

REPORT

on the global

HIV/AIDS epidemic

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Programme on HIV/AIDS*



WHO

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Organization*

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Acknowledgements

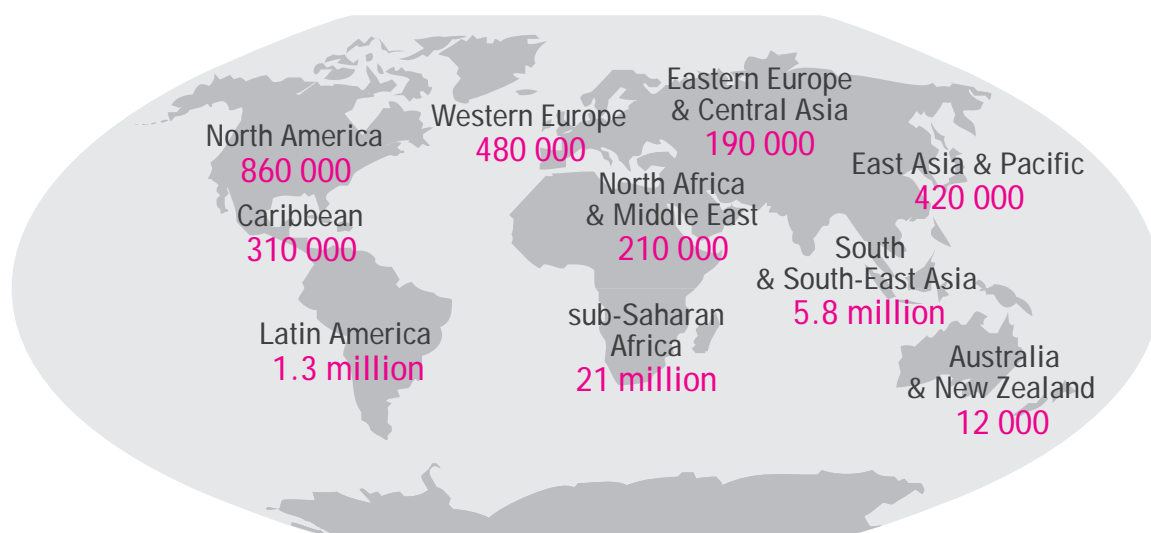
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Global estimates of the HIV/AIDS epidemic as of end 1997

People newly infected with HIV in 1997	Total	5.8 million
	Adults	5.2 million
	<i>Women</i>	<i>2.1 million</i>
	Children <15 years	590 000
Number of people living with HIV/AIDS	Total	30.6 million
	Adults	29.4 million
	<i>Women</i>	<i>12.2 million</i>
	Children <15 years	1.1 million
AIDS deaths in 1997	Total	2.3 million
	Adults	1.8 million
	<i>Women</i>	<i>800 000</i>
	Children <15 years	460 000
Total number of AIDS deaths since the beginning of the epidemic	Total	11.7 million
	Adults	9.0 million
	<i>Women</i>	<i>3.9 million</i>
	Children <15 years	2.7 million
Total number of AIDS orphans* since the beginning of the epidemic		8.2 million

*Defined as children who lost their mother or both parents to AIDS when they were under the age of 15.



Adults and children living with HIV/AIDS – total 30.6 million

HIV and AIDS: the global situation

The human immunodeficiency virus (HIV) continues to spread around the world, insinuating itself into communities previously little troubled by the epidemic and strengthening its grip on areas where AIDS is already the leading cause of death in adults (defined here as those aged 15-49).

Estimates by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO), a cosponsor of the Joint Programme, indicate that by the beginning of 1998 over 30 million people were infected with HIV, the virus that causes AIDS, and that 11.7 million people around the world had already lost their lives to the disease.

Unless a cure is found or life-prolonging therapy can be made more widely available, the majority of those now living with HIV will die within a decade.

These deaths will not be the last; there is worse to come. The virus continues to spread, causing nearly 16 000 new infections a day. During 1997 alone, that meant 5.8 million new HIV infections, despite the fact that more is known now than ever before about what works to prevent the spread of the epidemic.

It is possible that momentum for prevention will build up as the epidemic becomes more visible. Today, although one in every 100 adults in the most sexually active age bracket (15-49) is living with HIV, only a tiny fraction know about their infection. Because people can live for many years with HIV before showing any sign of illness, the virus can spread unobserved for a long time. In the face of other pressing concerns, it has been relatively easy in many parts of the world for political, religious and community leaders to overlook the significance of the epidemic. But AIDS cases, and AIDS deaths, are growing the world over, and there are few countries where it is still possible to be ignorant of the scale of the disease. Some 2.3 million people died of AIDS during the course of 1997. In roughly the same number again HIV infection developed into symptomatic AIDS. HIV has more than doubled the adult death rate in some places, and is the single biggest cause of adult death in many others (see page 43). Indeed HIV/AIDS is among the top ten killers world wide, and given current levels of HIV infection, it may soon move into the top five, overtaking such well-established causes of death as diarrhoeal diseases.

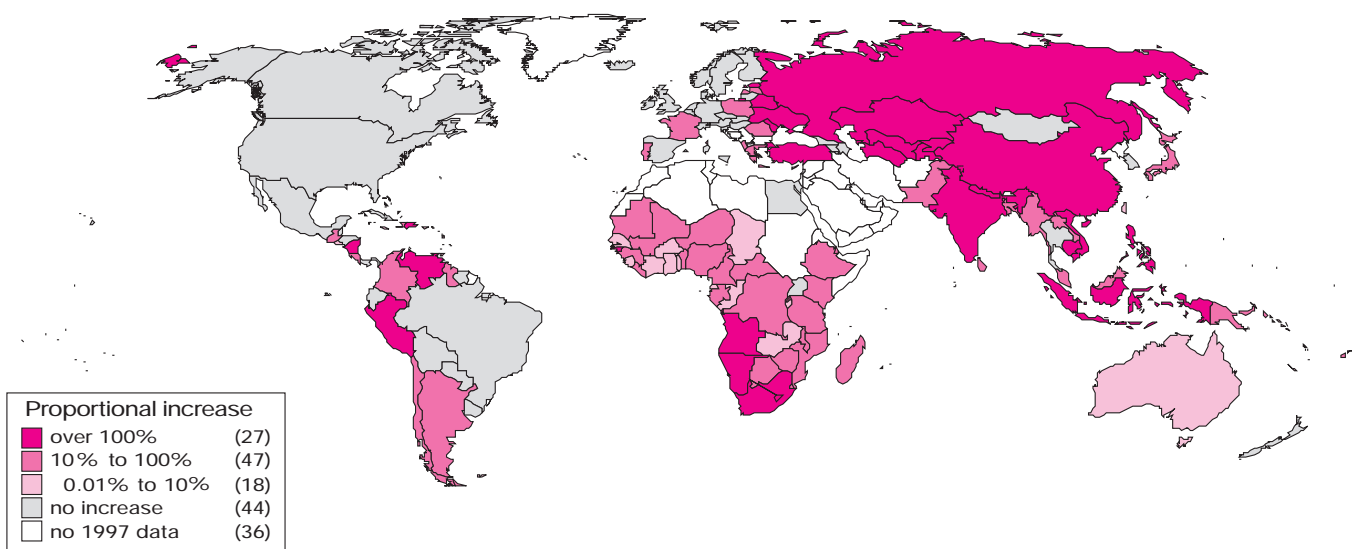
Nearly 600 000 children were infected with HIV in 1997, mostly through their mothers before or during birth or through breastfeeding. The number

of children under 15 who have lived or are living with HIV since the start of the epidemic in the late 1970s has reached around 3.8 million – 2.7 million of them have already died. However, recent developments in the understanding of mother-to-child transmission and in drug research hold out a promise of reducing the number of child infections, at least in populations where pregnant women can choose to be tested for HIV (see page 49).

As the fold-out map at the end of this report shows, HIV infections are concentrated in the developing world, mostly in countries least able to afford to care for infected people. In fact, 89% of people with HIV live in sub-Saharan Africa and the developing countries of Asia, which between them account for less than 10% of global Gross National Product.

The fold-out map reflects the progress of the epidemic so far. But it conceals important changes in patterns of spread. While in some countries HIV has remained at roughly the same low levels for a number of years, others, currently at similar absolute levels of prevalence, are experiencing a rapid spread of the virus. It is these countries that have the greatest potential to avert epidemic spread by acting quickly. Figure 1 shows the proportional increase in prevalence regardless of the absolute levels of infection.

Figure 1. Proportional increase in country HIV prevalence rates between 1994 and 1997



It is clear that infection rates are rising rapidly in much of Asia, Eastern Europe and southern Africa. The picture in Latin America is mixed, with prevalence in some countries rising rapidly. In other parts of Latin America and many industrialized countries, infection is falling or close to stable. This is also the case in Uganda, one of the earliest countries to record epidemic growth in HIV infection; in Thailand, where the rapid spread of HIV has been checked by active prevention programmes; and in some West African countries. Nevertheless, although the situation is improving among many groups, large numbers of new infections still occur every year in these countries.



Orphans

HIV has often caused huge increases in death rates among younger adults – just the age when people are forming families and having children (see page 44). This inevitably leads to an increase in orphans. In rural areas of East Africa, 4 of every 10 children who have lost one of their parents by age 15 have been orphaned by HIV/AIDS.

As shown in the tables annexed to this report (see page 64), from the beginning of the epidemic until the start of 1998, some 8.2 million children around the world had lost their mother to AIDS. Many of those had lost their fathers as well. In 1997 alone, around 1.6 million children were orphaned by HIV. Over 90% of those orphans live in sub-Saharan Africa.

Extended family structures have in many countries been able to absorb some of the stress of increasing orphanhood. However, urbanization and the migration of labour, often across borders, is eating away at those structures. As the number of orphans grows and the number of potential caregivers shrinks, traditional coping mechanisms stretch to breaking point. That point may be reached much more rapidly in countries such as Thailand, where the nuclear family is increasingly the norm, and in Cambodia, where decades of war and civil strife have already taken a heavy toll on family structures and social coping mechanisms. These two countries already have the highest proportion of AIDS orphans in Asia.

The evolving
picture region
by region



Sub-Saharan Africa: the epidemic shifts south

Over two-thirds of all the people now living with HIV in the world – nearly 21 million men, women and children – live in Africa south of the Sahara desert, and fully 83% of the world's AIDS deaths have been in this region. Since the very start of the epidemic, HIV in sub-Saharan Africa has mostly spread through sex between men and women. As shown in the annexed tables, this means that women are more heavily affected in Africa than in other regions, where the virus initially spread most quickly among men by male-to-male sex or drug injecting. Four out of five HIV-positive women in the world live in Africa.

An even higher proportion of the children living with HIV in the world are in Africa – an estimated 87%. There are a number of reasons for this. First, more women of childbearing age are HIV-infected in Africa than elsewhere. Secondly, African women have more children on average than those in other continents, so one infected woman may pass the virus on to a higher than average number of children. Thirdly, nearly all children in Africa are breastfed. Breastfeeding is thought to account for between a third and half of all HIV transmission from mother to child. Finally, new drugs which help reduce transmission from mother to child before and around childbirth are far less readily available in developing countries, including those in Africa, than in the industrialized world.

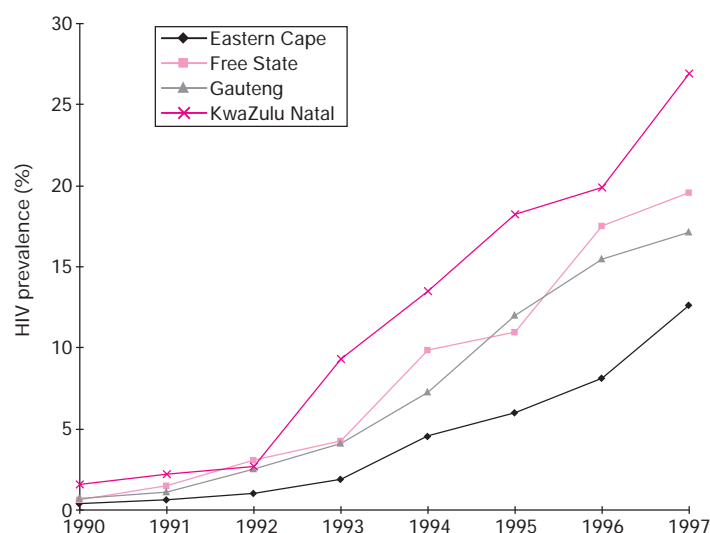
By the early 1980s, HIV was found in a geographic band stretching from West Africa across to the Indian Ocean. The countries north of the Sahara and those in the southern cone of the continent remained apparently untouched. By 1987, the epidemic became more concentrated in the original areas, and began gradually to colonize the south. A decade later, in 1997, HIV had been recorded all over the continent.

In general, West Africa has seen its rates of infection stabilize at much lower levels than East and southern Africa, as the tables in the annex show. However, some of the most populous countries in West Africa are exceptions to this rule. In Côte d'Ivoire, West Africa's third most populous nation, 1 adult in 10 is already believed to be living with HIV. Nigeria has an estimated adult prevalence of 4.1% – relatively low by the standards of the continent, but with 118 million inhabitants (a fifth of the population of sub-Saharan Africa) this translates into 2.2 million infections. And there is no evidence that infection levels have stabilized.

Clearly, if HIV prevalence in Nigeria were to approach the 20% rates all too commonly seen in southern African countries, the burden would be devastating.

Today, the most severe HIV epidemics in the world are to be found in the southern countries of Africa. The virus there is still spreading rapidly, despite already high levels of infection. Figure 2 illustrates the recent growth in infection rates in the general population in South Africa. High-prevalence and relatively low-prevalence areas show the same pattern – a sharp rise in just four years. Some 2.9 million South Africans are thought to be living with HIV at the beginning of 1998, over 700 000 of them infected in 1997 alone.

Figure 2. HIV prevalence among pregnant women, selected provinces, South Africa, 1990-1997



Source: *Department of Health, South Africa*

Other countries in southern Africa face even higher rates of infection. In Botswana, the proportion of the adult population living with HIV has doubled over the last five years, with 43% of pregnant women testing HIV-positive in 1997 in the major urban centre of Francistown. In Zimbabwe, one in four adults in 1997 were thought to be infected. In Harare, 32% of pregnant women were already infected in 1995. In Beit Bridge, a major commercial farming centre, HIV prevalence in pregnant women shot up from 32% in 1995 to 59% in 1996. Although infection levels in Zimbabwe's cities were slightly higher than in rural areas, the difference was not great. In one town near the South African border with a large population of migrant workers, 7 out of 10 women attending antenatal clinics tested HIV-positive in 1995.

The first country in Africa to respond actively to a massive national HIV/AIDS burden was Uganda. The government engaged religious and traditional leaders and other sectors of society in a vigorous debate that helped forge consensus around the need to attack the problem of HIV. Active prevention programmes, focused on delaying sexual relations and negotiating safe behaviour, were brought into schools. Community groups were set up to counsel people and families living with the virus. The efforts of the government and people of Uganda seem to be paying off. At both rural and urban surveillance sites infection rates are falling. The improvement has been particularly marked in the younger age groups. This is in line with behaviour studies showing that young people nowadays are adopting safer sexual behaviour – later sexual initiation, fewer partners, more condom use – than was common a decade ago. First signs of falling infection rates in young people are also being seen in neighbouring Tanzania, in areas with active prevention programmes. In women aged 15-24 in the urban area of Bukoba, prevalence fell from 28% in 1987 to 11% in 1993. In the surrounding rural area, prevalence among women in the same age group fell from almost 10% in 1987 to 3% in 1996.



Asia: low infection rates but rapid spread

HIV was a latecomer to Asia, but its spread has been swift. Until the late 1980s, no country in Asia experienced a major epidemic – the continent appeared practically immune. By 1992, however, a number of countries, led by Thailand, were facing increasing numbers of infections. These were generally concentrated in groups such as drug injectors and sex workers whose behaviour was known to put them at risk. Although no Asian country has reached anything like the prevalence levels common in sub-Saharan Africa, HIV was by 1997 well established across the continent. The countries of South-East Asia, with the exception of Indonesia, the Philippines and Laos, are comparatively hard hit, as is India. While prevalence remains low in China, that country too has been recording an increasing number of cases.

Only a few countries in the region have developed sophisticated systems for monitoring the spread of the virus, so HIV estimates in Asia often have to be made on the basis of less information than in other regions. Because over half of the world's population lives in the region, small differences in rates can make a huge difference in the absolute numbers of people infected.

The Government of China estimated that at the end of 1996 up to 200 000

people were living with HIV/AIDS. It is now estimated that this figure had doubled by the beginning of 1998. At present, there are two major epidemics under way in China. One is among injecting drug users in the mountainous southwest of the country. The other, newer epidemic is now surfacing among heterosexuals, especially along the prosperous eastern seaboard where prostitution is re-emerging as the gap grows between rich and poor. The warning signs of high-risk behaviour are worryingly clear: sexually transmitted diseases (STDs) have shot up in recent years, and there are no suggestions that the upward trend will be broken.

In India, HIV infection rates, at under 1% of the total adult population, are still low by the standards of many countries, although well over 10 times higher than in neighbouring China. Surveillance is patchy, but it is now estimated that about 4 million people in India are living with HIV. That makes India the country with the largest number of HIV-infected people in the world. Recent testing of pregnant women in Pondicherry shows infection rates of around 4%. Among truck drivers in the southern state of Madras, HIV prevalence quadrupled from 1.5% in 1995 to 6.2% just one year later. In the northeastern state of Manipur, where the epidemic took off quickly among male drug injectors, some drug clinics were registering HIV rates as high as 73% in 1996.

There is limited information about HIV infection in other parts of South Asia, but it is clear that many people are having unprotected sex with non-monogamous partners. A recent study among sex workers in Bangladesh showed that 95% had contracted genital herpes, mostly from their clients, while 60% had syphilis.

Rates of HIV infection remain low in several South and South-East Asian nations. In Bangladesh, Indonesia, Laos, Pakistan, the Philippines and Sri Lanka, infection has not reached 1 adult in 1000 yet. However, other countries in the region – including Cambodia, Myanmar, Thailand and Viet Nam – show much higher levels of HIV. The reasons for these differences are not entirely clear. Nor is there any assurance that prevalence will remain low in those areas that have seen only a modest spread so far, given the widespread occurrence of risk behaviour including commercial sex and, in some places, drug injecting.

Thailand, which has experienced what is probably the best-documented epidemic in the developing world, has shown evidence of a fall in new infections, especially among sex workers and their clients (see page 29). So far, the majority of the almost 800 000 people living with HIV and AIDS in Thailand – some 2.3% of the adult population – fall into these two groups, or are drug injectors. The decrease in new infections is the outcome of sustained prevention efforts aimed at increasing condom use among hetero-

sexuals, discouraging men from visiting sex workers, and offering young women better educational and other prospects to discourage their entry into commercial sex. HIV still appears to be spreading in other groups whose behaviour puts them at risk of infection but who have received less attention in prevention campaigns. HIV rates among Thailand's injecting drug users have stabilized at a relatively high level (around 40%), and a survey among men who have sex with other men in northern Thailand reported low AIDS-awareness and infrequent condom use.

Elsewhere in South-East Asia the picture is mixed. It is bleakest in Cambodia, where 1 in 30 pregnant women, 1 in 16 soldiers and policemen and nearly 1 in 2 sex workers tested positive in sentinel HIV surveillance. While condom use has grown very rapidly (condom sales have risen from virtually nothing to around a million units a month in under three years), commercial sex remains very common: in a recent survey three-quarters of respondents in the military and the police force and two-fifths of male students said they had visited a sex worker in the last year. Viet Nam and Myanmar are also seeing a rapid spread of HIV. In Myanmar, HIV infection among sex workers rose from 4% in 1992 to over 20% in 1996, while close to two-thirds of injecting drug users are infected. Among pregnant women in six urban areas, an estimated 2.2% are infected.

Overall, as shown in the annexed tables, about 6.4 million people are currently believed to be living with HIV in Asia and the Pacific – just over 1 in 5 of the world's total. By the end of the year 2000, that proportion is expected to grow to 1 in 4. Around 94 000 children in Asia now live with HIV.



Latin America and the Caribbean: most infections are in marginalized groups

In Latin America the picture is fragmented, although nearly every country in the continent now reports HIV infections. The pattern of HIV spread in Latin America is much the same as that in industrialized countries. Men who have unprotected sex with other men and drug injectors who share needles are the focal points of HIV infection in many countries in the region. Studies in Mexico suggest that up to 30% of men who have sex with men may be living with HIV. Between 3% and 11% of drug injectors in Mexico are HIV-infected, and in Argentina and Brazil the proportion may be close to half of all injectors.

Rising rates in women nevertheless show that heterosexual transmission is becoming more prominent. In Brazil in 1986, 1 AIDS case in 17

was a woman. Now the figure for AIDS is one in four, and a quarter of the 550 000 adults currently living with HIV in Brazil are women. In the region as a whole the proportion is around one-fifth.

In some places there is clear evidence of increasing infection among poorer and less educated members of the population. For example, in Brazil most of the early AIDS cases were in people with secondary or university education; today 60% of people living with AIDS never studied beyond primary school.

Some 1.3 million people are believed to be living with HIV in Latin America and the Caribbean. HIV prevalence is estimated at under 1 adult in 100 in all but a handful of the region's 44 countries and territories.

Systematic surveillance is limited. Because contraceptive use is far higher in Latin America than in Africa or Asia – and a smaller proportion of sexually active women therefore become pregnant – HIV prevalence among pregnant women is likely to be less representative of rates among all sexually active women than in other parts of the developing world. That said, they are still among the best indicators of HIV in the general population. HIV has reached levels of 1% among pregnant women in Honduras and more than 3% in Porto Alegre, Brazil. Rates are substantially higher in the Caribbean. By 1993, 8% of pregnant women in Haiti were infected with the virus, and the same prevalence was reported from one surveillance site in the Dominican Republic in 1996.

Several countries in Latin America are attempting to ensure care for people living with HIV and AIDS, including providing life-prolonging antiretroviral drugs. Access to care, although better than in other areas of the developing world, remains patchy overall.



Eastern Europe: drug injection drives HIV

Until the mid-1990s, most of the countries of Eastern Europe appeared to have been spared the worst of the HIV epidemic. Mass screening of blood samples from people whose behaviour put them at risk of HIV showed extremely low levels of infection, right up to 1994. The whole of Eastern Europe put together had around 30 000 infections among its 450 million people at the start of 1995. At that time, Western Europe had over 15 times as many cases, while in sub-Saharan Africa over 400 times as many people were living with the virus. But in the last few years, the former socialist economies of Eastern Europe and Central

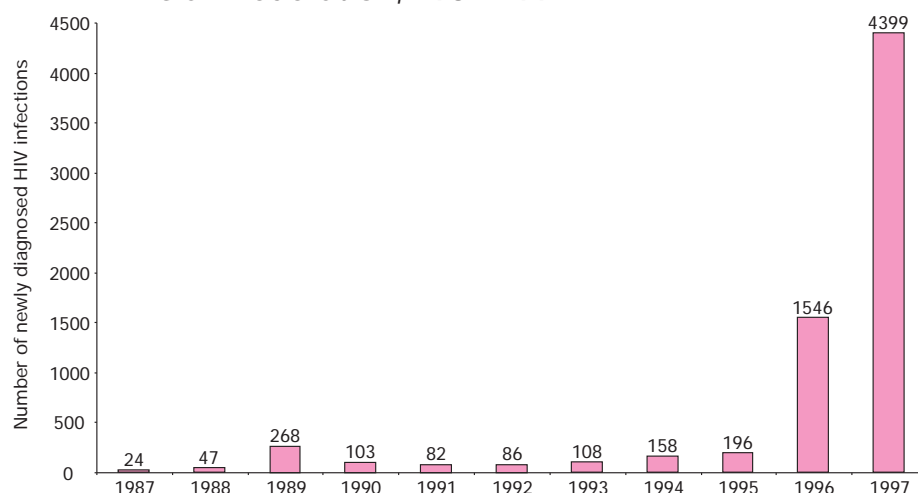
Asia have seen infections increase around six-fold. By the end of 1997, some 190 000 adults in the region were living with HIV infection.

The pattern of consistently low prevalence began to change in 1995 in several of the countries of the former Soviet Union. Belarus, Moldova, the Russian Federation and Ukraine have all registered astronomical growth in HIV infection rates over the last three years, most related to unsafe drug injecting. Now there may be nearly four times as many infections in Ukraine alone as there were in the whole Eastern European region just three years ago.

Ukraine is the worst affected country in the region. Confirmed HIV cases are rising astronomically. Only 44 people tested positive for HIV in Ukraine in 1994, roughly the same number as in 1992 and 1993. But the number of diagnoses shot up over 30-fold in 1995, and in 1996 exploded to over 12 000. In 1997, another 15 000 new infections were identified. These numbers are just the tested cases – the tip of the iceberg. The true number of infections in 1994 was probably around 1500. Now, just four years later, over 70 times that many people – some 110 000 – are estimated to be infected.

A similar pattern appears in the Russian Federation, where 158 people tested positive for HIV in 1994. Many infected men at that time reported contracting the infection from sex with other men, and only two cases were reported among injecting drug users. By the end of last year, the epidemic had taken off in the Russian Federation, as Figure 3 illustrates. Nearly 4400 people tested positive for HIV in 1997, almost three times as many as the previous year.

Figure 3. Number of newly diagnosed HIV infections, Russian Federation, 1987-1997



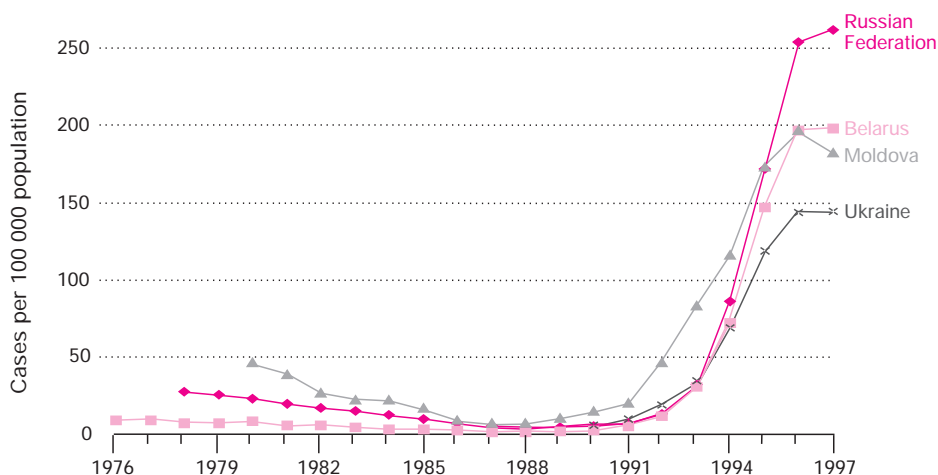
Source: *Russian AIDS Centre*

The bulk of the spread has been in injecting drug users (see page 34-36). Four of every five newly diagnosed infections are in this group. Again, the true number of infections is far higher than these figures suggest. It is estimated that in the Russian Federation there are around six people living with HIV for every one person who has actually tested HIV-positive. That means around 40 000 people may currently be living with HIV.

The sex partners of injecting drug users may provide a conduit for the virus into the general population. In some areas of Eastern Europe, there seems to be a strong overlap between drug injectors and sex workers, who will also have clients from outside the drug-injecting community. Out of a small sample of 103 sex workers arrested on the streets of the Russian city of Kaliningrad, for instance, a third were known to be injecting drug users living with HIV. The city reported that four out of every five women treated for HIV-related illness at the regional AIDS centre make a living out of sex.

There is no doubt that the warning signs for a widespread sexually-transmitted epidemic of HIV exist in many areas of Eastern Europe. Although levels of HIV infection in the general population remain very low, the testing of pregnant women, blood donors and others suggests that the virus is becoming increasingly common in society as a whole. And there has been a dramatic increase in other sexually transmitted diseases, especially syphilis, illustrated in Figure 4. From negligible annual rates of around 10 cases per 100 000 people in the late 1980s, new syphilis infections have shot up into the hundreds. The Russian Federation, which had an annual rate in the single figures in 1987, recorded over 260 cases per 100 000 population a decade later.

Figure 4. Reported annual incidence of syphilis in Belarus, Russia, Moldova and Ukraine, 1976-1997



Source: WHO Regional Office for Europe

The rise in new cases of sexually transmitted diseases may reflect a dramatic increase in unprotected sex, a breakdown of STD treatment services, or both. Whatever the reason, it indicates that the risk of HIV spreading rapidly throughout the general population in Eastern Europe is very real.



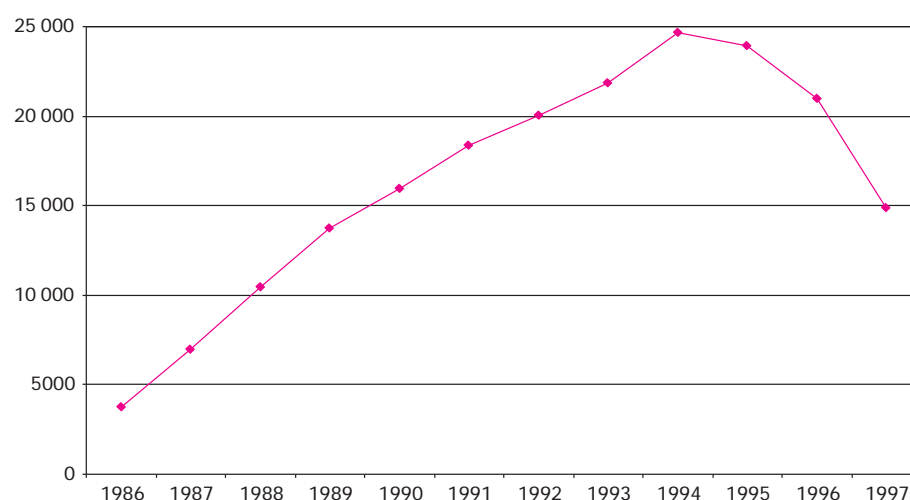
The industrialized world: AIDS is falling

In general, HIV infection rates appear to be dropping in Western Europe, with new infections concentrated among drug injectors in the southern countries of the continent, particularly Greece and Portugal. It is estimated that 30 000 Western Europeans were newly infected with HIV in 1997. Antiretroviral drugs given to women during pregnancy and the availability of safe alternatives to breastfeeding (see page 49) kept mother-to-child transmission low; it is estimated that fewer than 500 children under the age of 15 were infected with HIV in 1997.

North America estimated it had around 44 000 new HIV infections in 1997, close to half of them among injecting drug users. As in Western Europe, transmission from mother to child was rare, with fewer than 500 new cases.

Generally, industrialized countries concentrate on following AIDS cases rather than tracking HIV. And as HIV infections continue to rise in the developing world, AIDS cases in many industrialized countries are falling, as Figure 5, with data from Western Europe, indicates.

Figure 5. Number of new AIDS cases, Western Europe, 1986-1997



Source: *European Centre for the Epidemiological Monitoring of AIDS (CESES), France*

In Western Europe, new AIDS cases (corrected for delays in reporting) fell from 23 954 in 1995 to 14 874 in 1997 – a 38% drop. The fall in AIDS cases is due in part to prevention measures taken since the late 1980s by gay communities, and to a sustained rise in the proportion of young people using condoms, which led to a drop in the number of people infected with HIV. Because of the long lag time between HIV infection and symptomatic AIDS, the behaviour change of the late 1980s is only now being reflected in fewer new cases of AIDS. But the downturn is probably due most of all to new antiretroviral drug therapies which postpone the development of AIDS and prolong the life of people living with HIV (see page 46).

In the United States, AIDS case reports indicate that the first-ever annual decrease in new cases – 6% – occurred in 1996, and an even larger reduction was expected in 1997. The biggest improvement – a drop of 11% – was in homosexual men. In some disadvantaged sections of society, however, AIDS continues to rise. Among African-Americans, new AIDS cases rose by 19% among heterosexual men and 12% among heterosexual women in 1996. In the Hispanic community, there were 13% more cases among men and 5% more among women than a year earlier. This is partly because these communities may find it hard to access the expensive new drugs that could stave off the onset of AIDS. It is partly, too, because prevention efforts in minority communities, where transmission is often through heterosexual intercourse and drug injecting, have been less successful than in the predominantly well-educated and well-organized gay community.



North Africa and the Middle East: the great unknown

Less is known about HIV infection rates in North Africa or the Middle East than in other parts of the world. Some countries, particularly those with large populations of immigrant workers, carry out mass screening for the virus, but none estimates infections at more than 1 adult in 100. Just over 200 000 people are estimated to be living with HIV in these countries, under 1% of the world total.

Risk behaviour does, however, exist. At least one country in the region has started a programme to reduce risky drug-injecting practices. The generally conservative social and political attitudes in the Middle East and North Africa often make it difficult for governments to address risk behaviour directly. However, in some countries in the region, governments have created elbow room for community and nongovernmental organizations to help sex workers and others whose behaviour puts them at risk to protect themselves from HIV.

Understanding the epidemic



No simple explanations

Since HIV first began its march across the globe, people have been trying to explain why some countries are more affected than others. Because most of the worst-hit countries are among the world's poorest, for instance, there has been a temptation to say "AIDS is a disease of poverty". Because many of the populations most affected are also among the world's least educated, there has been a temptation to say "AIDS is a disease of ignorance".

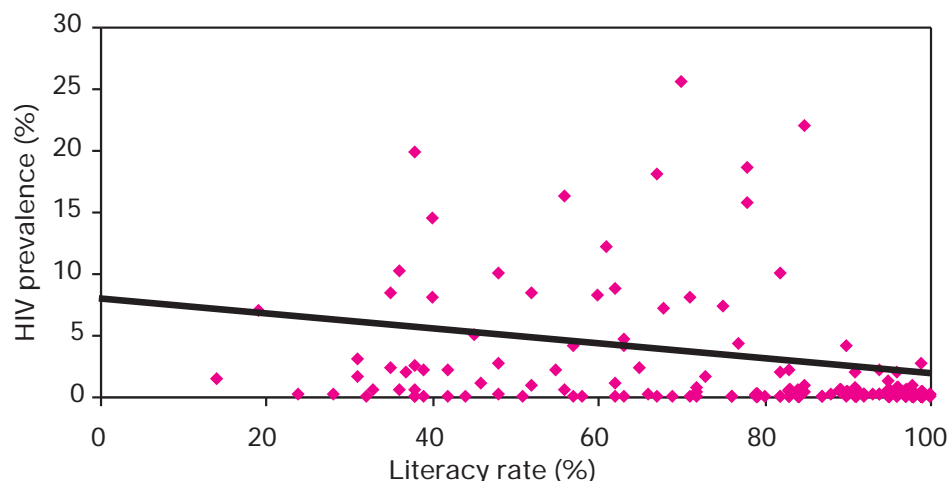
Globally, it is certainly the poorer and less educated who are feeling the brunt of the HIV epidemic. But the epidemic has spread in different ways and through different groups of people in different parts of the world. Neighbouring countries often have very different epidemics. And even within a single nation, HIV can strike different populations or different geographic areas in dissimilar ways, ways that may change over the course of time.

An analysis of the relationship between education and HIV illustrates the pitfalls of drawing deceptively simple conclusions about the determinants of the epidemic. Relationships that seem clear at a global level can look very different at a regional level, and even more complex over time in a single setting.

It is reasonable to assume that better-educated people have better access to information about HIV, how it is transmitted, and how it can be avoided. On top of that, better-educated people are more likely to have better-paid jobs, and can afford the sorts of goods and services that allow them to act on their AIDS knowledge. If we take overall levels of literacy as an indication of educational levels in a country, we might, then, expect to find that countries with high levels of literacy have low levels of HIV. And indeed, if we compare literacy and HIV for the 161 countries in the world for which there are data on both HIV and literacy, a statistically significant pattern of just this kind emerges (see Figure 6).

But if we look just at the region of the world worst affected by HIV, sub-Saharan Africa, a very different picture emerges. In the 44 countries of the region for which figures exist, the analysis also reveals a relationship between HIV and literacy. But the direction of the relationship is now reversed. In this region, as Figure 7 shows, the countries with the highest levels of HIV infection are also those whose men and women are most literate.

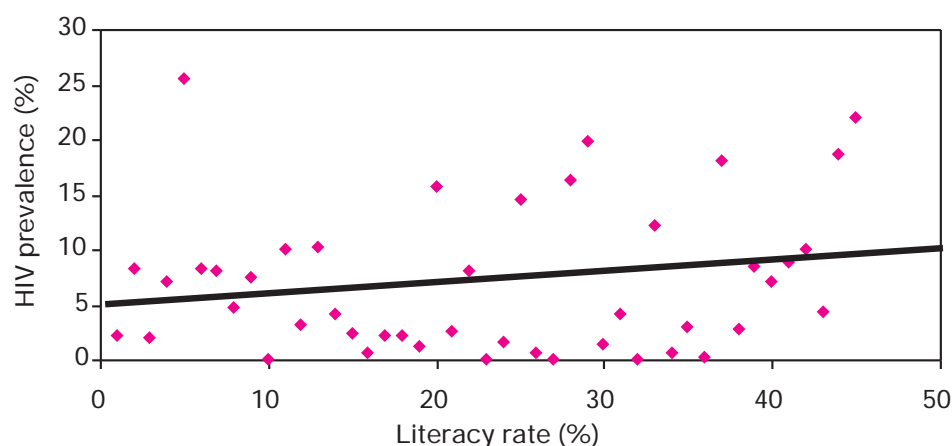
Figure 6. Relationship between HIV and literacy, all countries



In this region as in all others, more-educated people are likely to be better informed about the dangers of HIV and have more disposable income than the illiterate. So why do the figures suggest they are also more likely to be HIV-infected? There are several possible explanations. It may be that social changes that accompany more schooling are also associated with behaviour that increases the risk of HIV infection. This may be especially the case for women, who without education may have very much less social mobility and be exposed to a much narrower spectrum of social and sexual relationships, for instance.

Another plausible explanation may be that educated people with higher earning power use their disposable income to support behaviours that put them at risk of infection. While a rich man is more able to afford

Figure 7. Relationship between HIV and literacy, sub-Saharan Africa



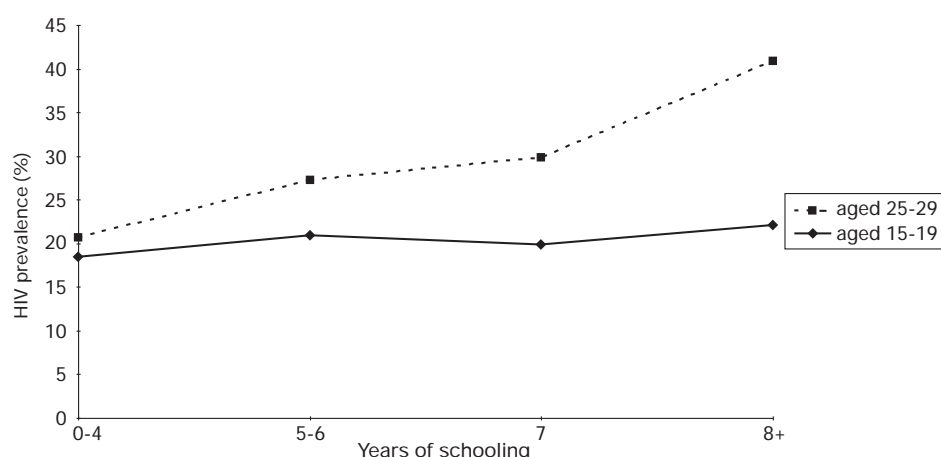
a condom than a poor man, he is also more able to afford to invite a potential partner to a night-club, to support a number of wives or to visit sex workers. And where men tend to have at least some partners of a similar social and educational standing as themselves, higher HIV rates among educated men will translate into higher HIV prevalence among educated women. So during the early stages of the epidemic, when information about the dangers of unprotected sex is scarce, literacy may actually prove more of a liability than a protection.

This is not for a moment to suggest that cutting back on education would help reduce HIV transmission. In fact, if we break down the figures by age, we see a very different pattern. Studies among large numbers of pregnant women in various urban centres in Zambia show that in general, urban women with more years of schooling are more likely to be HIV-infected than their peers with little or no schooling. But if we look at individual age groups, we see that the pattern is far more pronounced among older women than among younger women. As shown in Figure 8, the most-educated women in their late 20s were twice as likely as the least-educated to be HIV-infected. But among women 10 years their junior, the difference had all but disappeared.

Why the change over time? Older women are more likely to have been infected in the earlier years of the epidemic, when little information about HIV was available. And where there is no information about HIV, more schooling makes little difference. By the time the youngest age group became sexually active, however, much more information was available. It is of course possible that in the younger age groups, extra education has not yet conferred the economic advantages that give people the means to engage in more risky behaviour. But the data illustrated in Figure 8 confirm the more general pattern seen in other countries of greater self-protection in younger age groups (see also Figures 13 and 14).

The more we learn about the way HIV moves through communities, the more we understand that the relationship between HIV and other social and economic phenomena is rarely simple. Analyses that draw universal conclusions about relationships seen at the global level may be useful in pointing to general factors – such as education, economic growth or equality between men and women – which greatly influence the spread of HIV. But it should be borne in mind that global analyses may mask the important differences between regions, countries or communities which are at the core of this diverse epidemic.

Figure 8. HIV rates in pregnant women, by age and years of schooling, Zambia, 1994



Source: Fylkesnes K *et al. AIDS* 1997, 11: 339-345



Understanding behaviour

Clearly, the HIV epidemic progresses differently in different situations. It is driven by individual behaviours which put people at risk of infection. These behaviours may in turn be driven by poverty, by unequal relationships between men and women or between old and young people, or by cultural and religious norms that leave people little control over their exposure to the virus. The social, economic and cultural situations that create this kind of vulnerability to HIV infection have not been adequately studied or explained. Perhaps more surprisingly, there is still virtually no information in many countries on the basic sexual and drug-taking behaviours and patterns of sexual networking that determine how the virus spreads through a population.

Many countries have set up surveillance systems to track the spread of HIV through their populations – systems that have largely been pioneered by the countries of sub-Saharan Africa. But far fewer have collected any information on the sexual and drug-taking behaviours that are central to the spread of HIV. Since these behaviours precede infection, information about them can act as an early warning system. Such behavioural data can indicate how exposed a community may be to HIV. The information can identify groups who are especially vulnerable, and can pinpoint particular risk behaviours which threaten to drive the spread of the virus. When collected over time, it can also indicate trends in risk behaviour and vulnerability, validating existing prevention

approaches or suggesting what changes need to be made for greater impact.

Behavioural data can be especially crucial in the early stages of the epidemic, when the virus may be spreading largely among people with well-defined behaviours such as drug injecting or commercial sex. Only behavioural information can identify the links between such people and others in the general population, links which may, if identified early enough, suggest practical ways of preventing general epidemic spread.



Better tracking of the epidemic

Better behavioural surveillance is an important component of the tracking of the epidemic. It contributes to predicting trends, to planning for change and to recording success or failure. But it will always make its greatest contribution when it is used in conjunction with better monitoring of the spread of the virus itself.

The surveillance systems currently in use have in some cases failed to keep up with the needs and the development of the HIV epidemic. This is partly because of the peculiar nature of HIV infection, which on average takes many years to develop into a symptomatic disease, but which can kill people at any time from a few years after infection to more than a decade later. This means that the percentage of the population alive with HIV at a given time – the prevalence rate – reflects both newly infected individuals and those who became infected at any time over the past decade or more.

Behavioural data can help to explain this kind of serosurveillance data, as the information presented on pages 27-29 illustrates. But the fact remains that such prevalence rates are difficult to interpret and are slow to reflect changes in the pattern of new infections. In the early stages of the epidemic, when infections in all age groups are growing simultaneously and few HIV-infected people have yet died, all-age prevalence information is helpful in tracking the epidemic. But as the epidemic matures, and the number of people entering the HIV-infected population (by acquiring the virus) is increasingly balanced by the number leaving it (through AIDS deaths), all-age prevalence becomes less useful.

Because of these inherent difficulties, it is useful especially when tracking mature epidemics to make changes in the way serosurveillance data are collected. For example, concentrating resources on better surveillance of teenagers and people in their early 20s, who if seropositive are

likely to have become infected only recently, can give a better picture of HIV incidence trends. In addition, instead of spreading precious resources very thinly – for instance, by regularly testing anonymous blood samples from all pregnant women even when infection in the general population is barely detectable – countries may find it more useful to focus on tracking the virus in groups with greater risk or vulnerability to HIV. The type of surveillance necessary will of course be dictated by the general pattern of infection in a country. Behavioural data will help identify these groups, signal possible changes in them, and pinpoint potential bridges between these and other parts of the population.

Prevention works

For many years, HIV was a silent epidemic. Even when millions of people were infected with the virus, very few showed outward signs of illness. But now, as the epidemic matures in many parts of the world, its effects have become more visible. People are developing the illnesses associated with AIDS in ever-greater numbers. Because of this, communities are becoming increasingly concerned about caring for people who are affected by illness. But as the horrifying consequences of the epidemic become more visible, there is also increased momentum for preventing its further spread.

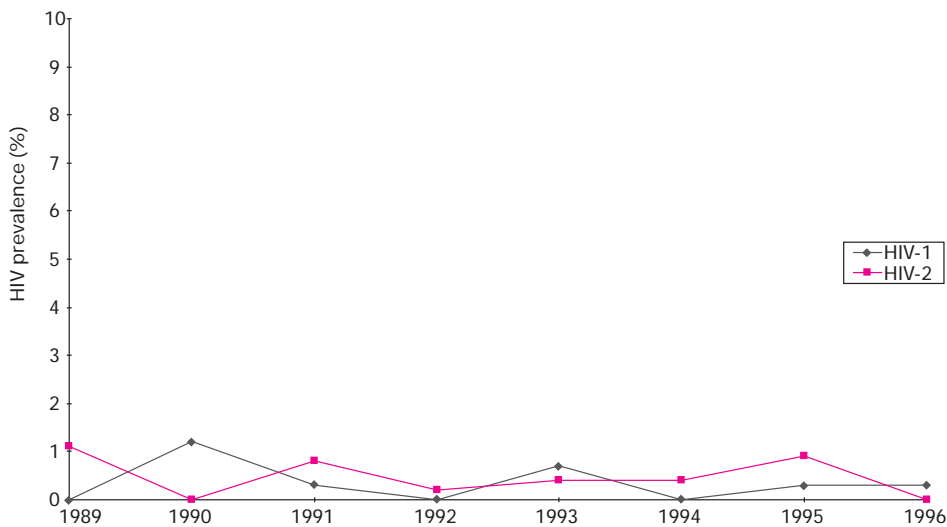
Even in places where the epidemic is less visible, well-designed and carefully-focused prevention campaigns have managed to arrest or reverse HIV trends. The best prevention campaigns work simultaneously on many levels – increasing knowledge of HIV and how to avoid it; creating an environment where safer sexual or drug-taking behaviours can be discussed and acted upon; providing services such as HIV testing, treatment for other sexually transmitted diseases (which if left untreated greatly magnify the risk of HIV transmission) and access to cheap condoms and clean injection equipment; and helping people to acquire the skills they need to protect themselves and their partners. Structural changes can help, too, by empowering people and reducing their vulnerability. Changes in laws, employment practices and even economic policy can create an environment in which people can more easily reduce or control their exposure to HIV, although it is hard to demonstrate a direct link between such changes and HIV infection levels.

Programmes to prevent the spread of HIV work best as a package, with each initiative reinforcing the others. It is almost impossible, therefore, to attribute changing behaviour or low or falling rates of infection with HIV and other STDs to a single element of a prevention campaign. Careful monitoring of both HIV prevalence and the behaviours that lead to its spread can, however, indicate whether such campaigns are having a collective impact.

And indeed all the evidence shows that prevention does work. In the West African country of Senegal, for instance, the response to the threat of HIV was swift, well-planned and far-reaching. Political leaders took the initiative early on, openly discussing the dangers posed by HIV to Senegal and seeking the support of religious and other community groups in prevention activities. Sex education was integrated into primary and secondary school curricula. Treatment for sexually

transmitted diseases was made widely available. The use of condoms was actively and universally promoted. The net effect of this early action has been to keep HIV prevalence consistently low. While HIV rose rapidly in some other urban sites in West Africa, in the Senegalese capital of Dakar the infection rate appears to have stayed below 2%, as Figure 9 shows.

Figure 9. HIV prevalence among pregnant women, Dakar, Senegal, 1989-1996



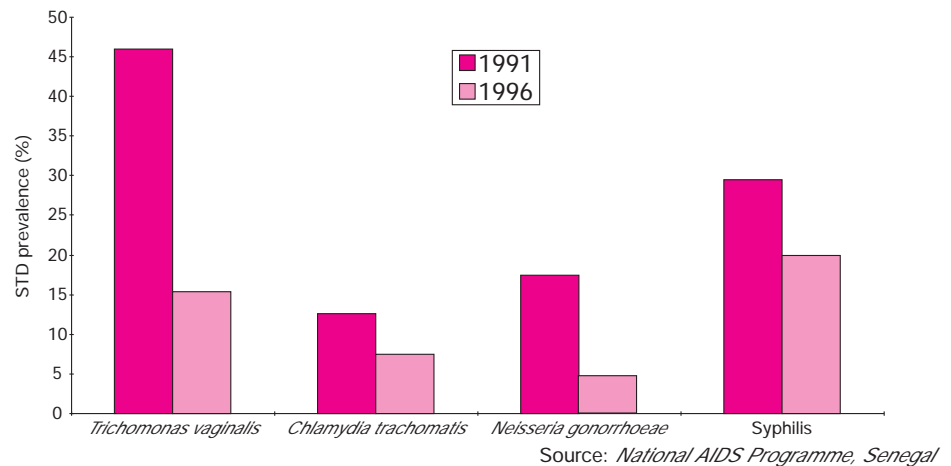
Source: *National AIDS Programme, Senegal*

Behavioural surveys showed that this consistently low rate of HIV infection is not the result of an abstemious society – 43% of men between 15 and 24 said they had casual sex partners in the last 12 months, as did 15% of women the same age. Rather, it reflects high levels of condom use. In those same groups, over 60% of men and 40% of women reported they had used a condom with their most recent casual partner. This is slightly lower than the rate reported in a recent study in urban Uganda, but it compares with 15% of men in Mexico and 21% in Zimbabwe, for example.

So according to their own reports, young people in Senegal are not having less sex, they are just having safer sex. But perhaps they are just reporting high condom use because they know it is what is expected? Condom distribution figures would suggest otherwise – distribution rose from 800 000 in 1988 to over 7 million in 1997. Greater condom use would be expected to have a rapid impact on sexually transmitted diseases other than HIV (the impact on HIV transmission takes longer to see because HIV prevalence rates continue to reflect infections that are

up to a decade old). Figure 10 reflects just such a fall in STDs among registered sex workers in Dakar.

Figure 10. Prevalence of sexually transmitted diseases among sex workers, Dakar, Senegal, 1991 and 1996



Senegal, by acting rapidly and comprehensively, was able to contain HIV from the start. A note of caution is in order, however: very recent evidence suggests that risk behaviour among sex workers may be growing. There is no room for complacency in the face of HIV. Prevention efforts must be sustained over the long term to be successful.

Can prevention work once the epidemic is already in a phase of rapid growth? Evidence from Thailand suggests it can. HIV came to Thailand later than to many African nations, but when it did arrive it started spreading with dramatic speed. In 1988, infection rates among drug injectors in Bangkok leapt from nothing to 30% in six months. The Ministry of Public Health quickly implemented a national system of sentinel HIV serosurveillance. This system revealed dramatic growth of HIV among sex workers too, especially in the relatively poor north of the country. By 1989, 44% of sex workers in the northern city of Chiang Mai were infected.

Alarmed, Thai authorities carried out a national survey of sexual behaviour and found that a high proportion of men had sex outside marriage, mostly with sex workers. The results of this survey were widely publicized; government officials and the general public were made aware that Thailand might well be headed for a major AIDS epidemic. Although prostitution is technically illegal in Thailand, the state worked to set up partnerships with brothel owners to address the problem. With government support, brothel owners and sex workers began to enforce a policy

of 100% condom use in brothels, hoping to reduce transmission in what the evidence suggested was a focal point for infection in Thailand. In parallel, mass media campaigns encouraged respect for women and discouraged men from commercial sex, while young women were offered better educational and vocational opportunities to keep them out of the sex industry.

Energetic information and prevention campaigns combined with the 100% condom policy seem to have had an effect both on risk behaviour and on the spread of the virus. Every year, 21-year-old men from across Thailand are conscripted by ballot into the military. In recent years they have been tested anonymously for HIV and have participated in surveys of sexual and other risk behaviours. The changing behaviour reported by successive groups of young men in recent years suggests that prevention campaigns are working, at least in this highly sexually active age group. As Figure 11 shows, by 1995 fewer young men were visiting brothels and far more of them were using condoms with sex workers than was the case four years earlier. These changes in behaviour were reflected in a steep drop in sexually transmitted diseases. HIV infection has dropped less radically. Since Thai men become sexually active at around age 18 on average, HIV infection may reflect sexual risk behaviour three or more years before the survey. A drop in HIV prevalence can therefore be expected to lag behind falling levels of risk behaviour by some years.

Figure 11. Sexual behaviour, STDs and HIV in 21-year-old men, northern Thailand, 1991-1995



Source: Nelson et al. *New England Journal of Medicine*, 1996; 335:297-303

In both Thailand and Senegal, massive information and prevention campaigns for the general population have helped to control the transmission of HIV. Elsewhere, prevention campaigns that focus on changing behaviours among communities whose behaviours make them particularly prone to contracting or transmitting HIV infection have also been shown to work.

In Nepal, for instance, a vigorous campaign to inform truck drivers and sex workers of the risk of unprotected sex, plus the provision of condoms at convenient points along truck routes, successfully cut the risk behaviour of sex workers and of the transport workers who made up the bulk of their clientele. In areas where the prevention campaign was initiated, condom use by sex workers and their clients nearly doubled to 61% between 1994 and 1996. Among sex workers in areas where there was no prevention campaign, condom use actually fell over the same period.

In many industrialized countries, prevention activities among men who have sex with other men have proven similarly successful. One study of homosexual and bisexual men in the British capital London recorded that by the mid-1990s, nearly 9 men in 10 used a condom the first time they had anal sex with another man. This compared with fewer than 1 in 10 a decade earlier.

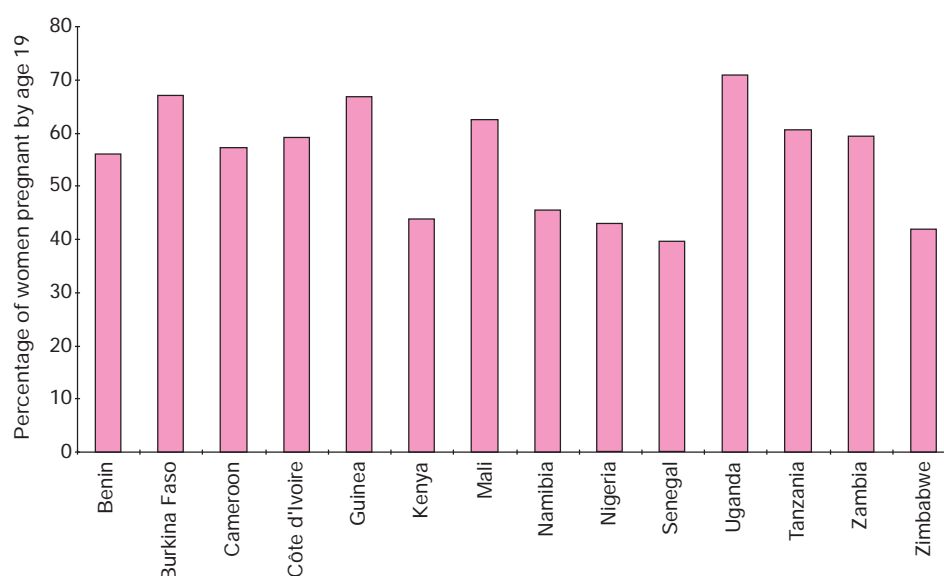
In Switzerland, men and women have not reduced their number of sex partners in response to HIV. But a high-profile campaign called "Stop SIDA" has helped persuade people to have safer sex. People have radically increased their use of condoms, and this is especially true in the younger age groups. Among people under 30, consistent condom use with casual partners rose from 8% before the start of the campaign in 1987 to 56% by the mid-1990s. Younger people have also postponed their sexual debut.

Preventing sexual transmission of HIV among young people

In countries where HIV prevalence is high, young people become vulnerable to the sexual transmission of HIV as soon as they start having sex, because the pool of potential partners is often already heavily infected. This is true both of young men – who in many countries tend to have their first sexual experience with sex workers – and of young women, who tend to have sex with men older than themselves. As the epidemic matures, therefore, there is likely to be a downward shift in the age pattern of new infections, at least until significantly safer behaviours become the norm in the youngest age groups.

It is clear, then, that making information and services available to young people is increasingly important to arresting the spread of the virus. Although adults in authority sometimes have difficulty admitting the fact, there is no shortage of evidence that teenagers are a highly sexually active group. In one community-based study in Lusaka, Zambia, 6% of 15- and 16-year-olds were already infected with HIV. Figure 12 shows the percentage of women who are pregnant or who have had their first child by the age of 19 in a number of countries where fertility surveys have been carried out.

Figure 12. Percentage of women pregnant or mothers by the end of their teens, 1990-1996



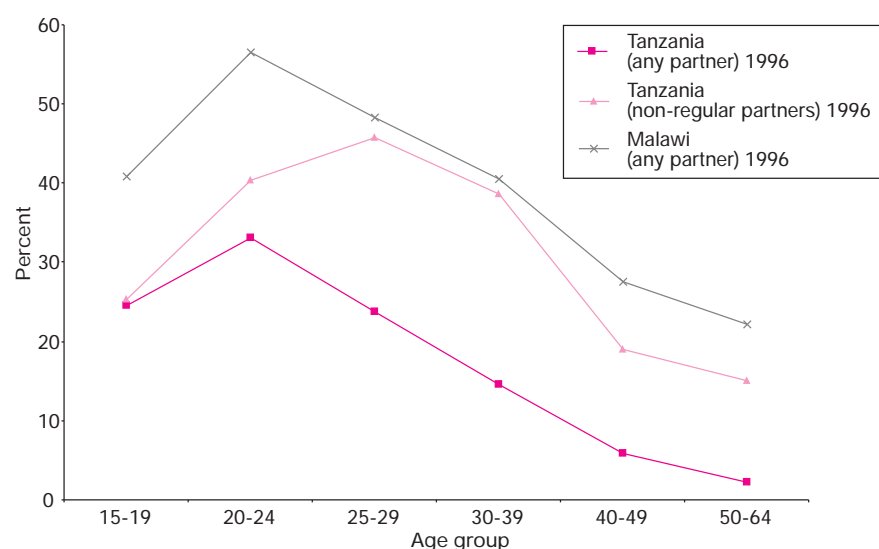
Source: *Demographic and Health Surveys, various countries*

These young women have all had unprotected intercourse and may therefore have been exposed to the risk of HIV infection. And yet they may not know about the risks, may lack the necessary skills for protection, or may find it difficult to access the services they need to protect themselves from pregnancy, STDs and HIV.

The good news is that where information, skills training, and services are made available to young people, they are often more likely to make use of them than their elders. Figures 13 and 14 show the proportion of women and men in a number of African countries who used a condom the last time they had sex. Most show a fairly consistent pattern: condom use is higher in the younger age groups than the older. However, it does not peak until the early 20s, possibly because teenagers have greater difficulty obtaining condoms and have not yet developed skills to ensure their use. Since sexual activity in this group is high, ensuring that teenagers can exercise the right to protect themselves from risky sex should be a major concern of prevention programmes.

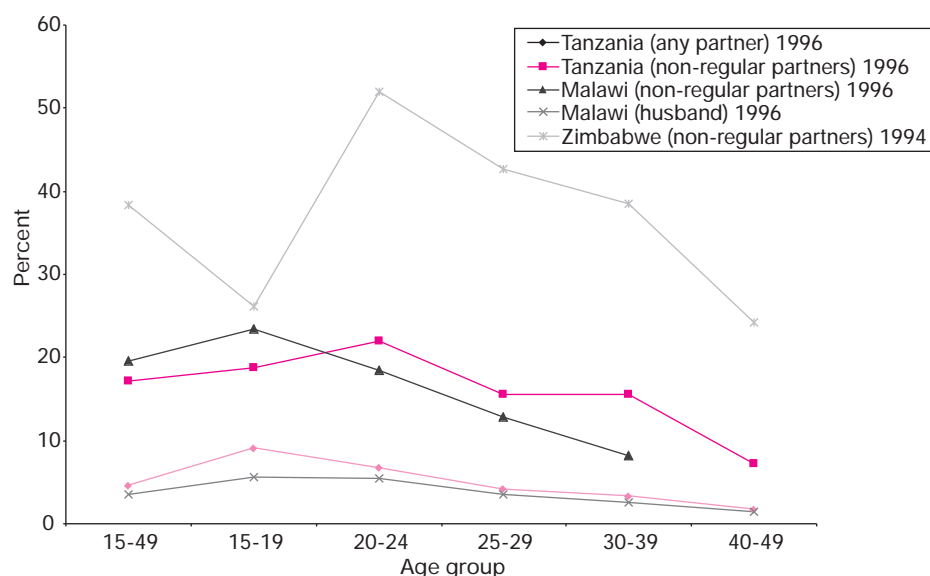
It is encouraging to see from Figure 14 that although the level of condom use with regular partners remains low among young women, it is substantially higher with casual (non-regular) partners – who often represent a higher risk of HIV infection. Here, too, the message that condom use means safer sex seems to be acted upon more by young people than by the older groups.

Figure 13. Percentage of sexually active men using condoms at last sex, by age group and type of partner, 1996



Source: *Demographic and Health Surveys, various countries*

Figure 14. Percentage of sexually active women using condoms at last sex, by age group and type of partner, 1994 and 1996



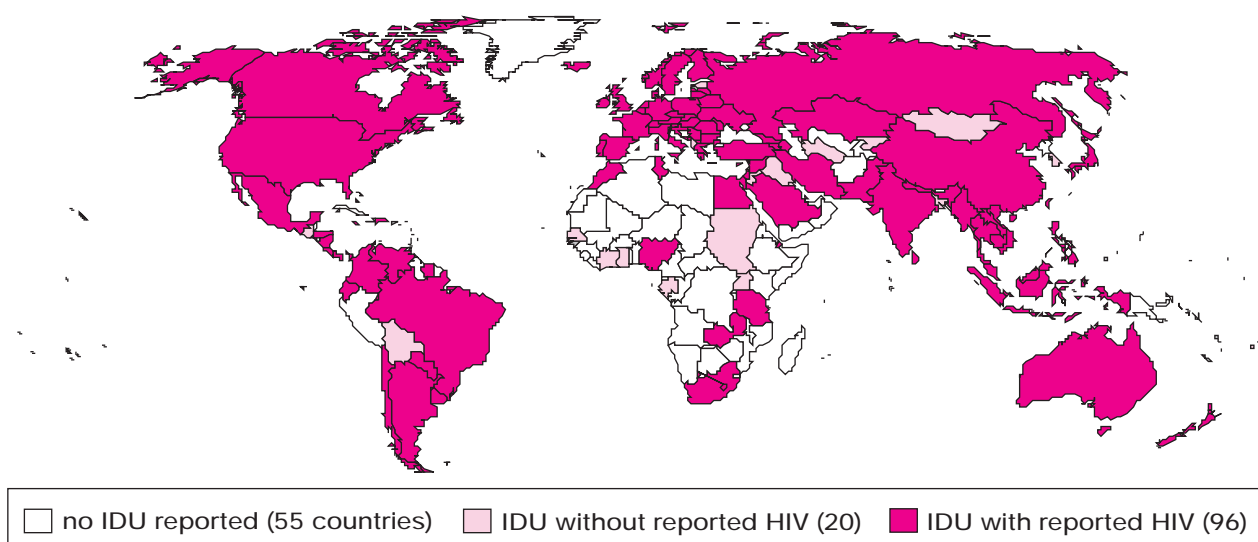
Source: *Demographic and Health Surveys, various countries*

While the provision of adequate care for people with HIV infection is essential, preventing the virus from spreading in the first place is the most effective way of reducing the impact of the epidemic on families, communities and society. Prevention does work. To be credible and most effective, it should be provided alongside care. And prevention works particularly well when it is focused on the needs of the young. Young people, because they have not yet developed rigid habits in their sexual behaviour, may be most willing to adopt safer behaviours from the start of their sexual lives. Every opportunity must be used – beginning with primary school – to help them learn the information and practical skills they will need to negotiate a safer path through life in the HIV/AIDS era. Coupled with this, young people need access to prevention tools and youth-friendly services where they can get counselling and reproductive health care, including treatment for STDs. The more protection countries can ensure for the rights of young people – including their right to life-saving information and services – the less vulnerable young people will be to HIV. Yet in many places in the world, the necessary services are simply not available at all, or not accessible to those that need them most. In Zambia, for instance, people under 18 cannot choose to be tested for HIV without their parents' consent. Yet nearly half of young women have had sex by the time they are 16, and many teenagers are infected with HIV.

Injecting drug use and HIV

Most countries in the world have reported injecting drug use. As Figure 15 shows, a large majority of them report HIV transmission through such drug use. For the others, it is most likely just a question of time before the virus finds its way into the drug-injecting population.

Figure 15. HIV and injecting drug use (IDU), 1997

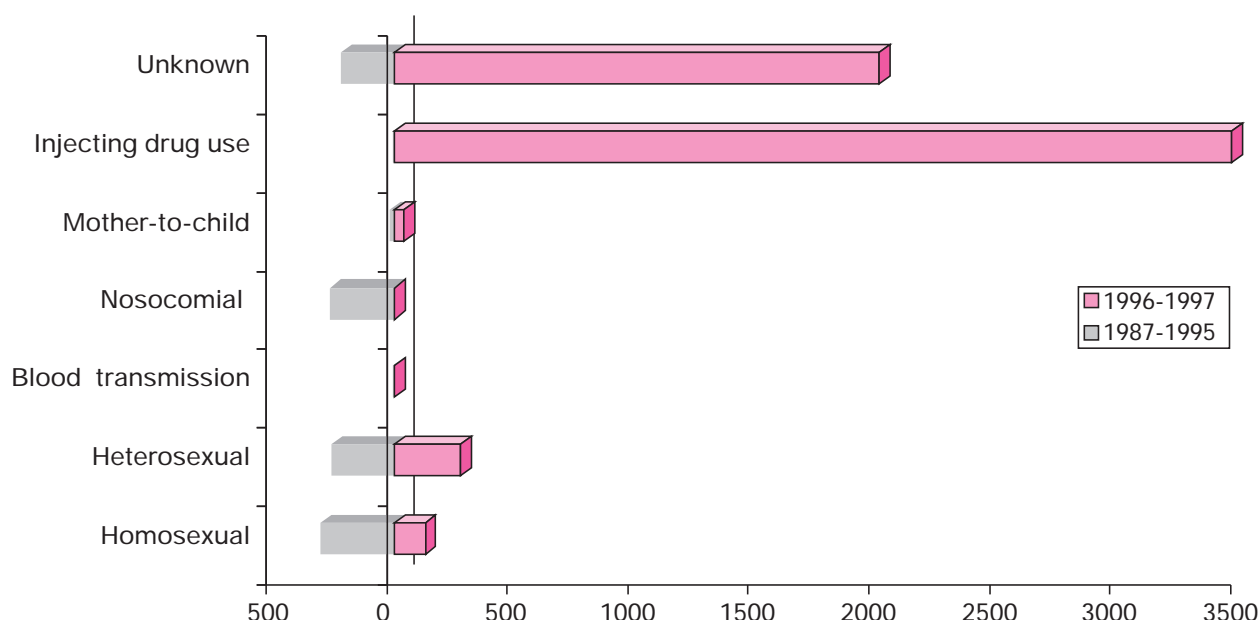


Source: *WHO Programme on Substance Abuse*

In many countries, drug injecting accounts for more HIV infections than sex. Three-quarters of cases recorded in Malaysia, Viet Nam, southwest China, northeast India and Myanmar are among injecting drug users. Although this to an extent reflects the fact that known drug users are tested more systematically than other groups in some of these countries, it highlights drug injecting as a major route of HIV infection. In Western Europe, if one counts infections passed on to the sex partners and infants of drug users, drug injection accounts for 44% of AIDS cases. In the southern cone countries of Latin America, it accounts for nearly a third.

In Eastern Europe the picture is even more alarming. Some 87% of HIV infections in Belarus are among drug injectors. In the Russian Federation, most infections were spread sexually until 1995, and infection in drug injectors was virtually unheard of. But as Figure 16 shows, there has now been a radical shift. In 1996 and 1997, confirmed infections in drug users shot up into the thousands, accounting for four out of every five newly-diagnosed HIV infections.

Figure 16. Newly diagnosed HIV infections, by transmission route, Russian Federation, 1987-1997



Source: *Russian AIDS Centre*

HIV has grown more rapidly in drug-injecting populations than in any other community. In Bangkok, the Thai capital, HIV prevalence among drug injectors shot up from 2% to 40% in well under two years. In the Ukrainian city of Mykolayev, prevalence was estimated at 57% in 1996, from less than 2% a year earlier.

HIV spreads rapidly among injecting drug users because many of them share injection equipment. A needle carrying infected blood can catapult the virus directly into the bloodstream of an uninfected person; sharing needles and other injecting equipment with an infected person is a highly efficient way of transmitting HIV. So the speed at which the virus moves through a drug-injecting population largely depends on the equipment sharing and cleaning practices in a community.

In Viet Nam, many drug users go to “shooting galleries” for their injections. These are rooms or shacks, often in slum areas with no basic amenities such as running water, where a dealer mixes opium or heroin solution and doles it out to clients. Clients pay for a shot of the solution, drawn from a communal pot and administered to the drug user by the dealer. One pot of solution may be shared between 50 clients, all using the same syringe and needle, with no cleaning in between. Up until 1997, over 70% of officially diagnosed HIV infections in Viet Nam were in drug injectors, although this figure probably overstates their true share of the national

total because drug users are rounded up and tested more often than other people with risk behaviour.

A similar injecting system is common in Myanmar. In both these countries, even shooting galleries often use home-made equipment consisting of a needle attached to an eye-dropper or polythene tube. This means it is nearly impossible to sterilize, a fact which no doubt contributes to extraordinarily high rates of infection. The National AIDS Programme in Myanmar, working together with the United Nations Development Programme (UNDP), a UNAIDS cosponsor, estimated that over 90% of injecting drug users in the northern state of Kachin were infected with HIV, while in Northern Shan State the proportion was 82%. Four out of five people entering drug treatment said they regularly shared injecting equipment.

In Eastern Europe, anecdotal evidence suggests that in some areas those preparing drugs drop fresh blood into the solution. This precipitates out contaminants commonly found in home-produced drugs. If the blood is infected with HIV, then all the injectors drawing drug solution from that batch can become infected, even if they are using sterilized injecting equipment. Large-scale dealers also commonly use "slaves" to test drugs. These people draw a dose from the drug solution, inject, and report on the quality of the solution. In payment for this test, they are then allowed to draw another full dose, usually using the same unsterilized syringe. This practice, too, can introduce the virus into drugs which are then shared by many people.

But these special factors are not prerequisites for an explosive spread of HIV, as we can see from many countries where neither shooting galleries nor risky drug-preparation practices are common. In New York City, in the USA, HIV prevalence among drug injectors rose from 10% to 50% in three years, while in Scotland's capital, Edinburgh, prevalence reached 40% from just 1% in a single year.



Making drug-taking safer

Using drugs such as heroin is frowned upon in every society; in all but a handful of countries where users in treatment can get drugs on prescription, it is completely illegal. Because of this, drug injectors – often young people at a vulnerable stage in their lives – are driven underground and do not come forward for help or information, even where it is available.

On the basis of global 1992 data, WHO estimated that over 5 million people injected drugs, that between 150 000 and 200 000 drug injectors

died every year, and that at least half of those deaths were associated with HIV. These figures are likely to understate the scope of the problem today.

The consensus today is that it is urgent to reduce the HIV risks associated with drug injecting – risks to the users themselves, to their sex partners and children, and to society. The way to do this is through a comprehensive prevention programme based on the principle of “harm reduction”. And just as in the case of sexual HIV transmission, the prevention of transmission through drug injecting calls for a package whose components operate simultaneously. For maximum impact, the following components should be part of this package:

- education for drug users (and their sex partners) on HIV and the other diseases that can spread through blood
- training in skills (e.g. decision-making on drug use, negotiation of safer drug use)
- access to sterile injection equipment, or access to bleach or other means of cleaning equipment
- access to condoms
- treatment programmes to help users cut down or stop injecting
- information and education to reduce the demand for injected drugs.

A recent comparison of cities with high and low HIV prevalence in drug injectors showed that those with success in averting a drug-user epidemic had three features in common. First, they used community outreach or peer education to reach and educate drug users, including those who would not otherwise receive HIV/AIDS information and skills or participate in treatment and prevention activities. Second, they ensured that drug users had cheap and easy access to sterile syringes through pharmacies or needle-exchange programmes. And they all started their prevention programmes early on, before HIV prevalence had risen past a critical point. Mathematical modelling demonstrates that once more than 10% of the drug-injecting population is infected with HIV, prevalence almost invariably rises to 40% or 50% within a few years. In many cities, much faster rises have been recorded. But cities such as Glasgow, Toronto and Tacoma, which started prevention activities before 5% of drug users were infected with HIV, have been rewarded with consistently low rates of HIV transmission.

The surest way for an individual to avoid HIV infection through drug injection is to stop injecting. Many countries have responded to the HIV epidemic among injecting drug users by expanding drug treatment services. Some people, however, are unwilling or unable to give up injecting. For them, less sharing of needles and better sterilization of injecting equipment can significantly reduce the danger of drug use. Pro-

grammes that teach people in drug-injecting communities how to avoid sharing equipment and how to sterilize it cheaply and easily have helped cut risky injecting practices in many places. In one study area in the United States, 54% of all injectors shared unsterilized equipment before outreach programmes began. Six years later, the proportion had dropped to 14%. New HIV infections dropped by nearly three-quarters over the same period, from 8.4 infections per 100 person-years of observation to 2.4 infections.

So-called needle-exchange programmes, when part of a comprehensive harm-reduction approach, represent another way of combating the sharing of equipment. These programmes provide drug users with clean needles and syringes in exchange for used ones. HIV infection rates have been shown in various studies to be over three times lower in drug injectors who participate in needle-exchange programmes than in those who do not. Analysis of blood on returned needles suggests that such programmes can reduce transmission by around one-third.

Needle-exchange programmes benefit drug injectors and the community in other ways, too. They reduce the spread of other bloodborne diseases. In one study the transmission of hepatitis B was five and a half times higher among non-participants in needle-exchange programmes than among participants, while hepatitis C was over seven times higher. The programmes also provide an opportunity to put drug injectors in touch with counsellors, HIV testing, drug treatment and other basic health and social services. In many cities, needle-exchange programmes are the single biggest source of referral of drug injectors to treatment schemes. Some cities record a tripling of demand for these services within six months of the establishment of a programme.

In some places, including those with particular communal practices described earlier, conventional needle-exchange programmes may not be very useful. Clean needles and syringes are of little help, for instance, if HIV is carried in the drug solution itself. In these communities, initiatives that work with dealers and people who prepare and deliver drugs may be needed.

The success of needle exchange is by no means limited to industrialized countries. There are currently programmes in the cities of Santos and Salvador in Brazil, the Nepalese capital of Kathmandu, the Akha hill-tribe communities of northern Thailand, to name but a few. Most of these remain relatively small scale, however. Only a handful of countries, such as Australia and a few nations in Northern Europe, come close to meeting the demand.

Prevention strategies are most effective if information and services are brought actively to drug users, rather than relying on users to take the initiative to seek them out. Community outreach programmes greatly increase the coverage of programmes designed to promote safer behaviour. In the northeast Indian town of Churechandpur, for instance, a programme encouraging abstinence for drug users and made available over a period of several years through health, religious and legal reform institutions or the police never reached more than half of the town's drug users. When community street outreach began with a bleach distribution programme, participation shot up to 80% in six months.

Drug use, and ultimately injecting drug use, tends to follow trafficking patterns. Supply routes are now in flux throughout the world. Seizures of illegal drugs have recently leapt upward in parts of South-East Asia and in several areas on both the east and west coasts of Africa. The countries of Eastern Europe have become major transit points for illegal drugs, and a sharp increase in drug injecting has followed hot on the heels of the traffickers in these nations. Where injecting drug use already exists, reducing the supply of illegal drugs alone does not necessarily help. In fact, it can even increase risky injecting behaviour. When drugs are plentiful, many users choose to smoke rather than inject. However, injecting delivers a "high" with a smaller drug dose than smoking, so people may switch from smoking to injecting if their usual supplies shrink. A study in Calcutta showed that huge seizures of heroin in the city were followed by a sharp rise in the proportion of drug users choosing to inject.

In many cities where HIV has already reached epidemic proportions in drug-injecting communities, strenuous efforts are needed to support safer behaviours both among those infected and among other drug users. This is essential for drug-using and non-using communities alike: the risk of HIV spreading from drug injectors to their sex partners, children and beyond has proven all too real in many countries.

In other cities where injecting drug use clearly takes place and HIV prevalence is still relatively low, initiating comprehensive prevention programmes now may prove critical to containing the virus within and beyond these communities.

Finding out one's HIV status

In industrialized countries, counselling services and voluntary testing for HIV are widely available. Testing seems to be sought out more and more by people with high-risk behaviour now that therapies are available to those who know they are HIV-positive. In a study of new AIDS cases in Germany, the proportion of people who did not know they were HIV-infected until they were diagnosed with AIDS remained constant until 1996. Then, once widespread availability of effective antiretroviral therapy increased the incentive to get tested, the proportion of people who learned they were seropositive only when they were diagnosed with AIDS dropped by half in 1997.

There are valuable reasons to increase access to testing and counselling even in countries where expensive antiretroviral therapy is not widely available. People who know they are infected may be able to maintain their health better by eating appropriately and by seeking affordable prophylaxis and treatment for common opportunistic infections and other illnesses. They can choose to use condoms to protect their sex partners and children from infection. They can make informed choices about childbearing, and can seek advice on alternatives to breastfeeding to protect their infants. They can plan for their future needs and those of their families. They may choose to join together with others to increase support in the community for HIV-affected people, so as to gradually reduce the stigma which can eat away at prevention and care efforts. And they may increase pressure on local or national authorities to improve standards of care and services for affected individuals, families and communities.

It is difficult to attribute behaviour change directly to the provision of testing and counselling versus counselling alone. Even without testing, counselling helps people assess their risk of infection and provides information so that people can reduce the risk of acquiring HIV or passing it on. Counselling is also essential to reinforce safe behaviour among those who test negative. And it helps people cope with the results of a positive test. However, counselling along with testing probably offers the greatest benefits. There is a growing body of evidence to suggest that people who have received counselling and know their serostatus are more likely to adopt or maintain safe behaviours, either to protect themselves from future infection if they are uninfected, or, if HIV-positive, to protect their partners from infection. A study of HIV-infected homosexual men in Norway recorded a drop in the number of sex partners after testing. Men in the study averaged 4.3 partners a year before they

learned of their HIV infection. After testing and counselling, that average fell to 1.6.

Preliminary results from a study in developing countries – Botswana, Côte d'Ivoire, Kenya, Rwanda, Tanzania, Thailand, Trinidad, Uganda and Zambia – show that voluntary testing and counselling does not always reduce the number of casual partners a person chooses. But it may contribute to increased condom use with those partners. Most groups reported a reduction of between 40% and 46% in unprotected casual sex after testing and counselling.

Recent studies indicate that counselling and testing for HIV is a cost-effective way of supporting prevention efforts and reducing new infections. New studies in Kenya and Tanzania – both countries with relatively high levels of HIV infection in the adult population but with limited access to testing and counselling as yet – indicate that such services would cost under US\$ 30 per person counselled and tested. The studies calculate that the cost equates to US\$ 251 per infection averted in Tanzania, and US\$ 241 in Kenya. This compares with US\$ 253 per HIV infection averted which was recorded in a medium-prevalence area of Tanzania for another important programme, the improved treatment of other sexually transmitted diseases. While improved STD treatment is considered a good investment in reducing the spread of HIV, it would certainly be even more effective if accompanied by counselling and testing, which leads to behaviour change and thus does more to attack HIV transmission at its roots.

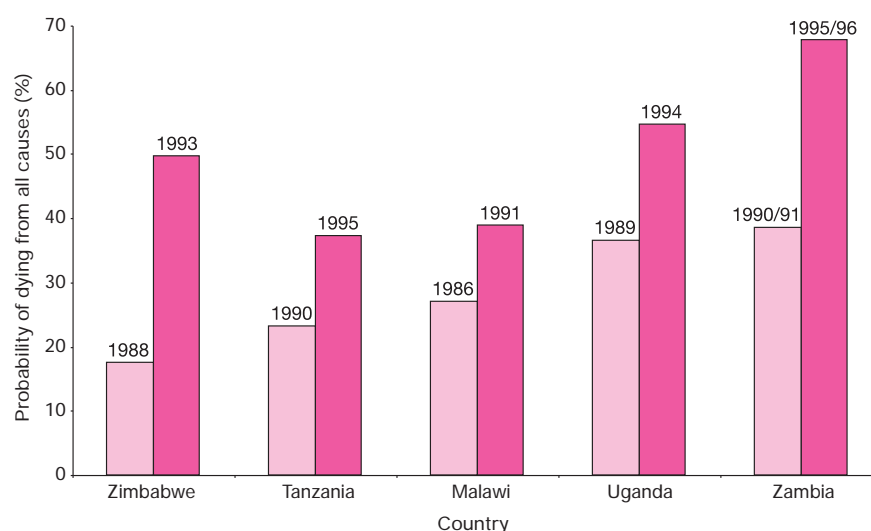
HIV and mortality

In many countries HIV is known to have contributed to a major rise in adult death rates, although measuring that rise is a challenge, especially in developing countries. Different types of studies can each provide one piece of the jigsaw, however. Putting them together builds up an alarming picture which shows that HIV is responsible for a massive increase in death among men and women in their most productive years.

A recent analysis of sibling survival reported in Demographic and Health Surveys carried out by a number of African countries shows that death rates among adults aged 15-60 more than doubled in some countries in the late 1980s and early 1990s. As Figure 17 shows, Zimbabwe, which had relatively low adult death rates before the onslaught of AIDS, saw adult mortality among men nearly triple between 1988 and 1994. Among women the probability of dying between age 15 and 60 more than doubled over the same period. In Zambia, mortality among men nearly doubled, as shown; among women it increased by two-thirds.

It is important to bear in mind that because of the long lag time between infection with HIV and death, any rise in death rates due to AIDS will reflect infection rates of several years ago.

Figure 17. Increase in mortality among men 15-60 between 1986 and 1997, based on household reports (sibling histories), selected African countries



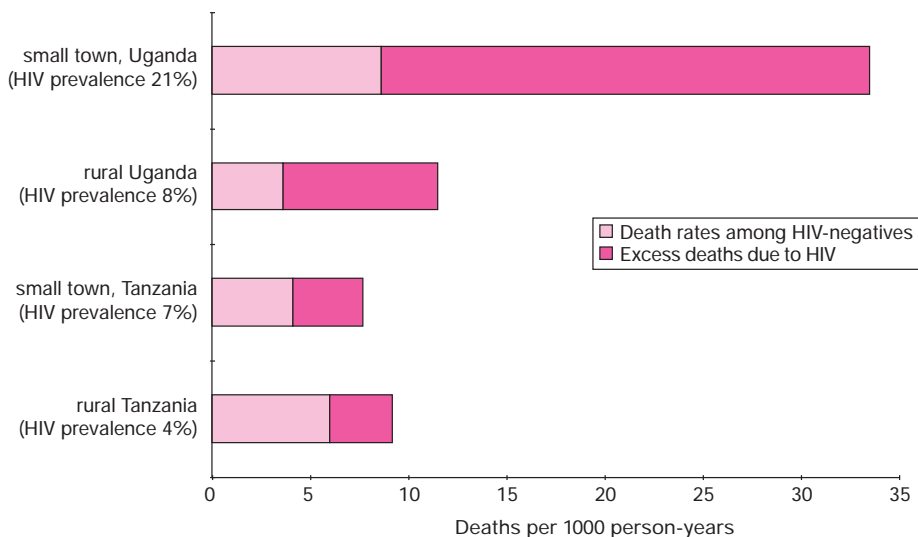
Source: *Timaues I*, London School of Hygiene and Tropical Medicine, from Demographic and Health Survey data

The survey data do not record who died of what. But if we assume that the rise in adult deaths in Zimbabwe, for instance, was at least in part due to HIV infection, we must expect worse to come. Data from the 1994 survey suggest that adult death rates rocketed between 1988 and 1994. To the extent those deaths were HIV-associated, they most likely reflect infections that occurred several years earlier, around the mid-1980s. At that time, the country was just at the start of a steep growth in infection: under 10% of the adult population of Zimbabwe was estimated to be infected with HIV in 1985. Now, between a fifth and a quarter of Zimbabwe's adults are believed to be HIV-positive.

National data also indicate that the bulk of the increase in adult death is in the younger adult ages – a pattern that is common in wartime and has become a signature of the AIDS epidemic, but that is otherwise rarely seen. Of course, this increase in adult mortality may be from causes other than HIV. Looking at smaller community-based studies that have information on HIV status and record causes of death can help give an idea of how many of the extra deaths HIV might be responsible for.

Studies in rural areas of East Africa confirm that a huge proportion of adult deaths can be laid at the door of HIV, as Figure 18 shows. Where just 4% of adults are infected with HIV, the virus accounts for 35% of all adult deaths. At HIV levels of around 10%, prevalence rates observed in many parts of East Africa, the presence of the virus in a population more than doubles the probability of dying at working age. And where one in five adults are infected, 75% of deaths are due to HIV.

Figure 18. Proportion of adult mortality attributable to HIV, various community studies in Africa, 1990-1996



Source: Boerma T et al. In: *The Socio-Demographic Impact of AIDS in Africa*, IUSSP, 1997

In specific age ranges HIV is responsible for an even higher proportion of deaths: in an area where overall HIV prevalence is 8%, HIV accounts for four out of five deaths between the ages of 25 and 34 – a time when most people are forming families and laying the foundations for their professional lives.

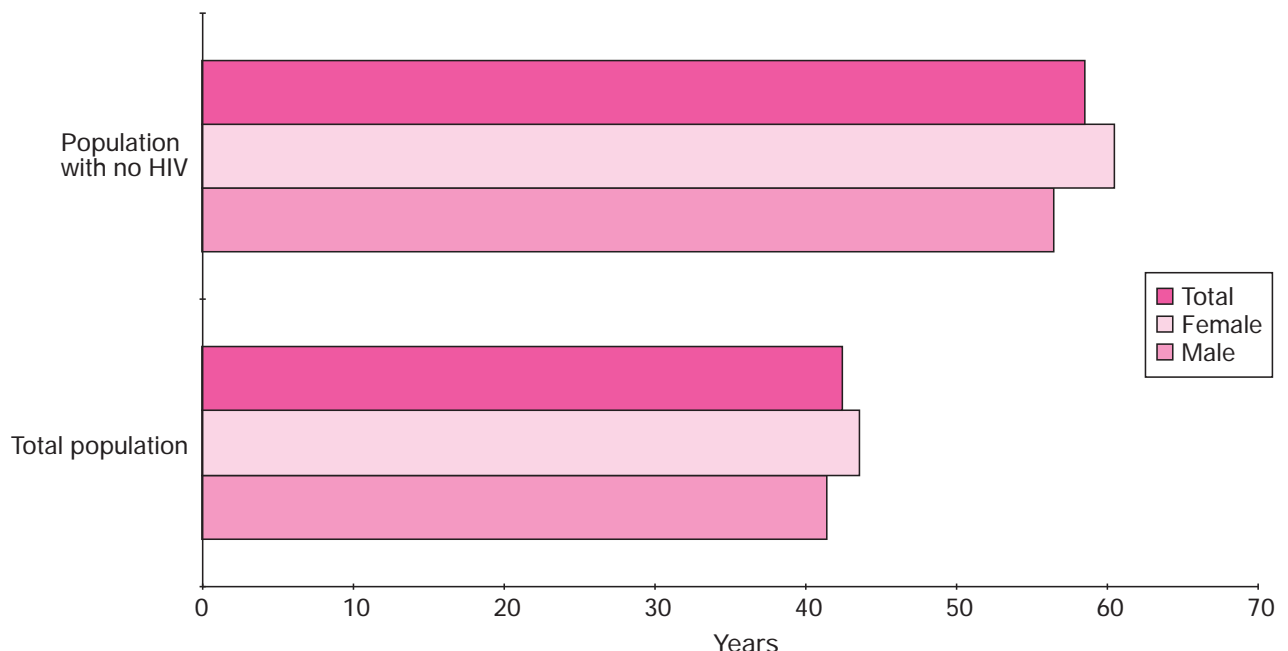


Life expectancy

Clearly, death rates at child and especially adult ages are higher because of HIV/AIDS than they would be without the disease. How does that affect life expectancy at birth, the measure of health status most commonly used by policy-makers to assess progress in human development?

Figure 19 compares life expectancy in the community as a whole with life expectancy among adults who were HIV-negative in a Ugandan study where 8% of adults were infected with HIV. The presence of the virus in the population even at low levels knocked 16 years off life expectancy in the community as a whole.

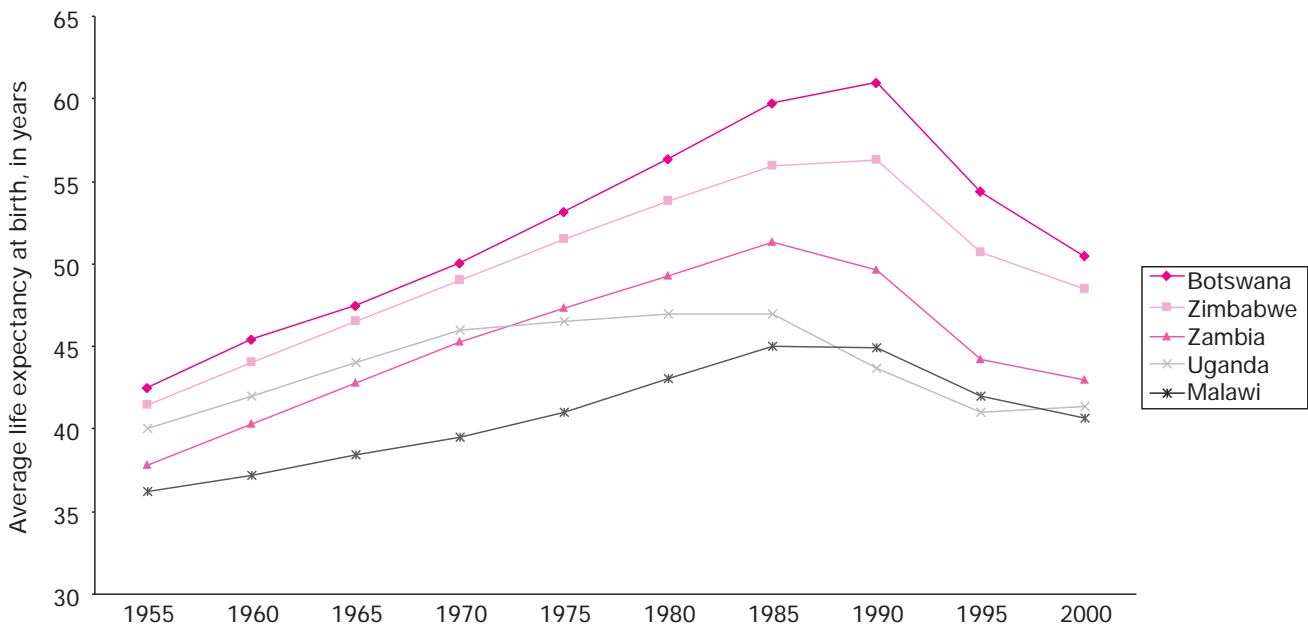
Figure 19. Life expectancy in a rural Ugandan community, total population and HIV-negative population, 1994-1995



Source: Nunn et al: *British Medical Journal* 1997 Sep 27; 315(7111): 767-771

Projections made by the United Nations, illustrated in Figure 20, suggest that many countries will take decades to recover losses to life expectancy caused by HIV. Botswana, where great strides had been made in increasing life expectancy, will see a particularly dramatic fall. Although the epidemic arrived later in Botswana than in East African countries, its growth has been explosive. The government now estimates that a quarter of the population aged 15-49 may be infected. The impact on development is already becoming clear. Between 1996 and 1997, the country dropped 26 places down the Human Development Index, a ranking of countries that takes into account wealth, literacy and life expectancy.

Figure 20. Projected changes in life expectancy in selected African countries with high HIV prevalence, 1955-2000



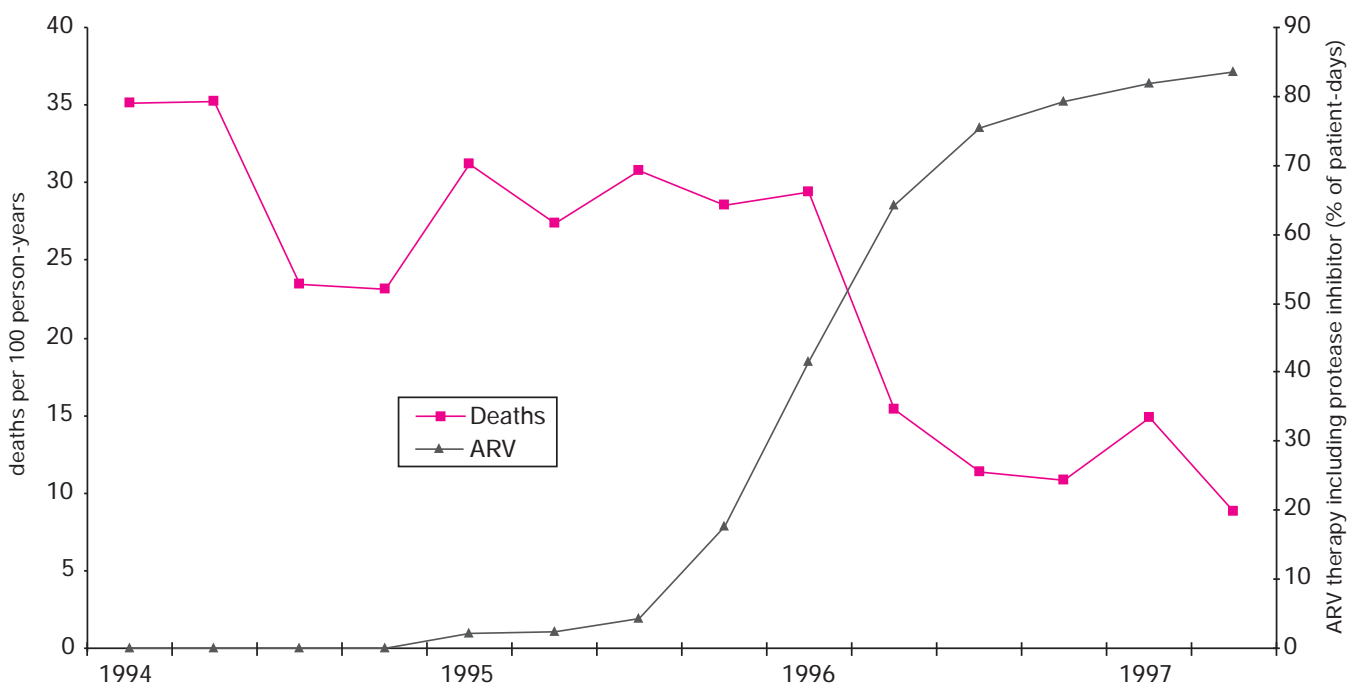
Source: *United Nations Population Division, 1996*

Treatment reduces AIDS deaths in countries that can afford it

In industrialized nations, a few countries in Latin America, and Thailand, many people who test positive for HIV have access to combination antiretroviral therapy which reduces the amount of HIV in the body and delays the onset of AIDS. In other countries combination antiretroviral therapy is also used, but by a very small proportion of HIV-infected people. Such therapies are expensive, hard to administer, and require regular medical monitoring.

Combination therapy with at least three antiretroviral drugs was introduced in 1995 and became widespread in 1996. While it is not yet known how long these therapies will prolong life, and while it is clear that they do not work for everyone, their use is already having a visible impact on AIDS incidence and AIDS mortality (see pages 18-19).

Figure 21. Mortality in patients with CD4<100 and use of antiretroviral (ARV) therapy including a protease inhibitor among those patients, USA, 1994-1997



Source: *Palella et al., New England Journal of Medicine 1998 Mar 26;338-60*

Treatment reduces AIDS deaths in countries that can afford it

Monitoring of treated and untreated patients in France and Germany confirms that the new therapies can explain at least part of the drop in AIDS mortality: while deaths among untreated AIDS cases remain more or less constant, deaths among people who knew they were HIV-positive and sought treatment have declined dramatically.

In the United States, new therapies have drastically cut both death and the development of AIDS-defining opportunistic infections in patients with severely damaged immune systems. One study looked just at people whose CD4 blood cell count, which reflects the extent of immunodeficiency, was under 100 (compared with a norm of between 600 and 1000). It compared disease and death in patients who were taking various therapies – ranging from no drugs at all to a mix of protease inhibitors and reverse transcriptase inhibitors (in other words, a mix of two classes of antiretroviral drugs that work synergistically by attacking the virus at two different points in its cycle of replication). The study found that patients taking no antiretroviral drugs were four and a half times more likely to develop an AIDS-defining disease or to die than patients taking a mix of antiretrovirals of both classes (see Figure 21).

The study noted that the use of a combination of antiretrovirals grew astronomically over the study period. In 1994, a quarter of all patients were using combination therapy. By June 1997 that proportion had grown to 94%. However, patients with private medical insurance were more likely to be prescribed protease inhibitors (in addition to other antiretrovirals) than patients whose medicine was bought through publicly funded programmes. As a consequence, patients with private medical insurance were less likely to get sick or die than others. This disparity, even within a rich country such as the United States, illustrates the difficulties of ensuring equitable provision of drugs that are expensive to buy and hard to administer and monitor correctly.

Mother-to-child transmission

Altogether, 2.7 million children have died of AIDS since the beginning of the epidemic. Another million were estimated to be living with the disease at the end of 1997, half of them infected last year alone.

The overwhelming majority of these children acquired the infection from their mothers before or around the time of birth, or through breast milk. An equally great majority live in the developing world.

The gap between rich and poor countries in terms of transmission of HIV from mother to child has been growing. In France and the USA, for instance, fewer than 5% of children born to HIV-positive women in 1997 were infected with the virus. In developing countries, the average was between 25% and 35%. There are two major reasons for the difference – breastfeeding practices and access to drugs for reducing mother-to-child transmission.



The breastfeeding dilemma

Since it first became clear that HIV could be transmitted through breast milk, very few infected women in industrialized countries have chosen to breastfeed their children, so transmission of infection at the nipple is negligible. In developing countries, however, between one-third and half of all HIV infections in young children are acquired through breastmilk.

There are several reasons for this. First, more than 9 out of 10 HIV-positive women in developing countries have no idea they are infected. They therefore cannot make informed choices about how to feed their children. Secondly, a woman may choose to breastfeed even if she knows about her infection, and knows she might pass it on through breast milk. Breastfeeding protects the infant against a range of other infections. It is convenient, approved by most cultures, and free. By choosing artificial feeding a woman may avoid passing on HIV. But where the water-supply is unsafe she may expose her child to other deadly diseases. Since prolonged breastfeeding has a naturally contraceptive effect, she may also expose herself to pregnancy again, repeating the dilemma. In most developing countries she will stretch the family budget. A year's supply of artificial milk for infants will cost a Vietnamese family more than the country's per capita GDP, and the same is true elsewhere in the developing world. And if bottle-feeding becomes

a badge of HIV status, a woman may expose herself to stigma and social rejection.

Increasingly, developing countries are providing information about safe infant feeding to HIV-infected women who are pregnant. Some governments such as Thailand's distribute free or subsidized artificial milk to such women. But in many countries, the critical first step remains to provide counselling, voluntary HIV testing and information about safe feeding to all women considering pregnancy or already pregnant.



Encouraging developments in prevention

In 1994, it was shown that giving an antiretroviral drug to women during pregnancy and delivery and to the infant after birth could cut HIV transmission from mother to child by as much as two-thirds. This quickly became common practice in industrialized countries, but is hard to imagine as a standard in countries where many women do not get even basic antenatal care. The regimen is difficult to administer, involving regular drug-taking over several months and an intravenous drip during delivery. And it is expensive – currently, around US\$ 1000 per pregnancy. A country such as Côte d'Ivoire, where both fertility and HIV prevalence are high, would have to spend 70% of its total current drug budget to provide this regimen for all women who risk passing HIV on to their children. This does not include the cost of counselling or testing.

Because the regimen used in the industrialized world is clearly out of reach for most people in the countries where it is most needed, new trials were initiated to identify more practical and affordable alternatives. A trial recently concluded in Thailand shows that a short course of antiretroviral pills given to pregnant women during the last weeks prior to and during labour successfully cuts the rate of vertical transmission during pregnancy and delivery by half. Because the Thai women were also given safe alternatives to breast milk and did not breastfeed, the short course of treatment was able to cut overall mother-to-child transmission in the study population to 9%, compared with a norm in developing countries of up to 35%.

The cost of treating HIV-positive women with a short course of antiretrovirals in late pregnancy and around the time of delivery compares well with that of many other health interventions. The cost-effectiveness varies according to the level of infection in a country. One study suggests that in Tanzania, counselling, testing and short-course antiretrovirals for pregnant women would cost under US\$ 600 per HIV infection that is averted.

This translates into around US\$ 30 per healthy year of life gained – less than half the cost of providing food supplementation to avoid malnutrition in preschool children and around the same price per healthy year of life saved through immunization for polio and DPT (diphtheria, pertussis and tetanus). In high-prevalence areas of Thailand the cost per infection averted is around US\$ 2800, just over twice the cost of caring for a child with AIDS.

HIV is contributing substantially to rising child mortality rates in many areas of sub-Saharan Africa. In the Zimbabwean capital of Harare, for instance, infant mortality doubled to 60 per 1000 in 1996 from 30 per 1000 just six years earlier. Deaths among children aged one to five years, the group in which the bulk of child AIDS deaths are concentrated, showed an even bigger leap proportionately. They rose from just 8 per 1000 to 20 per 1000 over the same time period. Providing alternatives to breastfeeding and short-course antiretrovirals to pregnant women in developing countries could help stem the increase in child deaths if reasonable targets of counselling, testing and access to care are met.

Improving estimates

At the end of 1997, UNAIDS and WHO published new regional and global estimates of HIV infection. Working with national governments and research institutions, they collected data from a number of sources. The information was used to recalculate the likely number of adults and children currently living with HIV and AIDS, as well as the number of deaths and AIDS orphans in each country. The result was an estimate of HIV infection sharply higher than was previously thought likely.

It was the first such exercise since 1995, when WHO's Global Programme on AIDS estimated the end-1994 HIV prevalence rates for all countries. Regional and global estimates since that time were made each year by projecting the 1994 prevalence data forward according to regional models which were thought to hold true for all major areas touched by the epidemic.



The 1994 estimates

The 1994 estimates were based on data on infection levels available at that time – data which often dated from several years earlier and offered at best a sketchy idea of what was happening in much of the population. Information from many of the populations tested for HIV – sex workers, truck drivers or drug injectors for instance – gave little indication of what was going on in the rest of the population. Sentinel surveillance systems, which test anonymous blood samples from pregnant women at antenatal clinics, provided a better guide to trends in the general population. But at the time, this information was usually available only for cities, and gave no picture of infection in the rural areas which are home to the bulk of the population in many developing countries.

In the 1994 exercise, different infection rates were applied for different populations in a country. To take a simplified example: the prevalence rate for sex workers was applied to the estimated number of sex workers, while that for women in antenatal care in urban areas was applied to the urban population and that for military recruits from towns and villages outside major cities was applied to the population of rural areas. Adjustments were made, if necessary, to reflect the sex differentials in infection. All of these estimates were then combined to give a weighted total for the country as a whole.

In order to estimate past and present incidence of AIDS and AIDS deaths in adults and children, a computer software program known as Epimodel

was used. Developed in 1987 by the Global Programme on AIDS, Epimodel started with an epidemic curve – a curve that reflects the start of the epidemic in an area, the speed at which the epidemic is growing, and the level at which prevalence has stabilized or is likely to stabilize. The program allows for inputs concerning the natural history of HIV infection, including progression rates from HIV infection to AIDS and from AIDS to death, and transmission rates from mother to child. Epimodel combines this information with the age structure of a population and age-specific fertility rates to calculate the number of adults and children currently infected with HIV, the number of AIDS cases and other aspects of the epidemic.

This method has proven very robust, but it depends on enough data points being available to draw a reasonable epidemic curve. In 1994-1995, there were not enough data available to attempt to draw epidemic curves for each country, so infections were totalled on a regional basis and 10 regional models were constructed. For each region, epidemic curves were fitted according to the patterns observed in countries with relatively good surveillance systems. The model derived from the curve was then applied to the weighted prevalence data and population numbers to yield estimates of HIV incidence, AIDS cases and deaths for the region as a whole.



1997: more data yield better estimates

Since that time, the sources of information on HIV infection have improved significantly in many countries, though by no means all. More is known about the natural history of infection, so better assumptions can be made to fill gaps left by missing data. Community-based serosurveys, mostly in rural areas, have also provided better indications of the likely relationship between urban and rural infection patterns, although information in this area is still sorely lacking. By 1997, data were also available for more points in time. This made it easier than before to gauge the shape of the epidemic curve and to judge where a country is in its epidemic: is prevalence just starting to build up, is it in the steeply rising phase, or is it beginning to level off?

When UNAIDS and WHO made the end-1997 estimates together with a number of partners, including research institutions and country experts, they used the same basic methodology as three years earlier. However, because better information was available, they were able to improve the accuracy of estimates. The 1994 estimates were recalculated. In areas where the data available in 1994 were not good enough to permit an accurate assessment of the situation, the revised 1994 figure sometimes differed significantly from the original estimate. In these cases – and they

were relatively few – the revised figure was used together with the 1997 estimate in drawing an epidemic curve for the country.

Revisions were necessary principally in those countries of southern Africa where the epidemic was just entering its exponential-growth phase in 1994 and where it has grown over the last few years in a way that was previously thought impossible.

In South Africa, for instance, HIV prevalence among pregnant women had been consistently low until 1992, the last year for which prevalence data were available when the 1994 estimates were made. The estimates assumed a rise to 3.2% in 1994. In fact, we now know that the early 1990s were the launching pad for the epidemic in South Africa. So the true figure for 1994 may have been almost twice as high as the original estimate. However, since little is known about HIV infection levels in rural areas at that time, the 1994 estimate was conservatively revised to 4.5%. The epidemic curve that was drawn through that point and adjusted for the trends detected by surveillance up to the estimate for 1997 (which stands at 12.6% of the adult population) shows clearly that the country is still in the phase of rapidly rising prevalence.

Improved surveillance has underlined the fact that neighbouring countries can have quite different epidemics. Because data and therefore estimates have improved, it has now been possible for the first time to build models not on a regional basis, as in 1994, but for some 90 individual countries to estimate levels and trends of HIV transmission, AIDS and death. These estimates were shared and discussed with the countries' national AIDS programmes and adapted where national estimates based on better knowledge of the local situation were available. The main indicators derived from these models, such as prevalence of HIV infection and AIDS deaths in 1997, are published in the tables annexed to this report.

Most of the sentinel populations among whom prevalence data are measured do not include people who have developed symptomatic AIDS. This is because people with AIDS may be too ill to attend sentinel sites – a woman with symptomatic AIDS, is, for instance, unlikely to become pregnant and come to an antenatal clinic for care. So HIV-prevalence estimates actually tend to exclude prevalence of AIDS. Because of this, some organizations publish figures for people living with AIDS separately from people living with HIV. Since everyone living with AIDS is by definition also living with HIV, the UNAIDS/WHO estimates of people living with HIV incorporate those who also show symptoms of AIDS. For this reason, the estimates in this report may appear slightly higher than those published by other organizations that use similar modelling methods but do not include AIDS patients in the total of those with HIV infection.

Clearly, individual country models can only be developed if enough data are available to draw a country-specific epidemic curve which can then be used as the basis for Epimodel calculations. For countries where no new information was available, no models were constructed and new estimates for the end of 1997 could not be generated. In most of these cases, the 1994 prevalence rate calculated and published by WHO/GPA in 1995 was applied to the 1997 population to give a conservative estimate of current HIV infections. These countries are marked with an asterisk in the tables annexed to this report.

Individual country models are more sensitive than regional models to the differing circumstances which affect important parameters such as survival time and mother-to-child transmission. Although data are still scarce, recent research suggests that progression rates from HIV infection to AIDS and death differ between the industrialized world and developing countries, and that this was the case even before life-prolonging combination antiretroviral therapy became available in some countries. The extent of the difference is not well known. Studies carried out in the population to measure survival time may be biased for a number of reasons. Ethically, any community-based trial is of course obliged to operate with the informed consent of participants and to provide information on safe behaviour, referral for common ailments and sometimes treatment for basic opportunistic infections. Even a minimum package may be more than is commonly available in developing countries. HIV-positive people enrolled in community studies may therefore survive for longer than people in areas where not even the most basic services are available or affordable.

Levels of transmission from mother to child may also vary according to breastfeeding norms, delivery practices and other factors related to maternal care and health service provision. Breastfeeding, particularly, will in turn be influenced by access to counselling and testing, and the availability and affordability of safe alternatives to breast milk.

Survival time among adults is a major factor in estimating HIV levels, since it determines not just the length of time individuals live with the virus but also the length of time they are in the pool of people who might pass it on. The major factors in determining HIV prevalence among children are prevalence rates among pregnant women and mother-to-child transmission rates. Survival time among children will affect estimates of children currently living with HIV, but will have no impact on estimated new infections.

In consultation with a wide range of people and after an extensive review of the literature, UNAIDS and its partners have altered the input parameters in the 1997 estimation exercise to reflect regional differences. In areas with relatively well-developed health systems such as Latin America and the

wealthier countries of Asia, 50% of adults are assumed to live with HIV for 10 years before developing AIDS. This figure was derived largely from studies in industrialized countries before the advent of combination antiretroviral therapy. The median time between AIDS and death is assumed to be one year.

In poorer countries where access to health services is less developed, the median time between HIV infection and the onset of symptomatic AIDS is assumed in these estimates to be 8 years, with the same distribution around the median as was used in the better-off countries. The survival time between AIDS and death is identical, a median of one year.

Rates of transmission from mother to child were estimated on the basis of studies in various countries. In Africa and other areas where HIV status is rarely known and breastfeeding is the overwhelming norm, a vertical transmission rate of 35% was used. Based on Brazilian studies, a rate of 25% was used for Latin America, where access to testing and counselling is increasing and where safe alternatives to breastfeeding are widely available. Rates in Asia vary between the two, depending on the structure of the health system, access to information, and breastfeeding patterns.



Estimating HIV and AIDS in an age of therapy

The advent of life-prolonging therapies will also alter future estimates. The relationship between new infections, HIV prevalence, AIDS and deaths – relatively predictable for some years now – will change in ways that cannot yet be foretold. And those changes will depend on the extent and availability of health care in a population, including better treatment for opportunistic infections. It is also far from certain what effect combination antiretroviral therapy will have on patterns of infection. Reduced viral load in patients taking these drugs may reduce their infectiousness to others. However, the promise of prolonged life for those infected may undermine prevention efforts and result in more risky behaviour and more transmission.

Whatever the effects of treatment, they are likely to be much greater in industrialized countries, where antiretrovirals and drugs for opportunistic infections are widely available. It will be some time before significant effects of treatment are seen at a population level in most developing countries, where the vast majority of people do not even have access to the counselling and testing facilities that allow them to determine whether they are infected and should seek care.

Rates of transmission from mother to child may fall radically if there is increased access to testing and counselling, short-course antiretrovirals, and safe alternatives to breastfeeding.

Epimodel does not currently allow for changes in progression rate from infection to AIDS or in maternal transmission rate over time. Because of this, the model has not been used to derive estimates for the industrialized world, where ever-improved access to care, including treatment for opportunistic infections and antiretroviral therapy, has altered the epidemic pattern in complex ways over the last decade. Data published in the tables in the annex for industrialized countries were provided by national AIDS programmes, which use a variety of sophisticated modelling and estimation techniques.



A changing picture

The current estimates do not pretend to be an exact count of infections. Rather, they have been generated with a methodology – which has so far proven quite solid – designed to give a good indication of the magnitude of the epidemic in individual countries. And these estimates are not set in stone. They are constantly being revised, both upwards and downwards, as countries improve their surveillance systems and collect more information. This includes information about infection levels in different populations, and about behaviours that lead to or protect against infection.

Estimates will also change as our understanding of HIV and its demographic consequences grows. It is becoming ever more apparent, for instance, that women who are HIV-positive are less likely to bear children than those who are not infected. The relationship between HIV and fertility is complex and poorly understood. Until now, it has not been factored into estimates of prevalence or models of transmission, although it probably affects both. As we learn more, we will have to consider the effects of HIV on fertility more carefully. Different patterns of health care will also have to be factored into future estimates as more is learnt about their effects on both survival and HIV transmission rates.

Despite their continuing imperfection, estimation techniques are certainly good enough to be a useful tool in gauging the magnitude and trends in the epidemic in different countries. Prevalence estimates should serve to alert people and their governments to the threats posed by HIV to social and economic development. They can guide initiatives to reduce the magnitude of future spread and help countries plan ahead to ensure care and support for people living with HIV, their families and communities.

Using Epidemiological Fact Sheets to improve data collection

Recognizing that more information is needed for a better understanding of and response to the epidemic, UNAIDS and WHO have launched an initiative in partnership with national governments to improve surveillance and data collection on HIV and related behaviours. Activities include regional consultations with surveillance experts and the preparation of guidelines to help improve surveillance. Documents published in the UNAIDS Best Practice Collection review current approaches and suggest ways forward.

Concretely, this initiative focuses on the production of Epidemiological Fact Sheets which bring together data on HIV/AIDS prevalence and incidence together with information on behaviours (e.g. casual sex, condom use) that can spur or stem the transmission of HIV. They include prevention indicators developed by WHO's Global Programme on AIDS which aim to measure trends in knowledge of AIDS, relevant behaviours, and a host of other factors which influence the epidemic.

For the first round in the preparation of these sheets, UNAIDS, together with WHO and a group of international organizations and experts, attempted to collect all existing data on HIV levels and related behaviours for each country. The data were then sent to national AIDS programmes or other national authorities for verification or completion. More than 140 countries responded to the first round of data collection, providing information from serosurveillance, behavioural surveys and other studies. The resulting data were used to revise country-specific models and derive estimates of the HIV-positive population and other aspects of the epidemic as described starting on page 51. Lastly, they were collated into the final 1997 Epidemiological Fact Sheet for each country. The Fact Sheets also contain country-relevant information from a database which the US Bureau of the Census maintains to give an idea of HIV prevalence in various populations of people whose behaviour may specially expose them to HIV infection, and in groups such as pregnant women that more closely reflect the general population.

The data from the 1997 Epidemiological Fact Sheets are summarized in the annex to this report.

UNAIDS and WHO hope to work closely with national AIDS programmes and other partners to update the Fact Sheets every year. The Epidemiological Fact Sheets will be made publicly available, and will eventually be accessible on the Internet through the UNAIDS and WHO Website home pages. When appropriate, new information such as indicators of care and support may be added to the data collected through the Fact Sheets.

Annex.
**HIV/AIDS
estimates
and indicators,
end 1997**

The data provided in the following tables are summarized from the individual country 1997 Epidemiological Fact Sheets (see page 57). Unless stated otherwise, the data and estimates relate to the end of 1997.

Where possible, data are given for urban and rural populations separately. In practice, "rural" often means small towns outside major urban centres. Truly rural areas often have no sentinel sites at all. Nearly all the rates among groups such as injecting drug users and prostitutes whose behaviour carries a high risk of HIV infection come from studies in urban areas. The tables give the range of HIV prevalence between different survey and study sites; often quite wide, the range serves to illustrate the diversity of the epidemic within a given country.

All estimates in this report are given in rounded numbers. However, unrounded numbers were used in the calculation of rates and regional totals, so there may be small discrepancies in some of the summary tables.



Notes on specific indicators listed in the tables

1. Population 1997

Total population (thousands)

Total population in 1997 (UN Population Division, Department of Economic and Social Affairs, United Nations Secretariat).

Adult population 15-49 (thousands)

Population aged 15-49 in 1997 (UN Population Division, Department of Economic and Social Affairs, United Nations Secretariat).

Adults in this report are defined as men and women aged 15-49. This age range captures those in their most sexually active years. While the risk of HIV infection obviously continues beyond 50, the vast majority of those with substantial risk behaviour are likely to be infected by this age. Since population structures differ greatly from one country to another, especially for children and the upper adult ages, the restriction of "adults" to 15-49-year-olds has the advantage of making different populations more comparable. This age range was used as the denominator in calculating adult HIV prevalence.

2. Estimated number of people living with HIV/AIDS, end 1997

These estimates include all people with HIV infection, whether or not they have developed symptoms of AIDS, alive at the end of 1997.

Report on the global HIV/AIDS epidemic – June 1998

For countries marked with an asterisk, not enough data were available to produce an estimate of HIV prevalence for end 1997. For each of these countries the 1994 prevalence rate published by WHO/GPA (WER 1995; 70:353-360) was applied to the country's 1997 adult population to produce the estimates given in the table. Regional totals including these countries are based on regional models.

Adults and children

Estimated number of adults and children living with HIV/AIDS at the end of 1997. Children are defined as those under the age of 15.

Adults (15-49)

Estimated number of adults living with HIV/AIDS at the end of 1997.

Adult rate (%)

Estimated number of adults living with HIV/AIDS at the end of 1997 divided by the 1997 adult population.

Women (15-49)

Estimated number of women (aged 15-49) living with HIV/AIDS at the end of 1997.

Children (0-14)

Estimated number of children under age 15 living with HIV/AIDS at the end of 1997.

3. Estimated AIDS deaths

Adults and children, 1997

Estimated number of adults and children who died of AIDS during 1997. Country estimates marked with a "d" are based on reported AIDS cases, corrected for under-reporting, multiplied by the cumulative reported case fatality rate by country. Owing to under-reporting of deaths, these case fatality rates are lower than the true values.

Adults and children, cumulative

Estimated number of adults and children who have died of AIDS since the beginning of the epidemic.

4. Orphans

Orphans, cumulative

Estimated number of children who have lost their mother or both parents to AIDS (while they were under age 15) since the beginning of the epidemic.

5. Estimated AIDS cases

Adults and children, cumulative

Estimated number of AIDS cases in adults and children that have occurred since the beginning of the epidemic.

6. Reported AIDS cases

HIV or AIDS first reported

The year that the first case of HIV or AIDS was reported by the country.

Adults and children, cumulative

The total number of AIDS cases in adults and children officially reported by the country since the beginning of the epidemic.

Date of last report

The date of the most recent AIDS case report from the country.

Sex distribution (%)

Reported proportion of male AIDS cases, as a percentage, for countries reporting 25 cases or more. Because this distribution excludes AIDS cases for which information on sex was not available, it may not be representative of the total population of AIDS cases in the country.

- *male*

The percentage of reported AIDS cases that are male, calculated over the period described in the following indicator.

- *period of reporting*

Time period taken into account for calculation of the sex distribution in reported AIDS cases. Since the sex ratio has changed markedly over the course of the epidemic in some countries, the percentage of male cases was calculated whenever possible for the most recent three-year period of reported data. Different reporting structures made that impossible for some countries.

Mode of transmission (%)

Reported AIDS cases by assumed mode of transmission, as percentages, for countries reporting 25 cases or more. Because this distribution excludes AIDS cases for which information on transmission was not available, it may not be representative of the total population of AIDS cases in the country.

- *hetero*

Heterosexual contacts.

- *homo*

Homosexual contacts between men.

- *IDU*

Injecting drug use. This transmission category also includes cases in which other high-risk behaviour was reported in addition to drug injecting.

- *blood*

Blood and blood products.

- *mother-to-child*

Vertical transmission during pregnancy, birth or breastfeeding.

- *period of reporting*

Time period taken into account for calculation of the distribution by assumed transmission modes in reported AIDS cases. Since this distribution has changed markedly over the course of the epidemic in some countries, the percentages

were calculated wherever possible for the most recent three-year period of reported data. Different reporting structures made that impossible for some countries.

7. HIV prevalence (%), selected populations

Percentage of people tested in each group who proved to be infected with HIV. Most of these data are from routine sentinel surveillance. For each of the groups the table gives the year of the most recent report, the median for all surveillance sites, the minimum and the maximum. An "n" denotes a nationwide number. An "r" denotes rural samples only. The year indicates the date of the most recent report.

Women in antenatal care clinics – major urban areas

Women in antenatal care clinics – outside major urban areas

Male STD patients – major urban areas

Female sex workers – major urban areas

Injecting drug users – major urban areas

8. Prevention indicators

Condom availability

• condoms available per capita

Total number of condoms available for distribution, during the 12 months preceding the report, per adult (15-49). This includes imports, local manufactures, private sector and socially marketed condoms. The year indicates the date of the most recent report.

• condom access (%)

The percentage of adults (15-49) that have access to condoms. The year indicates the date of the most recent survey.

Reported non-regular sexual partnerships (%)

The percentage of adults who report having had at least one sex partner other than their regular sex partner(s) in the 12 months preceding the report. An "a" denotes the proportion for both sexes combined. A "u" reflects urban samples only. A "y" denotes the proportion for those not living with a spouse or other stable partner. The year indicates the date of the most recent survey.

Reported condom use with non-regular partner (%)

The percentage of adults who report having used a condom during the most recent intercourse with a non-regular sex partner. An "a" denotes the proportion for both sexes combined. A "u" reflects urban samples only. The year indicates the date of the most recent report. The age range indicates the age group of the population included in the survey.

Yugoslavia refers to states/areas of the former Socialist Federal Republic of Yugoslavia with the exception of Bosnia and Herzegovina, Croatia, Slovenia, and The former Yugoslav Republic of Macedonia.

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	Population 1997		Estimated number of people living with HIV/AIDS, end 1997					Estimated AIDS deaths		Orphans
Country	Total (thousands)	Adults 15-49 (thousands)	Adults and children	Adults (15-49)	Adult rate (%)	Women (15-49)	Children (0-14)	Adults and children, 1997	Adults and children, cumulative	Orphans, cumulative
Western Europe	400,181	201,131	480,000	480,000	0.23	100,000	5,000	15,000	190,000	8,700
Albania	3,422	1,815	<100	<100	0.01	...	...	...	<100d	...
Austria	8,161	4,203	7,500	7,500	0.18	1,400	<100	...	1,500d	...
Belgium	10,188	5,091	7,500	7,200	0.14	2,600	300	...	1,700d	...
Denmark	5,248	2,604	3,100	3,100	0.12	770	<100	...	1,800d	...
Finland	5,142	2,560	500	500	0.02	100	...	...	210d	...
France	58,542	29,347	110,000	110,000	0.37	...	1,500	...	35,000d	...
Germany	82,190	41,035	35,000	35,000	0.08	6,800	500	...	13,000d	...
Greece	10,522	5,222	7,500	7,500	0.14	...	...	...	1,300d	...
Iceland	274	142	200	200	0.14	...	...	...	<100d	...
Ireland	3,559	1,855	1,700	1,700	0.09	...	...	...	360d	...
Italy	57,241	28,939	90,000	90,000	0.31	27,000	500	...	31,000d	...
Luxembourg	417	215	300	300	0.14	<100	...	...	<100d	...
Malta	371	189	200	200	0.11	...	...	...	<100d	...
Netherlands	15,661	8,189	14,000	14,000	0.17	...	...	...	4,700d	...
Norway	4,364	2,172	1,300	1,300	0.06	...	<100	...	500d	...
Portugal	9,802	4,993	35,000	35,000	0.69	6,800	500	...	3,900d	...
Slovenia	1,922	1,004	<100	<100	0.01	...	...	...	<100d	...
Spain	39,717	20,893	120,000	120,000	0.57	25,000	...	...	33,000d	...
Sweden	8,844	4,127	3,000	3,000	0.07	730	<100	...	990d	...
Switzerland	7,276	3,722	12,000	12,000	0.32	4,100	<100	...	5,100d	...
TFYR Macedonia	2,190	1,171	<100	<100	0.01	...	...	...	<100d	...
United Kingdom	58,200	28,223	25,000	25,000	0.09	...	...	...	13,000d	...
Yugoslavia	10,350	5,235	...	5,000*	0.10*	...	...	...	...	...
North Africa & Middle East	322,211	164,259	210,000	200,000	0.13	40,000	7,000	13,000	42,000	14,000
Algeria	29,473	15,197	...	11,000*	0.07*	...	...	...	...	...
Bahrain	582	344	...	500*	0.15*	...	...	...	...	...
Cyprus	766	382	...	1,000*	0.26*	...	...	...	...	...
Egypt	64,465	32,675	...	8,100	0.03	850	110	930	5,400	750
Iraq	21,177	10,154	...	300*	<0.005*	...	...	...	...	...
Israel	5,781	2,933	...	2,100*	0.07*	...	...	...	...	...
Jordan	5,774	2,746	...	660*	0.02*	...	...	...	...	...
Kuwait	1,731	938	...	1,100*	0.12*	...	...	...	...	...
Lebanon	3,144	1,646	...	1,500*	0.09*	...	...	...	...	...
Libyan Arab Jamahiriya	5,784	2,600	...	1,400*	0.05*	...	...	...	...	...
Morocco	27,518	14,583	...	5,000*	0.03*	...	...	...	...	...
Oman	2,401	1,051	...	1,200*	0.11*	...	...	...	...	...
Qatar	569	341	...	300*	0.09*	...	...	...	...	...
Saudi Arabia	19,494	9,535	...	1,100*	0.01*	...	...	...	...	...
Sudan	27,899	13,787	...	140,000*	0.99*	...	...	...	...	...
Syrian Arab Republic	14,951	7,181	...	800*	0.01*	...	...	...	...	...
Tunisia	9,326	5,001	...	2,200*	0.04*	...	...	...	...	...
Turkey	62,774	34,593	...	2,000	0.01	...	...	...	...	...
United Arab Emirates	2,308	1,329	...	2,400*	0.18*	...	...	...	...	...
Yemen	16,294	7,243	...	900*	0.01*	...	...	...	...	...
sub-Saharan Africa	593,027	268,439	21,000,000	20,000,000	7.41	9,900,000	960,000	1,800,000	9,600,000	7,800,000
Angola	11,569	4,955	110,000	100,000	2.12	52,000	5,200	7,200	25,000	19,000
Benin	5,720	2,503	54,000	52,000	2.06	26,000	2,400	3,900	15,000	11,000
Botswana	1,518	743	190,000	190,000	25.1	93,000	7,300	15,000	43,000	28,000
Burkina Faso	11,087	4,843	370,000	350,000	7.17	170,000	22,000	42,000	250,000	200,000
Burundi	6,398	2,914	260,000	240,000	8.30	120,000	15,000	30,000	200,000	160,000
Cameroon	13,937	6,306	320,000	310,000	4.89	150,000	13,000	24,000	100,000	74,000
Central African Republic	3,416	1,582	180,000	170,000	10.77	85,000	7,300	17,000	92,000	65,000
Chad	6,702	3,051	87,000	83,000	2.72	42,000	4,200	10,000	70,000	55,000
Comoros	651	296	...	400*	0.14*	...	...	...	...	...
Congo	2,745	1,219	100,000	95,000	7.78	47,000	5,300	11,000	80,000	64,000
Côte d'Ivoire	14,300	6,611	700,000	670,000	10.06	330,000	32,000	72,000	420,000	320,000
Democratic Republic of Congo	48,040	20,774	950,000	900,000	4.35	450,000	49,000	93,000	470,000	410,000
Djibouti	634	306	33,000	32,000	10.3	16,000	1,300	2,200	7,000	3,900
Equatorial Guinea	420	188	2,400	2,300	1.21	1,100	120	280	2,000	1,600
Eritrea	3,409	1,559	...	49,000*	3.17*	...	...	...	...	...

Annex. HIV/AIDS estimates and indicators, end 1997

	Population 1997		Estimated number of people living with HIV/AIDS, end 1997					Estimated AIDS deaths		Orphans
Country	Total (thousands)	Adults 15-49 (thousands)	Adults and children	Adults (15-49)	Adult rate (%)	Women (15-49)	Children (0-14)	Adults and children, 1997	Adults and children, cumulative	Orphans, cumulative
Ethiopia	60,148	26,447	2,600,000	2,500,000	9.31	1,200,000	140,000	250,000	1,000,000	840,000
Gabon	1,138	512	23,000	22,000	4.25	11,000	800	1,700	7,100	4,800
Gambia	1,169	559	13,000	13,000	2.24	6,300	620	1,500	11,000	8,400
Ghana	18,338	8,418	210,000	200,000	2.38	100,000	10,000	24,000	170,000	130,000
Guinea	7,614	3,357	74,000	70,000	2.09	35,000	3,600	5,700	23,000	18,000
Guinea-Bissau	1,112	503	12,000	11,000	2.25	5,700	420	580	1,600	990
Kenya	28,414	13,381	1,600,000	1,600,000	11.64	780,000	66,000	140,000	600,000	440,000
Lesotho	2,131	985	85,000	82,000	8.35	41,000	3,100	5,200	15,000	9,500
Liberia	2,467	1,152	44,000	42,000	3.65	21,000	2,300	4,600	24,000	21,000
Madagascar	15,845	7,121	8,600	8,200	0.12	4,100	370	600	1,900	1,300
Malawi	10,086	4,474	710,000	670,000	14.92	330,000	42,000	80,000	450,000	360,000
Mali	11,480	5,057	89,000	84,000	1.67	42,000	4,800	8,300	40,000	33,000
Mauritania	2,392	1,135	6,100	5,900	0.52	2,900	250	480	1,900	1,400
Mauritius	1,141	649	...	500*	0.08*	...	...	...	...	...
Mozambique	18,265	8,178	1,200,000	1,200,000	14.17	580,000	54,000	83,000	250,000	170,000
Namibia	1,613	752	150,000	150,000	19.94	75,000	5,000	6,400	14,000	7,800
Niger	9,788	4,216	65,000	61,000	1.45	31,000	3,500	5,800	25,000	20,000
Nigeria	118,369	53,188	2,300,000	2,200,000	4.12	1,100,000	99,000	150,000	530,000	410,000
Reunion	664	365	...	160*	0.04*	...	...	...	...	...
Rwanda	5,883	2,710	370,000	350,000	12.75	170,000	22,000	36,000	170,000	120,000
Senegal	8,762	4,042	75,000	72,000	1.77	36,000	3,800	...	...	49,000
Sierra Leone	4,428	2,025	68,000	64,000	3.17	32,000	3,700	8,400	54,000	47,000
Somalia	10,217	4,454	...	11,000*	0.25*	...	...	...	...	...
South Africa	43,336	21,717	2,900,000	2,800,000	12.91	1,400,000	80,000	140,000	360,000	200,000
Swaziland	906	439	84,000	81,000	18.50	41,000	2,800	5,000	14,000	8,000
Togo	4,317	1,915	170,000	160,000	8.52	82,000	9,600	20,000	130,000	110,000
Uganda	20,791	9,099	930,000	870,000	9.51	430,000	67,000	160,000	1,800,000	1,700,000
United Rep. of Tanzania	31,507	14,347	1,400,000	1,400,000	9.42	680,000	68,000	150,000	940,000	730,000
Zambia	8,478	3,832	770,000	730,000	19.07	370,000	41,000	97,000	590,000	470,000
Zimbabwe	11,682	5,560	1,500,000	1,400,000	25.84	720,000	57,000	130,000	590,000	450,000
South & South-East Asia	1,859,821	954,510	5,800,000	5,700,000	0.61	1,500,000	81,000	250,000	730,000	200,000
Afghanistan	22,132	10,777	...	<100*	<0.005*	...	...	...	...	...
Bangladesh	122,013	61,360	21,000	21,000	0.03	3,100	270	1,300	4,200	810
Bhutan	1,862	860	...	<100*	<0.005*	...	...	...	...	...
Brunei Darussalam	307	173	...	300*	0.2*	...	...	...	...	...
Cambodia	10,516	4,994	130,000	120,000	2.40	60,000	5,400	6,300	15,000	7,300
India	960,178	494,756	4,100,000	4,100,000	0.82	1,000,000	48,000	140,000	350,000	120,000
Indonesia	203,480	109,979	52,000	51,000	0.05	13,000	960	1,600	3,900	1,000
Iran (Islamic Republic of)	71,518	32,664	...	1,000*	<0.005*	...	...	...	...	...
Lao People's Dem. Rep.	5,194	2,324	1,100	1,000	0.04	520	<100	<100	210	150
Malaysia	21,018	10,624	68,000	66,000	0.62	13,000	1,400	2,300	5,700	1,500
Maldives	273	120	...	<100*	0.05*	...	...	...	...	...
Myanmar	46,765	24,361	440,000	440,000	1.79	92,000	7,100	29,000	86,000	14,000
Nepal	22,591	10,404	26,000	25,000	0.24	10,000	580	840	1,700	750
Pakistan	143,831	68,870	64,000	62,000	0.09	12,000	1,800	4,500	15,000	5,000
Philippines	70,724	36,034	24,000	23,000	0.06	7,000	620	630	1,300	480
Singapore	3,439	2,030	3,100	3,100	0.15	610	<100	<100	<500	<100
Sri Lanka	18,273	10,025	6,900	6,700	0.07	2,000	190	400	1,700	450
Thailand	59,159	34,433	780,000	770,000	2.23	290,000	14,000	60,000	230,000	48,000
Viet Nam	76,548	39,722	88,000	86,000	0.22	17,000	1,100	2,700	7,200	1,900
Eastern Europe & Central Asia	373,424	193,385	190,000	180,000	0.09	38,000	4,700	<1000	5,400	<100
Armenia	3,642	1,951	<100	<100	0.01	...	...	...	...	...
Azerbaijan	7,655	4,054	<100	<100	<0.005	...	...	...	<100d	...
Belarus	10,339	5,262	9,000	9,000	0.17	...	...	...	<100d	...
Bosnia and Herzegovina	3,784	2,122	...	750*	0.04*	...	...	...	...	...
Bulgaria	8,427	4,157	...	300*	0.01*	...	...	...	...	...
Croatia	4,498	2,262	...	300*	0.01*	...	...	...	<100d	...
Czech Republic	10,237	5,371	2,000	2,000	0.04	...	...	...	<200d	...
Estonia	1,455	733	<100	<100	0.01	<100d	...
Georgia	5,434	2,726	<100	<100	<0.005	<100d	...
Hungary	9,990	5,102	2,000	2,000	0.04	200d	...

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	Population 1997		Estimated number of people living with HIV/AIDS, end 1997					Estimated AIDS deaths		Orphans
Country	Total (thousands)	Adults 15-49 (thousands)	Adults and children	Adults (15-49)	Adult rate (%)	Women (15-49)	Children (0-14)	Adults and children, 1997	Adults and children, cumulative	Orphans, cumulative
Kazakstan	16,832	8,930	2,500	2,500	0.03	...	...	...	<100d	...
Kyrgyzstan	4,481	2,236	<100	<100	<0.005	...	...	...	...	...
Latvia	2,474	1,210	<100	<100	0.01	...	...	...	<100d	...
Lithuania	3,719	1,865	<100	<100	0.01	...	...	...	<100d	...
Poland	38,635	20,473	12,000	12,000	0.06	...	...	...	490d	...
Republic of Moldova	4,448	2,315	2,500	2,500	0.11	...	...	...	<100d	...
Romania	22,606	11,772	5,000	1,000	0.01	...	...	...	4,100d	...
Russian Federation	147,708	77,477	40,000	40,000	0.05	...	...	...	190d	...
Slovakia	5,355	2,880	<100	<100	<0.005	...	...	...	<100d	...
Tajikistan	6,046	2,894	<100	<100	<0.005	...	...	...	...	...
Turkmenistan	4,235	2,132	<100	<100	0.01	...	...	...	...	...
Ukraine	51,424	25,461	110,000	110,000	0.43	...	...	...	240d	...
Uzbekistan	23,656	11,752	<100	<100	<0.005	...	...	...	<100d	...
East Asia & Pacific	1,451,707	814,557	420,000	420,000	0.05	53,000	1,800	5,000	11,000	2,200
China	1,243,738	704,949	400,000	400,000	0.06	48,000	1,400	4,000	6,400	720
Dem. People's Rep. of Korea	22,837	13,291	...	<100*	<0.005*	...	...	...	...	...
Fiji	809	430	260	260	0.06	<100	<100	<100	<100	<100
Hong Kong	5,900	3,647	3,100	3,100	0.08	1,200	<100	140	490	110
Japan	125,638	61,733	6,800	6,800	0.01	380	<100	260	1,700	<100
Mongolia	2,568	1,322	<100	<100	0.01	...	...	...	...	...
Papua New Guinea	4,500	2,260	4,500	4,200	0.19	2,100	300	440	2,200	1,300
Republic of Korea	45,717	26,925	3,100	3,100	0.01	400	<100	100	250	<100
Australia & New Zealand	21,891	11,450	12,000	12,000	0.11	700	<100	700	7,000	<500
Australia	18,250	9,566	11,000	11,000	0.14	550	<100	610	6,000	...
New Zealand	3,641	1,884	1,300	1,300	0.07	190	<100	<100	530	120
North America	301,591	156,277	860,000	850,000	0.55	170,000	8,600	29,000	420,000	70,000
Canada	29,943	15,923	44,000	43,000	0.33	5,600	430	660	11,000	1,000
United States of America	271,648	140,354	820,000	810,000	0.76	160,000	8,100	28,000	410,000	70,000
Caribbean	30,932	16,368	310,000	300,000	1.82	98,000	9,000	18,000	110,000	46,000
Bahamas	288	165	6,300	6,200	3.77	2,100	<100	440	2,900	760
Barbados	262	144	4,300	4,200	2.89	1,400	140	330	2,100	470
Cuba	11,068	6,104	1,400	1,400	0.02	450	<100	100	640	160
Dominican Republic	8,097	4,312	83,000	81,000	1.89	27,000	1,400	2,900	9,300	3,700
Haiti	7,395	3,561	190,000	180,000	5.17	61,000	7,100	13,000	85,000	40,000
Jamaica	2,515	1,367	14,000	14,000	0.99	4,400	240	990	5,200	180
Trinidad and Tobago	1,307	715	6,800	6,700	0.94	2,200	110	480	2,500	760
Latin America	451,751	236,587	1,190,000	1,150,000	0.52	240,000	13,400	23,000	169,000	75,000
Argentina	35,671	17,682	120,000	120,000	0.69	22,000	980	4,300	12,000	2,400
Belize	224	110	2,100	2,100	1.89	520	<100	160	880	340
Bolivia	7,774	3,730	2,600	2,600	0.07	370	<100	180	850	150
Brazil	159,636	85,405	470,000	420,000	0.95	130,000	6,000	...	80,000	...
Chile	14,625	7,749	16,000	15,000	0.20	2,700	150	740	2,900	530
Colombia	37,068	19,922	72,000	72,000	0.36	11,000	530	3,000	10,000	1,500
Costa Rica	3,575	1,873	10,000	10,000	0.55	2,600	170	630	3,100	940
Ecuador	11,937	6,227	18,000	18,000	0.28	2,500	200	1,200	7,700	1,100
El Salvador	5,928	3,045	18,000	18,000	0.58	4,400	340	1,100	6,300	2,200
Guatemala	11,241	5,173	27,000	27,000	0.52	6,700	750	1,700	8,300	3,600
Guyana	847	481	10,000	10,000	2.13	3,300	<100	490	2,100	660
Honduras	5,981	2,839	43,000	41,000	1.46	10,000	1,200	3,100	15,000	6,100
Mexico	94,281	49,974	180,000	180,000	0.35	21,000	1,700	...	...	...
Nicaragua	4,351	2,113	4,100	4,100	0.19	1,000	<100	120	320	120
Panama	2,722	1,438	9,000	8,800	0.61	2,200	160	650	3,700	1,000
Paraguay	5,088	2,491	3,200	3,100	0.13	550	<100	240	1,300	340
Peru	24,367	12,654	72,000	71,000	0.56	11,000	510	2,200	6,000	990
Suriname	437	230	2,800	2,700	1.17	890	<100	210	1,100	390
Uruguay	3,221	1,581	5,200	5,200	0.33	900	<100	390	2,200	340
Venezuela	22,777	11,870	82,000	81,000	0.69	12,000	580	2,500	6,600	1,200
Total:	5,837,110	3,035,425	30,600,000	29,400,000	0.97	12,200,000	1,100,000	2,300,000	11,700,000	8,200,000

Annex. HIV/AIDS estimates and indicators, end 1997

	Estimated AIDS cases	Reported AIDS cases										
					Sex distribution (%)		Mode of transmission (%)					
	<i>Adults and children, cumulative</i>	<i>HIV or AIDS first reported</i>	<i>Adults and children, cumulative</i>	<i>Date of last report</i>	<i>Male</i>	<i>Period of reporting</i>	<i>Hetero</i>	<i>Homo</i>	<i>IDU</i>	<i>Blood</i>	<i>Mother-to- child</i>	<i>Period of reporting</i>
Country												
Western Europe	230,000											
Albania	<100	1994	10	12/97	...	...	...	...	...	...	...	...
Austria	2,300	1983	1,767	12/97	77	95-97	15	46	30	7	2	83-97
Belgium	2,900	1984	2,412	12/97	70	95-97	44	40	7	5	4	80-97
Denmark	2,200	1978	2,102	12/97	84	95-97	17	70	9	3	1	81-97
Finland	280	1985	268	12/97	91	95-97	23	69	4	4	1	82-97
France	57,000	1982	47,407	12/97	80	95-97	19	48	26	5	1	80-97
Germany	21,000	1980	17,048	12/97	85	95-97	8	70	16	5	1	81-97
Greece	2,100	1984	1,740	12/97	86	95-97	18	65	5	12	1	82-97
Iceland	<100	1985	43	9/97	...	...	7	83	5	5	0	85-97
Ireland	700	1983	609	12/97	83	95-97	13	35	44	5	3	83-97
Italy	46,000	1982	40,950	12/97	76	95-97	14	15	68	2	2	82-97
Luxembourg	130	1984	122	9/97	87	95-97	19	56	17	7	1	84-97
Malta	<100	1984	43	12/97	...	...	12	51	2	32	2	86-97
Netherlands	5,600	1982	4,630	12/97	84	95-97	13	72	12	3	1	82-97
Norway	620	1982	599	12/97	84	95-97	20	58	17	4	1	83-97
Portugal	6,300	1983	4,701	12/97	83	95-97	27	24	44	4	1	83-97
Slovenia	<100	1986	62	12/97	84	95-97	23	59	7	7	4	86-97
Spain	60,000	1981	48,989	12/97	80	95-97	11	17	68	2	2	81-97
Sweden	1,600	1983	1,557	12/97	80	95-97	21	60	12	6	1	82-97
Switzerland	6,900	1983	6,099	12/97	74	95-97	17	39	41	2	1	80-97
TFYR Macedonia	<100	1989	23	12/97	...	...	...	...	...	...	...	...
United Kingdom	18,000	1982	15,081	12/97	84	95-97	15	70	8	5	2	81-97
Yugoslavia	690	1985	683	12/97	72	95-97	17	15	53	14	1	85-97
North Africa & Middle East	49,000											
Algeria	...	1985	326	9/97	75	85-97	63	9	5	18	5	85-97
Bahrain	...	...	37	3/97	...	...	...	...	...	...	...	...
Cyprus	...	1986	54	12/96	...	...	...	...	...	...	...	...
Egypt	5,800	1986	153	6/97	93	95-97	67	14	6	14	0	95-97
Iraq	...	1991	104	6/97	...	...	...	...	...	...	...	...
Israel	...	1981	466	12/97	72	95	31	36	17	13	2	80-97
Jordan	...	1986	51	6/97	...	...	...	...	...	...	...	...
Kuwait	...	1984	24	3/97	...	...	...	...	...	...	...	...
Lebanon	...	1984	97	12/96	...	...	...	...	...	...	...	...
Libyan Arab Jamahiriya	...	1986	17	12/95	...	...	...	...	...	...	...	...
Morocco	...	1986	390	3/97	67	95-96	72	16	9	3	1	95-97
Oman	...	...	135	6/97	...	...	...	...	...	...	...	...
Qatar	...	...	85	6/97	...	...	...	...	...	...	...	...
Saudi Arabia	...	1986	334	9/97	58	95-96	69	2	2	21	5	95-97
Sudan	...	1986	1,649	6/97	78	95-97	98	0	0	0	1	95-97
Syrian Arab Republic	...	1986	49	6/97	...	...	...	...	...	...	...	...
Tunisia	...	1985	338	3/97	82	95-96	45	7	28	11	8	95-97
Turkey	...	1985	254	12/97	84	95-97	51	19	17	12	2	85-97
United Arab Emirates	...	...	8	12/90	...	...	...	...	...	...	...	...
Yemen	...	1989	82	12/96	60	95-96	91	2	0	7	0	95-96
sub-Saharan Africa	10,500,000											
Angola	28,000	1985	1,296	10/96	48	85-96	59	1	9	24	8	85-97
Benin	16,000	1985	2,275	9/97	64	85-97	92	0	0	2	6	85-97
Botswana	50,000	1985	5,337	3/97	51	88-97	94	0	0	0	6	88-95
Burkina Faso	270,000	1986	10,108	8/96	57	94-96	...	...	...	...	...	...
Burundi	220,000	1983	9,119	9/97	...	...	...	...	...	...	...	...
Cameroon	110,000	1985	9,626	5/97	50	95	...	...	...	...	...	...
Central African Republic	100,000	1984	7,016	5/97	45	87-97	...	...	...	...	...	...
Chad	75,000	...	7,354	1/98	...	...	98	0	0	0	2	86-97
Comoros	...	1988	18	11/97	...	...	...	...	...	...	...	...
Congo	85,000	1986	10,223	9/96	...	...	...	...	...	...	...	...
Côte d'Ivoire	450,000	1985	37,963	6/96	62	85-95	...	...	...	...	...	...
Democratic Republic of Congo	510,000	1985	38,426	1/98	...	...	92	0	0	3	4	86-95
Djibouti	7,900	1986	1,672	2/98	48	95-96	98	0	0	0	2	95-97
Equatorial Guinea	2,100	1988	231	11/96	42	88-96	98	0	0	0	2	88-96

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	Estimated AIDS cases	Reported AIDS cases										
					Sex distribution (%)		Mode of transmission (%)					
	<i>Adults and children, cumulative</i>	<i>HIV or AIDS first reported</i>	<i>Adults and children, cumulative</i>	<i>Date of last report</i>	<i>Male</i>	<i>Period of reporting</i>	<i>Hetero</i>	<i>Homo</i>	<i>IDU</i>	<i>Blood</i>	<i>Mother-to- child</i>	<i>Period of reporting</i>
Country												
Eritrea	...	...	3,464	6/97	...	...	...	...	...	...	...	...
Ethiopia	1,100,000	1984	21,569	10/97	61	86-97	97	0	0	2	2	86-96
Gabon	7,900	1986	1,376	11/96	...	...	96	0	0	0	4	87-96
Gambia	11,000	1986	504	6/97	62	89-96	94	0	0	0	6	89-96
Ghana	180,000	1986	18,730	6/96	67	86-96	...	...	...	...	...	...
Guinea	25,000	...	3,352	6/97	...	...	98	0	0	0	2	87-96
Guinea-Bissau	1,800	1989	823	10/96	54	89-96	100	0	0	0	0	89-93
Kenya	660,000	1980	74,754	7/97	54	86-96	...	...	...	...	...	...
Lesotho	17,000	1986	2,436	6/97	44	86-96	90	0	0	6	4	86-93
Liberia	26,000	...	176	12/97	61	95-97	...	...	...	...	...	...
Madagascar	2,200	1987	32	7/97	...	...	...	...	...	...	...	...
Malawi	480,000	1985	50,970	6/97	50	95-97	89	0	0	2	9	95-96
Mali	44,000	...	4,028	6/97	...	...	...	...	...	...	...	...
Mauritania	2,100	...	161	6/96	...	...	93	2	1	1	2	88-95
Mauritius	...	1987	43	12/97	83	87-97	84	0	16	0	0	87-97
Mozambique	290,000	1986	6,126	8/97	52	86-96	84	0	0	10	6	86-97
Namibia	16,000	1986	6,784	3/97	...	...	...	...	...	...	...	...
Niger	27,000	1987	3,002	12/96	...	...	99	0	0	0	1	87-95
Nigeria	590,000	1986	17,066	9/97	...	...	95	0	0	4	1	86-95
Reunion	...	...	166	12/95	...	...	17	35	35	8	4	87-90
Rwanda	180,000	1983	12,056	6/93	...	...	...	...	...	...	...	...
Senegal	60,000	1986	1,982	6/96	...	...	97	1	0	1	0	86-94
Sierra Leone	57,000	1987	205	6/96	59	87-96	97	1	0	0	3	87-96
Somalia	...	...	13	12/90	...	...	...	...	...	...	...	...
South Africa	420,000	...	12,825	10/96	48	82-96	79	7	0	1	13	82-97
Swaziland	16,000	1986	2,449	6/97	50	91-97	86	0	0	0	14	91-95
Togo	140,000	1987	7,993	3/97	57	87-97	91	0	0	2	7	87-97
Uganda	1,900,000	1983	51,779	5/97	...	...	...	...	...	...	...	...
United Rep. of Tanzania	1,000,000	1983	88,667	12/96	...	...	96	0	0	0	3	83-95
Zambia	630,000	1985	44,942	7/97	48	84-97	94	0	1	5	0	84-90
Zimbabwe	650,000	1985	65,939	4/97	56	87-97	86	0	0	0	14	87-97
South & South-East Asia	850,000											
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Bangladesh	4,900	1989	10	3/97	...	...	52	45	2	0	1	...
Bhutan	...	...	0	10/97	...	...	...	...	...	...	...	...
Brunei Darussalam	...	1986	10	7/97	...	...	...	...	...	...	...	...
Cambodia	18,000	1991	617	9/97	...	...	80	1	0	0	19	93-97
India	430,000	1986	4,980	11/97	...	...	...	...	...	...	...	...
Indonesia	4,800	1987	153	12/97	78	95-97	72	24	3	0	1	87-97
Iran (Islamic Republic of)	...	1987	154	12/96	93	95-96	48	0	10	43	0	95-96
Lao People's Dem. Rep.	240	...	69	1/98	60	91-96	78	0	0	18	4	91-97
Malaysia	6,900	1986	1,110	8/97	94	87-96	16	3	68	12	2	87-97
Maldives	...	1991	5	4/97	...	...	...	...	...	...	...	...
Myanmar	100,000	1988	1,822	4/97	81	95-97	...	...	...	...	...	...
Nepal	2,100	1988	183	1/98	58	95-96	...	...	...	...	...	...
Pakistan	17,000	1987	147	12/97	87	87-97	92	0	0	0	8	95-97
Philippines	1,600	1985	310	9/97	65	85-96	56	39	1	3	2	84-97
Singapore	290	...	314	9/97	94	86-96	46	31	2	20	0	86-97
Sri Lanka	1,900	1986	77	12/97	69	86-97	...	...	...	...	...	...
Thailand	260,000	1985	59,782	4/97	81	85-97	...	...	...	...	...	...
Viet Nam	8,700	1990	1,020	8/97	88	93-96	18	0	81	1	0	93-97
Eastern Europe & Central Asia	<10,000											
Armenia	...	1992	8	9/96	...	...	...	...	...	...	...	...
Azerbaijan	<100	1987	9	12/97	...	...	...	...	...	...	...	...
Belarus	<100	1991	17	12/97	...	...	...	...	...	...	...	...
Bosnia and Herzegovina	...	...	6	12/97	...	...	...	...	...	...	...	...
Bulgaria	...	1987	53	12/97	...	...	77	19	0	4	0	87-97
Croatia	...	1986	119	12/97	77	95-97	36	50	8	6	1	86-97
Czech Republic	110	1985	111	12/97	95	95-97	16	68	2	13	0	86-97
Estonia	<100	1992	17	12/97	...	...	...	...	...	...	...	...

Annex. HIV/AIDS estimates and indicators, end 1997

	Estimated AIDS cases	Reported AIDS cases										
					Sex distribution (%)		Mode of transmission (%)					
	Adults and children, cumulative	HIV or AIDS first reported	Adults and children, cumulative	Date of last report	Male	Period of reporting	Hetero	Homo	IDU	Blood	Mother-to- child	Period of reporting
Country												
Georgia	<100	1988	22	12/97	...	...	...	...	...	...	...	...
Hungary	300	1985	277	12/97	90	94-97	10	77	0	12	0	86-97
Kazakstan	<100	1989	14	6/97	...	...	...	...	...	...	...	...
Kyrgyzstan	...	1990	0	9/97	...	...	...	...	...	...	...	...
Latvia	<100	1987	20	12/97	...	...	...	...	...	...	...	...
Lithuania	<100	1988	12	9/97	...	...	...	...	...	...	...	...
Poland	840	1986	594	12/97	82	95-97	14	33	51	2	1	86-97
Republic of Moldova	<100	1986	17	12/97	...	...	...	...	...	...	...	...
Romania	...	1985	5,147	12/97	56	95	20	2	0	63	16	85-97
Russian Federation	290	1986	268	9/97	79	95-97	32	64	1	2	2	86-97
Slovakia	<100	1985	18	12/97	...	...	...	...	...	...	...	...
Tajikistan	...	...	0	3/97	...	...	...	...	...	...	...	...
Turkmenistan	...	1985	1	12/97	...	...	...	...	...	...	...	...
Ukraine	590	1987	357	9/97	74	95-97	24	6	64	1	5	88-97
Uzbekistan	<100	1992	4	6/97	...	...	...	...	...	...	...	...
East Asia & Pacific	14,000											
China	9,000	1985	155	7/97	94	85-96	17	5	59	20	0	85-97
Dem. People's Rep. of Korea	...	...	0	11/96	...	...	...	...	...	...	...	...
Fiji	<100	1989	8	9/97	...	...	...	...	...	...	...	...
Hong Kong	560	1984	274	8/97	91	85-96	57	35	2	6	1	85-97
Japan	1,900	1985	1,447	10/97	87	85-96	39	27	1	33	1	85-97
Mongolia	...	...	0	8/97	...	...	...	...	...	...	...	...
Papua New Guinea	2,400	1987	306	8/97	50	87-97	87	4	0	0	10	84-97
Republic of Korea	310	...	83	6/97	89	86-96	84	12	0	4	0	87-97
Australia & New Zealand	<10,000											
Australia	8,300	1985	7,386	10/97	96	85-97	5	89	3	4	0	82-97
New Zealand	640	1984	621	8/97	95	84-97	8	87	2	3	0	84-97
North America	690,000											
Canada	20,000	1982	15,101	6/97	91	94-96	13	71	13	2	1	93-96
United States of America	670,000	1981	612,078	6/97	85	94-97	13	52	33	2	0	93-95
Caribbean	120,000											
Bahamas	3,100	1983	2,567	3/97	61	94-97	92	2	0	0	6	93-96
Barbados	2,300	1984	762	12/96	92	94-96	79	16	0	0	6	93-96
Cuba	690	...	599	6/97	74	94-97	45	54	0	1	1	93-96
Dominican Republic	11,000	1983	3,940	6/97	65	94-97	81	6	4	6	3	93-96
Haiti	91,000	...	4,967	12/92	...	...	...	...	...	...	...	...
Jamaica	5,700	1982	2,184	3/97	59	94-97	84	8	0	0	8	93-96
Trinidad and Tobago	2,700	1983	2,613	3/97	66	94-96	83	13	0	0	4	93-96
Latin America	464,000											
Argentina	15,000	1982	10,669	6/97	71	94-97	21	31	42	1	4	93-96
Belize	960	1985	198	12/96	68	94-96	65	30	1	0	4	93-96
Bolivia	940	1985	157	6/97	74	94-97	60	29	4	0	7	93-96
Brazil	310,000	1980	110,845	5/97	75	94-97	34	34	25	4	4	93-96
Chile	3,200	1984	1,967	6/97	90	94-97	25	67	6	1	2	93-96
Colombia	12,000	1983	7,953	3/97	91	94-97	16	83	0	1	1	93-96
Costa Rica	3,400	1983	1,173	3/97	89	94-97	22	73	2	1	2	93-96
Ecuador	8,300	...	625	3/97	84	94-97	42	56	0	0	1	93-96
El Salvador	6,900	1988	2,019	6/97	74	94-97	84	9	2	0	5	93-96
Guatemala	9,100	1984	2,011	7/97	78	94-96	77	16	1	2	3	93-96
Guyana	2,300	...	842	12/96	59	94-97	86	7	1	3	3	93-96
Honduras	16,000	1985	6,406	6/97	42	94-97	80	11	0	0	8	93-96
Mexico	52,000	...	32,339	9/97	87	94-97	34	55	1	8	2	93-96
Nicaragua	380	...	157	6/97	89	94-97	49	41	7	2	2	93-96
Panama	4,000	1984	1,430	6/97	76	94-97	57	36	1	0	5	93-96
Paraguay	1,500	1986	283	6/97	75	94-97	50	28	12	4	6	93-96
Peru	7,200	...	5,958	3/97	80	94-97	47	48	0	2	3	93-96
Suriname	1,200	...	211	12/96	64	94-96	86	5	0	0	9	93-96
Uruguay	2,400	1983	924	6/97	76	94-97	24	38	30	2	7	93-96
Venezuela	7,900	1982	6,916	6/97	89	94-96	36	54	4	3	3	93-96
Total	13,000,000											

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Country	HIV prevalence (%), selected populations															
	Women in antenatal care clinics - major urban areas				Women in antenatal care clinics - outside major urban areas				Male STD patients - major urban areas				Female sex workers - major urban areas			
	Year	Median	Min.	Max.	Year	Median	Min.	Max.	Year	Median	Min.	Max.	Year	Median	Min.	Max.
Western Europe																
Albania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Austria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belgium	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Denmark	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Finland	1994	0	...	...	1996	0.008n	...	...	1996	0.049	...	...	...	...	...	...
France	1994	0.42	...	...	...	...	...	...	1993	4.2	3.7	8	1991	2.3	...	...
Germany	1995	0.043	...	...	1995	0.01	0.007	0.016	...	...	...	...	...	...	...	...
Greece	...	...	...	...	...	...	...	...	...	...	...	...	1991	0	...	...
Iceland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ireland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Italy	1992	0.152	...	...	1993	0.096n	...	...	1992	11n	...	...	...	...	...	...
Luxembourg	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Netherlands	1996	0.33	...	...	...	...	...	...	1996	3.3	...	...	1991	1.5	1.5	2.3
Norway	...	...	...	...	1996	0.008n	...	...	1992	0.067	...	...	...	...	...	...
Portugal	...	...	...	...	...	...	...	...	1992	5.78	...	...	1991	3.9	...	...
Slovenia	...	...	...	...	1995	0n	...	...	1996	0n	...	...	...	...	...	...
Spain	1995	0.31	...	...	1996	0.15n	...	...	1995	5.8n	0.7	7.8	1995	2n	...	...
Sweden	...	...	...	...	1995	0.009n	...	...	1991	0.17n	...	...	...	...	...	...
Switzerland	...	...	...	...	...	...	...	...	1996	1.2n	...	...	...	...	...	...
TFYR Macedonia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
United Kingdom	1996	0.33	0.19	0.64	1996	0.017	0.007	0.03	1996	5.6	1.09	10.19	1991	0	...	...
Yugoslavia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North Africa & Middle East																
Algeria	...	...	...	...	...	...	...	...	...	...	...	...	1988	1.2	0.4	1.9
Bahrain	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyprus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Egypt	1994	0	0	0	1993	0	0	0	1993	0.17	0	0.33	1993	0	0	0
Iraq	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Israel	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jordan	1994	0n	0	0	...	...	...	...	1994	0	0	0	1994	0	0	0
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lebanon	...	...	...	...	...	...	...	...	1993	0	0	0	1993	0.09	0.09	0.09
Libyan Arab Jamahiriya	...	...	...	...	...	...	...	...	1990	0	0	0	...	...	...	...
Morocco	1996	0.02n	0.02	0.02	...	...	...	...	1996	1.4	1.4	1.4	...	...	...	...
Oman	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Saudi Arabia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	1996	4.5	4.5	4.5	1995	3	3	3	1994	6.6	6.6	6.6	...	...	...	...
Syrian Arab Republic	1994	0	0	0	...	...	...	...	1994	1	1	1	1994	0	0	0
Tunisia	1991	0	0	0	...	...	...	...	...	...	...	...	1990	0	0	0
Turkey	...	...	...	...	...	...	...	...	1992	0.126	...	...	1995	0n	...	...
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Yemen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
sub-Saharan Africa																
Angola	1995	1.2	1.2	1.2	1995	0.5	0.5	0.5	1988	12.7	12.7	12.7	...	...	...	...
Benin	1994	0.9	0.8	1	1994	1.1	0	2.3	1990	14.3	14.3	14.3	1994	50.8	50.8	50.8
Botswana	1997	38.5	34	42.9	1997	33.7	28.2	38.3	1997	49.9	39.8	60	...	...	...	...
Burkina Faso	1996	9.6	9.6	9.6	1994	6.1	5.1	10	1992	42	42	42	1994	57.2	57.2	57.2
Burundi	1993	23.2	23.2	23.2	1993	5.7	1.2	17.2	...	...	...	...	...	...	...	...
Cameroon	1996	4.5	4.5	4.5	1996	6.3	3.3	11.2	1993	5	5	5	1995	16.5	15.2	17.7
Central African Republic	1995	10	6	14	1995	14	8	20	1995	25.5	22	29	1989	18.9	18.9	18.9
Chad	...	...	...	...	1992	4.1	0.3	9.1	...	...	...	...	...	...	...	...
Comoros	1994	0n	0	0	...	...	...	...	1994	0	0	0	...	...	...	...
Congo	1994	7.5	6	8	1993	4	2	13.6	1990	16.4	16.4	16.4	1987	49.2	34.3	64.1
Côte d'Ivoire	1997	9.1	9.1	9.1	1997	9.5	5.9	13.3	1992	18.4	18.4	18.4	1995	69.2	69.2	69.2
Democratic Republic of Congo	1995	4.3	3.9	4.7	1993	4	4	4	...	...	...	...	1993	11.3r	8.5	12.7
Djibouti	1993	4	4	4	...	...	...	...	1993	14.4	14.4	14.4	1993	37.7	37.7	37.7
Equatorial Guinea	1992	1.8	1.8	1.8	1995	0.3	0.3	0.3	...	...	...	...	...	...	...	...
Eritrea	...	...	...	...	1994	3	3	3	...	...	...	...	1994	25r	25	25
Ethiopia	1996	18.2	9	26	1991	4.8	2.8	6.9	1989	17.1	17.1	17.1	1991	67.5r	65.6	69.4
Gabon	1995	4	2.1	5.4	1993	1.2	1.2	1.2	...	...	...	...	...	...	...	...

Annex. HIV/AIDS estimates and indicators, end 1997

	HIV prevalence (%), selected populations															
	Women in antenatal care clinics - major urban areas				Women in antenatal care clinics - outside major urban areas				Male STD patients - major urban areas				Female sex workers - major urban areas			
Country	Year	Median	Min.	Max.	Year	Median	Min.	Max.	Year	Median	Min.	Max.	Year	Median	Min.	Max.
Gambia	1994	0.6	0.6	0.6	...	...	...	...	1996	5.6	5.6	5.6	1993	13.6	13.6	13.6
Ghana	1996	2.2	1.6	3.6	1996	2.2	0.4	12.8	1991	8.6	8.6	8.6	1991	37.5	37.5	37.5
Guinea	1996	1.5	1.5	1.5	1996	1.4	1.3	1.8	...	...	...	...	1996	27.0	17	38
Guinea-Bissau	1995	2.7	2.7	2.7	...	...	...	...	...	...	...	...	...	...	...	...
Kenya	1997	15.9	15.9	15.9	1997	13.3	5.9	34.9	1996	14	14	14	1995	55.2	55.2	55.2
Lesotho	1994	31.3	31.3	31.3	1994	8.9	5	10.8	1994	30.5r	21	48.3	...	...	...	...
Liberia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Madagascar	1996	0	0	0	1996	0	0	1	1996	0	0	0	1996	0	0	1
Malawi	1996	30.5	27	34	1996	15.9	2.6	28.4	1993	52.9	52.9	52.9	1994	70	70	70
Mali	1994	4.4	4.4	4.4	1994	2.9	2.9	4.5	...	...	...	...	1995	55.5	55.5	55.5
Mauritania	1994	0.5	0.5	0.5	1988	0	0	0	1994	0.9	0.9	0.9	...	...	...	...
Mauritius	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mozambique	1996	5.8	5.8	5.8	1996	19.2	16.5	23.2	1996	5.7	5.7	5.7	...	...	...	...
Namibia	1996	16	16	16	1996	17.4	3.7	24.2	...	...	...	...	...	...	...	...
Niger	1993	1.3	1.3	1.3	1994	1.2	1.2	1.2	...	...	...	...	1993	12.6	12.6	12.6
Nigeria	1994	6.7	6.7	6.7	1993	2.4	0.2	8.2	...	...	...	...	1994	29.1	29.1	29.1
Reunion	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rwanda	1996	27.6	22.4	32.7	1996	9.9	3.5	22.6	1996	41.8	29.1	54.5	...	...	...	...
Senegal	1994	0	0	0	1994	0.3	0	0.6	1994	2.2	2.2	2.2	1994	10.1	10.1	10.1
Sierra Leone	1992	2	2	2	...	...	...	...	...	...	...	...	1995	26.7	26.7	26.7
Somalia	...	...	...	...	...	...	...	...	...	...	...	...	1990	2.4	2.4	2.4
South Africa	1997	14.9	6.3	26.9	1997	18.1	8.2	22.6	1994	18.8	18.8	18.8	...	...	...	...
Swaziland	1996	26.3	26.3	26.3	1996	26.5	23.9	27.7	1996	35.2	35.2	35.2	...	...	...	...
Togo	1996	7.6	6.8	8.4	1996	4.1	3.5	5.6	...	...	...	...	1992	78.9	78.9	78.9
Uganda	1997	14.7	14.6	14.8	1997	8.8	1.6	14.5	1995	33.9	33.9	33.9	...	...	...	...
United Rep. of Tanzania	1996	13.7	13.7	13.7	1995	9.6	0	32.5	1992	14.4	14.4	14.4	1993	49.5	49.5	49.5
Zambia	1994	26.5	21.7	35.3	1994	13.8	1.6	31.9	1991	59.7	59.7	59.7	...	...	...	...
Zimbabwe	1995	31	30	32	1996	46.7	36.5	59	1995	71.2	71.2	71.2	1995	86.0	86	86
South & South-East Asia																
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bangladesh	...	...	...	...	1989	0	0	0	...	...	...	...	1996	0.2	0.2	0.2
Bhutan	...	...	...	...	1993	0	0	0	...	...	...	...	...	...	...	...
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	1997	0.8	0	2.9	1997	3.5	0.5	19.5	...	...	...	...	1997	39.3	39.3	39.3
India	1997	4.3	4.3	4.3	1997	3.4	3.4	3.4	1997	33	33	33	1995	27.3	4.6	49.9
Indonesia	...	...	...	...	1996	0	0	0	...	...	...	...	1996	0r	0	0
Iran (Islamic Republic of)	1993	0	0	0	1994	0	0	0	...	...	...	...	1994	0r	0	0
Lao People's Dem. Rep.	...	...	...	...	...	...	...	...	...	...	...	...	1992	1.2	1.2	1.2
Malaysia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maldives	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Myanmar	1996	0.8	0.8	0.8	1996	1	0	8	1996	7n	0	21.6	1996	21	15.5	26.5
Nepal	...	...	...	...	1992	0	0	0	1997	1.42r	0	2.8	1993	0.9	0.9	0.9
Pakistan	1995	0	0	0	1995	0	0	0	1995	1.9	0	3.9	...	...	...	...
Philippines	...	...	...	...	...	...	...	...	1994	0	0	0	1994	0.3	0.3	0.3
Singapore	...	...	...	...	...	...	...	...	1986	0	0	0	1994	1.8	0.1	3.7
Sri Lanka	1993	0	0	0	1993	0	0	0	1991	0	0	0	1993	0.3	0	0.5
Thailand	1997	1.3	1.3	1.3	1997	1.7	0	5.5	1997	6.8	6.8	6.8	1997	13.0	13	13
Viet Nam	1996	0	0	0.2	1996	0	0	0.2	...	...	...	...	1996	0.5	0	2.7
Eastern Europe & Central Asia																
Armenia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	...	...	...	...	...	...	...	1995	0n	...	...	...	...	...	...
Belarus	...	...	...	...	1996	0.038n	...	...	1996	0.037n	...	...	...	...	...	...
Bosnia and Herzegovina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bulgaria	...	...	...	...	1997	0.01n	...	...	1997	0.09n	...	...	...	...	...	...
Croatia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Czech Republic	...	...	...	...	1996	0.005n	...	...	1996	0n	...	...	...	...	...	...
Estonia	...	...	...	...	...	...	...	...	1996	0.03n	...	...	...	...	...	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hungary	1996	0n
Kazakstan
Kyrgyzstan
Latvia	1996	0.06n	1996	0.05n	1997	0n

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Country	HIV prevalence (%), selected populations															
	Women in antenatal care clinics - major urban areas				Women in antenatal care clinics - outside major urban areas				Male STD patients - major urban areas				Female sex workers - major urban areas			
	Year	Median	Min.	Max.	Year	Median	Min.	Max.	Year	Median	Min.	Max.	Year	Median	Min.	Max.
Lithuania	1996	0	...	...	1993	0n	...	...	1996	0.007n	...	...	...	...	...	...
Poland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Republic of Moldova	...	...	...	...	1995	0n	...	...	1996	0.039n	...	...	...	...	...	...
Romania	...	...	...	...	...	...	...	...	1996	0.49n	...	...	...	...	...	...
Russian Federation	...	...	...	...	1996	<0.001n	...	...	1996	0.007n	...	...	...	...	...	...
Slovakia	...	...	...	...	1995	0n	...	...	1996	0n	...	...	...	...	...	...
Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ukraine	1996	0.15	0	0.24	1996	0.052n	...	...	1996	13.3	0.5	22.7	1995	0n	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
East Asia & Pacific	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
China	...	...	...	...	...	...	...	...	...	...	...	...	1993	0.3r	0.3	0.3
Dem. People's Rep. of Korea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong	...	...	...	...	...	...	...	...	1991	0	0	0	1988	0	0	0
Japan	...	...	...	...	1996	0.01	0.01	0.01	...	...	...	...	1992	0	0	0
Mongolia	...	...	...	...	...	...	...	...	1990	0	0	0	1990	0	0	0
Papua New Guinea	1995	0.2	0.2	0.2	1992	0	0	0	1993	0.3	0.3	0.3	...	...	...	...
Republic of Korea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Australia & New Zealand	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Australia	...	...	...	...	...	...	...	...	1996	0.6	0.5	0.7	...	...	...	...
New Zealand	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North America	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Canada	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
United States of America	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Caribbean	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bahamas	1993	3.6	3.6	3.6	...	...	...	...	...	...	...	...	...	...	...	...
Barbados	1993	0	0	0	...	...	...	...	...	...	...	...	...	...	...	...
Cuba	1996	0	0	0	...	...	...	...	...	...	...	...	...	...	...	...
Dominican Republic	1995	2	2	2	1995	2.3	1.2	4.1	1989	4	4	4	1995	5.8	0	10
Haiti	1993	8.4	8.4	8.4	1990	4	4	4	1992	25.4	25.4	25.4	1989	41.9	41.9	41.9
Jamaica	1992	0.4	0.4	0.4	...	...	...	...	1991	3.7	3.7	3.7	1995	24.6	24.6	24.6
Trinidad and Tobago	1990	0.3	0.3	0.3	...	...	...	...	1991	14.2	14.2	14.2	1988	13.0	13	13
Latin America	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	1995	1.8	0.8	2.8	...	...	...	...	1987	19.7	19.7	19.7	1992	8.3r	8.3	8.3
Belize	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bolivia	1988	0	0	0	...	...	...	...	...	...	...	...	1989	0	0	0
Brazil	1996	5.1	5.1	5.1	...	...	...	...	1995	18	18	18	1994	6.3	6.3	6.3
Chile	1994	0.1	0.1	0.1	1993	0.1	0.1	0.1	...	...	...	...	...	...	...	...
Colombia	1994	0.5	0.1	1.1	1994	0.4	0.4	0.4	1986	14.6	14.6	14.6	1994	1.1	1.1	1.1
Costa Rica	1996	0.2n	0.2	0.2	1997	0.2	0.2	0.2	1994	3.2	3.2	3.2	1992	0.6	0.6	0.6
Ecuador	1992	0.3	0.3	0.3	...	...	...	...	...	...	...	...	1993	0r	0	0
El Salvador	1995	0	0	0	...	...	...	...	...	...	...	...	1991	2.2	2.2	2.2
Guatemala	1991	0	0	0	...	...	...	...	...	...	...	...	1996	1.1	1.1	1.1
Guyana	1992	6.9	6.9	6.9	...	...	...	...	...	...	...	...	1993	25	25	25
Honduras	1996	1	1	1	1994	1.4	1.4	1.4	...	...	...	...	1995	20.5	20.5	20.5
Mexico	1996	0	0	0	...	...	...	...	...	...	...	...	1996	0.1	0	2.6
Nicaragua	...	...	...	...	...	...	...	...	...	...	...	...	1991	1.6	1.6	1.6
Panama	1994	0.3	0.3	0.3	1994	0.6	0.2	0.9	...	...	...	...	1986	0	0	0
Paraguay	1992	0	0	0	...	...	...	...	...	...	...	...	1989	0.1	0.1	0.1
Peru	...	...	...	...	...	...	...	...	...	...	...	...	1990	0.7	0.7	0.7
Suriname	1991	0.8	0.8	0.8	...	...	...	...	...	...	...	...	1990	2.6	2.6	2.6
Uruguay	1991	0	0	0	1991	0	0	0	...	...	...	...	1996	0.3	0.3	0.3
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	1994	1.9r	0	3.8

Annex. HIV/AIDS estimates and indicators, end 1997

	HIV prevalence (%)				Prevention indicators											
	Injecting drug users - major urban areas				Condom availability				Reported non-regular sexual partnerships (%)			Reported condom use with non-regular partner (%)				
					Condoms available per capita	Year	Condom access (%)	Year			Year			Year	Age range	
Country	Year	Median	Min.	Max.						Male	Female		Male	Female		
Western Europe																
Albania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Austria	1990	13.5	27	44	...	...	...	...	...	...	...	...	38a	...	1992	15-49
Belgium	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Denmark	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Finland	1995	0.14n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
France	1990	3	...	...	5.11	1996	...	...	13.3	5.6	1990	64.7	50.2	1993	18-69	
Germany	...	...	...	...	...	...	100	1997	12	5	1990	...	...	...	16-74	
Greece	1995	0.39	...	...	...	...	...	...	22.1	5.8	1990	...	...	...	15+	
Iceland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ireland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Italy	1993	23n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Luxembourg	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Netherlands	1996	5.1	...	...	...	...	...	...	18	7	1989	...	...	...	18-50	
Norway	...	...	...	...	4.19	1995	100	1997	14.5	8.8	1992	8.4	5.3	1992	15-49	
Portugal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovenia	1996	0.56	...	...	...	...	...	...	12.4	6.2	1996	16.9	17.9	1996	15-45	
Spain	1996	45	...	...	8.16	1996	...	...	18	4.8	1995	49.4	33	1995	15-49	
Sweden	1995	5.3	...	...	...	...	...	...	13	7	1989	...	...	...	16-44	
Switzerland	1996	3.3	0	7.4	...	...	...	...	15.9	8.1	1994	56.7	36.9	1994	17-45	
TFYR Macedonia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
United Kingdom	1996	1.7	1.05	4.3	5.31	1995	100	1997	26.9	6.8	1991	23.2	17.5	1991	16-49	
Yugoslavia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North Africa & Middle East																
Algeria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bahrain	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyprus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Egypt	1994	7.6	7.6	7.6	...	...	...	...	...	...	...	...	...	...	...	...
Iraq	...	...	...	...	0.24	1996	...	...	...	...	...	...	...	...	...	...
Israel	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jordan	1993	0	0	0	...	...	...	...	...	...	...	...	...	...	...	...
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lebanon	1993	2.2	2.2	2.2	1.72	1996	90	1996	22.4a	...	1996	69.3a	...	1996	15-49	
Libyan Arab Jamahiriya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Morocco	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oman	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Saudi Arabia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	...	...	...	...	...	...	...	...	3	1	1995	20	16.7	1995	15-49	
Syrian Arab Republic	1994	0.14	0.14	0.14	...	...	...	...	...	...	...	...	...	...	...	...
Tunisia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Turkey	1992	0	...	...	0.61	1996	...	...	...	...	...	...	...	...	...	...
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Yemen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
sub-Saharan Africa																
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benin	...	...	...	...	...	...	...	...	33.7y	11.9y	1996	...	...	...	15-49	
Botswana	...	...	...	...	...	...	...	...	...	...	...	85a	...	1996	18-25	
Burkina Faso	...	...	...	...	...	...	...	...	61.3	31.4	1992	...	...	...	15-24	
Burundi	...	...	...	...	1.8	1997	...	...	8.9	3.1	1990	...	...	...	15-50	
Cameroon	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central African Republic	...	...	...	...	...	...	...	...	13.9	5.5	1989	...	...	...	15-50	
Chad	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Comoros	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Congo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Côte d'Ivoire	...	...	...	...	1	1997	...	...	15	8.6	1989	...	...	...	15-49	
Democratic Republic of Congo	...	...	...	...	9	1996	3	1996	...	...	...	...	...	...	...	...
Djibouti	15	3	1995	71.7	67.4	1995	15-49	
Equatorial Guinea
Eritrea	3	1996	29	9	1995	15-49	

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Country	HIV prevalence (%)				Prevention indicators										
	<i>Injecting drug users - major urban areas</i>				<i>Condom availability</i>				<i>Reported non-regular sexual partnerships (%)</i>			<i>Reported condom use with non-regular partner (%)</i>			
	Year	Median	Min.	Max.	Condoms available per capita	Year	Condom access (%)	Year	Male	Female	Year	Male	Female	Year	Age range
Ethiopia	...	...	...	...	0.95	1994	80	1994	18.2	5.2	1994	47.9	47.1	1994	15-49
Gabon	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gambia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ghana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guinea	...	...	...	...	1	1996	1	1996	...	...	...	28	15	1992	15-49
Guinea-Bissau	...	...	...	...	...	...	...	...	50.3	29.5	1990	...	...	...	15+
Kenya	...	...	...	...	...	...	...	...	31.8	13.8	1990	...	...	...	15+
Lesotho	...	...	...	...	...	...	...	...	52.6	28.4	1989	...	...	...	15+
Liberia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Madagascar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malawi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mali	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mauritania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mauritius	1990	0	0	0	...	...	...	...	1.4a	...	1996	27.8a	...	1996	15-49
Mozambique	...	...	...	...	3	1997	...	...	37	14	1997	31	19	1997	15-49
Namibia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Niger	...	...	...	...	...	...	...	...	15.3	1.8	1991	...	...	...	15-54
Nigeria	...	...	...	...	1.5	...	...	...	18a	...	1990	7.5a	...	1994	15+
Reunion	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rwanda	...	...	...	...	0.13	...	...	...	...	...	...	...	...	...	...
Senegal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sierra Leone	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Somalia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Africa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Swaziland	...	...	...	...	...	...	...	...	19.2	6.1	1991	...	...	...	14+
Togo	...	...	...	...	...	...	...	...	19.3	1.8	1989	...	...	...	15+
Uganda	...	...	...	...	6	1997	50	1995	25.2	12.6	1995	64	49	1995	15-49
United Rep. of Tanzania	...	...	...	...	3	1996	3	1996	29.1	13	1996	34.8	17.2	1996	15-49
Zambia	...	...	...	...	...	...	...	...	27	5	1995	46u	23u	1996	15-49
Zimbabwe	...	...	...	...	15	1996	...	...	21	12	1994	60	38	1994	15-49
South & South-East Asia															
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bangladesh	1989	0r	0	0	...	...	...	...	...	...	...	...	...	...	...
Bhutan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
India	1996	55.7	16.5	73.2	...	...	...	...	...	...	...	...	...	...	...
Indonesia	...	...	...	...	5	1997	...	...	...	...	...	...	...	...	...
Iran (Islamic Republic of)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lao People's Dem. Rep.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maldives	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Myanmar	1996	72.2	34.7	86.6	...	...	...	...	...	...	...	...	...	...	...
Nepal	1994	0	0	0	2	1997	80	1997	...	...	...	...	...	...	...
Pakistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	1994	0	0	0	...	...	...	...	16.1	1.3	1990	...	...	...	15-49
Singapore	1994	0.2	0.2	0.2	...	...	...	...	16.2	1	1991	...	...	...	15-49
Sri Lanka	...	...	...	...	1	1997	...	...	7.4	3.6	1990	...	...	...	15-49
Thailand	1996	33.1	33.1	33.1	...	...	...	...	7.4	3.1	1990	...	...	...	15-49
Viet Nam	1996	1.4	0	39.5	...	...	...	...	12a	...	1995	30a	...	1995	15-49
Eastern Europe & Central Asia															
Armenia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	1995	0n	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	1996	6.7n	...	...	...	...	...	...	...	...	...	...	...	...	...
Bosnia and Herzegovina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bulgaria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Croatia	1996	0n	...	...	...	...	100	1997	...	...	...	...	...	...	...
Czech Republic	1996	0n	...	...	5.1	1997	...	...	30.5	21.7	1994	41.3	35	1994	15+
Estonia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Annex. HIV/AIDS estimates and indicators, end 1997

	HIV prevalence (%)				Prevention indicators											
	<i>Injecting drug users - major urban areas</i>				<i>Condom availability</i>				<i>Reported non-regular sexual partnerships (%)</i>			<i>Reported condom use with non-regular partner (%)</i>				
					Condoms available per capita	Year	Condom access (%)	Year	Male	Female	Year	Male	Female	Year	Age range	
Country	Year	Median	Min.	Max.												
Hungary	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakstan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kyrgyzstan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Latvia	1997	0n	...	...	...	...	...	...	20	10	1997	69	66.3	1997	15-49	
Lithuania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poland	1996	4.96n	...	...	0.39	1996	...	...	...	...	...	...	...	...	...	...
Republic of Moldova	1996	1.09n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Romania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Russian Federation	1996	0.42n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovakia	1996	0n	...	...	...	...	100	1996	...	...	...	...	...	...	...	...
Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ukraine	1996	7.01n	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
East Asia & Pacific																
China	1995	9.1r	0.4	73.2	...	...	13u	1995	...	...	...	...	...	...	...	...
Dem. People's Rep. of Korea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong	1989	0	0	0	...	...	...	...	...	...	...	...	...	...	...	...
Japan	1993	0	0	0	...	...	...	...	...	...	...	...	...	...	...	...
Mongolia	...	...	...	...	1	1996	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	15	12	1994	38	12	1994	15-49	
Republic of Korea	...	...	...	...	...	...	100	1996	...	...	...	...	...	...	...	...
Australia & New Zealand																
Australia	1996	1.7	1.7	1.7	...	...	100	1997	...	...	...	...	...	...	...	...
New Zealand	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North America																
Canada	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
United States of America	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Caribbean																
Bahamas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barbados	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cuba	...	...	...	...	8.19	1997	...	...	48.6	14.4	1996	...	...	...	15-49	
Dominican Republic	...	...	...	...	...	...	...	...	...	...	...	47.5a	...	1997	15-49	
Haiti	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jamaica	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trinidad and Tobago	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Latin America																
Argentina	1996	41.4r	41.4	41.4	...	...	...	...	...	...	...	<55a	...	1995	15-49	
Belize	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bolivia	...	...	...	...	0.11	1994	...	...	...	...	...	65.1	33.4	1994	15-49	
Brazil	1996	29	29	29	2.45	1996	...	...	...	7.5	1996	14.7	4.3	1996	15-49	
Chile	...	...	...	...	...	...	83	1997	28	6	1997	33	18	1997	15-49	
Colombia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Costa Rica	...	...	...	...	...	...	96	1995	21.4	12.5	1995	55.3	42	1995	15-49	
Ecuador	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
El Salvador	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guatemala	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guyana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Honduras	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mexico	1996	2.2	1.3	5.5	1.1	1997	...	...	15.4	...	1997	62.8a	...	1997	15-49	
Nicaragua	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Panama	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Paraguay	...	...	...	...	0.6	1995	...	...	...	...	...	...	79.1	1996	15-49	
Peru	1990	28.1	28.1	28.1	...	...	...	...	...	...	...	...	...	...	...	...
Suriname	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uruguay	1996	10.6	10.6	10.6	...	...	...	...	...	...	...	...	...	...	...	...
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...