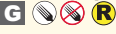

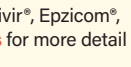
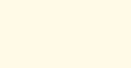






**NRTIs (Continued)**



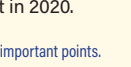
**Lamivudine (Epivir®, 3TC)**

(*la-MI-vue-deen*)      
 Dosage form: 150 mg, **▲**300 mg tab, 10 mg/mL soln (240 mL)  
 Also available in combination products: Combivir®, Epzicom®, Trizivir®, Triumeq®; see **Combination Products** for more detail  
 Adult and adolescent dose (weight  $\geq$  25 kg):  
 300 mg po once daily or 150 mg po bid

**Important Points:**




- Abrupt withdrawal can cause chronic active hep B flares
- AEs: Generally well-tolerated

**Stavudine (Zerit®, d4T)**

(*STA-vue-deen*)     
 Rarely used. All formulations will be removed from the market in 2020.  
 Switch pts to another ARV.

13. See *Zerit® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

**Tenofovir Disoproxil Fumarate (Viread®, TDF)**

(*ten-OH-foh-veer*)     
**Nucleotide RTI**  
 Dosage form: 150, 200, 250, **▲**300 mg tab  
 40 mg/1 g oral powder (60 g multi-use bottle)  
 Also available in combination products: Truvada®, Atripla®, Complera®, Stribild®; see **Combination Products** for more detail

Adult and adolescent<sup>18</sup> dose (weight  $\geq$  35 kg): 300 mg po once daily

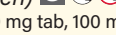
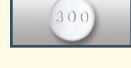
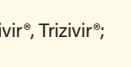
**Important Points:**

- Take tabs with or without food; take powder with food. Mix powder in  $\frac{1}{4}$  -  $\frac{1}{2}$  cup of soft food (e.g., applesauce, baby food, yogurt) and take entire dose ASAP to avoid bad taste.
- Interacts with ATV (see ATV for dosing)
- Document urine glucose and protein at baseline and perform routine monitoring (at least every 6 months) of eGFR
- Monitor serum phosphorus in pts with or at risk for renal impairment
- Avoid TDF if concomitant or recent use of nephrotoxic agent
- Abrupt withdrawal can cause chronic active hep B flares
- Can decrease bone mineral density, consider calcium and vitamin D supplementation
- AEs: Flatulence, headache, diarrhea, nausea, vomiting, renal insufficiency, Fanconi Syndrome (rare),  $\downarrow$  PO<sub>4</sub>, osteopenia (rare, multifactorial)

14. Tabs are with or without food; powder is with food.

15. See the *Guidelines for Use of Antiretroviral Agents in Pediatric HIV Infection* for concerns about  $\downarrow$  bone mineral density especially in pre-pubertal or early puberty (Tanner Stages 1 or 2)

**Zidovudine (Retrovir®, AZT, ZDV)**

(*zye-DOE-vue-deen*)     
 Dosage form: **▲**300 mg tab, 100 mg cap, 10 mg/mL IV soln, 10 mg/mL syrup (240 mL/bottle)  
 Also available in combination products: Combivir®, Trizivir®; see **Combination Products** for more detail

Adult and adolescent dose (age  $\geq$  18 years): 300 mg po bid or 200 mg po tid

**Important Points:**

- AEs: Headache, nausea,  $\uparrow$  pigmentation skin/nails,  $\downarrow$  hemoglobin/hematocrit,  $\downarrow$  WBC,  $\uparrow$  MCV, myopathy

**NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NNRTIs)**

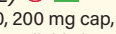

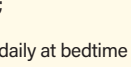
**Class adverse effects:** rash (rarely Stevens-Johnson Syndrome),  $\uparrow$  LFTs, many drug interactions.  
 See DHHS Guidelines and [www.hiv-druginteractions.org](http://www.hiv-druginteractions.org).

**Delavirdine (Rescriptor®, DLV)**

(*deh-LAH-ver-deen*)     
 Rarely used

16. See *Rescriptor® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

**Efavirenz (Sustiva®, EFV)**

(*eh-FAH-vih-rehnhz*)     
 Dosage form: 50, 200 mg cap, **▲**600 mg tab



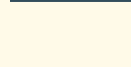
Adult and adolescent dose (weight  $\geq$  40 kg): 600 mg po once daily at bedtime

**Important Points:**

- Take at bedtime without food to  $\downarrow$  CNS side effects
- False positive cannabinoid or benzodiazepine test (usually on screening, confirmatory test should be negative)
- Use with caution in pts with psychiatric illness or using medications with neuropsych effects (CNS AEs more common)
- AEs: Drowsiness, dizziness, impaired concentration, insomnia, abnormal dreaming, agitation (Usually resolves in 2-4 weeks), depression, suicidal ideation (rare), hallucinations (rare),  $\uparrow$  lipids

17. Consider alternative agent in  $\varnothing$  with childbearing potential not using adequate birth control due to the risk of teratogenicity during the first 5-6 weeks of pregnancy. If pregnancy occurs while on EFV, EFV can be continued if the pt is virologically suppressed.

**Etravirine (Intelence®, ETR)**

(*eh-truh-VIGH-reen*)     
 Dosage form: 25, 100, **▲**200 mg tab




Adult and adolescent dose<sup>18</sup> (weight  $\geq$  30 kg): 200 mg po bid

**Important Points:**

- Take following a meal
- May disperse tabs in 5mL of water, stir well. If desired mix with additional water, orange juice or milk (no warm or carbonated drinks) and then drink immediately. Rinse glass several times with water, milk, or orange juice and drink rinse.<sup>19</sup>
- AEs: Nausea, hypersensitivity reactions with rash, constitutional findings, hepatic failure has been reported

18. Do not use ETR with unboosted PIs, ATV/c, ATV/r, DRV/c, FPV/r, TPV/r. Standard dosing with DRV/r, LPV/r, SQV/r.  
 19. Intelence® [package insert]. Titusville, NJ: Janssen Therapeutics, Division of Janssen Products, LP; Revised August 2014.

**Nevirapine (Viramune®, Viramune XR®, NVP)**

(*nah-VAIR-ah-peen*)     
 Dosage form: 100 mg tab (XR), **▲**200 mg tab, **▲**400 mg tab (XR), 10 mg/mL susp (240 mL bottle)


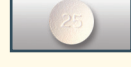
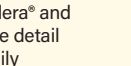
Adult and adolescent dose<sup>20</sup> (BSA  $\geq$  1.33 m<sup>2</sup>):  
 200 mg po once daily for 14 days, then [200 mg po bid or 400 mg (XR) po once daily]

**Important Points:**

- XR tabs should not be crushed, chewed, or broken
- AEs: Rash - mild to severe, usually within 1<sup>st</sup> 6 weeks, discontinue if severe;  $\uparrow$  LFTs (Monitor LFTs - baseline, 2 weeks after dose escalation, then monthly for the 1<sup>st</sup> 18 weeks); hepatotoxicity often rash-associated, check LFTs in any pt with rash;  $\varnothing$  and  $\sigma$  with pre-ART CD4 > 250 and > 400, respectively and pts with chronic active hep B or C co-infection are at  $\uparrow$  risk for  $\uparrow$  LFTs

20. If NVP discontinued  $\geq$  7 days, restart at lower dose for 14 days; pts taking NVP immediate release (200 mg bid or 400 mg once daily) can switch to XR 400 mg once daily without 200 mg daily lead-in dosing; if mild rash occurs and hepatotoxicity ruled out, can continue 200 mg once daily lead-in dose for up to 28 days.

**Rilpivirine (Edurant®, RPV)**

(*ril-pih-VIGH-reen*)     
 Dosage form: 25 mg tab

Adult and adolescent dose<sup>21</sup> (weight  $\geq$  35 kg): 25 mg once daily

**Important Points:**



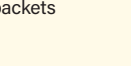
- Take with a meal (at least 400 kcal)
- Interacts with acid-reducing agents
  - PPIs (e.g., omeprazole, lansoprazole): contraindicated
  - H2-receptor blockers (e.g., famotidine, ranitidine) should be taken at least 12 hours before or 4 hours after RPV
  - Antacids (e.g., aluminum or magnesium hydroxide, calcium carbonate) should be taken at least 2 hours before or 4 hours after RPV
- Caution with drugs that prolong the QT interval
- AEs: Depression, insomnia, headache, rash

21. Not recommended in pts with pre-ART HIV RNA > 100,000 copies/mL or CD4 count < 200 cells/mm<sup>3</sup> due to  $\uparrow$  rate of virologic failure

**PROTEASE INHIBITORS (PIs)**

**Class adverse effects:**  $\uparrow$  glucose,  $\uparrow$  lipids (less with ATV and DRV), lipodystrophy,  $\uparrow$  LFTs, nausea, vomiting, diarrhea (more common with LPV/r compared to DRV or ATV)  $\uparrow$  bleeding in hemophiliacs. All undergo hepatic metabolism mostly via CYP3A4 - Many drug interactions.  
 See DHHS Guidelines and [www.hiv-druginteractions.org](http://www.hiv-druginteractions.org).

**Atazanavir (Reyataz®, ATV)**

(*ah-ta-ZA-na-veer*)     
 Dosage form: 100, 150, 200, **▲**300 mg cap, 50 mg oral powder packets  
 Also available in combination product: Evotaz™;  
 see **Combination Products** for more detail

Adult and adolescent dose (weight  $\geq$  40 kg):  
 - 400 mg po once daily (ART-naïve only) or  
 - 300 mg  $\dagger$  (COBI 150 mg or RTV 100 mg) po once daily (naïve, exp, or with TDF)

**Important Points:**




- Take with food
- AEs:  $\uparrow$  unconjugated bilirubin (common), jaundice or scleral icterus (less common); rash; prolonged PR interval, asymptomatic 1st degree AV block (rare); nephrolithiasis (rare), cholelithiasis

Atazanavir Dosing with Acid-reducing Agents		
Acid-reducing Agents	ART-naïve	ART-exp
Antacids or buffered medications	ATV, ATV/c, ATV/r: Give $\geq$ 2 hours before or 1 to 2 hours after antacid or buffered medication	
H2 Receptor Antagonists (H2RAs)	ART-naïve with or without TDF	ART-exp without TDF
		ART-exp with TDF
Approximate Dose Equivalents: <sup>22</sup> Famotidine 20 mg BID or 40 mg qhs Nizatidine 150 mg BID or 300 mg qhs Ranitidine 150 mg BID or 300 mg qhs	ART-naïve with or without TDF	ATV/r or ATV/c: Give simultaneously with or $\geq$ 10 hours after H2RA. Max dose of famotidine 20 mg bid [or equivalent]. ATV/r or ATV/c: Give simultaneously with or $\geq$ 10 hours after H2RA. Max dose of famotidine 40 mg bid [or equivalent].
Proton Pump Inhibitors (PPIs)		ATV/r or ATV/c: not recommended
Approximate Dose Equivalents: <sup>23</sup> Esomeprazole 20 mg Lansoprazole 30 mg Omeprazole 20 mg Rantoprazole 40 mg Pantoprazole 20 mg	ART-naïve with or without TDF	ATV/r or ATV/c: Give simultaneously with or $\geq$ 12 hours prior to ATV/r

22. ATV/r: OC dose **minimum** 35 mcg ethinyl estradiol (EE); ATV: OC dose **maximum** 30 mcg EE. Alternative contraception recommended. OCS with < 25 mcg EE, progestins other than norethindrone or norgestimate, and other hormonal contraceptives have not been studied. ATV/c: No data available regarding coadministration with oral or other hormonal contraceptive. Consider alternative nonhormonal contraception.

23. Tseng A. Interactions between acid reducing agents and antiretrovirals. Available at [http://www.hivclinica.com/main/drugs\\_interact\\_files/acid-reducing%20agents-int.pdf](http://www.hivclinica.com/main/drugs_interact_files/acid-reducing%20agents-int.pdf).

**Darunavir (Prezista®, DRV)**

(*da-ROO-nuh-veer*)     
 Dosage form: 75, 150, **▲**600, **▲**800 mg tab, 100 mg/mL susp (200 mL/bottle)  
 Also available in combination product: Prezcoibix®; see **Combination Products** for more detail

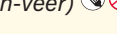

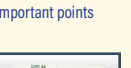
Adult and adolescent dose (weight  $\geq$  40 kg):  
 - 800 mg  $\dagger$  (COBI 150 mg or RTV 100 mg) po once daily (ART-naïve or ART-exp if no DRV mutations [V11I, V32I, L33F, I47V, I50V, I54L, I54M, T74P, L76V, I84V, L89V])<sup>24</sup> **or**  
 - 600 mg  $\dagger$  RTV 100 mg po bid (ART-naïve or ART-exp)

**Important Points:**

- Take with food
- AEs: Rash (10%), abdominal pain, headache, hepatotoxicity, caution with sulfa allergy (not contraindicated)

24. Prezista® [package insert]. Titusville, NJ: Janssen Pharmaceuticals; Revised September 2016.

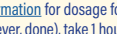
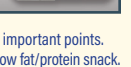

**Fosamprenavir (Lexiva®, FPV)**

(*foss-am-PREH-nah-veer*)     
 Rarely used

25. See *Lexiva® Prescribing Information* for dosage forms, dosing, adverse effects and other important points

26. Suspension: adults without food; peds with food.

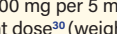
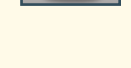
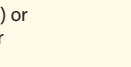
**Indinavir (Crixivan®, IDV)**

(*in-DIH-nuh-veer*)     
 Rarely used

27. See *Crixivan® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

28. If given without RTV (rarely, if ever, done), take 1 hour before or 2 hours after a meal or with low fat/protein snack.

**Lopinavir/ritonavir (Kaletra®, KAL, LPV/r)**

(*lo-PIN-uh-veer/rih-TAH-nuh-veer*)     
 Dosage form: **▲**200/50 mg, 100/25 mg tab  
 400/100 mg per 5 mL soln (160 mL/bottle)

Adult and adolescent dose<sup>29</sup> (weight  $>$  35 kg):  
 - 2 tabs (400/100 mg) po bid (PI-naïve or PI-exp) or  
 - 4 tabs (800/200 mg) po once daily (PI-naïve or PI-exp with  $\leq$  3 significant mutations)


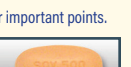
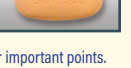
**Important Points:**

- Swallow tabs whole; cannot be chewed, broken, or crushed
- May take tabs without food, soln should be taken with food
- Oral soln contains 42% alcohol
- AEs: GI intolerance (N/V/D); asthenia; pancreatitis; prolonged PR, rare cases of 2<sup>nd</sup>/3<sup>rd</sup> degree AV block; prolonged QT interval, rare cases of torsade de pointes (causality not established)

29. Do not take tabs out of container for > 2 weeks especially in areas of  $\uparrow$  humidity  
 Refrigerate soln (stable until label date) or store at room temp (max 25°C/77°F) for up to 60 days

29. Tabs are with or without food; soln is with food.  
 30. Once daily dosing should not be used in pregnant  $\varnothing$ . Dose LPV/r bid in pts with  $\geq$  3 of the following PI mutations: L10F/I/R/V, K20M/N/R, L24I, L33F, M36I, I47V, G48V, I54L/T/V, V82A/C/F/S/T, and I84V.

**Nelfinavir (Viracept®, NFV)**

(*nell-FIH-nuh-veer*)     
 Rarely used


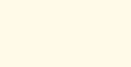

31. See *Viracept® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

**Saquinavir (Invirase®, SQV)**

(*sa-KWIH-nuh-veer*)     
 Rarely used

32. See *Invirase® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

**Tipranavir (Aptivus®, TPV)**

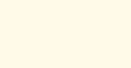
(*ti-PRAN-a-veer*)     
 Rarely used

33. See *Aptivus® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

34. Take with food with RTV tabs. Take without regard to meals with RTV soln.

**ENTRY INHIBITORS**


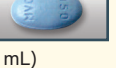
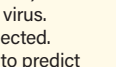
**Fusion Inhibitor**

**Enfuvirtide (Fuzeon®, T20, ENF)**<sup>35</sup>  
 (*en-FEW-ver-tide*)   
 Rarely used

35. See *Fuzeon® Prescribing Information* for dosage forms, dosing, adverse effects and other important points.

**CCR5 Inhibitor**

**Maraviroc (Selzentry®, MVC)**

(*mah-RAV-er-rock*)     
 Dosage form: 25, 75, **▲**150, 300 mg tab, 20 mg/mL oral soln (230 mL)  
**Note:** Do not use in pts with dual/mixed tropic or CXCR4-tropic virus. Perform tropism assay prior to use and if virologic failure is suspected. A phenotypic tropism assay is preferred over a genotypic assay to predict co-receptor usage. Many drug interactions. See table below, DHHS Guidelines, and [www.hiv-druginteractions.org](http://www.hiv-druginteractions.org).

Maraviroc Dosing	
Concomitant Medications	Adult and adolescent Dose (weight $\geq$ 40 kg)
CYP3A inhibitors (with or without a CYP3A inducer) <sup>36</sup> : • protease inhibitors (except TPV/r) • cobicistat • ketoconazole, itraconazole, clarithromycin • other strong CYP3A inhibitors (e.g., nefazodone, telithromycin)	150 mg po bid
CYP3A inducers (without a strong CYP3A inhibitor) including <sup>36</sup> : • EFV, ETR • rifampin • carbamazepine, phenobarbital, and phenytoin	600 mg po bid
Other concomitant medications, including <sup>36</sup> : TPV/r, NVP, RPV, all NRTIs, T20, RAL, DTG	300 mg po bid

36. Concomitant medication lists are not all-inclusive



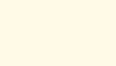
**Important Points**

- AEs: Hepatotoxicity; may be preceded by a systemic allergic reaction ( $\uparrow$  LFTs, pruritic rash,  $\uparrow$  eos, other systemic symptoms), dizziness/postural hypotension, cough, pyrexia, URI, rash, musculoskeletal symptoms, abdominal pain,  $\uparrow$  CV events (MI, ischemic events)

**INTEGRASE STRAND TRANSFER INHIBITORS (INSTIs)**

**Class adverse effects:** Insomnia, depression and suicidal ideation reported infrequently, more common in pts with pre-existing psychiatric conditions.  
 See DHHS Guidelines and [www.hiv-druginteractions.org](http://www.hiv-druginteractions.org).

**Dolutegravir (Tivicay®, DTG)**

(*Doe-lao-teg'-ra-vir*)     
 Dosage form: 10, 25, 50 mg tab  
 Also available in combination product: Triumeq®;  
 see **Combination Products** for more detail

Adult and adolescent dose<sup>37</sup> (weight  $\geq$  40 kg):  
 - 50 mg po once daily (ART-naïve or exp but INSTI-naïve) **or**  
 - 50 mg po bid (ART-naïve or exp but INSTI-naïve when given with potent UGT1A1/CYP3A4 inducers [e.g., EFV, FPV/r, TPV/r, carbamazepine, or rifampin]) **or**  
 - 50 mg po bid (pts with clinically suspected INSTI resistance or INSTI mutations)


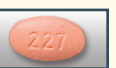
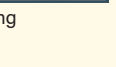
37. Do not combine with NVP. Do not combine with ETR unless ATV/r, DRV/r, or LPV/r included in regimen as ETR may  $\downarrow$  DTG levels. Note: DHHS Guidelines do not recommend combining ETR with ATV ( $\pm$  RTV).

38. Tivicay® [package insert]. Research Triangle Park, NC: Gilead Healthcare; Revised June 2016.

**Important Points:**

- Take DTG  $\geq$  2 hours before or 6 hours after antacids, laxatives or other medications containing polyvalent cations (e.g., Al, Mg, Zn), including multivitamins with minerals, sucralfate, oral iron or calcium supplements, or buffered medications. Alternatively, DTG and multivitamins or supplements containing calcium or iron can be taken simultaneously with food.
- DTG  $\uparrow$  metformin levels. When starting metformin or DTG, limit the total daily dose of metformin to 1,000 mg and adjust as indicated. Monitor blood glucose closely during concomitant use or after withdrawal of DTG.
- AEs: Headache and insomnia most common. Hypersensitivity reaction including rash, constitutional symptoms and organ dysfunction (e.g. liver injury) have been reported.
- Increase in SCR (without a decrease in glomerular function).

**Raltegravir (Isentress®, RAL)**

(*ral-TEG-ra-veer*)     
 Dosage form: **▲**400 mg tab, 25 mg, 100 mg chewable tabs, 100 mg packet for oral suspension  
 Adult and adolescent dose (weight  $\geq$  25 kg):  
 400 mg po bid

**Important Points:**

-