<table>
<thead>
<tr>
<th>ARVs</th>
<th>Trade Names</th>
<th>Tablets/Capsules</th>
<th>Oral Solution or Powder or Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abacavir</td>
<td>Ziagen</td>
<td>Tablets can be crushed and added to a small amount of semi-solid food or liquid and taken immediately.</td>
<td>Oral Solution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Dosing is the same for oral solution and tablets.</td>
</tr>
<tr>
<td>Abacavir + Lamivudine</td>
<td>Kivexa</td>
<td>Tablets should not be crushed as separate abacavir and lamivudine solutions are available.</td>
<td>Oral Solution</td>
</tr>
<tr>
<td></td>
<td>Epzicom</td>
<td>[EACS Guidelines, version 11, 2021]</td>
<td>• Separate abacavir and lamivudine solutions are available.</td>
</tr>
<tr>
<td>Abacavir + Lamivudine + Zidovudine</td>
<td>Trizivir</td>
<td>Tablets should not be crushed as abacavir, lamivudine and zidovudine solutions are available. [EACS Guidelines, version 11, 2021]</td>
<td>Oral Solution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Separate abacavir, lamivudine and zidovudine solutions are available.</td>
<td></td>
</tr>
<tr>
<td>Atazanavir</td>
<td>Reyataz</td>
<td>Capsules should be swallowed whole. Do not open the capsules.</td>
<td>Oral Powder</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• It is preferable to mix with food such as apple sauce or yogurt, however, it can be mixed with milk, infant formula, or water for infants who can drink from a cup, or mixed with infant formula and given using an oral dosing syringe to young infants (&lt;6 months) who cannot eat solid food or drink from a cup. Using an infant bottle is not recommended as the full dose may not be delivered.</td>
</tr>
<tr>
<td>Atazanavir + Cobicistat</td>
<td>Evotaz</td>
<td>Tablets should be swallowed whole and must not be chewed, broken, cut or crushed.</td>
<td></td>
</tr>
<tr>
<td>Bictegravir + Emtricitabine + Tenofovir alafenamide</td>
<td>Biktarvy</td>
<td>The European product label states tablets should be swallowed whole and should not be chewed, crushed or split. The American product label advises if unable to swallow a whole tablet, the tablet can be split and each part taken separately as long as all parts are ingested within approximately 10 minutes. A clinical study showed that dissolving a tablet in water resulted in a modest increase in bictegravir bioavailability and a modest decrease in tenofovir bioavailability. Crushing the tablet and administering with apple sauce resulted in reduced emtricitabine and tenofovir bioavailability. If a tablet cannot be swallowed whole, it is recommended to dissolve it in water and take it immediately; crushing is not recommended. [Hocqueloux L, et al, EACS 2021, abstract PE2/76]</td>
<td>Prolonged Release Suspensions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• For IM Injection</td>
</tr>
<tr>
<td>Cabotegravir</td>
<td>Vocabria</td>
<td>Tablets must be swallowed whole.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[EACS Guidelines, version 11, 2021]</td>
<td></td>
</tr>
<tr>
<td>Cabotegravir + Rilpivirine (Long Acting)</td>
<td>Vocabria + Rekambys; Cabenuva</td>
<td>Not applicable</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobicistat</td>
<td>Tybost</td>
<td>Tablets should not be chewed or crushed.</td>
<td></td>
</tr>
<tr>
<td>Darunavir</td>
<td>Prezista</td>
<td>Tablets can be crushed and added to a small amount of semi-solid food or liquid and taken immediately. [EACS Guidelines, version 11, 2021]</td>
<td>Oral Solution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Dosing is the same for oral suspension and tablets.</td>
</tr>
<tr>
<td>Darunavir + Cobicistat</td>
<td>Prezcobix</td>
<td>The European product label advises that tablets may be split into two pieces using a tablet-cutter, and the entire dose should be consumed immediately after splitting. Based on data with a fixed-dose tablet containing DRV/c/FTC/TAF (Symtuza), crushing tablets does not impact significantly DRV/c pharmacokinetics. [Brown K, et al, Clin Pharmacol Drug Dev. 2019; 8(4):541-548.]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rezolsta</td>
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### Antiretroviral Formulations for Swallowing Difficulties

**ARVs** | **Trade Names** | **Tablets/Capsules** | **Oral Solution or Powder or Other**
--- | --- | --- | ---
Darunavir + Cobicistat + Emtricitabine + Tenofovir alafenamide | Symtuza | Product labels advise that Symtuza tablets may be split into two pieces using a tablet-cutter, and the entire dose should be consumed immediately after splitting. Crushing Symtuza tablets had no significant effect on darunavir, cobicistat or emtricitabine. TAF AUC reduced by 19% but this is unlikely to be clinically significant. [Brown K, et al, *Clin Pharmacol Drug Dev*. 2019; 8(4):541-548.] | Oral Solution or Powder or Other

**Dolutegravir** | Tivicay | Tablets can be split or crushed and added to a small amount of semi-solid food or liquid and taken immediately. [EACS Guidelines, version 11, 2021] | Dispersible Tablets
* The bioavailability of dispersible tablets and film-coated tablets is not comparable and they are not interchangeable on a milligram per milligram basis. For example, the recommended adult dose for dispersible tablets is 30 mg versus 50 mg for film-coated tablets.

**Dolutegravir + Rilpivirine** | Juluca | Tablets should be swallowed whole and should not be chewed or crushed. | Oral Solution

**Dolutegravir + Abacavir + Lamivudine** | Triumeq | Tablets can be split or crushed and added to a small amount of semi-solid food or liquid and taken immediately. [EACS Guidelines, version 11, 2021] Administration of crushed tablets suspended in water increased dolutegravir AUC by 26%, but had no significant effect on abacavir or lamivudine. Administration of crushed tablets with enteral nutrition decreased abacavir Cmax by 17%, but had no significant effect on dolutegravir or lamivudine. [Roskam-Kwint M, et al, *J Antimicrob Chemother*, 2018, 73(9):2430-2434.] | Oral Solution
* Oral solution and tablets/capsules are NOT bioequivalent.

**Efavirenz** | Sustiva | Tablets may be divided for ease of swallowing. [EACS Guidelines, version 11, 2021] Capsules can be opened and the contents administered with a small amount of food using the capsule sprinkle method of administration. | Oral Solution

**Efavirenz + Emtricitabine + Tenofovir-DF** | Atripla | Tablets should be swallowed whole with water. | Oral Solution
Antiretroviral Formulations for Swallowing Difficulties

We aim to ensure that information is accurate and consistent with current knowledge and practice. However, the University of Liverpool and its servants or agents shall not be responsible or in any way liable for the continued currency of information unless otherwise stated. Not all formulations may be available in all regions; additional formulations may be available in some regions. Refer to the product label for full dosing, preparation and storage information.

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<tr>
<td>Elvitegravir + Cobicistat + Emtricitabine + Tenofovir alafenamide</td>
<td>Genvoya</td>
<td>Tablets may be split in half and both halves taken one after the other, ensuring that the full dose is taken immediately. Alternatively, tablets can be dissolved in water (one tablet in 120 ml water) and consumed immediately. Dissolving tablets in water decreased elvitegravir concentrations by 11%, but this is not clinically significant; no decrease in emtricitabine or tenofovir alafenamide concentrations was observed. ([Hendrix CW, et al, CROI 2022, abstract 447]) Based on data with fixed-dose combination tablets (EVG/c/FTC/TDF or DRV/c/FTC/TAF), crushing tablets has no significant effect on EVG/c ([Jongbloed-de Hoon M, et al. J Acquir Immune Defic Syndr. 2017, 74(5):571-574]) and did not significantly alter FTC/TAF pharmacokinetics ([Brown K, et al, Clin Pharmacol Drug Dev. 2019; 8(4):541-548]) (tenofovir bioavailability reduced by 20% (crushing) but this is unlikely to be clinically significant).</td>
<td></td>
</tr>
<tr>
<td>Elvitegravir + Cobicistat + Emtricitabine + Tenofovir-DF</td>
<td>Stribild</td>
<td>Tablets should not be chewed or crushed. Crushing tablets is not recommended in the product label, however, there was no significant effect on the pharmacokinetics of the components of the tablet following oral administration of a crushed and suspended tablet. ([Jongbloed-de Hoon M, et al. J Acquir Immune Defic Syndr. 2017, 74(5):571-574])</td>
<td></td>
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</table>
| Emtricitabine | Emtriva | Capsules can be opened and contents dissolved in at least 30 ml water. ([EACS Guidelines, version 11, 2021]) | Powder for Oral Solution
- Oral solution and capsules are NOT bioequivalent.
- Contains Na+ 460 µmol/ml. |
| Emtricitabine + Tenofovir alafenamide | Descovy | Due to the bitter taste, tablets should not be chewed or crushed. Tablets may be split in half and both halves taken one after the other, ensuring that the full dose is taken immediately. Crushing of tablets is not recommended in the product information. However, based on data with a fixed-dose combination tablet containing DRV/c/TAF/FTC (Symtuza), crushing of tablets did not significantly alter FTC/TAF pharmacokinetics (tenofovir bioavailability reduced by 20% (crushing) but this is unlikely to be clinically significant). ([Brown K, et al, Clin Pharmacol Drug Dev. 2019; 8(4):541-548]) | |
| Emtricitabine + Tenofovir-DF | Truvada | Tablets may be disintegrated in at least 100 ml of water, orange juice, or grape juice and taken immediately. | |
| Etravirine | Intence | Tablets may be dispersed in 5 ml of water, or at least enough liquid to cover, and stir well. If desired, add more water or alternatively orange juice or milk (do not place the tablets in orange juice or milk without first adding water). Drink immediately and rinse the glass several times to ensure the entire dose is taken. | |
| Fosamprenavir | Telzir | (Not mentioned in product label) | Oral Suspension
- Bioequivalence was not demonstrated when oral suspension was given with food.
- Adults should take the oral suspension on an empty stomach; patients under 18 years should take the oral suspension with food. |
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| Raltegravir          | Isentress   | Film coated tablets should not be chewed, crushed or split due to anticipated changes in the pharmacokinetic profile. Crushing tablets is not recommended in the product information, however absorption of raltegravir was not compromised when the drug was crushed, dissolved in 60 mL warm water and administered by gastrostomy tube. [Sandkovsky U, et al. Pharmacotherapy, 2012, 32(2):142-7.] | Granules for Oral Suspension  
  - Isentress for oral suspension is NOT bioequivalent with Isentress film coated tablets.  
  - Each single-use sachet contains 100 mg of raltegravir which is to be suspended in 10 mL of water giving a final concentration of 10 mg/mL.  
  - Each sachet contains approximately 0.5 mg fructose, 1.5 mg sorbitol, 4.7 mg sucrose.  
  Chewable tablets  
  - Isentress chewable tablets are NOT bioequivalent with Isentress film coated tablets.  
  - May be chewed or swallowed whole.  
  - Maximum dose is 300 mg twice daily. |
| Indinavir            | Crixivan    | Capsules should be swallowed whole.                                              | Oral Solution  
  • Dosing is the same for oral solution and tablets.  
  • Contains 1g/5ml sucrose.  
  • Sorbitol significantly reduces the bioavailability of lamivudine solution in a dose dependent manner. [Adkison KK, et al, Clin Pharmacol Ther. 2018; 103(3):402-408.] |
| Lamivudine + Zidovudine | Combivir | Tablets may be crushed and mixed with a small amount of semi-solid food or liquid which must be consumed immediately. | Oral Solution  
  • Separate lamivudine and zidovudine solutions are available. |
| Lopinavir            | Kaletra     | Tablets must be swallowed whole and not chewed, broken or crushed.              | Oral Solution  
  • Dosing is the same for oral solution and tablets.  
  • Contains 153 mg/ml propylene glycol and alcohol (42%).  
  • Not recommended for use with polyurethane feeding tubes due to potential incompatibility. Feeding tubes that are compatible with ethanol and propylene glycol, such as silicone and polyvinyl chloride (PVC) feeding tubes, can be used. |
| Maraviro             | Celsentri   | No specific pharmacokinetic data on file. Crushing the tablet is not expected to have a negative effect on bioavailability. [EACS Guidelines, version 11, 2021] | Oral Solution  
  • Dosing is the same for oral solution and tablets. |
| Nevirapine           | Viramune    | Tablets can be crushed and dissolved in water but any extended release effect will be lost. If the extended release effect is lost, twice daily administration is recommended in patients with higher body weight (≥90 kg) as sub-therapeutic trough levels may occur following administration of nevirapine 400 mg once daily immediate release. [EACS Guidelines, version 11, 2021] | Oral Suspension  
  • Viramune tablets and oral suspension are comparably bioavailable and interchangeable at doses up to 200 mg.  
  • Contains 150 mg/ml sucrose and 162 mg/ml sorbitol. |
| Lamivudine           | Epivir      | Tablets can be crushed and added to a small amount of semi-solid food or liquid and taken immediately. | Oral Solution  
  • Dosing is the same for oral solution and tablets.  
  • Contains 1g/5ml sucrose.  
  • Sorbitol significantly reduces the bioavailability of lamivudine solution in a dose dependent manner. [Adkison KK, et al, Clin Pharmacol Ther. 2018; 103(3):402-408.] |
| Ibalizumab-uiyk      | Trogarzo    | Not applicable                                                                  | IV concentrate  
  • For dilution and infusion |
| Fostemsavir          | Rukobia     | The prolonged-release tablet should be swallowed whole with water, and not chewed, crushed or split. | IV concentrate  
  • For dilution and infusion |
| ARVs                 |             |                                                                                 | All information refers to licensed use of products and is sourced from individual manufacturers’ UK Summary of Product Characteristics and US Prescribing Information unless otherwise stated.  
  Not all formulations may be available in all regions; additional formulations may be available in some regions. Refer to the product label for full dosing, preparation and storage information. |
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**Rilpivirine**

**Edurant**

Tablets should be swallowed whole with water and not be chewed or crushed. Rilpivirine is insoluble in water over a wide pH range.

**Rilpivirine + Emtricitabine + Tenofovir alafenamide**

**Odefsey**

Tablets should not be chewed, crushed or split due to the bitter taste.

**Rilpivirine + Emtricitabine + Tenofovir**

**Complera Eviplera**

Tablets should not be chewed, crushed or split as it may impact absorption.

**Ritonavir**

**Norvir**

Tablets should be swallowed whole and not chewed, broken or crushed.

**Ritonavir**

**Norvir**

Tablets should be swallowed whole and not chewed, broken or crushed.

**Tipranavir**

**Aptivus**

Capsules must be swallowed whole and must not be opened or chewed.

**Tenofovir-DF**

**Viread**

Tablets may be disintegrated in at least 100 ml of water, orange juice, or grape juice if granules/powder not available.

**Tenofovir-DF**

**Viread**

Tablets may be disintegrated in at least 100 ml of water, orange juice, or grape juice if granules/powder not available.

**Granules/Powder**

Viread granules should be mixed in a container with soft food not requiring chewing, for example yoghurt, applesauce or baby food. One tablespoon (15 ml) of soft food per one level scoop of granules is required. The entire mixture should be ingested immediately.

**Viread granules/powder must not be mixed with liquids.**

**Zidovudine**

**Retrovir**

Capsules should not be opened due to the bitter taste. Zidovudine solution is available. [EACS Guidelines, version 11, 2021]

**Zidovudine**

**Retrovir**

Capsules should not be opened due to the bitter taste. Zidovudine solution is available. [EACS Guidelines, version 11, 2021]

**Oral Solution**

- Dosing is the same for oral solution and tablets.
- Bitter taste can be masked by mixing with chocolate milk.
- Must NOT be mixed with water and the measuring cup must be dry.
- Contains alcohol (~43%) and propylene glycol (~27%).
- Not recommended for use with polyurethane feeding tubes due to potential incompatibility. Feeding tubes that are compatible with ethanol and propylene glycol, such as silicone and polyvinyl chloride (PVC) feeding tubes, can be used.

**Powder for Oral Suspension**

- Can be mixed with food or liquid.
- The entire contents of a sachet can be poured over a small amount of soft food or suspended in 3.4 ml of liquid (water, chocolate milk, or infant formula) giving a final concentration of 10 mg/ml.
- Can be administered via a feeding tube after being mixed with water.

**Oral Solution**

- Dosing is the same for oral solution and capsules.
- Contains 78 mg/ml (116 IU/mL) of vitamin E.

**IV concentrate**

- For dilution and infusion