

Advanced Practice Care of Patients with HIV and AIDS

2022 *National*
CONFERENCE

Christopher W. Blackwell, Ph.D., APRN,
ANP-BC, AGACNP-BC, CNE, FAANP, FAAN

Associate Professor & Program Director
AGACNP Programs, College of Nursing
Academic Health Sciences Center
University of Central Florida
Orlando, Florida



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DISCLOSURES

Dr. Blackwell has no conflicts of interest or other disclosures for this presentation.

Note: Some data presented here overlap with data presented in presentations 22.2.155 and 22.3.025.



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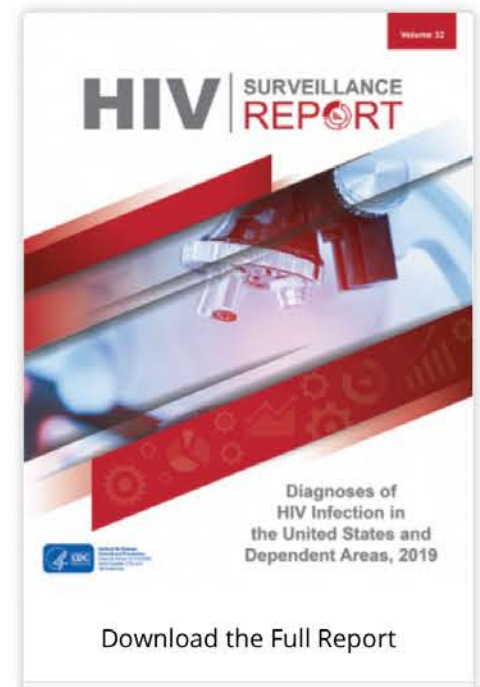
OBJECTIVES

- At the conclusion of this presentation, you will be able to:
 - 1) Describe prevention of HIV using pre-exposure and post-exposure prophylaxis and non-pharmacologic approaches;
 - 2) Interpret CD4 counts and HIV RNA levels (viral load);
 - 3) Outline initiation and maintenance of antiretroviral therapies;
 - 4) Define the role of the nurse practitioner in leading future research and clinical practice initiatives aimed at preventing and treating HIV infection and reducing health disparities in vulnerable populations.



INCIDENCE OF HIV INFECTIONS & AIDS

- Review of Centers for Disease Control and Prevention (CDC) Data: Updated through 2019 (2015-2019)
- Note, the CDC openly encourages use of its data and free and open use of its data tables and figures
- These can all be obtained from the *2019 CDC HIV Surveillance Report*:
- <https://www.cdc.gov/hiv/library/reports/hiv-surveillance/vol-32/index.html>
- The figures on slides 5-11 all come from these CDC sources.



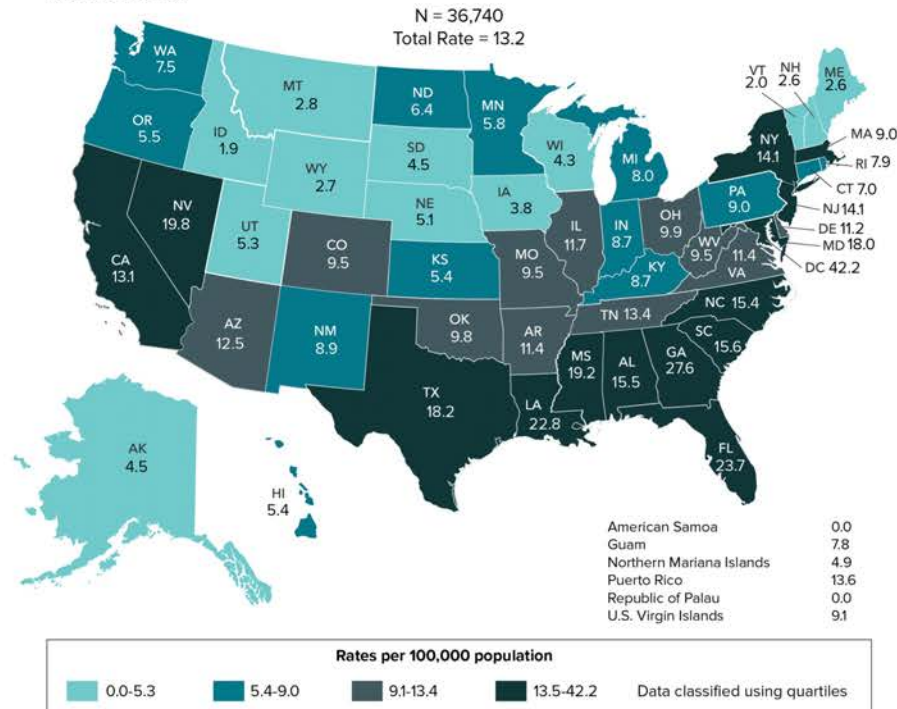
INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

DIAGNOSES

Diagnoses of HIV infection

From 2015 through 2019, the annual number and rate of diagnoses of HIV infection in the United States and 6 dependent areas decreased (Table 1b). By region, the rate of diagnoses of HIV infection in all regions decreased. In 2019, the overall rate was 11.1; among adults and adolescents, the rate was 13.2 (Figure 1). By region, the rates were 15.2 in the South, 9.4 in the Northeast, 9.2 in the West, and 7.0 in the Midwest (Table 1b).

Figure 1. Rates of diagnoses of HIV infection among adults and adolescents, 2019—United States and 6 dependent areas

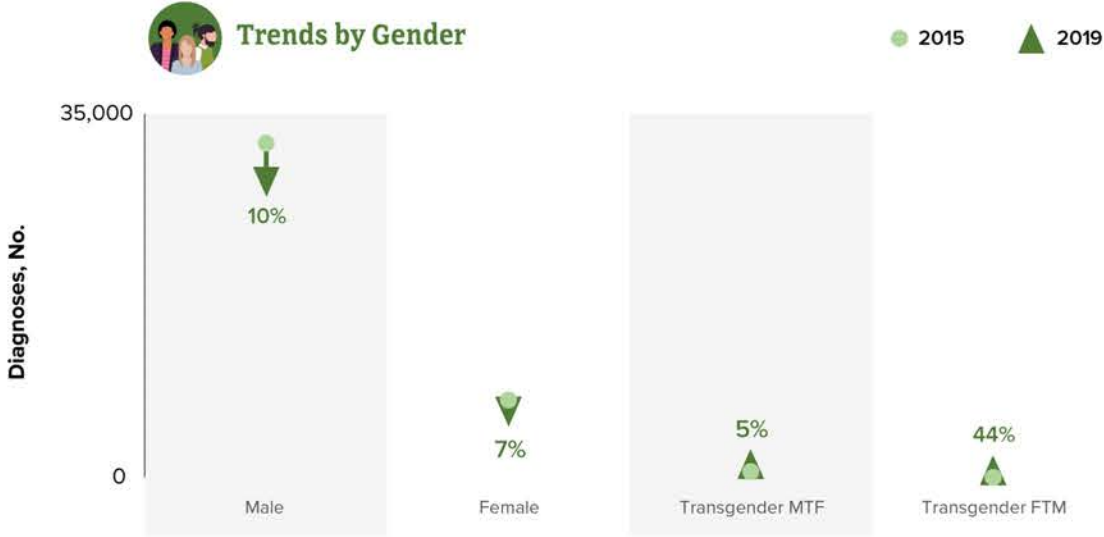


INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

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- **Gender:** From 2015 through 2019 in the United States and 6 dependent areas, the number of diagnoses of HIV infection for transgender male-to-female (MTF) and transgender female-to-male (FTM) adults and adolescents increased (Figure 2). The number of diagnoses among male and female adults and adolescents decreased. In 2019, diagnoses of HIV infection among all males (79%) and females (19%) accounted for approximately 98% of HIV diagnoses (Table 1b). Transgender MTF accounted for slightly more than 1% of annual diagnoses and transgender FTM accounted for less than 1%. Please use caution when interpreting data for additional gender identity (AGI) adults and adolescents: the numbers are small.

Figure 2. Diagnoses of HIV infection among adults and adolescents, by gender, 2015–2019—United States and 6 dependent areas



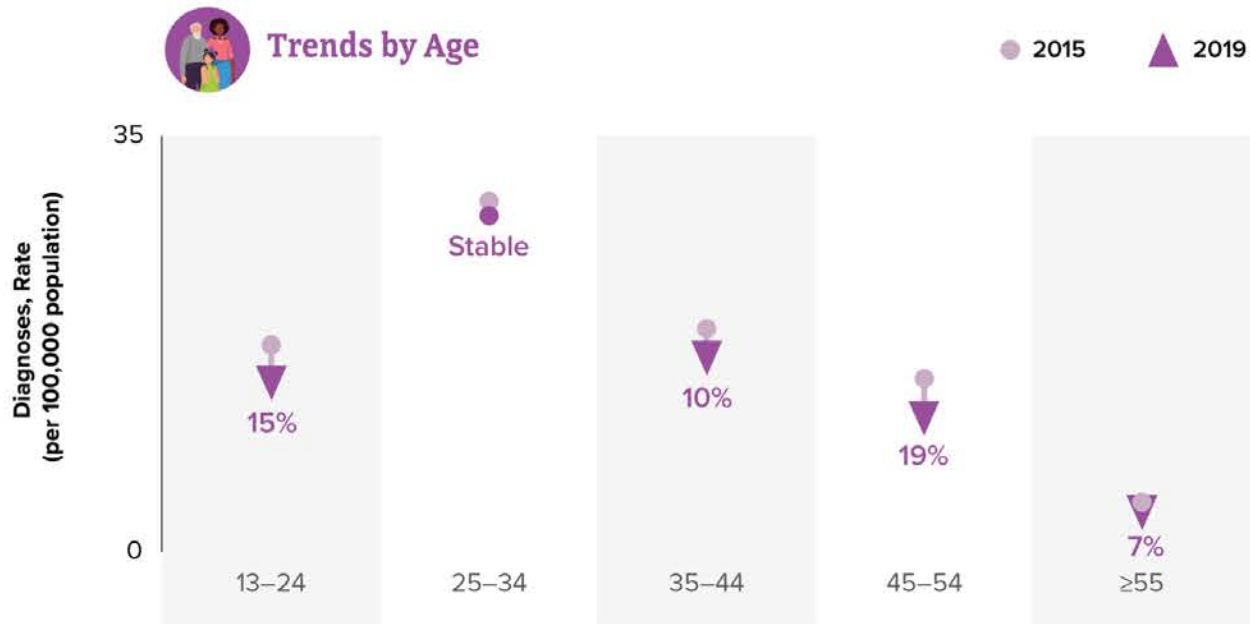
Note. See section D2.2 in Technical Notes for more information on gender.



INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

Figure 3. Rates of diagnoses of HIV infection among adults and adolescents by age at diagnosis, 2015–2019—United States and 6 dependent areas

In

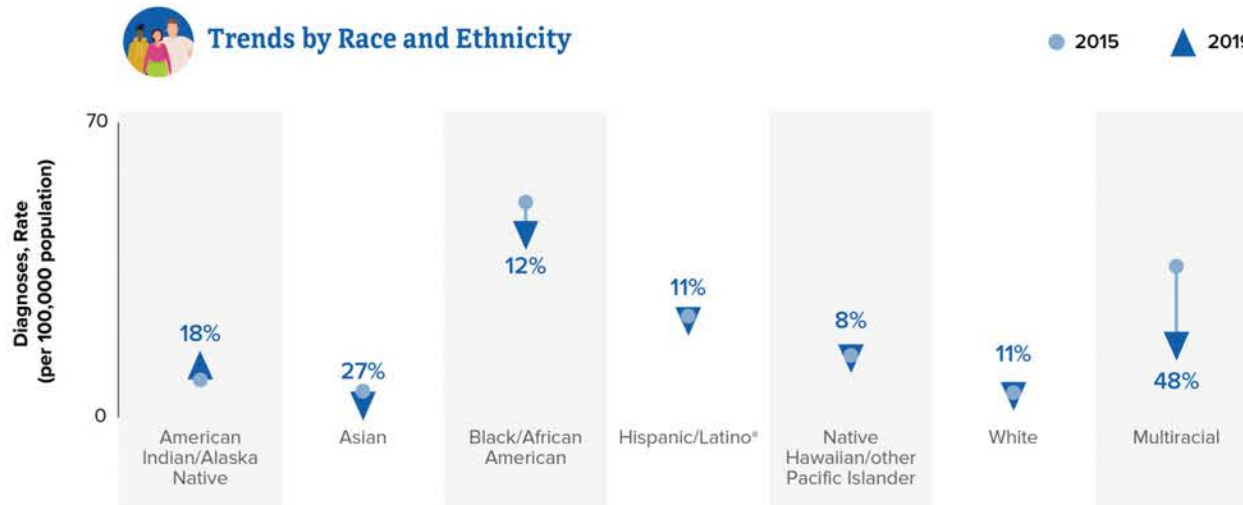


INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

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- **Race/ethnicity:** From 2015 through 2019 in the United States, the rate for diagnoses of HIV infection among American Indian/Alaska Native adults and adolescents increased (Figure 4). The rates of diagnoses of HIV infection for Asian, Black/African American, Hispanic/Latino, Native Hawaiian/other Pacific Islander, White, and multiracial adults and adolescents decreased. In 2019, the highest rate of diagnosis of HIV infection was 45.0 for Black/African American adults and adolescents, followed by 21.5 for Hispanic/Latino, 18.8 for multiracial, 13.5 for Native Hawaiian/other Pacific Islander, 10.5 for American Indian/Alaska Native, 5.3 for White, and 4.5 for Asian adults and adolescents.

Figure 4. Rates of diagnoses of HIV infection among adults and adolescents, by race/ethnicity, 2015–2019—United States



Note. See section D3 in Technical Notes for more information on race/ethnicity.

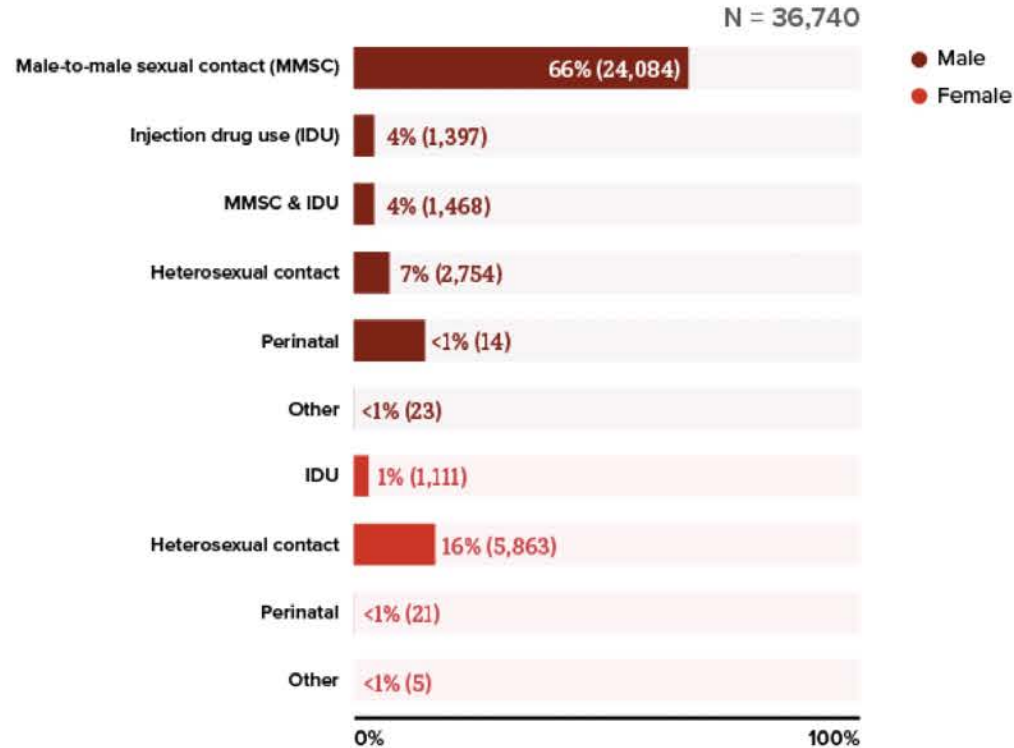
^a Hispanic/Latino persons can be of any race.



INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

In

Figure 6. Diagnoses of HIV infection among adults and adolescents, by transmission category, 2019—United States and 6 dependent areas

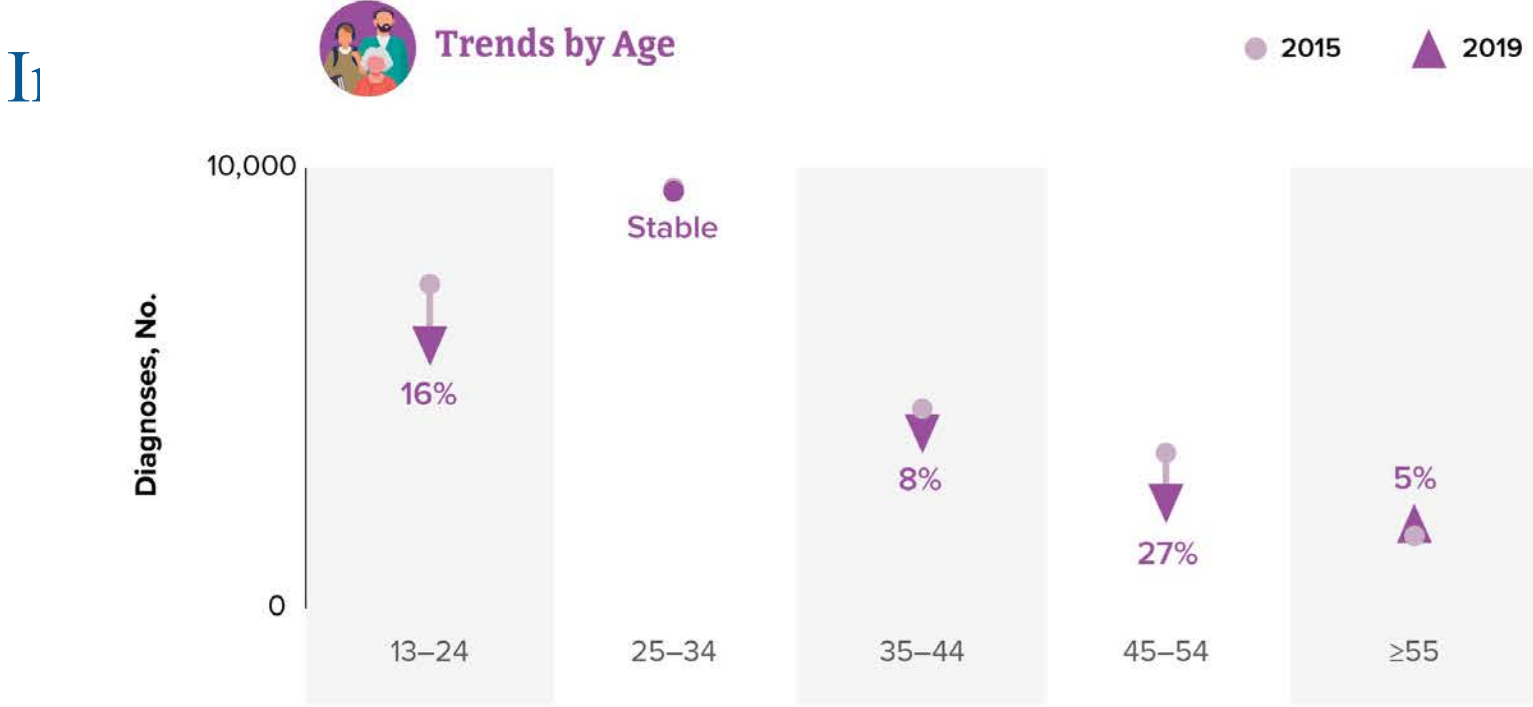


Note. Data have been statistically adjusted to account for missing transmission category. See section D4 in Technical Notes for more information on transmission categories.



INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

Figure 11. Diagnoses of HIV infection among men who have sex with men, by age group, 2015–2019—United States and 6 dependent areas

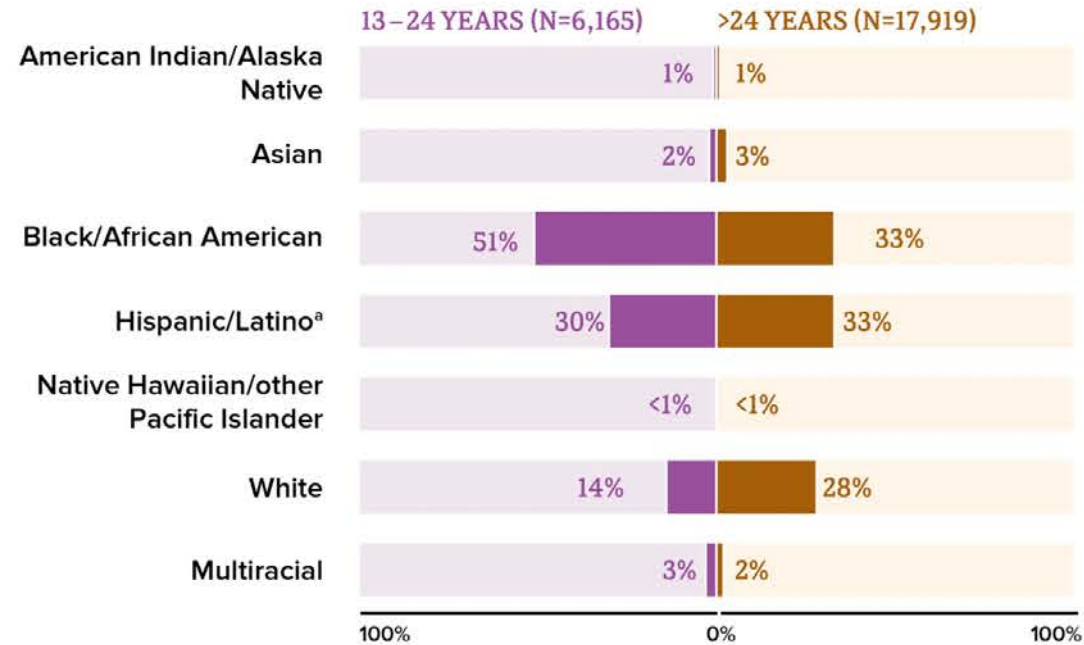


Note. Data have been statistically adjusted to account for missing transmission category. See section D4 in Technical Notes for more information on transmission categories.



INCIDENCE OF HIV INFECTION & AIDS: 2015-2019 TAKE AWAY POINTS

Figure 13. Percentages of diagnoses of HIV infection among men who have sex with men, by age group and race/ethnicity, 2019—United States and 6 dependent areas



Note. Data have been statistically adjusted to account for missing transmission category. See sections D3 and D4 in Technical Notes for more information on race/ethnicity and transmission categories.

^a Hispanic/Latino persons can be of any race.



HIV REPLICATION CYCLE

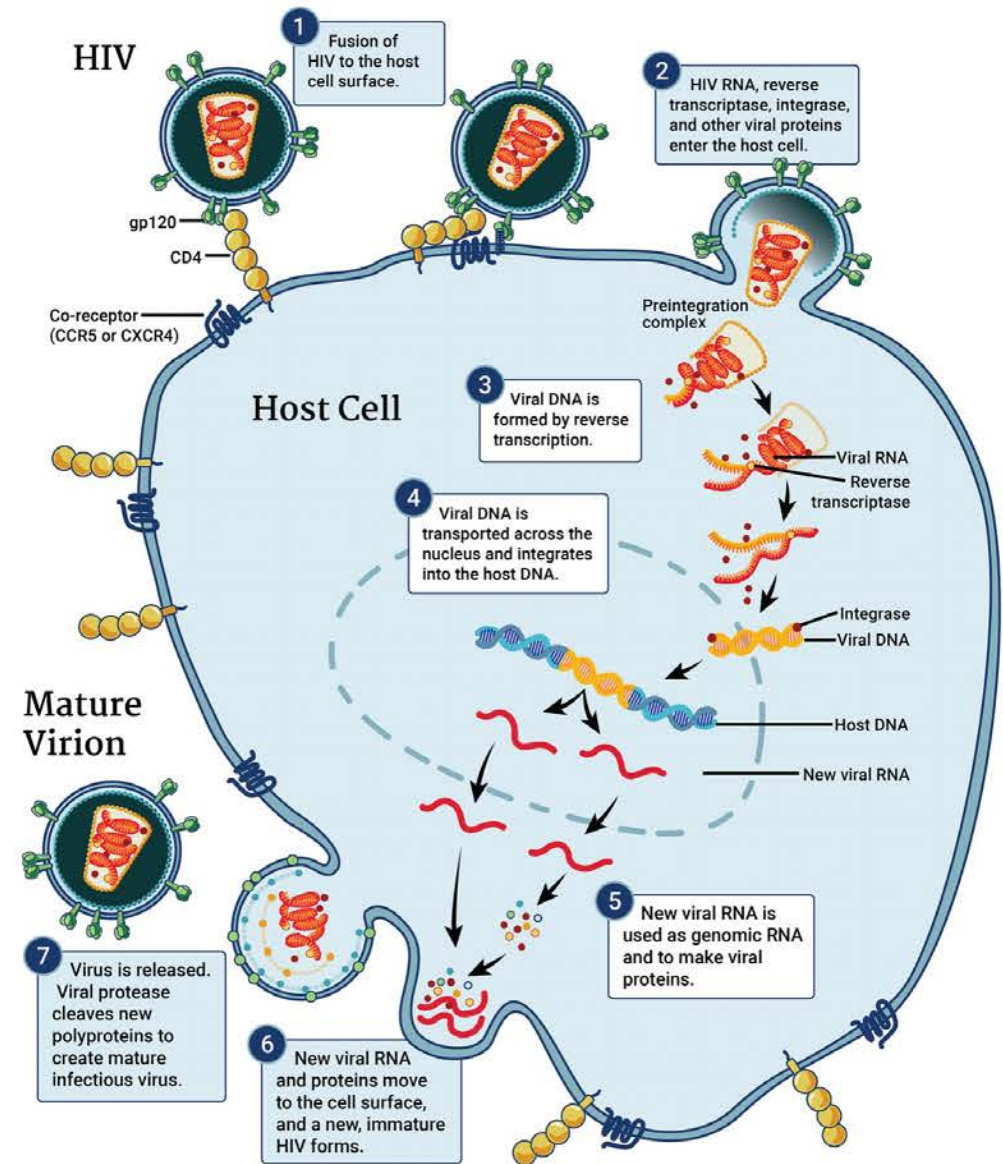


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PATHOPHYSIOLOGY OF HIV INFECTION

- HIV is a retrovirus, transcribing RNA-containing genetic material into DNA of the host cell nucleus by using an enzyme called reverse transcriptase.
- Glycoproteins allow HIV to attach to CD4 Cell and incorporate its RNA into the cell membrane, which then transcribes the RNA to DNA using reverse transcriptase.
- This is then integrated into the CD4 nucleus using integrase. Integrated viral genes then transcribe back into genomic RNA and messenger RNA, which are translated to viral proteins.
- These proteins then are cleaved with protease into new HIV particles, which release to infect other cells.
- HIV progresses to AIDS.
- Seroconversion (HIV- → HIV+) typically occurs in 2-12 weeks post-exposure. 95% (1 month; 99.9% by week 12)



PATHOPHYSIOLOGY OF HIV INFECTION

- After seroconversion, HIV antibody titers decrease as infected cells are sequestered in the lymph nodes.
- This is the latent period, lasting up to 10 years.
- During this period, CD4 cell lines drop as a result of infection and lysis of healthy T-Helper cells.



PATHOPHYSIOLOGY OF HIV INFECTION

- As CD4 cells continue to decline, the patient becomes susceptible to opportunistic infections, malignancies, and neurological diseases. AIDS develops.
- A very few HIV+ individuals are termed “Non-Progressors”



PATHOGENIC PROCESS OF HIV/AIDS

- Exposure to HIV
- HIV Infection
- Seroconversion
- Latency Period
- Initial Symptoms of Immunodeficiency and Declining Immune Function
- Immune System Failure and AIDS
- Severe Immune Deficiency



PATHOGENIC PROCESS OF HIV

- Important Points:
- Transmission of HIV is possible at any stage of the disease process.
- Risk to health workers is overall small.
- With blood product screening emerging in 1985, transfusion-related HIV transmission decreased dramatically.
- Since the introduction of maternal antiretroviral therapy, HIV transmission from mom to child has decreased.
- *Practically Preventable.*



TESTING FOR HIV

- ELISA → Western Blot (99.5% accurate)
 - Newer guidelines (CDC, 2014) are calling for substitution of Western Blot with antigen tests that differentiate HIV1 from HIV2.
- Confidentiality is **INCREDIBLY** important (i.e. no phone messages, personal names, etc.).
- Pre-Test and Post-Test Counseling can be valuable, but is NOT CDC recommended as a requirement any longer.
- General consent for Tx implies consent for HIV.



TESTING FOR HIV

- Antibody tests are specifically designed for the routine testing of HIV in adults, are inexpensive, and are very accurate
- Antibody tests give false negatives results during the *window period* of between three weeks and six months from the time of HIV infection until the immune system produces detectable amounts of antibodies
- Much screening done as POS (OraSure® or OraQuick® testing methods)

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TESTING FOR HIV

- Most people have detectable antibodies after three months
- A six-month window is extremely rare with modern antibody testing
- During this window period an infected person can transmit HIV to others, without their HIV infection being detectable using an antibody test
- ARV during the window period can delay the formation of antibodies and extend the window period beyond 12 months.



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TESTING FOR HIV

- The specificity of Rapid Antibody Tests in low-risk populations has not been evaluated
- Designed for high-risk individuals
 - OraQuick is an antibody test that provides results in 20 minutes. The blood, plasma or oral fluid is mixed in a vial with developing solution, and the results are read from a sticklike testing device
 - Orasure is an HIV test which uses mucosal transudate from the tissues of cheeks and gums. It is an antibody test which first employs ELISA, then Western Blot
 - There is also a urine test; it employs both the ELISA and the Western Blot method
 - Home Access Express HIV-1 Test is a FDA-approved home test: the patient collects a drop of blood and mails the sample to a laboratory; the results are obtained over the phone



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TESTING FOR HIV

- **Antigen tests:**

- The **p24 antigen test** detects the presence of the p24 protein of HIV (also known as CA), a major core protein of the virus
- This test is now used routinely to screen blood donations, thus reducing the window to about 16 days

- **Nucleic acid based tests:**

- Nucleic acid based tests amplify and detect a 142 base target sequence located in a highly conserved region of the HIV *gag* gene
- Since 2001, donated blood in the US has been screened with nucleic acid based tests, shortening the window to about 12 days
- Since these tests are relatively expensive, the blood is screened by first pooling some 10-20 samples, testing these together, and if the pool tests positive, each sample is retested individually



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Monitor patient every few (3) months when initiating Tx.
- EDUCATE the patient about safe sexual practices and s/s of other disease processes which HIV may cause:
 - Skin lesions;
 - Change in mentation
 - Respiratory problems;
 - Fever;
 - Diarrhea;
 - Etc.



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Advanced Nursing Management of HIV/AIDS



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- Question the client in-detail when obtaining the health Hx:
 - When did you first get diagnosed?
 - What is the chronology of your infections or complications?
 - Tell me about your sexual practices.
 - What types of drugs do you currently take:
 - assess knowledge levels regarding:
 - prescription, OTC, and Illicit Rxs.



HIV/ AIDS SURVEILLANCE AND DX

- CD4 Testing:
 - Declining CD4 T-cell counts are markers of the progression of HIV infection.
 - In HIV+ people, AIDS is officially diagnosed when the count drops below 200 cells or when certain opportunistic infections occur; CDC guidelines recommend beginning ART AT TIME OF Dx (2015)
 - Low CD4 T-cell counts are associated with a variety of conditions, including many viral infections, bacterial infections, parasitic infections, sepsis, tuberculosis, coccidioidomycosis, burns, trauma, intravenous injections of foreign proteins, malnutrition, over-exercising, pregnancy, normal daily variation, psychological stress, and social isolation



HIV/ AIDS SURVEILLANCE AND DX

- CD4 Testing:
 - Generally speaking, the lower the number of T cells, the lower the immune system's function will be
 - Normal T4 counts are between 500 and 1500 CD4+ T cells per microliter and the counts may fluctuate in healthy people, depending on recent infection status, nutrition, exercise and other factors -- even the time of day
 - Women tend to have somewhat lower counts than men



HIV/ AIDS SURVEILLANCE AND DX

- Viral Load Testing:
 - Evidence shows that keeping the viral load levels as low as possible for as long as possible decreases the complications of HIV disease and prolongs life
 - Most recent public health guidelines state that treatment should be considered for asymptomatic HIV-infected people AT TIME OF Dx
 - There are several methods for testing viral load; results are not interchangeable, so it is important that the same method be used each time
 - Keep viral loads undetectable = decrease infection



HIV/ AIDS SURVEILLANCE AND DX

- Clinical Application of Lab Values:
 - ANY ↑ in HIV viral load OR ↓ in CD4 count must be immediately correlated with a second analysis
 - If secondary analysis confirms changes, NP must:
 - For clients on ARV Tx:
 - 1) Obtain a thorough Hx regarding compliance of prescribed HIV-regimen (ARV) assessing for missed/skipped doses
 - 2) Obtain a new HIV genotype-resistance test
 - 3) Alter ARV Tx *if possible* depending on #2
 - 4) If ARV Tx has failed, begin preparations to ↓ risk for opportunistic infections
 - 5) Re-assess HIV viral load AND CD4 count in 30 days
 - For clients *not* on ARV Tx:
 - 1) Obtain an HIV genotype-resistance test
 - 2) Initiate ARV Tx (*if possible* and depending on CDC guidelines for initiating Tx)
 - 3) Re-assess HIV viral load AND CD4 count in 30 days



INITIAL EVALUATION OF THE HIV+ PATIENT IN PRIMARY CARE

- Repeat HIV antibody testing
- Vaccination for Td, influenza, pneumovax, hepatitis A and B (if indicated)^a
- PPD testing annually
- CXR
- HIV specific labs: CD4 count and viral load (RNA) and HIV resistance testing
- Labs: CBC, basic chemistry, LFTs, hepatitis screening, fasting lipid profile, and glucose
- STI (GC, Chlamydia, STS) testing annually
- Pap smears (HPV screening) Urinalysis and creatinine clearance
- Lifestyle changes: condom usage, balanced diet and exercise, smoking cessation, elimination of illicit drugs, judicious alcohol use

a = Live vaccination for Varicella and MMR indicated only when immunocompetent (CD4 > 200/μl).



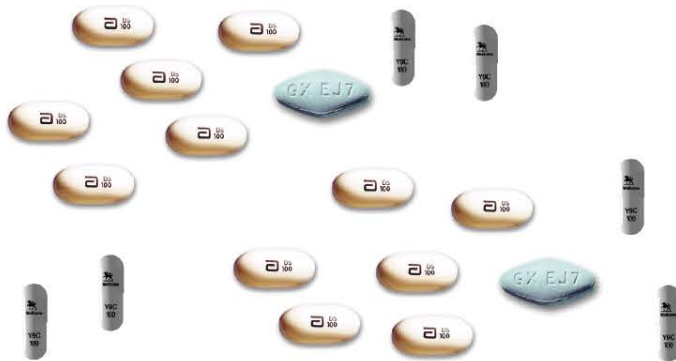
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HIV PHARMACOLOGIC MANAGEMENT

Antiretroviral therapy for HIV infection

In the 1990s



Up to 20 pills daily, taken at different intervals throughout the day

Today



As little as 1 pill per day, delivering multiple drugs

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UPDATED 2019 GUIDELINES

- Rationale for ARV Medication Selection:
 - An ARV regimen generally consists of two NRTIs (one of which is FTC or 3TC) plus an INSTI, NNRTI, or PK- enhanced PI
 - Selection of a regimen should be individualized based on virologic efficacy, potential adverse effects, pill burden, dosing frequency, drug-drug interaction potential, a patient's resistance test results and comorbid conditions, and cost
 - Monthly injectable regimen with cabotegravir/rilpivirine (Cabenuva®) available once patient reach viral suppression to undetectable levels
 - HIV viral load < 200 copies/mL = NO sexual transmission
 - Partner(s) needs to be using prevention measures for first 6 months of Tx imitation AND if HIV viral load > 200 copies/mL



HIV PHARMACOLOGIC MANAGEMENT

3-and 2-Drug Antiretroviral Treatment Regimens for HIV

<u>Drug Combination Agents and Dosing</u>	<u>Frequency</u>
Bictegravir 50mg/ emtricitabine 200mg/ tenofovir alafenamide 25mg	Once every day
Abacavir 600mg/ dolutegravir 50mg/ lamivudine 300mg	Once every day
Dolutegravir 50mg	Once every day
Plus one of the following:	
Emtricitabine 200mg/ tenofovir disoproxil fumarate 300mg	Once every day
Emtricitabine 200mg/ tenofovir alafenamide 25mg	Once every day
Lamivudine 300mg/ tenofovir disoproxil fumarate 300mg	Once every day
Dolutegravir 50mg/ lamivudine 300mg	Once every day
Raltegravir 400mg	Twice every day
Plus one of the following:	
Emtricitabine 200mg/ tenofovir disoproxil fumarate 300mg	Once every day
Emtricitabine 200mg/ tenofovir alafenamide 25mg	Once every day
Lamivudine 300mg/ tenofovir disoproxil fumarate 300mg	Once every day



HIV PHARMACOLOGIC MANAGEMENT

- Nucleoside Analog Reverse Transcriptase Inhibitors (NRTIs)
 - Suppress production of reverse transcriptase and inhibit viral DNA synthesis and genetic replication
 - Zidovudine (Retrovir®)
 - Lamivudine (Epivir®)
 - Stavudine (Zerit®)
 - Common Adverse Event: Bone marrow suppression
 - Epogen for RBC stimulation



HIV PHARMACOLOGIC MANAGEMENT

- Non-Nucleoside Analog Reverse Transcriptase Inhibitors (NNRTIs)
 - Inhibit synthesis of the enzyme reverse transcriptase
 - Protect uninfected cells
 - Suppress viral replication
 - Nevirapine (Viramune®)
 - Effaviranz (Sustiva®)
 - Etravirine (Intelence®)
 - Delavirdine (Rescriptor®)
 - Interactions: Absorption inhibited by antacids
 - Common Adverse Events: N/V/D, headache, arthalgias
- Protease Inhibitors (PIs):
 - Block the HIV protease enzyme, preventing viral replication & release of viral particles
 - Amprinivir (Agenerase®)
 - Ritonavir (Norvir®)
 - Atazanivir (Reyataz®)
 - Lopinsvir (Kaletra®)
 - Nelfinavir (Viracept®)
 - Common Adverse Events: All PIs are associated with metabolic abnormalities including dyslipidemia, hyperglycemia, insulin resistance, and lipodystrophy. (Atazanavir [Reyataz®] is less likely to cause dyslipidemia.)



HIV PHARMACOLOGIC MANAGEMENT

- Fusion Inhibitors:
 - Fuzeon®/ binds to a protein gp41 on the HIV cell's surface called
 - Once it does this, HIV cannot successfully bind with the surface of T-cells, thus preventing the virus from infecting healthy cells
 - Because of its fragile structure (it is a peptide), enfuvirtide (Fuzeon®) cannot be taken by mouth:
 - It is currently given in an injectable form and requires two shots a day: one in the morning and one 12 hours later at night.
 - Each SQ injection contains 90mg of Fuzeon®
 - Common Adverse Effects:
 - Injection site reactions
 - Bacterial pneumonia
 - Allergic reaction (fever, urticaria/rash, N/V, chills, hypotension, hepatitis)
 - Peripheral neuropathy, insomnia, depression, decreased appetite, fatigue, muscle pain, constipation, and pancreas problems.



HIV PHARMACOLOGIC MANAGEMENT

- Ribonucleotide Reductase Inhibitors (Rare Rx)
 - Interferes with DNA synthesis, stopping viral replication
 - Hydroxyurea (Hydrea®)
 - Cancer chemotherapy agent
 - Adverse Events: Bone marrow suppression
- Integrase Inhibitors:
 - Disable integrase, a protein that HIV uses to insert its genetic material into the infected cell
 - Raltegravir (Isentress®)
 - Adverse Events: N/V/D, Increased LFTs, headache
- Chemokine Coreceptor Antagonists (Rare Rx)
 - Entry Inhibitor: Doesn't allow HIV to attach to CD4 cells
 - Maraviroc (Selxentry®)
 - Adverse Event: Cough/URI, fever, dizziness, headache, hypotension



VACCINATION GUIDELINES

- In HIV-infected adults, the CDC strongly recommends:
 - Pneumococcal and hepatitis B vaccines.
 - Hepatitis A vaccination is indicated if the patient is at increased risk of exposure (MSM, living in an area with an increased prevalence of hepatitis A, has a clotting factor disorder, or is traveling to endemic areas).
 - Influenza and HiB vaccines should be considered.
 - The potential benefit of these vaccines is not as great, and must be weighed against the potential negative effects of vaccination.
 - In particular, the low prevalence of invasive *Haemophilus influenzae* type B disease may not justify vaccination.
 - Clinicians should administer diphtheria and tetanus vaccines to HIV-infected individuals in the same manner as in non-HIV-infected persons (q 10 years).



VACCINATION GUIDELINES

- The risks of live vaccines such as measles, mumps, and rubella must be weighed against the potential benefits of vaccination.
 - The risks of the latter two vaccines may outweigh the benefits in adults.
 - Measles vaccination may be worthwhile in adults born after 1956, if they face significant risk of exposure to measles.
- Except for influenza, which is given yearly, vaccines should be given early in the course of HIV infection if possible, to increase the likelihood of adequate responses and to minimize the risk of disseminated infection from live vaccines in immunocompromised patients (< 200 CD4/ μ l).
- In all cases, vaccination may be safest when patients are following effective antiretroviral regimens, as this therapy may limit the risk of increasing HIV replication as a consequence of vaccination.
- Use CDC App! See:

Blackwell, C.W. (2016). Use of CDC Vaccine Schedules Smartphone Application to prescribe vaccines for HIV- infected adults. *Journal of the Association of Nurses in AIDS Care*, 27(4), 538-543. doi: 10.1016.jana.2016.01.006.

- *Disclosure: I am the author of this article*

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CDC Vaccines Schedules App

Quick access from CDC to ACIP-recommended immunization schedules, complete with footnotes.



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Opportunistic Infections
- Pathogenic Infections – virulent microorganisms that can affect healthy persons also.
 - Opportunistic Infections – continually present as part on the normal environment
 - Occur because of profound immune suppression
 - May result from primary infection or reactivation of a latent infection
 - More than one infection may be present at a time
 - No threat to immunocompetent individuals except for transmittable diseases such as TB.
 - AWESOME CDC (2021) Resource: *Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents*
 - https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Protozoal Infections
 - Pneumocystis carinii pneumonia (PCP)
 - Now referred to as *Pneumocystis jiroveci*
 - Most common, incidence, 75-80%
 - Symptoms – DOE, tachypnea, persistent dry cough, fever, fatigue, weight loss, lung crackles on auscultation
 - Treated with trimethoprim/sulfamethoxazole (Septra®, Bactrim®) and pentamidine (Pentam®).
 - Once a leading cause of death in AIDS patients (now TB)
 - Can also be treated prophylactically w/ trimethoprim/sulfamethoxazole (Septra®, Bactrim®) DS PO QD.



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Radiographic Analysis: *Pneumocystis jiroveci*
 - Correlate with CD4 ct (< 200); Small pneumatoceles; subpleural blebs; fine reticular interstitial pulmonary pattern; often perihilar distribution; accompanying pleural effusion rare ($< 5\%$ of cases)
- AP chest x-ray of patient with *pneumocystis jiroveci* pneumonia showing reticular interstitial markings in all lung fields.
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ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Toxoplasmosis encephalitis
 - Contact with contaminated cat feces or infected undercooked meat
 - Symptoms – subtle changes in mental status, neurological deficits, headaches, fever, difficulties in speech, gait & vision, seizures, lethargy, confusion
- Cryptosporidiosis
 - Gastroenteritis caused by *Cryptosporidium* organisms
 - Symptoms – mild diarrhea to a cholera-like syndrome with wasting & electrolyte imbalance



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Fungal Infections
 - Candida albicans:
 - Natural flora of GI tract
 - Symptoms – stomatitis, esophagitis, food tastes “funny”, difficulty swallowing, mouth pain, retrosternal pain, cottage cheese like yellow-white plaques & inflammation, females – vaginitis with puritis, perineal irritation & thick white discharge



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ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Cryptococcosis
 - Debilitating meningitis caused by *Cryptococcus neoformans*
 - Spherules on slide are diagnostic.
 - Symptoms – fever, H/A, blurred vision, N/V, nuchal rigidity, mild confusion, seizures
 - Assess Brudzinski's and Kernig's Reflexes



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Histoplasmosis
 - Begins as respiratory infection to widespread in AIDS
 - Symptoms – dyspnea, fever, cough, weight loss, enlarged spleen, liver & lymph nodes
 - Can be treated with itraconazole 200 mg PO QD.
 - 85% show recovery signs.

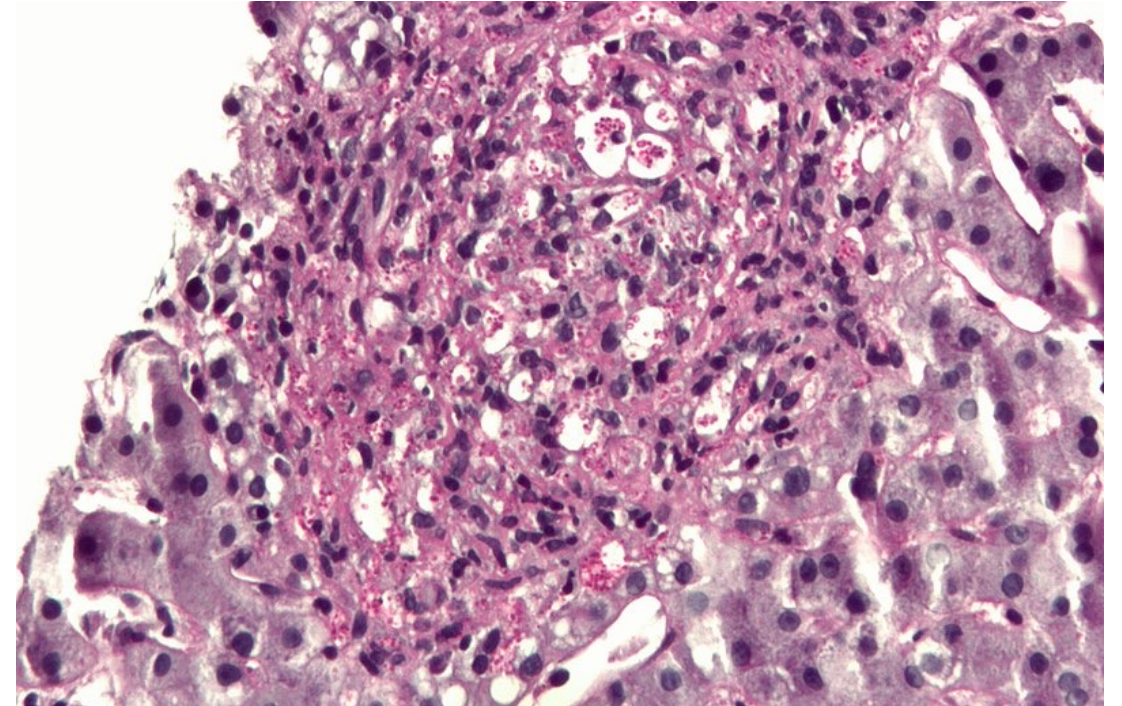


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ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Bacterial Infections
 - Mycobacterium avium or intracellulare complex (MAC)
 - Infects respiratory & GI tracts, systemic disease (see disseminated MAC)
 - Symptoms – fever, debility, weight loss, malaise
 - Mortality at 24 weeks is 60%.
 - Tuberculosis
 - 33% of all AIDS-related deaths
 - + PPD = Initiate Tx while completing CXR and AFB sputum culture (x2) to confirm Dx; Tx is same as those without HIV
 - Annual screening for those high risk
 - > 50% have extra pulmonary disease sites
 - Anergy panels for PPD if CD4 count $<200/\text{mm}^3$

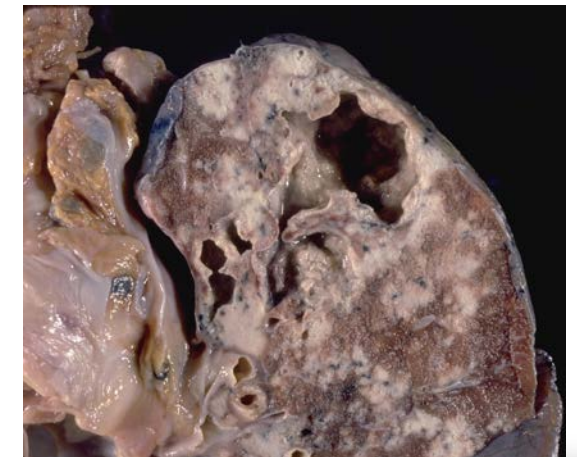


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ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Viral Infections
 - Cytomegalovirus (CMV):
 - Occurs in respiratory, GI tract, eyes, CNS
 - Symptoms – fever, malaise, weight loss, fatigue, lymphadenopathy, retinitis (visual impairment to blindness)
 - Also causes colitis with diarrhea, abdominal bloating, encephalitis, pneumonitis, adrenalitis, hepatitis

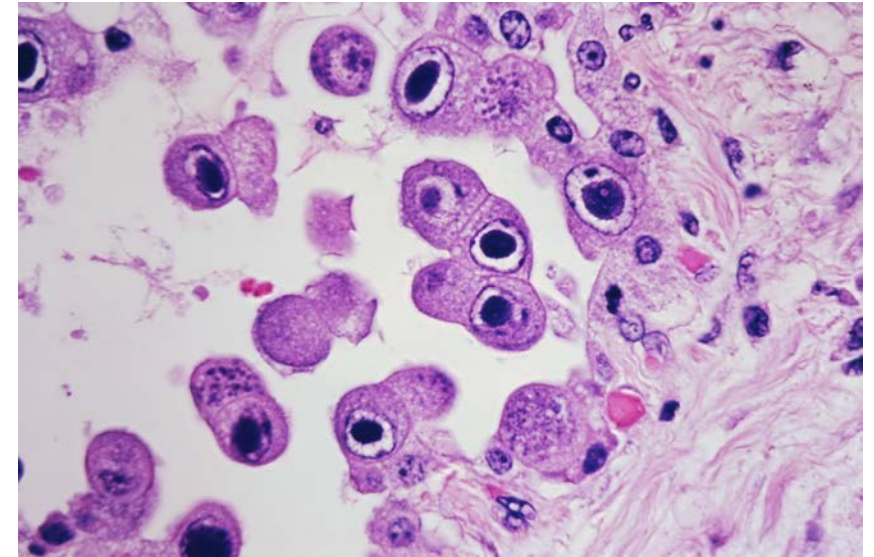


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ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Herpes Simplex Virus (HSV)
 - Perirectal (HSV-2), oral (HSV-1), genital (HSV-2)
 - Symptoms – vesicular lesions painful, chronic ulcerative lesions after rupture, fever, bleeding, lymph node enlargement in affected area, systemic symptoms include H/A, malaise, myalgia
- Varicella-zoster virus (VZV)
 - causes chickenpox, virus present in nerve ganglia
 - causes shingles
 - Symptoms – large fluid-filled vesicles, pain & burning along dermatome nerve tracks, H/A, low grade fever

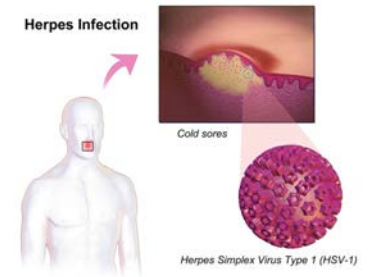


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ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Malignancies
 - Kaposi's Sarcoma:
 - occurrence 1-21%
 - present as small, purplish brown, raised lesions, non-painful or pruritic
 - most occur mucocutaneous (skin & mucous membranes), lymph nodes, GI tract, lungs



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https://commons.wikimedia.org/wiki/File:Kaposis_Sarcoma_Lesions.jpg



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Malignant Lymphomas
 - non-Hodgkin's lymphoma, immunoblastic lymphoma, brain lymphoma
 - Symptoms – weight loss, fever, night sweats



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- AIDS Dementia Complex (ADC)
 - symptoms of CNS involvement, occurs in 70% AIDS patients
 - Result of direct infection of CNS cells by HIV
 - Cognitive Impairment
 - Slowed thinking, reaction time to external stimuli
 - Loss of concentration while thinking or speaking
 - Memory loss
 - Forgetfulness
 - Wandering attention
 - Fantastic NIH (NINDS) Resource:
 - <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Neurological-Complications-AIDS-Fact-Sheet>



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Motor Impairment:
 - Loss of coordination, balance
 - ↑ minor accidents such as tripping, dropping things
 - Slowed motor performance
 - Leg weaknesses
- Behavioral Impairment:
 - Apathy
 - Withdrawal *or* irritation
 - Hyperactivity



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Symptoms – peripheral neuropathies & myopathies:
 - Parasthesias;
 - Burning sensations;
 - Pain;
 - Gait changes;
 - Extremity weakness;
 - Ataxia;
 - Muscle pain



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Wasting Syndrome:
 - Not due to any one factor
 - Symptoms – diarrhea, malabsorption, anorexia, extreme weight loss
- Integumentary Changes:
 - dry, itchy, irritated skin
 - skin rashes
 - eczema
 - psoriasis
 - petechiae



ADVANCED NURSING MANAGEMENT OF HIV/AIDS

- Nursing Considerations
 - Comfort Measures
 - Nutrition
 - Oral Care
 - Skin Integrity
 - Situational low self-esteem
 - Social Isolation
 - Safety



REFERENCES

Please see the supplemental handout, which includes a bibliography and additional resources for more information.

Scan the QR Code to access the online bibliography!

Scan the QR code below to access the online bibliography:



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Advanced Practice Care of Patients with HIV and AIDS

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Christopher W. Blackwell, Ph.D., APRN,
ANP-BC, AGACNP-BC, CNE, FAANP, FAAN

Associate Professor & Program Director
AGACNP Programs, College of Nursing
Academic Health Sciences Center
University of Central Florida
Orlando, Florida

