Unit 1: An Introduction to HIV/AIDS

Learning Objectives
What are the facts about HIV and AIDS?

After studying this unit, you should be able to:

• Have improved knowledge of rates of HIV infection globally;
• Define HIV and AIDS separately and understand how the disease is transmitted and its effects on the body;
• Know the prevention methods and treatment options for HIV/AIDS such as antiretroviral therapy.

Introduction

In the early 1980s, the first recognized cases of the acquired immune deficiency syndrome (AIDS) occurred among homosexual men in the United States. These men suddenly began to develop rare opportunistic infections and cancers that seemed stubbornly resistant to any treatment. At this time, AIDS did not yet have a name, but it quickly became obvious that all the men were suffering from a common syndrome. By 1983, the etiological agent, the human immunodeficiency virus (HIV), had been identified. While some were initially resistant to acknowledge the connection (and indeed some remain so today), there is now clear evidence to prove that HIV causes AIDS. By the mid-1980's, it became clear that the virus had spread, largely unnoticed, throughout most of the world, and since then, the global AIDS epidemic has become one of the greatest threats to human health and development. At the same time, much has been learnt about the science of AIDS, as well as how to prevent and treat the disease.

The purpose of Unit 1 is to provide introductory information regarding HIV and AIDS. This will include global statistics, important definitions that distinguish HIV from AIDS, the impact of HIV on the body, modes of transmission, as well as methods of prevention and treatment.
This introductory module provides basic information and facts on the current status of the disease globally using the latest available statistics. It targets individuals who are not familiar with the basic facts about HIV and AIDS or who are looking for a useful resource with updated statistics on the global situation.

Global Overview
Throughout the duration of the pandemic, more than 21 million people have already died from AIDS. In 2007 alone 2 million people succumbed to the illness, largely due to inadequate access to HIV prevention and treatment services. Every day, over 7500 more people become infected with HIV. On a global level, the HIV pandemic remains the one of the most serious infectious disease challenges facing public health. This concern has been addressed and recognized within international forums, and is represented as a primary concern within the Millennium Development Goals.

"All of us must recognize AIDS as our problem. All of us must make it our priority. We cannot deal with AIDS by making moral judgments or refusing to face facts – and still less by stigmatizing those who are infected and making out that it is all their fault. We can only do it by speaking clearly and plainly about the ways that people become infected and about what they can do to avoid infection."

Former United Nations Secretary-General Kofi Annan

According to the UNAIDS epidemiological update, in 2007 the total number of people living with HIV worldwide was **33 million**. The scope of HIV/AIDS is far-reaching. Although 33 million HIV infected individuals is a staggering figure, this number does not account for the additional millions who are also affected by HIV/AIDS. Whether they are AIDS widows, orphans, or relatives caring for the sick and dying, the impacts of are felt well beyond those who are infected. Furthermore, HIV/AIDS is an international issue that is not concentrated to one region, gender, socio-economic background, or profession. People in every region and in every country are affected. Even in high-income countries where larger epidemics have been averted, there is now concern that prevention efforts are waning and that infection rates, particularly in poorer communities, are increasing rapidly.
Although the pandemic remains concentrated in sub-Saharan Africa with the largest numbers of people living with AIDS and the highest percentages of HIV infections per capita, it is important to understand that HIV/AIDS is not an ‘African’ problem but a global issue that requires global and national solutions. According to UNAIDS, it is imperative for countries to “know their epidemic” in order to develop and implement effective HIV prevention and treatment strategies which are appropriate according to the needs of the region.

Figure 1:

![Adults and children estimated to be living with HIV in 2007](source: UNAIDS 2007 Epidemic Update)

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated Number</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>1.3 million</td>
<td>1.4–1.9 million</td>
</tr>
<tr>
<td>Caribbean</td>
<td>230 000</td>
<td>210 000–270 000</td>
</tr>
<tr>
<td>Latin America</td>
<td>1.6 million</td>
<td>1.4–1.9 million</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>22.5 million</td>
<td>20.3–24.3 million</td>
</tr>
<tr>
<td>Eastern Europe and Central Asia</td>
<td>1.6 million</td>
<td>1.2–2.1 million</td>
</tr>
<tr>
<td>East Asia</td>
<td>800 000</td>
<td>620 000–940 000</td>
</tr>
<tr>
<td>South and South-East Asia</td>
<td>4.0 million</td>
<td>3.3–5.1 million</td>
</tr>
<tr>
<td>Oceania</td>
<td>75 000</td>
<td>53 000–120 000</td>
</tr>
</tbody>
</table>

Total: 33.2 (30.6–36.1) million

Source: UNAIDS 2007 Epidemic Update

**Sub-Saharan Africa**

Sub-Saharan Africa continues to bear the heaviest burden of HIV/AIDS. According to UNAIDS, AIDS is now the leading cause of death among Africans of all ages.
- More than two-thirds of all adults, or 67%, and nearly 90% of children infected with HIV globally live in the region;
- In 2007, 2 million people died of AIDS globally, 76% of those deaths occurred in sub-Saharan Africa;
- Southern Africa is the most severely affected region in the world, with approximately 35% of all people living with HIV/AIDS, despite having less than 2% of the world’s total population;
- Southern Africa has at least eight countries with national prevalence rates of 15% or higher (Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe);
- With an estimated 5.5 million people living with HIV, South Africa is the country with the largest number of infections in the world;
- Approximately 14 million children have been orphaned in Africa due to AIDS, 40 million more are expected to be orphaned by the disease within the next 10 years;
- The rates of HIV infection in women have surpassed those of men in sub-Saharan Africa. Women now represent 60% of all adult infections in the region and three out of four young people living with HIV are female.


<table>
<thead>
<tr>
<th>Year</th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>20.9 million (19.7 million–23.6 million)</td>
<td>2.2 million (1.7 million–2.7 million)</td>
<td>5.8% (5.5%–6.6%)</td>
<td>1.4 million (1.3 million–1.9 million)</td>
</tr>
<tr>
<td>2007</td>
<td>22.5 million (20.9 million–24.3 million)</td>
<td>1.7 million (1.4 million–2.4 million)</td>
<td>5.0% (4.6%–5.5%)</td>
<td>1.6 million (1.5 million–2.0 million)</td>
</tr>
</tbody>
</table>

The various factors contributing to the high rates of infection in sub-Saharan Africa and, particularly in southern Africa can be summarized as follows:

- **Household poverty** makes it difficult for people to respond to and combat the disease. Low income levels make it difficult for individuals to access prevention, treatment, and care services including medicines and nutritious food;
- **National poverty** impacts the level of education and prevention programs, as well as the provision of adequate basic health care;
- **Labor migration** due to high unemployment and poverty results in large populations of migrant workers engaging in high-risk behavior while away from their families;
- **Low understanding** of HIV transmission;
- **Inadequate access** to health care services both for prevention and treatment;
- **Stigma and discrimination** lessens the likelihood for people to get tested, disclose their status and receive treatment;
- **Untreated sexually-transmitted diseases** increasing the risk of HIV infection;
- **Sexual abuse**, rape, and the inability of women to protect themselves from infected partners;
- **Rape as a weapon of war** in conflict zones make victims vulnerable to HIV.

Lack of political leadership, in particular leaders denying the existence of people living with HIV/AIDS, also exacerbates rates of infection. This is true in sub-Saharan Africa as it is in other parts of the world. HIV denial is characterized by the perception that HIV/AIDS is not present, and therefore does not pose a risk. At the national level, the denial that HIV exists obviously hinders effective responses as inadequate attention and funding is devoted to preventing and treating the disease. One such example was seen in sub-Saharan Africa, when President Thabo Mbeki publicly denounced the linkage between HIV and AIDS. In fact, UNAIDS now claims that the greatest challenge facing South Africa is the lack of reliable information with regards to HIV/AIDS from the national level. Consequently, regional organizations, activists, and people living with HIV/AIDS are forced to respond to the crisis with limited financial or political support. As populations turn to their leaders for information and advice, HIV denial at the national level increases the misunderstanding about the disease and hinders the prevention initiatives required to reduce transmission among the general population.

Conversely, the pandemic has shown signs of decline due largely to proactive and comprehensive initiatives at the national and regional level. Countries such as Uganda and Senegal were among the first in the sub-Saharan Africa to acknowledge the existence and severity of the HIV/AIDS epidemic. Their governments took active
measures to promote prevention and nationalize access to treatment. Leaders in the mentioned countries broke the silence on HIV and denounced stigma and discrimination. UNAIDS reports that in Kampala, Uganda, prevention efforts have reduced HIV prevalence rates from a high of 28% in 1991 to the current rate of 6.3% among adults (UNGASS Uganda Country Report 2007).

In most of the countries in East Africa adult HIV prevalence is either stable or has started to decline. This is most evident in Kenya where the HIV epidemic has been declining amid evidence of changing behavior. Besides behavioral change, mortality of people infected with HIV several years ago has also contributed to the declines in prevalence (UNAIDS, 2007).

**Box 1**

**Injecting Drug Use: A Growing Factor in Several Sub-Saharan African HIV Epidemics**

Although a relatively new phenomenon in sub-Saharan Africa, injecting drug use is an increasingly important factor in several of the HIV epidemics in this region, including those in Kenya, Mauritius, South Africa and the United Republic of Tanzania. Available research shows that high-risk behavior such as the use of non-sterile injecting equipment and unprotected sex is common within injecting drug user populations, and that HIV prevalence is high. In various studies, up to half of the injecting drug users tested in Mombassa and Nairobi (Kenya) were found to be HIV-positive, as were 26% in Zanzibar and 28% in South Africa.

*Source: Sub-Saharan Africa, AIDS Epidemic Update, Regional Summary, 2007*

Although West and Central Africa have always experienced lower rates of HIV prevalence then in neighboring regions, HIV remains a concern. Nigeria has the largest epidemic in this sub region with almost 3 million, or 3.9%, Nigerians were living with HIV in 2005, second in number globally only to South Africa. For most of the comparably smaller epidemics in West and Central Africa, adult national HIV prevalence has remained stable overall. Signs of declining HIV prevalence are evident in an increasing number of countries, notably Côte d'Ivoire, Mali and urban Burkina Faso. In these countries, as well as in Benin, this can be explained by a shift towards safer behavior, including increased condom use and less engagement in sex with non-regular partners (Sub-Saharan Africa AIDS Epidemic Update, Regional Summary, 2007). In Cameroon,
the percentage of young people having sex before the age of 15 has gone down from 35% to 14% (UNAIDS Press Release, July 2008).

**Asia**

While not as high as in sub-Saharan Africa, HIV infections in Asia have increased by more than 100% since 1994, and some argue that Asia will become the next center of the global epidemic in the years to come. Injecting drug use and the commercial sex industry have played a determining role in the spread of the disease in Asia. In general, Asian countries have been slow to respond to the epidemic. Studies have shown that within Asia, the current allocation of resources for HIV prevention is insufficient and have not targeted at risk groups such as men who have sex with men, sex workers and injecting drug users adequately. In Asia, as well as in other parts of the world, many men who have sex with men may not readily identify themselves as being homosexual, some head households and have children, this serves as an epidemiological bridge for HIV transmission into the general population.


<table>
<thead>
<tr>
<th>Region</th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>South and South-East Asia</td>
<td>4.0 million [3.3 million–5.1 million]</td>
<td>340 000 [180 000–740 000]</td>
<td>0.3% [0.2%–0.4%]</td>
<td>270 000 [230 000–380 000]</td>
</tr>
<tr>
<td>2007</td>
<td>3.5 million [2.9 million–4.5 million]</td>
<td>450 000 [150 000–800 000]</td>
<td>0.3% [0.2%–0.4%]</td>
<td>170 000 [120 000–220 000]</td>
</tr>
</tbody>
</table>

**East Asia**

<table>
<thead>
<tr>
<th>Region</th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>800 000 [620 000–980 000]</td>
<td>92 000 [21 000–220 000]</td>
<td>&lt;0.1% [&lt;0.2%]</td>
<td>32 000 [28 000–49 000]</td>
</tr>
<tr>
<td>2001</td>
<td>420 000 [350 000–510 000]</td>
<td>77 000 [4900–130 000]</td>
<td>&lt;0.1% [&lt;0.2%]</td>
<td>12 000 [8200–17 000]</td>
</tr>
</tbody>
</table>

**Source: UNAIDS 2007 Epidemic Update**

- Roughly 4.9 million Asian adults were living with HIV/AIDS in 2007 along with 340,000 children;
- If Asian countries fail to respond to the crisis, an estimated 8 million adults and children in the Asia-Pacific will become infected and the annual death toll due to AIDS will increase to 500,000 by the year 2020 (Commission on AIDS in Asia, 2008);
Pakistan has shown increasing HIV prevalence due to trends in injecting drug use. In Karachi alone, rates of infection among injecting drug users increased from 1% in 2004 to 26% in 2005 (UNAIDS 2007);

Box 2

Pakistan: Involvement of key policy makers in the fight against HIV

According to UNAIDS, Pakistan is still categorized as ‘concentrated epidemic’ country with HIV prevalence among the general population currently less than 1%, but a high-risk country for the spread of HIV. As of 2007, there were approximately 85,000 people living with HIV, however it is said that official numbers could be up to 30 times higher due to low levels of testing (UNAIDS). Most reported cases are in the age group of 20-44, and males outnumber females by a ratio of 7-to-1. Heterosexual transmission accounts for the majority of reported cases (67%), other modes of transmission include infection through contaminated blood (18%), men who have sex with men (6%), injecting drug use (4%), and mother-to-child transmission (1.3%). Adolescents are becoming more and more vulnerable, although there is little exact data.

The response to the HIV epidemic in Pakistan is a coordinated effort of the Government of Pakistan through its implementing body the National AIDS Control Program, the Provincial AIDS Control Programs, National and Provincial Consortia of NGOs and Civil Society, bilateral and multilateral donors and the UN System. The Government of Pakistan is nevertheless the biggest shareholder in all investments made for HIV prevention, care and support for both vulnerable populations as well as general population.

Pakistan’s National Assembly has also been very actively involved in addressing the epidemic. In 2006, it engaged parliamentarians and activists in developing strategies against HIV and AIDS. The objective of this meeting was to gain the maximum support of parliamentarians for reducing stigma and discrimination against people living with HIV by building capacity; strengthening leadership; and increasing awareness. UNAIDS has been supporting Pakistan’s initiatives since 2004, and emphasizes the need for the country to continue proactive responses to HIV among key policy makers and political leaders at the national, provincial and district levels. UNAIDS states that this “would create an enabling environment for HIV prevention and control in the public and private sector.” Although prevalence rates are high, with the right responses Pakistan can divert a health crisis seen in other high prevalence regions in Asia.

Source: UNAIDS in Action, 2006

Indonesia is experiencing the fastest growing epidemic in Asia even though its aggregate national prevalence remains quite low at 0.16%. The majority of new
infections come from injecting drug use, unprotected paid sex and to a lesser extent unprotected sex between men. These modes of transmission are further exacerbated by a highly mobile population and the challenges presented by natural disasters;

- India is another country with a large number of people living with HIV. Approximately 2.5 million people infected with HIV. However, given the size of the Indian population, this only represents a national prevalence rate of 0.36%;

- According to UNAIDS, in 2005, approximately 650,000 people were infected in China, although some sources suggest that estimate to be much higher, at approximately 1.5 million. The disparity in these estimates may be due to high instances of HIV denial, and limited access to HIV testing leaving many cases unreported. Some estimate that if Chinese Government fails to intervene quickly, China will be home to 10 million HIV positive individuals, and 260,000 orphaned children by 2010.

Some countries and regions in Asia however have shown signs of declining or stabilizing HIV infection. For example Thailand, which was first to notice rapid increases in HIV infections in the late 80s, is now experiencing declining rates due to increased access to antiretroviral therapy. Access to treatment has also led to declines in death due to AIDS in the country. In Cambodia, evidence of well implemented and sustained prevention programs has also decreased national prevalence rates from its peak of 2% in 1998, to 0.9% in 2007.

**Oceania**


<table>
<thead>
<tr>
<th></th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[53 000–120 000]</td>
<td>[11 000–26 000]</td>
<td>0.4%</td>
<td>[&lt;500–2700]</td>
</tr>
<tr>
<td>Oceania</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75 000</td>
<td>14 000</td>
<td>0.4%</td>
<td>1200</td>
</tr>
<tr>
<td></td>
<td>[26 000]</td>
<td>[3800]</td>
<td>0.2%</td>
<td>[&lt;500]</td>
</tr>
<tr>
<td></td>
<td>[19 000–39 000]</td>
<td>[3000–5600]</td>
<td>0.1%–0.3%</td>
<td>[1100]</td>
</tr>
</tbody>
</table>

**Source: UNAIDS 2007 Epidemic Update**

In 2007, striking increases in HIV infections have occurred in Oceania, which includes Australia and New Zealand, among other Pacific Island Countries. In Oceania, new
infections increased by 14,000 in 2007 bring the total number of infections in the region to **75,000** (UNAIDS, 2007). In Oceania, approximately 70% of people living with HIV reside in Papua New Guinea, where the prevalence rate among adults is as high as 1.3%. Rates of infection continue to rise in the region primarily due to heterosexual intercourse, and have been seen to increase in the rural areas (UNAIDS, 2008).

In Australia, HIV continues to be transmitted via unprotected sex between men. While rates of infection in this group were seen to decline in the 1990s, new diagnosis have increased the rates of infection by 41% between 2000 and 2005 (UNAIDS, 2008). HIV/AIDS apathy can attribute to these increases as new groups of sexually active men have “forgotten”, or disregarded the risk of HIV infection. In New Zealand, socially marginalized groups, particularly aboriginal women, are 18 times more likely to be infected with HIV than their non-aboriginal counterparts (UNAIDS, 2008).

**Middle East/North Africa**


<table>
<thead>
<tr>
<th>Middle East and North Africa</th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>380 000 [270 000–500 000]</td>
<td>35 000 [16 000–65 000]</td>
<td>0.3% [0.2%–0.4%]</td>
<td>25 000 [20 000–34 000]</td>
</tr>
<tr>
<td>2001</td>
<td>300 000 [220 000–400 000]</td>
<td>41 000 [17 000–58 000]</td>
<td>0.3% [0.2%–0.4%]</td>
<td>22 000 [11 000–29 000]</td>
</tr>
</tbody>
</table>

*Source: UNAIDS 2007 Epidemic Update*

A challenge remains for HIV prevention in the Middle East/North Africa region, as reliable information and surveillance remains limited. However, using the available information it can be estimated that approximately 35,000 people living in the Middle East and Northern Africa acquired HIV and an estimated 25,000 people died due to AIDS in 2007 (UNAIDS, 2008). Available research also suggests that most HIV infections in the Middle East and North Africa are occurring in men and in urban areas. As in many other regions, sex between men is officially forbidden, socially stigmatized, and under-researched. The limited information available suggests that unprotected sex between men is a key factor in at least some of the epidemics in this region. For example, a recent study in Egypt found that 6% of men who have sex with men were HIV-positive.
Exposure to contaminated drug injecting equipment is another common mode of HIV transmission in the region, notably in Afghanistan, the Islamic Republic of Iran and the Libyan Arab Jamahiriya, and also features in the epidemics of Algeria, Morocco, the Syrian Arab Republic and Tunisia. The proportion of HIV positive women is also growing in some countries, as HIV spreads from (mostly male) injecting drug users and the clients of sex workers to their wives and girlfriends. In Morocco, for example, one third (33%) of women diagnosed with AIDS were married. Sudan has the highest adult HIV prevalence in the region with an estimated 1.6% in 2005. Unsafe heterosexual intercourse is the most important factor in this epidemic. (Middle East and North Africa AIDS epidemic update, Regional Summary, 2007)

**Latin America**


<table>
<thead>
<tr>
<th>Year</th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>1.6 million [1.4 million–1.9 million]</td>
<td>100,000 [47,000–220,000]</td>
<td>0.5% [0.4%–0.6%]</td>
<td>58,000 [49,000–91,000]</td>
</tr>
<tr>
<td>2001</td>
<td>1.3 million [1.2 million–1.6 million]</td>
<td>130,000 [56,000–220,000]</td>
<td>0.4% [0.3%–0.5%]</td>
<td>51,000 [44,000–100,000]</td>
</tr>
</tbody>
</table>

*Source: UNAIDS 2007 Epidemic Update*

Although HIV prevalence (the percentage of a population living with HIV) in Latin American countries is relatively low compared to the rates found in many parts of Africa, the number of people affected is still substantial. HIV prevalence is also on the rise in many Latin American countries. In 2007, approximately 100,000 people were newly infected with HIV, resulting with roughly **1.6 million** people total infected by HIV on the continent. The countries hardest hit are the countries with the largest populations, notably Brazil, which is home to one third of all HIV infections in Latin America. Other highly affected regions include Argentina, Colombia, and Mexico. Currently, an estimated **620,000** people are living with HIV in Brazil alone.

At least one quarter of new infections in the region are attributed to men who have sex with men, but due to the highly taboo nature of this issue, prevention initiatives that target this group are often non-existent. Compared with HIV prevalence in the general
adult population, research concluded that infection levels among men who have sex with men were 7 times higher in Honduras, 10 times higher in Guatemala and Panama, 22 times higher in El Salvador, and 38 times higher in Nicaragua. Other key affected groups are sex workers and injecting drug users. Although Brazil faces high-risk of infection among groups such as men who have sex with men, and injecting drug users, Brazil’s concerted action of both prevention and universal treatment options, has kept the pandemic stable in the country.

Migrants are also becoming increasingly vulnerable to HIV infection, particular in Central America, where civil conflicts and political conditions in the past created a high degree of movement between countries that continues even today. Several factors, such as poverty, violence, few available health services, increased risk-taking, rape, loneliness, and contact with large numbers of sex workers also contribute to increase the vulnerability of migrants.

**Caribbean**


<table>
<thead>
<tr>
<th></th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caribbean</td>
<td>1920000 (210 000-270 000)</td>
<td>17 000 (15 000-23 000)</td>
<td>0.9% (0.9%-1.2%)</td>
<td>(98000-19 000)</td>
</tr>
<tr>
<td>2001</td>
<td>1920000 (180 000-250 000)</td>
<td>20 000 (17 000-25 000)</td>
<td>1.0% (0.9%-1.2%)</td>
<td>14 000</td>
</tr>
</tbody>
</table>

**Source:** UNAIDS 2007 Epidemic Update

In the Caribbean, with an adult prevalence rate of 1.0% is the second hardest hit region in the world after sub-Saharan Africa. In the Caribbean, approximately three quarters of people living with HIV are located in the Dominican Republic and Haiti, with total numbers estimated at **250,000** across the region. Within the region, unprotected heterosexual intercourse accounts for the majority of new HIV infections, while injecting drug use is also cause for concern. Unsafe sex between men also accounts for infections in this region, but is largely under reported due to stigma. Although the precise numbers are not known, it is estimated that approximately one in ten reported HIV infections is due to unprotected sex between men.
**Eastern Europe and Central Asia**


<table>
<thead>
<tr>
<th></th>
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<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Europe and Central Asia 2007</td>
<td>1.6 million [1.2 million–2.1 million]</td>
<td>150 000 [90 000–290 000]</td>
<td>0.9% [0.7%–1.2%]</td>
<td>55 000 [42 000–98 000]</td>
</tr>
<tr>
<td>2001</td>
<td>630 000 [490 000–1.1 million]</td>
<td>230 000 [98 000–340 000]</td>
<td>0.4% [0.3%–0.6%]</td>
<td>8000 [5500–14 000]</td>
</tr>
</tbody>
</table>

**Source: UNAIDS 2007 Epidemic Update**

In Eastern Europe the total number of persons living with HIV increased 150% from 2001 – 2007 (UNAIDS, 2007). It is estimated that 150,000 people were newly infected in 2007, bringing the total number of people living with HIV to **1.6 million**. Nearly 90% of new infections occurred in two countries, the Russia Federation (66%) and the Ukraine (21%). Of all new HIV cases reported in Eastern Europe, nearly two thirds were attributed to injecting drug use, and more than one third attributed to unprotected heterosexual intercourse (UNAIDS, 2007).

HIV numbers are also rising in Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova and Tajikistan. Uzbekistan now has the largest epidemic in Central Asia, as newly diagnosed cases increased from only 28 in 1998, to 2205 in 2006. One study reported that almost one third of injecting drug users in the region have tested positive for HIV (UNAIDS, 2007). In Eastern Europe and Central Asia, it is estimated that women accounted for 26% of adults with HIV in 2007 (compared with 23% in 2001). The proportion of women living with HIV is growing as HIV is transmitted to the female partners of men who are likely to have been infected through injecting drug use or during unprotected paid sex or sex with other men.

**North America and Western Europe**


<table>
<thead>
<tr>
<th></th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
</table>

13
In these regions, the number of individuals living with HIV is increasing. This is due to the provision of life saving antiretroviral treatments keeping HIV infected individuals alive, as well as increases in the number of new HIV infections. In total, approximately **2.1 million** people in the United States, Canada, and Western Europe were living with HIV in 2007. Due to relatively universal access to treatment, comparatively few people died of AIDS in the region, only 32,000 AIDS deaths were reported in 2007.

By 2007, the number of people living with HIV in Canada was approximately **60,000** (UNAIDS) while in the United States rates of infection were estimated at approximately **1.2 million** (Kaiser Family Foundation, 2008). Racial and ethnic minorities continue to be disproportionately affected and infected by HIV in the region. In the United States, African American and Hispanic populations comprise 48% and 18% of new diagnoses respectively, although both groups make up less that a third of the total population combined (UNAIDS, 2007). Canada’s Aboriginal population is disproportionately afflicted with HIV, affected by many socio-economic barriers such as poverty, and unequal access to, or use of, health care services. In 2005, Aboriginals accounted for 9% of new HIV infections, yet only comprise 3.3% of the population of Canada.

Immigrant populations are also highly affected by HIV. The population of new immigrants with an increased risk of exposure includes individuals from endemic countries (UNAIDS, 2007). In 2005, 7.7% of newly infected individuals in Canada were reported among people whose point of origin was an HIV endemic country. In Western Europe this statistic is even higher (UNAIDS, 2007).

In Western Europe, Spain, Italy, France and the United Kingdom continue to house the largest epidemics in the region. For example, the annual rate of new infections in the

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United Kingdom more than doubled from 4152 in 2001, to 8925 in 2006 (UNAIDS, 2007).

**HIV and AIDS - An Important Distinction**

*Human Immunodeficiency Virus (HIV)*

HIV is a virus that aggressively attacks the immune system. Part of the reason HIV is such a serious disease is that it attacks and destroys cells of the immune system, called T-cells or CD4 cells that are designed to fight infections and diseases.

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**Box 3**

**What CD4 Cells Do**

CD4 Cells, also known as T-cells or “helper” cells, are white blood cells essential to a healthy immune system which protects the body against bacterial, fungal, and viral infections. With a depleted immune system, the body will experience “opportunistic infections” which take advantage of the body’s inability to fight infection, this characterises the AIDS stage.

A normally functioning immune system has a “CD4 count” between 400-1600 per cubic millimetre of blood in men, and between 500-1600 in women. A normal CD4 count can fluctuate slightly due to factors such as a good night’s sleep, nutrition, menstruation among women, and the use of other medications or treatments.

However, with HIV a person’s CD4 count will drop severely usually stabilizing around 500-600 parts per cubic millimetre. It is estimated that without treatment, CD4 cells will continue to deplete by approximately 45 cells every six months, with greater declines among those with higher CD4 counts before HIV infection.

**A CD4 count of 200-500 indicates that damage to the immune system has occurred.**

CD4 counts are typically used to help determine when antiretroviral treatment is needed, and it is recommended that once CD4 counts drop below 200-250 treatment is needed to prevent opportunistic infections and progression to the AIDS stage.

Evidence has also shown that if a person’s CD4 count drops below 200, they are unlikely to respond well to treatment. This demonstrates the importance of well managed and accessible diagnostic treatment in the developing world, as people are being placed at higher rate of AIDS related illnesses without access and adherence to treatment in a timely fashion.

Although a person infected with HIV can live a normal life for many years with no visible signs of illness, internally the HIV virus continues to damage the immune system until a time where the immune system will be too weak to fight off opportunistic infections and eventually will succumb to AIDS (UNAC, 2007).

A person can be infected with HIV and not know it, because symptoms or illnesses related to HIV may not occur for many years, or people may confuse the symptoms of the initial drop in CD4 cells as a flu or fatigue. But HIV infected persons are infectious for life even when asymptomatic for many years and can easily pass the infection on to others. Many people are not aware that they are HIV positive because they feel fine and transmit the disease unknowingly. This is why HIV testing is critical, and must be encouraged and readily accessible in order to stymie its progress among populations.

**Acquired Immune Deficiency Syndrome (AIDS)**

AIDS is a condition caused by HIV. AIDS occurs when an individual is experiencing more than one chronic opportunistic infection, which results from the destruction of the body’s defense by the Human Immunodeficiency Virus, HIV. It is important to remember that AIDS is very different from HIV and that it is possible, with access and adherence to treatment, to live a long, healthy life with HIV and never progress to the AIDS stage (UNAC, 2007).

The timeline for someone to be infected by HIV and develop AIDS varies from region to region. For instance, in the US or Europe, the average time from HIV infection to AIDS is roughly 11 years without treatment, while in developing countries the average time is much shorter. This is due to multiple factors related to poverty such as poor nutrition, lack of access to health care to treat pre-existing infections, and greater likelihood and exposure to diseases such as malaria or tuberculosis.

**Opportunistic infections**

Various illnesses experienced by individuals who are HIV-positive are referred to as opportunistic infections. Some of these illnesses are caused by organisms that would not normally affect a healthy immune system. People living with advanced HIV infection,
may experience opportunistic infections of the skin, lungs, brain, eyes, and other organs. Opportunistic illnesses common in persons diagnosed with AIDS include pneumonia, parasitic and viral infections, and some types of cancers (UNAC, 2007).

It is important to distinguish that no one actually dies from AIDS or HIV, rather a person with AIDS dies from an infection or a condition that his or her weakened immune system can no longer fight off because of AIDS.

**Coinfections**
A coinfection is another illness a person may get along with having HIV. People who don't have HIV can also get these illnesses. Examples of coinfections:

- Tuberculosis (TB)
- Malaria
- Sexually Transmitted Infections (STIs)
- Hepatitis C
- Hepatitis B

Malaria and tuberculosis were causes of significant morbidity and death long before HIV. Now the spectra of coinfection and drug resistance compound the challenge of identifying and treating people with AIDS, TB, or malaria, as well as preventing further infection. Strategies that simultaneously address these health problems include building on and strengthening the existing health infrastructure, increasing the number and skills of health care workers, and coordinating and integrating services.

Examples of the application of these strategies include: integrating HIV counseling and testing as well as directly observed treatment strategies for tuberculosis into workplace settings; incorporating HIV counseling and testing into TB programs; including TB screening and treatment or prophylaxis into HIV programs; assuring that public health measures for malaria control and treatment are well funded and robust within communities in which dual infection is common (UNAIDS, 2008).
**How is HIV Transmitted?**

HIV is *found* in the body fluids of an infected person including:

- Blood
- Semen (produced by men before and during sex)
- Vaginal fluids (produced by women before and during sex)
- Breast milk

HIV *is transmitted* by body fluids in the following ways:

- Vaginal sex
- Oral Sex
- Anal sex (among men and women)
- Mother-to-Child Transmission (during pregnancy, delivery, and breastfeeding)
- Injecting Drug Use
- Injections/needles (contaminated needles, IV drugs)
- Blood Transfusions
- Cutting tools (skin-piercing instruments, tattoo needles, circumcision instruments)

**How HIV is not transmitted?**

Many myths exist about how HIV is transmitted, many of which are culturally specific. It is important to note that HIV is *not* transmitted through casual contact or social interaction – rather transmission is linked to intimate contact.

HIV is *not* transmitted by:

- Kissing, hugging, handshaking
- Sneezing, coughing, sharing glasses/utensils, etc
- Injections or surgery with STERILE needles and tools
- *Safer* sex using condoms
- Tears, sweat, saliva, vomit, feces or urine
- Using toilets, drinking fountains, public swimming pools
- Insect bites
- Working, socializing or living with a person with HIV
What happens in the body when HIV infection occurs?

HIV infects cells that are part of the body's immune system. As more cells are infected by the virus, the immune system becomes less able to fight off disease.

To productively infect a cell, HIV must introduce its genetic material into the interior of the cell. This process begins with attachment and entry of the virus, uncoating of the virus membrane and integration of the virus genes into the human gene. The human cell is hijacked to manufacture viral building blocks for multiple copies that are subsequently assembled, eventually breaking out of the infected cell in search of other cells to infect. The virus kills the cells it infects and also kills uninfected bystander cells. The virus ensures that the human cell survives until its own multiplication is completed. Even more damaging, HIV establishes stable dormant forms that are reservoirs of infection that cannot be reached by currently available drugs. These reservoirs make complete eradication - and a cure for AIDS - a challenge.

Soon after HIV infection occurs, the body's immune system mounts an attack against the virus by means of specialized killer cells and soluble proteins called antibodies that usually succeed in temporarily lowering the amount of virus in the blood. HIV still remains active, though, continuing to infect and kill vital cells of the immune system. Over time, viral activity significantly increases, eventually overwhelming the body's ability to fight off disease.

Education

Education plays a vital role in HIV prevention particularly of young people. Teens and young adults aged 15-24 account for about 40% of new infections globally (among those 15 and older). This statistic speaks volumes to the importance of education that targets this cohort. Life skills based education in schools is an effective
method aimed at encouraging safer behavior among young people by providing important information about safer sex and other HIV prevention methods (UNAIDS, 2007). When adapted to specifically address HIV prevention, education in schools help young people understand the social and environmental factors which may put them at risk for HIV infection, and can have positive effects on behavior changes including delayed sexual debut, and the reduction of sexual partners (UNAIDS, 2007).

Apart from educational programs to sensitize children and youth to safer sex and HIV prevention, the very fact of ensuring children have access to school and educational opportunities is an important aspect of HIV prevention. Not only are higher levels of education association with safer sexual behaviours and delayed sexual debut, but attending school provides children with opportunities to help them emerge out of poverty which remains a factor in the spread of HIV. Access to free, high quality primary education must also be ensured, in line with the Millennium Development Goals (UNICEF, 2008).

Complimentary strategies, for out of school children, must also be developed to ensure that this already at risk group is not further marginalized. Young people who have dropped out of school, children from families who cannot afford to send them to school or need their labor at home as well as orphans and street children, require the support and knowledge offered through educational programs. This could include peer-to-peer education and outreach, or life-skills training in a community capacity.

**HIV Prevention among Key Populations**

At risk, or vulnerable populations are often difficult to reach with HIV prevention programs due to their mobility, isolation, as well as the fact that they may be “invisible” populations, which means their existence is denied by national governments or communities. However, in order to stop the spread of HIV infection among vulnerable groups, information and prevention programs must be targeted to their specific needs, and access to essential health services must be improved (UNAIDS, 2007).
The most effective way to prevent HIV infection among the general population is to ensure health care and education services are available to those most vulnerable to HIV infection – in other words, providing targeted information. This requires that countries are aware of which groups are experiencing high rates of HIV infection, and that strategies are tailored to the needs of those groups. For instance, harm reduction strategies such as the provision of sterile needles has been proven effective among injecting drug users at risk of HIV infection. Providing condoms and emphasizing 100% condom use among brothels, is an example of an effective way to prevent the spread of HIV within the commercial sex industry.

By and large, governments, as well as parliaments, must demonstrate openness and honesty when dealing with the HIV pandemic at the national level, discrimination which promotes the stigmatization of marginalized groups or “taboo” behaviors, must be challenged and changed. Legal protection must also be given and enforced to protect vulnerable groups from HIV related violence, especially gender based violence which targets women and men who have sex with men.

The groups most vulnerable to HIV require that their HIV prevention needs be addressed (see unit 2). These groups include:

- Children and orphans
- Indigenous people
- Injecting drug users
- Men who have sex with men
- Migrants and mobile workers
- Peacekeepers and soldiers
- Prisoners
- Refugees and internally displaced people
- Sex workers and their clients
- Women and girls who may be victims of violence
Box 5

HIV Stigma Free

An effective way to include HIV education into daily life is to integrate the message of HIV prevention into public and cultural events. One such example can be found in Botswana, where HIV positive women compete to be crowned Miss HIV Stigma Free. Although, beauty contests are not normally considered “empowering,” the point of these pageants is to embrace people living with HIV and to defeat discrimination. Botswana’s “Miss Ishi Asilia” contest is a unique opportunity to entertain thousands of people while providing an informative message about HIV prevention. Botswana has one of the highest infection rates in the world. By 2005 more than 270,000 people were living with HIV. It was also the first country in Africa to provide universal antiretroviral medication.

According to Dr. Vitalis Chipfakacha, an AIDS activist in Botswana, “HIV positive people were not visible before, and this had consequences on a lot of programs, including prevention. I can recall many older people saying ‘You are giving statistics that are so high but where are these HIV people?’” Pageants such as Miss HIV Stigma Free are just one of many ways to put a face to those infected with the disease. Many pageants promote the idea of “beauty with a purpose,” underlining the fact that HIV-positive women can lead full, beautiful lives. This can help eliminate the fear among others to get tested, as they can see a person with HIV living and “able to smile.”

Botswana’s Miss HIV Stigma Free Pageant was recognized as the best community initiative in Africa by “Initiative Africa” based in France.


Voluntary Testing and Counseling (VCT)

Detectable antibodies to HIV appear within days or weeks of initial exposure to the virus. These can be detected by a simple test that can accurately pick up 99.9% of infections.

Testing is important for several key reasons given that when individuals know their status they can use this information to protect themselves and others from infection. However, the fear of knowing ones status because of the repercussions and the stigma attached to HIV is a deterring factor for many in seeking testing. Knowing the demography of the people at risk, or vulnerable populations, is an effective way to ensure that these groups have access to testing and counseling services, as they are often outside of mainstream health care facilities due to inability to pay user fees, or for fear of discrimination and stigma. UNAIDS maintains that prevention, detection, and
effective treatment of sexually transmitted infections are all important methods of reducing vulnerability to HIV infection (UNAIDS, 2007).

UNAIDS also suggests that widespread testing of HIV and other STIs has been shown to “reliably yield important information for monitoring HIV responses” (UNAIDS, 2007). When governments are knowledgeable of the exact numbers of HIV infections within the country or region, and committed to improving the quality and consistency of data collected at the country level, they consequently improve the accuracy of responses at the national and global level (UNAIDS, 2007). However, it is important for governments to disaggregate their data according to age and gender, as this information is vital in developing HIV responses which are appropriate to these varying cohorts, especially women and youth who are increasingly the two most vulnerable groups (UNAIDS, 2007).

**Condoms and “Safer Sex”**

The term “safer sex” is used rather than simply “safe sex”, as no form of protection is 100% effective. However, condoms, if used correctly and consistently are highly effective at preventing HIV transmission (UNAIDS 2008). This is true of both male and female latex condoms. As such, condoms should be made readily available in health care, community and education centers, at either low or preferably no cost.

The World Health Organization also recommends “safer sex” campaigns which encourage delayed sexual debut among young people, mutual fidelity among partners, overall reduction in the number of sexual partners, and early and effective treatment for other sexually transmitted disease which, if left untreated, exacerbates rates of HIV infection (UNAIDS, 2008).

**Prevention of Mother-to-Child Transmission (PMTCT)**

A pregnant woman who is HIV-positive can pass the virus on to her baby in the womb, during childbirth, or postnatally, through breastfeeding. However, if the woman does not breastfeed, the risk of mother-to-child-transmission (MTCT) of HIV is around 15-30%. With prolonged breastfeeding, the risk is augmented to as high as 30-45%. The
risk of transmission can be **reduced by up to 50%** with the administration of a short course of antiretroviral drugs to mother and baby around the time of delivery, in conjunction with replacement feeding. Unfortunately, in the absence of such treatment infants born to and breastfed by HIV positive women have a one-in-three chance of also acquiring HIV (UNAIDS, 2007). Currently 33% of HIV positive women have access to medications needed to prevent mother-to-child transmission.

Although improvement have been made this statistic remains problematic, as in many countries many women may not have access to antenatal health services, as they may live in remote rural area or chose not to use facilities opting for home births instead. Furthermore, women who are HIV positive and know their status may be less likely to access health care services for fear of discrimination. In response, health care access must be improved, especially in rural areas. Additionally, women and health care professionals must be sensitized to address the needs of HIV-positive, pregnant women (UNAIDS, 2007).

**Male circumcision**

Although there is still some debate, recent studies have demonstrated that male circumcision can greatly reduce the chance of HIV-infection. It has been found that cells unique to the foreskin may be potential targets for HIV. Secondly, the foreskin is a more delicate membrane and is vulnerable to small cuts and sores which increase the risk of HIV transmission.

However, the rate of HIV infection can also be increased by this practice if un-sterilized surgical tools are used, or if newly circumcised adult males do not wait until they are fully healed before engaging in sexual intercourse. This increases the risk for circumcised males and their sexual partners.

Male circumcision should always be considered as part of a comprehensive HIV prevention approach to ensure that men do not develop a false sense of security and engage in high-risk behavior. **Male circumcision alone does not constitute an HIV prevention practice.**
**Blood Safety**

Within some countries, rates of HIV infection continue to progress due to failures in blood safety programs and blood screening services. Blood safety means that all blood units which are donated are screened to avoid transfusion of transmissible infections, including HIV. If blood screening does occur, it can be compromised by inaccurate test results due to poor quality, or inadequate storage of blood testing kits. This problem is yet another symptom of inadequate health care spending and services. Health care staff must also be trained to properly handle the intake and testing of donated blood. Oversights, stemming from lack of training, can result in contaminated blood units being deemed safe when in fact they are not (UNAIDS, 2007).

Universal (100%) screening of blood for HIV must be implemented as an additional measure against HIV infection within the health care sector, which includes access to low-cost, high quality test kits and effective blood supply management (UNAIDS, 2007).

**Microbicides**

Microbicides are a new and emerging technology in the fight against HIV. Commonly, microbicides are gels, creams, or suppositories which can be inserted in to the vagina or anus before intercourse to protect against HIV or other sexually transmitted infections (STIs). However, further research and testing is required before products such as these can be released for sale to the public. As an alternative to the condom, many remain hopeful that microbicides may empower women who usually may not be able to negotiate safer sex with their sexual partner, as they can be used discretely before intercourse without knowledge of the partner (UNAC, 2007).

**Current Developments for Treatment**

**Antiretroviral Therapy (ART)**

HIV is a retrovirus, which means that it replicates itself by attaching itself to healthy DNA (See Box 3). Drugs developed to slow the development of HIV in patients are known as antiretrovirals (ARVs). There are a variety of formulas available to target HIV is the various stages of its life cycle. **Although antiretroviral therapy is not a cure,**
**it is the most effective means of treating HIV** if used in a consistent and timely manner.

ARVs can improve the overall health and wellbeing of HIV-positive patients, and can help to ensure that they never progress to the AIDS stage. ARV treatment has been shown to reduce mortality and fatalism among HIV patients, and can help patients live healthier lives, decreasing their burden on the health care system, and increasing their possibilities to continue working and living a productive life. With treatment, it is possible that individuals infected with HIV will never exhibit AIDS symptoms and decreases the potential for HIV to be transmitted sexually.

Global commitments that have contributed to the number of people in low- and middle income countries receiving antiretroviral drugs have increased substantially in the last couple of years. By the end of 2007, antiretroviral drugs reached 3 million people in low- and middle-income countries, representing 31% of estimated global need and a 45% improvement over 2006. For example, Namibia scaled up treatment from 1% in 2003 to 88% in 2007. Similarly Cambodia scaled up treatment from 14% in 2004 to 67% in 2007. Other countries that have come close to achieving universal access to treatment are Botswana, Brazil, Chile, Costa Rica, Cuba and Lao People’s Democratic Republic. In most parts of the world more women are receiving antiretroviral treatment than men. Improved and expanded access to treatment has also resulted in that AIDS deaths have started to decline, from 2.2 million in 2005 to 2 million in 2007. In addition, the quality of life for people living with HIV is improving and a rejuvenation of households, communities and entire societies can be seen.
However, ARVs are not universally accessible, and even in some countries where they may be available, high costs keep playing a role in keeping ARVs out of reach for the poor. This can partly be explained by that many ARVs are produced by large pharmaceutical companies who have the rights to charge prices often out of the reach of consumers under trade and patent laws. These prices are raised even further through trading mark-ups from a variety of actors. However, governments can control some of these mark-ups, or even take the steps to produce generic drugs within their borders and provide them for free or at drastically reduced rates to their citizens. Furthermore, inadequate or unstable health care services act as barriers to access, and if treatment is discontinued for either of these reasons, HIV will continue to reproduce rapidly throughout the body. It is imperative for governments to concurrently improve access to health care services, and provide ARVs at low or no cost.
Box 7

Use of Generic Antiretrovirals

Brazil is widely recognized both within Latin America and around the world for its commitment to providing free, universal access to ARVs, as well as for expanding health care facilities within both the urban and rural areas. Globally, Brazil is among several countries including India, Argentina, and Thailand that produce generic versions of branded pharmaceuticals, usually for use in the developing world.

Not only this, Brazilian President Luiz Inácio Lula da Silva has extended resources by donating domestically-produced ARVs to countries in Africa and elsewhere in Latin America that have been unable to produce their own (UNAIDS 2003). Nationally, Brazil has observed a striking reduction in mortality, morbidity, and hospitalization rates of HIV/AIDS patients due to its universal provision of drugs.

Generic antiretrovirals are an appealing option as they are much cheaper than the lowest price manufacturers of the branded equivalent are willing to offer. Generic drugs help by contributing to the high levels treatment adherence in Brazil – the increase in the number of individuals on ARVs as a result of the availability of generic treatments is being replicated in other countries around the world.

In many situations, Brazil has also been able to secure access to discounted ARVs by pressuring pharmaceutical companies to offer the drugs at drastically reduced prices, or else threatening to produce them generically. This strategy has benefited other countries in the region, as well as Caribbean countries. In March of 2001 Merck announced that it would sell its anti-HIV drugs at non-profit prices to the poorest countries worst hit by HIV, including eight in the Caribbean. With an estimated two percent of the Caribbean’s population of 25 million infected with HIV, the region has the highest HIV prevalence rates outside Africa.

As of 2001, Trinidad, the Dominican Republic, Guyana and Suriname were also able to buy Merck’s ARVs for discounted prices. At a rate of $1,100 per patient per year, patients benefit from a saving of 85 per cent on the US price. In St Lucia, Jamaica and St Kitts, the price will be $2,000 for annual supply.

However, the provision of generic drugs is not the only solution increasing access to treatment. Political will and the commitment of national and international funders to improve health care systems also has a role to play. If trained professionals and adequate facilities are not available to distribute medications, individuals will remain untreated.

Through national treatment and prevention campaigns as well as support for grassroots initiatives, Brazil currently maintains prevalence rates below 1%. Brazil serves as a positive example of the importance of free ARVs, and could be used as a model in other areas with high HIV infection.

Additionally, studies have concluded that through the production of generic ARVs Brazil has saved approximately $USD 1.2billion on national health care spending specific to HIV treatment from 2001-2005. In 2000, the average cost of ARVs per person annually was $USD 3,063 per year versus $USD 10,293 – representing major savings for the Brazilian government who provides free antiretrovirals to every man, woman, and child in need.

Sources: Brazil - Epidemiological Fact Sheets on HIV/AIDS and STIs, and AIDSmap - Use of Generic Antiretrovirals
As it is the case with other infectious diseases, a safe, effective, and available vaccine is ultimately required to complement and enhance the effectiveness of existing prevention strategies to control the HIV/AIDS pandemic, especially in developing countries.

WHO-UNAIDS HIV Vaccine Initiative – Mission Statement

Although there is no existing cure for HIV, researchers remain firm in their belief that the best hope for ending the pandemic lies in the development of an HIV vaccine. However, the development of such a vaccine comes with a plethora of challenges. To begin, HIV is a diverse virus, and it not known if the production of a vaccine for one subtype would also target additional subtypes of the virus. Clinical trials also pose many ethical questions, as testing on human subjects requires complete consent, and the knowledge of risks associated with testing. Clinical trials are also costly, and time consuming. Unfortunately some pharmaceutical companies also operate under the belief that investments in a HIV vaccine is unprofitable in the long term, as the majority of "consumers" reside in low- to middle-income countries and would not be able to purchase such as vaccine if it were successful.

Even though public and private donors are contributing to the investment in the development of the vaccine, more money is needed – funding remains a major challenge to the development of an HIV vaccine. Finally, even if a successful vaccine were discovered the issue of access remains. This means that any future vaccine must be made available to developing countries, which are the hardest hit by the pandemic, not just to those who can afford treatment. As with the administration of antiretroviral drugs, the means to transport, store and administer treatment is compromised where health care services and infrastructure are poor.

Box 8

The Bill & Melinda Gates Foundation - Major Contributor to HIV Vaccine Research

In 2006, The Bill & Melinda Gates Foundation announced it is awarding $287 million US in grants over five years to create an international network of scientists to speed up the development of an AIDS vaccine. The goal is to pool some of the world's brightest minds to break through the
daunting technical obstacles that have hindered two decades of work on a vaccine against HIV, and to make sure that researchers share data and collaborate in a way that's rare in science. The Foundation has united the grantees into what it calls the Collaboration for AIDS Vaccine Discovery. In all, the collaboration involves 165 researchers from 19 countries who are divided into 11 consortia that will develop vaccines and five others that will run central facilities for immunology, storing specimens, and managing data. The initiative is part of a loosely coordinated international effort on HIV vaccine research development, called the Global HIV Vaccine Enterprise, for which the Foundation currently serves as the secretariat.


The development of a HIV vaccine, as with other prevention and treatment initiatives, requires the involvement of parliamentarians in order to increase levels of national funding and support. The international community has already responded to the challenge of HIV/AIDS through the formation and signing of countless recommendation and strategy documents (see unit 3). However the challenge lies within the practical implementation of these strategies on the ground. As per UNAIDS' recommendation, parliaments have the responsibility to "know their epidemics" and to bring this information to the national level to develop both proactive and reactive responses to HIV/AIDS. Strategies must be comprehensive, in that they emphasize both prevention and treatment, and address the needs of vulnerable groups regardless of locality, gender, or sexuality. Given the global scope of the pandemic, parliamentarians cannot afford to shy away from the issue of HIV/AIDS if the pandemic is to be halted and reversed.
Unit 1: Questions

Please answer each of the following questions. If you are taking this course in a group you may then meet to discuss your answers.

1. Currently, approximately how many people are infected with HIV/AIDS globally?
   How many are infected in sub-Saharan Africa and what accounts for such high rates of infection in the region?

2. What is the distinction between HIV and AIDS?

3. What are the common modes of transmission?

4. What are some examples of prevention mechanisms?

5. What technologies are available or are being developed for treatment?

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