



AIDS Virus Timeline

By: Christopher Stewart

1959 and before

- HIV-1 was likely transferred to humans before 1955 from a subspecies of chimpanzees infected with simian immunodeficiency virus (SIV), because they had eaten them.
 - Earliest case of HIV confirmed. HIV-1 was found in blood samples of an African man who died in 1959.
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1969

- First known case of HIV in the U.S. - Teen prostitute with Kaposi's Sarcoma and HIV dies.
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1970

- According to some experts, AIDS - Acquired Immune Deficiency Syndrome - first arose in the middle to late 1970's in Africa, when a small, infected Green Monkey, sunk its teeth into a local native. From such humble beginnings it then exploded across the globe - as a result of sexual transmission - bringing massive death and misery in its wake.
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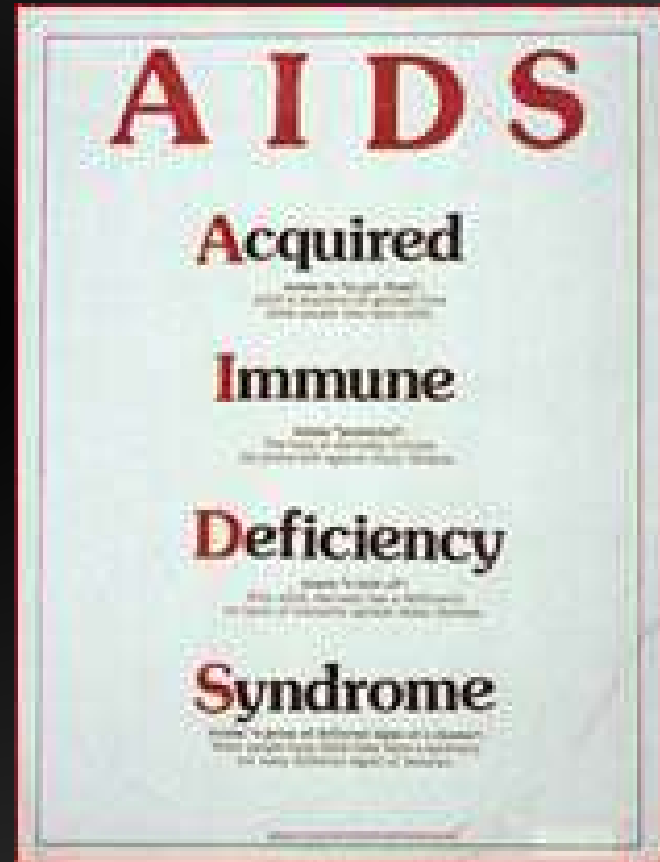
1980

- Dr. Michael Gottlieb at UCLA sees a case of *Pneumocystis carinii* pneumonia (PCP) and discovers that the patient's blood lacks T-helper cells, which are a part of the immune system.
 - 31 deaths have occurred in the U.S. which will later be found to be HIV-related.
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1981

- ⑩ In October, the CDC declares the new disease an epidemic.
- ⑩ Dr. Alvin Friedman-Kien in New York notices a rare cancer, Kaposi's sarcoma, in two young gay men and speaks to physicians at UCSF who have seen a similar case

"Gay cancer," later called GRID, (Gay Related Immuno Deficiency) claims 121 deaths in the U.S. since the mid-1970s



1982

NIAID International HIV/AIDS Research Programs

- 1984- Cornell/Haiti Project
- 1985-92 Project SIDA Zaire
- 1988-92 International Collaboration in AIDS Research (ICAR)
- 1993-1994 Preparation for AIDS Vaccine Evaluation (PAVE)
- 1994-2000 HIV Network for Prevention Trials Network (HIVNET)
- 1999- HIV Prevention Trials Network (HPTN)
- 1999- HIV Vaccine Trials Network (HVTN)
- 2001- Comprehensive International Program of Research on AIDS (CIPRA)

⑩ The CDC links the new disease to blood.

Scientists call the new disease AIDS (Acquired Immune Deficiency Syndrome)

⑩ Center for Disease Control says sexual contact or infected blood could transmit AIDS; U.S. begins formal tracking of all AIDS cases

⑩ 285 cases reported in 17 U.S. states, five European countries

1983

- ⑩ Dr. Robert Gallo of the National Institutes of Health, Bethesda, Maryland, and Dr. Luc Montagnier of France's Pasteur Institute independently identify Human Immunodeficiency Virus (HIV) that causes AIDS
 - Virus that causes AIDS isolated by Pasteur Institute (France).
 - Safer sex guidelines are proposed.
 - CDC warns blood banks of a possible problem with the blood supply.
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1984

- Safer sex guidelines are proposed.
 - New evidence is reported that AIDS can be spread heterosexually and transmitted even before a person shows outward signs of the disease.
 - Scientists report isolating a virus that causes an AIDS-like illness in monkeys.
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1985

- ⑩ Movie actor Rock Hudson dies of AIDS; the resulting publicity greatly increases AIDS awareness
Congress allocates \$70 million for AIDS research
 - ⑩ FDA approves first enzyme linked immunosorbant assay (ELISA) test kit to screen for antibodies to HIV.
 - ⑩ All blood and plasma collection centers begin screening the country's blood supply for HIV antibodies.
 - ⑩ First international AIDS conference held in Atlanta
 - ⑩ Blood test for HIV approved; screening of U.S. blood supply begins through Red Cross
 - Scientists report isolating a virus that causes an AIDS-like illness in monkeys.
 - National poll shows 72% of Americans favor mandatory testing; 51% favor quarantine and 15% favor tattoos for those infected with HIV.
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1986

- ⑩ Soviet Union reports first AIDS case
- ⑩ Surgeon General C. Everett Koop sends AIDS information to all U.S. households
- ⑩ Scientists locate second type of AIDS virus, HIV-2, in West Africa; original virus is HIV-1

Progression of AIDS Vaccine Development

| | |
|-----------|---|
| 1987-1992 | Focus on monomeric envelope, peptides, antibody induction Novel adjuvants |
| 1992-1996 | Increased attention to CTLs New focus on viral vectors +/- envelope boost |
| 1997-2000 | DNA +/- viral vectors Bivalent envelopes Salmonella Novel peptides, p24 |
| 2001 | Adenovirus, MVA, novel DNAs, novel recombinant proteins |
| Future | Alphavirus replicons, cytokine adjuvants, p55 particle, fowlpox, novel peptides, others |

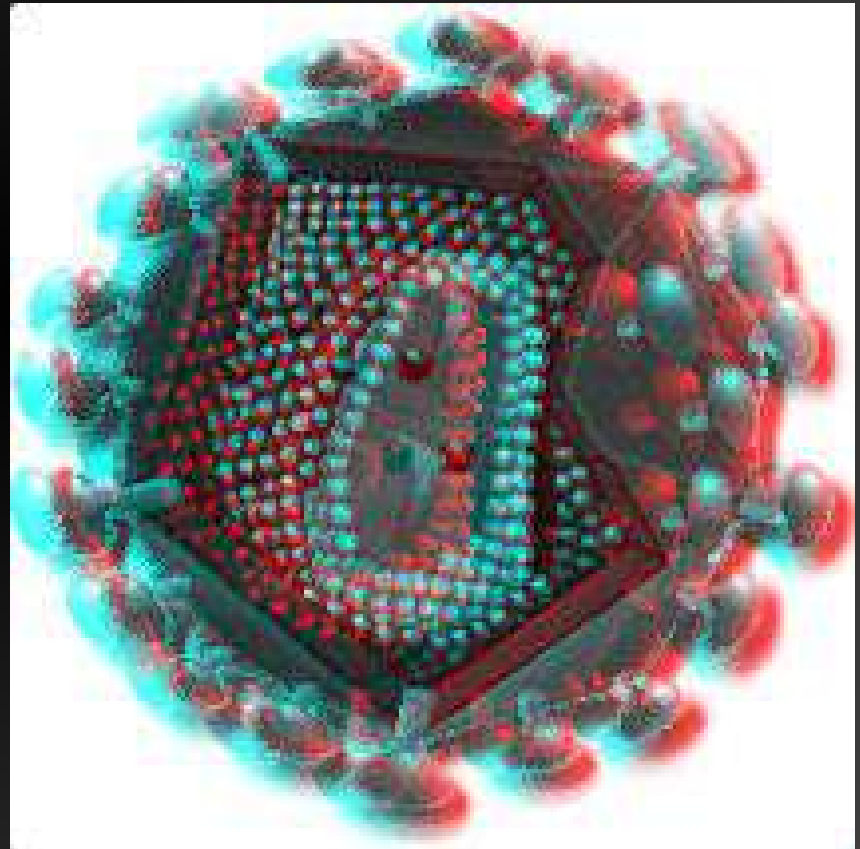
1987



- ⑩ FDA approves AZT, a potent new drug for AIDS patients, which prolongs the lives of some patients by reducing infections
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1988

- ⑩ World Health Organization begins World AIDS Day to focus attention on fighting the disease



1991

Watch out for dirty needles!

Dispose as biohazardous waste.

<http://www.HIVAIDSsearch.com>



⑩ 10 million people worldwide estimated to be HIV-positive, including 1 million in U.S.; more than 36,000 Americans have died of AIDS since the late 1970s

1993

- ⑩ U.S. annual AIDS deaths approach 45,000
- ⑩ In June, sexual transmission surpasses injection drug use as the cause of HIV infection among women.
- ⑩ On October 1, a federal government study concludes that giving clean needles to addicts helps prevent the spread of AIDS.



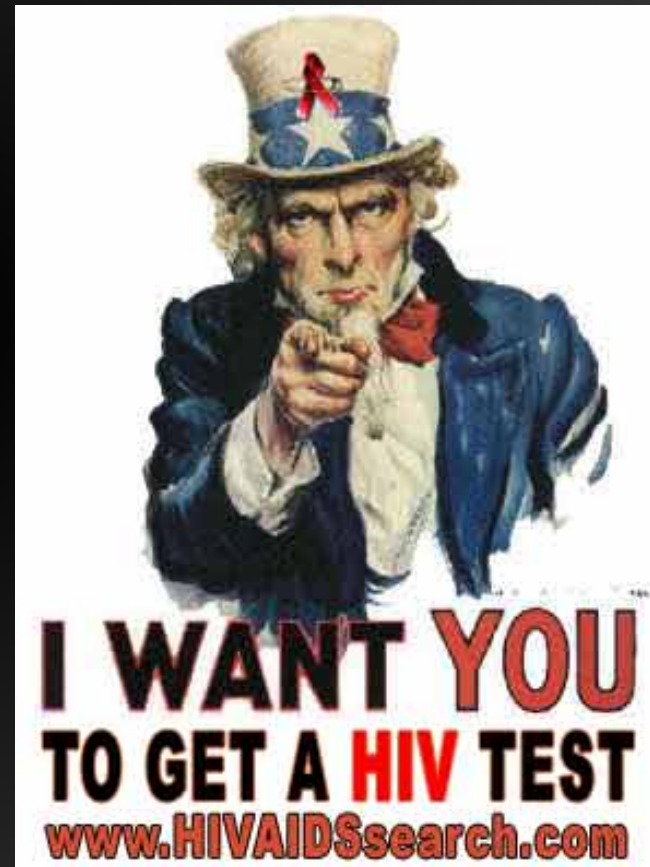
1994



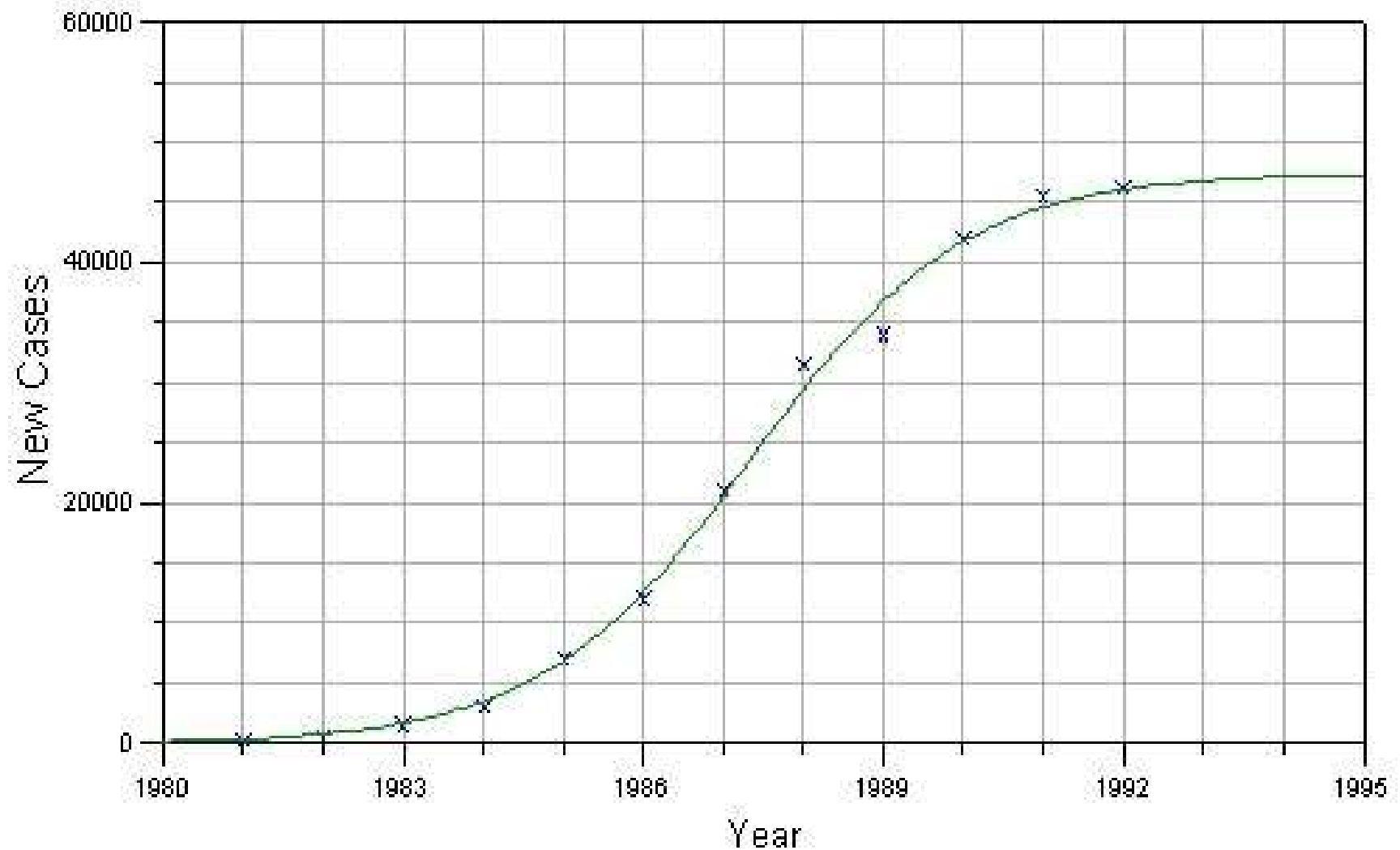
- ⑩ AIDS-related illnesses are the leading cause of death for adults 25-44 years old in U.S.
- On June 24, Stavudine (d4T, Zerit®) is approved by the FDA for treatment of adults with HIV infection.
- On December 23, the FDA approves OraSure™ the first non-blood based collection kit utilizing oral fluid for use in the detection of the antibody to HIV-1.

1995

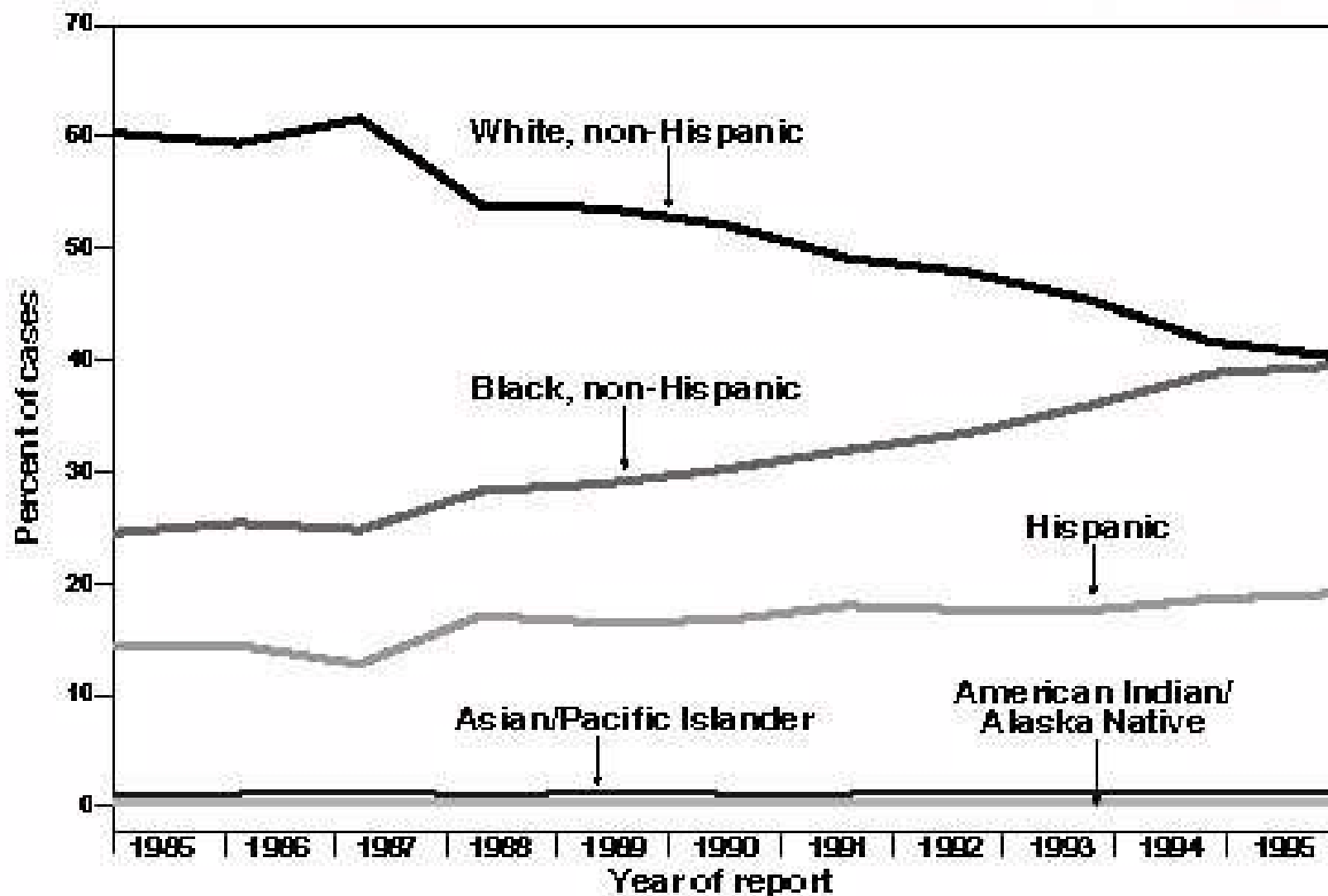
- ⑩ Saquinavir, the first protease inhibitor (which reduces the ability of AIDS to spread to new cells) is approved



New Cases of AIDS in The United States



Percent of AIDS cases by race/ethnicity and year of report
1985-1995, United States HIV/AIDS Surveillance Report, vol. 7, no. 2



1996

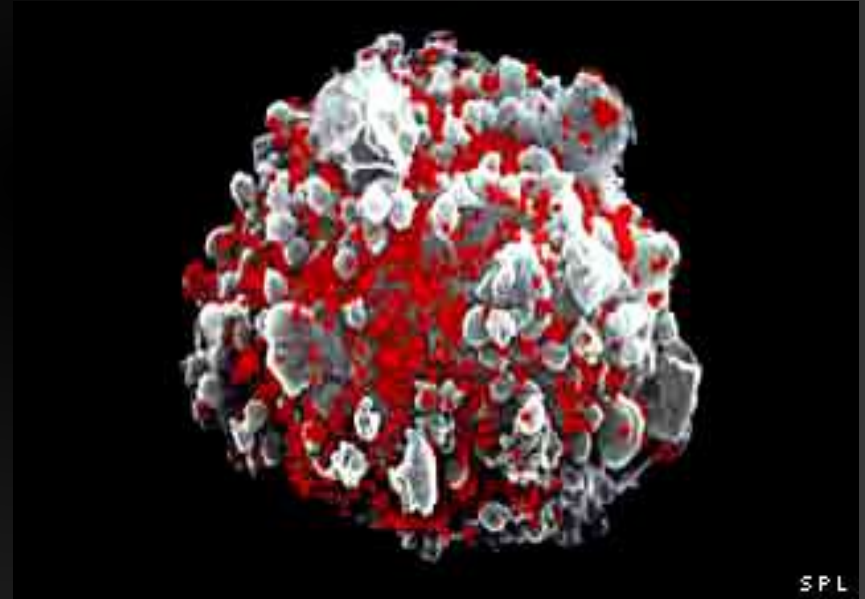


- ⑩ Patients are often able to delay the onset of full-blown AIDS by taking a combination of as many as 60 different drugs called an AIDS "cocktail"
- AIDS is 8th leading cause of death in U.S.

1997

- ⑩ Worldwide death toll climbs to 6.5 million (since mid-1970s)
- U.S. government spends \$4.5 billion on AIDS/HIV treatment
- AIDS-related illnesses drop to the fifth leading cause of death for adults 25-44 years old

AIDS attacking an immune cell



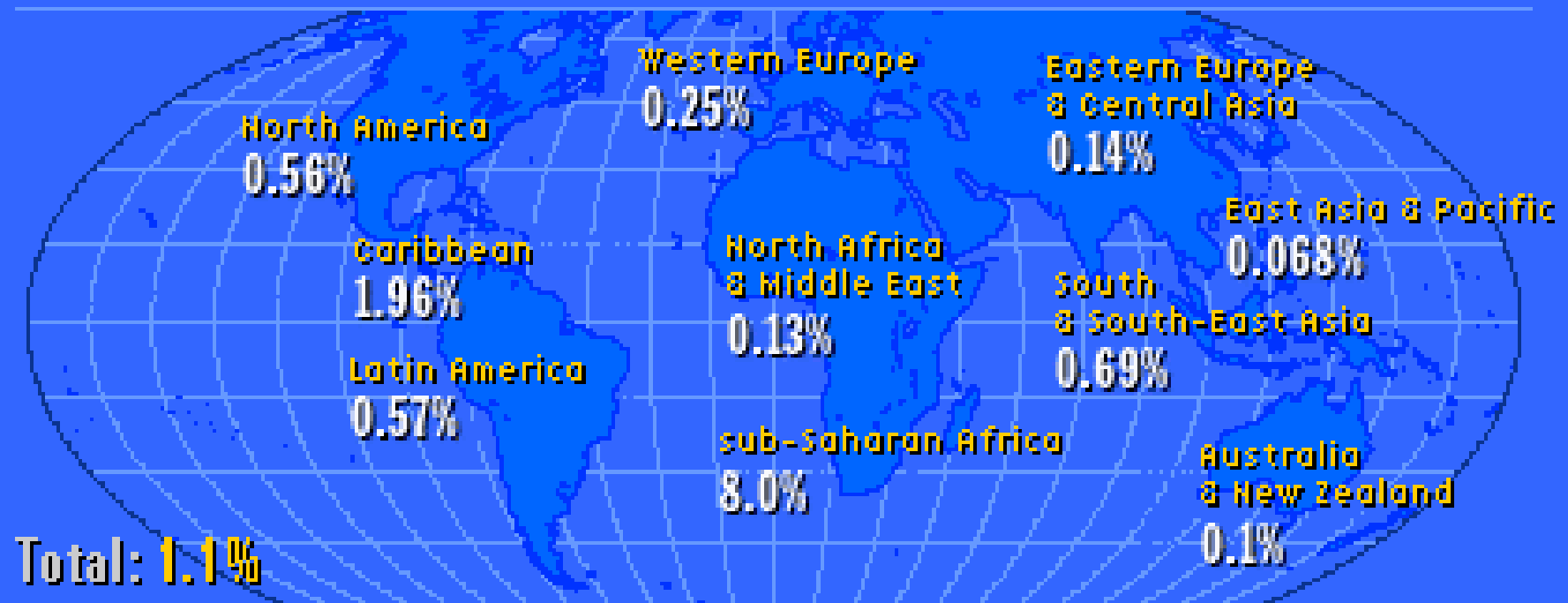
1998



- ⑩ Clinical trials begin for AIDS vaccine, AIDSVAX, the only one of 40 AIDS vaccines developed since 1987, that is considered promising enough to widely test on human volunteers
 - ⑩ U.S. AIDS deaths drop to 17,000 per year, due to drug therapies; AIDS drops to 14th leading cause of death in U.S.
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Proportion of adults (15-49 years) living with HIV / AIDS in 1998

(using 1997 population figures)



- ☐ A When the epidemic began
- ☐ B People with HIV/AIDS
- ☐ C People infected with HIV in 1998
- ☐ D Adult prevalence rate
- ☐ E % of HIV-positive adults who are women
- ☐ F Main mode(s) of transmission
- ☐ * chart showing all map information at once

1999

- ⑩ AIDS cases in Russia rise by one-third, to 360,000
 - ⑩ World Health Organization estimates that AIDS has caused the life expectancy in Southern Africa to drop from 59 years in the early 1990s to 45 years after 2005
 - ⑩ AIDS infections skyrocket in Southeast Asia
 - ⑩ U.S. government spends \$6.9 billion on AIDS/HIV treatment
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2000

- ⑩ Officials note the spread of drug-resistant strains of HIV
 - ⑩ 21.8 million people have died of AIDS since the late 1970s; infections rise in Eastern Europe, Russia, India, and Southeast Asia
 - ⑩ 10% of the population between the ages of 15 and 49 has HIV/AIDS in 16 African countries, while in 7 African countries, infection rates reach 20%
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2001

- ⑩ Drug companies begin offering AIDS drugs to poor countries at a discount
 - ⑩ An estimated \$6.9 billion is spent in the U.S. on the treatment of AIDS patients
 - ⑩ The UN estimates that, around the world during 2001, there were 3 million deaths from AIDS, of which 2.3 million were in Sub-Saharan Africa. There were 5 million new infections, bringing the total to 40 million infected; and Africa has the most infected (more than 16 million) followed by South and Southeast Asia (more than 6 million)
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2001 cont...

- ⑩ AIDS is spreading most rapidly in Eastern Europe and the Russian Federation, with 250,000 new infections in 2001
 - ⑩ AIDS has lowered the life expectancy in Botswana, Malawi, Mozambique, and Swaziland by 20 years, to under 40 years of age
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Infection estimation of 2001

Adults and children estimated to be living with HIV/AIDS as of end 2001



Worldwide Total: 40 million

Source: UNAIDS Epidemic Update, Dec. 2001

2002

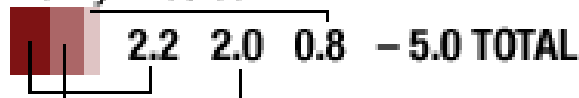
- November 7 -- The Food and Drug Administration's (FDA) approves a new rapid HIV testing device, OraQuick. The test is easy to use, produces reliable results in 20 minutes, and can eliminate the current weeklong waiting periods for test results. Under current approval, OraQuick can only be administered by certified health care workers.
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ADULT MEN
 ADULT WOMEN
 CHILDREN LESS THAN 15 YEARS OLD

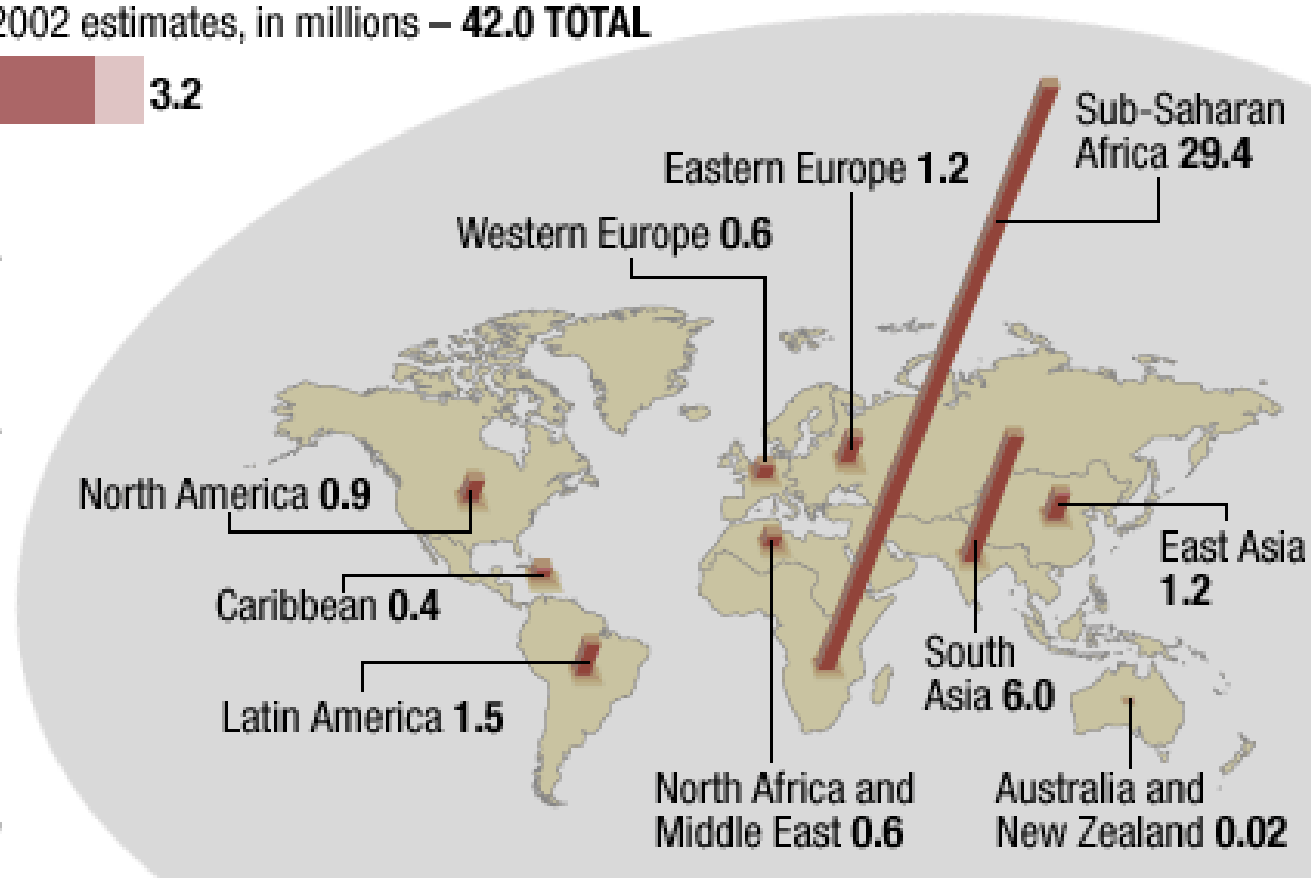
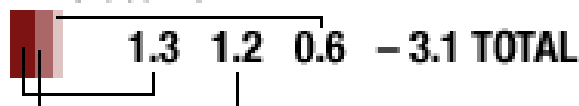
People living with HIV/AIDS end of 2002 estimates, in millions – **42.0 TOTAL**



Newly infected with HIV



AIDS deaths



SOURCES: Associated Press; UNAIDS; ESRI

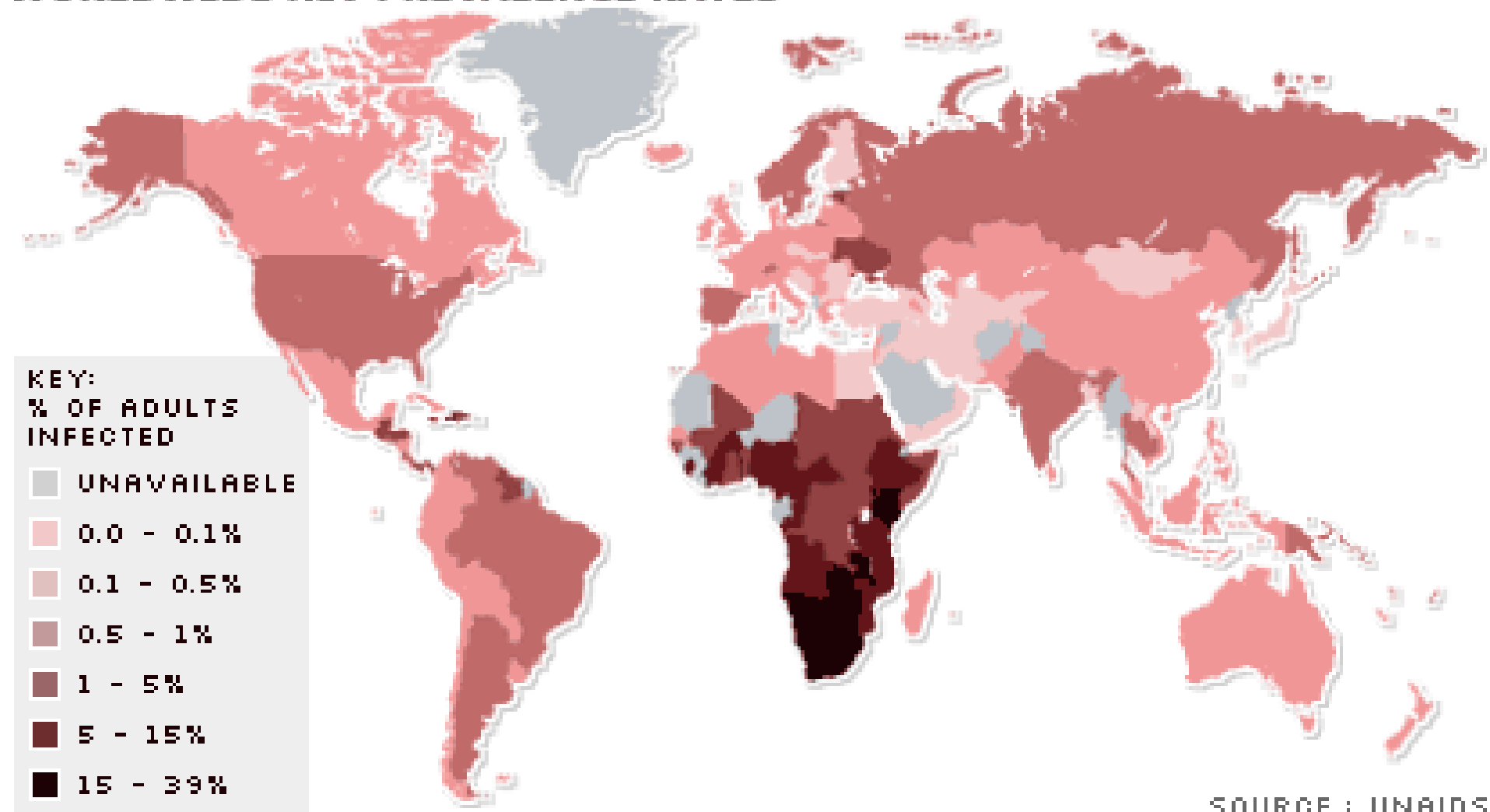
2003

- June 20, 2003 - The Food and Drug Administration (FDA) has announced the approval of Reyataz (atazanavir sulfate), a protease inhibitor to be used in combination with other anti-retroviral agents for the treatment of patients with HIV infection. Approval of this drug permits patients access to a once-a-day protease inhibitor. The recommended dose of Reyataz is 400 mg (two 200 mg capsules) once daily, with food. A significant safety concern commonly observed with the use of protease inhibitors is hyperlipidemia. Reyataz appears to have minimal impact on lipid parameters such as triglycerides and cholesterol.
 - July 2, 2003 - The Food and Drug Administration (FDA) announces the approval of Emtriva (FTC, emtricitabine), a new nucleoside reverse transcriptase inhibitor (NRTI) to be used in combination with other anti-retroviral agents for the treatment of patients with HIV infection. The recommended dose of Emtriva is one 200 mg capsule daily, with or without food.
 - On October 20 the U.S. Food and Drug Administration approved the protease inhibitor Lexiva(TM) (generic name fosamprenavir, also called 908). Lexiva is converted into amprenavir (Agenerase), a previously approved protease inhibitor, in the body. Lexiva is easier to take than amprenavir because of the smaller pill burden (usually 4 pills a day including the ritonavir, vs. 16 pills a day for Agenerase), and lack of food restrictions. It was developed by GlaxoSmithKline and Vertex Pharmaceuticals Incorporated.
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2004

- March 26, 2004 -- FDA APPROVES FIRST ORAL FLUID BASED RAPID HIV TEST KIT - OraQuick Rapid HIV-1 Antibody Test. The FDA today (March 26, 2004) approved the use of oral fluid samples with a rapid HIV diagnostic test kit that correctly identified 99.3 of specimens from infected people (sensitivity) and 99.8% of specimens from uninfected people (specificity) in limited studies provided by the manufacturer in support of this approval. The test provides the result in approximately 20 minutes.\
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WORLDWIDE HIV PREVALENCE RATES



Percentages as of now

- Of the 40,000 new AIDS cases reported in the United States each year, 42 percent are men who have sex with men, 33 percent are men and women infected by heterosexual sex, and 25 percent were infected by injection drug use (IDU).
 - Up to 50 percent of all new HIV infections are among those under age 25. It is estimated that 20,000 young people are infected with HIV every year. That means two young Americans between the ages of 13 and 24 are contracting HIV every hour.
 - Women account for 30 percent of new AIDS cases. (They represented only 7 percent of all AIDS cases in 1985.)
 - African Americans account for more than half (54 percent) of new AIDS cases, and Hispanics account for 19 percent. (African Americans and Hispanics represent only 13 percent and 12 percent of the general population, respectively.)
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Yearly Death Toll

- 1980 – 31
- 1981 – 128
- 1982 – 460
- 1983 – 1,503
- 1984 – 3,498
- 1985 – 8,161
- 1986 – 16,301

- 1987 – 27,909
 - 1988 – 46,134
 - 1989 – 70,313
 - 1990 – 100,813
 - 1991 – 132,233
 - 1992 – 160,000
 - 1993 – 194,334
 - 1994 – 46,810
 - 1995 – 43,652
-

Yearly Infection

1981 – 152

■ 1982 – 1,300

■ 1983 – 4,156

■ 1984 – 9,920

■ 1985 – 20,470

■ 1986 – 37,061

■ 1987 – 59,572

■ 1988 – 89,864

■ 1989 – 115,786

■ 1990 – 161,073

■ 1991 – 206,392

■ 1992 – 242,000

■ 1993 – 399,250

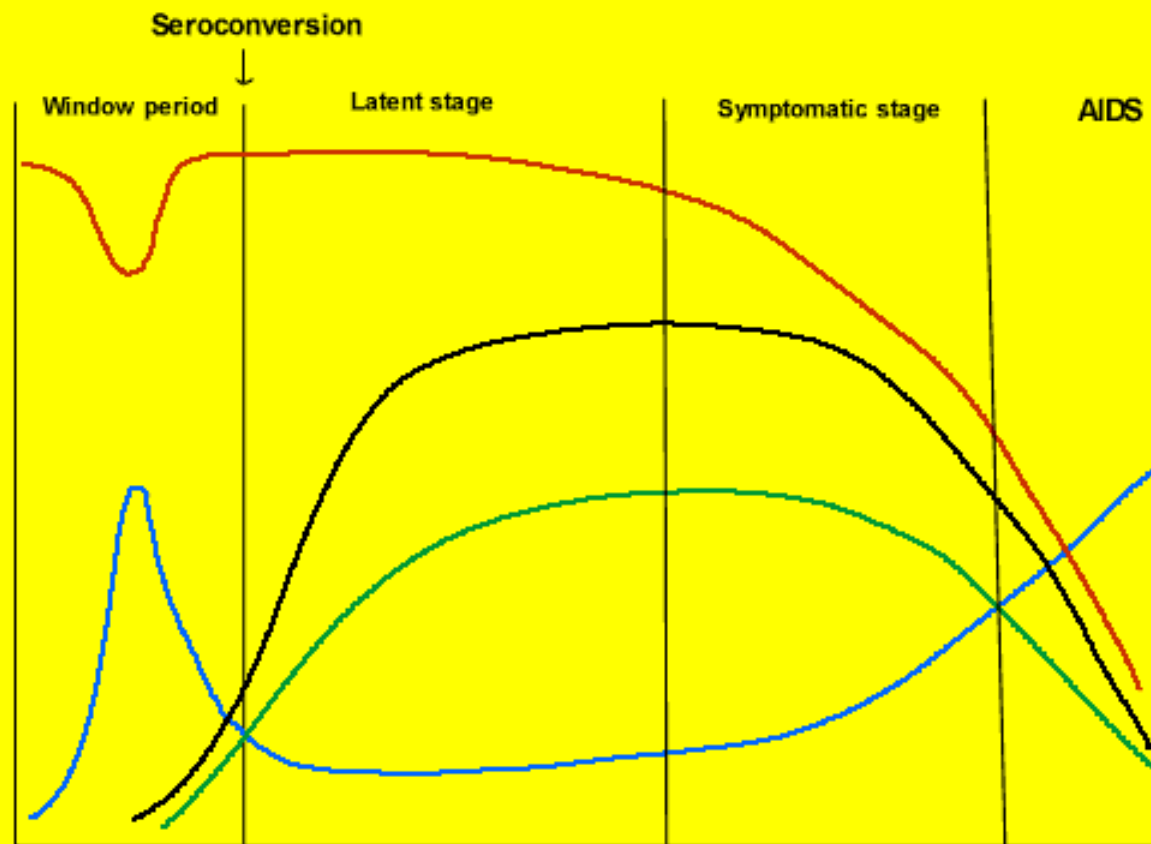
■ 1994 – 441,528

■ 1995 – 513,486



Other Picture

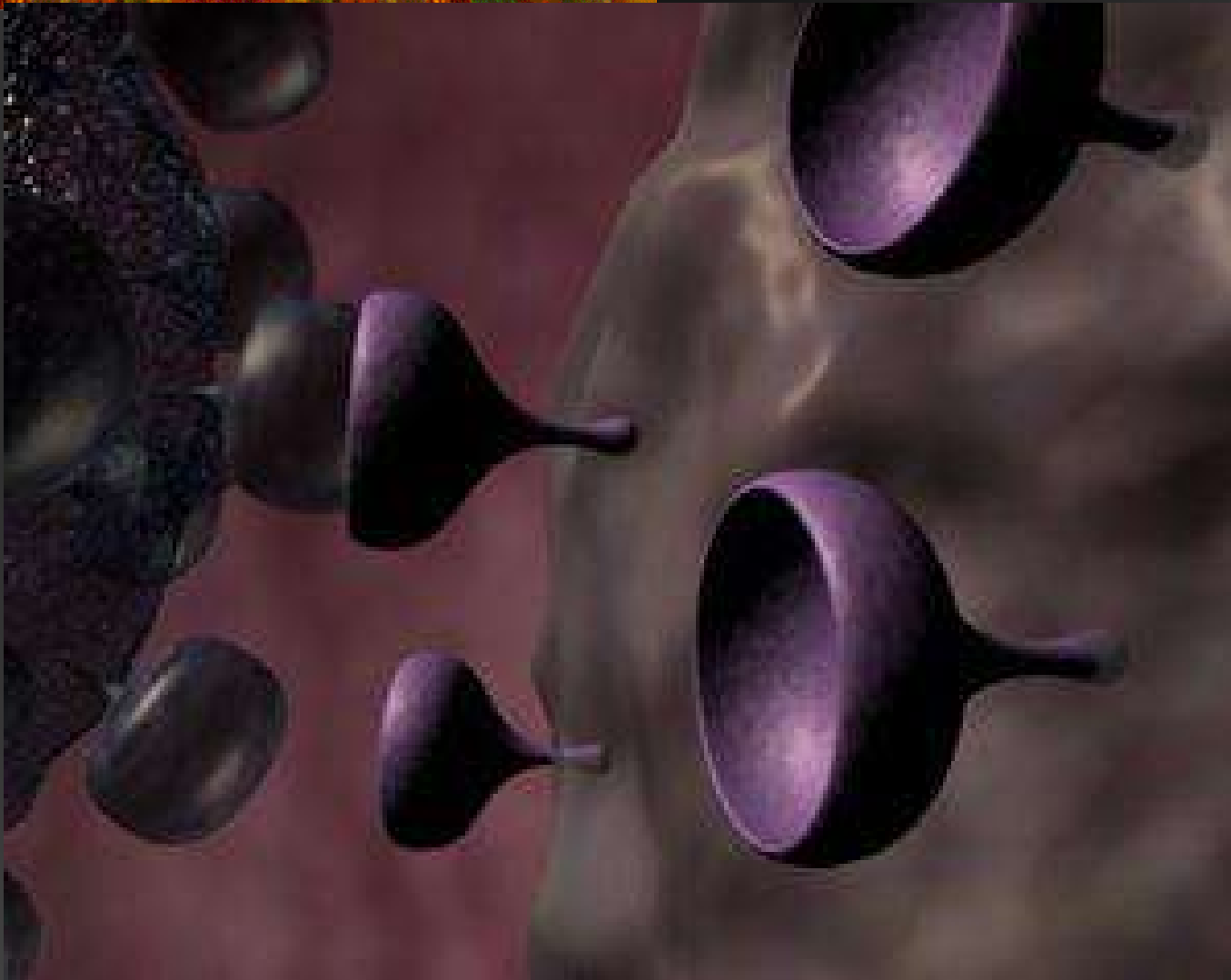




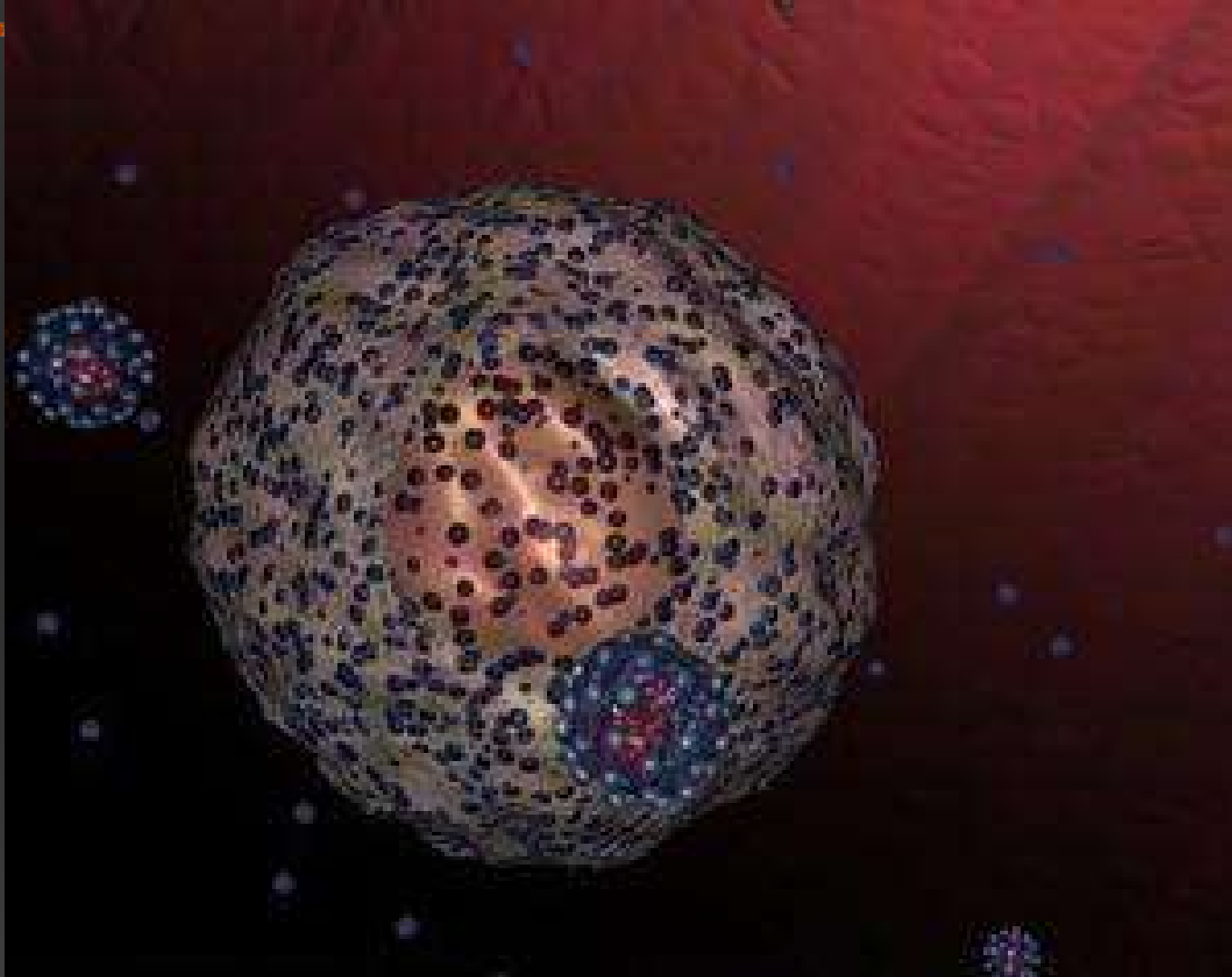
- Plasma viraemia
- CD4 lymphocyte count
- Antibody response
- HIV-specific cytotoxic T lymphocyte response



AIDS virus attaching to a CD4 receptor on a helper T-cell



Infected T-cell budding new viruses



Links

INFORMATION

- www.APLA.org
- www.infoplease.com
- school.discovery.com

PICTURES

- www.hiv-aids-poz.com
 - www.sahims.net
 - www.CNN.com
 - [www.msichicago.org/ exhibit/AIDS/](http://www.msichicago.org/exhibit/AIDS/)
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