

### **Worldwide statistics on HIV/AIDS**

*WORLDWIDE, HIV/AIDS IS A DISEASE OF ADULTS WITH A SLIGHT BIAS TOWARD MEN, OCCURS MOSTLY IN DEVELOPING COUNTRIES, IS CONTRACTED PRIMARILY THROUGH HETEROSEXUAL INTERCOURSE, AND HAS RESULTED IN MILLIONS OF ORPHANED CHILDREN.*

As of the end of 2005, an estimated 40.3 million people worldwide - 38.0 million adults and 2.3 million children younger than 15 years - were living with HIV/AIDS. Women account for nearly half of all people worldwide living with HIV/AIDS.

Worldwide, approximately 1% of adults aged 15 to 49 is HIV-infected.

There are 16 countries in Africa where 10% of adults (15-49 years of age) is infected with HIV. There are a few countries in Africa where 20% (one adult in five) is living with HIV. In two countries, Botswana and Swaziland, the HIV prevalence rate is more than 35%.

An estimated 4.9 million new HIV infections occurred worldwide during 2005; that is, about 14,000 infections each day. More than 95 percent of these new infections occurred in developing countries.

Worldwide, more than 80 percent of all adult HIV infections have resulted from heterosexual intercourse.

As of 2005, more than 23 million people with HIV/AIDS have died since the first AIDS cases were identified in 1981.

In 2005 alone, HIV/AIDS-associated illnesses caused the deaths of approximately 3.1 million people worldwide, including an estimated 570,000 children younger than 15 years.

Since the beginning of the HIV/AIDS epidemic, approximately 15.0 million children younger than 15 years have been orphaned worldwide because of the premature deaths of HIV-infected parents.

### **Statistics for USA**

*IN THE USA, HIV/AIDS IS A DISEASE OF ADULTS, WITH A STRONG BUT SHRINKING BIAS TOWARD MEN, OCCURS AT DISPROPORTIONATE RATES AMONG MINORITIES, IS CONTRACTED PRIMARILY THROUGH MALE-TO-MALE SEXUAL CONTACT (60% OF MEN) AND INJECTION DRUG USE (25% OF MEN), BUT AMONG WOMEN THROUGH HETEROSEXUAL CONTACT (75% OF CASES) OR THROUGH INJECTION DRUG USE (25% OF CASES).*

The Centers for Disease Control and Prevention (CDC) estimate that 850,000 to 950,000 U.S. residents are living with HIV infection, one-quarter of whom are unaware of their infection. As of the end of 2004, an estimated 415,193 people in the United States were living with AIDS.

In the United States, a total of 918,286 cases of AIDS had been reported to the Centers for Disease Control and Prevention (CDC) as of Dec. 2004.

Approximately 40,000 new HIV infections occur each year in the United States, about 70 percent among men and 30 percent among women. Of these newly infected people, half are younger than 25 years of age.

From 1985 to 2000, the proportion of adult/adolescent AIDS cases reported in women increased from 7 percent to 25 percent. In 2004, this number remains at about 25%.

Of new infections among men in the United States, CDC estimates that approximately 60 percent of men were infected through homosexual sex, 25 percent through injection drug use, and 15 percent through heterosexual sex. Of newly infected men, approximately 50 percent are black, 30 percent are white, 20 percent are Hispanic, and a small percentage are members of other racial/ethnic groups.

Of new infections among women in the United States, CDC estimates that approximately 75 percent of women were infected through heterosexual sex and 25 percent through injection drug use. Of newly infected women, approximately 64 percent are black, 18 percent are white, 18 percent are Hispanic, and a small percentage are members of other racial/ethnic groups. In comparison, Blacks make up 12.7% of the US population, and Hispanics are about 8.8%.

In 2002, HIV/AIDS was among the top 3 causes of death for African American men aged 25–54 years. It was the number 1 cause of death for African American women aged 25–34 years.

Approximately 50,000 deaths among people with AIDS occurred in the United States in 1995. In 2004, the number of AIDS deaths in the United States was 15,798.

#### REFERENCES

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[http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53\\_17.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_17.pdf)

#### **Terms: The following are important terms for lectures on HIV and AIDS.**

retrovirus: an RNA virus that uses the enzyme reverse transcriptase to convert the RNA to DNA

lentivirus: subcategory of retroviruses. ‘lenti’= ‘slow’, these are slow viruses, meaning there is a long time between infection and display of signs of disease.

env: the envelope protein of HIV, containing two parts gp120 which extends out of the virus, and gp41, which anchors the protein in the viral membrane

chemokines: chemoattractant cytokines secreted by immune system cells. These cytokines are chemoattractant, that is, their secretion attracts other immune system cells.

chemokine receptors: receptors for chemokines found on immune cells. Some are ‘fusion cofactors’ for HIV; that is, they are necessary molecules for HIV to infect a cell

reverse transcription: using the HIV enzyme reverse transcriptase, viral RNA is converted to DNA

integrase: an HIV enzyme that helps to splice the HIV DNA into the host cell’s DNA. Once spliced in, the HIV DNA is called a provirus

protease: an HIV enzyme that cleaves the long chains of newly synthesized viral proteins and enzymes into smaller pieces which makes them functional, and results in a new infectious virus particle.

nucleoside reverse transcriptase inhibitors (NRTIs): drugs that use chemically modified nucleosides that will be incorporated into HIV’s DNA in place of natural nucleosides

non-nucleoside reverse transcriptase inhibitors (NNRTIs): attach to reverse transcriptase preventing it from translating viral RNA into DNA

protease inhibitors: prevent protease from breaking up HIV protein chains

fusion inhibitors: prevents viral entry by blocking e.g., gp-41

integrase inhibitors: inhibits integrase enzyme

CCR5 blocker: prevents viral entry by blocking CCR5, a co-receptor needed by HIV for entry into cell