HIV / AIDS
Education & Prevention Program
What is HIV?

The Human Immunodeficiency Virus or HIV virus as it is commonly known is a unique type of virus (a retrovirus). The human immunodeficiency virus is a lentivirus that causes the acquired immunodeficiency syndrome, a condition in humans in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive.
The HIV Virus:

- Invades the helper T cells (CD4 cells) in the body of the host (defense mechanism of a person).
- Is threatening a global epidemic.
- Is preventable & manageable but is NOT curable.
Other names for HIV

Former names of the virus include:

• Human T cell lymphotrophic virus (HTLV-III)
• Lymphadenopathy associated virus (LAV)
• AIDS associated retrovirus (ARV)
AIDS (acquired immune deficiency syndrome) is the final stage of HIV disease, which causes severe damage to the immune system.

- HIV is the virus that causes AIDS.
- Disease limits the body’s ability to fight infection due to markedly reduced helper T cells.
- Patients have a very weak immune system (defense mechanism).
- Patients predisposed to multiple opportunistic infections leading to death.
AIDS Predisposes our body to other opportunistic infections.

Opportunistic infections and malignancies that rarely occur in the absence of severe immunodeficiency (e.g. *Pneumocystis* pneumonia, central nervous system lymphoma).

Persons with positive HIV serology who have ever had a CD4 lymphocyte count below 200 cells/mcL or a CD4 lymphocyte percentage below 14% are considered to have AIDS.
Icosahedral (20 sided), enveloped virus of the lentivirus subfamily of *retroviruses*. Retroviruses transcribe RNA to DNA.

Two viral strands of RNA found in core surrounded by protein outer coat.
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Outer envelope contains a lipid matrix within which specific viral glycoproteins are imbedded.

These knob-like structures responsible for binding to target cell.
Modes of HIV Transmission

- SILENCE
- DISCRIMINATION
- IGNORANCE
- STIGMA
- FEAR

HIV / AIDS
Through body fluids

- Blood products
- Semen
- Vaginal fluids
Intravenous Drug Abuse

- Sharing Needles
  Without sterilization Increases the chances of contracting HIV
- Unsterilized blades
Unprotected Intercourse:

- Oral
- Anal
Mother to Baby

- Before Birth
- During Birth
Natural Course of AIDS
Stage 1 - Primary

- Short, flu-like illness - occurs one to six weeks after infection
- Mild symptoms
- Infected person can infect other people
Stage 2 - Asymptomatic

- Lasts for an average of ten years
- This stage is free from symptoms
- There may be swollen glands
- The level of HIV in the blood drops to low levels
- HIV antibodies are detectable in the blood
Stage 3 - Symptomatic

- The immune system deteriorates
- Opportunistic infections and cancers start to appear.
The immune system weakens too much as CD4 cells decrease in number.
HIV Opportunistic Infections

If your CD4 < 500:

- Bacterial infections
- Tuberculosis (TB)
- Herpes Simplex
- Herpes Zoster
- Vaginal candidiasis
- Hairy leukoplakia
- Kaposi’s sarcoma
If your CD4 < 200:

- Pneumocystic carinii
- Toxoplasmosis
- Cryptococcosis
- Coccidiodomycosis
- Cryptosporiosis
- Non hodgkin’s lymphoma
AIDS Opportunistic Infections

If your CD4 < 50:

- Disseminated mycobacterium avium complex (MAC) infection
- Histoplasmosis
- CMV retinitis
- CNS lymphoma
- Progressive multifocal leukoencephalopathy
- HIV dementia
The Most Common Opportunistic Infection:

- For HIV-infected individuals with CD4 < 200 cells/mcL: *Pneumocystis jiroveci* prophylaxis
- For HIV-infected individuals with CD4 < 75 cells/mcL: *Mycobacterium avium* complex prophylaxis
- For HIV-infected individuals with CD4 < 50 cells/mcL: CMV prophylaxis
• Tuberculosis (TB) is the most common opportunistic infection in HIV and the first cause of mortality in HIV infected patients (10-30%)

• 10 million patients co-infected in the world.

• Immunosuppression induced by HIV modifies the clinical presentation of TB.
Testing Options for HIV
Anonymous Testing

- No name is used.
- Unique identifying number.
- Results issued only to test recipient.

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## Blood Detection Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIV enzyme-linked immunosorbent assay (ELISA)</strong></td>
<td>Screening test for HIV</td>
</tr>
<tr>
<td></td>
<td>Sensitivity &gt; 99.9%</td>
</tr>
<tr>
<td><strong>Western blot</strong></td>
<td>Confirmatory test</td>
</tr>
<tr>
<td></td>
<td>Specificity &gt; 99.9% (when combined with ELIZA)</td>
</tr>
<tr>
<td><strong>HIV rapid antibody test</strong></td>
<td>Screening test for HIV</td>
</tr>
<tr>
<td></td>
<td>Simple to perform</td>
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<tr>
<td><strong>Absolute CD4 lymphocyte count</strong></td>
<td>Predictor of HIV progression</td>
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<tr>
<td></td>
<td>Risk of opportunistic infections and AIDS when &lt;200</td>
</tr>
<tr>
<td><strong>HIV viral load tests</strong></td>
<td>Best test for diagnosis of acute HIV infection</td>
</tr>
<tr>
<td></td>
<td>Correlates with disease progression and response to HAART</td>
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</tbody>
</table>
Urine Testing

Urine Western Blot

- As sensitive as testing blood
- Safe way to screen for HIV
- Can cause false positives in certain people at high risk for HIV
Orasure

- The only FDA approved HIV antibody.
- As accurate as blood testing
- Draws blood-derived fluids from the gum tissue.
- NOT A SALIVA TEST!
Treatment Options
Anti-Retroviral Treatment

Now HIV can be targeted both inside and outside the T cell.

- **Fusion Inhibitors**
- **Nucleoside/Nucleotide Reverse Transcriptase Inhibitors**
- **Non-Nucleoside Reverse Transcriptase Inhibitors**
- **Protease Inhibitors**
Anti-Retroviral Drugs

- Nucleoside Reverse Transcriptase inhibitors
  AZT (Zidovudine)

- Non-Nucleoside Transcriptase inhibitors
  Viramune (Nevirapine)

- Protease inhibitors
  Norvir (Ritonavir)
Healthcare Follow-Up

For all HIV-infected individuals:

- CD4 counts every 3-6 months
- Viral load tests every 3-6 months and 1 month following a change in therapy
- PPD = Tuberculosis skin test
- INH (Isoniazid) for those with positive PPD and normal chest radiograph
- RPR (rapid plasma reagin test) or VDRL (venereal disease research lab test) for syphilis
• Toxoplasma IgG serology
• CMV IgG serology
• Pneumococcal (pneumonia) vaccine
• Influenza vaccine in season
• Hepatitis B vaccine for those who are HBsAb-negative
• *Haemophilus influenzae* type b vaccination
• Papanicolaou smears every 6 months for women.
Primary Prevention

Five ways to protect yourself:

• Abstinence
• Monogamous Relationship
• Protected Sex
• Sterile needles
• New shaving/cutting blades
Abstinence

It is the most effective method of not acquiring HIV/AIDS.

- Refraining from unprotected sex: oral, anal, or vaginal.
- Refraining from intravenous drug use
Monogamous Relationship

A mutually monogamous (only one sex partner) relationship with a person who is not infected with HIV. Testing before intercourse is necessary to prove your partner is not infected with HIV.
Condom Usage

- Use condoms every time you have sex
- Always use latex or polyurethane condom (not a natural skin condom)
- Always use a latex barrier during oral sex
When using a condom remember to:

• Make sure the package is not expired
• Make sure to check the package for damages
• Do not open the package with your teeth for risk of tearing
• Never use the condom more than once
• Use water-based rather than oil-based condoms
Escalating Epidemic
HIV Infection by Region

- Sub-Saharan Africa: 64%
- South / South-East Asia: 18%
- Latin America: 4%
- Eurasia: 4%
- North America: 3%
- East Asia: 3%
- Western Europe: 2%
- North Africa / Middle East: 1%
- Caribbean: 1%
- Oceania: 1%

Total = 39.4 million
The reasons for under reporting are:

- Social stigma attached to the infection.
- Limited surveillance.
- Voluntary counseling and testing systems.
- Lack of knowledge among the general population and health practitioners.
Non-Governmental Organizations (NGO’s):

• 54 NGO’s are involved in HIV/AIDS public awareness and in the care and support of persons living with HIV/AIDS.

• Also working on education and prevention interventions targeting sex workers, truck drivers, and other high-risk groups.

• But reaching less than 5 percent of the vulnerable population.
What we can do to help

• We can reduce sexual transmission of HIV.
• We can prevent mothers from dying and babies from becoming infected with HIV.
• We can ensure that people living with HIV receive treatment.
• We can prevent people living with HIV from dying of tuberculosis.
• We can protect drug users from becoming infected with HIV.
What we can do to help

- We can remove punitive laws, policies, practices, stigma and discrimination that block effective responses to AIDS.
- We can stop violence against women and girls.
- We can empower young people to protect themselves from HIV.
- We can enhance social protection for people affected by HIV.
"What if you were HIV positive?"

I would count my blessings.
I would live every moment.
I would do the things I've always dreamed of doing.
I would tell my story.

"What if it were you?"

A project of HIVictorious, Inc.

www.whatifitwereyou.org - www.hivictorious.org

United we can stop HIV & prevent AIDS.

Unidos podemos detener el VIH y prevenir el SIDA.
The CDC recommends that health care providers test everyone between the ages of 13 and 64 at least once as part of routine health care. One in six people in the United States who have HIV do not know they are infected.

HIV is spread through unprotected sex and drug-injecting behaviors (plus mother to child), so people who engage in these behaviors should get tested more often.
If you answer yes to any of the following questions, you should definitely get an HIV test:

• Have you had unprotected sex (sex without a condom)—anal, vaginal, or oral—with men who have sex with men or with multiple partners since your last HIV test?

• Have you injected drugs (including steroids, hormones, or silicone) and shared equipment (or works, such as needles and syringes) with others?
Have you exchanged sex for drugs or money?

• Have you been diagnosed with or sought treatment for a sexually transmitted infection (STI), like syphilis?

• Have you been diagnosed with or sought treatment for hepatitis or tuberculosis (TB)?

• Have you had unprotected sex with someone who could answer yes to any of the above questions or someone whose history you don’t know?
If you continue having unsafe sex or sharing injection drug equipment, you should get tested at least once a year. Sexually active gay and bisexual men may benefit from more frequent testing (e.g., every 3 to 6 months).

You should also get tested if:

• You have been sexually assaulted.
• You are a woman who is planning to get pregnant or who is pregnant.
We recommend that you get tested every 3 - 4 months as part of a regular wellness routine. We provide Rapid HIV Screenings in our office to our patients and walk-ins any time during our regular business hours. There is no waiting in line, and the test is completely FREE to any resident of Palm Beach County. The results of the test are discretely provided to the patient within 15 minutes of getting tested. Getting an HIV test is the only way to know if you have HIV!
Know your HIV Status