

# Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) in the Long Term Care Setting

## Part 2: HIV Medications



**Omnicare**  
Pharmacy Services



Carrie Allen PharmD, CGP, BCPS, BCPP, CCHP

# Overview - Part 2: HIV Medications



- Principles for treating the elderly for HIV
- Medications commonly used
  - Decrease in viral load and decreased risk of transmission
  - Risk of resistance inherent in treatment
- Storage
- Administration
- Common timing related concerns
- Compliance
  - Timing/scheduling medication pass
  - Process controls that can help compliance in LTC

## Antiretroviral Therapy (ART)

---

**ART is now  
recommended  
for all HIV-infected  
patients**

# HIV and the Older Patient (Last updated March 27, 2012; last reviewed March 27, 2012)

## Key Considerations When Caring for Older HIV-Infected Patients

- Antiretroviral therapy (ART) is recommended in patients >50 years of age, regardless of CD4 cell count (**BIII**), because the risk of non-AIDS related complications may increase and the immunologic response to ART may be reduced in older HIV-infected patients.
- ART-associated adverse events may occur more frequently in older HIV-infected adults than in younger HIV-infected individuals. Therefore, the bone, kidney, metabolic, cardiovascular, and liver health of older HIV-infected adults should be monitored closely.
- The increased risk of drug-drug interactions between antiretroviral (ARV) drugs and other medications commonly used in older HIV-infected patients should be assessed regularly, especially when starting or switching ART and concomitant medications.
- HIV experts and primary care providers should work together to optimize the medical care of older HIV-infected patients with complex comorbidities.
- Counseling to prevent secondary transmission of HIV remains an important aspect of the care of the older HIV-infected patient.

*Rating of Recommendations: A = Strong; B = Moderate; C = Optional*

*Rating of Evidence: I = Data from randomized controlled trials; II = Data from well-designed nonrandomized trials or observational cohort studies with long-term clinical outcomes; III = Expert opinion*

- Department of Health and Human Services Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents <https://aidsinfo.nih.gov/guidelines>

# Antiretroviral Therapy (ART), Highly Active Antiretroviral Therapy (HAART), Combination Antiretroviral Therapy (cART)



<https://www.aids.gov/hiv-aids-basics/>



- **MAINTAIN HEALTHY LIFESTYLE**
  - EXERCISE
  - PROPER NUTRITION
  - REST
  - AVOID TOBACCO, ALCOHOL AND DRUG USE
- **REGULAR EXAMINATIONS BY:**
  - HIV SPECIALIST
  - PHYSICIAN WHO HAS COORDINATED CARE WITH AN HIV OR INFECTIOUS DISEASE SPECIALIST

# Antiretroviral Therapy (ART)

## ART can:

- ✓ Increase lifespan
- ✓ Decrease risk of developing illnesses
- ✓ Decrease (but not eliminate) the risk of spreading the disease



# Antiretroviral Therapy (ART)

---

## HIV mutates

The virus can become resistant to medications

---

## Especially with non-compliance

Can also occur with prolonged exposure

---

# Antiretroviral Therapy (ART): Compliance



Facility should have protocols to maintain compliance

Keep doctors appointments, coordinate transport

- Be aware of insurance coverage issues so medications are not missed
- Prior authorizations in HIV care specifically have been reported to cost over \$40 each in provider personnel time (a hidden cost) and have substantially reduced timely access to medications\*



# Antiretroviral Therapy (ART): Compliance



Facility should have protocols to maintain compliance

If “self-administration” is occurring have a policy in place to ensure compliance

- Implement daily medication counts
- Document refusal of ART and communicate to prescriber
- If ART must be stopped for a procedure or a treatment, coordinate that in the plan of care and with primary and specialist physicians, document follow up and restarting the medication
- Avoid prolonged “hold” orders or misinterpreting discontinuation orders as permanent

# Classes of HIV Medications

Currently 6 different classes of HIV medications

Nucleoside/  
Nucleotide  
Reverse  
Transcriptase  
Inhibitors (NRTIs)

Non-Nucleoside  
Reverse  
Transcriptase  
Inhibitors  
(NNRTIs)

Protease  
Inhibitors (PIs)

Entry Inhibitors

Fusion Inhibitors

Integrase  
Inhibitors

Each class attacks the virus at different points in its life cycle

People generally are prescribed 3 different antiretroviral drugs from 2 different classes

Often these medications are combined into 1 pill

Increases compliance

Can cause confusion

Spell out the name of all  
medications on the MAR and  
physicians orders

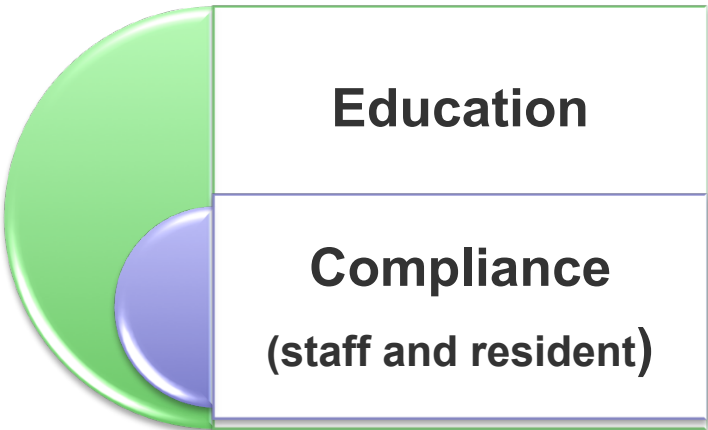
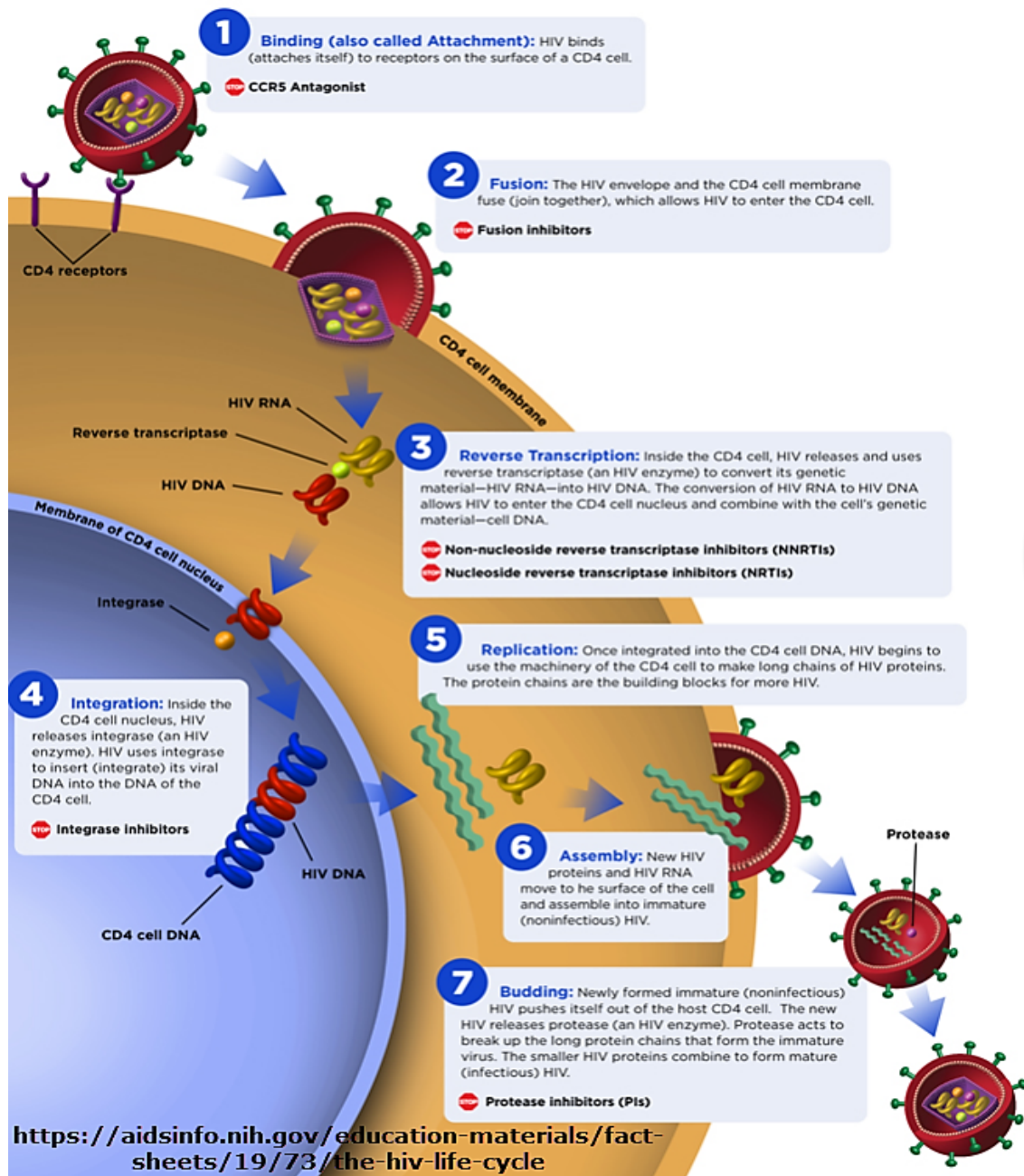
# Classes of HIV Medications: Combination therapy vs. Monotherapy

- Treating HIV with one pill containing multiple medications (e.g., fixed dose combination therapy) is acceptable
- Treating HIV with only one medication (monotherapy) is rarely acceptable
- Recommend checking this upon transitions in care (e.g., new admission, readmission from hospital, change of condition that resulted in a new provider consult)



# The HIV Life Cycle

HIV medicines in six drug classes stop HIV at different stages in the HIV life cycle.



<https://aidsinfo.nih.gov/education-materials/fact-sheets/19/73/the-hiv-life-cycle>

# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

| FDA-Approved HIV Medicines   |   |                                  |                   |
|--|---|----------------------------------|-------------------|
| Drug Class   | Generic Name<br>(Other names and acronyms)  | Brand Name                       | FDA Approval Date |
| <b>Nucleoside Reverse Transcriptase Inhibitors (NRTIs)</b>                             |   |                                  |                   |
| <b>NRTIs block reverse transcriptase, an enzyme HIV needs to make copies of itself</b> | <b>abacavir</b><br>(abacavir sulfate, ABC)  | <b>Ziagen</b>                    | Dec.17, 1998      |
|  | <b>didanosine</b><br>(delayed-release didanosine, dideoxyinosine, enteric-coated didanosine, ddl, ddl EC) | <b>Videx</b>                     | October 9, 1991   |
|  |   | <b>Videx EC (enteric-coated)</b> | October 31, 2000  |
|  | <b>emtricitabine</b><br>(FTC)   | <b>Emtriva</b>                   | July 2, 2003      |
|  | <b>lamivudine</b><br>(3TC)  | <b>Epivir</b>                    | Nov. 17, 1995     |
|  | <b>stavudine</b><br>(d4T)   | <b>Zerit</b>                     | June 24, 1994     |
|  | <b>tenofovir disoproxil fumarate</b><br>(tenofovir DF, TDF)   | <b>Viread</b>                    | October 26, 2001  |
|  | <b>zidovudine</b><br>(azidothymidine, AZT, ZDV)   | <b>Retrovir</b>                  | March 19, 1987    |

# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

| FDA-Approved HIV Medicines  |   |                                       |                   |
|---|---|---------------------------------------|-------------------|
| Drug Class  | Generic Name<br>(Other names and acronyms)              | Brand Name                            | FDA Approval Date |
| <b>Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)</b>   |   |                                       |                   |
| <b>NNRTIs bind to and later alter reverse transcriptase, an enzyme HIV needs to make copies of itself</b> | <b>delavirdine</b><br>(delavirdine mesylate, DLV)       | <b>Rescriptor</b>                     | April 4, 1997     |
|   | <b>efavirenz</b><br>(EFV)                               | <b>Sustiva</b>                        | Sept. 17, 1998    |
|   | <b>etravirine</b><br>(ETR)                              | <b>Intelence</b>                      | January 18, 2008  |
|   | <b>nevirapine</b><br>(extended-release nevirapine, NVP) | <b>Viramune</b>                       | June 21, 1996     |
|   |   | <b>Viramune XR (extended release)</b> | March 25, 2011    |
|   | <b>rilpivirine</b><br>(rilpivirine hydrochloride, RPV)  | <b>Edurant</b>                        | May 20, 2011      |

# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

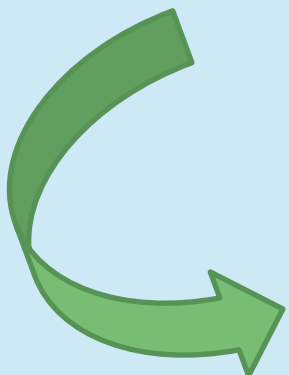
| FDA-Approved HIV Medicines  |   |                 |                   |
|---|---|-----------------|-------------------|
| Drug Class  | Generic Name<br>(Other names and acronyms)                    | Brand Name      | FDA Approval Date |
| <b>Protease Inhibitors (PIs)</b>  |   |                 |                   |
| <b>PIs block HIV protease, an enzyme HIV needs to make copies of itself</b> | <b>atazanavir</b><br>(atazanavir sulfate, ATV)                | <b>Reyataz</b>  | June 20, 2003     |
|   | <b>darunavir</b><br>(darunavir ethanolate, DRV)               | <b>Prezista</b> | June 23, 2006     |
|   | <b>fosamprenavir</b><br>(fosamprenavir calcium, FOS-APV, FPV) | <b>Lexiva</b>   | October 20, 2003  |
|   | <b>indinavir</b><br>(indinavir sulfate, IDV)                  | <b>Crixivan</b> | March 13, 1996    |
|   | <b>nelfinavir</b><br>(nelfinavir mesylate, NFV)               | <b>Viracept</b> | March 14, 1997    |
|   | <b>ritonavir</b><br>(RTV)                                     | <b>Norvir</b>   | March 1, 1996     |
|   | <b>saquinavir</b><br>(saquinavir mesylate, SQV)               | <b>Invirase</b> | December 6, 1995  |
|   | <b>tipranavir</b><br>(TPV)                                    | <b>Aptivus</b>  | June 22, 2005     |

# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

| FDA-Approved HIV Medicines   |  |                  |                   |
|--|--|------------------|-------------------|
| Drug Class   | Generic Name<br>(Other names and acronyms)         | Brand Name       | FDA Approval Date |
| <b>Fusion Inhibitors</b>   |  |                  |                   |
| Fusion inhibitors block HIV from entering the CD4 cells of the immune system           | <b>enfuvirtide</b><br>(T-20)                       | <b>Fuzeon</b>    | March 13, 2003    |
| <b>Entry Inhibitors</b>  |  |                  |                   |
| Entry inhibitors block proteins on the CD4 cells that HIV needs to enter the cells     | <b>maraviroc</b><br>(MVC)                          | <b>Selzentry</b> | August 6, 2007    |
| <b>Integrase Inhibitors</b>  |  |                  |                   |
| Integrase inhibitors block HIV integrase, an enzyme HIV needs to make copies of itself | <b>dolutegravir</b><br>(DTG)                       | <b>Tivicay</b>   | August 13, 2013   |
|  | <b>elvitegravir</b><br>(EVG)                       | <b>Vitekta</b>   | Sept. 24, 2014    |
|  | <b>raltegravir</b><br>(raltegravir potassium, RAL) | <b>Isentress</b> | October 12, 2007  |



# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

| FDA-Approved HIV Medicines   |   |                         |                         |
|--|---|-------------------------|-------------------------|
| Drug Class   | Generic Name<br>(Other names and acronyms)  | Brand Name              | FDA Approval Date       |
| <b>Pharmacokinetic Enhancer: cobicistat</b>  |   |                         |                         |
| <p><b>Cobicistat is used in HIV treatment to increase the effectiveness of another HIV medicine. It is included in an HIV regimen, not a treatment given by itself.</b></p>  | <p><b>cobicistat</b><br/>(COBI)</p>   | <p><b>Tybost</b></p>    | <p>Sept. 24, 2014</p>   |
|  | <p><b>atazanavir and cobicistat</b><br/>(atazanavir sulfate / cobicistat; ATV / COBI)</p>                                   | <p><b>Evotaz</b></p>    | <p>January 29, 2015</p> |
|  | <p><b>darunavir and cobicistat</b><br/>(darunavir ethanolate / cobicistat; DRV / COBI)</p>                                  | <p><b>Prezcobix</b></p> | <p>January 29, 2015</p> |
|  | <p><b>elvitegravir, cobicistat, emtricitabine, and tenofovir disoproxil fumarate</b><br/>(QUAD, EVG / COBI / FTC / TDF)</p> | <p><b>Stribild</b></p>  | <p>August 27, 2012</p>  |

# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

| FDA-Approved HIV Medicines   |  |                 |                   |
|--|--|-----------------|-------------------|
| Drug Class   | Generic Name<br>(Other names and acronyms)   | Brand Name      | FDA Approval Date |
| <b>Combination HIV Medicines</b>   |  |                 |                   |
| <b>Combination HIV medicines contain two or more HIV medicines from one or more drug classes</b> | <b>abacavir and lamivudine</b><br>(abacavir sulfate / lamivudine, ABC / 3TC)   | <b>Epzicom</b>  | August 2, 2004    |
|  | <b>abacavir, dolutegravir, and lamivudine</b><br>(abacavir sulfate / dolutegravir sodium / lamivudine, ABC / DTG / 3TC)  | <b>Triumeq</b>  | August 22, 2014   |
|  | <b>abacavir, lamivudine, and zidovudine</b><br>(abacavir sulfate / lamivudine / zidovudine, ABC / 3TC / ZDV)   | <b>Trizivir</b> | Nov. 14, 2000     |
|  | <b>efavirenz, emtricitabine, and tenofovir disoproxil fumarate</b><br>(efavirenz / emtricitabine / tenofovir, efavirenz / emtricitabine / tenofovir DF, EFV / FTC / TDF) | <b>Atripla</b>  | July 12, 2006     |

# Classes of HIV Medications (there's an app for that <https://aidsinfo.nih.gov/apps>)

| FDA-Approved HIV Medicines   |   |                 |                   |
|--|---|-----------------|-------------------|
| Drug Class   | Generic Name<br>(Other names and acronyms)  | Brand Name      | FDA Approval Date |
| <b>Combination HIV Medicines (continued)</b>   |   |                 |                   |
| <b>Combination HIV medicines contain two or more HIV medicines from one or more drug classes</b> | <b>emtricitabine, rilpivirine, and tenofovir disoproxil fumarate</b><br>(emtricitabine / rilpivirine hydrochloride / tenofovir disoproxil fumarate, emtricitabine / rilpivirine / tenofovir, FTC / RPV / TDF) | <b>Complera</b> | August 10, 2011   |
|  | <b>emtricitabine and tenofovir disoproxil fumarate</b><br>(emtricitabine / tenofovir, FTC / TDF)  | <b>Truvada</b>  | August 2, 2004    |
|  | <b>lamivudine and zidovudine</b><br>(3TC / ZDV)   | <b>Combivir</b> | Sept. 27, 1997    |
|  | <b>lopinavir and ritonavir</b><br>(ritonavir-boosted lopinavir, LPV/r, LPV / RTV)   | <b>Kaletra</b>  | Sept. 15, 2000    |

# Classes of HIV Medications and HIV/AIDS Treatment in Older Adults: Omnicare Geriatric Pharmaceutical Care Guidelines

**Omnicare**  
Geriatric Pharmaceutical Care Guidelines®

Search

Diseases & Conditions | Clinical Tools | About

## A MOST TRUSTED RESOURCE

Welcome to the Omnicare Geriatric Pharmaceutical Care Guidelines®

The Omnicare *Guidelines*® is the nationally recognized best practice for pharmacy care in seniors. This outcomes-based resource independently rates drug therapies specifically for their effectiveness and safety in an older adult population and provides the relative cost of each therapy.

All clinical evaluations are performed by the Philadelphia College of Pharmacy at University of the Sciences in Philadelphia, and are approved by the national panel that comprises the Omnicare Pharmacy and Therapeutics Committee. In addition, the Omnicare *Guidelines*® is reviewed and endorsed by the American Geriatrics Society.

**Recent Updates**

- > Allergic Rhinoconjunctivitis and Chronic Urticaria

**My Quick References**

- > HIV/AIDS Management in Older Adults

# Classes of HIV Medications and HIV/AIDS Treatment in Older Adults: Omnicare Geriatric Pharmaceutical Care Guidelines

**Table I. Preferred Regimens for ART-Naïve Patients Regardless of Baseline Viral Load or CD4 Count**

| Regimen             | Components                               | Usual Dosage Range (mg) and Adjustments for Organ Dysfunction   | Rationale  | Considerations for Older Adult Patients   |
|---------------------|--|---|--|---|
| NNRTI-Based Regimen | EFV/TDF/FTC* (ATRIPLA®) <sup>70-75</sup> | 600/300/200<br>→ Once-daily regimen (1 tablet total)<br><b>Renal:</b> Split components in patients with creatinine clearance (CrCl) <50 mL/min; consider another NRTI instead of TDF<br><b>Hepatic:</b> Split components in moderate/severe hepatic impairment; | Once daily<br>Very low pill burden<br>Well tolerated<br>Active against HBV<br>EFV is the preferred NNRTI because of virologic efficacy and tolerability<br>Resistance mutations and cross-resistance | TDF can cause renal failure (RF)<br>→ not recommended w/CrCl <50 mL/min<br>TDF/FTC can decrease BMD<br>Neuropsychiatric effects with EFV<br>EFV not recommended in patients with Child-Pugh Class B, C hepatic impairment<br>Lower genetic barrier to resistance than |

# Medication Information and HIV/AIDS Treatment in Older Adults: Omnicare Geriatric Pharmaceutical Care Guidelines

The screenshot shows the Omnicare website interface. At the top left is the Omnicare logo and the text "Geriatric Pharmaceutical Care Guidelines®". To the right is a search bar and navigation links for "Diseases & Conditions", "Clinical Tools", and "About". A left sidebar contains a table of contents with "Resistance Testing" highlighted. The main content area features the title "HIV/AIDS Management in Older Adults" with an update date of "June 2015" and several utility icons (Download PDF, Print All, Print Page, Quick Reference, Bookmark). The primary text discusses "Resistance Testing" for HIV, detailing when and how to perform the test based on viral load levels.

**Omnicare**  
Geriatric Pharmaceutical Care Guidelines®

Diseases & Conditions | Clinical Tools | About

**Detailed Findings**

- Introduction
- Epidemiology
- Detection
- Multi-Morbidities
- Goals of Treatment
- Baseline Evaluation
- Initiate Therapy
- ▶ Resistance Testing
- Response to HAART
- HAART
- New Agents
- Non-preferred Agents
- Major Drug-Drug
- Immunizations
- Lifestyle
- End-of-Life
- Preferred Agents

**Tables**

- Table I. Regimens for ART-Naive Patients
- Table II. Regimens for Pre-ART Plasma HIV

## HIV/AIDS Management in Older Adults

Updated: June 2015

DOWNLOAD PDF PRINT ALL PRINT PAGE QUICK REFERENCE BOOKMARK

### Resistance Testing

HIV drug resistance testing should be performed in all patients diagnosed with HIV during their initial visit even if therapy initiation has to be postponed. If therapy is being postponed, resistance testing can be repeated when drug therapy is initiated. Resistance testing should also be done prior to regimen changes if the change is due to virologic failure. Patients must have viral loads of  $\geq 500$  copies/mL, since below that level, resistance testing cannot be measured. Optimal testing occurs with viral loads of  $>1000$  copies/mL; however, patients with viral loads between 500 and 1000 copies/mL should still undergo resistance testing even with the risk of inconclusive results. If the reduction of viral load after the start of HAART is lower than expected, resistance testing also may be considered at that point.<sup>33</sup>

Resistance testing by genotype rather than by phenotype is preferred for initial evaluation. Phenotype testing is generally recommended for patients with resistance to multiple agents or drug classes. Phenotype testing is more expensive and has a longer turnaround time, making it less preferred. Genotype testing is more sensitive in detecting mixed wild-type/resistant virus. Most genotype testing evaluates present mutations in the reverse transcriptase or PI genes. If other drug classes are a concern for resistance, a supplemental test may need to be ordered. Interpreting resistance test results requires an experienced practitioner; therefore, it may be prudent to consult an infectious disease specialist for guidance, particularly if the patient's virus is highly resistant.<sup>49-51</sup>

# Medication Information and HIV/AIDS Treatment in Older Adults: Omnicare Geriatric Pharmaceutical Care Guidelines

FAQ | Help | Sitemap | Profile | Close | Welcome, Carrie Allen

**Omnicare**  
Geriatric Pharmaceutical Care Guidelines®

Diseases & Conditions | **Clinical Tools** | About

## Clinical Tools

- Drugs with Boxed Warnings**  
A complete list of drug names (brand/generic), potential warnings and monitoring/course of action to take when utilizing a medication with a boxed warning.
- The Cytochrome P450 Enzyme System and Medications**  
Examples of common CYP 450 interactions and comprehensive lists of substrates, inhibitors and inducers of the common enzymes.
- Medications Associated with Photosensitivity Reactions**  
Organized by drug type, this chart provides medication name along with the incidence of photosensitivity reaction.
- Drug Administration Recommendations Regarding Food**  
Brand name, generic name and recommended guidance are provided.
- Suggested Laboratory Monitoring Parameters for Selected Medications**  
This resource provides suggested laboratory monitoring parameters for commonly used medications (generic/brand).
- Medications with the Potential for Significant Anticholinergic Symptoms**  
Complete list of drugs organized by therapeutic class.
- Common Oral Dosage Forms that Should Not Be Crushed**  
Table organized by brand name of medicines that should not be crushed. Includes the reason to avoid crushing and, when appropriate, alternative ways of administering.
- Medications for which Blood Pressure and Pulse Monitoring are Recommended**  
A list of drugs where monitoring blood pressure, pulse or both blood pressure and pulse are recommended (brand/generic).

# Concerns with Commonly Used HIV Medications

| Drug Class  | Generic Name<br>(Other names and acronyms) | Administration Tips and Common Concerns  |
|---|--|--|
| <b>Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTIs)</b>   |  |  |
| <b>Class disadvantages:</b> <ul style="list-style-type: none"> <li>• <b>Lactic acidosis with hepatic steatosis</b></li> <li>• <b>Dyslipidemia</b></li> <li>• <b>Liver damage</b></li> </ul> | <b>abacavir</b><br>(abacavir sulfate, ABC) | <u><b>Abacavir hypersensitivity reaction (HSR):</b></u><br>5 to 8% of patients ; usually observed during the first 6 weeks<br><br>HLA-B*5701 allele is present in patients who are at risk of developing a HSR to abacavir, <b>contraindicated</b> if positive<br><br>Risk of MI - use with caution in those with high risk for cardiovascular disease |
|   | <b>emtricitabine</b><br>(FTC)              | Hyperpigmentation (not harmful)  |
|   | <b>lamivudine</b><br>(3TC)                 | Diarrhea, nausea, insomnia, headaches  |





# Concerns with Commonly Used HIV Medications

| Drug Class  | Generic Name<br>(Other names and acronyms)                  | Administration Tips and Common Concerns  |
|---|---|--|
| <b>Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTIs) - continued</b>   |   |  |
| <b>Class disadvantages:</b> <ul style="list-style-type: none"> <li>• <b>Lactic acidosis with hepatic steatosis</b></li> <li>• <b>Dyslipidemia</b></li> <li>• <b>Liver damage</b></li> </ul> | <b>tenofovir disoproxil fumarate</b><br>(tenofovir DF, TDF) | Can be administered with or without food<br>Can decrease bone mineral density<br>Can cause renal impairment<br>Renal dosing adjustments are required<br>Use with caution in pre-existing renal insufficiency |
|   | <b>zidovudine</b><br>(azidothymidine, AZT, ZDV)             | Bone marrow suppression, lipoatrophy, lactic acidosis, myopathy  |



# Concerns with Commonly Used HIV Medications

| Drug Class   | Generic Name<br>(Other names and acronyms) | Administration Tips and Common Concerns   |
|--|--|---|
| <b>Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)</b>  |  |   |
| <p><b>Class disadvantages:</b></p> <ul style="list-style-type: none"> <li>• <b>Greater risk for resistance than some other classes</b></li> <li>• <b>Risk of cross-resistance</b></li> <li>• <b>Skin rash</b></li> </ul> | <p><b>efavirenz</b><br/>(EFV)</p>          | <p>Neuropsychiatric and central nervous system (CNS) related side effects</p> <p>Administer at bedtime on an empty stomach</p> <p>Avoid administering with high fat meals; as this increases absorption of EFV, and increases the risk of CNS side effects</p> <p>St. John’s Wort may decrease EFV: combination not recommended</p> |



# Concerns with Commonly Used HIV Medications

| Drug Class  | Generic Name<br>(Other names and acronyms)           | Administration Tips and Common Concerns  |
|---|--|--|
| <b>Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) - continued</b>   |  |  |
| <p><b>Class disadvantages:</b></p> <ul style="list-style-type: none"> <li>• <b>Greater risk for resistance than Protease Inhibitors (PIs)</b></li> <li>• <b>Risk of cross-resistance</b></li> <li>• <b>Skin rash</b></li> </ul> | <p><b>rilpivirine</b><br/>(rilpivirine HCl, RPV)</p> | <p>Should be taken with a normal-to-high-calorie meal for adequate absorption (protein supplement drinks do not qualify)</p> <p>Use of proton pump inhibitors (e.g., omeprazole) is <b>contraindicated</b></p> <p>Antacids and H2-Receptor Antagonists (e.g., ranitidine) may decrease its effects</p> <p>Give 4 hr. before or 12 hr. after H2-receptor antagonists</p> <p>St. John's Wort decreases RPV avoid combination</p> |



Omeprazole,  
ranitidine, and  
antacids  
examples of  
medications that  
are often obtained  
from central  
supply

This means there  
is **no** interaction  
check done by  
pharmacy

Always ask the  
pharmacist  
before giving  
OTC meds to  
people taking  
ART



# Concerns with Commonly Used HIV Medications

## Drug Class

### Protease Inhibitors (PIs)

#### Class disadvantages:

- **Metabolic complications: dyslipidemia, insulin resistance, hepatotoxicity**
- **Significant GI effects: nausea, flatulence, diarrhea, dyspepsia**
  - **Can recommend pre-treatment with simethicone for flatulence**
  - **Can recommend other remedies for dyspepsia, nausea and diarrhea**
    - **Caution with antacids, PPI, and H2-Receptor Antagonists (H2RA; e.g., ranitidine)**

# Concerns with Commonly Used HIV Medications

| <p><b>Drug Class:</b></p> <p><b>Protease Inhibitors (PIs)</b></p> <p>Generic Name<br/>(Other names and acronyms)</p> | <p><b>Administration Tips and Common Concerns</b></p>   |
|--|---|
| <p><b>atazanavir</b><br/>(atazanavir sulfate, ATV)</p>   | <p>Always take with meals, to increase absorption</p> <p>Gastric upset</p> <p>Strict rules on separating timing from PPI (12 h), and H2RA (10 h) and reducing dose of the acid suppressing agent</p> <p>Administer ATV 2 hours before or 1 hour after taking antacids</p> |
| <p><b>ritonavir</b><br/>(RTV)</p>  | <p>Gastric upset, metabolic concerns (including central obesity), musculoskeletal pain, parasthesias, peripheral neuropathy</p> <p>Note: many other PIs are given in combination with ritonavir, <u>example</u>: ritonavir-boosted atazanavir (ATZ/r)</p>                 |



# Concerns with Commonly Used HIV Medications

| Drug Class   | Generic Name<br>(Other names and acronyms)         | Administration Tips and Common Concerns  |
|--|--|--|
| <b>Integrase Inhibitors</b>  |  |  |
| <b>Class disadvantages:</b> <ul style="list-style-type: none"> <li>• Insomnia</li> <li>• GI effects</li> </ul> | <b>dolutegravir</b><br>(DTG)                       | Administer with or without food<br>Without food: take DTG 2 hours before or 6 hours after cation-containing antacids (e.g., Tums) or supplements (e.g., calcium)   |
|  | <b>elvitegravir</b><br>(EVG)                       | Administer with food<br>St. John's Wort may decrease EVG   |
|  | <b>raltegravir</b><br>(raltegravir potassium, RAL) | Administer with or without food<br>St. John's Wort may decrease RAL<br>Depression<br>Hypersensitivity reaction (HSR) has occurred when RAL + other drugs known to cause HSR.<br>Stop all ARVs if HSR occurs and get a medical evaluation |



# Concerns with Commonly Used HIV Medications

---

Be aware of issues noted on the previous slides

---

Be prepared to counsel patients, anticipate their needs, and to be supportive





# Concerns with Commonly Used HIV Medications

Collaborate with the resident, prescribers, coworkers, and pharmacists

Everyone should share information to avoid:

- Treatment failure and resistance
- Harmful adverse effects or intolerable side effects
- Permanent harm and debility
- Opportunistic infections
- Missed doses



# References

- Department of Health and Human Services Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents <https://aidsinfo.nih.gov/guidelines>
- Centers for Disease Control HIV Website <http://www.cdc.gov/hiv/>
- Omnicare Geriatric Pharmaceutical Care Guidelines: HIV/AIDS Management in Older Adults
- American Geriatrics Society Care of Lesbian, Gay, Bisexual, and Transgender Older Adults Position Statement. J Am Geriatr Soc. 2015; 1-4.
- Hardy WD, Goetz MB, Seeskin EP, et al. Treatment Update: Management Challenges in Patients Receiving Long-Term Antiretroviral Therapy. 2009. Clinical Care Options HIV <http://www.clinicaloptions.com/HIV.aspx>
- HIV Pharmacotherapy Practice-based Program. University of Buffalo School of Pharmacy and Pharmaceutical Sciences [https://tdm.pharm.buffalo.edu/hiv\\_cert\\_main/](https://tdm.pharm.buffalo.edu/hiv_cert_main/)
- American College of Clinical Pharmacy Pharmacotherapy Infectious Disease III HIV Infection Self-Assessment Program. 2015; 193-219
- Cahill S, Valadez R. Growing Older With HIV/AIDS: New Public Health Challenges. American Journal of Public Health. March 2013; 103 (3) e7-e15
- Morgan EE, Woods SP, Grant I, et al. Intraindividual variability in HIV Infection: Evidence for Greater Neurocognitive Dispersion in Older Seropositive Adults. Neuropsychology. 2011; 25 (5) 645-654
- Hughes A, Davies, B, Gudmundsdottir. “Can you give me respect?” Experiences of the Urban Poor on a Dedicated AIDS Nursing Home Unit. J. of Assoc. of Nurses in AIDS Care. 2008; 19 (5), 342-356
- Murray K, Cummins D, Bloom K. Developing a Protocol for People Living with HIV Entering Residential Aged Care Facilities. ANMJ. June 2014; 21 (11) 34-37
- American Medical Directors Association. Clinical Practice Guideline Common Infections. Columbia. MD: AMDA 2011
- Department of Health and Human Services Guidelines for the Treatment of Opportunistic Infections in HIV Infected Adults and Adolescents [https://aidsinfo.nih.gov/contentfiles/lvguidelines/adult\\_oi.pdf](https://aidsinfo.nih.gov/contentfiles/lvguidelines/adult_oi.pdf)