



Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents

Downloaded from <http://aidsinfo.nih.gov/guidelines> on 8/17/2016

Visit the *AIDSinfo* website to access the most up-to-date guideline.

Register for e-mail notification of guideline updates at <http://aidsinfo.nih.gov/e-news>.

Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016) (page 1 of 6)

Generic Name (Abbreviation) Trade Name	Formulations	Dosing Recommendations ^a	Elimination	Serum/ Intracellular Half-Lives	Adverse Events ^b
Abacavir (ABC) <i>Ziagen</i> Note: Generic available in tablet formulation Also available as a component of fixed-dose combinations (by trade name and abbreviation):	<u>Ziagen:</u> <ul style="list-style-type: none"> • 300 mg tablet • 20 mg/mL oral solution 	<u>Ziagen:</u> <ul style="list-style-type: none"> • 300 mg BID, <i>or</i> • 600 mg once daily • Take without regard to meals 	Metabolized by alcohol dehydrogenase and glucuronyl transferase Renal excretion of metabolites: 82% Dosage adjustment for ABC is recommended in patients with hepatic insufficiency (see Appendix B, Table 7).	1.5 hours/ 12–26 hours	<ul style="list-style-type: none"> • HSRs: Patients who test positive for HLA-B*5701 are at highest risk. HLA screening should be done before initiation of ABC. • For patients with history of HSR, re-challenge is not recommended. • Symptoms of HSR may include fever, rash, nausea, vomiting, diarrhea, abdominal pain, malaise, fatigue, or respiratory symptoms such as sore throat, cough, or shortness of breath. • Some cohort studies suggest increased risk of MI with recent or current use of ABC, but this risk is not substantiated in other studies.
<i>Trizivir</i> (ABC/ZDV/3TC) Note: Generic available	<u>Trizivir:</u> <ul style="list-style-type: none"> • (ABC 300 mg plus ZDV 300 mg plus 3TC 150 mg) tablet 	<u>Trizivir:</u> <ul style="list-style-type: none"> • 1 tablet BID 			
<i>Epzicom</i> (ABC/3TC)	<u>Epzicom:</u> <ul style="list-style-type: none"> • (ABC 600 mg plus 3TC 300 mg) tablet 	<u>Epzicom:</u> <ul style="list-style-type: none"> • 1 tablet once daily 			
<i>Triumeq</i> (ABC/3TC/DTG)	<u>Triumeq:</u> <ul style="list-style-type: none"> • (ABC 600 mg plus 3TC 300 mg plus DTG 50 mg) tablet 	<u>Triumeq:</u> <ul style="list-style-type: none"> • 1 tablet once daily 			
Didanosine (ddl) <i>Videx</i> <i>Videx EC</i> Note: Generic available; dose same as Videx or Videx EC	<u>Videx EC:</u> <ul style="list-style-type: none"> • 125, 200, 250, and 400 mg capsules <u>Videx:</u> <ul style="list-style-type: none"> • 10 mg/mL oral solution 	<u>Body Weight ≥60 kg:</u> <ul style="list-style-type: none"> • 400 mg once daily <u>With TDF:</u> <ul style="list-style-type: none"> • 250 mg once daily <u>Body Weight <60 kg:</u> <ul style="list-style-type: none"> • 250 mg once daily <u>With TDF:</u> <ul style="list-style-type: none"> • 200 mg once daily Take 1/2 hour before or 2 hours after a meal. Note: Preferred dosing with oral solution is BID (total daily dose divided into 2 doses).	Renal excretion: 50% Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).	1.5 hours/ >20 hours	<ul style="list-style-type: none"> • Pancreatitis • Peripheral neuropathy • Retinal changes, optic neuritis • Lactic acidosis with hepatic steatosis with or without pancreatitis (rare but potentially life-threatening toxicity) • Nausea, vomiting • Potential association with non-cirrhotic portal hypertension; in some cases, patients presented with esophageal varices • One cohort study suggested increased risk of MI with recent or current use of ddl, but this risk is not substantiated in other studies. • Insulin resistance/diabetes mellitus

Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016) (page 2 of 6)

Generic Name (Abbreviation) Trade Name	Formulations	Dosing Recommendations ^a	Elimination	Serum/ Intracellular Half-Lives	Adverse Events ^b
Emtricitabine (FTC) <i>Emtriva</i> Also available as a component of fixed-dose combinations (by trade name and abbreviation):	<u>Emtriva:</u> • 200 mg hard gelatin capsule • 10 mg/mL oral solution	<u>Emtriva:</u> <i>Capsule:</i> • 200 mg once daily <i>Oral Solution:</i> • 240 mg (24 mL) once daily Take without regard to meals.	Renal excretion: 86% Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).	10 hours/ >20 hours	• Minimal toxicity • Hyperpigmentation/skin discoloration • Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue FTC.
<i>Atripla</i> (FTC/EFV/TDF)	<u>Atripla:</u> • (FTC 200 mg plus EFV 600 mg plus TDF 300 mg) tablet	<u>Atripla:</u> • 1 tablet at or before bedtime • Take on an empty stomach to reduce side effects.			
<i>Complera</i> (FTC/RPV/TDF)	<u>Complera:</u> • (FTC 200 mg plus RPV 25 mg plus TDF 300 mg) tablet	<u>Complera:</u> • 1 tablet once daily with a meal			
<i>Descovy</i> (FTC/TAF)	<u>Descovy:</u> • (FTC 200 mg plus TAF 25 mg) tablet	<u>Descovy:</u> • 1 tablet once daily			
<i>Genvoya</i> (FTC/EVG/c/TAF)	<u>Genvoya:</u> • (FTC 200 mg plus EVG 150 mg plus COBI 150 mg plus TAF 10 mg) tablet	<u>Genvoya:</u> • 1 tablet once daily with food			
<i>Odefsey</i> (FTC/RPV/TAF)	<u>Odefsey:</u> • (FTC 200 mg plus RPV 25 mg plus TAF 25 mg) tablet	<u>Odefsey:</u> • 1 tablet once daily with a meal			
<i>Stribild</i> (FTC/EVG/c/TDF)	<u>Stribild:</u> • (FTC 200 mg plus EVG 150 mg plus COBI 150 mg plus TDF 300 mg) tablet	<u>Stribild:</u> • 1 tablet once daily with food			
<i>Truvada</i> (FTC/TDF)	<u>Truvada:</u> • (FTC 200 mg plus TDF 300 mg) tablet	<u>Truvada:</u> • 1 tablet once daily			

Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016) (page 3 of 6)

Generic Name (Abbreviation) Trade Name	Formulations	Dosing Recommendations ^a	Elimination	Serum/ Intracellular Half-Lives	Adverse Events ^b	
Lamivudine (3TC) <i>Epivir</i> Note: Generic available Also available as a component of fixed-dose combinations (by trade name and abbreviation):	Epivir: <ul style="list-style-type: none"> • 150 and 300 mg tablets • 10 mg/mL oral solution 	Epivir: <ul style="list-style-type: none"> • 150 mg BID, or • 300 mg once daily • Take without regard to meals. 	Renal excretion: 70% Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).	5–7 hours/ 18–22 hours	<ul style="list-style-type: none"> • Minimal toxicity • Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue 3TC. 	
	Combivir (3TC/ZDV) Note: Generic available	Combivir: <ul style="list-style-type: none"> • (3TC 150 mg plus ZDV 300 mg) tablet 				Combivir: <ul style="list-style-type: none"> • 1 tablet BID
	Epzicom (3TC/ABC)	Epzicom: <ul style="list-style-type: none"> • (3TC 300 mg plus ABC 600 mg) tablet 				Epzicom: <ul style="list-style-type: none"> • 1 tablet once daily
	Trizivir (3TC/ZDV/ABC) Note: Generic available	Trizivir: <ul style="list-style-type: none"> • (3TC 150 mg plus ZDV 300 mg plus ABC 300 mg) tablet 				Trizivir: <ul style="list-style-type: none"> • 1 tablet BID
	Triumeq (3TC/ABC/DTG)	Triumeq: <ul style="list-style-type: none"> • (3TC 300 mg plus ABC 600 mg plus DTG 50 mg) tablet 				Triumeq: <ul style="list-style-type: none"> • 1 tablet once daily
Stavudine (d4T) <i>Zerit</i> Note: Generic available	Zerit: <ul style="list-style-type: none"> • 15, 20, 30, and 40 mg capsules • 1 mg/mL oral solution 	Body Weight \geq60 kg: <ul style="list-style-type: none"> • 40 mg BID Body Weight <60 kg: <ul style="list-style-type: none"> • 30 mg BID Take without regard to meals. Note: WHO recommends 30 mg BID dosing regardless of body weight.	Renal excretion: 50% Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).	1 hour/7.5 hours	<ul style="list-style-type: none"> • Peripheral neuropathy • Lipatrophy • Pancreatitis • Lactic acidosis/severe hepatomegaly with hepatic steatosis (rare but potentially life-threatening toxicity) • Hyperlipidemia • Insulin resistance/diabetes mellitus • Rapidly progressive ascending neuromuscular weakness (rare) 	

Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016) (page 4 of 6)

Generic Name (Abbreviation) Trade Name	Formulations	Dosing Recommendations ^a	Elimination	Serum/ Intracellular Half-Lives	Adverse Events ^b
Tenofovir Alafenamide (TAF) Only available as a component of fixed-dose combinations (by trade name and abbreviation):	See fixed-dose combinations below.	See fixed-dose combinations below.	Metabolized by cathepsin A; P-glycoprotein substrate Not recommended in patients with CrCl < 30 mL/min (see Appendix B, Table 7).	0.5 hours/150–180 hours	<ul style="list-style-type: none"> Renal insufficiency, Fanconi syndrome, proximal renal tubulopathy; less likely than from TDF Osteomalacia, decrease in bone mineral density; lesser effect than from TDF Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue TAF.
<i>Descovy</i> (TAF/FTC)	<u>Descovy:</u> <ul style="list-style-type: none"> (FTC 200 mg plus TAF 25 mg) tablet 	<u>Descovy:</u> <ul style="list-style-type: none"> 1 tablet once daily 			<ul style="list-style-type: none"> Diarrhea, nausea, headache
<i>Genvoya</i> (TAF/EVG/c/FTC)	<u>Genvoya:</u> <ul style="list-style-type: none"> (TAF 10 mg plus EVG 150 mg plus COBI 150 mg plus FTC 200 mg) tablet 	<u>Genvoya:</u> <ul style="list-style-type: none"> 1 tablet once daily with food 			
<i>Odefsey</i> (TAF/RPV/FTC)	<u>Odefsey:</u> <ul style="list-style-type: none"> (TAF 25 mg plus RPV 25 mg plus FTC 200 mg) tablet 	<u>Odefsey:</u> <ul style="list-style-type: none"> 1 tablet once daily with a meal 			

Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016) (page 5 of 6)

Generic Name (Abbreviation) Trade Name	Formulations	Dosing Recommendations ^a	Elimination	Serum/ Intracellular Half-Lives	Adverse Events ^b
Tenofovir Disoproxil Fumarate (TDF) <i>Viread</i> Also available as a component of fixed-dose combinations (by trade name and abbreviation):	<u>Viread:</u> <ul style="list-style-type: none"> • 150, 200, 250, and 300 mg tablets • 40 mg/g oral powder 	<u>Viread:</u> <ul style="list-style-type: none"> • 300 mg once daily, or • 7.5 level scoops once daily (dosing scoop dispensed with each prescription; 1 level scoop contains 1 g of oral powder). • Take without regard to meals. <p>Mix oral powder with 2–4 ounces of a soft food that does not require chewing (e.g., applesauce, yogurt). Do not mix oral powder with liquid.</p>	<p>Renal excretion is primary route of elimination.</p> <p>Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).</p>	17 hours/ >60 hours	<ul style="list-style-type: none"> • Renal insufficiency, Fanconi syndrome, proximal renal tubulopathy • Osteomalacia, decrease in bone mineral density • Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue TDF. • Asthenia, headache, diarrhea, nausea, vomiting, and flatulence
<i>Atripla</i> (TDF/EFV/FTC)	<u>Atripla:</u> <ul style="list-style-type: none"> • (TDF 300 mg plus EFV 600 mg plus FTC 200 mg) tablet 	<u>Atripla:</u> <ul style="list-style-type: none"> • 1 tablet at or before bedtime • Take on an empty stomach to reduce side effects. 			
<i>Complera</i> (TDF/RPV/FTC)	<u>Complera:</u> <ul style="list-style-type: none"> • (TDF 300 mg plus RPV 25 mg plus FTC 200 mg) tablet 	<u>Complera:</u> <ul style="list-style-type: none"> • 1 tablet once daily • Take with a meal. 			
<i>Stribild</i> (TDF/EVG/c/FTC)	<u>Stribild:</u> <ul style="list-style-type: none"> • (TDF 300 mg plus EVG 150 mg plus COBI 150 mg plus FTC 200 mg) tablet 	<u>Stribild:</u> <ul style="list-style-type: none"> • 1 tablet once daily • Take with food. 			
<i>Truvada</i> (TDF/FTC)	<u>Truvada:</u> <ul style="list-style-type: none"> • (TDF 300 mg plus FTC 200 mg) tablet 	<u>Truvada:</u> <ul style="list-style-type: none"> • 1 tablet once daily • Take without regard to meals. 			

Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016) (page 6 of 6)

Generic Name (Abbreviation) Trade Name	Formulations	Dosing Recommendations ^a	Elimination	Serum/ Intracellular Half-Lives	Adverse Events ^b
Zidovudine (ZDV) <i>Retrovir</i> Note: Generic available Also available as a component of fixed-dose combinations (by trade name and abbreviation):	<u>Retrovir:</u> • 100 mg capsule • 300 mg tablet (only available as generic) • 10 mg/mL intravenous solution • 10 mg/mL oral solution	<u>Retrovir:</u> • 300 mg BID, or • 200 mg TID • Take without regard to meals.	Metabolized to GAZT Renal excretion of GAZT Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).	1.1 hours/ 7 hours	<ul style="list-style-type: none"> • Bone marrow suppression: macrocytic anemia or neutropenia • Nausea, vomiting, headache, insomnia, asthenia • Nail pigmentation • Lactic acidosis/severe hepatomegaly with hepatic steatosis (rare but potentially life-threatening toxicity) • Hyperlipidemia • Insulin resistance/diabetes mellitus • Lipoatrophy • Myopathy
<i>Combivir</i> (ZDV/3TC) Note: Generic available	<u>Combivir:</u> • (ZDV 300 mg plus 3TC 150 mg) tablet	<u>Combivir:</u> • 1 tablet BID • Take without regard to meals.			
<i>Trizivir</i> (ZDV/3TC/ABC) Note: Generic available	<u>Trizivir:</u> • (ZDV 300 mg plus 3TC 150 mg plus ABC 300 mg) tablet	<u>Trizivir:</u> • 1 tablet BID • Take without regard to meals.			

^a For dosage adjustment in renal or hepatic insufficiency, see [Appendix B, Table 7](#).

^b Also see [Table 14](#).

Key to Acronyms: 3TC = lamivudine; ABC = abacavir; BID = twice daily; c, COBI = cobicistat; CrCl = creatinine clearance; d4T = stavudine; ddl = didanosine; DTG = dolutegravir; EC = enteric coated; EFV = efavirenz; EVG = elvitegravir; FTC = emtricitabine; GAZT = azidothymidine glucuronide; HBV = hepatitis B virus; HLA = human leukocyte antigen; HSR = hypersensitivity reaction; MI = myocardial infarction; RPV = rilpivirine; **TAF = tenofovir alafenamide**; TDF = tenofovir disoproxil fumarate; TID = three times a day; WHO = World Health Organization; ZDV = zidovudine