Antiretroviral / HIV Drug Dosing for Paediatrics 2018-19(v2) - Imperial College Healthcare NHS Trust

(NOT for neonatal vertical transmission post exposure prophylaxis – see local / BHIVA guidelines)

Agent	Recommended dosage, class side effects and contraindications & warnings	Formulation	Comment	Intake Advice
Nucleoside Reverse Transcriptase Inhibitors (NRTI): lactic acidosis, steatosis, Lipoatrophy (effects of mitochondrial toxicity)				
Lamivudine (3TC) *Also see FDCs*	**Child**: (≥3months, <14kg)→ 5 mg/kg BD or 10mg/kg OD. (>14kg)→ 4 mg/kg BD or 8mg/kg OD. Max dose 300mg per day. Well tolerated round up doses. **Paed dosing for 150mg tab**: (14-19kg)→ ½ tab BD or 1 tab OD, (>20-24kg)→ ½ tab AM + 1 tab PM or 1½ tab OD **Adolescent:** (≥12 years &/or >25kg) 150mg BD or 300mg OD Nausea, diarrhoea, headache, fatigue.	**Tab**:100mg *(Zeffix)* (orange) 150mg scored 300mg Generic tabs scored, appearance varies **Liq**: 10mg/ml(*Epivir*) (1 month expiry)	Arrow study suggests full dose 3TC is safe/effective if >25kg; Reduce in renal failure	With or without food. Can be crushed and mixed with small amount of water or food.
Emtricitabine (FTC) *Also see FDCs*	**Child:** (≥ 4months) 6mg/kg OD of the oral solution. (max. dose 240mg OD) **Adolescent:** (≥33kg) Capsule 200mg OD; oral solution: 240mg OD Headache, diarrhoea, nausea, rash, skin discolouration on palms and soles	**Cap**: 200mg (blue/white) ≡ 240mg liq **Liq**: 10mg/ml – Fridge (Discard 45 days after opening) - **not** bioequivalent to caps. Capsules contents can be dispersed in water	Reduce dose in renal Impairment. Do not give with lamivudine	With or without food. Liquid can be stored at room temperature after opening.
Abacavir (ABC) *Also see FDCs*	**Child:** (≥3months) 8mg/kg BD or 16mg/kg OD. Max dose: 600mg per day. Well tolerated round up doses. **Paed dosing for 300mg tab**: (14-19kg)→ ½ tab BD or 1tab OD, (>20-24kg) → ½ tab AM + 1 tab PM or 1½ tab OD, **Adolescent:** (≥12 years &/or >25kg): 300mg BD or 600mg OD **Test HLA-B*5701 before starting, do not give abacavir if HLA-B*5701 +ve.** Hypersensitivity reactions usually occur within 1st 6 weeks of therapy. **If occurs, not to be given again** Nausea, fever, headache, diarrhoea, rash, fatigue, respiratory symptoms	**Tab**: 300mg scored **Liq**: 20mg/ml (2 month expiry)	Arrow study suggests full dose ABC may be safe/effective if >25kg; but no long term safety data yet.	With or without food. Can be crushed and mixed with small amount of water or food.
Zidovudine (AZT)	**Paed dosing (liquid)**: (4-9kg)→12mg/kg BD, (>9-30Kg)→ 9mg/kg BD. Max dose 300mg BD. **Paed dosing (caps)**: (8-13kg)→100mg BD, (14-21Kg)→ 100mg morning + 200mg night, (22-28kg)→ 200mg BD **Adolescent:** (≥12 years &/or >28kg) 250mg BD **IV dosing**: 60-80mg/m² QDS (alternatively total daily dose of 240-320 mg/m² may be given in 2 divided doses). Use Mostellar equation. Granulocytopenia and/or anaemia, nausea, headache, myopathy, hepatitis, nail pigmentation, neuropathy.	**Cap**: 100mg, 250mg **Liq**: 10mg/ml (1 month expiry) **IV infusion**: 10mg/ml (200mg/20ml vial)		With or without food. Capsules can be opened and dissolved in water.
Nucleotide Reverse Transcriptase inhibitors (NtRTI): As NRTI's				
Tenofovir disoproxil (TD) *Also see FDCs*	***All doses based on Tenofovir Disoproxil (TD)*** **Child powder dosing:** (2 – 12yrs) 6.5mg/kg OD - **1 scoop (scp) = 33mg** (10-12kg)→ 2 scp, (12-14kg)→ 2.5 scp, (14-17kg)→ 3 scp, (17-19kg)→ 3.5 scp, (19-22kg)→ 4 scp, (22-24kg)→ 4.5 scp, (24-27kg)→ 5 scp, (27-29kg)→ 5.5 scp (29-32kg)→ 6 scp, (32-34kg)→ 6.5 scp, (34-35kg)→7 scp, (≥35kg) →7.5 scp **Paed tab dosing:** (17-21kg)→ 123mg OD, (22-27kg)→ 163mg OD, (28-34kg)→ 204mg OD **Adolescent:** (≥35kg) 245mg OD. Headache, nausea, vomiting, renal tubular dysfunction, bone demineralization, exacerbations of hepatitis on discontinuation. **Important: Renal function, blood and urine monitoring.**	**Tab**: TD 245mg (blue) **Paed tab TD (TDF)**: 123mg (150mg), 163mg (200mg), 204mg (250mg) (white) **Powder**: TD 33mg/1g per scoop (TDF 40mg/1g per scoop) **245mg tenofovir disoproxil (TD) ≡ 300mg tenofovir disoproxil fumarate (TDF)**	Careful monitoring with boosted PI regimens for renal toxicity Consider TAF in defined renal impairment and bone problems.	Take with food. Can cut or crush and disperse tabs in water but bitter taste. Orange juice or grape juice can be used to mask taste
Tenofovir alafenamide fumarate (TAF) *Also see FDCs*	Only available as fixed-dose combinations – see page 2 Nausea, headache, dizziness, abnormal dreams, diarrhoea, vomiting, abdominal pain, flatulence, rash, fatigue			
Non-nucleoside Reverse Transcriptase Inhibitors (NNRTI): Require TDM with Rifamycins. Long half-life consider cover with PI after stopping				
Nevirapine (NVP)	**Child lead in period for 14 days:** (3-5.9kg)→ 50mg OD, (6-9.9kg)→ 80mg OD, (10-13.9kg)→ 100mg OD, (14-19.9kg)→ 130mg OD, (20-24.9kg)→ 150mg OD, then if no rash or LFT abnormalities after 14 days **see maintenance dose below.** **Child maintenance dose:** (3-5.9kg)→ 50mg BD, (6-9.9kg)→ 80mg BD, (10-13.9kg)→ 100mg BD, (14-19.9kg)→ 130mg BD, (20-24.9kg)→ 150mg BD. Total daily dose may be given as OD dose if stable and fully suppressed. **Child/adolescent** (>25kg)**:** 200mg OD lead in for 14 days, then increase to 200mg BD or 400mg OD if no rash or LFT abnormalities. Rash, hepatitis, Steven-Johnson – usually first 12 weeks. **Check hepatic function at 2, 4, and 8 weeks.**	**Tab**: 200mg **Liq**: 10mg/ml (Shake well – 6 month expiry) **Prolonged-release tabs**: 100mg, 400mg [Generic tablets first-line] **Prolonged-release tabs not suitable for lead in period**.	Normal release tabs can be cut. Normal dose in renal impairment. Do not cut PR tabs. Weight-banding based on WHO 2016 guidelines	With or without food. Some patients have reported the tablet remnant in faeces – not known to affect response.
Efavirenz (EFV) *Also see FDCs*	***As per PENTA 2015 guidelines, not recommended for patients <3 years*** **Child: (≥3months):** (3.5-<5kg)→100mg OD, (5-<7.5kg)→ 150mg OD, (7.5-<15kg)→ 200mg OD, (15-<20kg)→ 250mg OD, (20-<25kg)→300mg OD, (25-<32.5kg)→ 350mg OD, (32.5-<40kg)→ 400mg OD **Adolescent:** (>40kg)→ 600mg OD Mood changes, vivid dreams (common but usually short lived), hypercholesterolemia, rash, gynaecomastia	**Cap**: 50mg (Yellow/White), 200mg (yellow) **Tab**: 600mg [Generic tablet first-line] Capsules can be used as sprinkles and added to liquid of 1-2 teaspoons of food	No dose adjustments in renal impairment. 600mg Tablet can be cut. ***Higher EFV levels in CYP2B6-TT Genotype***	Take on empty stomach preferably before bedtime. **High fat meal can ↑ EFV AUC by 30% and ↑ adverse reactions**
Protease Inhibitors (PI): Lipodystrophy, hyperlipidaemia, diabetes mellitus, important interactions with a range of other drugs: consider TDM				
Lopinavir/ritonavir (LPV/RTV)	**All doses based on lopinavir ***PLEASE SPECIFY FORMULATION WHEN PRESCRIBING***** **Child Liquid:** (3-5.9kg)→ 1ml BD, (6-9.9kg)→ 1.5ml BD, (10-13.9kg)→ 2ml BD, (14-19.9kg)→ 2.5ml BD, (20-24.9kg)→ 3ml BD **Paed tab dosing:** (15-<25kg)→ 2 tabs BD, (25-<35kg)→ 3 tabs BD, (>35kg)→ 4 tabs BD (or see adult tabs). **Adolescent:** (>35kg) 400mg BD = 2 adult tabs BD [= 4 paed tabs BD = 5ml BD of solution] Cautious use with hepatic insufficiency. Diarrhoea, headache, nausea, vomiting.	**Tab (adults):** LPV/RTV 200/50mg (yellow) **Tab (paed):** LPV/RTV 100/25mg (yellow) **Liq**: 5ml = LPV/RTV 400/100mg (clear) – Fridge (contains 42% ethanol and propylene glycol) - caution in neonates.	Do NOT use once daily Weight-banding based on WHO 2016 guidelines	**Liq**: Take with food **Tab**: Can be given with or without food (no data in <18 years of age)
Darunavir (DRV) *Also see FDCs*	**Child: >3years no DRV-resistance mutations: (10-11kg)**→360mg OD + RTV 64mg OD**, (11-12kg)**→ 400mg + RTV 64mg OD**, (12-13kg)** → 420mg + RTV 80mg OD**, (13-14kg)** →460mg + RTV 80mg OD, **(14-15kg)** → 500mg + RTV 96mg**. (15-30kg)**→ 600mg OD + RTV 100mg OD, **(30-40kg)**→ 675mg OD + RTV 100mg OD ***>3 years with DRV-resistance mutations: (10-11kg)**→ 200mg BD + RTV 32mg BD, **(11-12kg)**→ 220mg BD + RTV 32mg BD, **(12-13kg)**→ 240mg BD + RTV 40mg BD, **(13-14kg)**→ 260mg BD + RTV 40mg BD, **(14-15kg)**→ 280mg BD + RTV 48mg BD, **(15-30 kg)**→ 375mg DRV BD + RTV 50mg BD, **(30-40 kg)**→ 450 mg DRV BD + RTV 60mg BD,* **Adolescent** (>40kg)**: (No DRV- mutations):** 800mg OD + RTV 100mg OD, ***(with DRV-mutations):** 600mg BD + RTV 100mg BD* Rash, nausea, diarrhoea, headache. **Contains sulphonamide moiety–check allergies especially Co-trimoxazole (Septrin)**	**Tab**: 75mg (white), 150mg (white), 400mg (light orange), 600mg (orange) & 800mg (dark red) **Liq:** 100mg/ml	Tablets can be cut/crushed if necessary.	Take with food. Some patients may be allergic to iron oxide in 800mg tablet formulation. 400mg tablets are available for these patients or where 800mg tablet too big.
Atazanavir (ATV) *Also see FDCs*	**Child/adolescent: (>6years)** (15-<35kg)→ 200mg OD + RTV 100mg OD, (>35kg)**:** 300mg OD with RTV 100mg OD Nausea, headaches, rash, jaundice	**Caps**: 150mg (dark blue/light blue), 200mg (dark blue), 300mg (dark blue/red) Capsules can be opened and contents mixed with water/apple sauce	PPIs contraindicated (↓ATV exposure).	Take with food. If dyspepsia, use Gaviscon or ranitidine 12-hours apart from dose.

Agent	Recommended dosage, class side effects and contraindications & warnings	Formulation	Comment	Intake Advice
Pharmacokinetic boosters				
Ritonavir (RTV)	**Child: For boosting other PIs see specific drug. Not recommended as a single PI**. **Adult: For boosting other PIs**: 100mg OD or 100mg BD e.g. with ATV or DRV Perioral paraesthesia, nausea, diarrhoea, flushing, rash, hepatitis with treatment dose	**Tab**: 100mg (white) **100mg sachets for oral suspension:** (see package insert for administration)	Do not cut/crush	Take with food
Cobicistat (COB) *Also see FDCs*	**Adolescent** (≥12 years & >35kg): 150**mg OD** **Check for additional drug interactions when switching from ritonavir to cobicistat** Nausea, sleep disturbance, headache, dizziness, vomiting, diarrhoea, abdominal pain, flatulence, dry mouth, rash,	**Tab**: 150mg (orange) No data on crushing, insoluble in water	See Evotaz/Rezolsta FDCs. Not recommended as a single PI	Take with food
Integrase Inhibitors: Seek advice from a pharmacist for all integrase inhibitors if patient requires oral cations (e.g. calcium/magnesium/iron/aluminium/zinc), including multivitamin/mineral products				
Raltegravir (RAL)	***PLEASE SPECIFY FORMULATION WHEN PRESCRIBING*** **Child:** (≥4 wks): 6**mg/kg BD** as **granules for oral suspension (up to 20kg):** max. 100mg BD or **Chewable tabs:** max 300mg BD **(3-3.9kg)**→ 25mg BD, **(4-5.9kg)**→ 30mg BD, **(6-7.9kg)**→ 40mg BD, **(8-10.9kg)**→ 60mg BD, **(11-13.9kg)**→ 80mg BD or 3 x 25mg chewable tabs BD, **(14-19.9kg)**→ 100mg BD or 1 x 100mg chewable tab BD, **(20-27.9kg)**→1½ x 100mg chewable tabs BD, **(28-39.9kg)**→2 x 100mg chewable tabs BD, **(≥40kg)**→3 x 100mg chewable tabs BD **Child/adolescent** (≥25kg): 400mg BD film coated tab **(NB: not bioequivalent to suspension/chewable tabs above**) **Adolescent** (>40kg): 1200mg OD film coated tab **(NB: not bioequivalent to suspension/chewable tabs above**) Nausea, dizziness, insomnia, mood changes, rash, pancreatitis, elevated liver enzymes	**100mg sachets for oral suspension:** Recommended dilution 10mg/ml but can be individualised if large volumes prohibitive. **Chewable tab**: 25mg and 100mg (can be halved) **Tab**: 400mg tabs (pink - can be cut/crushed) Tab: 600mg tabs (yellow – do **not** cut/crush)	Suspension and Chewable tabs are **not bioequivalent** to standard tabs **Once-daily formulation:** Do not co-prescribe with rifampicin, unboosted atazanavir or aluminium, magnesium and calcium containing antacids or supplements	With or without food. Avoid antacids/mineral supplements containing magnesium and aluminium. Seek pharmacist advice for other oral cations. Do not give **any supplements** with once-daily formulation
Dolutegravir (DTG) *Also see FDCs*	**Child:** (>6 years & >14kg): (14-24kg) → 25mg OD, (≥25kg) → 50**mg OD** **Adolescent:** (≥25kg): 50**mg OD**, **Integrase resistance:** 50**mg BD** Hypersensitivity reaction (severe rash) insomnia, mood changes, headache, elevated liver enzymes	**Tab:** 50mg tabs (yellow) 25mg tabs (pale yellow) 10mg tabs (white) Can be cut/crushed	With inducers of CYP3A/UGT1A e.g. EFV, NVP, rifampicin use dolutegravir 50mg **BD**	With or without food. Avoid antacids/mineral supplements 6 hours before and 2 hours after taking
Fixed Dose Combinations (FDCs): Cross-reference with component drugs for side-effects and advice				
ABC + 3TC *Generic (Kivexa®)*	**Child:** Not recommended <25kg use individual ARV's **Child/adolescent:** (≥25kg) 1 tab OD ***See abacavir for HLA-B*5701 testing requirements***	**Tab**: ABC 600mg/3TC 300mg	See 3TC and ABC	With or without food.
TD + FTC *Truvada®*	**Child:** Not recommended <35kg use individual ARV's **Adolescent:** (≥ 35kg) 1 tab OD	**Tab**: TD 245mg/FTC 200mg (blue)	See tenofovir disoproxil	
TD + FTC + EFV *Atripla®*	**Adolescent:** (≥ 35kg) 1 tab OD	**Tab**: TD 245mg /FTC 200 mg /EFV 600mg (pink)	Do not cut/crush	Take on empty stomach, preferably at bedtime.
FTC + TAF ('F/TAF') *Descovy®*	**Adolescent:** (≥12 years or ≥35kg) **On boosted PI:** 200mg/10mg tab OD, **not on boosted PI:** 200mg/25mg tab OD	**Tab:** 200mg/10mg (grey) 200mg/25mg (blue)	Do not cut/crush	With or without food.
DTG + 3TC + ABC *Triumeq®*	**Child/Adolescent:** (>6 years & ≥25kg) 1 tab OD ***Test HLA-B*5701 before starting, do not give abacavir if HLA-B*5701 +ve***	**Tab:** DTG 50mg/3TC 300mg/ABC 600mg (pale grey/purple) Can be cut/crushed	Can be used even if VL>100,000	With or without food. Avoid antacids/mineral supplements 6 hours before and 2 hours after taking
RPV + TD + FTC **Rilpivirine (RPV)** *Eviplera®*	**Child:** No data in children **Adolescent:** (≥35kg) 1 tab OD **Rilpivirine single agent: Adult:** 25mg OD with solid food >533 calories Rilpivirine: Headache, dizziness, mood changes, diarrhoea (less frequent than EFV,) see TD/FTC	**Tab:** TD 245mg/FTC 200mg/RPV 25mg (pale pink) **Tab:** Rilpivirine (Eudrant) 25mg	Do not cut/crush. Avoid in VL>100,000 copies/ml. PPIs and rifampicin contraindicated (significantly ↓ RPV plasma levels). Seek advice if mycobacterial co-infection.	Take with food. RPV AUC 40% lower on empty stomach. If dyspepsia, use Gaviscon or ranitidine 12-hours apart from Eviplera dose
RPV + TAF + FTC *Odefsey®*	**Adolescent:** (≥12 years or ≥35kg) 1 tab OD	**Tab:** FTC 200mg /TAF 25mg /RPV 25mg (grey)		
ELV + COB + TD + FTC *Stribild®*	**Adolescent:** (≥12 years & ≥35kg) 1 tab OD	**Tab:** ELV 150mg/COB 150mg/FTC 200mg/TD 245mg (Green)	Do not cut/crush. Avoid in GFR<70mL/min Licensed ≥18 years	With food. Avoid antacids/mineral supplements 4 hours before and 4 hours after taking
ELV+COB + TAF + FTC *Genvoya®*	**Child/adolescent:** (≥6 years & ≥25kg) 1 tab OD	**Tab**: FTC 200mg /COB 150mg/ TAF 10mg / ELV 150mg (light green)	Do not cut/crush	
ATV + COB *Evotaz®*	**Adolescent:** (≥12 years & ≥35kg) 1 **tab OD** **Check for additional drug interactions when switching from ritonavir to cobicistat**	**Tab**: ATV 300mg/COB 150mg (pink)	Do not cut/crush	With food
DRV + COB *Rezolsta®*	**Adolescent:** (≥12 years & ≥40kg) 1 tab OD **Check for additional drug interactions when switching from ritonavir to cobicistat**	**Tab**: DRV 800mg/COB 150mg (pink)	Do not cut/crush	With food
DRV+COB+TAF+FTC *Symtuza®*	**Adolescent:** (≥12 years & ≥40kg) 1 **tab OD** **Check for additional drug interactions when switching from ritonavir to cobicistat**	**Tab**: DRV 800mg/COB 150mg/TAF 10mg/FTC 200mg (Yellow/yellow-brown)	Can be cut	With food
Fusion & Entry Inhibitors: Maraviroc and T20: seek specialist advice from Virtual Clinic				
Supportive Care				
Co-trimoxazole *Septrin®*	***PCP prophylaxis: Daily dosing preferred*** **Child:** (3-5.9kg)→ 120mg OD, (6-13.9kg)→ 240mg OD, (>14kg)→ 480mg OD	**Tab**:480mg (white) **Liq**: 240mg/5ml (paed), 480mg/5ml (adult)		With or without food

The PAEDIATIC VIRTUAL CLINIC takes place on the 1st Thursday of the month. Please consider referring any child initiating ART, with virological failure/resistance, hepatitis, malignancy, TB, atypical mycobacterial infection, requiring simplification or on older more toxic drugs for review. Email: caroline.foster5@nhs.net

***Important information*:** Doses are not necessarily manufacturers recommended dose and may not be licensed. Full prescribing information should be reviewed concomitantly alongside this table. Patients with renal/liver impairment may require dose modification, discuss with a pharmacist.
To ensure accurate dosing always use oral/enteral syringes to measure liquid medicines. Prescribers should round up doses to the nearest 'sensible' measurable volume/dose
Always check potential drug interactions between all ARVs and with concomitant therapy, see www.hiv-druginteractions.org. TDM is available for majority classes of ARV including NRTI's, NNRTI's PIs, Entry/Fusion/Integrase Inhibitors available via www.Lab21.com
***** Prescribers retain responsibility for all prescribing decisions, including funding arrangements. Prescribing should be in line with CHIVA/BHIVA guidelines. NHS England commissioning, local policy and formulary restrictions may apply*****

This table was prepared as the consensus view of the Imperial College Healthcare Trust Family Clinic April 2018. The table is intended to be used by practitioners experienced in paediatric HIV care. Please do not use this outside these recommendations.
The table will be reviewed in June 2019 Tel: Family clinic: 020-3312-6349, Paed HIV Pharmacist: 020-3312-7617 Authors: Caroline Foster, Hermione Lyall, Gareth Tudor-Williams and Neil Tickner Please email feedback to: ntickner@nhs.net Version 4.1