UNAIDS Questions & Answers provide information on UNAIDS, its work and issues related to the AIDS epidemic.

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Section I: What are HIV and AIDS? Does HIV cause AIDS? What are the subtypes of HIV? How is HIV transmitted?

I/1 What is AIDS? What is HIV?

AIDS stands for "acquired immune deficiency syndrome". HIV stands for the "human immunodeficiency virus". HIV is a retrovirus that infects cells of the immune system (mainly CD4 cells and macrophages—key components of the cellular immune system), and destroys or impairs their function. HIV infection results in the progressive depletion of the immune system, leading to "immune deficiency".

The immune system is said to be "deficient" when it can no longer fulfil its role of fighting off infection and cancers. People with cellular immune deficiency are much more vulnerable to infections such as pneumocystis carinii pneumonia, toxoplasmosis, systemic and oesophageal candidiasis, generalized herpes zoster, cryptococcal meningitis, and to cancers such as Kaposi sarcoma. These diseases are very rare among people without immune deficiency. Some of these diseases, namely those that are strongly associated with severe immunodeficiency, are called "opportunistic infections", because they take advantage of a weakened immune system.

The symptom complex associated with acquired deficiency of the cellular immune system was called "AIDS" when scientists realized they were witnessing an epidemic of acquired immunodeficiency for which an explanation was lacking.

I/2 What do we know about HIV?

The first cases of unusual immune system failure were identified among gay men in the United States (1981). In 1982, Acquired Immunodeficiency Syndrome (AIDS) was first defined. In the course of the year, three modes of transmission (blood transfusion, sexual intercourse and mother-to-child transmission) were described. In 1983/84, the Human Immunodeficiency Virus, or HIV, was isolated and identified as the source of what was then a newly recognized disease.

Like other viruses, HIV has diversified. We now know that there are two types of HIV: HIV-1 and HIV-2. Both are transmitted by sexual contact, through blood transfusion, and from mother to child, and they appear to cause clinically indistinguishable AIDS (although HIV-2 seems to be less transmissible and less pathogenic as the period between initial infection and illness is longer).

At present, described HIV isolates are classified into three different groups: a "major" group (or group M), which represents the majority of globally prevalent HIV strains; an "outlier" group (or group O); and a "non-M/non-O" group (or group N).

The distribution of groups N and O is largely limited to certain countries in West Africa where HIV levels are relatively low. In contrast, the M-group HIV-1 strains cause the majority of HIV-1 infections globally. Based on the genetic sequence analyses of the envelope gene of the virus, the group M HIV-1 strains are further classified into at least nine different pure genetic subtypes of HIV-1, designated from A-D, F-H, J and K. An additional level of complexity is added by the phenomenon of genetic recombination between different genetic subtypes, which results in the emergence of mosaic, recombinant viruses. Certain recombinant strains of HIV have been reported to have caused substantial outbreaks and

regional epidemics. These are referred to as circulating recombinant forms or CRF.

The known genetic subtypes and CRF of HIV-1 are unevenly distributed around the world. For instance, subtype B is found mostly in the Americas, Japan, Australia, the Caribbean and Europe. Subtypes A and D predominate in Central and West Africa, subtype C in southern Africa, the horn of Africa and India, and subtype E in South East Asia. Subtypes F (Brazil and Romania), G and H (Russia and Central Africa), and Group O (Cameroon) are also present in some parts of the world but at very low prevalence.

I/3 Are some subtypes of HIV associated with certain modes of transmission?

Yes. For example, subtype B is associated mostly with homosexual contact and injecting drug use (essentially via blood). The recent, rapidly spreading HIV epidemic in Eastern Europe among injecting drug users is largely associated with a new B/A CRF. The epidemic in South-East Asia is mostly fuelled by heterosexual transmission of subtype C in India and China, or the A/E CRF in Thailand and neighbouring countries. However, it is still unclear whether some subtypes or their recombinant forms may be more infectious or more transmissible than others.

It is almost certain that as the global epidemic evolves, the known subtypes will continue to spread to new areas while new recombinants continue to emerge.

The genetic variability of HIV poses special problems for HIV diagnosis, treatment and HIV vaccine development. It is therefore important to monitor the distribution and dynamics of HIV subtypes at a global level, and this is an objective of the WHO-UNAIDS-sponsored "Network for HIV Isolation and Characterization".

I/4 Does HIV cause AIDS?

Yes. The body of evidence that the underlying cause of AIDS is infection with HIV-1 or HIV-2 is irrefutable. The proof meets the highest demands and standards of science. The process for isolating the virus and linking it to AIDS followed standard systematic scientific steps similar to investigations into other viral diseases such as polio, measles and smallpox.

A century ago, the German bacteriologist Robert Koch, devised a test for proving that a disease is caused by a specific microbe. That test, has since become a standard in medicine and is known as "Koch's postulate". Scientists agree that the evidence on the link between HIV and AIDS passes this test. The steps are as follows: first, the microbe must be isolated from a host that has come down with the disease. Then, the microbe is given to a healthy host, where it must cause the same disease. Finally, the microbe must be isolated from this last host.

There is a clear correlation of clinical findings of AIDS and the identification of HIV in the blood (although this is usually done by identification of HIV-antibodies, more sophisticated techniques directly identify the presence of HIV gene sequences and/or infectious virus).

Historically, haemophiliacs provided the strongest body of evidence for HIV being the cause of AIDS. The health status of haemophiliacs has been tracked for more

than a century, providing important base-line information which clearly links the advent of HIV infection with the subsequent development of AIDS. People who receive HIV-contaminated blood or blood products develop AIDS, whereas those who receive HIV screened blood do not. Further evidence emerged from laboratory workers who were accidentally infected with a highly purified strain of HIV and then went on to develop AIDS. Finally, there are solid data comparing the progression to AIDS of people at risk for HIV infection who have tested positive for antibodies to HIV and those who have tested negative.

Monkeys that are inoculated with SIV DNA (the simian version of HIV) become infected and develop AIDS. The ability of infected blood to induce infection, therefore, satisfied the highest demands of science to prove once and for all that HIV caused AIDS.

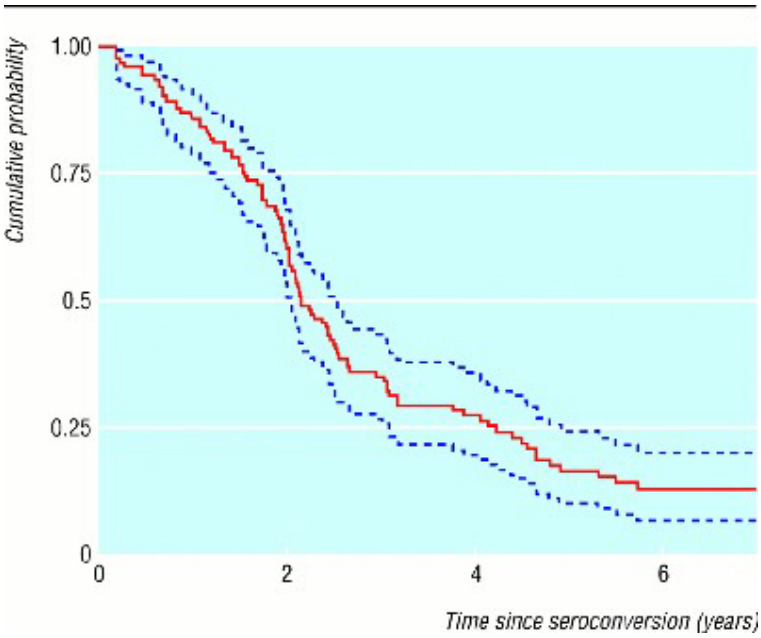
Laboratory studies show that HIV infects exactly the same type of white blood cells that become depleted in people with AIDS. Drugs that block HIV replication in test tubes have been shown to reduce viral load in people with HIV and delay progression to AIDS.

Classic epidemiological data initially emerged from Thailand. This data set is unusual because Thailand started testing for HIV for surveillance purposes in 1985 before the HIV epidemic became established. By the end of 1987, nearly 200,000 HIV blood tests had been performed on Thais from many walks of life. At that time, the testing resulted in fewer than 100 positive samples. However, rapid spread of the virus among injecting drug users led to more than 1,000 people testing positive for HIV by the end of 1988. This dramatic rise in HIV infections was closely followed by a rise in AIDS cases. By the end of 1993, more than 8,000 people in Thailand had been diagnosed with AIDS.

I/5 How long after HIV infection do people develop signs of AIDS?

The majority of people infected with HIV, if not treated, develop signs of AIDS within eight to 10 years. Symptoms of AIDS generally appear when the numbers of CD4 white blood cells (critical in mounting immune responses) decreases to 200 per mm3 of blood. Figure 1 indicates the picture for a population in rural Uganda. In this case only 17% of those studied (142 cases) remained symptom-free five years after sero-conversion. Other studies show similar patterns, although the length of time between the first detection of HIV antibodies to the onset of symptoms differs between locations.

Fig 1. Rural Uganda: The cumulative probability (95% confidence intervals) of remaining symptom-free from time of seroconversion (Kaplan-Meier plot).



I/6 Can AIDS occur without HIV?

The existence of immunodeficiency was documented long before the onset of the AIDS epidemic but was extremely rare, except in cancer patients receiving chemotherapy, transplant recipients receiving immunosuppressive therapy, or individuals born with rare inherited diseases. These immune deficiencies have a very specific pathogenesis and specific clinical manifestations. Some very rare types of immunodeficiency occur in patients who occasionally present the clinical symptoms of AIDS. However, surveys conducted in many countries have shown the number of these cases to be insignificant compared to the numbers of cases of HIV-induced immune deficiency. HIV infection is the most common cause of acquired immune deficiency.

I/7 Is it true that people can be HIV-positive and not develop AIDS?

Speculation that HIV does not cause AIDS has in part been fuelled by the existence of groups of individuals who have been HIV-positive for many years without progressing to AIDS.

The course of HIV infection and the development of AIDS does vary among individuals. About five to 10% of HIV-positive individuals develop AIDS symptoms very rapidly during the first years of infection, and about the same proportion remain infected with HIV for 15 years or more without progressing to AIDS. But on average, AIDS symptoms develop approximately eight to 10 years after initial HIV infection in people who do not receive ARV therapy.

I/8 How does HIV operate?

HIV attacks two major types of cells that are important in the human immune system. The first is known as CD4 cells. These cells organize the body's overall immune response to foreign bodies and infections. The second type of cells that HIV attacks are called macrophages. Macrophages engulf and destroy infections and ensure that the body's immune system recognizes them in the future.

Once the virus has penetrated the wall of the CD4 cell it is safe from the immune system because it copies the cell's DNA, and therefore cannot be identified and destroyed by the body's defence mechanisms. Virus particles remain in these cells until their replication is triggered. Once replication is triggered, new virus particles are made. These emerge from the surface of the cell in vast numbers, destroying the cell in the process. These viruses then infect other cells.

When a person is infected a battle starts between the virus and the immune system. There is an initial burst of activity during which many cells are infected, accompanied by the immune systems attempts to fight back through making large numbers of antibodies. During this period, the viral load is high and the immune system is under attack. A person's HIV status cannot be detected using standard tests because sufficient antibodies have yet to be formed. This is commonly called "the window period" and lasts from several weeks to months. At this stage a person is highly infectious as his or her viral load (the number of virus particles they are carrying) is high. An infected person will usually experience an episode of illness at the end of the window period—but this will often resemble a simple bout of influenza and will pass unnoticed.

I/9 What is the course of HIV infection?

HIV infection typically follows the following course:

- Primary acute infection with a characteristic clinical picture
- Prolonged period without obvious, visible symptoms—although laboratory studies can demonstrate continuous disease progression; and
- Severe immunodeficiency resulting in secondary opportunistic infections and tumours which act as the major causes of death in AIDS patients.

The spectrum of opportunistic infections may differ in different geographical locations, depending on the prevalence of certain pathogens (parasites, fungi, bacteria and viruses) to which immuno-compromised individuals may be exposed.

I/I0 How is HIV transmitted?

HIV is transmitted through sexual intercourse (anal or vaginal); blood transfusion; the sharing of contaminated needles in drug injection; and, between mother and infant, during pregnancy, childbirth, and breastfeeding. Sharing of infected blood through blood transfusion or injecting drugs is the most efficient way of transmitting HIV. The virus is not transmitted through air or water or by casual contact.

<u>Sexual Transmission</u>
The predominant mode of transmission of HIV is sexual. Several factors appear to influence the biological probability of transmission.

<u>Type of sex</u>
The type of sexual practice affects the risk of transmission. Anal intercourse carries a greater risk than vaginal intercourse for the receptive partner. Insertive anal sex is less risky than receptive anal sex but the insertive partner can also become infected. Lesions caused by rough sex or rape can also increase the probability of HIV transmission.

In the absence of aggravating factors (such as sexually transmitted infections), the virus tends to be more easily transmitted from males to females during

sexual intercourse than vice versa. There is increasing evidence that the male-to-female transmission risk is higher in young girls aged 16 years and less, as compared with the risk to older women before the menopause. This may involve higher biological vulnerability because of immaturity of the genital tract, and in particular of the cervix.

There is a small chance that HIV can be transmitted through oral sex, especially if a person has abrasions in the mouth or gum disease.

Stage of illness
The stage of illness of an infected person also influences the probability of transmission. People with HIV are more infectious to a sex partner during the earliest phase of infection (the first few weeks following initial infection with HIV) before antibodies are produced and during the later phase of the disease when the immune system is no longer able to effectively fight the virus. At both the very early and late stages of infection, a person with HIV has a very high number of viral particles in the blood. Unfortunately, many people remain unaware that a person who appears to be of perfect health could be highly infectious.

Sexually transmitted disease
There is scientific evidence that a person with an untreated sexually transmitted infection (STI), particularly involving ulcers or discharge, is on average, six to 10 times more likely to pass on or acquire HIV during sex. The presence of an STI means that there is more chance of broken skin or membranes allowing the virus to enter or leave the body. The very same cells that the virus is seeking to infect will be concentrated at the site of the STI because these cells are fighting the infection. According to current thinking, the risk of becoming HIV-infected from a single exposure is increased 10 to 300-fold in the presence of a genital ulcer caused by syphilis, chancroid or genital herpes (HSV-2).

Transmission via Blood and Blood Products
Transfer of contaminated blood from one person to another through blood transfusion, use of contaminated syringes or surgical equipment is the most efficient form of HIV transmission.

Mother-to-Child Transmission
HIV can also be transmitted to an infant during pregnancy, labour and delivery or breastfeeding. Infection at delivery is the most common mode of transmission. A number of factors influence the risk of infection, particularly the viral load of the mother at birth – the higher the load, the higher the risk. A low CD4 count is also associated with increased risk. The risk of transmission varies between 15% and 30% among infants who are not breastfed. Breastfeeding increases the risk of transmission by 10-15%.

I/11 Does male circumcision affect the spread of HIV?

Research has identified plausible biological explanations for a connection between HIV infection and lack of circumcision. The tissue of the internal foreskin absorbs HIV up to nine times more efficiently than female cervical tissue, mainly because it contains Langerhans and other HIV "target cells" in much greater quantities than the cervix or other genital tissue (including other parts of the penis). In addition, the internal foreskin has a mucosal surface, as opposed to themore hardened skinlike surface of the external foreskin. This mucosal surface is particularly susceptible to tears and abrasions, and, consequently,infection by STDs and HIV.

These epidemiological, geographic, and biological findings provide very strong – though not conclusive – evidence that male circumcision significantly lowers the risk of HIV infection. Large clinical trials to confirm an association between MC and HIV risk are now underway. Qualitative research and field studies to assess the acceptability and feasibility of expanding male circumcision services can also help identify the possible role of male circumcision in HIV prevention.

Randomized controlled trials funded by the National Institutes of Health, the Bill & Melinda Gates Foundation, and other partners are being conducted in Kenya, South Africa, and Uganda to definitively assess whether circumcision of adult men protects them against HIV. The Uganda trial will also test previous findings suggesting male circumcision may additionally protect the women partners of HIV-infected men. Combined, these studies will involve about 12,000 men. Results from the studies should be available within two to four years.

I/I2 How are HIV and AIDS diagnosed?

Clinical Diagnosis
In the early stages of AIDS, when the immune system is only partly weakened, it can be hard to differentiate an ordinary patient from one infected with HIV. This is why, in the absence of knowledge of HIV status, it can take clinicians some time to make a diagnosis.

Although the diagnosis of HIV continues to be simplified with improvements in HIV tests, clinicians usually suspect AIDS when patients manifest certain symptoms, suffer a series of infections and respond poorly to treatment of the individual infections.

As an example, tuberculosis (TB) on its own is almost always confined to the upper lungs. But in HIV patients, it frequently spreads elsewhere in the body. There are also changes in the profiles of those who get TB once HIV becomes present in a population. In Masaka Hospital, the area of Uganda where HIV was first noticed, health workers recall that TB used to be largely confined to the "very poor people or those herding cattle". As HIV infection spread, those with TB emerged in people from all social groups. Wasting associated with AIDS was initially puzzling because those affected almost never mentioned food shortages. In fact, the loss of body weight was not associated with malnutrition but rather with the high metabolic rate that results from HIV infection (which leads people to need more calories just to maintain their normal weight).

The clinical diagnosis of AIDS is therefore complex and based on core symptoms and co-presentation of "opportunistic infections".

Laboratory Diagnosis
The end of the "window period" is defined as the time when sufficient antibodies are available to be detected by current tests. Antibodies are much easier (and cheaper) to detect than the virus itself.

It is sometimes possible to detect HIV antigen, i.e. the virus itself, during the window period if, by coincidence, an individual is antigen-tested during the short period during which there are high levels of circulating virus particles. After this peak, the level of antigen steeply declines to the point where it is no longer detectable. The level of HIV antigen fluctuates or rises steeply again, usually years later, when the clinical situation of the patient starts to deteriorate with the onset of AIDS. Current treatments (Highly Active Antiretroviral Therapy or HAART which is a combination of different antiretroviral drugs) can control virus

replication in most patients, reducing their HIV virus load in blood, but these treatments are not capable of eradicating the virus.

Common to other diseases, the accuracy of different HIV diagnostic tests are measured according to their sensitivity and specificity. A test with high sensitivity is one that can detect even minute amounts of antibodies. A test with high specificity is one which identifies all negatives correctly (i.e. produces no false positives). All tests have a margin of error. Different tests are therefore recommended for different purposes. Tests with high sensitivity should be used when the objective is to minimize the number of false negative results, such as in the screening of donated blood. When the objective is to minimize false-positives, such as in confirming whether an individual is HIV-infected, tests with high specificity should be used.

Diagnostic tests continue to evolve and become cheaper and easier to adapt to field conditions. Algorithms or decision-making diagnosis guidelines have been developed, combining screening tests with high sensitivity, followed by confirmatory tests with high specificity.

For more information on HIV diagnostics see: http://www.who.int/bct/.

I/I3 How reliable is HIV testing?

HIV testing is very reliable, through either antibody tests or tests for the virus itself. Testing for the presence of infections often uses the detection of antibodies that the human body produces in response to the presence of a pathogen. These antibodies are specific to a given pathogen: they match each other. Diagnosis of infection using antibody testing is one of the best-established concepts in medicine. Examples include the diagnosis of viral hepatitis, rubella, and many other infectious diseases. Antibody testing for these diseases has never been questioned. HIV antibody tests exceed the performance criteria of most other infectious disease tests in both sensitivity and specificity. Recent HIV antibody tests have sensitivity and specificity in excess of 98% and are therefore extremely reliable.

Progress in the methods used for testing has also made it possible to detect viral genetic material, antigens and the HIV virus itself in body fluids and cells. While not widely used for routine testing due to high cost and requirements in laboratory equipment, these direct testing techniques have confirmed the validity of the antibody tests.

I/14 What are the odds of becoming infected through sexual intercourse?

It is difficult to calculate the odds of becoming infected through sexual transmission. But the risk of the transmission of HIV through sex is higher if the sex involves anal sex or rough sex that causes lesions, if sexually transmitted infections are present, if the vagina is immature, if the woman is menstruating, if the man is uncircumcised, and/or if the HIV-positive person is newly infected or in the late stages of infection.

I/15 What is "risky behaviour" in the context of AIDS?

Risky behaviour in the context of AIDS refers to behaviour that increases the chances of getting infected by HIV or transmitting the virus. Such behaviours

include: having sexual intercourse without a condom (male or female), practising anal sex, having sex with several partners, having sex with a sex worker, injecting drugs and using unclean equipment, and if HIV-positive, going through pregnancy, childbirth and breastfeeding without voluntary counselling and testing (VCT) and other interventions.

I/16 What are the links between the risk of HIV transmission and substance abuse, such as alcohol abuse?

Studies from both industrialized and developing countries indicate that HIV risk does not only arise from injecting drug use. Many substances—including alcohol—affect an individual's ability to make decisions and negotiate or demand safe sex, thereby increasing their risk of acquiring and transmitting the virus. People who are drunk are less likely to use condoms than people who are sober. In one South African study, the prevalence of HIV infection was far higher among men and women who consumed alcohol than among men and women who said they never drank.

In western Kenya, most sex workers questioned said that alcohol was involved the first time they ever sold sex, and the overwhelming majority of sex workers in the town of Kisumu said that alcohol was an integral part of sexual transactions, with men buying women a drink to signal their interest in buying sex. They also said condom use tended to decrease when either the client or the sex worker was drunk. Studies among men in Europe, Mexico, Zimbabwe and Uganda have also shown a strong correlation between frequent use of alcohol and other drugs, and unprotected sex.

I/17 What are "vulnerability" and "vulnerable populations" in the context of AIDS?

Vulnerability to HIV infection arises from circumstances that are beyond the direct control of the people involved. Such circumstances include poverty, low social status, inequality, gender discrimination, discrimination, marginalization, and criminalization. Among other things, these circumstances also reduce or deny a person's access to HIV information, services, means of prevention and support. Gender inequalities increase the vulnerability of both men and women to HIV infection.

"Vulnerable populations": (1) are denied their human rights and/or (2) have limited access to HIV information, health services and means of prevention, such as condoms (male and female) and/or (3) have limited ability to negotiate safer sex. Such groups include women and girls in countries where women and girls are discriminated against, poor people, ethnic groups, refugees, migrants, prisoners, and children. Other groups, such as men who have sex with men, injecting drug users and sex workers may combine risky behaviour with vulnerability. Their vulnerability usually arises from their marginalization and/or the fact that their behaviour is deemed illegal. This marginalization and criminalization result in much less access to the knowledge, means and services necessary to avoid HIV infection.

Most of these groups are also more vulnerable with regard to the impact of AIDS. They have less means to live positively with AIDS, because they cannot afford treatment, cannot access care, may lose their jobs and resources, and may face increased stigma and discrimination due to their HIV status. They are more likely to become (more) impoverished and marginalized, as well.

Section II: The status of the global epidemic and modes of transmission in different regions

The status of the global epidemic and modes of transmission in different regions

At the end of 2003, an estimated 37.8 million (range 34.6-42.3 million) around the world were living with HIV, including the 4.8 million (range 4.2-6.3 million) people who acquired HIV in 2003. The epidemic claimed an estimated 2.9 million (range 2.6-3.3 million) lives in 2003. Sub-Saharan Africa remains the most affected region with 70% of people living with HIV.

II/1 How widespread is AIDS in the world today?

The AIDS epidemic claimed 2.9 million (range 2.6-3.3 million) lives in 2003, and an estimated 4.8 million (4.2-6.3 milion) people acquired the HIV virus in 2003—bringing to 37.8 million (range 34.6-42.3 million) the number of people globally living with the virus. One-third of the people living with HIV are young people aged between 15 – 24 years. The new infections included an estimated 800 000 children - over 90% of them infected through mother-to-child transmission (MTCT). About 90% of these infections through MTCT occurred in sub-Saharan Africa, but the number of such infections is increasing in other regions, particularly South-East Asia.

Regional HIV and AIDS statistics and features, end of 2003

	Adults & children living with HIV	Adults & children newly infected with HIV	Adult prevalence rate [%] *	Adult & child deaths due to AIDS
Sub-Saharan Africa	25.0 million [23.1 – 27.9 million]	3.0 million [2.6 – 3.7 million]	7.5 [6.9 – 8.3]	2.2 million [2.0 – 2.5 million]
North Africa & Middle East	480 000 [200 000 – 1.4 million]	75 000 [21 000 – 310 000]	0.2 [0.1 – 0.6]	24 000 [9 900 – 62 000]
South and South-East Asia	6.5 million [4.1 – 9.6 million]	850 000 [430 000 – 2.0 million]	0.6 [0.4 – 0.9]	460 000 [290 000 – 700 000]
East Asia	900 000 [450 000 – 1.5 million]	200 000 [62 000 – 590 000]	0.1 [0.1 – 0.2]	44 000 [22 000 – 75 000]
Latin America	1.6 million [1.2 – 2.1 million]	200 000 [140 000 – 340 000]	0.6 [0.5 – 0.8]	84 000 [65 000 – 110 000]
Caribbean	430 000 [270 000 – 760 000]	52 000 [26 000 – 140 000]	2.3 [1.4 – 4.1]	35 000 [23 000 – 59 000]
Eastern Europe & Central Asia	1.3 million [860 000 – 1.9 million]	360 000 [160 000 – 900 000]	0.6 [0.4 – 0.9]	49 000 [32 000 – 71 000]
Western Europe	580 000 [460 000 – 730 000]	20 000 [13 000 – 37 000]	0.3 [0.2 – 0.4]	6 000 [<8 000]
North America	1.0 million [520 000 – 1.6 million]	44 000 [16 000 – 120 000]	0.6 [0.3 – 1.0]	16 000 [8 300 – 25 000]
Oceania	32 000 [21 000 – 46 000]	5 000 [2 100 – 13 000]	0.2 [0.1 - 0.3]	700 <1 300]
TOTAL	37.8 million [34.6 – 42.3 million]	4.8 million [4.2 – 6.3 million]	1.1 % [1.0 - 1.2%]	2.9 million [2.6 – 3.3 million]

* *The proportion of adults [15 to 49 years of age] living with HIV in 2003, using 2003 population numbers*

The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information.

UNAIDS

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World Health Organization

II/2 What is the situation in sub-Saharan Africa?

Sub-Saharan Africa has more than 10% of the world's population, but is home to 70% of all people living with HIV—some 25 million (range: 23.1–27.9 million) compared to 23.8 million (range: 22 million—26.6 million) in 2001. In 2003 alone, an estimated 3 million people became newly infected, while 2.2 million people died of AIDS – 75% of deaths globally.

II/3 In which countries is HIV prevalence the highest?

Southern Africa remains the world's worst-affected region, with epidemics that have grown rapidly. Of the seven countries in the region, all have prevalence above 15%. Botswana and Swaziland have the highest prevalence with 37.3% and 38.8% respectively. They are followed by Lesotho (28.9%), Zimbabwe (24.6%), South Africa (21.5%), Namibia (21.3%), and Zambia (16.5%).

II/4 Why are more women infected with HIV than men in sub-Saharan Africa?

Women in Africa are being infected at an earlier age than men, and the gap in HIV prevalence between them continues to grow. Today, there are, on average, 13 HIV-positive women for every 10 HIV-positive men—up from 12 infected women for every 10 infected men in 2002. The difference in HIV-infection levels between women and men is even more pronounced among young people aged 15–24. This ranges from 20 young women for every 10 young men in South Africa, to 45 young women for every 10 young men in Kenya and Mali.

II/5 What is the situation in Southern Africa?

Southern Africa remains the world's worst-affected region, with epidemics that have grown rapidly. There is no single explanation for why the epidemic is so rampant in Southern Africa. A combination of factors, often working in concert, seem to be responsible, including: poverty and social instability that result in family disruption; high levels of other sexually transmitted infections; the low status of women; sexual violence; high mobility, which is largely linked to migratory labour systems; and ineffective leadership during critical periods in the epidemic's spread.

II/6 Are there any encouraging epidemiological developments in sub-Saharan Africa?

No country has so dramatically reversed its epidemic as Uganda, where national prevalence dropped from 12% in the early 1990s to 4.1% in 2003. Kampala's prevalence was around 8% in 2002—down from 29% 10 years ago. Still, even Uganda cannot afford to relax: surveys suggest today's young people may have less AIDS knowledge than their counterparts in the 1990s.

II/7 Is the epidemic peaking in sub-Saharan Africa?

No. But there are indications that national HIV prevalence rates have been stable for several years across much of the region—albeit at very high levels in Southern Africa.

Two factors are causing the apparent stabilization of prevalence rates: increasing AIDS mortality rates and increasing new infections. Overall prevalence has remained roughly level because AIDS has killed as many people each year. HIV prevalence might therefore appear stable, but it hides a persistently high number of annual, new HIV infections and an equally high number of AIDS deaths. We are not, therefore, witnessing a decline in this region's epidemic.

II/8 What is the AIDS situation in Asia and the Pacific?

With 60% of the world's population, Asia is now home to some of the fastest-growing AIDS epidemics in the world. In Asia, an estimated 7.4 million people (range: 5.0–10.5 million) are living with HIV. Around half a million (range: 330 000–740 000) are believed to have died of AIDS in 2003, and about twice as many—1.1 million (range: 610 000–2.2 million)—became newly infected.

II/9 What is the prevalence in countries with very large populations—such as China, India, and Indonesia?

The region includes the world's most populous countries—China and India—with 2.25 billion people between them. In both countries, national HIV prevalence is low: 0.1% (range: 0.1–0.2%) in China and between 0.4% and 1.3% in India. But a closer focus reveals that both have extremely serious epidemics in a number of provinces, territories and states.

In **China**, 10 million people may be HIV-infected by 2010 unless effective action is taken. The virus has spread to all 31 provinces, autonomous regions and municipalities, yet each area has its own distinctive epidemic pattern. For example, in Xinjiang, HIV prevalence among injecting drug users is 35–80%. In areas such as Anhui, Henan and Shandong, HIV gained a foothold in the early 1990s among rural people who were selling blood plasma.

India has the largest number of people living with HIV outside South Africa—estimated at 5.1 million in 2003. Most infections are acquired sexually, but injecting drug use dominates in the north-east of the country. In this area, infection levels of 60–75% have been found among injecting drug users using non-sterile injecting equipment. In India's southern states of Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu, HIV is transmitted through heterosexual sex, and is largely linked to sex work. According to selected surveys, more than half of sex workers are HIV-positive. In all four states, infection levels among pregnant women in sentinel antenatal clinics have remained roughly stable at more than 1%. This suggests sex workers' clients may have passed HIV to their wives.

In many parts of India, HIV transmission through sex between men is also a major concern. Research shows some men who have sex with men may also have sex with women. In 2002, behavioural surveillance in five cities among men who have sex with men found 27% reported being married, or living with a female sexual partner. HIV knowledge is still scant and incomplete in India. In a 2001 national behavioural study of nearly 85 000 people, only 75% of respondents had heard of AIDS, and rural women's AIDS awareness was particularly low.

Six of **Indonesia**'s 31 provinces are particularly badly affected by AIDS. The country's epidemic is driven largely by drug injecting with contaminated needles and syringes. HIV prevalence among its 125 000–196 000 injecting drug users

has increased threefold—from 16% to 48% between 1999 and 2003. Indonesia's drug users are also regularly arrested and sent to jail. In early 2003, 25% of inmates in Jakarta's Cipinang prison were HIV-positive.

In Indonesia, there is strong evidence that various injecting-drug-user and sexual networks overlap significantly, thus creating an ideal environment for HIV spread. Prevalence varies widely among the region's 200 000 female sex workers. In the past two years, some areas have recorded sharp increases to levels as high as 8–17%. In Jakarta, HIV prevalence among transgender sex workers also rose from 0.3% in 1995 to nearly 22% in 2002.

II/10 The situation elsewhere in South-East Asia and in the Pacific?

In South-East Asia, Cambodia, Myanmar and Thailand are experiencing particularly serious epidemics. Cambodia's national HIV prevalence is around 3%—the highest recorded in Asia. Data suggest this country's epidemic has gone through dramatic changes though. For instance, infection among brothel-based sex workers fell from 43% in 1998 to 29% in 2002. However, the picture of Cambodia's epidemic is incomplete: little has been done to monitor the epidemic among drug users, or men who have sex with men, even though HIV prevalence among male sex workers in the capital was above 15% when last measured in 2000.

In **Thailand**, the number of new infections has fallen from 140 000 in 1991 to around 21 000 in 2003. This remarkable achievement came about because men used condoms more, and also reduced their brothel visits. But this drop in commercial sex patronage is accompanied by an increase in extra-marital and casual sex. Young Thai women also appear more likely to engage in premarital sexual relations than earlier generations. Behavioural surveillance between 1996 and 2002 shows a clear rise in the proportion of sexually active, secondary school students. It also shows consistently low-level condom use.

Evidence also suggests Thailand's epidemic is now spreading among the partners and spouses of sex workers' clients, as well as among marginalized sections of the population, such as injecting drug users and migrants. Infections rates among men who have sex with men and injecting drug users remain high, due to inadequate coverage of prevention activities. In Bangkok, more than 15% of men who have sex with men who were tested in a 2003 study were HIV-positive, and 21% had not used a condom with their last casual partner.

Viet Nam has one of the region's newest epidemics. National HIV prevalence is still well below 1%, but, in many provinces, sentinel surveillance has revealed HIV levels of 20% among injecting drug users. Unsafe sex is also a concern in this region. In major cities, in 2002, prevalence levels of 8–24% were reported among sex workers.

II/11 What is the situation in Eastern Europe and Central Asia?

In Eastern Europe and Central Asia, diverse epidemics are under way, and they show no signs of abating. In 2003, some 360,000 people (range: 160 000–900 000) were newly infected with HIV, bringing the number of people living with the virus to 1.3 million (range: 860 000–1.9 million). During the same time period, AIDS claimed an estimated 49 000 lives (range: 32 000–71 000).

Estonia, Latvia, the Russian Federation and Ukraine are the worst-affected countries in this region. However, HIV continues to spread in Belarus, Kazakhstan and Moldova.

In the Baltic States, overall infection numbers remain low, but HIV spread continues at an alarming pace. In Latvia, the number of HIV diagnoses has risen five-fold since 1999. In 2000, Estonia reported 12 new HIV cases; in 2002, it reported 899. Lithuania is on a similar path. In 2001, 72 new HIV cases were detected. The following year, this increased more than five-fold. Lithuania appears to be facing two distinct epidemics. In regions adjacent to Kaliningrad (Russia), HIV is affecting mainly injecting drug users; in Vilnius, it is spreading among men who have sex with men.

In Poland, since the mid-1990s, newly reported HIV infections have remained stable (at roughly 500–600 annually). In parts of south-eastern Europe (especially in countries emerging from conflict and difficult transitions), drug injecting and risky sexual behaviour appears to be on the increase. This raises the prospect of possible HIV outbreaks unless preventive steps are swiftly introduced.

In Ukraine, drug injecting remains the principal mode of transmission, but sexual transmission is becoming increasingly common, especially among injecting drug users and their partners. However, an increasing proportion of those who become infected through unsafe sex have no direct relationship with drug users.

Several Central Asian countries—notably Kazakhstan, Kyrgyzstan and Uzbekistan—have reported growing numbers of HIV infections, most of them among injecting drug users. Central Asia is at the crossroads of the main drug-trafficking routes between East and West. In some places, heroin is said to be cheaper than alcohol.

The epidemic's most striking feature is the age of those infected—more than 80% are under 30. Condom use is also generally low among this population. By contrast, in North America and Western Europe, only 30% of infected people are under 30.

II/12 What are the main modes of transmission in Eastern Europe and Central Asia?

Injecting drug use is the driving force behind this region's epidemic—an activity that has spread explosively in the turbulent years since the Soviet regime's demise. In the Russian Federation alone, there are an estimated 3 million injecting drug users. The Ukraine has more than 600 000 and Kazakhstan has up to 200 000. In Latvia and Estonia, an estimated 1% of the adult population injects drugs. Most of these drug users are male.

Women account for an increasing share of newly diagnosed HIV infections in the Russian Federation—up from one-in-four in 2001, to one-in-three just one year later. The trend is most obvious in areas where the epidemic is oldest; this suggests sexual intercourse plays an increasing role in transmission or that women are increasingly involved in injecting drug use. From 1998 to 2002, infection levels among pregnant women increased from less than 0.01% to 0.1%—a 10-fold increase. In St Petersburg, HIV seroprevalence increased from 0.013% in 1998 to 1.3% in 2002—a 100-fold increase.

II/13 What is the situation in the Russian Federation?

The Russian Federation remains saddled with the region's worst epidemic, with an estimated 860 000 people living with HIV. More than half the reported cases come from just 10 of the 89 administrative territories. The number of new cases registered in 2000 (56,630) was almost twice that of 1987. Although the number of reported cases dropped by 50% over the past two years, possibly due to

changing testing patterns, the overall number of HIV-positive people continues to rise in Russia.

II/14 What is the situation in Latin America and the Caribbean?

In Latin America and the Caribbean, the total number of people living with HIV continues to rise. It is estimated that 2 million people (range: 1.6–2.6 million) are living with HIV in these countries—a figure that includes the 250 000 (range: 190 000–420 000) who were newly infected in 2003. In 2003, AIDS claimed approximately 120 000 lives (range 96 000- 150 000).

In the **Caribbean**, 52 000 people (range: 26 000–140 000) acquired HIV in the past year, bringing the total number of people living with HIV or AIDS to around 430 000 (range: 270 000–760 000). In 2003, AIDS killed a further 35 000 people (range: 23 000–59 000).

Three countries in the Caribbean have national HIV prevalence levels of at least 3%: the Bahamas, Haiti, and Trinidad and Tobago. Barbados is at 1.5% (range: 0.4–5.4%) and Cuba's prevalence is well below 1%.

Haiti is the worst-affected country, with a national HIV prevalence of 5.6% (range: 2.5–11.9%). However, HIV spread is uneven: sentinel surveillance reveals prevalence ranging from 13% in the north-west of the country, to 2–3% in the south.

In **Latin America**, an estimated 1.6 million people (range: 1.2–2.1 million) are living with HIV—a figure that includes the 200 000 (range: 140 000–340 000) who were newly infected in 2003. In 2003, AIDS killed a further 84,000 people (range: 65 000 to 110 000).

II/15 What are the main modes of transmission in Latin America and the Caribbean?

The Caribbean's epidemic is predominantly heterosexual, and is concentrated among sex workers in many places. However, the virus is spreading in the general population.

Latin America's epidemic tends to be highly concentrated among populations at particular risk of HIV, rather than being generalized.

In most South American countries, the majority of infections are caused by contaminated drug-injecting equipment or sex between men.

II/16 What is the situation elsewhere in the region?

In Central America, the virus is spread predominantly through sex. A recent international study shows HIV prevalence among female sex workers varies significantly—from less than 1% in Nicaragua to more than 10% in Honduras. Among men who have sex with men, HIV prevalence is uniformly high—ranging from 9% in Nicaragua to 24% in Argentina. In several countries, notably Columbia and Peru, sex between men is the predominant transmission mode. Recently, in Bogotá, HIV prevalence of 18% was reported in this population group. Meanwhile, another survey in the same city found consistently low condom use among this group. Highlighted is the considerable potential for HIV transmission from men who have sex with men to their female partners, and children. Peru is a case in point: in a survey of young men and women (aged 18–

29), 9% of men indicated that at least one of their last three sexual partners was a man and that condoms were not used in 70% of those contacts.

In Brazil—the region's most populous country, and home to more than one-in-four people living with HIV—national prevalence is well below 1%. However, in some cities, infections levels above 60% were reported among injecting drug users. Although Brazil's epidemic has spread from the major urban centres to smaller municipalities, median HIV prevalence of pregnant women attending antenatal clinics has remained below 1%, with little variation over the past five years.

The proportion of people who need and receive antiretroviral treatment varies significantly—from less than 25% in some countries to more than 75% in others. But several subregional initiatives are raising the prospect of increased access in some countries, including the Bahamas, Barbados and Honduras.

II/17 What is the situation in North Africa and the Middle East?

In the Middle East and North Africa, the latest estimates indicate 75 000 people (range: 21 000–310 000) acquired HIV in the past year, bringing the number of people living with HIV or AIDS to 480 000 (range: 200 000–1.4 million). In 2003, AIDS killed a further 24 000 people (range: 9900–62 000). There is the potential for a considerable rise in HIV in this region.

Sudan is the region's most seriously affected country, with an HIV prevalence of 2.3% (range: 0.7–7.2%). The epidemic is most severe in the southern part of the country, where HIV prevalence among pregnant women is reported to be six-to-eight times higher than around Khartoum in the north.

With the exception of a few countries, the region's systematic surveillance is not well developed. Furthermore, there is inadequate monitoring of higher-risk populations, including injecting drug users and men who sex with men. This means that potential epidemics in these populations are being overlooked.

Morocco has expanded it surveillance system based on pregnant women and patients attending sexually-transmitted-infection clinics to include sex workers and prisoners. In 2003, prevalence was 0.13% among pregnant women, 0.23% among patients at sexually-transmitted-infection clinics, 0.83% among prisoners, and 2.27% among female sex workers.

A recent report from Yemen suggests 7% of sex workers are HIV-positive. Across the region, more in-depth studies are needed to examine sex-work realities, especially street-based situations and their potential contribution to HIV spread, first among sex workers and their clients, and subsequently to client's wives and children.

II/18 What are the main modes of transmission in North Africa and the Middle East?

In the Sudan, heterosexual intercourse is the principal transmission route. The virus is also spreading in the general population, infecting women faster than men. Somalia's epidemic is believed to have similar dynamics, but few surveillance data are available.

In Bahrain, Libya, and Oman, HIV also appears concentrated among injecting drug users. However, there is insufficient behavioural and serosurveillance among this population, resulting in an incomplete picture of the epidemic's spread.

In some countries, unsafe blood transfusions and blood-collection practices still pose a HIV-transmission risk; efforts are under way to expand blood screening and sterile procedures in health-care settings.

Effective prevention is needed, designed to target both vulnerable groups and groups that could be drawn into the next phase of HIV spread, such as migrant workers, refugees and displaced persons, transport route workers, tourists, and young people generally. However, at present, even basic activities such as condom promotion are largely absent.

II/19 What is the situation in high-income countries?

In high-income countries, the number of HIV-positive people continues to rise, largely due to widespread access to antiretroviral treatment. It is estimated that 1.6 million people (range: 1.1–2.2 million) are living with HIV—a figure that includes the 64 000 (range: 34 000–140 000) who were newly infected in 2003. In 2003, AIDS claimed approximately 22 000 lives (range: 15 000–31 000).

In high-income countries, annual AIDS deaths have continued to slow because of the availability of antiretroviral treatment. This means HIV-positive people are staying healthy and surviving longer than infected people elsewhere. For example, in the United States, there were 16 371 reported AIDS deaths in 2002, down from 19 005 in 1998. In Western Europe, reported AIDS deaths fell from 3373 in 2001 to 3101 in 2002.

In the United States, one-quarter of the 850 000–950 000 people living with HIV do not know their serostatus. A recently published analysis of New York's epidemic suggests more than 1% of its adult population, and almost 2% of Manhattan's, are HIV-positive.

II/20 What is the situation regarding low-income communities in high income countries?

African-Americans represent 12% of the United States' population, but their HIV prevalence is 11 times higher than whites. In fact, approximately half of the 40 000 new infections annually are among African-Americans—women account for an increasing proportion of these infections. AIDS is also the leading cause of death for African-American women aged 25–34. Many of these women do not engage in high-risk behaviour, but are contracting HIV through unsafe sex with their male partners, a significant share of whom also have sex with men or inject drugs. The secrecy surrounding overlapping risk behaviour often is rooted in the stigma attached to homosexuality.

II/21 What are the main modes of transmission in high-income countries?

Unsafe sex, reflected in outbreaks of STIs, and injecting drug use fuel epidemics in these countries.

In Australia, Canada, Denmark, Germany, Greece, New Zealand and the United States, sex between men is the most common infection route.

In several western European countries, heterosexual transmission has increased recently. In Belgium, Norway and the United Kingdom, this increase is dominated by people who originate from countries with generalized epidemics. For example, 70% of the United Kingdom's heterosexually transmitted HIV cases were acquired

this way. Italy and Spain, which have Western Europe's largest epidemics, do not have national HIV reporting systems. As such, it is unclear whether this trend is occurring in these countries as well.

Drug injecting plays a varying role in this region's epidemic. In Canada and the United States, an estimated 25% of newly acquired infections were attributed to injecting drug use. In Australia, in 2002, injecting drug use accounts for less than 10% of new HIV diagnoses. In Western Europe, in 2002, it accounted for more than 10% of all reported HIV infections.

In Portugal, however, injecting drug use was responsible for more than 50% of cases. This country is also seeing a significant increase in sexually transmitted HIV infections, both heterosexual and between men.

In Australia, Japan, Western Europe and the United States, a resurgence of other sexually transmitted infections points to a revival of high-risk sexual behaviour—especially among young people, including men who have sex with men. France, Ireland, the Netherlands and the United Kingdom have reported outbreaks of syphilis in men who have sex with men. In the Netherlands, in 2002, new syphilis cases reported among men who have sex with men increased by 182%.

In England and Wales, diagnoses of gonorrhoea at sexually-transmitted-infection clinics rose by 102% in 1995 to 2000, with the steepest increases occurring among older teenagers (aged 16–19). In 2002, Australia reported its highest incidence rates for gonorrhoea among adults aged 15–39 since 1997. The Netherlands, Sweden and Switzerland also reported increased gonorrhoea cases. This may indicate current prevention activities are registering poorly with younger people.

II/22 What are the main modes of transmission in Japan?

Japan's annual number of newly reported HIV infections has doubled since the 1990s to more than 600 in 2001 and 2002. This rise was accompanied by an increase in other sexually transmitted infections over the same period. For example, since 1995, *Chlamydia* rose by more than 50% among women. Japanese youth are also more sexually active. This is represented by the percentage who had had sex by the time they turned 19**.**

Section III: Children orphaned by AIDS: estimates and projections

Children on the Brink 2004 contains the most current and comprehensive statistics on children orphaned by AIDS and other causes. Unlike previous editions of Children on the Brink, which included data for children under the age of 15, this edition provides data for children under the age of 18.

III/1 How many children are orphans?

By the end of 2003, it was estimated that there were 143 million orphans ages 0 through 17 years old in 93 countries of sub-Saharan Africa, Asia, and Latin America and the Caribbean. More than 16 million children were newly orphaned in 2003 alone.

III/2 What is the impact of AIDS on orphaning?

In countries hardest hit by AIDS, orphan numbers are increasing. In 2003, 12.3 percent of all children in sub- Saharan Africa were orphans. This is nearly double the 7.3 percent of children in Asia and 6.2 percent of children in Latin America and the Caribbean who were orphans.

III/3 Do patterns of orphaning vary currently?

Yes. In sub-Saharan Africa the highest percentages of children orphaned are in countries with high HIV prevalence levels or those that have recently been involved in armed conflict. With 20% of its children orphaned, Botswana has the highest rate of orphaning in sub-Saharan Africa. In 11 of the 43 countries in the region, more than 15 percent of children are orphaned. The 11 countries are: Angola, Botswana, Burundi, Central African Republic, Democratic Republic of Congo, Lesotho, Mozambique, Rwanda, Swaziland, Zambia and Zimbabwe.

III/4 Have we already seen the worst of the AIDS orphan problem?

By no means. The effect of AIDS on children and orphaning is a long-term issue. The number of children orphaned by AIDS in sub-Saharan Africa will continue to increase through 2010 (although a massive increase in the availability of antiretroviral therapy could bring the projected figures down to some extent). In Botswana, Lesotho, Swaziland, and Zimbabwe, more than one in five children will be orphaned.

III/5 What do the various orphan estimates mean?

The following terms are used for statistical purposes in estimating orphan subpopulations. The terms are not meant to define target populations of programmes to assist all orphans and vulnerable children.

- **Maternal orphans** are children under the age of 18 whose mothers and perhaps fathers, have died (includes double orphans);
- **Paternal orphans** are children under the age of 18 whose fathers and perhaps mothers, have died (includes double orphans;
- **Double orphans** are children under 18 who have lost both parents; and
- **Total orphans** are children under 18 whose mothers or fathers have died. The total number of orphans is equal to the sum of maternal orphans and paternal orphans, minus double orphans (because they are counted in both the maternal and paternal categories).
- **New orphans** are children under age of 18 who have lost one or both parents in the last year.
- **Vulnerable children** refers to those children whose survival, well-being or development is threatened by HIV/AIDS.

III/6 Can one add the numbers of maternal AIDS orphans and paternal AIDS orphans to get a total number of children orphaned by AIDS?

No. Given the way we calculate orphans, we cannot produce estimates of the children who have lost their mother only or their father only. Instead we have estimates of children who have at least lost their mother (and perhaps their father) and children who have at least lost their father (and perhaps their mother). We have an estimate of children who have lost both parents, which includes some of the maternal or both and paternal or both orphans. You cannot

simply add these three (maternal or both, paternal or both, and both) to get the total number of orphans. There is an estimate of the total number of children orphaned by AIDS, but it was not arrived at by adding these three categories.

Section IV: Children orphaned by AIDS: interventions

As the number of adults dying of AIDS rises over the next decade, increasing numbers of orphans will grow up without parental care and love, and be deprived of their basic rights to shelter, food, health and education. Greatly increased steps must be taken to strengthen protection, care and coping capacities within extended families and communities; build the capacity of children to meet their own needs; pay attention to the roles of girls and boys, and address gender discrimination; ensure that governments provide essential services; and reduce stigma and discrimination against these children.

IV/1 What is being done for children orphaned by AIDS?

Many children are being taken care of in extended families. Many are struggling to survive on their own in child-headed households. Many fend for themselves on the streets. Intervention efforts have been largely mounted by nongovernmental organizations and faith-based groups but as the epidemic impoverishes communities and families, less and less resources are available for these children.

IV/2 What should be done?

First-line efforts should involve increasing care and support to families before parents die, as this enables parents to live longer and prepare for death and succession (prepare "memory books" with their children), and decreases the care-giving burden and trauma experienced by children. For orphaned populations and children in need, efforts should be made to target all children in need in a community; increase the capacity of communities, extended families and child-headed households to be able to take care of the children (credit schemes, income generation, etc); enable the children to continue attending school (waiving or reducing school fees, buying books, etc.), or receive skills-training; and change practices and legislation so as to protect children's rights, particularly inheritance.

Section V: The impact of AIDS

At the economic, social, security and demographic levels the AIDS epidemic is having an impact far more devastating than ever imagined. In addition to the untold grief and human misery caused by AIDS, the epidemic is wiping out development gains, decreasing life expectancy, increasing child mortality, orphaning millions, setting back the situation of women and children, and threatening to undermine national security in highly-affected societies.

V/1 What is the economic impact of AIDS?

Because AIDS kills people in the prime of their working and parenting lives, it represents a grave threat to development. By reducing growth, weakening governance, destroying human capital, discouraging investment, and eroding productivity, AIDS erodes the foundations on which countries seek to develop their societies and improve living standards. In the worst-affected countries, the

epidemic has already reversed many of the development achievements of the past generation. Now, AIDS threatens to thwart the hopes of the next.

AIDS has a pronounced impact on growth, incomes, and poverty. Although different estimates exist, the World Bank calculates that AIDS may now be costing 24 African countries 0.5% to 1.2% of per capita growth each year. In some countries, conservative estimates indicate that the number of people living in poverty has already increased by 5% as a result of the epidemic.

Governments are suffering a drain on skills, reduced revenues, lower return on social investment, and reduced national security - while facing vast expenses on health and orphan care. Businesses of all types face higher costs in training, insurance, benefits, absenteeism, and illness. Reports are common of health care costs rising five- or tenfold within a few years. AIDS is reducing the ratio of healthy workers to dependents and may cut productivity growth by as much as 50% in the hard-hit countries. In households, AIDS is impoverishing entire families as income-earners grow sick and die and families sell all their assets for care and for funerals. In agriculture, food security is lost as there are fewer people to tend the fields and fewer to pass on their skills to the next generation.

In South Africa and Zambia, studies of AIDS-affected households—most of them already poor—found monthly income fell by 66%–80% due to coping with AIDS-related illness (Steinberg et al., 2002; Barnett and Whiteside, 2002). In Thailand, a 1997 study showed when a person with steady employment died of AIDS, the household's lifetime income loss was more than 20% greater than a household with non-AIDS-related deaths (Pitayanon et al., 1997).

V/2 What is the social impact of AIDS?

AIDS overtaxes social systems and impedes the health and educational development that enables poor people (especially children) to escape poverty. Life expectancy has plummeted by 20 years in some countries and the number of orphans is expected to more than double by 2010. This will pose unprecedented social welfare demands for countries already burdened by vast development challenges. Whole families dissolve as the parents die and children and dependent elderly are dispersed to others that might care for them.

In education, teachers and students are dying or leaving school, reducing both the quality and efficiency of educational systems. Health care systems in many countries are stretched beyond their limits as they deal with a growing number of AIDS patients and the loss of health personnel. Women in general, and girls in particular, are more vulnerable to HIV/AIDS and are disproportionately affected by the epidemic. They bear the greatest burden of care. Families remove girls from school to care for sick relatives or assume family responsibilities, thereby jeopardizing recent gains in female health, nutrition and education. This has an especially detrimental impact on girls' own development and leaves them more vulnerable to the epidemic. Girls who have not completed their schooling are less likely to obtain the earning power to increase their economic independence, and more likely to resort to transactional sex in order to survive. Reduced education for women also impedes national development.

V/3 How is AIDS affecting life expectancy and the structure of populations?

Sub-Saharan Africa has the world's highest HIV prevalence and faces the greatest demo-graphic impact. In the worst-affected countries of Eastern and Southern

Africa, the probability of a 15-year-old dying before reaching age 60 has risen dramatically. In some countries, up to 60% of today's 15-year-olds will not reach their 60th birthday (Timaeus and Jassen, 2003).

HIV's impact on adult mortality is greatest on people in their twenties and thirties, and is proportionately larger for women than men. In low- and middle-income countries, mortality rates for 15–49-year-olds living with HIV are now up to 20 times greater than death rates for people living with HIV in industrialized countries. This reflects the stark differences in access to antiretroviral therapy. In low- and middle-income countries, mortality generally varies between two and five deaths per 1000 person years (PY) for people in their teens and twenties. However, HIV-infected individuals in these age groups experience death rates of 25–120 per 1000 PY, rising to 90–200 per 1000 PY for people in their forties (Porter and Zaba, 2004).

Until recently, low- and middle-income countries had extended life expectancy significantly. However, since 1999, primarily as a result of AIDS, average life expectancy has declined in 38 countries. In seven African countries where HIV prevalence exceeds 20%, the average life expectancy of a person born between 1995 and 2000 is now 49 years—13 years less than in the absence of AIDS. In Swaziland, Zambia and Zimbabwe, the average life expectancy of people born over the next decade is projected to drop below 35 years in the absence of antiretroviral treatment (UN Population Division, 2003).

Unless the AIDS response is dramatically strengthened, by 2025, 38 African countries will have populations which will be 14% smaller than predicted in the absence of AIDS. In the seven countries where prevalence exceeds 20%, the population is projected to be more than one-third smaller due to the epidemic (UN Population Division, 2003).

V/4 What makes HIV/AIDS a security issue?

On 17 July 2000, the UN Security Council made history by discussing a health issue for the first time—the HIV/AIDS epidemic—and adopting Resolution 1308, which identifies the spread of HIV/AIDS as a threat to global peace and security, notably in the context of peacekeeping operations. Indeed, the links between AIDS and security are many.

Conflicts generate and entrench many of the conditions and the human rights abuses in which the HIV/AIDS epidemic flourishes. Poverty, powerlessness and social instability, all of which can facilitate HIV transmission, are exacerbated during wars and armed conflict. Physical and sexual violence, forced displacement and sudden destitution, the collapse of social structures and the breakdown of rule of law can put people at much greater risk of HIV infection.

People in such situations have less access to prevention and health services, and less control over their sexual life, either because hardship can force resort to transactional or commercial sex, or because of rape. Armies, militias, rebel troops and other uniformed services consistently rank among the population groups most infected by HIV, probably because they are young, male, away from home and families, have money to spend on commercial sex, and are risk-takers in situations of danger and high uncertainty. In conflict areas, refugees, sex workers, women, girls, children, young people, and humanitarian workers also face increased risk of infection.

At the end of 2001, there were almost 20 million refugees and displaced persons in the world (UNHCR). In some countries affected by conflict, HIV prevalence is already relatively high (e.g. over 7% in Congo, Burundi and Rwanda). In others, prevalence is relatively low (e.g. Afghanistan, Colombia and countries of the Balkans). Better data collection, and more research and analysis is urgently needed to establish a stronger understanding of what countervailing factors might be at work in some settings.

At the same time, it is possible that in some cases the end of war or conflict can spur more rapid spread of HIV—as combatants and refugees move back to their homes, and as migration, trading and other forms of population mobility resume.

The humanitarian response and post-conflict reconstruction in such countries must address these heightened vulnerabilities to HIV/AIDS.

AIDS is also undermining social cohesion in many countries, and is increasingly recognized as a factor that can undermine social and political stability.

Widespread AIDS epidemics may exacerbate national security issues by fuelling unrest due to lack of development, decreasing social support, and spreading distrust of government, fear and hopelessness.

V/5 How is AIDS related to humanitarian crises and complex emergencies?

Humanitarian crises take many forms—some involving violent conflict, others resulting from a combination of natural and man-made disasters—all threatening lives on a scale that defy people's capacities to cope.

Increasingly, it is becoming evident that the HIV/AIDS epidemic can be a potent factor in or cause of such crises.

The epidemic itself constitutes a major crisis, and where prevalence is high, it is plunging millions of people deeper into destitution and desperation as their labour power weakens, incomes dwindle, assets shrink and households disintegrate. Weakened by AIDS, traditional coping strategies become too frail to cope with further threats such as armed conflict, crop failures or natural disasters. This interplay of the impact of HIV with other threats can then converge to create a crisis and/or to make it impossible to cope with a crisis. The current food crisis in southern Africa highlights the potentially dynamic interplay between HIV/AIDS and other crises, and the need to tackle them in unison.

V/6 Does UNAIDS consider AIDS to be a disease of poverty?

Since AIDS affects both rich and poor citizens in both developed and developing countries, it is not a disease of poverty. But poor people are generally more vulnerable to becoming infected with HIV because they have less access to HIV information, education, health care services and means of prevention. Poor people once infected are also more vulnerable to the impact because they cannot afford ARVs nor often even access less expensive treatment and care, nor can they and their families withstand the HIV-related impoverishment caused by loss of the ability to work and by the costs of care. Vulnerability to infection and impact is also increased among those suffering inequality, discrimination, social exclusion, conflict and displacement.

Given the devastating impact of AIDS on households, communities and entire societies, national policies and poverty-reduction strategies need to be adjusted and expanded accordingly. Unless this happens, AIDS will continue to erode human development achievements, deepen poverty, and further hinder access to education, health and viable livelihoods.

V/7 What are some key strategies by which to mitigate the impact of HIV?

There are innumerable strategies by which to strengthen the response, as well as mitigate the impact of HIV. A few key strategies at the macro level involve: building human capacity to respond to AIDS; defending public services and institutions of democratic governance; intensifying efforts to reduce poverty; and promoting a more equitable global system.

- **Building human capacity to respond to AIDS**

That mobilizing and building human capacity to respond to, cope with, and overcome the effects of HIV/AIDS is essential has been shown in the power and effectiveness of community and popular forces in the response to the epidemic. These have included new forms of mobilization, such as social rights groups advocating access to treatment, human rights protection and improved socioeconomic conditions; former "beneficiaries" becoming the leaders of initiatives; networks sharing information and skills; and new creative partnerships, such as among trade unions, enterprises, and faith-based groups. Both the State and the private sector must enhance their support for these community forces.

- **Defending public services and institutions of democratic governance**

Special efforts are needed to ensure the maintenance of essential public services and to ensure equitable access to them. This involves taking into account the impact of HIV/AIDS on public services, both in terms of demand and ability to provide, and having plans to train and replace the workers required to manage and perform those services.

- **Intensifying poverty reduction**

AIDS makes critical shifts in social and economic development strategies more urgent, e.g. reducing inequalities; enhancing access to productive resources for wider segments of the population; increasing the discretionary budget; improving public expenditure on essential services; boosting employment opportunities; and strengthening social systems and infrastructures. Initiatives, such as the poverty-reduction strategies required for debt-relief schemes are more likely to yield lasting benefits if they feature commitments and targets specifically related to HIV/AIDS, such as enhanced access to essential services for AIDS survivors (especially orphaned children) and greater food security.

- **Promoting more equity in the global system**

Many of the world's more marginalized countries need greater long-term international solidarity, cooperation and financial support. More equitable investment and trade flows can help ensure that global economic progress also profits the world's poor. So, too, could higher levels of Official Development

Assistance in support of poverty-reduction strategies and improvement of social services. Since 1990, official development assistance provided to the 28 countries with the highest adult HIV prevalence rates (more than 4%) has fallen by a third.