of the POLICY Project conducted a rapid assessment of private sector HIV/AIDS policies and activities in Tanzania. He found that:

- Tanzania's private sector is deeply concerned about the impact of HIV/AIDS. Consequently, there appears to be a strong desire to develop corporate policies that reflect the importance of HIV/AIDS and its potential impact.
- Certain sectors of the Tanzanian economy appeared to be particularly vulnerable to HIV/AIDS, including transport, mining, and tourism.
- Current corporate policies on HIV/AIDS are either nonexistent or poorly implemented. This particularly appears to be the case with regard to preemployment testing.
- There is a need for effective workplace policies to ensure that care is available, prevention programs become operational, and policies are consistent.
- A small number of large companies have a written corporate policy on HIV/AIDS (e.g., Brook Bond, Standard Chartered, and Tanzania Breweries Ltd). However, these policies were generally developed with great difficulty, without outside assistance, and over a long period of time (two years).

- Three business associations appear to be well placed to provide assistance to companies that are developing their corporate policies on HIV/AIDS: Private Sector Foundation, Tanzania Chamber of Commerce, and Confederation of Tanzanian Industries. (Although Tanzania's Business Council on HIV/AIDS provides significant support in the form of IEC campaigns, it is not recommended as a business organization for promoting workplace policies.)
- There is a need for data to create awareness regarding the impact of HIV/AIDS on the Tanzanian economy generally, and in particular sectors of the economy.
- Government policies could be instrumental in encouraging workplace policies that can benefit employees with HIV/AIDS. For example, one business noted that it was hoping to create a fund for offering HIV/AIDS care to its employees, but existing government taxation policies were limiting the company's ability to pursue this initiative.[26]

In February 2004, PricewaterhouseCoopers published findings from a survey it conducted between July and September 2003 with managers from 216 companies in various sectors in Tanzania, Kenya, Uganda, and Zambia. It found that only a few firms in the region have a formal HIV/AIDS policy, and just over half have HIV prevention programs for their employees.[145]

Mining

AMREF is currently implementing two mine health projects: one in collaboration with Geita Gold Mine (owned by Ashanti Gold of Ghana and Anglo Gold of South Africa) in the Mwanza Region and one in collaboration with Kahama Mining Corporation in Shinyanga Region.[48] AMREF has also established a sexual & reproductive health education unit and a VCT center in collaboration with Kahama Mining Corporation in the Shinyanga region.[12]

Africa Mashiriki, a company active in the Mara region, has also called on AMREF to conduct a baseline survey to establish the extent of HIV/AIDS in areas in which the firm operates. Thus far, AMREF has conducted low-level basic health training around the Nzega mine in the Tabora Region, and the Meremeta mine in Mwanza.[48]

Among its activities, Geita Gold Mine holds HIV/AIDS fundraising activities and established an HIV information and VCT center in Geita town that is managed in collaboration with the district health authorities.[48]

References

1. United Republic Of Tanzania/Ministry Of Health Tanzania Mainland/National AIDS Control Programme, *Surveillance of HIV and Syphilis Among Antenatal Clinic Enrollees: 2001 - 2002*. 2003: Dar Es Salaam.
<http://www.developmentgateway.org/download/205114/Surveillance_of_HIVand_Syphilis_Among_Antenatal_Clinic_Enrollees.pdf>
2. Tanzania Global Fund Country Coordinating Mechanism, *Round 3 Proposal: Scaling-up access to quality VCT as an entry point to comprehensive care and support services for TB and HIV/AIDS in Tanzania Mainland through a coordinated multi-sectoral partnership*. 2003: Dar es Salaam.
<http://www.theglobalfund.org/search/docs/3TNZHT_747_0_full.pdf>
3. United Republic Of Tanzania/Ministry Of Health Tanzania Mainland/National AIDS Control Programme, *HIV/AIDS/STI Surveillance Report: January - December 2000*. 2001: Dar Es Salaam.
<<http://www.tzonline.org/pdf/nationaidscontrolprogramme2000.pdf>>
4. MEASURE, Tanzania National AIDS Control Programme, and Tanzania Bureau of Statistics, *AIDS in Africa During the Nineties: Tanzania: A Review and Analysis of Surveys and Research Studies*. 2001, Carolina Population Center, University of North Carolina: Chapel Hill. <<http://www.cpc.unc.edu/measure/publications/special/sr-01-06.pdf>>
5. WHO. *Report of the Workshop on Strengthening HIV Surveillance in the African Region*. 2001. Nairobi.
6. United Republic of Tanzania/Ministry of Health Zanzibar/AIDS Control Programme, *HIV/AIDS/STDs Surveillance Report*. 1999: Pemba.
<<http://www.tzonline.org/pdf/zanzibaraidcontrolprog.pdf>>
7. David Hales, et al., *TANZANIA: HIV/AIDS Sector Assessment and Strategy Recommendations*. 2003, USAID/Synergy Project: Washington, DC.
<<http://www.synergyaids.com/documents/TanzaniaAssessmentNovember03.pdf>>
8. Tanzania Global Fund Country Coordinating Mechanism, *Round 4 Proposal: Filling critical gaps for Mainland Tanzania in the national response to HIV/AIDS in impact mitigation for Orphans & Vulnerable Children, Condom Procurement, Care & Treatment, Monitoring and Evaluation, and National Coordination*. 2004: Dar es Salaam.
<http://www.theglobalfund.org/search/docs/4TNZH_824_0_full.pdf>
9. Jordan-Harder, B., et al., *Thirteen years HIV-1 sentinel surveillance and indicators for behavioural change suggest impact of programme activities in south-west Tanzania*. *Aids*, 2004. **18**(2): p. 287-94.
10. Mbulaiteye, S.M., et al., *Declining HIV-1 incidence and associated prevalence over 10 years in a rural population in south-west Uganda: a cohort study*. *Lancet*, 2002. **360**(9326): p. 41-6.
11. Hugonnet, S., et al., *Incidence of HIV infection in stable sexual partnerships: a retrospective cohort study of 1802 couples in Mwanza Region, Tanzania*. *J Acquir Immune Defic Syndr*, 2002. **30**(1): p. 73-80.
12. *Personal communication with Dr. Frank F. Mosha, National Institute for Medical Research, Mwanza, Tanzania, November 1, 2003.*

13. UNAIDS, *2004 Report on the Global AIDS Epidemic*. 2004: Geneva.
<<http://www.unaids.org>>
14. United Nations Secretariat/Department of Economic and Social Affairs/Population Division, *World Population Prospects: The 2002 Revision: Highlights*. 2003: New York.
<<http://www.un.org/esa/population/publications/wpp2002/wpp2002annextables.PDF>>
15. Fabian, M., et al. *Adjusting HIV surveillance data from antenatal clinics to better estimate HIV prevalence among the general female population in sub-Saharan Africa*. in *XIV International Conference on AIDS*. 2002. Barcelona.
16. Gregson, S., B. Zaba, and S.C. Hunter, *The Impact of HIV 1 on Fertility in Sub-Saharan Africa: Causes and Consequences. Background paper prepared for the Expert Group Meeting on Completing the Fertility Transition*,
<http://www.un.org/esa/population/publications/completingfertility/Zabapaper.PDF>.
2002, Population Division, Department of Economic and Social Affairs, United Nations Secretariat, March 11-14, 2002: New York.
17. Bloom, S., et al., *Community effects on the risk of HIV infection in rural Tanzania*,
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12181463&dopt=Abstract. *Sex Transm Infect*, 2002. **78**(4): p. 261-66.
18. Hunter, S.C., et al., *The association between HIV and fertility in a cohort study in rural Tanzania*. *J Biosoc Sci*, 2003. **35**(2): p. 189-99.
19. Ainsworth, M., Deon Filmer, and Innocent Semali, *The Impact of AIDS Mortality on Fertility: Evidence from Tanzania*. 1996, World Bank: Washington, DC.
20. David E. Bloom, et al., *AIDS & Economics*. 2001, Harvard University and Riverpath Associates. Paper prepared for Working Group 1 of the WHO Commission on Macroeconomics & Health: Cambridge, Mass.
21. Björkman, H., *HIV/AIDS and Poverty Reduction Strategies*. 2002, UNDP, Bureau for Development Policy: New York.
22. UNFPA, *The Impact of HIV/AIDS: A Population and Development Perspective*. 2003: New York. <http://www.unfpa.org/upload/lib_pub_file/197_filename_PDS09.pdf>
23. World Bank, *Tanzania Country Brief*. 2003: Washington, DC.
<http://www.worldbank.org/tz/tz_etry_brief.htm>
24. U.S. Department of State, *Background Note: Tanzania*. 2002: Washington, DC.
<<http://www.state.gov/r/pa/ei/bgn/2843.htm>>
25. Population Reference Bureau, *World Population Data Sheet 2003*. 2003: Washington, DC. <<http://www.prb.org>>
26. Steven Forsythe, *Assessment of Private Sector HIV/AIDS Policies and Activities in Tanzania*. 2002, POLICY Project, The Futures Group International: Washington, DC.
<http://www.policyproject.com/pubs/countryreports/TZ_AssessPrivSect.pdf>
27. Institute for Development Studies, et al., *Pros and Cons of Liberalisation: Manufacturing in Tanzania*. 2001: Brighton and Nottingham.
28. United Republic of Tanzania, *Poverty Reduction Strategy: Second Progress Report 2001/02*. 2003: Dar Es Salaam.
<http://www.worldbank.org/tz/reports/2002_PRSP_ProgressReport.pdf>
29. World Bank, *World Development Indicators 2004*. 2004: Washington, DC.
<<http://www.worldbank.org>>

30. International Labour Organization. *Structural Adjustment, Employment and Gender: Issues and Strategies in Tanzania*. in *National Workshop on Promoting Women's Employment in the Context of Structural Adjustment in Tanzania*. 1997. Dar Es Salaam.
31. M. Luisa Ferreira, *Poverty and Inequality During Structural Adjustment in Rural Tanzania*. 1996, World Bank: Washington, DC.
<<http://econ.worldbank.org/view.php?type=5&id=734>>
32. UNDP, *Human Development Report 2003*. 2003: New York. <<http://www.undp.org/>>
33. M. Mahmud Khan, et al., *Geographic Aspects of Poverty and Health in Tanzania: Does Living in a Poor Area Matter?* 2003, Partners for Health Reformplus Project, Abt Associates Inc.: Bethesda, Md. <http://www.phrplus.org/Pubs/Tech030_fin.pdf>
34. INTERNATIONAL MONETARY FUND AND INTERNATIONAL DEVELOPMENT ASSOCIATION, *Updated Debt Sustainability Analysis and Assessment of Public External Debt Management Capacity*. 2002, International Development Association and International Monetary Fund: Washington, DC.
<http://www.worldbank.org/hipc/country-cases/uganda/IMFUpdated_DSA.pdf>
35. William Easterly, *What did structural adjustment adjust? The association of policies and growth with repeated IMF and World Bank adjustment loans*. 2002, Center for Global Development: Washington, DC. <http://www.cgdev.org/wp/cgd_wp011.doc>
36. World Bank, *HIPC Initiative: Status of Country Cases Considered Under the Initiative*. 2003: Washington, DC. <http://www.worldbank.org/hipc/progress-to-date/status_table_Sep03.pdf>
37. INTERNATIONAL DEVELOPMENT ASSOCIATION AND INTERNATIONAL MONETARY FUND, *Heavily Indebted Poor Countries (HIPC) Initiative: Statistical Update*. 2003: Washington, DC.
<http://www.worldbank.org/hipc/StatUpdate_April03.pdf>
38. A. Pettifor, B. Thomas, and M. Telatin, *HIPC: Flogging a Dead Process: The need for a new, independent and just debt work-out for the poorest countries*. 2001, Jubilee Plus: London. <<http://www.jubileeresearch.org/analysis/reports/deadHIPC.pdf>>
39. Madhur Gautam, *Debt Relief for the Poorest: An OED Review of the HIPC Initiative*. 2003, World Bank, Operations Evaluation Department: Washington, DC.
<[http://lnweb18.worldbank.org/oed/oeddoclib.nsf/b57456d58aba40e585256ad400736404/86dd1e3dca61e0b985256cd700665b1c/\\$FILE/HIPC_OED_review.pdf](http://lnweb18.worldbank.org/oed/oeddoclib.nsf/b57456d58aba40e585256ad400736404/86dd1e3dca61e0b985256cd700665b1c/$FILE/HIPC_OED_review.pdf)>
40. Annalisa Fedelino and Alina Kudina, *Fiscal Sustainability in African HIPC Countries: A Policy Dilemma?* 2003, IMF: Washington, DC.
<<http://www.imf.org/external/pubs/ft/wp/2003/wp03187.pdf>>
41. Transparency International, *Corruption Perceptions Index 2003*. 2003: Berlin.
<http://www.transparency.org/pressreleases_archive/2003/dnld/cpi2003.pressrelease.en.doc>
42. Andrew Mwenda, *Global Corruption Report 2003: East Africa*. 2003, Transparency International: Berlin.
<[http://www.globalcorruptionreport.org/download/gcr2003/22_East_Africa_\(Mwenda\).pdf](http://www.globalcorruptionreport.org/download/gcr2003/22_East_Africa_(Mwenda).pdf)>
43. World Bank, *United Republic of Tanzania: Accountability, Transparency, and Integrity Project*. 2000: Washington, DC. <http://www-wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000094946_00110805384710>

44. UNFPA, *State of World Population 2003*. 2003: New York. <<http://www.unfpa.org>>
45. UNICEF, *State of the World's Children 2004*. 2004: New York.
<<http://www.unicef.org/sowc04>>
46. Carla AbouZahr and Tessa Wardlaw, *MATERNAL MORTALITY IN 2000: Estimates Developed by WHO, UNICEF and UNFPA*. 2003, WHO and UNICEF: Geneva.
<http://www.childinfo.org/maternal_mortality_in_2000.pdf>
47. POLICY Project, *HIV/AIDS in Southern Africa: Background, Projections, Impacts and Interventions*, <http://www.policyproject.com/pubs/countryreports/SoAf10-01.pdf>. 2001, The Futures Group International: Washington, DC.
48. UN Office for the Coordination of Humanitarian Affairs, *TANZANIA: Focus on HIV/AIDS initiatives in mining areas*. 2003: DAR ES SALAAM.
<http://www.irinnews.org/report.asp?ReportID=35328&SelectRegion=East_Africa,%20Great_Lakes>
49. Clift S, et al., *Variations of HIV and STI prevalences within communities neighbouring new goldmines in Tanzania: importance for intervention design*. Sex Transm Infect, 2003. **79**(4): p. 307-12.
50. Nyamuryekung'e K, et al., *STD services for women at truck stop in Tanzania: evaluation of acceptable approaches*. East Afr Med J, 1997. **74**(6): p. 343-7.
51. United Nations Standing Committee on Nutrition, *Report on the Nutritional Situation of Refugees and Displaced Populations*. 2003: Geneva.
<<http://www.unsystem.org/scn/Publications/RNIS/rnis%2041.pdf>>
52. UNAIDS and UNHCR, *HIV/AIDS and STI prevention and care in Rwandan refugee camps in the United Republic of Tanzania*. 2003: Geneva.
<http://www.dec.org/pdf_docs/PNACS782.pdf>
53. Refugees International, *Tanzania Situation Assessment*. 2003: Washington, DC.
<http://www.refugeesinternational.org/cgi-bin/ri/country?mv_session_id=koaEELeh&mv_pc=35&cc=00020>
54. World Food Program, *World Hunger: Tanzania*. 2003: Rome.
<http://www.wfp.org/country_brief/index.asp?region=3>
55. World Food Programme, *WFP Emergency Report No. 37 of 2003*. 20003: Rome.
<<http://www.reliefweb.int/w/rwb.nsf/6686f45896f15dbc852567ae00530132/c4a785f28e52997d85256d9f006b4ffe?OpenDocument>>
56. UN Office for the Coordination of Humanitarian Affairs, *TANZANIA: Focus on child labour*. 2003: Dar Es Salaam.
<http://www.irinnews.org/report.asp?ReportID=35950&SelectRegion=Great_Lakes>
57. U.S. Department of State, *Victims of Trafficking and Violence Protection Act of 2000: Trafficking in Persons Report*. 2003: Washington, DC.
<<http://www.state.gov/g/tip/rls/tiprpt/2003/>>
58. U.S. Department of State, *Victims of Trafficking and Violence Protection Act of 2000: Trafficking in Persons Report*. 2004. 2004: Washington, DC.
<<http://www.state.gov/g/tip/rls/tiprpt/2004/>>
59. UN Office for the Coordination of Humanitarian Affairs, *TANZANIA: Prison deaths highlight need for reform*. 2002: Dar Es Salaam.
<[Http://www.irinnews.org/report.asp?ReportID=31092](http://www.irinnews.org/report.asp?ReportID=31092)>
60. Rutta, E., et al., *Tuberculosis in a prison population in Mwanza, Tanzania (1994-1997)*. Int J Tuberc Lung Dis, 2001. **5**(8): p. 703-6.

61. The United Republic Of Tanzania/Prime Minister's Office, *National Policy on HIV/AIDS*. 2001: Dar es Salaam.
<http://www.policyproject.com/pubs/other/Tanzania_National_Policy_on_HIV-AIDS.pdf>
62. INTERNATIONAL LESBIAN AND GAY ASSOCIATION, *WORLD LEGAL SURVEY: Tanzania*. Accessed October 2003.
<http://www.ilga.org/Information/legal_survey/africa/tanzania.htm>
63. Tanzania National Bureau of Statistics and Macro International Inc., *Tanzania Reproductive and Child Health Survey 1999*. 2000, National Bureau of Statistics and Macro International Inc.: Calverton, Md.
<<http://www.measuredhs.com/pubs/pdf/FR112/00FrontMatter.pdf>>
64. UNAIDS, *Investing in Our Future: Psychosocial Support for Children Affected by HIV/AIDS: A Case Study in Zimbabwe and the United Republic of Tanzania*. 2001: Geneva. <<http://www.unaids.org/publications/documents/children/children/JC606-InvFuture-E.pdf>>
65. Center for Reproductive Rights, *Women of the World: Anglophone Africa Progress Report 2001*. 2001: New York. <<http://www.crlp.org/pdf/wowaapr-tanzania.pdf>>
66. Schellenberg, J.A., et al., *Inequities among the very poor: health care for children in rural southern Tanzania*. Lancet, 2003. **361**(9357): p. 561-6.
67. Paul Hutchinson, *Decentralization in Tanzania: The View of District Health Management Teams*. 2002, MEASURE Evaluation, Carolina Population Center, University of North Carolina: Chapel Hill.
<<http://www.cpc.unc.edu/measure/publications/workingpapers/wp0248.pdf>>
68. Executive Board of the United Nations Development Programme and of the United Nations Population Fund, *Recommendation by the Executive Director: Assistance to the Government of the United Republic of Tanzania*. 2001: New York.
<<http://www.unfpa.org/africa/tanzania/1tan0206.doc>>
69. United Nations Population Division/Department of Economic and Social Affairs, *Abortion Policies: A Global Review*. 2002: New York.
<<http://www.un.org/esa/population/publications/abortion/>>
70. Tanzania Bureau of Statistics and Macro International Inc., *Tanzania Demographic and Health Survey 1996*. 1997: Calverton, Md.
<http://www.measuredhs.com/pubs/pdf/toc.cfm?ID=125&PgName=country.cfm0ctry_id=39>
71. UNICEF, *The State of the World's Children 2004*. 2004: New York.
<<http://www.unicef.org>>
72. Grosskurth, H., et al., *Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania: randomised controlled trial*. Lancet, 1995. **346**(8974): p. 530-6.
73. Gisselquist, D. and J.J. Potterat, *Confound it: latent lessons from the Mwanza trial of STD treatment to reduce HIV transmission*. Int J STD AIDS, 2003. **14**(3): p. 179-84.
74. Kamali, A., et al., *Syndromic management of sexually-transmitted infections and behaviour change interventions on transmission of HIV-1 in rural Uganda: a community randomised trial*. Lancet, 2003. **361**(9358): p. 645-52.

75. Orroth, K.K., et al., *Higher risk behaviour and rates of sexually transmitted diseases in Mwanza compared to Uganda may help explain HIV prevention trial outcomes*. *Aids*, 2003. **17**(18): p. 2653-60.
76. del Mar Pujades Rodriguez, M., et al., *Herpes simplex virus type 2 infection increases HIV incidence: a prospective study in rural Tanzania*. *Aids*, 2002. **16**(3): p. 451-62.
77. Obasi, A.I., et al., *Prevalence of HIV and Chlamydia trachomatis infection in 15--19-year olds in rural Tanzania*. *Trop Med Int Health*, 2001. **6**(7): p. 517-25.
78. Todd, J., et al., *Risk factors for active syphilis and TPHA seroconversion in a rural African population*. *Sex Transm Infect*, 2001. **77**(1): p. 37-45.
79. Msuya, S.E., et al., *Seroprevalence and correlates of herpes simplex virus type 2 among urban Tanzanian women*. *Sex Transm Dis*, 2003. **30**(7): p. 588-92.
80. Ahmed, H.J., et al., *Etiology of genital ulcer disease and association with human immunodeficiency virus infection in two tanzanian cities*. *Sex Transm Dis*, 2003. **30**(2): p. 114-9.
81. WHO, *Global tuberculosis control: surveillance, planning, financing: WHO Report 2004*. 2004: Geneva. <http://www.who.int/tb/publications/global_report/en/>
82. WHO, *Global Tuberculosis Control: Surveillance, Planning, Financing*. 2003, WHO: Geneva. <http://www.who.int/gtb/publications/globrep/download_full_report.html>
83. Anke van Vuuren, *Female-headed Households: Their Survival Strategies in Tanzania*. 2000, Afrika-Studiecentrum: Leiden, Netherlands. <<http://www.tzonline.org/pdf/female-headedhouseholds.pdf>>
84. *House girls more prone to HIV/AIDS, survey shows*, in *Guardian*. 2003. <<http://www.ippmedia.com/guardian/2003/04/28/guardian3.asp>>
85. World Bank, *Project Appraisal Document: United Republic of Tanzania: Multi-Sectoral AIDS Project*. 2003: Washington, DC. <http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2003/06/23/000012009_20030623113128/Rendered/PDF/25761.pdf>
86. Jessie Mbwapbo, et al., *HIV and Partner Violence: Implications for HIV Voluntary Counseling and Testing Programs*. 2001, Horizons Project, Population Council: Washington, DC. <http://www.popcouncil.org/pdfs/horizons/vct_violencesum.pdf>
87. Human Rights Watch, *SEEKING PROTECTION: Addressing Sexual and Domestic Violence in Tanzania's Refugee Camps*. 2000: Washington, DC. <<http://www.hrw.org/reports/2000/tanzania/>>
88. Laura Nyblade, et al., *Disentangling HIV and AIDS Stigma in Ethiopia, Tanzania and Zambia*. 2003, International Center for Research on Women: Washington, DC. <<http://www.icrw.org/docs/stigmareport093003.pdf>>
89. Nnko, S., et al., *Secretive females or swaggering males? An assessment of the quality of sexual partnership reporting in rural Tanzania*. *Soc Sci Med*, 2004. **59**(2): p. 299-310.
90. Ukwuani, F.A., A.O. Tsui, and C.M. Suchindran, *Condom use for preventing HIV infection/AIDS in sub-Saharan Africa: a comparative multilevel analysis of Uganda and Tanzania*. *J Acquir Immune Defic Syndr*, 2003. **34**(2): p. 203-13.
91. J. Ties Boerma, et al., *Socio-Demographic Context of the AIDS Epidemic in a Rural Area in Tanzania with a Focus on People's Mobility and Marriage*. 2001, MEASURE Evaluation, Carolina Population Center, University of North Carolina Chapel Hill: Chapel Hill. <<http://www.cpc.unc.edu/measure/publications/workingpapers/wp0131.pdf>>

92. Nancy Luke and Kathleen Kurz, *Cross-generational and Transactional Sexual Relations in Sub-Saharan Africa: Prevalence of Behavior and Implications for Negotiating Safer Sexual Practices*. 2002, International Center for Research on Women and Population Services International's AIDSMARK Project.
<http://www.icrw.org/docs/CrossGenSex_Report_902.pdf>
93. Nuko, S., et al., *Pre-marital sexual behaviour among out-of-school adolescents: motives, patterns and meaning attributed to sexual partnership in rural Tanzania*. *Afr J Reprod Health*, 2001. **5**(3): p. 162-74.
94. Nkya, W.M., et al., *Sexually transmitted diseases in prostitutes in Moshi and Arusha, Northern Tanzania*. *Int J STD AIDS*, 1991. **2**(6): p. 432-5.
95. Mgalla, Z. and R. Pool, *Sexual relationships, condom use and risk perception among female bar workers in north-west Tanzania*. *AIDS Care*, 1997. **9**(4): p. 407-16.
96. Kapiga, S.H., et al., *HIV-1 epidemic among female bar and hotel workers in northern Tanzania: risk factors and opportunities for prevention*. *J Acquir Immune Defic Syndr*, 2002. **29**(4): p. 409-17.
97. Ao, T., et al., *Social and behavioural determinants of consistent condom use among hotel and bar workers in Northern Tanzania*. *Int J STD AIDS*, 2003. **14**(10): p. 688-96.
98. Riedner, G., et al., *Baseline survey of sexually transmitted infections in a cohort of female bar workers in Mbeya Region, Tanzania*. *Sex Transm Infect*, 2003. **79**(5): p. 382-7.
99. Lockhart C, Kunyenga, "real sex," and survival: assessing the risk of HIV infection among urban street boys in Tanzania. *Med Anthropol Q*, 2002. **16**(3): p. 294-311.
100. Nnko, S., et al., *Dynamics of male circumcision practices in northwest Tanzania*. *Sex Transm Dis*, 2001. **28**(4): p. 214-8.
101. Jansen, H.A., et al., *Geographical variations in the prevalence of HIV and other sexually transmitted infections in rural Tanzania*. *Int J STD AIDS*, 2003. **14**(4): p. 274-80.
102. Boerma, J.T., et al., *Spread of HIV infection in a rural area of Tanzania*. *Aids*, 1999. **13**(10): p. 1233-40.
103. UN Office on Drugs and Crime, *Tanzania: Country Profile*. Accessed August 2003: Vienna. <http://www.unodc.org/kenya/en/country_profile_tanz.html>
104. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, http://www.unaids.org/barcelona/presskit/barcelona%20report/contents_html.html. 2002: Geneva.
105. Walker, N., B. Schwartländer, and J. Bryce, *Meeting international goals in child survival and HIV/AIDS*. *Lancet*, 2002. **360**(9329): p. 284-9.
106. Ng'weshemi, J., et al., *HIV impact on mother and child mortality in rural Tanzania*. *J Acquir Immune Defic Syndr*, 2003. **33**(3): p. 393-404.
107. Clive Bell, Shantayanan Devarajan, and Hans Gersbach, *The Long-run Economic Costs of AIDS: Theory and an Application to South Africa*. 2003, World Bank: Washington, DC. <http://www1.worldbank.org/hiv_aids/docs/BeDeGe_BP_total2.pdf>
108. Nicholas Crafts and Markus Haacker, *Welfare Implications of HIV/AIDS*. 2003, IMF: Washington, DC. <<http://www.imf.org/external/pubs/ft/wp/2003/wp03118.pdf>>
109. Aniruddha Bonnerjee, *The Impact of HIV/AIDS on Social Security*. 2003, World Bank Institute: Washington, DC.
<<http://www.worldbank.org/wbi/pensions/courses/february2003/readings/hivpensions.pdf>>

110. Juliana Ngalula, et al., *Health service use and household expenditure during terminal illness due to AIDS in rural Tanzania*. Tropical Medicine and International Health, 2002. 7(10): p. 873-877.
111. Julia Dayton and Martha Ainsworth, *The Elderly and AIDS: Coping Strategies and Health Consequences in Rural Tanzania*. 2002, Population Council.
<<http://www.popcouncil.org/pdfs/wp/160.pdf>>
112. C. Shannon Stokes, *Measuring impacts of HIV/AIDS on rural livelihoods and food security*. 2003, FAO: Rome. <http://www.fao.org/sd/2003/PE0102a_en.htm>
113. UNAIDS and UNICEF, *Children on the Brink 2002: A Joint Report on Orphan Estimates and Program Strategies*,
http://www.usaid.gov/pop_health/aids/Publications/docs/childrenbrink.pdf. 2002, USAID: Washington, D. C.
114. Martha Ainsworth and Deon Filmer, *Poverty, AIDS and Children's Schooling: A Targeting Dilemma*. 2002, World Bank: Washington, DC.
<http://econ.worldbank.org/files/18719_wps2885.pdf>
115. Ulli S. Huber and William T.S. Gould. *The Effect Of Orphanhood On Primary School Attendance Reconsidered: The Power Of Female-Headed Households In Tanzania*. in *Project Results Workshop*. 2003. Dar es Salaam: University of Dar es Salaam.
116. Martha Ainsworth and Innocent Semali, *The Impact of Adult Deaths on Children's Health in Northwestern Tanzania*. 2000, World Bank: Washington, DC.
<[http://wbln0018.worldbank.org/Research/workpapers.nsf/2b412592eac839e2852567e50050df1c/c6f661ffba61d53e8525685f006926da/\\$FILE/wps2266.prn.pdf](http://wbln0018.worldbank.org/Research/workpapers.nsf/2b412592eac839e2852567e50050df1c/c6f661ffba61d53e8525685f006926da/$FILE/wps2266.prn.pdf)>
117. Martha Ainsworth, Kathleen Beegle, and Godlike Koda, *The Impact of Adult Mortality on Primary School Enrollment in Northwestern Tanzania*. 2002, World Bank: Washington, DC. <http://www.worldbank.org/afr/hd/wps/tz_adult_mortality.pdf>
118. Bill Gould and Ulli Huber, *Projecting School Age Populations And Primary School Enrolments In Tanzania: Incorporating HIV/AIDS Effects*. 2003, Department of Geography, University of Liverpool: Liverpool.
119. UN Office for the Coordination of Humanitarian Affairs, *AFRICA: HIV-related deaths among teachers alarming*. 2002: Yaounde.
120. FAO-HIV/AIDS and Food Security Program, *HIV/AIDS and Agriculture*. n.d., FAO: Rome. <<http://www.fao.org/hivaids/>>
121. Daphne Topouzis, *Addressing the impact of HIV/AIDS on ministries of agriculture: focus on eastern and southern Africa*. 2003, FAO and UNAIDS: Rome.
<<http://www.fao.org/hivaids/publications/moa.pdf>>
122. John Stover and Alan Johnston, *The Art Of Policy Formulation: Experiences From Africa In Developing National Hiv/Aids Policies*. 1999, POLICY Project, The Futures Group International: Washington, DC.
<<http://www.policyproject.com/pubs/occasional/op-03.pdf>>
123. Prime Minister's Office and Tanzania Commission for AIDS, *National Multisectoral Strategic Framework on HIV/AIDS 2003-2007*. 2002: Dar es Salaam.
<<http://www.tanzania.go.tz/pdf/tacaidnsmf.pdf>>
124. Ross E.J. Kinemo, *HUMAN RIGHTS FOR HIV/AIDS VICTIMS IN TANZANIA*. n.d.: Mzumbe. <<http://www.tzonline.org/pdf/humanrightsforhivaids.pdf>>

125. POLICY Project, *Country Activities: Tanzania*. Accessed August 2003, The Futures Group International: Washington, DC.
<<http://www.policyproject.com/countries.cfm?country=Tanzania>>
126. UN Office for the Coordination of Humanitarian Affairs, *TANZANIA: Churches gather to coordinate action plan against HIV/AIDS*. 2003: DAR ES SALAAM.
127. World Bank, *Project Information Document: Tanzania: Multi-Sectoral AIDS Project*. 2003: Washington, DC. <http://www-wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000094946_03062104112344>
128. Global Fund to Fight AIDS Tuberculosis & Malaria, *Portfolio of Grants in Tanzania*. Accessed June 2004: Geneva.
<<http://www.theglobalfund.org/search/portfolio.aspx?lang=en&countryID=TNZ>>
129. U.S. Global AIDS Coordinator (Department of State), *The President's Emergency Plan for AIDS Relief: U.S. Five-Year Global HIV/AIDS Strategy*. 2004: Washington, DC.
<<http://www.state.gov/documents/organization/29831.pdf>>
130. Harvard AIDS Institute, *Harvard School of Public Health's AIDS Treatment, Care and Prevention Initiative in Africa Receives \$107 million 5 year Grant from White House for Rapid Antiretroviral Program Expansion*. 2004: Boston.
<http://www.hsph.harvard.edu/hai/news_publications/news_releases/pepfar.html>
131. *Clinton's Foundation to Support Anti-HIV/AIDS Drive in Tanzania*, in *Agence France Presse*. 2003.
132. Kaiser Daily HIV/AIDS Report, *Clinton Foundation Secures AIDS Drug Price Cuts, Develops Treatment Plans in Africa, Caribbean*. 2003: Washington, DC.
<http://www.kaisernetwork.org/daily_reports/rep_index.cfm?hint=1&DR_ID=20503>
133. The Voluntary HIV-1 Counseling and Testing Efficacy Study Group, *Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in: a randomised trial*. *Lancet*, 2000. **356**(9224): p. 103-12.
134. *Personal communication with Dr. Michael Sweat, Johns Hopkins University*. 2003.
135. WHO, *Coverage of Selected Health Services for HIV/AIDS Prevention and Care in Less Developed Countries in 2001*. 2002, WHO: Geneva.
<http://www.who.int/hiv/pub/prev_care/isbn9241590319.pdf>
136. Sweat, M., et al., *Cost-effectiveness of voluntary HIV-1 counselling and testing in reducing sexual transmission of HIV-1 in Kenya and Tanzania*. *Lancet*, 2000. **356**(9224): p. 113-21.
137. POLICY Project, *Southern African Development Community (SADC): National And Sector HIV/AIDS Policies In The Member States Of The Southern Africa Development Community*. 2002, Prepared for SADC by the POLICY Project, The Futures Group International: Washington, DC.
<<http://www.policyproject.com/pubs/countryreports/SADC.pdf>>
138. Elizabeth Glaser Pediatric AIDS Foundation, *Project Sites*. 2003.
<http://www.pedaids.org/glob_sitemap.html>
139. Sedgh, G., et al., *Breastfeeding and maternal HIV-1 disease progression and mortality*. *Aids*, 2004. **18**(7): p. 1043-9.
140. Fawzi, W.W., et al., *A randomized trial of multivitamin supplements and HIV disease progression and mortality*. *N Engl J Med*, 2004. **351**(1): p. 23-32.

141. UN Office for the Coordination of Humanitarian Affairs, *TANZANIA: World Bank approves US \$70 million HIV/AIDS grant*. 2003: Dar Es Salaam.
142. HIV Prevention Trials Network, *HPTN Studies*. 2003: Bethesda, Md.
<http://www.hptn.org/research_studies.asp>
143. Jana Caylor Bowcut, *Clinical Trials Information Center*. 2003, Alliance for Microbicide Development.
<<http://209.190.247.198/microbicide/pdfs/Clinical.Trials.Info.Center.Planned.Ongoing.09Sep03.pdf>>
144. U.S. Military HIV Research Program, *Research Sites: East Africa*. Accessed August 2003: Washington, DC. <http://www.hivresearch.org/about_us/east_africa.html>
145. UN Office for the Coordination of Humanitarian Affairs, *EAST AFRICA: Firms ignoring threat of HIV/AIDS on employees, says study*. 2004: NAIROBI.
<<http://www.irinnews.org/AIDSreport.asp?ReportID=3009>>