ADULT ANTIRETROVIRAL DOSING and ADVERSE EFFECTS

Dosing of Nucleoside Reverse Transcriptase Inhibitors - NRTIs

Drug	Usual Dose	Dosage Adjustment		
Abacavir (ABC, Ziagen)	300 mg every 12 hours or 600 mg daily	No dosage adjustment required for renal impairment Mild hepatic impairment (Child-Pugh 5-6) 200 mg every 12 hrs; Moderate to severe hepatic impairment (Child-Pugh >6), consider alternative therapy.		
Didanosine EC (ddI EC, Videx EC)	<60 kg: 250 mg daily ≥60 kg: 400 mg daily	**CrCl (mL/min)**	**Wt ≥ 60 kg**	**Wt < 60 kg**
		≥ 60	400 mg EC daily	250 mg EC daily
		30-59	200 mg EC daily	125 mg EC daily
		10-29	125 mg EC daily	125 mg EC daily
		<10 and hemodialysis	125 mg EC daily	No EC dosage form suitable
Emtricitabine (FTC, Emtriva) *****Note: capsule dosing*****	200 mg capsule daily	**CrCl (ml/min)**		
		≥ 50	200 mg daily	
		30-49	200 mg q48h	
		15-29	200 mg q72h	
		<15 and hemodialysis	200 mg q96h (Give dose after dialysis, per package insert)	
		On HD	200 mg q24h (per DHHS guidelines)	
Emtricitabine (FTC, Emtriva) ***** Note: oral solution dosing *****	240 mg (24 mL of solution) daily	**CrCl(ml/min)**		
		≥ 50	240 mg (24 mL) daily	
		30-49	120 mg (12 mL) daily	
		15-29	80 mg (8 mL) daily	
		<15 and hemodialysis	60 mg (6mL) daily (per package insert)	
		On HD	240 mg q24h (per DHHS guidelines)	
Lamivudine (3TC, Epivir)	150 mg every 12 hours – or – 300 mg daily	**CrCl (ml/min)**		
		≥ 50	150 mg every 12 hours or 300 mg daily	
		30-49	150 mg daily	
		15-29	150 mg 1st dose, then 100 mg daily	
		5-14	150 mg 1st dose then 50 mg daily	
		< 5 and hemodialysis	50 mg 1st dose then 25 mg daily	
Stavudine (d4T, Zerit)	<60 kg: 30mg every 12 hours ≥60 kg: 40mg every 12 hours	**CrCl (mL/min**)	**Wt ≥ 60kg**	**Wt < 60kg**
		≥50	40 mg every 12 hours	30mg every 12 hours
		26-50	20 mg every 12 hours	15mg every 12 hours
		10-25 and hemodialysis	20 mg daily	15mg daily
Tenofovir (TDF, Viread)	300 mg daily	**CrCl (ml/min)**		
		≥ 50	300 mg daily	
		30-49	300 mg q48h	
		10-29	300 mg twice weekly (q3-4 days)	
		<10 no HD	No dosage recommendations	
		Hemodialysis	300 mg once weekly	
Tenofovir Alafenamide (TAF) *Vemlidy*	Vemlidy is available as a 25 mg tablet for the treatment of HBV	**CrCl (mL/min)**		
		<15 and not on HD	Not Recommended (per DHHS guidelines)	
		On HD	One tablet once daily (per DHHS guidelines)	
		Child-Pugh Class B or C: Not recommended		
Zidovudine (AZT, Retrovir)	300 mg every 12 hours	**CrCl (mL/min)**		
		≥ 15	300 mg every 12 hours	
		<15 and hemodialysis	100 mg q6-8 h	

Dosing of Nucleoside Reverse Transcriptase Inhibitors – NRTIs Combination Products

Combination Products			
Combivir AZT 300 mg + 3TC 150 mg	1 tablet every 12 hours	**CrCl (mL/min)**	
		<50	Use separate components. See individual drug dosing recommendations.
Cimduo/Temixys 3TC 300 mg + TDF 300 mg	1 tablet once daily	**CrCl (ml/min)**	
		<50 or on HD	Not Recommended
Descovy TAF 25mg + FTC 200 mg	1 tablet daily	**CrCl (mL/min)**	
		≥30	No dosage adjustment necessary
		<30 and not on HD	Use is not recommended (per DHHS guidelines)
		<30 and on HD	One tablet once daily (per DHHS guidelines)
Epzicom Contains: 3TC 300 mg + ABC 600 mg	1 tablet daily	CrCl <50 or mild hepatic impairment (Child-Pugh 5-6)– Use separate components. See individual drug dosing recommendations.	
Trizivir AZT 300 mg + 3TC 150 mg + ABC 300 mg	1 tablet every 12 hours	**CrCl (mL/min)**	
		<50	Use separate components. See individual drug dosing recommendations.
Truvada FTC 200 mg + TDF 300 mg	1 tablet daily	**CrCl (mL/min)**	
		≥ 50	1 tablet daily
		30-49	300 mg q48h
		15-29	Use individual components
		<15 or Hemodialysis	Use individual components

Dosing of Non-Nucleoside Reverse Transcriptase Inhibitors – NNRTIs

Drug	**Usual Dose**	**Dose Adjustment and Route of Elimination**
Doravirine [NF] (DOR, Pifeltro)	100 mg once daily	• Hepatic metabolism: CYP 3A4 • Dose adjustment not required in mild, moderate, or severe renal impairment (Has not been studied in ESRD or HD) • Child-Pugh Class A or B: No dose adjustment required
Efavirenz (EFV, Sustiva)	600 mg daily at bedtime (avoid a high fat meal)	• Consider dose increase in pts > 60kg when used with Rifampicin = EFV 800mg at bedtime • Hepatic metabolism: CYP 2B6, 3A4 • Use with caution in patients with hepatic impairment – no known dose adjustment recommendation • Drug interaction potential: CYP 3A4, 2B6 inducer (in-vivo data); May inhibit CYP 2C9, 2C19, 3A4 inhibitor (in-vitro data)
Etravirine (ETV, Intelence)	200 mg every 12 hours (Take with food)	• Hepatic metabolism: CYP 3A4, 2C9, 2C19 • Drug interaction potential: CYP 3A4 inducer; CYP 2C9, 2C19 inhibitor; Do NOT co-administer with ATV, fosAPV, TPV, IDV, NFV; Use caution with LPV/r co-administration
Nevirapine (NVP, Viramune Viramune XR)	200 mg once daily x 14 days Then increase to 200 mg bid Or 400 mg XR daily	• Hepatic metabolism: CYP 3A4 • Avoid use in patients with moderate to severe hepatic impairment • Drug interaction potential: CYP 3A4 inducer • Patients on HD should receive an additional dose of 200 mg following each dialysis treatment
Rilpivirine (Edurant)	25 mg once daily (Take with food)	• Hepatic metabolism: CYP3A4 • Reported to have no clinically significant effect on substrates of CYP isoenzymes • Dosage adjustment not required for mild to moderate hepatic impairment; has not been studied in patients with severe hepatic impairment

Dosing of Entry Inhibitors

Drug	Usual Dose	Dose Adjustment and Route of Elimination
Fusion Inhibitor: **Enfuvirtide** (T-20, Fuzeon)	Inject 90 mg subcutaneously every 12 hours	Catabolism: No known need for dosage adjustment in renal or hepatic dysfunction
Attachment Inhibitor: **Fostemsavir [NF]** (Rukobia)	600 mg ER every 12 hours with or without food	Renal: No dosage adjustment for patients with renal impairment or those on hemodialysis (per package insert). Hepatic: No dosage adjustment in patients with mild to severe hepatic impairment (Child-Pugh Score A, B or C (per package insert). Metabolism: Hydrolysis (36.1%); oxidation (CYP3A4) (21.2%); UGT (<1%).
CD4 Post-Attachment Inhibitor: **Ibalizumab [NF]** (IBA, Trogarzo)	Single loading dose of 2000 mg IV infusion over 30 minutes, followed by a maintenance dose of 800 mg IV infusion over 15 minutes every 2 weeks	No dose adjustment recommended in patients with renal insufficiency
CCR5 Antagonist: **Maraviroc** (Selzentry)	150 mg every 12 hours: with strong CYP3A inhibitors (with or without CYP3A inducers), including PIs (except TPV/r) 300 mg every 12 hours: with NRTIs, enfuvirtide, TPV/r, NVP, and other drugs that are not strong CYP3A inhibitors 600 mg every 12 hours: with strong CYP3A inducers, including EFV, RIF, etc. (without a CYP3A inhibitor)	Hepatic metabolism: CYP 3A4 Use with caution in hepatic impairment and in patients with CrCl < 50 ml/min <80 without inhibitor no dose adjustment 30-79 with potent inhibitor 150 once daily <30 with potent inhibitor 150 mg once daily with caution Take without regard to meals

Dosing of Integrase Inhibitors - INSTIs

Drug	Usual Dose	Dose Adjustment and Route of Elimination
Dolutegravir (Tivicay)	Treatment/integrase inhibitor naïve: 50 mg once daily* Integrase inhibitor experienced: 50 mg twice daily Children >12 and >40kg: 50 mg once daily*	• No dosage adjustment required for renal impairment • During administration with efavirenz, fosamprenavir/r, tipranavir/r, or rifampin the recommended dose is increased to 50mg twice daily. • Administration: with or without food. • No dose adjustment necessary for mild to moderate hepatic and renal impairment.
Raltegravir (RAL, Isentress, Isentress HD)	400 mg every 12 hours OR 1200 mg once daily	• Hepatic metabolism: Glucuronidation (UGT1A1) • No dosage adjustment required for renal impairment • No dosage adjustment is necessary for mild to moderate hepatic impairment. Caution is advised in patients with severe hepatic impairment.

Dosing of Pharmacokinetic Enhancers

Drug	Usual Dose	Dose Adjustment and Route of Elimination
Cobicistat (Tybost)	Dosing with atazanavir & darunavir: 150 mg daily with food (concurrently)	• Hepatic metabolism: CYP3A (major), CYP2D6 (minor) • No dosage adjustment necessary for renal impairment • Cobicistat decrease eGFR due to inhibition of tubular secretion of creatinine • No dosage adjustment is necessary for mild to moderate hepatic impairment. Caution is advised in patients with severe hepatic impairment.

Dosing of Protease Inhibitors - PIs

Drug	Usual Dose	Dose Adjustment and Route of Elimination
Atazanavir (ATV, Reyataz)	Without **RTV**: ATV 400 mg once daily with food (ARV naïve only) With **Ritonavir or Cobicistat**: ATV 300 mg + 100 mg RTV daily or cobicistat 150 mg daily (ARV experienced)	• With **EFV, NVP**: ATV 400 mg + RTV 100 mg daily • With **TDF**: ATV 300mg + RTV 100mg daily • Hepatic metabolism: CYP 3A4 • No dosage adjustment is needed for ATV in renal impairment • Drug interaction potential: CYP 3A4 inhibitor, UGT1A1 inhibitor
Darunavir (DRV)	DRV 800 mg + RTV 100 mg once daily with food (ARV naïve only) DRV 600 mg +RTV 100 mg every 12 hours with food (ARV experienced) DRV 800 mg + cobicistat 150 mg once daily	• Cannot be given without PK enhancers (ritonavir or cobicistat) • No dose adjustment is required for renal impairment • Cobicistat decrease eGFR due to inhibition of tubular secretion of creatinine • Hepatic metabolism: CYP 3A4 • Drug interaction potential: CYP 3A4 inhibitor and substrate; CYP2C9 inducer • Interaction potential is based on RTV component
Indinavir (IDV, Crixivan)	IDV 800 mg every 8 hours alone on an empty stomach or 300 calorie snack; must consume at least 1 Liter of non-alcoholic fluid per day IDV 400 mg + RTV 100 mg twice daily	• With **RTV**: IDV 800 mg + RTV 100-200 mg every 12 hours with food • With **EFV or NVP**: IDV 1000 mg q8 hr or add RTV • With **LPV/r**: IDV 600 mg + LPV/r 2 tabs every 12 hr • Hepatic metabolism: CYP 3A4 • Drug interaction potential: CYP 3A4 inhibitor
Fosamprenavir (fosAPV, Lexiva)	fosAPV 1400 mg every 12 hours (ARV naïve only) fosAPV 700 mg + RTV 100mg every 12 hours (ARV experienced)	• Once daily (alternative regimen for naïve patients only): fosAPV 1400 mg + RTV 100 mg once daily • Do NOT use concurrently with LPV/r • With **EFV or NVP**: 700 mg + 100 mg RTV every 12 hours (ARV experienced) OR 1400 mg + 300 mg RTV once daily (ARV naïve) • Hepatic metabolism: CYP 3A4 • Drug interaction potential: CYP 3A4 inhibitor • Dose adjustment is not required in renal impairment
Lopinavir/ritonavir (LPV/r)	LPV/r 400/100 (2 tablets) every 12 hours 800/100 (4 tablets) once daily (ARV naïve only) *Do NOT split or crush tablet*	• With **EFV or NVP**: Consider 3 tablets every 12 hrs • Hepatic metabolism: CYP 3A4 • Drug interaction potential: CYP 3A4 inhibitor • Dosage adjustment is not required in renal impairment
Nelfinavir (NFV, Viracept)	NFV 1250 mg every 12 hours with a high fat meal	• No pharmacokinetic enhancement with RTV • Hepatic metabolism: multiple CYP enzymes – including 3A and 2C19 • Drug interaction potential: mild CYP 3A4 inhibitor
Ritonavir (RTV, Norvir)	RTV 600 mg every 12 hours with food (when used as ONLY PI) * Refer to co-administered PI for RTV dosing when being used as a PI-booster *	• Pharmacokinetic enhancement: 100-200 mg daily or every 12 hours in combination with another PI • Hepatic metabolism: CYP 3A4 and 2D6 • Drug interaction potential: potent CYP 3A4 inhibitor; CYP 2C9 inducer
Saquinavir (SQV, Invirase)	Invirase®: SQV 1000 mg + RTV 100 mg every 12 hours with food or within 2 hours after food. * Not recommended without RTV	• Hepatic metabolism: CYP 3A4 • Drug interaction potential: mild CYP 3A4 inhibitor
Tipranavir (TPV, Aptivus)	TPV 500 mg + RTV 200 mg every 12 hours with food.	• TPV is a CYP inducer, RTV is a CYP inhibitor. Net effect is inhibition. TPV is also a potent p-glycoprotein inducer. • See specific dosing reference for interaction potential. • Contraindicated in patients with moderate to severe (Child-Pugh B or C) hepatic dysfunction. Use with caution in patients with mild hepatic insufficiency.

Dosing of Protease Inhibitors - PIs Combination Products

Combination Products		
Evotaz [NF] (ATV + cobicistat)	ATV 300mg /cobicistat 150mg; one tablet, once daily. Administer with other antiretroviral agents. (ARV naïve and ARV experienced)	If CrCl <70 mL/minute: Do not administer as part of a regimen that includes TDF.
Prezcobix [NF] (DRV+ cobicistat)	DRV 800mg/cobicistat 150mg; one tablet, once daily with food.	If CrCl <70 mL/minute: Do not administer as part of a regimen that includes TDF.

Dosing of Single Tablet Regimens

Combination Products – PI + NRTIs			
Symtuza [NF] (FTC 200mg + DRV 800mg + cobicistat 150mg + TAF 10mg)	1 tablet once daily with food	**CrCl (mL/min)**	
		< 30	Not recommended in patients with CrCl <30 mL/min who are not receiving chronic HD (per DHHS guidelines).
		Chronic HD	One tablet once daily. On HD days, administer after dialysis (per DHHS guidelines).
		Not recommended in patients with severe hepatic impairment. Not recommended for patients with DRV resistance-associated mutations.	
Combination Products – NNRTI + NRTIs			
Atripla TDF 300 mg + FTC 200 mg + EFV 600 mg	1 tablet daily at bedtime on an empty stomach (avoid a high-fat meal)	**CrCl (mL/min)**	
		< 50	Use separate components. See individual drug dosing recommendations.
Complera [NF] TDF 300mg + FTC 200mg + RPV 25mg	1 tablet daily with a meal	**CrCl (mL/min)**	
		< 50	Use separate components. See individual drug dosing recommendations.
Delstrigo [NF] 3TC 300 mg + DOR 100 mg + TDF 300 mg	1 tablet once daily	**CrCl (mL/min)**	
		< 50	Not recommended Child-Pugh Class A or B: No dose adjustment required
Odefsey FTC 200mg + RPV 25mg + TAF 25mg	1 tablet daily with a meal	**CrCl (mL/min)**	
		≥30	No dosage adjustment necessary
		<30	Not recommended in patients with CrCl <30 mL/min who are not receiving chronic HD (per DHHS guidelines).
		Chronic HD	One tablet once daily. On HD days, administer after dialysis (per DHHS guidelines).
Symfi [NF] 3TC 300 mg + EFV 600 mg + TDF 300 mg	1 tablet once daily on an empty stomach at bedtime	**CrCl (mL/min)**	
		< 50 or on HD	Not recommended.
Symfi Lo [NF] 3TC 300 mg + EFV 400 mg + TDF 300 mg		Use individual drugs and dose adjust TDF and 3TC according to CrCl. Not recommended in moderate or severe hepatic impairment Caution in patients with mild hepatic impairment.	

Combination Products – II + NRTIs			
Biktarvy Bictegravir 50 mg + FTC 200 + TAF 25 mg	1 tablet daily (with or without food)	**CrCl (mL/min)**	
		≥ 30	No dose adjustment is needed
		< 30	Not recommended
		Not recommended in Child-Pugh Class C	
Dovato [NF] DTG 50mg + 3TC 300mg	1 tablet once daily (with or without food)	**CrCl (mL/min)**	
		<50	Not recommended
		Not recommended in patients with severe hepatic impairment.	
Genvoya Elvitegravir 150 mg + Cobicistat 150 mg + FTC 200 mg + TAF 10 mg	1 tablet daily (with food)	**CrCl (mL/min)**	
		≥ 30	No dose adjustment is needed
		< 30	Not recommended in patients with CrCl <30 mL/min who are not receiving chronic HD (per DHHS guidelines).
		Chronic HD	One tablet once daily. On HD days, administer after dialysis (per DHHS guidelines).
Stribild [NF] FTC 200 mg + TDF 300 mg + Elvitegravir 150 mg + Cobicistat 150 mg	1 tablet daily (with food)	**CrCl (mL/min)**	
		< 70	Should not be initiated
		<50	Discontinue if CrCl declines to while on therapy; dose adjustments of FTC + TDF cannot be achieved on this regimen
Triumeq Dolutegravir 50 mg + ABC 600 mg + 3TC 300 mg	1 tablet daily (with or without food)	**CrCl (mL/min)**	
		≥ 50	No dose adjustment is needed
		< 50	Not recommended; Use separate components - lamivudine requires dose adjustments for renal insufficiency
		Child-Pugh Class A (mild hepatic impairment): reduce dose of ABC; use individual drugs instead of FDCs in these patients Child-Pugh Class B or C: Contraindicated	
Combination Products – NNRTI + INSTI			
Juluca [NF] RPV 25 mg + DTG 50 mg	1 tablet once daily with a meal	**CrCl (mL/min)**	
		< 30	Monitor for adverse effects

Commonly Used NRTI Adverse Effects

Class Effects	Lactic acidosis with hepatic steatosis – rare but potentially life-threatening toxicity with the use of all NRTIs.	
	Adverse effects	**Management to Minimize**
Abacavir (ABC, Ziagen)	• *Hypersensitivity Reaction* (HRS): Two of the following symptoms - Rash, fever, fatigue, GI symptoms, or upper respiratory symptoms	** Drug should be discontinued immediately and patient should never be re-challenged with abacavir. **
Emtricitabine (FTC, Emtriva)	• Skin hyperpigmentation – primarily on the palms of the hands and soles of the feet; more common in children	• Minimal toxicity
Lamivudine (3TC, Epivir)	• Well tolerated • See class effects	
Tenofovir (TDF, Viread)	• Nausea, vomiting, diarrhea, flatulence • Weakness, malaise, fatigue • Headache • Renal toxicity	• GI toxicity and fatigue may be transient (first 1-4 weeks of therapy). • Renal toxicity is greater in patients with preexisting renal insufficiency.
Zidovudine (AZT, Retrovir)	• Flu-like symptoms • Nausea, vomiting • Bone marrow suppression: macrocytic anemia or neutropenia	• Nausea, vomiting, and fatigue common in first weeks of therapy but should be transient.
* For combination products, please refer to individual components		

Commonly Used NNRTI Adverse Effects

Class Effects	Rash – May be a transient, but cases of Stevens Johnson Syndrome have been reported with all three NNRTIs, highest incidence with NVP.	
	Adverse effects	**Management to Minimize**
Doravirine (DOR, Pifeltro)	• Nausea • Dizziness • Abnormal dreams	
Efavirenz (EFV, Sustiva)	• Sleep disturbances – Resulting in somnolence, insomnia, confusion, agitation, and hallucinations • Vivid Dreams • Neuropsychiatric Symptoms – Psychosis or depression • Teratogenic in monkeys • False positive cannabinoid test • Increased transaminase levels	• Take at bedtime • Sleep disturbances most difficult during the first week of therapy, but should resolve after 1-4 weeks. • Vivid dreams may subside, but often persist throughout treatment. • Psychiatric symptoms: consider carefully before initiating therapy in patients with a previous history • Instruct patient to notify clinic if planning to become pregnant, or as soon as pregnancy is suspected.
Etravirine (ETV, Intelence)	• See class effects	• Take following a meal.
Rilpivirine (Edurant)	• CNS: depression, insomnia, headache • hepatotoxicity, QT prolongation	• Psychiatric symptoms: consider carefully risk vs benefits

Commonly Used Protease Inhibitor Adverse Effects

* For combination products please see individual components.

Class Effects	• **Diarrhea – Class effect, variable between patients. Will not subside with continued therapy.** • **Nausea and vomiting** • **Hyperglycemia** • **Hypertriglyceridemia** • **Fat Maldistribution** • **Increased transaminase levels**	• Diarrhea management –Dietary: increasing fiber or calcium containing foods. Medication: *Calcium supplement* give 1-3 times daily; *loperamide*, given as needed (up to 8 pills/day) or if diarrhea is persistent, can be scheduled 1-2 tablets daily to manage symptoms; *Diphenoxylate*; *Tincture of Opium* • Nausea and vomiting may be transient.
	Adverse effects	**Management to Minimize**
Atazanavir (ATV, Reyataz)	• Indirect hyperbilirubinemia – Typically asymptomatic	• Initial studies show a lower incidence of hypertriglyceridemia and other lipodystrophy symptoms than other PIs
Darunavir (DRV, Prezista)	• Increased risk of rash compared to placebo groups	• Monitor for severity of rash • See class effects
Lopinavir/ ritonavir (LPV/r, Kaletra)	• See class effects	• Taking with food may minimize GI toxicity
Ritonavir (RTV, Norvir)	• Circumoral and extremity paresthesia • Taste perversion	• Paresthesia may be transient. • GI toxicity increases with higher dosing.

Entry Inhibitor Adverse Effects

	Adverse effects	**Management to Minimize**
Fusion Inhibitor: **Enfuvirtide** (T-20, Fuzeon)	• 98% of patients experience local injection site reaction while on therapy (pain, erythema, nodules, cysts at injection site; pruritis)3% of patients in clinical trials discontinued therapy due to injection site reactions. • Increased incidence of bacterial pneumonia. • If HSR is experienced, rechallenge is not recommended.	• Patients should be instructed to rotate the injection site and not to reuse an injection site until all signs of an injection reaction have subsided.
Attachement Inhibitor: **Fostemsavir** (Rukobia)	• Immune reconstitution syndrome • QTc prolongation • Elevations in hepatic transaminases in patients with hepatitis B or C virus co-infection. • Elevated serum creatinine	• QT prolongation occurs when given 4 times the recommended daily dose. Use caution in patients with a history of prolonged QT interval. • Monitor hepatic transaminases in patients with HBV and/or HCV coinfection.
CD4 Post-Attachment Inhibitor: **Ibalizumab** (IBA, Trogarzo)	• Diarrhea/Nausea • Dizziness • Elevated serum creatinine • Rash	• Monitor for infusion-related reactions • Monitor serum creatinine
CCR5 Antagonist: **Maraviroc** (Selzentry)	• Increased incidence of infections (respiratory and Herpes virus infections most common) • Systemic allergic reactions with subsequent hepatotoxicity have occurred • Cough, fever, orthostatic hypotension, transaminitis	• Monitor LFTs and signs and symptoms of allergic or anaphylactoid reactions during therapy

Integrase Inhibitor Adverse Effects

	Adverse effects	Management to Minimize
Class Effects	• **Insomnia, depression, and suicidality** • **Weight gain possible** • **Rash**	
Bictegravir (available in Biktarvy)	• Most common: diarrhea, nausea, and headache. • Increased serum bilirubin • Lactic acidosis/hepatomegaly	• Suspend treatment in any patient who develops clinical or laboratory findings suggestive of lactic acidosis or pronounced hepatotoxicity • Assess Scr, CrCl, urine protein, and urine glucose prior to initiation of therapy and during therapy.
Dolutegravir (Tivicay)	• Pruritis, rash, hypersensitivity reaction • Hepatotoxicity • Increases serum creatinine without altering GFR • Lab abnormalities including hyperglycemia, elevated CPK, neutropenia, increased total cholesterol, increased fasting triglycerides • Weight gain • Increased risk of neural tube defects in infants born to mothers who were taking DTG at conception	• Immediately discontinue on signs of hypersensitivity reaction (rash with fever, joint pain, malaise, etc). • Monitor LFTs, CBC, Lipids • Instruct patient to notify clinic if planning to become pregnant, or as soon as pregnancy is suspected
Elvitegravir (available in Stribild and Genvoya)	• Nausea, vomiting and diarrhea	• Psychiatric symptoms are rate and usually occurs in patients with pre-existing history
Raltegravir (Isentress)	• Most common: diarrhea, nausea, and fatigue • Elevated CPK, myopathy, rhabdomyolysis	• Counsel on signs/symptoms of rhabdomyolysis (muscle aches and decreased urination with darkened urine) • Check serum CPK if symptomatic

Pharmacokinetic Enhancer Adverse Effects

	Adverse effects	Management to Minimize
Cobicistat (Tybost)	• >10%: Hyperbilirubinemia (>2.xULN) • 1-10%: Skin rash, ocular icterus, nausea, increased serum lipase/amylase, jaundice, increased ALT/AST/CPK, abnormal dreams, headache • Contraindicated with many CYP3A medications – always evaluate all medications for significant DDI • Increased serum creatinine	• Monitor for signs and symptoms of rash when beginning therapy • Consider early administration in daily routine to prevent insomnia and/or abnormal dreams • Take with food