References

Related ACA Standard **4th Edition Standards for Adult Correctional Institutions 4-4350, 4-4357, 4-4359**

CHRONIC DISEASE GUIDELINES
Management of the HIV- Infected Individual
FEBRUARY 2009

I. Initial Encounter

A. The following should be completed by the HIV health care provider during the initial visit of an HIV infected individual:

Complete history- include past medical history (including mental health), family history especially diabetes mellitus, coronary artery disease, past positive and negative HIV testing travel history, immunizations, TB exposures, PPD history, social and sexual histories, and history of substance abuse.

Complete physical examination.

Genotypic resistance testing prior to initiation if HIV RNA > 1000

B. Baseline Labs/Tests

The following laboratories should be completed by the Unit Physician/ health care provider prior to being seen in the HIV/ID clinic for the initial visit.

CBC with differential and platelets

Complete Metabolic Panel (includes Chem 7 + LFTS) Base Metabolic Panel, fasting Lipid Panel, & Hepatic Panel

CD4 count (Lymphocyte Subset)

HIV RNA by PCR (Viral Load)

Chronic Hepatitis panel (includes Hep B core total, Hep A IGG, Hepatitis C Antibody)

RPR

Urinalysis

PAP smear (females only)

Cervical GC and chlamydia (females only)

Wet mount for bacterial vaginosis and trichomonas (females only)

PPD yearly. Do not perform with a documented positive PPD. Controls (anergy panel) are not needed.

Chest X-ray (PA and lateral) initial (Write: "Rule out Tuberculosis in immunocompromised patient" on request)

C. Immunizations

Pneumovax-Pneumovax x1, give booster x 1 in 5 years/or if at risk.

Influenza annually.

Hepatitis A – If Hep B (+) and/or Hep C (+)

Hepatitis B vaccine: Do not give if patient has evidence of active Hepatitis B infection: Hepatitis B surface antigen +, Hepatitis DNA + or
Has evidence of immunity: Hepatitis B surface IgG +, Hepaitits B core AB IgG +, or has had previous vaccinations for Hepatitis B

Td (Tetanus booster if not received in last ten (10) years.

Measles-contraindicated

D. Referrals

Infectious disease specialty clinic consultation (See attached DC-752A).

Mental Health – with any history of substance abuse or mental illness

For patients arriving at processing centers with verified history of being on recent HIV medications and who are no longer on medication, the unit medical staff should consult with the Infectious Disease physician/ HIV specialist for medication regimens. Any medical records documenting previous care should be requested.

Unit nurse to evaluate and complete chronic disease flow chart (see attached DC-814):
Every six (6) months for all HIV + inmates
Every three (3) months for AIDS inmates with CD4 <200
Every six (6) months for AIDS inmates who are asymptomatic, stable and with CD4 >200

For patients known to be HIV (+) per statement documented, or by medication with patient (antiretrovirals at processing centers), Processing Unit nurse is to complete DC436 (authorization for release of confidential information and records from their medical providers or medical facilities). Then have patient referred to Outreach Nurse Clinician for follow-up.

II. Prophylaxis for Opportunistic Infections Complicating HIV

When evaluating CD4 levels refer to the lowest documented CD4 count to determine treatment protocol.

A. CD4 Cell Count greater than 200cells/mm3 (at risk for TB. Non PCP pneumonia)

HIV Specialist Consultation approximately every three to 6 months.

CBC with differential platelets every (6) months **(if patients are being seen in ID clinic this will already be ordered).**

Serum chemistry every three (3) months **(if patients are being seen in ID clinic this will already be ordered).**

CD4 lymphocyte count on all patients every six (months).
(if patients are being seen in ID clinic this will already be ordered).

Baseline RNA viral load on all patients. Repeat every three- (3) months for patients on antiretrovirals and every six- (6) months on patients not on antiretrovirals **(if patients are being seen in ID clinic this will already be ordered).**

PAP Smear (women) every six (6) months with history of normal Pap Smears or every four (4) months with history of abnormal Pap Smears.

B. CD4 Cell Count 200 cells/mm^3 (AIDS) and less at risk for TB, PCP, MAC, CMV, Toxo, and Cryptococcal Meningitis.

ID/HIV Specialists Consultation approximately every three (3) months.

All the above plus **PCP prophylaxis** as follows:

Trimethoprim/sulfamethoxazole=Bactrim=Septra

One double strength tablet daily or three (3) times a week. For those intolerant without history of anaphylaxis or Stevens-Johnson attempt gradual reintroduction.

Alternatives:

Dapsone 100mg qd (preferred alternative if not glucose-6-phosphate dehydrogenase deficient

Or

Aerosolized Pentamidine 300mg in 6ml sterile H_20 once monthly

Or

Atovaquone 750mg bid with meals

C. CD4 count 100 cells/mm^3 (AIDS) or less and Toxo IgG positive
All of the above plus **Toxo prophylaxis** as follows:

TMP/SMX one DS qd

Or

Dapsone 50mg po qd plus pyrimethamine 50mg/wk plus leucovorin 25 mg/wk.

D. CD4 count 50 cells/mm^3 (AIDS) or less
All of the above plus **MAC prophylaxis** as follows:

Azithromycin 1200mg per week

Clarithromycin 500mg twice a day

If CMV IgG positive, Ophthalmology screen every three to six months

Medications listed above should be initiated by the unit medical provider and renewed annually until end of the patient's sentence unless allergic reaction occurs.

III. Antiretroviral Treatment

Recommendations for initiation of antiretroviral medication is as follows as of May 2003, per U.S. Health and Human Service Guidelines

Clinical	CD4 count	HIV RNA	Recommendation
Symptomatic	Any	Any	Treat
Asymptomatic	<200	Any	Treat
Asymptomatic	>200 - <350	Any	Offer Treatment
Asymptomatic	>350	>100,000	Controversial Consider treatment
Asymptomatic	>350	>400,000	Defer and Observe

IV. Antiretroviral Therapy and Pregnancy

In general, antiretrovirals should be started after the first trimester.
Antiretrovirals with the potential for fetal toxicity (Sustiva (eEfavirenz) or Atripila (tenofir/emtricitiabine/Effavirenz) should be avoided because of its teratogenic effects.

V. Antiretroviral Medications and Toxicities

Careful monitoring of clinical and laboratory abnormalities associated with antiretroviral toxicities is very important for individuals on antiretroviral therapy. There is a reference table (Ref. Table 16) of life-threatening toxicities.

In general, **CBC, CHEM 7, LFT** should be performed every three to four months for inmates on antiretrovirals.

One antiretroviral, viramune (nevirapine) is associated with hepatotoxicity within the first 12 weeks. Thus, inmates starting on viramune (nevirapine) need to be monitored (laboratory) more closely. Inmates should be monitored by LFTs every 2-4 weeks during the first month of viramune therapy, then once a month during the next 8 weeks. After this, every three to four months as above.

VI. Drug Interactions

There are many drug-drug interactions between antiretroviral medications and other commonly prescribed drugs. Enclosed is a reference table (17 and 18) to aid the health care providers at each of the prison facilities.

VII. Stopping Prophylaxis

PCP and Toxoplasmosis prophylactic medications can be stopped safely if CD4 > 200 for 6 months
MAC (Mycobacterium avium complex) medications can be stopped safely if CD4 >100 – 150 for 6 months

VIII. Adherence

Adherence to antiretrovirals is necessary to receive the optimal effects of antiretroviral therapy. Poor adherence is associated with viral resistance, increased morbidity and decreased survival. Depression and active substance abuse have been associated with poor adherence. Please refer patient to outreach nurse clinician and Infectious Disease/HIV clinic if you suspect poor adherence.

Contact Personal:

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HIV/ID Clinics

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Table 16: Adverse Drug Reactions and Related "Black Box Warnings" in Product Labeling for Antiretroviral Agents

Special problems associated with a prescription drug, particularly those that may lead to death or serious injury, may be required by the Food and Drug Administration to be placed in a prominently displayed box, more commonly known as a"black box." Please note that there are other serious toxicities associated with some antiretroviral agents not listed in this table.

For more extensive lists of adverse effects associated with individual antiretroviral drugs, or for drug interactions, please refer to **Tables 13, 14, 15, 17** and **18**.

Anti-Retroviral Drug	Pertinent Black Box Warning Information
Abacavir (Ziagen™), or as combination product with zidovudine and lamivudine as Trizivir)	• **Fatal hypersensitivity reactions reported:** ✔ Signs or symptoms include: fever, skin rash, fatigue, gastrointestinal symptoms (nausea, vomiting, diarrhea, or abdominal pain), and respiratory symptoms (pharyngitis, dyspnea, or cough) ✔ Abacavir should be discontinued as soon as hypersensitivity reaction is suspected ✔ Abacavir **SHOULD NOT** be restarted ✔ If restarted, more severe symptoms will recur within hours and may include lifethreatening hypotension and death • **Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases,** have been reported with the use of antiretroviral nucleoside analogues alone or in combination
Amprenavir (Agenerase™) Oral Solution	• Because of the potential risk of toxicity from **large amounts of the excipient propylene glycol in Agenerase Oral Solution**, it is contraindicated in the following patient populations: ✔ children age < 4 years ✔ pregnant women ✔ patients with renal or hepatic failure ✔ patients treated with disulfiram or metronidazole • Oral solution should be used only when Agenerase capsules or other protease inhibitors cannot be used
Delavirdine (Rescriptor™)	None
Didanosine (Videx™, Videx-EC™)	• **Fatal and nonfatal pancreatitis** have occurred with didanosine alone or in combination with other antiretroviral agents ✔ Didanosine should be held if pancreatitis is suspected ✔ Didanosine should be discontinued if pancreatitis is confirmed • **Fatal lactic acidosis has been reported in pregnant women who received a combination of didanosine and stavudine** along with other antiretroviral combinations ✔ Didanosine and stavudine combination should only be used during pregnancy if the potential benefit clearly outweighs the potential risks • **Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases,** have been reported with the use of antiretroviral nucleoside analogues alone or in combination
Efavirenz (Sustiva ™)	None

Indinavir (Crixivan™)	None
Lamivudine (Epivir™), or as combination product	• **Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases,** have been reported with the use of antiretroviral nucleoside analogues alone or in combination
Lopinavir/ritonavir (Kaletra)	None
Anti-Retroviral Drug	**Pertinent Black Box Warning Information**
Nelfinavir (Viracept™)	None
Nevirapine (Viramune™)	• **Severe, life-threatening hepatotoxicity, including fulminant and cholestatic hepatitis, hepatic necrosis, and hepatic failure.** Patients should be advised to seek medical evaluation immediately should signs and symptoms of hepatitis occur. • **Severe, life-threatening, and even fatal skin reactions,** including Stevens-Johnson syndrome, toxic epidermal necrolysis, and hypersensitivity reactions characterized by rash, constitutional findings, and organ dysfunction have occurred with nevirapine treatment • Patients should be monitored intensively during the first 12 weeks of nevirapine therapy to detect potentially life-threatening hepatotoxicity or skin reactions. • A 14-day lead-in period with nevirapine 200mg daily must be strictly followed. • **Nevirapine should not be restarted after severe hepatic, skin, or hypersensitivity reactions**
Ritonavir (Norvir™)	• Co-Administration of ritonavir with certain medications may result in potentially serious and/or life-threatening adverse events due to effects of ritonavir on hepatic metabolism of certain drugs
Saquinavir (Fortovase™, Invirase™)	None
Stavudine (Zerit ™)	• **Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases,** have been reported with the use of antiretroviral nucleoside analogues alone or in combination • **Fatal lactic acidosis has been reported in pregnant women who received a combination of stavudine and didanosine** along with other antiretroviral combinations ✔ Stavudine and didanosine combination should only be used during pregnancy if the potential benefit clearly outweighs the potential risks • **Fatal and non-fatal pancreatitis** have occurred when stavudine was part of a combination regimen with didanosine with or without hydroxyurea

Tenofovir (Viread™)	• Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases, have been reported with the use of nucleoside analogs alone or in combination with other antiretrovirals
Zalcitabine (Hivid™)	• Zalcitabine can cause **severe peripheral neuropathy,** use with caution in patients with preexisting neuropathy • It may rarely cause **pancreatitis**, therapy should be held until pancreatitis is excluded • **Rare cases of hepatic failure and death** have been reported in patients with underlying hepatitis B infection • **Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases,** have been reported with the use of antiretroviral nucleoside analogues alone or in combination
Zidovudine (Retrovir™), or as combination products in Combivir and Trizivir	• Zidovudine may be associated with **hematologic toxicities, including granulocytopenia and severe anemia,** particularly in advanced HIV patients □□ Prolonged zidovudine use has been associated with symptomatic myopathy □□**Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases,** have been reported with the use of antiretroviral nucleoside analogues alone or in combination

Table 17. Drugs That Should Not Be Used With PI Antiretrovirals

Drug Category	**Indinavir**	**Ritonavir**	**Saquinavir**	**Nelfinavir**	**Amprenavir**	**Lopinavir + Ritonavir**
Ca++channel blocker	(none)	Bepridil	(none)	(none)	Bepridil	(none)
Cardiac	(none)	amiodarone Flecainide Propafenone Quindine	(none)	(none)	(none)	Flecainide Propafenone
Lipid Lowering Agents	Simvastain lovastain	Simvastain lovastain	Simvastain Lovastain	Simvastain lovastain	Simvastain lovastain	Simvastain lovastain
Anti - Mycobacterial	rifampin	(none)	Rifampin Rifabutin	Rifampin	Rifampin	Rifampin
Antihistamine	Astemizole terfernadine	Astemizole terfernadine	Astemizole terfernadine	Astemizole terfernadine	Astemizole terfernadine	Astemizole terfernadine
Gastrointestinal Drugs	cisapride	cisapride	cisapride	cisapride	cisapride	cisapride
Neuroleptic	(none)	clozapine pimozide	(none)	(none)	(none)	pimozide
Psychotropic	midazolam triazolam	midazolam triazolam	midazolam triazolam	midazolam triazolam	midazolam triazolam	midazolam triazolam
Ergot Alkaloids (vasoconstrictor)	Dihydroergot amine (D.H.E. 45) ergotamine≅ (various forms)	Dihydroergotamine (D.H.E. 45) ergotamine≅ (various forms)	Dihydroergotamin e (D.H.E. 45) ergotamine≅ (various forms)	Dihydroergotamin e (D.H.E. 45) ergotamine≅ (various forms)	Dihydroergotamin e (D.H.E. 45) ergotamine≅ (various forms)	Dihydroergota mine (D.H.E. 45) ergotamine≅ (various forms)
Herbs	St. John's wort	St. John's wort	St. John's wort	St. John's wort	St. John's wort	St. John's wort

* Some of the contraindicated drugs listed are based on theoretical considerations. Thus, drugs with low therapeutic indices yet with suspected major metabolic contribution from cytochrome P450 3A, CYP2D6, or unknown pathways, are included in this table.
Actual interactions may or may not occur in patients.
† This is likely a class effect.

Suggested Alternatives

Simvastatin, lovastatin: atorvastatin, pravastatin, fluvastatin, cerivastatin (alternatives should be used with caution)
Rifabutin: clarithromycin, azithromycin (MAI prophylaxis); clarithromycin, azithromycin, ethambutol (MAI treatment)
Astemizole, terfenadine: loratadine, fexofenadine, cetirizine
Midazolam, triazolam: temazepam, lorazepam

Table 17. Drugs That Should Not Be Used With NNRTI Antiretrovirals

Drug Category	Nevirapine	Delavirdine	Efavirenz
Ca++channel blocker	(none)	(none)	(none)
Cardiac	(none)	(none)	(none)
Lipid Lowering Agents	(none)	Simvastain Lovastain	(none)
Anti – Mycobacterial	Insufficient data	Rifampin Rifabutin	(none)
Antihistamine	(none)	astemizole terfenadine	astemizole terfenadine
Gastrointestinal Drugs	(none)	cisapride H-2 blockers Proton pump Inhibitors	cisapride
Neuroleptic	(none)	(none)	(none)
Psychotropic	(none)	midazolam triazolam	midazolam triazolam
Ergot Alkaloids (vasoconstrictor)	(none)	Dihydroergotamine (D.H.E. 45) ergotamine≅ (various forms)	Dihydroergotamine (D.H.E. 45) ergotamine≅ (various forms)

† This is likely a class effect.

Suggested Alternatives
Simvastatin, lovastatin: atorvastatin, pravastatin, fluvastatin, cerivastatin (alternatives should be used with caution)
Rifabutin: clarithromycin, azithromycin (MAI prophylaxis); clarithromycin, ethambutol (MAI treatment)
Astemizole, terfenadine: loratadine, fexofenadine, cetirizine
Midazolam, triazolam: temazepam, lorazepam

Table 18. Drug Interactions Between Antiretrovirals and Other Drugs:

Drug Interactions Requiring Dose Modifications or Cautious Use			
Drugs Affected	**Indinavir (IDV)**	**Ritonavir* (RTV)**	**Saquinavir† (SQV)**
ANTIFUNGALS			
Ketoconazole	Levels: IDV ↑ 68% Dose: IDV 600 mg tid	Levels: ketoconazole↑ 3X Dose: Use with caution; do not exceed 200 mg ketoconazole daily	Levels: SQV ↑ 3X Dose: Standard
ANTI- MYCOBACTERIALS			
Rifampin	Levels: IDV↓ 89% Contraindicated	Levels: RTV ↓ 35% Dose: No Data Increased liver toxicity possible	Levels: SQV ↓ 84% Contraindicated, unless using RTV+SQV, then use rifampin 600 mg qd or 2-3x/week
Rifabutin	Levels: IDV ↓ 32% Rifabutin ↑ 2X Dose: ↓ rifabutin to 150 mg qd or 300 mg 2-3x/week IDV 1000 mg tid	Levels: Rifabutin ↑ 4X Dose: ↓ rifabutin to 150 mg qod Or dose 3x per week RTV: Standard	Levels: SQV ↓ 40% No dose adjustment unless using RTV+SQV, then use rifabutin 150 mg 2-3x/week
Clarithromycin	Levels: Clarithromycin ↑ 53% No dose adjustment	Levels: Clarithromycin ↑ 77% Dose adjust for renal insufficiency	Levels: Clarithromycin ↑ 45% SQV ↑ 177% No dose adjustment
ORAL CONTRACEPTIVES	Levels: Norethindrone _ 26% Ethinylestradiol _ 24% No dose adjustment	Levels: Ethinyl estradiol _ 40% Use alternative or additional method	No data
LIPID LOWERING AGENTS			
Simvastatin **Locastatin**	Levels: Potential for large increase in statin levels. Avoid concomitant use.	Levels: Potential for large increase in statin levels. Avoid concomitant use.	Levels: Potential for large increase in statin levels. Avoid concomitant use.

Drug Interactions Requiring Dose Modifications or Cautious Use			
Drugs Affected	**Indinavir (IDV)**	**Ritonavir* (RTV)**	**Saquinavir† (SQV)**
ANTICONVULSANTS			
Phenobarbitol **Phenytoin** **Carbamazepine**	Carbamazepine markedly ↓ IDV AUC. Consider alternative agent	Unknown Use with caution Monitor anticonvulsant levels.	Unknown but may decrease SQV levels substantially Monitor anticonvulsant levels.
METHADONE	No change in methadone levels.	Methadone ↓ 37%. Monitor and titrate dose if needed .May require ↑ methadone dose.	No data
MISCELLANEOUS	Grapefruit juice ↓ IDV levels by 26% Sildenafil AUC ↑ 2-11 fold. Do not exceed 25 mg in a 48 hr. period	Desipramine ↑ 145%, reduce dose. Theophylline ↓ 47%, monitor theo. levels. Many possible interactions Sildenafil AUC ↑ 2-11 fold. Do not exceed 25 mg in a 48 hr. period	Grapefruit juice increases SQV levels Dexamethasone decreases SQV levels Sildenafil AUC ↑ 2-11 fold. Use a 25 mg starting dose of sildenafil.

* Drugs for which plasma concentrations may be decreased by coadministration with Ritonavir: anticoagulants (warfarin), anticonvulsants (phenytoin, divaproex, lamotrigine), antiparasitics (atovaquone).
† Some drug interaction studies were conducted with Invirase. May not necessarily apply to use with Fortovase.

Table 18. Drug Interactions Between Antiretrovirals and Other Drugs:

Protease Inhibitors (PIs)

Drug Interactions Requiring Dose Modifications or Cautious Use			
Drugs Affected	**Nelfinavir (NFV)**	**Amprenavir (APV)**	**Lopinavir (LPV)**
ANTIFUNGALS			
Ketoconazole	No dose adjustment necessary	Levels: APV _ 31% Keto _ 44%. Combination under investigation	Levels: LPV AUC _ 13%. Keto _ 3-fold
ANTI -MYCOBACTERIALS			
Rifampin	Levels _ 82% Contraindicated	Levels: APV AUC _ 82% No change in rifampin AUC. Avoid concomitant use.	Levels: LPV AUC _ 75% Avoid concomitant use
Rifabutin	Levels: NFV _32% Rifabutin _ 2X Dose: _rifabutin to 150mg qd Or 300 mg 2-3x/week _ NFV dose to 1000 mg tid.	Levels: APV AUC _ 15% Rifabutin _ 193% Dose: No change in APV dose;Decrease rifabutin to 150 mg qd or 300 mg 2-3x/week.	Levels: Rifabutin AUC _ 3-fold 25-O-desacetyl metabolite _ 47.5-fold. Decrease rifabutin dose to 150 mg qod LPV/r: Standard
Clarithromycin	No data	Levels: APV AUC _ 18%. No change in clarithromycin AUC. No dose adjustment	No data
ORAL CONTRACEPTIVES	Levels: Norethindrone _ 18% Ethinyl estradiol _ 47% Use alternative or additional method	Levels: Potential for large increase in satin levels. Avoid concomitant use with lovastatin and simivastatin.	Levels: ethinyl estradiol _ 42% Use alternative or additional method
LIPID LOWERING AGENTS			
Simvastatin **Locastatin** **Atorvastatin** **Pravastatin**	Levels: Potential for large increase in statin levels. Avoid concomitant use. Atorvastatin AUC _ 74%—use with caution. Simvistatin AUC _ 505%—not recommended. Potential for large increase in Lovastatin AUC—not recommended.	in statin levels. Avoid concomitant use with lovastatin and simvastatin.	Levels: Potential for large increase Levels: Potential for large increase in statin levels. Avoid concomitant use. Atorvastatin AUC _ 5.88-fold. Use with caution and monitoring. Pravastatin AUC _ 33%; no dosage adjustment necessary

Drug Interactions Requiring Dose Modifications or Cautious Use			
Drugs Affected	**Nelfinavir (NFV)**	**Amprenavir (APV)**	**Lopinavir (LPV)**
ANTICONVULSANTS			
Phenobarbitol **Phenytoin** **Carbamazepine**	Unknown, but may decrease NFV levels substantially Monitor anticonvulsant levels.	Unknown, but may decrease APV levels substantially Monitor anticonvulsant levels.	Unknown, but may decrease LPV levels substantially. Monitor anticonvulsant levels
METHADONE	NFV may decrease methadone levels, but minimal effect on maintenance dose. Monitor and titrate dose if needed. May require _ methadone dose.	No data	Methadone AUC _ 53% Monitor and titrate dose if needed. May require _ methadone dose.
SILDENAFIL	Sildenafil AUC _ 2-11 fold. Do not exceed 25 mg in a 48 hr period.	Sildenafil AUC _ 2-11 fold. Do not exceed 25 mg in a 48 hr period.	Probable substantial _ in sildenafil AUC. Do not exceed 25 mg in a 48 hr period.
ANTIFUNGALS			
Ketoconazole	Levels: Keto. _ 63% NVP _ 15-30% Dose: Not recommended	No data	No data
ANTI -MYCOBACTERIALS			
Rifampin	Levels: NVP _ 37% Not recommended	Levels: DLV _ 96% Contraindicated	Levels: EFV _ 25% No dose adjustment
Rifabutin	Levels: NVP _ 16% No dose adjustment*	Levels: DLV _ 80% Rifabutin _ 100% Not Recommended	Levels: EFV unchanged; Rifabutin _ 35% Dose: _ rifabutin dose to 450-600 mg qd or 600 mg 2-3x/week.* EFV: Standard
Clarithromycin	Levels: NVP _26%, clarithromycin _ 30%. No dose adjustment.	Levels: Clarithromycin _100%, DLV _ 44% Dose adjust for renal failure	Levels: Clarithromycin _ 39% Alternative recommended

Table 18. Drug Interactions Between Antiretrovirals and Other Drugs: Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

Drug Interactions Requiring Dose Modifications or Cautious Use			
Drugs Affected	**Nevirapine (NVP)**	**Delavirdine (DLV)**	**Efavirenz (EFV)**
ORAL CONTRACEPTIVES	Levels: ethinyl estradiol _ approx 20%. Use alternative or additional methods.	No data	Levels: Ethinyl estradiol _ 37%. No data on other component. Use alternative or additional methods
LIPID LOWERING AGENTS			
Simvastatin **Locastatin**	Levels: Ethinyl estradiol _ 37%. No data on other component. Use alternative or additional methods	Levels: Potential for large increase in statin levels. Avoid concomitant use.	No data
ANTICONVULSANTS			
Phenobarbitol **Phenytoin** **Carbamazepine**	Unknown Use with caution Monitor anticonvulsant levels.	Unknown but may decrease DLV levels substantially Monitor anticonvulsant levels.	Unknown. Use with caution Monitor anticonvulsant levels
METHADONE	Levels: NVP unchanged, methadone _ significantly. Titrate methadone dose to effect.	No data	Levels: methadone _ significantly. Titrate methadone dose to effect
MISCELLANEOUS	No data	May increase levels of dapsone, warfarin and quinidine Sildenafil: potential for increased concentrations and adverse effects. Do not exceed 25 mg in a 48 hr. period	Monitor warfarin when used concomitantly

***** These recommendations apply to regimens that do not include PIs, which can substantially increase rifabutin levels.

Table 18. Drug Interactions Between Antiretrovirals and Other Drugs:

Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTIs)

Drug Interactions Requiring Dose Modifications or Cautious Use				
Drugs Affected	**Zidovudine (ZDV)**	**Stavudine (d4T)**	**Didanosine (ddI)**	**Tenofovir**
METHADONE	No data	Levels: d4T _ 27%, methadone unchanged. No dose adjustment.	Levels: ddI _ 41%, methadone unchanged. Consider ddI dose increase.	No data
MISCELLANEOUS				
Ribavirin	Ribavirin inhibits phosphorylation of ZDV; this combination should be avoided if possible.	No data	No data	No data
Didanosine buffered tablets	No data	No data	No data	☐☐ ddI AUC increase by 44%, Cmax increased by 28% ☐☐ Monitor for ddIassociated toxicities
Cidofovir, Ganciclovir, Valganciclovir	No data	No data	No data	☐☐ Possibly competes for active tubular secretion with tenofovir, may increase serum concentration of these drugs and/or tenofovir ☐☐ Monitor for doserelated toxicities