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

Downloaded from https://aidsinfo.nih.gov/guidelines on 8/27/2017

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

Register for e-mail notification of guideline updates at https://aidsinfo.nih.gov/e-news.
### Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors

<table>
<thead>
<tr>
<th>Generic Name (Abbreviation)</th>
<th>Trade Name</th>
<th>Formulations</th>
<th>Dosing Recommendations&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Elimination</th>
<th>Serum/Intracellular Half-Lives</th>
<th>Adverse Events&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abacavir</strong>&lt;br&gt;(ABC) &lt;br&gt;Ziagen</td>
<td><strong>Note:</strong> Generic available in tablet formulation&lt;br&gt;<strong>Also available as a component of fixed-dose combinations (by trade name and abbreviation):</strong>&lt;br&gt;<strong>Ziagen:</strong>&lt;br&gt;• 300 mg tablet&lt;br&gt;• 20 mg/mL oral solution</td>
<td>Ziagen:&lt;br&gt;• 300 mg BID, or&lt;br&gt;• 600 mg once daily&lt;br&gt;Take without regard to meals</td>
<td>Metabolized by alcohol dehydrogenase and glucuronyl transferase&lt;br&gt;Renal excretion of metabolites: 82%&lt;br&gt;Dosage adjustment for ABC is recommended in patients with hepatic insufficiency (see Appendix B, Table 7).</td>
<td>1.5 hours/12–26 hours</td>
<td>• HSRs: Patients who test positive for HLA-B*5701 are at highest risk. HLA screening should be done before initiation of ABC.&lt;br&gt;• For patients with history of HSR, re-challenge is not recommended.&lt;br&gt;• 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.&lt;br&gt;• Some cohort studies suggest increased risk of MI with recent or current use of ABC, but this risk is not substantiated in other studies.</td>
<td></td>
</tr>
<tr>
<td><strong>Trizivir</strong>&lt;br&gt;(ABC/ZDV/3TC)</td>
<td><strong>Note:</strong> Generic available&lt;br&gt;<strong>Trizivir:</strong>&lt;br&gt;• (ABC 300 mg plus ZDV 300 mg plus 3TC 150 mg) tablet</td>
<td>Trizivir:&lt;br&gt;• 1 tablet BID</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Epzicom</strong>&lt;br&gt;(ABC/3TC)</td>
<td><strong>Epzicom:</strong>&lt;br&gt;• (ABC 600 mg plus 3TC 300 mg) tablet</td>
<td>Epzicom:&lt;br&gt;• 1 tablet once daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Triumeq</strong>&lt;br&gt;(ABC/3TC/DTG)</td>
<td><strong>Triumeq:</strong>&lt;br&gt;• (ABC 600 mg plus 3TC 300 mg plus DTG 50 mg) tablet</td>
<td>Triumeq:&lt;br&gt;• 1 tablet once daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Didanosine</strong>&lt;br&gt;(ddI)</td>
<td><strong>Videx</strong>&lt;br&gt;<strong>Videx EC</strong>&lt;br&gt;<strong>Note:</strong> Generic available; dose same as Videx or Videx EC</td>
<td><strong>Videx EC:</strong>&lt;br&gt;• 125, 200, 250, and 400 mg capsules&lt;br&gt;<strong>Videx:</strong>&lt;br&gt;• 10 mg/mL oral solution</td>
<td><strong>Body Weight ≥60 kg:</strong>&lt;br&gt;• 400 mg once daily&lt;br&gt;<strong>With TDF:</strong>&lt;br&gt;• 250 mg once daily&lt;br&gt;<strong>Body Weight &lt;60 kg:</strong>&lt;br&gt;• 250 mg once daily&lt;br&gt;<strong>With TDF:</strong>&lt;br&gt;• 200 mg once daily&lt;br&gt;Take 1/2 hour before or 2 hours after a meal.&lt;br&gt;<strong>Note:</strong> Preferred dosing with oral solution is BID (total daily dose divided into 2 doses).</td>
<td>Renal excretion: 50%&lt;br&gt;Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).</td>
<td>1.5 hours/20 hours</td>
<td>• Pancreatitis&lt;br&gt;• Peripheral neuropathy&lt;br&gt;• Retinal changes, optic neuritis&lt;br&gt;• Lactic acidosis with hepatic steatosis with or without pancreatitis (rare but potentially life-threatening toxicity)&lt;br&gt;• Nausea, vomiting&lt;br&gt;• Potential association with non-cirrhotic portal hypertension; in some cases, patients presented with esophageal varices&lt;br&gt;• One cohort study suggested increased risk of MI with recent or current use of ddI, but this risk is not substantiated in other studies.&lt;br&gt;• Insulin resistance/diabetes mellitus</td>
</tr>
<tr>
<td>Generic Name (Abbreviation)</td>
<td>Trade Name</td>
<td>Formulations</td>
<td>Dosing Recommendations</td>
<td>Elimination</td>
<td>Serum/Intracellular Half-Lives</td>
<td>Adverse Events</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------</td>
<td>--------------</td>
<td>------------------------</td>
<td>-------------</td>
<td>-------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Emtricitabine (FTC)</td>
<td>Emtriva</td>
<td>Emtriva: • 200 mg hard gelatin capsule • 10 mg/mL oral solution</td>
<td>Emtriva: Capsule: • 200 mg once daily Oral Solution: • 240 mg (24 mL) once daily Take without regard to meals.</td>
<td>Renal excretion: 86% Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).</td>
<td>10 hours/ &gt;20 hours</td>
<td>Minimal toxicity • Hyperpigmentation/skin discoloration • Severe acute exacerbation of hepatitis may occur in HBV-coinfected patients who discontinue FTC.</td>
</tr>
<tr>
<td>Also available as a component of fixed-dose combinations (by trade name and abbreviation):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atripla (FTC/EFV/TDF)</td>
<td>Atripla: • (FTC 200 mg plus EFV 600 mg plus TDF 300 mg) tablet</td>
<td>Atripla: • 1 tablet at or before bedtime • Take on an empty stomach to reduce side effects.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complera (FTC/RPV/TDF)</td>
<td>Complera: • (FTC 200 mg plus RPV 25 mg plus TDF 300 mg) tablet</td>
<td>Complera: • 1 tablet once daily with a meal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Descovy (FTC/TAF)</td>
<td>Descovy: • (FTC 200 mg plus TAF 25 mg) tablet</td>
<td>Descovy: • 1 tablet once daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genvoya (FTC/EVG/c/TAF)</td>
<td>Genvoya: • (FTC 200 mg plus EVG 150 mg plus COBI 150 mg plus TAF 10 mg) tablet</td>
<td>Genvoya: • 1 tablet once daily with food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odefsey (FTC/RPV/TAF)</td>
<td>Odefsey: • (FTC 200 mg plus RPV 25 mg plus TAF 25 mg) tablet</td>
<td>Odefsey: • 1 tablet once daily with a meal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stribild (FTC/EVG/c/TDF)</td>
<td>Stribild: • (FTC 200 mg plus EVG 150 mg plus COBI 150 mg plus TDF 300 mg) tablet</td>
<td>Stribild: • 1 tablet once daily with food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truvada (FTC/TDF)</td>
<td>Truvada: • (FTC 200 mg plus TDF 300 mg) tablet</td>
<td>Truvada: • 1 tablet once daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Lamivudine (3TC)

**Trade Name:** Epivir

**Note:** Generic available

Also available as a component of fixed-dose combinations (by trade name and abbreviation):

- **Combivir** (3TC/ZDV)
  - **Note:** Generic available

- **Epzicom** (3TC/ABC)
  - **Note:** Generic available

- **Trizivir** (3TC/ZDV/ABC)
  - **Note:** Generic available

- **Triumeq** (3TC/ABC/DTG)
  - **Note:** Generic available

**Formulations**:
- **Epivir**:
  - 150 and 300 mg tablets
  - 10 mg/mL oral solution

- **Combivir**:
  - (3TC 150 mg plus ZDV 300 mg) tablet

- **Epzicom**:
  - (3TC 300 mg plus ABC 600 mg) tablet

- **Trizivir**:
  - (3TC 150 mg plus ZDV 300 mg plus ABC 300 mg) tablet

- **Triumeq**:
  - (3TC 300 mg plus ABC 600 mg plus DTG 50 mg) tablet

**Dosing Recommendations**:
- **Epivir**:
  - 150 mg BID, or
  - 300 mg once daily
  - Take without regard to meals.

- **Combivir**:
  - 1 tablet BID

- **Epzicom**:
  - 1 tablet once daily

- **Trizivir**:
  - 1 tablet BID

- **Triumeq**:
  - 1 tablet once daily

**Elimination**
- Renal excretion: 70%
- Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).

**Serum/Intracellular Half-Lives**
- 5–7 hours/18–22 hours

**Adverse Events**
- **Minimal toxicity**
- **Severe acute exacerbation of hepatitis** may occur in HBV-coinfected patients who discontinue 3TC.

**Stavudine (d4T)**

**Trade Name:** Zerit

**Note:** Generic available

**Formulations**:
- **Zerit**:
  - 15, 20, 30, and 40 mg capsules
  - 1 mg/mL oral solution

**Body Weight ≥60 kg**
- 40 mg BID

**Body Weight <60 kg**
- 30 mg BID
  - Take without regard to meals.

**Note:** WHO recommends 30 mg BID dosing regardless of body weight.

**Elimination**
- Renal excretion: 50%
- Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).

**Serum/Intracellular Half-Lives**
- 1 hour/7.5 hours

**Adverse Events**
- **Peripheral neuropathy**
- **Lipoatrophy**
- **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)

<table>
<thead>
<tr>
<th>Generic Name (Abbreviation)</th>
<th>Trade Name</th>
<th>Formulations</th>
<th>Dosing Recommendations</th>
<th>Elimination</th>
<th>Serum/Intracellular Half-Lives</th>
<th>Adverse Events</th>
</tr>
</thead>
</table>
| 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 | 0.5 hours/150–180 hours | • 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.  
  • Diarrhea, nausea, headache |
| Descovy (TAF/FTC) | Descovy:  
  • (FTC 200 mg plus TAF 25 mg) tablet | Descovy:  
  • 1 tablet once daily | | | |
| Genvoya (TAF/EVG/c/FTC) | Genvoya:  
  • (TAF 10 mg plus EVG 150 mg plus COBI 150 mg plus FTC 200 mg) tablet | Genvoya:  
  • 1 tablet once daily with food | | | |
| Odefsey (TAF/RPV/FTC) | Odefsey:  
  • (TAF 25 mg plus RPV 25 mg plus FTC 200 mg) tablet | Odefsey:  
  • 1 tablet once daily with a meal | | | |
### Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors

<table>
<thead>
<tr>
<th>Generic Name (Abbreviation)</th>
<th>Trade Name</th>
<th>Formulations</th>
<th>Dosing Recommendations</th>
<th>Elimination</th>
<th>Serum/Intracellular Half-Lives</th>
<th>Adverse Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tenofovir Disoproxil Fumarate (TDF)</strong></td>
<td><strong>Viread</strong></td>
<td>Viread: • 150, 200, 250, and 300 mg tablets • 40 mg/g oral powder</td>
<td>Viread: • 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. Mix oral powder with 2–4 ounces of a soft food that does not require chewing (e.g., applesauce, yogurt). <strong>Do not mix oral powder with liquid.</strong></td>
<td>Renal excretion is primary route of elimination. Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).</td>
<td>17 hours/ &gt;60 hours</td>
<td>• 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</td>
</tr>
<tr>
<td><strong>Also available as a component of fixed-dose combinations (by trade name and abbreviation):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Atripla (TDF/EFV/FTC)</strong></td>
<td><strong>Atripla</strong></td>
<td>Atripla: • (TDF 300 mg plus EFV 600 mg plus FTC 200 mg) tablet</td>
<td>Atripla: • 1 tablet at or before bedtime • Take on an empty stomach to reduce side effects.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complera (TDF/RPV/FTC)</strong></td>
<td><strong>Complera</strong></td>
<td>Complera: • (TDF 300 mg plus RPV 25 mg plus FTC 200 mg) tablet</td>
<td>Complera: • 1 tablet once daily • Take with a meal.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stribild (TDF/EVG/c/FTC)</strong></td>
<td><strong>Stribild</strong></td>
<td>Stribild: • (TDF 300 mg plus EVG 150 mg plus COBI 150 mg plus FTC 200 mg) tablet</td>
<td>Stribild: • 1 tablet once daily • Take with food.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Truvada (TDF/FTC)</strong></td>
<td><strong>Truvada</strong></td>
<td>Truvada: • (TDF 300 mg plus FTC 200 mg) tablet</td>
<td>Truvada: • 1 tablet once daily • Take without regard to meals.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix B, Table 1. Characteristics of Nucleoside Reverse Transcriptase Inhibitors (Last updated July 14, 2016; last reviewed July 14, 2016)  (page 6 of 6)

<table>
<thead>
<tr>
<th>Generic Name (Abbreviation)</th>
<th>Trade Name</th>
<th>Formulations</th>
<th>Dosing Recommendations(^a)</th>
<th>Elimination</th>
<th>Serum/Intracellular Half-Lives</th>
<th>Adverse Events(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zidovudine (ZDV)</strong></td>
<td>Retrovir</td>
<td>Retrovir: • 100 mg capsule • 300 mg tablet (only available as generic) • 10 mg/mL intravenous solution • 10 mg/mL oral solution</td>
<td>Retrovir: • 300 mg BID, or • 200 mg TID • Take without regard to meals.</td>
<td>Metabolized to GAZT Renal excretion of GAZT Dosage adjustment in patients with renal insufficiency is recommended (see Appendix B, Table 7).</td>
<td>1.1 hours/7 hours</td>
<td>• 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</td>
</tr>
<tr>
<td>Note: Generic available Also available as a component of fixed-dose combinations (by trade name and abbreviation):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Combivir (ZDV/3TC)</strong></td>
<td>Combivir</td>
<td>Combivir: (ZDV 300 mg plus 3TC 150 mg) tablet</td>
<td>Combivir: • 1 tablet BID • Take without regard to meals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: Generic available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trizivir (ZDV/3TC/ABC)</strong></td>
<td>Trizivir</td>
<td>Trizivir: (ZDV 300 mg plus 3TC 150 mg plus ABC 300 mg) tablet</td>
<td>Trizivir: • 1 tablet BID • Take without regard to meals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: Generic available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) 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; ddi = 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