

NOMINATION FORM  
CHE SERVICE LEARNING PROJECT COMPETITION

Institution Midlands Technical College

Title of Project Nursing 165 Palmetto AIDS Life Support

Director of Project Meredythe Goodreau, RN, MSN and Students

Contact Information of Project Director

Address: Midlands Technical College Airport Campus/ Lexington Hall  
1260 Lexington Drive, West Columbia SC 29160

Telephone Number: 803-822-3329 Email Address: Goodreaum@midlandstech.edu

Establishment Date of Project July 25, 2013

Unit That Administers Project Nursing Department

Total Number of Students Involved Approximately 30

Signature of Institutional President 

PLEASE ANSWER THE FOLLOWING QUESTIONS REGARDING THE NOMINATED PROJECT  
(Insert your answer after each question.)

1. For purposes of this competition, the Commission on Higher Education defines service learning as college student learning at any level and in any situation that is *linked* in a direct, hands-on fashion to the resolution of a problem or concern in a target community outside the institution *and is related* to a college course with some type of reflection activity. Briefly, how does your project meet the parameters of this definition?

Our project focused on the Palmetto AIDs Life Support Services Organization- Palmetto AIDS Life Support Services (PALSS) is a nonprofit organization that supports people in the Midlands living with HIV/AIDS. This organization helps these individuals in all aspects of their lives, including rapid HIV testing, screening for other STDs, counseling, medications, and a food pantry. This organization is essential to the individuals who rely on their services to cope with everyday life. The students of the Nursing 165 conducted a service learning project in which the students brought in three items to be donated to the PALSS. These items needed to be personal items that people living with HIV/AIDS need on a daily basis but may not be able to afford. These items are essential for these clients to prevent infection, promote healing and to improve daily life. The objective for this particular project was to collect items to be donated to PALSS so that items can be distributed throughout the community to improve the life of these particular people living with HIV/AIDS. The service project also brought awareness of the organization and what services they offer to a group of students who later on in their careers as nurses can recommend this organization to future patients affected by HIV/AIDS.

2. Specifically, which segments of the college/university community does your project involve?  
Nursing Students
3. How many students (specify degree levels to the extent possible) does the project affect?  
Approximately 30 Associate Degree level Nursing Students
4. Describe the target community or communities your project serves.  
People in the Midlands living with HIV/AIDS

5. Describe your project's effectiveness in helping to solve the problems or concerns in the target community.

Expected outcomes for this project would be to collect a large amounts of items to be donated, students to learn about the disease process of HIV/AIDS, struggles of daily life for these clients, and resources available to them. The outcome of this project far exceeded goals set. Most students brought in more than the three required donated item. The totals of the donation were 268 toothbrushes, 202 tubes of toothpaste, 89 bars of soap, 29 deodorants, 14 pairs of socks, 19 mouthwash, 5 lip balms, 2 body powders, 10 undershirts, 67 washcloths, 12 boxes of tissues, 354 cases of floss, 13 containers of body wash, 35 containers of lotion, 16 boxes of Q-tips, 45 containers of shampoo and conditioner, 13 boxes of band-aids, 276 razors, 20 cans of shaving cream, and 27 hand sanitizers.

6. Describe the degree to which your project enhances student learning while providing specific examples of the service learning activities the students engage in. Also explain how the service learning activities reinforce or apply what the students learn in the classroom.

Each student was required to do a written brochure explaining the disease process of HIV/AIDS and test methods available to the public. Some quotes from the student post experience evaluation include "I acquired the information needed to be able to offer a patient advice on resources available." "It really emphasized the importance of learning about and connecting to community-based organizations to help spread the word about this disease." and, "I had a great experience with this service learning project, and it would be beneficial to all future 165 nursing students." "I'm glad MTC has this opportunity to reach out to the community and make a difference. MTC will continue to leave their mark in many future semesters and students will enjoy the impact." These quotes emphasized the positive impact that this particular project had on the students, also that there is a great need to include these community involvement projects into classes at Midlands Technical College to better enrich the education and the community as a whole.

7. Is there academic credit associated with the project (not necessary for submission)? If so, please explain the particulars.
8. If funding is required, how is the project funded and what is the approximate annual budget for the project? No
9. Feel free to add any other comments you may have about your project.

Enclosed please find additional photos taken on the day, brochures made by students, flier that was posted in nursing suite to raise awareness of event and supplies needed, and an written acknowledgement thanking the class for the donations to PALSS.

You may also include supplemental information about the project (such as brochures, pictures, etc.).

Please return this form via e-mail by **March 14, 2014**, to:

Trena Houp, Associate Director  
Division of Academic and Student Affairs  
South Carolina Commission on Higher Education  
1122 Lady Street, Suite 300  
Columbia, SC 29201  
803.737.4853  
[thoup@che.sc.gov](mailto:thoup@che.sc.gov)

**Midlands Technical College**

# **Nursing 165**

## **Palmetto AIDS Life Support Services**

January 28, 2014

**Presented by:**

**Carissa Eason, MTC Nursing Student**

**Jessica Hernandez, MTC Nursing Student**

**MTC Student Life**

**803-822-3650**

**[greenek@midlandstech.edu](mailto:greenek@midlandstech.edu)**

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Jessica Hernandez

Carissa Eason

Palmetto AIDS Life Support Services (PALSS) is a nonprofit organization that supports people in the Midlands living with HIV/AIDS. This organization helps these individuals in all aspects of their lives, including rapid HIV testing, screening for other STDs, counseling, medications, and a food pantry. This organization is essential to the individuals who rely on their services to cope with everyday life.

During this past summer semester the students of the Nursing 165 conducted a service learning project on July 25, 2013 in which the students brought in three items to be donated to the PALSS. These items needed to be personal items that people living with HIV/AIDS need on a daily basis but may not be able to afford. These items are essential for these clients to prevent infection, promote healing and to improve daily life. The objective for this particular project was to collect items to be donated to PALSS so that items can be distributed throughout the community to improve the life of these particular people living with HIV/AIDS. The service project also brought awareness of the organization and what services they offer to a group of students who later on in their careers as nurses can recommend this organization to future patients affected by HIV/AIDS. Expected outcomes for this project would be to collect a large amounts of items to be donated, students to learn about the disease process of HIV/AIDS, struggles of daily life for these clients, and resources available to them.

Planning for this project included contacting PALSS and inquiring what items they were in need of. PALSS then contacted the school with a need for personal items to be donated. Fliers were put up in the nursing suite asking any faculty and student not in this class if they wanted to donate. The flier information included what items were being collected, where to donate the items and the deadline for the items to be donated. Students in the class were introduced to the project in the beginning of the semester. The class was informed on what was expected of them, the items to be donated, and a written brochure to be completed by each student explaining the disease process of HIV/AIDS and test methods available to the public.

On the day of the service learning project two representatives from PALSS came to the college campus to speak to students and collected items to be donated. Representatives gave an overview of what the organization does in the community and what services are offered. Also how the students can get involved within the organization and the testing processes available to the public. The items to be

donated were packaged into bags and students helped representatives load packages into the PALSS van. Some students talked to the PALSS representative about volunteering their own time outside of class to help the organization. Students also asked to have own awareness meetings in their own churches and community group to improve awareness and decrease the stigma attached to HIV/AIDS in the community. After the representative left the students regrouped in the classroom to complete a post-experience assignment. This assignment asked the student to write down the three items that they had brought in to be donated and write on how each of these items would help improve the daily life of a person with HIV/AIDS. The students also had to write a personal reflection of the experience.

The outcome of this project far exceeded goals set. Most students brought in more than the three required donated item. The totals of the donation were 268 toothbrushes, 202 tubes of toothpaste, 89 bars of soap, 29 deodorants, 14 pairs of socks, 19 mouthwash, 5 lip balms, 2 body powders, 10 undershirts, 67 washcloths, 12 boxes of tissues, 354 cases of floss, 13 containers of body wash, 35 containers of lotion, 16 boxes of Q-tips, 45 containers of shampoo and conditioner, 13 boxes of band-aids, 276 razors, 20 cans of shaving cream, and 27 hand sanitizers. Some quotes from the student post experience evaluation include " I acquired the information needed to be able to offer a patient advice on resources available." "It really emphasized the importance of learning about and connecting to community-based organizations to help spread the word about this disease." and, " I had a great experience with this service learning project, and it would be beneficial to all future 165 nursing students." " I'm glad MTC has this opportunity to reach out to the community and make a difference. MTC will continue to leave their mark in many future semesters and students will enjoy the impact." These quotes emphasized the positive impact that this particular project had on the students, also that there is a great need to include these community involvement projects into classes at Midlands Technical College to better enrich the education and the community as a whole. Enclosed please find additional photos taken on the day, brochures made by students, flier that was posted in nursing suite to raise awareness of event and supplies needed, and an written acknowledgement thanking the class for the donations to PALSS.

Meredythe Goodreau, RN, MSN  
Midlands Technical College- Airport Campus  
1260 Lexington Drive/ Health Science Bldg.  
West Columbia, SC 29170

Dear Meredythe Goodreau and Students:

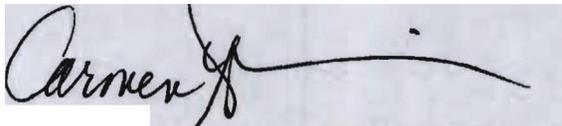
On behalf of Palmetto AIDS Life Support Services (PALSS), we would like to thank you, the staff and students of Midlands Technical College Nursing Program for your generous donation towards our community resources. Darius and Teresa enjoyed meeting and speaking with everyone and have passed along the questions that were proposed concerning the availability of our services to meet the need of the community on a broader scale.

As you know, needy families and individuals in our community go without proper food, shelter, and essential medical care every day due to a variety of factors. While all of us are vulnerable to hard times, PALSS is committed to helping lift that burden and your contribution Will help fulfill that mission.

For more information on how your donation is helping to make a difference in the lives of so many in our community, we invite you to visit our website at [www.palss.org](http://www.palss.org). You can also find information there on our upcoming events for this year and volunteer opportunities.

Thank you again for having us and we look forward to having this opportunity to partner with you again.

Sincerely,



Carmen Hampton Julious, LISW CP & AP  
Executive Director

# Attention Nursing Faculty Staff

The Nursing 165 students are conducting a Service Learning Project in which we are donating needed personal items to the PALSS (Palmetto Aids Life Support Services) organization that will be assembled into packets for their clients suffering from HIV/AIDS. We would like to extend the opportunity to donate to you! For information about the organization check out [www.palss.org/](http://www.palss.org/).

The following is a list of requested items from PALSS:

Tooth brush	Wash cloths
Tooth paste	Shampoo
Deodorant	Razors
Soap	Shaving cream
Socks	Lotion
Under shirts	Band aids
Underwear	Emory boards



**Thank you advance for your support!**





## Treatment

### HIV/AIDS: Antiretroviral Medication Therapy

Treatment decisions are individualized based on a number of factors. Including: \*CD4+ T-cell count, HIV RNA (viral load), severe symptoms of HIV disease/ AIDS, and willingness of the patient to adhere to a life-long treatment regimen.

**Strict adherence to the regimen is vital!**

\*Viral load test should be measured immediately before initiation of antiretroviral treatment and again after 2-8 weeks. The viral load should result in a significant decrease by 2-8 weeks and continue to decline over the following weeks.

#### 6 classes of antiretroviral medications:

1. NRTIs
2. NNRTIs
3. Protease Inhibitors
4. Fusion Inhibitors
5. Integrase Inhibitors
- & 6. Entry Inhibitors

(Each of these medications attacks HIV at different stages of viral replication in the CD4+ lymphocyte)

\*\*Each class of antiretroviral agents, are available for the design of combination regimens. The purpose of combination regimens is so that a patient is able to take only *one* tablet/capsule that contains two different medications versus a variety of pills each day.

Example: **Kaletra**, which is a combination of **zidovudine & didanosine**. With a decrease in the number of tablets/capsules that the patient must take ("pill burden"), the patient is more likely to adhere to prescribed regimens & achieve sustained viral suppression.

### Side Effects:

Lipodystrophy Syndrome, an increase in fat loss in the legs, arms, face, OR a buildup of fat around the abdomen & at the base of the neck, or both. (especially with use of protease inhibitors) The most frequent systemic side effect

Drug Resistance: the ability of pathogens to withstand the effects of medications that are intended to be toxic to them

## Stages HIV Infection

### 1. Primary Infection

(Acute HIV Infection)

This period is characterized by intense viral replication. A window period occurs, during which a person with HIV infection tests negative on the HIV antibody blood test.

### 2. HIV asymptomatic

(Category A)

By about 6 months, the rate of viral replication reaches a lower but relatively steady state that is reflected in the maintenance of viral levels at a set point. CD4+ levels remain high (CD4+ above 500 cells/mm<sup>3</sup>). The set point varies greatly from patient to patient & dictates the subsequent rate of disease progression: on average 8-10 years pass before a major HIV-related complication develops.

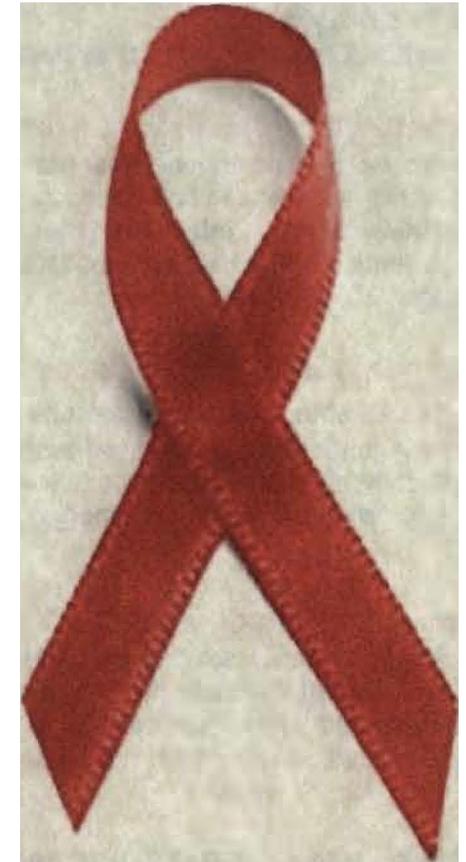
### 3. HIV symptomatic

(Category B)

Over time the number of CD4+ T cells gradually falls. Category B symptomatic conditions in HIV-infected patients are not included in the conditions listed in Category C.

### 4. AIDS (Category C)

When the CD4+ T-cell count drops below 200 cells/mm<sup>3</sup> of blood the person has AIDS. Once a patient has had a Category C condition, he/she remains in Category C.



**HIV/AIDS**

NUR 165 A02  
Summer 2013

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An Immunodeficiency is the inability for the body's natural defenses to protect itself from outside pathogens.

\* Classified as either *primary* or *secondary*.

### Primary Immunodeficiency diseases

are *genetic* in origin and manifest most commonly in infancy and childhood as abnormally *recurrent* infections. (About 80% of the patients with primary immunodeficiency are less than 20 years old)

### Secondary immunodeficiency diseases

affect the normal immune system of the patient, resulting in increased susceptibility to infection and certain types of cancer. The most common secondary immunodeficiency is AIDS.

### Human Immunodeficiency Virus (HIV)

HIV is a bloodborne, sexually transmissible virus. HIV is transmitted in body fluids containing HIV or via infected white blood cells. Body fluids include: blood, seminal fluid, vaginal secretions, amniotic fluid, & breast milk.

HIV belongs to a group of viruses known as **retroviruses**. These viruses carry their genetic material in the form of RNA rather than DNA and contain the enzyme *reverse transcriptase*.

### Acquired Immune Deficiency Syndrome

or most commonly known as, "AIDS" is indicated when a person *infected* with HIV develops an *opportunistic* infection or has a CD4<sup>+</sup> lymphocyte count below 200. An opportunistic disease caused by various *organisms*.



HIV is a bloodborne, sexually transmissible virus. HIV is transmitted through body fluids such as: blood, seminal fluid, vaginal secretions, amniotic fluid & breast milk.

Pregnant women are not recommended to breastfeed newborn babies.

HIV is not transmitted through casual contact

### Risk behaviors associated with HIV & AIDS:

- Sharing injection drug use equipment aka "works"
- Having sexual relations with infected individuals (both male & female)
- People who received HIV-infected blood or blood products
- Infants born to mothers with HIV infection not taking antiretroviral medication

### Prevention & Education

1. Safer Sexual Behaviors to decrease the risk of transmitting HIV infection to sexual partners.
2. Consistent & correct use of condoms is the only method proven to decrease the risk for sexual transmission of HIV infection.
3. Use latex condoms always. If allergic to latex, non-latex condoms should be used.
4. Make HIV testing a routine part of medical care.
5. Reduce the number of sexual partners to one.
6. Avoid anal intercourse because this may injure tissues (cut/tear lining of the rectum)
7. Do not ingest urine or semen.
8. Avoid sharing needles, razors, tooth brushes, sex toys, or blood-contaminated articles.
9. Try using non-penetrative sexual activities, such as body massage, social kissing (dry), mutual masturbation, fantasy, & sex films.
10. HIV-positive patients should inform previous, present, and prospective sexual & drug-using partners of their HIV-positive status.
11. HIV-positive patients should avoid donating blood, plasma, body organs, or sperm.



### Testing HIV/AIDS:

#### 1. Enzyme Immunoassay

EIA is always the first test performed when testing for HIV. Identifies antibodies directed specifically against HIV, resulting in positive results. If EIA indicates positive results perform the EIA test again to validate positive results.

#### 2. Western Blot

This test is used to confirm an EIA test when result is positive *after* EIA test being performed twice. Western Blot detects antibodies to HIV and is the only test that is used to confirm HIV infection. (Usually 3 weeks - 6 months *after* initial infection)

#### 3. Viral Load Tests

Measures plasma HIV RNA levels in the blood. Test is used to track viral load & response to treatment of HIV infection (with antiretroviral). Although the goal is undetectable, the lower the viral load the longer the time to AIDS diagnosis & the longer the survival time.

#### 4. CD4<sup>+</sup> Count/Ratio

*Detects* markers found on lymphocytes. The CD4<sup>+</sup> Count is usually the most important consideration in decision to initiate antiretroviral treatment (ARV). CD4<sup>+</sup> Count is usually measured every 3-6 months *after* diagnosis.

## Stages of HIV Infection

</ The stages of HIV are based on clinical history, physical examination, laboratory evidence of immune dysfunction, signs and symptoms, infections, and malignancies.

9 The basis for the CDC's categorization of HIV infections and AIDS is based on clinical conditions associated with HIV infection and CD4 + T-cell counts.

9 This system of classification groups clinical conditions into one of three categories labeled, A, B, and C.

9 Each category represents different stages of clinical progression of HIV infection.

9 They range from category A, asymptomatic, to category C, "full blown" AIDS.

9 Even if a patient's health and immune status may improve, the classification of their illness does not change.

### HIV Stages

9 **Primary infection:** (Acute HIV Infection)

- Characterized by intense viral replication

9 **Category A:** HIV asymptomatic

- By about 6 months, the rate of viral replication reaches a lower but relatively steady state
- CD4+ level is more than 500 cells/mm<sup>3</sup>

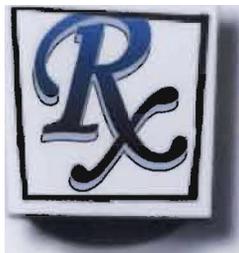
9 **Category B:** HIV symptomatic

- The number of CD4+ T cells gradually falls; 200 ... 499 cells/mm<sup>3</sup>

**Category C:** "Full Blown" AIDS

- The CD4+ T-cell level drops below 200 cells/mm<sup>3</sup>

## HIV Treatment



9 Treatment for HIV is based on CD4+ T-cell count, HIV RNA (viral load), symptoms, and willingness of the patient to adhere to treatment.

9 Strict adherence is vital to the regimen and the side effects and drug resistance must be considered

A person with HIV can expect to be put on an Antiretroviral regimen. There are 6 classes of ARV medications.

- Nucleoside Reverse Transcriptase Inhibitors (NRTIs)-Example: abacavir (ABC)
- Non-nucleoside Reverse Transcriptase Inhibitors (NNRTIs)-Example: efavirenz (EFV)
- Protease Inhibitors (PIs)-Example: atazanavir (ATV)
- Fusion Inhibitors-Example: enfuvirtide (T-20)
- CCR5 Antagonists-Example: maraviroc (MVC)
- Integrase Inhibitors-Example: raltegravir (RAL)

9 These medications attack HIV at different stages of viral replication in the CD4 + lymphocyte.

9 Viral load tests evaluate the results of therapy.

9 Side effects of these drugs include: lipodystrophy syndrome, hypercholesterolemia, heart disease, diabetes, lipoatrophy, lipohypertrophy, or both in localized areas, is also known as lipodystrophy syndrome, one of the most frequent systemic side effects associated with the use of ARV medications.

9 Other treatments may include: Chemotherapy, nutrition therapy, and antidepressant therapy.

INFORMATION PROVIDED BY:

Focus on Adult Health: Medical-Surgical Nursing by Linda H. Pellico (2013)

# T LIVING WITH T HIV

## KNOWLEDGE IS POWER



HIV is short for Human Immunodeficiency Virus. It is a virus that attacks a person's immune system and weakens it. The immune system is made up of cells, tissues, and organs that work together to protect the body and fight off germs and diseases.

This brochure is designed to help you better understand HIV to prevent transmission and to facilitate better self-care.



## What is HIV?

We know. HIV is the Human Immunodeficiency Virus. but what does that mean?



The human portion of the equation is self-explanatory; it infects humans.

Immunodeficiency is the inability of the body to defend itself from outside pathogens. Immunodeficiencies can be classified as either primary or secondary.

- Primary immunodeficiency diseases are genetic in origin and are most commonly seen in infancy and childhood.
- Secondary immunodeficiencies are acquired, which means they affect an already developed, normal immune system, and cause an increase in susceptibility to infection and certain types of cancer. Disorders like HIV infection, and aging trigger secondary immunodeficiency.

Viruses are intracellular obligate parasites, they do not grow through cell division. Instead, they use the machinery and metabolism of a host cell to produce multiple copies of themselves. The genetic material within virus particles, and the method by which the material is replicated varies. Some use DNA and some use RNA. HIV is a retrovirus, which uses RNA.

A retrovirus is an RNA virus that replicates in a host cell through the process of reverse transcription. In most viruses, DNA is transcribed into RNA, and then RNA is translated into protein. However, retrovirus function differently, their RNA is reverse-transcribed into DNA, which is integrated into the host cell's genome.



## How will it affect me?

If the immune system of a person with HIV gets so weak that it can no longer fight off normal health problems, the person is

considered to have Acquired Immune Deficiency Syndrome, or AIDS for short



## How is HIV transmitted?

Together we can fight the spread of HIV by educating ourselves to the modes of transmission and by proper implementation of risk reduction strategies.

### Modes of transmission

HIV is a blood-borne virus. It is sexually transmissible and can be transmitted through bodily fluids such as blood, vaginal secretions, seminal fluid, amniotic fluid, and breast milk. Some of the ways it can be transmitted are:

#### Unprotected sex with an infected person



From an infected mother to child

HIV is not transmitted through casual contact

Prevention and education are vital

#### Prevention Strategies

Use barrier protection like condoms and dental dams every time. Refrain from unprotected sex.

Use clean and sterile needles. Do not share needles and participate in needle exchange programs

GET TESTED!

Transfusion of infected blood or blood products

Sharing of contaminated syringes/needles



## How do you test for HIV?

There are many tests associated with HIV. Some are used to detect, and confirm, the presence of the virus, and some are used to monitor the progression of the disease. We are going to take a look at the Enzyme Immunoassay, the Western Blot, Viral Load Tests, and the CD4 Count/Ratio.



### Enzyme Immunoassay

This tests for the presence of antibodies to HIV

It is usually the first test performed and used as a preliminary test

If results are positive, the test is run again to eliminate the possibility of a false positive. If two tests come back positive then a Western Blot is performed to confirm the presence of HIV.

### Western Blot

This test also detects antibodies to HIV

It is used after 2 positive results of the Enzyme Immunoassay to confirm the presence of HIV antibodies

The Western Blot Test is much more accurate than the Enzyme Immunoassay but also more expensive, which is the reason why it is used as a confirmation test.

### Viral Load Tests

This test quantifies HIV RNA in the plasma.

This test is performed during ARV (Antiretroviral) treatments to measure and monitor efficacy of treatment through virological suppression. Goal is undetectable.

### CD4 Count/Ratio

This one tests the ratio of CD4 T-Cells to CD8 T-Cells and is used once an infection has occurred.

The CD4 and CD8 count very important in starting or changing anti-viral therapy.

HIV is a blood borne, sexually transmissible virus. HIV is transmitted through body fluids such as: blood, seminal fluid, vaginal secretions, amniotic fluid & breast milk.

**Pregnant women are not recommended to breast feed newborn babies.**

HIV is not transmitted through casual contact

**Risk Behaviors associated with HIV & AIDS:**

- Sharing injection drug use equipment aka "works"
- Having sexual relations with infected individuals (both male & female)
- People who received HIV-infected blood or blood products
- Infants born to mothers with HIV infection not taking antiretroviral medication

**Prevention & Education for**

**HIV/AIDS:**

1. Safer Sexual Behaviors to decrease the risk of transmitting HIV infection to sexual partners.
2. Consistent & correct use of condoms is the only method proven to decrease the risk for sexual transmission of HIV infection.
3. Use latex condoms always. If allergic to latex, non-latex condoms should be used.
4. Make HIV testing a routine part of medical care.
5. Reduce the number of sexual partners to one.
6. Avoid anal intercourse because this may injure tissues (cut/ tear lining of the rectum)
7. Do not ingest urine or semen.
8. Avoid sharing needles, razors, tooth brushes, sex toys, or blood-contaminated articles.
9. Try using non-penetrative sexual activities, such as body massage, social kissing (dry), mutual masturbation, fantasy, & sex films.
10. HIV-positive patients should inform previous, present, and prospective sexual & drug-using partners of their HIV-positive status.
11. HIV-positive patients should avoid donating blood, plasma, body organs, or sperm.

An **Immunodeficiency** is the inability for the body's natural defenses to protect itself from outside pathogens.

\* Classified as either **primary** or **secondary**.

**Primary immunodeficiency**

**diseases** are genetic in origin and manifest most commonly in **infancy and childhood** as abnormally recurrent infections. (About 80% of the patients with primary immunodeficiency are less than 20 years old)

**Secondary immunodeficiency**

**diseases** affect the normal immune system of the patient, resulting in increased susceptibility to infection and certain types of cancer. **The most common secondary immunodeficiency is AIDS.**

**Human Immunodeficiency Virus**

**(HIV)** HIV is a blood-borne, sexually transmissible virus. HIV is transmitted in body fluids containing HIV or via infected white blood cells

\***Body fluids include:** blood, seminal fluid, vaginal secretions, amniotic fluid, & breast milk.

**HIV** belongs to a group of viruses known as

**retroviruses** These viruses carry their genetic material in the form of **RNA** rather than DNA and contain the **enzyme reverse transcriptase.**

**Acquired Immune Deficiency**

**Syndrome** or most commonly known as, "**AIDS**" is indicated when a person infected with HIV develops an **opportunistic infection** or has a **CD4+ lymphocyte count** below 200. An opportunistic infection is an illness caused by various organisms.



# HIV/AIDS Prevention & Patient Education



# Stages of HIV infection

## 1. Primary Infection (Acute HIV Infection)

This period is characterized by intense viral replication. A window period occurs, during which a person with HIV infection tests negative on the HIV antibody blood test.

## 2. HIV asymptomatic (Category A)

By about 6 months, the rate of viral replication reaches a lower but relatively steady state that is reflected in the maintenance of viral levels at a set point. CD4+ levels remain high (CD4+ above 500 cells/mm<sup>3</sup>). The set point varies greatly from patient to patient & dictates the subsequent rate of disease progression; on average 8-10 years pass before a major HIV-related complication develops.

## 3. HIV symptomatic (Category B)

Over time, the number of CD4+ T cells gradually falls. Category B symptomatic conditions in HIV-infected patients are not included in the conditions listed in Category C.

## 4. AIDS (Category C)

When the CD4+ T-cell level drops below 200 cells/mm<sup>3</sup> of blood, a person has AIDS. Once a patient has had a Category C condition, he/she remains in Category C.

N/A/R/08

rahn\o'rtt\L.

Reference:

Pellico Textbook Chapter 37

## Treatment of HIV/AIDS

### 1. Treatment of HIV/AIDS

Treatment decisions are individualized based on a number of factors, including:

• Stage of disease/AIDS and whether the patient is asymptomatic or symptomatic

• Strict adherence to the regimen is vital!

**Viral load testing:** should be measured immediately before initiation of antiretroviral treatment and again after 2-8 weeks. The viral load should result in a significant decrease by 2-8 weeks and continue to decline over the following weeks.

### 6 classes of antiretroviral medications:

1. NRTIs
2. NNRTIs
3. Protease Inhibitors
4. Fusion Inhibitors
5. Integrase Inhibitors
- & 6. Enzyme Inhibitors

(Each of these medications is available in a combination pill)

\*\*Each class of antiretroviral agents, are available for the design of combination regimens so that a patient is able to take only one tablet/capsule that contains two different medications versus a variety of pills each day.

Example: **Kaletra**

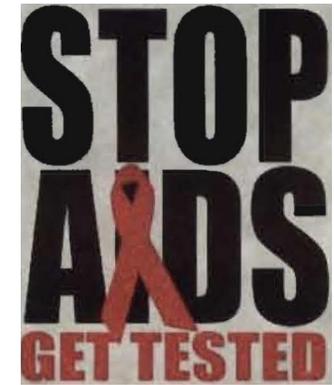
With a decrease in the number of tablets/capsules that the patient must take ("pill burden"), the patient is more likely to adhere to prescribed regimens & achieve sustained viral suppression.

### Side Effects:

**Lipoatrophy Syndrome:** an increase in fat loss in the legs, arms, face, OR a buildup of fat around the abdomen & at the base of the neck, or both. (Especially with use of protease inhibitors)

### Drug Resistance

the ability of pathogens to withstand the effects of medications that are intended to be toxic to them



## Testing for HIV/AIDS:

### 1. Enzyme Immunoassay

EIA is always the first test performed when testing for HIV. Identifies antibodies directed specifically against HIV, resulting in positive results. If EIA indicates positive results perform the EIA test again to validate positive results.

### 2. Western Blot

This test is used to confirm an EIA test when result is positive after EIA test being performed twice. Western Blot detects antibodies to HIV and is the only test that is used to confirm HIV infection. (Usually 3 weeks - 6 months after initial infection)

### 3. Viral Load Test

Measures plasma HIV RNA levels in the blood. Test is used to track viral load & response to treatment of HIV infection (with antiretroviral). Although the goal is undetectable - the lower the viral load the longer the time to AIDS diagnosis & the longer the survival time.

### 4. CD4 Count/Ratio

Detects markers found on lymphocytes. The CD4+ Count is usually the most important consideration in decision to initiate antiretroviral treatment (ARV). CD4+ Count is usually measured every 3-6 months after diagnosis.