Helpful HIV Medication Tables for Pharmacists

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Helpful HIV Medication Tables for Pharmacists

Dosing, Patient Counseling, and Drug Interactions

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Disclaimer:

The data in this guide are intended for use by clinicians and other health care providers as guidance to minimize drug interactions and toxicities among patients being treated with HIV antiretroviral medications. These guidelines are for informational purposes only and cannot identify medical risks specific to an individual patient or recommend patient treatment. The absence of typographical errors is not guaranteed. These guidelines are not necessarily all-inclusive. Use of these guidelines indicates acknowledgement that neither NY/NJ AETC, nor the authors will be responsible for any loss or injury, sustained in connection with, or as a result of, the use of these guidelines. Users of this guide should consult other sources before prescribing medications or treatment. Data were compiled from Department of Health and Human Services Guidelines and product information for specific medications through Winter 2014.

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Nucleoside/Nucleotide Reverse Transcriptase Inhibitors

MEDICATION	**Abacavir (Ziagen®)**
STANDARD DOSING	**300mg twice daily or 600mg once daily**
PATIENT COUNSELING	**Food Effect –** Take without regard to meals.
	Adverse Effects – Patients should be warned about the abacavir hypersensitivity reaction (HSR) which is characterized by fever, rash, nausea, vomiting, malaise or fatigue, loss of appetite, sore throat, cough, shortness of breath. Fatalities associated with the HSR have been reported, especially if patients are rechallenged. HLA-B*5701 testing recommended prior to use. *
MEDICATION	**Didanosine (Videx EC®)**
STANDARD DOSING	**≥60kg – 400mg once daily; with tenofovir give 250mg once daily <60kg – 250mg once daily; with tenofovir give 200mg once daily**
PATIENT COUNSELING	**Food Effect –** Take 1/2 hour before or 2 hours after a meal.
	Adverse Effects – Peripheral neuropathy, pancreatitis and nausea. *
MEDICATION	**Emtricitabine (Emtriva®)**
STANDARD DOSING	**200mg once daily**
PATIENT COUNSELING	**Food Effect –** Take without regard to meals.
	Adverse Effects – Minimal; Hyperpigmentation/skin discoloration has been reported. *
MEDICATION	**Lamivudine (Epivir®)**
STANDARD DOSING	**150mg twice daily or 300mg once daily**
PATIENT COUNSELING	**Food Effect –** Take without regard to meals.
	Adverse Effects – Minimal; pancreatitis has been reported. *
MEDICATION	**Stavudine (Zerit®)**
STANDARD DOSING	**≥60kg – 40mg twice daily <60kg – 30mg twice daily**
PATIENT COUNSELING	**Food Effect –** Take without regard to meals.
	Adverse Effects – Peripheral neuropathy, lipodystrophy, hyperlipidemia, pancreatitis. Rare, rapidly ascending neuromuscular weakness. *

* Lactic acidosis with hepatic steatosis is a rare, potentially life-threatening adverse event with the use of Nucleoside/Nucleotide Reverse Transcriptase Inhibitors.

Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (Cont'd)

MEDICATION Tenofovir **(Viread®)**
STANDARD DOSING 300mg once daily
PATIENT COUNSELING
Food Effect – Take without regard to meals.
Adverse Effects – Asthenia, headache, diarrhea, nausea, vomiting, flatulence, renal insufficiency. *

MEDICATION Zidovudine **(Retrovir®)**
STANDARD DOSING 300mg twice daily or 200mg three times daily
PATIENT COUNSELING
Food Effect – Take without regard to meals.
Adverse Effects – Bone marrow suppression (macrocytic anemia, neutropenia), headache, insomnia, gastrointestinal intolerance, asthenia. *

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Non-Nucleoside Reverse Transcriptase Inhibitors

MEDICATION	Delavirdine (Rescriptor®)
STANDARD DOSING	400mg three times daily
PATIENT COUNSELING	**Food Effect –** Take without regard to meals. **Adverse Effects –** Rash, increased liver function tests, headache.
MEDICATION	Efavirenz (Sustiva®)
STANDARD DOSING	600mg once daily; preferably at bedtime
PATIENT COUNSELING	**Food Effect –** Take on an empty stomach. **Adverse Effects –** Rash, central nervous system symptoms, lasting for approximately the first 2-4 weeks, including abnormal dreams, dizziness, somnolence and euphoria; increased liver function tests, false-positive cannabinoid test, teratogenic (Pregnancy Category D).
MEDICATION	Etravirine (Intelence®)
STANDARD DOSING	200mg twice daily
PATIENT COUNSELING	**Food Effect –** Take after a meal. Fasting conditions reduce drug exposure by approximately 50%. **Adverse Effects –** Rash (17%) and nausea. Stevens – Johnson Syndrome has been reported. Post marketing reports of fatalities due to toxic epidermal necrolysis, hypersensitivity reactions associated with liver failure have occurred.
MEDICATION	Nevirapine (Viramune®, Viramune XR®)
STANDARD DOSING	200mg once daily for 14 days, then 200mg twice daily or 400mg once daily if using XR
PATIENT COUNSELING	**Food Effect –** Take without regard to meals. **Adverse Effects –** Rash, including Stevens-Johnson Syndrome; symptomatic hepatitis, including fatal hepatic necrosis reported. Higher frequency of hepatic events reported in treatment naïve females with CD4 >250 cells/mm3, and treatment naive males with CD4 >400 cells/mm3.
MEDICATION	Rilpivirine (Edurant®)
STANDARD DOSING	25mg once daily
PATIENT COUNSELING	**Food Effect –** Take with a meal. **Adverse Effects –** Depression, insomnia, headache, rash.

Protease Inhibitors

MEDICATION	Atazanavir (Reyataz®)
STANDARD DOSING	400mg once daily or 300mg with ritonavir 100mg once daily
PATIENT COUNSELING	**Food Effect –** Take with food. **Adverse Effects –** Indirect hyperbilirubinemia, nephrolithiasis, prolonged PR interval, (use with caution in patients with underlying conditions or concomitant medications that can cause PR prolongation); hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Darunavir (Prezista®)
STANDARD DOSING	600mg with ritonavir 100mg twice daily or 800mg with ritonavir 100mg once daily
PATIENT COUNSELING	**Food Effect –** Take with food. **Adverse Effects –** Skin rash (7%) including Stevens-Johnson Syndrome and erythrema multiforme reported, caution in sulfa allergic patients, as darunavir contains a sulfonamide moiety; diarrhea, nausea, headache, hyperlipidemia, increased liver function tests, hepatotoxicity, hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Fosamprenavir (Lexiva®)
STANDARD DOSING	1400mg twice daily or 1400mg with ritonavir 100 or 200mg once daily or 700mg with ritonavir 100mg twice daily
PATIENT COUNSELING	**Food Effect –** Take without regard to meals. **Adverse Effects –** Skin rash (19%) including Stevens-Johnson Syndrome, caution in sulfa allergic patients, as fosamprenavir contains a sulfonamide moiety; diarrhea, nausea, vomiting, headache, hyperlipidemia, increased liver function tests, hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Indinavir (Crixivan®)
STANDARD DOSING	800mg every 8 hours or 800mg with ritonavir 100mg every 12 hours
PATIENT COUNSELING	**Food Effect – R**equires 1.5 liters of fluid daily. Without ritonavir – Take 1 hour before or 2 hours after meals; may take with skim milk or low fat meal. With ritonavir – Take with or without food. **Adverse Effects –** Nephrolithiasis, GI intolerance, nausea, indirect hyperbilirubinemia, hyperlipidemia, headache, asthenia,blurred vision, dizziness, rash, metallic taste, thrombocytopenia, alopecia, hemolytic anemia, hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.

Protease Inhibitors (Cont'd)

MEDICATION	Lopinavir/ritonavir (Kaletra®)
STANDARD DOSING	Lopinavir 400mg/ritonavir 100mg (2 tablets) twice daily or Lopinavir 800mg/ritonavir 200mg (4 tablets) once daily
PATIENT COUNSELING	**Food Effect –** Take with food.
	Adverse Effects – GI intolerance, nausea, vomiting, diarrhea, asthenia, hyperlipidemia (especially hypertriglyceridemia), increased liver function tests, hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Nelfinavir (Viracept®)
STANDARD DOSING	1250mg twice daily or 750mg three times daily
PATIENT COUNSELING	**Food Effect –** Take with meal or snack. Levels increased 2-3 fold.
	Adverse Effects – Diarrhea, hyperlipidemia, hyperglycemia,fat maldistribution, increased liver function tests, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Ritonavir (Norvir®)
STANDARD DOSING	100-200mg once or twice daily for protease inhibitor boosting depending on the protease inhibitor
PATIENT COUNSELING	**Food Effect –** Take with food to improve tolerability.
	Adverse Effects – GI intolerance, nausea, vomiting, diarrhea, circumoral and extremity parasthesias, hyperlipidemia (especially hypertriglyceridemia), hepatitis, asthenia, taste perversion, hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Saquinavir (Invirase®)
STANDARD DOSING	1000mg with ritonavir 100mg twice daily
PATIENT COUNSELING	**Food Effect –** Take within 2 hours of a meal when taken with ritonavir.
	Adverse Effects – GI intolerance, nausea, diarrhea, headache, elevated liver function tests, hyperlipidemia, hyperglycemia, fat maldistribution, possible increased bleeding episodes in patients with hemophilia.
MEDICATION	Tipranavir (Aptivus®)
STANDARD DOSING	500mg with ritonavir 200mg twice daily
PATIENT COUNSELING	**Food Effect –** Take with food. High fat meals increase bioavailability.
	Adverse Effects – Rash, caution in sulfa allergic patients, as tipranavir contains a sulfonamide moiety; hepatotoxicity including hepatic decompensation reported, especially in patients with underlying liver disease; hyperlipidemia, hyperglycemia, fat madistribution, rare cases of fatal and non-fatal intracranial hemorrhages, possible increased bleeding episodes in patients with hemophilia.

Entry Inhibitors

MEDICATION	**Enfuvirtide (Fuzeon®)**
STANDARD DOSING	**90mg SC twice daily**
PATIENT COUNSELING	**Adverse Effects –** Local injection site reactions – pain, erythema, induration, nodules and cysts, pruritis, ecchymosis, bacterial pneumonia, hypersensitivity reaction (<1%) which includes rash, fever, nausea, vomiting, chills, rigors, hypotension, or increased liver function tests. Rechallenge not recommended.
MEDICATION	**Maraviroc (Selzentry®)**
STANDARD DOSING	**150mg twice daily when given with strong CYP3A inhibitors (with or without CYP3A inducers) including PIs (except tipranavir/ritonavir)** **300mg twice daily when given with NRTIs, enfuvirtide, tipranavir/ritonavir, nevirapine, and other drugs that are not strong CYP3A inhibitors** **600mg twice daily when given with CYP3A inducers, including efavirenz, rifampin, etc. (without a CYP3A inhibitor)**
PATIENT COUNSELING	**Food Effect –** Take with or without food. **Adverse Effects –** Abdominal pain, cough, dizziness, musculoskeletal symptoms, pyrexia, rash, upper respiratory tract infections, hepatotoxicity, orthostatic hypotension.

Integrase Inhibitors

MEDICATION	Dolutegravir **(Tivicay®)**
STANDARD DOSING	50mg once daily or 50mg twice daily if integrase inhibitor experienced and resistance suspected or if combined with efavirenz, fosamprenavir/ritonavir, tipranavir/ritonavir or rifampin
PATIENT COUNSELING	**Food Effect –** Take with or without food. **Adverse Effects –** Insomnia, headache
MEDICATION	Elvitegravir, combined with cobicistat, tenofovir and emtricitabine **(Stribild®)**
STANDARD DOSING	See Single Tablet Combination/Regimen section on the following pages
MEDICATION	Raltegravir **(Isentress®)**
STANDARD DOSING	400mg twice daily
PATIENT COUNSELING	**Food Effect –** Take with or without food. **Adverse Effects –** Nausea, headache, diarrhea, pyrexia, CPK elevation

Single Tablet Combinations and Regimens

MEDICATION Efavirenz, Tenofovir, and Emtricitabine **(Atripla®)**
STANDARD DOSING One tablet once daily, preferably at bedtime
PATIENT COUNSELING
Food Effect – Take on an empty stomach.
Adverse Effects – Rash, central nervous system symptoms, lasting for approximately the first 2-4 weeks, including abnormal dreams, dizziness, somnolence and euphoria; increased liver function tests, false-positive cannabinoid test, teratogenic (Pregnancy Category D), asthenia, headache, diarrhea, nausea, vomiting, flatulence, renal insufficiency, skin hyperpigmentation. *

MEDICATION Elvitegravir, Cobicistat, Tenofovir, Emtricitabine **(Stribild®)**
STANDARD DOSING One tablet daily
PATIENT COUNSELING
Food Effect – Take with food.
Adverse Effects – Nausea, diarrhea, headache, elevated serum creatinine (artifact associated with cobicistat that is not a direct cause of renal impairment), renal impairment (associated with tenofovir)*

MEDICATION Zidovudine and Lamivudine **(Combivir®)**
STANDARD DOSING One tablet twice daily
PATIENT COUNSELING
Food Effect – Take without regard to meals.
Adverse Effects – Bone marrow suppression (macrocytic anemia, neutropenia), headache, insomnia, gastrointestinal intolerance, asthenia, rare pancreatitis.*

MEDICATION Abacavir and Lamivudine **(Epzicom®)**
STANDARD DOSING One tablet once daily
PATIENT COUNSELING
Food Effect – Take without regard to meals.
Adverse Effects – Patients should be warned about the abacavir hypersensitivity reaction (HSR) which is characterized by fever, rash, nausea, vomiting, malaise or fatigue, loss of appetite, sore throat, cough, shortness of breath. Fatalities associated with the HSR have been reported, especially if patients are rechallenged, rare pancreatitis. HLA-B*5701 testing recommended prior to use.*

* Lactic acidosis with hepatic steatosis is a rare, potentially life threatening adverse event with the use of Nucleoside/Nucleotide Reverse Transcriptase Inhibitors.

Single Tablet Combinations and Regimens (Cont'd)

MEDICATION Rilpivirine, tenofovir, and emtricitabine **(Complera®)**
STANDARD DOSING One tablet daily
PATIENT COUNSELING
Food Effect – Take with a meal.
Adverse Effects – Depression, insomnia, headache, diarrhea, nausea, vomiting, flatulence, renal insufficiency.*

MEDICATION Abacavir, Zidovudine, and Lamivudine **(Trizivir®)**
STANDARD DOSING One tablet twice daily
PATIENT COUNSELING
Food Effect – Take without regard to meals.
Adverse Effects – Patients should be warned about the abacavir hypersensitivity reaction (HSR) which is characterized by fever, rash, nausea, vomiting, malaise or fatigue, loss of appetite, sore throat cough, shortness of breath. Fatalities associated with the HSR have been reported, especially if patients are rechallenged). HLA-B*5701 testing recommended prior to use. Bone marrow suppression (macrocytic anemia, neutropenia), headache, insomnia, gastrointestinal intolerance, asthenia, rare pancreatitis.

MEDICATION Tenofovir and Emtricitabine **(Truvada®)**
STANDARD DOSING One tablet once daily
PATIENT COUNSELING
Food Effect – Take without regard to meals.
Adverse Effects – asthenia, headache, diarrhea, nausea, vomiting, flatulence, renal insufficiency, skin hyperpigmentation.*

* Lactic acidosis with hepatic steatosis is a rare, potentially life threatening adverse event with the use of Nucleoside/Nucleotide Reverse Transcriptase Inhibitors.

Select Medications to be Avoided with HIV Antiretroviral Therapy

MEDICATION OR CLASS	HIV MEDICATIONS TO BE AVOIDED
Alfluzosin	Avoid with protease inhibitors and cobicistat
Antiarrythmic	Avoid with fosamprenavir, saquinavir, and tipranavir. Use caution with other boosted protease inhibitors
Anticonvulsants	Avoid carbamazepine, oxcarbazepine, phenytoin and phenobarbital with dolutegravir, etravirine and rilpivirine.
Benzodiazepines – Midazolam and triazolam	Avoid with all protease inhibitors, cobicistat, delavirdine and efavirenz. Single doses of midazolam for sedation controlled, monitored environment may be acceptable with intravenous midazolam. Oral midazolam should be avoided with protease inhibitors and cobicistat.
Ergot Alkaloids – Dihydroergotamine, ergotamine, ergonovine, methylergonovine	Avoid with all protease inhibitors, cobicistat, and all non-nucleoside reverse transcriptase inhibitors.
Fluticasone and budesonide	Avoid with all protease inhibitors and cobicistat, beclomethasone is a safe alternative.
Garlic supplements	Avoid with saquinavir
Irinotecan	Avoid with atazanavir and indinavir
Pimozide	Avoid with all protease inhibitors and cobicistat.
Proton pump inhibitors	Avoid with delavirdine, nelfinavir, and rilpivirine. With atazanavir, in treatment naïve patients, use only atazanavir 300mg with 100mg of ritonavir with a max dose equivalent to 20mg of omeprazole. Treatment experienced patients should not use proton pump inhibitors with unboosted or ritonavir boosted atazanavir. See atazanavir product information for additional dosing recommendations with proton pump inhibitors or H2 blockers.
Rifampin	Avoid with all protease inhibitors, cobicistat, delavirdine, etravirine and nevirapine. Can be used with efavirenz; consider EFV dosage increase to 800mg daily. Can be used with raltegravir; increase raltegravir dosage to 800mg twice daily. Can be used with dolutegravir; increase dolutegravir dosage to 50mg twice daily
Salmeterol	Avoid with protease inhibitors
Sildenafil in pulmonary hypertension	Avoid with protease inhibitors and cobicistat. See DHHS Guidelines for more information.
St. Johns Wort	Avoid with all Protease Inhibitors, Non nucleoside reverse transcriptase inhibitors, maraviroc, and cobicistat.
Simvastatin and lovastatin	Avoid with all protease inhibitors, cobicistat and delavirdine

Components of an ARV Regimen Not Recommended	
REGIMEN/MEDICATION	**RATIONALE**
Atazanavir + Indinavir	Potential additive hyperbilirubinemia
Didanosine + Stavudine	High incidence of toxicities – peripheral neuropathy, pancreatitis, and hyperlactatemia. Reports of serious, even fatal, cases of lactic acidosis with hepatic steatosis with or without pancreatitis in pregnant women.
Dual Non Nucleoside Reverse Transcriptase Inhibitor combinations	Potential for higher incidence of adverse events; drug interactions complex and may lead to significant reductions in NNRTI drug levels
Efavirenz in first trimester or in women with significant childbearing potential	Teratogenic in humans and in nonhuman primates. Use only when no other antiretroviral options are available and potential benefits outweigh the risks.
Emtricitabine + lamivudine	Similar resistance profile, no potential benefit.
Etravirine + ritonavir boosted atazanavir, fosamprenavir, or tipranavir, OR any unboosted protease inhibitors	Etravirine may induce metabolism of protease inhibitors. Dosing with ATV, FPV, TPV not yet established.
Nevirapine initiation in treatment-naïve women with CD4 >250 cells/mm^3 or in treatment-naïve men with CD4 >400 cells/mm^3	Higher incidence of symptomatic (including serious and even fatal) hepatic events in these patient groups. Use only if the benefits clearly outweigh the risks.
Stavudine + zidovudine	Antagonistic effect on HIV-1
Unboosted darunavir, saquinavir, tipranavir	Poor oral bioavailability