HIV/AIDS - 2009

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RN, MPH, CIC
FIGURE. MMWR report on Pneumocystis pneumonia in five previously healthy young men in Los Angeles — June 5, 1981

Pneumocystis Pneumonia — Los Angeles

In the period October 1980—May 1981, 5 young men, all active homosexual treated for biopsy-confirmed Pneumocystis carinii pneumonia at 3 different hospitals in Los Angeles, California. Two of the patients died. All 5 patients had laboratory-confirmed previous or current cytomegalovirus (CMV) infection and candidiasis. Case reports of these patients follow.

Patient 1: A previously healthy 33-year-old man developed P. carinii pneumonia in March 1981 after a 2-month history of fever associated with elevated liver enzymes, leukopenia, and CMV viremia. The serum complement fixation CMV titer in October 1980 was 256; in May 1981 it was 32. The patient's condition deteriorated despite courses of treatment with trimethoprim-sulfamethoxazole, azathioprine, and acyclovir. He died May 3, and postmortem examination found pneumonia, but no evidence of neoplasia.
Schematic of a Chronic Incurable Infection

Incidence (new infections)

Deaths (outflow)

Prevalence
### Global summary of the AIDS epidemic, December 2007

#### Number of people living with HIV in 2007

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Adults</th>
<th>Women</th>
<th>Children under 15 years</th>
</tr>
</thead>
</table>

#### People newly infected with HIV in 2007

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Adults</th>
<th>Children under 15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.7 million [1.6 – 3.9 million]</td>
<td>2.3 million [1.3 – 3.4 million]</td>
<td>370 000 [330 000 – 410 000]</td>
</tr>
</tbody>
</table>

#### AIDS deaths in 2007

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Adults</th>
<th>Children under 15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.0 million [1.8 – 2.3 million]</td>
<td>1.8 million [1.6 – 2.1 million]</td>
<td>270 000 [250 000 – 290 000]</td>
</tr>
</tbody>
</table>
Estimated number of adults and children newly infected with HIV, 2007

North America
54 000
[7600 – 130 000]

Caribbean
20 000
[14 000 – 27 000]

Latin America
110 000
[37 000 – 200 000]

Middle East & North Africa
40 000
[18 000 – 69 000]

Sub-Saharan Africa
1.9 million
[1.3 – 2.4 million]

Eastern Europe & Central Asia
110 000
[53 000 – 200 000]

East Asia
51 000
[27 000 – 86 000]

South & South-East Asia
330 000
[76 000 – 680 000]

Oceania
13 000
[12 000 – 15 000]

Total: 2.7 million (1.6 – 3.9 million)
Estimated adult and child deaths from AIDS, 2007

- Western & Central Europe: 8000 (4800–17,000)
- Middle East & North Africa: 27,000 (20,000–35,000)
- Sub-Saharan Africa: 1.5 million (1.3–1.7 million)
- Eastern Europe & Central Asia: 58,000 (41,000–88,000)
- South & South-East Asia: 340,000 (230,000–450,000)
- Caribbean: 14,000 (11,000–16,000)
- Latin America: 63,000 (49,000–98,000)
- North America: 23,000 (9,100–55,000)
- East Asia: 40,000 (24,000–63,000)
- Oceania: 1,000 (<1,000–1,400)

Total: 2.0 million (1.8–2.3 million)
Over 7400 new HIV infections a day in 2007

• More than 96% are in low and middle income countries

• About 1000 are in children under 15 years of age

• About 6300 are in adults aged 15 years and older of whom:
  — almost 50% are among women
  — about 45% are among young people (15-24)
A global view of HIV infection
HIV prevalence (%) in adults in the Caribbean, 2007
Proportions of AIDS Cases among Adults and Adolescents, by Race/Ethnicity and Year of Diagnosis 1985–2006—United States and Dependent Areas

Note. Data have been adjusted for reporting delays.
Estimated Number of AIDS Cases, Deaths, and Persons Living with AIDS, 1985–2006—United States and Dependent Areas

- ▲ Cases
- ● Prevalence
- ❄ Deaths

Note. Data have been adjusted for reporting delays.
Proportion of HIV/AIDS Cases among Adults and Adolescents, by Sex and Transmission Category 2006—33 States

Males
- Male-to-male sexual contact: 67%
- High-risk heterosexual contact: 12%
- Injection drug use (IDU): 16%
- Male-to-male sexual contact and IDU: 5%
- Other/not identified: <1%

Females
- High-risk heterosexual contact: 80%
- Other/not identified: 1%

Note: Data include persons with a diagnosis of HIV infection regardless of their AIDS status at diagnosis. Data from 33 states with confidential name-based HIV infection reporting since at least 2003. Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed. Heterosexual contact with a person known to have, or to be at high risk for, HIV infection. Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.
Estimated Number and Proportion of HIV/AIDS Cases among Adults and Adolescents, by Transmission Category 2006—33 States

<table>
<thead>
<tr>
<th>Transmission category</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male-to-male sexual contact</td>
<td>17,465</td>
<td>50</td>
</tr>
<tr>
<td>Injection drug use (IDU)</td>
<td>4,728</td>
<td>13</td>
</tr>
<tr>
<td>Male-to-male sexual contact and IDU</td>
<td>1,180</td>
<td>3</td>
</tr>
<tr>
<td>High-risk heterosexual contact*</td>
<td>11,584</td>
<td>33</td>
</tr>
<tr>
<td>Other/not identified†</td>
<td>223</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>35,180</td>
<td></td>
</tr>
</tbody>
</table>

Note. Data include persons with a diagnosis of HIV infection regardless of their AIDS status at diagnosis. Data from 33 states with confidential name-based HIV infection reporting since at least 2003. Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed. *Heterosexual contact with a person known to have, or to be at high risk for, HIV infection. †Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.
Reported Cases of HIV Infection (not AIDS), 2006—45 States and 5 U.S. Dependent Areas

N = 52,878*

* Includes 132 persons who were residents of areas without HIV infection surveillance but who were reported by areas with HIV infection surveillance. Includes 415 persons whose area of residence is unknown.
Trends in HIV Infection: United States

- Stable statistics: new infections, AIDS cases, AIDS-related deaths
- Demographics changing
  - Younger
  - MSM
  - Women
  - Communities of color
- 25-33% unaware of HIV infection
Awareness of Serostatus among Persons with HIV, United States

Number HIV infected 850,000 - 950,000

Number unaware of their HIV infection 180,000 - 280,000
Estimated Number of New HIV Infections by Transmission Category 2006

- 53% Male-to-Male Sexual Contact
- 31% High-Risk Heterosexual Contact
- 4% Male-to-Male Sexual Contact and IDU
- 12% Injection Drug Use (IDU)

http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/incidence.htm
Estimated Number of New HIV Infections, Overall and by Gender, 2006

http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/incidence.htm
Estimated Rates of New HIV Infections, by Race/Ethnicity, 2006

http://www.cdc.gov/hiv/topics/surveillance/resources/factsheets/incidence.htm
### Cumulative AIDS Cases for 30 States and Florida MSAs 12/31/06

<table>
<thead>
<tr>
<th>State</th>
<th>Cases</th>
<th>City</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>NY</td>
<td>177,262</td>
<td>TAMPA/ST. PETE</td>
<td>11,286</td>
</tr>
<tr>
<td>CA</td>
<td>142,918</td>
<td>MIAMI</td>
<td>56,804</td>
</tr>
<tr>
<td>FL</td>
<td>105,614</td>
<td>WEST PALM BEACH</td>
<td>9,915</td>
</tr>
<tr>
<td>TX</td>
<td>70,127</td>
<td>ORLANDO</td>
<td>8,745</td>
</tr>
<tr>
<td>PA</td>
<td>33,782</td>
<td>JAXSONVILLE</td>
<td>6,095</td>
</tr>
<tr>
<td>GA</td>
<td>31,965</td>
<td>FT. LAUDERDALE</td>
<td>16,674</td>
</tr>
<tr>
<td>MD</td>
<td>30,571</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA</td>
<td>19,395</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA</td>
<td>16,979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>16,072</td>
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<tr>
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<tr>
<td>MI</td>
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<td>CT</td>
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<tr>
<td>WA</td>
<td>11,826</td>
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</tr>
<tr>
<td>NC</td>
<td>12,286</td>
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</tr>
<tr>
<td>TX</td>
<td>11,421</td>
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<tr>
<td>PA</td>
<td>10,873</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA</td>
<td>10,422</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>10,077</td>
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<td></td>
</tr>
<tr>
<td>MA</td>
<td>9,915</td>
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<td></td>
</tr>
<tr>
<td>VA</td>
<td>9,773</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>9,441</td>
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<td></td>
</tr>
<tr>
<td>OH</td>
<td>8,745</td>
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<td></td>
</tr>
<tr>
<td>MI</td>
<td>8,702</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>8,295</td>
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<td></td>
</tr>
<tr>
<td>NC</td>
<td>8,213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TX</td>
<td>8,054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>7,873</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA</td>
<td>7,676</td>
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<td></td>
</tr>
<tr>
<td>MD</td>
<td>7,562</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA</td>
<td>7,441</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA</td>
<td>7,345</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>7,213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OH</td>
<td>7,054</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HIV Transmission

Body fluids that transmit the virus

- Blood
- Semen (including pre-cum)
- Vaginal Secretions
- Breast milk
HIV Risk Factors

- Unprotected sexual contact since 1978
  - Anal >>> vaginal >>> oral
- Recreational blood exposure
- Occupational blood or bodily fluid exposure
- Receipt of tissue or blood products
- Partner or birth mother with above risks
HIV and Women

- One of the fastest growing groups
- Increased frequency and severity of GYN disorders
  - HPV
  - Cervical intraepithelial neoplasia
  - *Candida* vaginitis
  - PID
- Invasive cervical cancer: AIDS-defining

CDC HIV-associated conditions
How long after a possible exposure should I wait to get tested for HIV?

• Most HIV tests are antibody tests that measure the antibodies your body makes against HIV. It can take some time for the immune system to produce enough antibodies for the antibody test to detect, and this time period can vary from person to person. This time period is commonly referred to as the "window period." Most people will develop detectable antibodies within 2 to 8 weeks (the average is 25 days). Even so, there is a chance that some individuals will take longer to develop detectable antibodies. Therefore, if the initial negative HIV test was conducted within the first 3 months after possible exposure, repeat testing should be considered >3 months after the exposure occurred to account for the possibility of a false-negative result. Ninety-seven percent of persons will develop antibodies in the first 3 months following the time of their infection. In very rare cases, it can take up to 6 months to develop antibodies to HIV.
Maternal-Fetus Transmission Rate
(Vertical Transmission)

- Total rate: 13-60%
  - US: 25-30%
  - Europe: as low as 13%
  - Africa: 50-60%
- In utero: <10%
- Peripartum: 40-70%
- Breast-feeding: 0.5% per month risk
- Most important factor is maternal viral load
## Viral Load and MTCT (US)

<table>
<thead>
<tr>
<th>Mother’s Viral Load</th>
<th>Transmission Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1,000 copies</td>
<td>0%</td>
</tr>
<tr>
<td>1,000 to 10,000</td>
<td>16.5%</td>
</tr>
<tr>
<td>10,000 to 50,000</td>
<td>21.3%</td>
</tr>
<tr>
<td>50,000 to 100,000</td>
<td>30.9%</td>
</tr>
<tr>
<td>&gt; 100,000</td>
<td>40.6%</td>
</tr>
</tbody>
</table>

Estimated Number of Perinatally Acquired AIDS Cases, by Year of Diagnosis, 1985–2006—United States and Dependent Areas

No. of cases

Year of diagnosis

Note. Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed.
HIV/AIDS in the Elderly

- Elderly (CDC): over 50 years of age
- 10% of diagnosed AIDS cases: elderly
- More males and African Americans
- Often not tested due to perceived low risk
- Late diagnosis common
- HIV encephalopathy and wasting common
- Dementia
Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings
HIV Testing Guidelines in HC Settings

*MMWR, September 2006*

- Intended for all HC providers, public and private, all types of HC settings
- **Major revisions:**
  - HIV screening recommended for patients after notification that testing will be performed unless patient declines (opt-out screening)
  - High risk patients should be screened annually
  - General consent for medical care should be sufficient to encompass HIV testing consent
  - Prevention counseling should not be required with HIV testing or screening programs
HIV Testing Guidelines in HC Settings

**MMWR, September 2006**

- **Pregnant Women:**
  - HIV screening as part of prenatal screening
  - Inform patient that HIV screening will be performed; patient can opt-out
  - General medical consent is adequate
  - Repeat in 3rd trimester in high-risk settings
HIV Diagnostic Tests

**ANTIBODY TESTS**
- ELISA: Serum run twice
- Western blot: Confirmatory

**Specimens**
- Venous: Lab standard
- Rapid: OraQuick® and others
- Oral: OraSure® (mail)
- Home: Home Access®

**VIRAL RNA TESTS**
- PCR or bDNA: Earliest diagnosis

**TEST RESULT TIMES:**
- 1-7 days
- 3-20 minutes
- 1-2 weeks
- 1-2 weeks

ELISA, enzyme-linked immunosorbent assay; PCR, polymerase chain reaction.
Rapid HIV Antibody Detection

- **OraQuick Advance Rapid Antibody Test**
  - Fingerstick blood, serum, oral fluids
    - Results in 20 minutes
    - $20-30
  - FDA approved, CLIA waived
  - Negative test: definitive
  - Positive test: needs standard serology confirmation
Rapid HIV Antibody Detection

Results in 20 minutes

- Occupational exposure
- Women in labor with unknown HIV status
- Clients unlikely to return for visits
- Outreach
- ERs
Estimation of HIV Incidence in US

Centers for Disease Control

• New assay (BED HIV-1) can differentiate new vs. long-standing HIV infection

• 6,684 remnant specimens tested in 2006 from 22 states
  – 2,133 (31%) classified as recent
  – Statistical extrapolation → 56,300 new infections in 2006 (previously 40,000)
    • 22.8 per 100,000 population

• New infections concentrated in
  • Black: 45%
  • MSM: 53%

JAMA, 300:5, August 6, 2008
Viral Load/CD4 count

- **Viral load**: amount of HIV RNA in blood
  - Goal: undetectable
  - PCR: most common
  - bDNA: less common
  - Use consistent testing

- **CD4 cell count and percent**
  - <200: AIDS
  - CD4 %: less variability
Course of Untreated HIV Infection

- **Virus** destroys CD4 cells
  - Declining CD4 count → increased risk for infection and complications

- **CD4 Lymphocytes**: surrogate markers of immune function

- **Viral Load**: quantification of HIV RNA in the blood

- Time of Infection: **10 - 15 Years**
Stages of HIV Disease by CD4 Cell Count

- **Acute Retroviral Syndrome**
  - High Viral Load
  - Low CD4 Cell Count

- **Asymptomatic HIV Disease**
  - Progressive Immune Suppression
  - CD4 < 1,000 cells/μL

- **Symptomatic HIV Disease**
  - CD4 < 500 cells/μL

- **CDC-defined AIDS**
  - Opportunistic Illness
  - CD4 < 200 cells/μL

- **Advanced HIV Disease**
  - CD4 < 50 cells/μL

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Time of Infection: 10 - 15 Years
CD4 Cell Count and Risk for Infections

- **> 500**
  - Normal: Low risk of opportunistic infections

- **Between 350 and 500**
  - Below normal: Increased risk of opportunistic infections

- **< 350**
  - Low: High risk of opportunistic infections

On average, without treatment, a patient’s CD4 cell count will decrease by 50 to 100 cells/year.
CD4 Cell Count and Risk for Opportunistic Infections

- Thrush
- Oral hairy leukoplakia
- Tuberculosis
- Herpes Zoster
- Pneumocystis carinii pneumonia
- Cryptosporidial diarrhea
- M. avium complex
- Cytomegalovirus Infection
- Toxoplasmosis gondii
- Cryptococcal meningitis
- Microsporidial diarrhea

CD4 count (cells/mm³)

Years after Infection

Luber AD. Applied Therapeutics, Chapter 69; 2005.
ANTIRETROVIRAL DRUGS
Highly Active Antiretroviral Therapy (HAART)

A combination of 3 or more potent antiretroviral agents
Goals of HAART

- Maximal and durable viral replication
- Preserve and/or restore immune function
- Reduce HIV morbidity and mortality
- Alleviate symptoms
- Prevent OIs
- Improve QOL
HAART Is Recommended for the Following Patients

- History of AIDS-defining illness
- CD4 count <200 cells/µL
- CD4 count 200-350 cells/µL
- Pregnant women (2nd and 3rd trimester unless conception occurs while on therapy)
- Persons with HIV-associated nephropathy
- Persons coinfected with hepatitis B virus (HBV), when HBV treatment is indicated

Targets for Antiretroviral Drugs
## Current Antiretroviral Medications

**NRTIs**
- Abacavir
- Didanosine
- Emtricitabine
- Lamivudine
- Stavudine
- Tenofovir
- Zidovudine

**NNRTIs**
- Delavirdine
- Efavirenz
- Nevirapine

**Integrase Inhibitor**
- Raltegravir

**PIs**
- Atazanavir
- Darunavir
- Fosamprenavir
- Indinavir
- Lopinavir
- Nelfinavir
- Ritonavir
- Saquinavir
- Tipranavir

**Fusion/Entry Inhibitors**
- Enfuvirtide
- Maraviroc

**Abbreviations**
- ABC
- ddI
- FTC
- 3TC
- d4T
- TDF
- ZDV
- DLV
- EFV
- NVP
- RAL
- ATV
- DRV
- FPV
- IDV
- LPV
- NFV
- RTV
- SQV
- TPV

NNRTI, nonnucleoside reverse transcriptase inhibitor; NRTI, nucleoside or nucleotide reverse transcriptase inhibitor; PI, protease inhibitor. Some of these drugs are available in fixed-dose combinations.
# Available Fixed Dose HAART Combinations

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atripla™</td>
<td>Efavirenz</td>
</tr>
<tr>
<td></td>
<td>Tenofovir</td>
</tr>
<tr>
<td></td>
<td>Emtricitabine</td>
</tr>
<tr>
<td>Combivir®</td>
<td>Lamivudine</td>
</tr>
<tr>
<td></td>
<td>Zidovudine</td>
</tr>
<tr>
<td>Epzicom™</td>
<td>Abacavir</td>
</tr>
<tr>
<td></td>
<td>Lamivudine</td>
</tr>
<tr>
<td>Trizivir®</td>
<td>Abacavir</td>
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<td>Lamivudine</td>
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<td>Zidovudine</td>
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<tr>
<td>Truvada®</td>
<td>Emtricitabine</td>
</tr>
<tr>
<td></td>
<td>Tenofovir</td>
</tr>
</tbody>
</table>
AIDS Mortality Rates: 1996-2001

Mortality vs. ART utilization

Deaths per 100 Person-Years

Deaths

USE OF ART

Percentage of patient-days on ART

Palella F et al. 8th CROI 2001; abstract 268b.
Treatment Challenges

- Side effects
  - Fat redistribution
  - Hypercholesterolemia, hyperlipidemia
  - Diabetes, cardiovascular disease
  - Lactic acidosis, liver toxicity, hypersensitivity
  - Avascular necrosis, osteoporosis/osteopenia

- Drug interactions
  - Especially inhibition of cytochrome P450 by PIs

- Adherence/resistance

- Drug cross-resistance
Selected Drug-Drug Interactions

- Herbal preparations
  - Supplemental garlic capsules
  - St. John’s wort

www.hivguidelines.org/public_html/a-drug/a-drug.pdf
The Importance of Adherence

The new guidelines on HIV treatment devote several pages to the subject of adherence.

What is adherence? It simply means sticking to your program—taking the pills you’re supposed to take. On time. Every time.

The reason the guidelines spend so much time on adherence is that it is critically important! The number one reason why HIV treatments fail is non-adherence. The medicines work—but not if you don’t take them!

Furthermore, you have to take them almost perfectly. There are lots of studies showing that you have to take 90 to 95% of your doses right on time to get the maximum benefit—no matter what combination of HIV drugs you’re taking.

You have to take 90-95% of your doses right on time—no matter what combination of HIV drugs you’re taking.

One such study, reported by Paterson, Swindells, Mohr, et al in the Annals of Internal Medicine, used an electronic cap that senses and records each time a pill bottle is opened to see how well a group of HIV patients adhered to their treatment schedules. Then the researchers compared their rates of adherence to their viral load.

As you would expect, patients with near-perfect adherence did extremely well. Of those who took 95% or more of their doses on time, only 21.7% had a viral load of more than 400 copies per milliliter.

Here’s the surprising part. Of those who took 90% to 94.9% of their doses on time, 54.6% still had a viral load
Improving Adherence

- Major barriers to adherence include pill burden and side effects
- Choosing regimens with good tolerability may improve adherence
- Reducing pill burden may improve adherence
  - QD or BID dosing
  - Fixed-dose combinations
PREVENTION

The best approach to reducing the future incidence of HIV infection
OI Prophylaxis

- CD4 cell count < 200
  - *Pneumocystis jiroveci*

- CD4 cell count < 100 and positive IgG
  - *Toxoplasma gondii*

- CD4 cell count < 50
  - *Mycobacterium avium complex*

- TMP/SMX, Dapsone, Atovaquone, Pentam

- TMP/SMX, Dapsone or Atovaquone + pyrimethamine & leucovorin

- Azithromycin, clarithromycin, rifabutin
ABCs of Prevention: 2006

A
Abstain
Antiretroviral therapy
Circumcision, Counseling, & Testing
Diaphragm
Exposure Prophylaxis (pre & post)
Female Controlled Microbicides
Genital Tract Infection (STI) Control
HSV-2 Suppressive Treatment
Immunization (Vaccines)

B
Be Faithful

C
Condoms

Many varieties, colors, sizes
Latex condoms ONLY
Polyurethane
Free condoms usually available
One size usually fits all
Prevention for Positives
DHHS 11/10/03

- Ongoing prevention for HIV+
- Each encounter: reinforce prevention messages
- Assess knowledge and understanding of HIV transmission and transmission behaviors since last HC encounter
HIV Prevention: Infection Control

- Standard precautions: treat all patients as potentially infectious
- Appropriate use of barriers: gloves, gowns, protective eye wear, masks, face shields
- Respiratory Isolation: all HIV+ patients with cough or respiratory illness to rule out TB
PEP Guidelines

Major Changes from 2001

- Small volume, non-intact skin or mucous membrane exposure, HIV status or source unknown: **PEP generally not warranted**
- Additional drugs recommended for use
  - FTC, TDF, fAPV, ATV, T20
- Expanded PEP should be PI-based
  (Kaletra preferred)
- Rapid testing to evaluate source patients

**MMWR; 54: RR-9 (September 2005)**
Antiretroviral Postexposure Prophylaxis
After Sexual, Injection-Drug Use, or Other Nonoccupational Exposure to HIV in the United States

Recommendations from the U.S. Department of Health and Human Services
Immune Reconstitution Inflammatory Syndrome (IRIS)

- Paradoxical deterioration in clinical status after starting HAART
- Attributable to recovery or reactivation of immune response to a latent or sub-clinical process
- A syndrome that exists because of the progress made in treating HIV
- HAART causes a flare-up or an unmasking of symptoms
RESISTANCE

- Resistance to all ARV agents exists
- Clinical resistance
  - Rising viral load
  - Falling CD4 count
  - Disease progression
- Adherence is critical
## Prevalence of Resistance in Acute/Recent HIV Infections

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Definition</th>
<th>Period</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATCH(^1)</td>
<td>596</td>
<td>Clinical</td>
<td>1996-2002</td>
<td>10%</td>
</tr>
<tr>
<td>CDC(^2)</td>
<td>182</td>
<td>STARHS</td>
<td>1997-2001</td>
<td>12%</td>
</tr>
<tr>
<td>San Fran.(^3)</td>
<td>180</td>
<td>&lt;1 year</td>
<td>2000-2002</td>
<td>26%</td>
</tr>
<tr>
<td>Canada (surveillance)(^4)</td>
<td>144</td>
<td>STARHS</td>
<td>1997-2001</td>
<td>10%</td>
</tr>
<tr>
<td>Montreal(^5)</td>
<td>170</td>
<td>&lt;1 year</td>
<td>1996-2003</td>
<td>12%</td>
</tr>
<tr>
<td>France(^6)</td>
<td>296</td>
<td>&lt;6 months</td>
<td>2001-2002</td>
<td>11%</td>
</tr>
<tr>
<td>UK(^7)</td>
<td>157</td>
<td>&lt;18 months</td>
<td>1996-2003</td>
<td>17%</td>
</tr>
<tr>
<td>Madrid(^8)</td>
<td>74</td>
<td>&lt;1 year</td>
<td>1997-2002</td>
<td>19%</td>
</tr>
</tbody>
</table>


Source IMED options
Non-Occupational PEP for HIV

- 28 day aggressive ARV
- Initiate within 72 hours of exposure
- Costly - $1000+
- Could decrease number of new infections
- Controversy: encourage high-risk behavior
- Providers and services available?

MMWR, 54:RR-2, (January 2005)
National HIV/AIDS Clinicians’ Consultation Center
http://www.ucsf.edu/hivcntr

- Warmline
  - National HIV Telephone Consultation Service
  - 1-800-933-3413

- PEPline
  - National Clinicians' Post-Exposure Prophylaxis Hotline
  - 1-888-HIV-4911

- Perinatal HIV Hotline
  - National Perinatal HIV Consultation and Referral Service
  - 1-888-448-8765
HIV CareLink
A Newsletter for HIV/AIDS Primary Care Providers

Volume 7 - Issue 9
July 10, 2006

The Public Health Service Task Force Recommendations for Use of Antiretroviral Drugs in Pregnant HIV-1-Infected Women for Maternal Health and Interventions to Reduce Perinatal HIV-1 Transmission in the United States Has Been Updated.

www.faetc.org
Internet Sites

Many web sites for HIV information

- www.aidsinfo.nih.gov
- www.thebody.com
- www.iapac.com
- www.medscape.com/hiv
- www.aegis.com
- www.hivinsite.ucsf.edu
- www.iasusa.org
Summary

- HIV is an ongoing and expanding pandemic
- Test all patients unless they opt out
- HAART and OI prophylaxis and treatment provide an opportunity to reduce morbidity and mortality due to HIV disease
- Counsel HIV-negative patients on how to stay that way
- Encourage HIV-infected patients to enroll in treatment—and help them prevent the spread of infection to others