

ANTIRETROVIRAL DRUG DOSING CHART FOR CHILDREN 2019

Compiled by Child and Adolescent Committee of SA HIV Clinicians Society in collaboration with the Department of Health

	Abacavir (ABC)	Lamivudine (3TC)	Zidovudine (AZT)	Lopinavir/ritonavir (LPV/r)	Lopinavir/ritonavir when on Rifampicin (& for 2 weeks after stopping Rifampicin) Choose only one option:			# Atazanavir (ATV) + Ritonavir (RTV)	Dolutegravir (DTG)	Dolutegravir when on Rifampicin	Efavirenz (EFV)	Target dose									
Target dose	8 mg/kg/dose TWICE daily OR If ≥ 10 kg: 16 mg/kg/dose ONCE daily	4 mg/kg/dose TWICE daily OR If ≥ 10 kg: 8 mg/kg/dose ONCE daily	180-240 mg/m ² /dose TWICE daily	300/75 mg/m ² /dose LPV/r TWICE daily	LPV/r std dose + super-boosting with Ritonavir (RTV) solution TWICE daily ($\geq 0.75 \times$ LPV dose bd)	OR	LPV/r std dose + super-boosting with Ritonavir (RTV) powder TWICE daily ($\geq 0.75 \times$ LPV dose bd)	OR	Double-dose LPV/r tabs ONLY if able to swallow whole LPV/r tabs TWICE daily	By weight band ONCE daily	By weight band ONCE daily	By weight band TWICE DAILY	By weight band ONCE daily	Target dose							
Available formulations	Sol. 20 mg/ml Tabs 60 mg (scored, dispersible), 300 mg (not scored), FDC: ABC/3TC 600/300 mg	Sol. 10 mg/ml Tabs 150 mg (scored), FDC: ABC/3TC 600/300 mg	Sol. 10 mg/ml, Tabs 100, 300 mg Paed tabs 100/25 mg FDC: AZT/3TC 300/150 mg	Sol. 80/20 mg/ml Adult tabs 200/50 mg Paed tabs 100/25 mg TABLETS MUST BE SWALLOWED WHOLE	Sol. 80 mg/ml	OR	Oral powder 100 mg/packet	OR	Adult tabs 200/50 mg, Paed tabs 100/25 mg	ATV caps 150, 200 mg; RTV tabs 100 mg ATV CAPSULES AND RTV TABLETS MUST BE SWALLOWED WHOLE	100 mg (1 packet) bd	Tabs 50mg, FDC: TLD 300/300/50 mg	Tabs 50 mg	Caps/tabs 50,200, 600 mg; FDC: TEE 300/200/600 mg TABLETS MUST BE SWALLOWED WHOLE	Available formulations						
Wt. (kg)	Consult with a clinician experienced in paediatric ARV prescribing for neonates (<28 days of age) and infants weighing <3kg												Wt. (kg)								
3-3.9	2 ml bd		2 ml bd		6 ml bd		* 1 ml bd		1 ml bd		Do not use double-dose LPV/r tabs		Avoid ATV capsules when <15 kg or <6 years		Not currently recommended: dosing & formulations not available		Not currently recommended: dosing & formulations not available		Avoid using when <10 kg or <3 years		3-3.9
4-4.9	3 ml bd		3 ml bd		9 ml bd		* 1.5 ml bd		1.5 ml bd												4-4.9
5-5.9	4 ml bd		4 ml bd		12 ml bd		OR		3x100/25 mg paed tabs bd												5-5.9
6-6.9	6 ml bd OR 12 ml od		6 ml bd OR 12 ml od		1x100 mg tab bd		Choose only one option: 2 ml bd OR 2x100/25 mg paed tabs am + 1x100/25 mg paed tab pm		1.5 ml bd												6-6.9
7-7.9	8 ml bd OR 5x60 mg tabs od		½x150 mg tab bd OR 1x150 mg tab od		2x100 mg tabs am + 1x100 mg tab pm OR 15 ml bd		Choose only one option: 2.5 ml bd OR 2x100/25 mg paed tabs bd OR 1x200/50 mg adult tab bd		2 ml bd												7-7.9
8-8.9	2.5x60 mg tabs bd		1x300 mg tab od OR 15 ml od		8 ml bd OR 15 ml od		Choose only one option: 3 ml bd OR 2x100/25 mg paed tabs bd OR 1x200/50 mg adult tab bd		2.5 ml bd												8-8.9
9-9.9	10 ml bd OR 3x60 mg tabs bd		1x300 mg tab + 1x60 mg tab od OR 1x300 mg tab + 2x60 mg tabs od		1x150 mg tab bd OR 15 ml bd		2x150 mg tab od OR 30 ml od		2x100 mg tabs OR 20 ml bd		200 mg (2 packets) bd		2x200/50 mg adult tabs bd		ATV 1x200 mg cap od + RTV 1x100 mg tab od		1x200 mg cap/tab nocte		9-9.9		
10-10.9	6 ml bd OR 2x60 mg tabs bd		6 ml bd OR 12 ml od		1x100 mg tab bd		OR		3x100/25 mg paed tabs bd		ATV 1x200 mg cap od + RTV 1x100 mg tab od		1x200 mg cap/tab + 2 x 50 mg caps/tabs nocte		10-10.9						
11-13.9	8 ml bd OR 5x60 mg tabs od		½x150 mg tab bd OR 1x150 mg tab od		2x100 mg tabs am + 1x100 mg tab pm OR 15 ml bd		Choose only one option: 2.5 ml bd OR 2x100/25 mg paed tabs bd OR 1x200/50 mg adult tab bd		2 ml bd		4x100/25 mg paed tabs bd		OR		2x200/50 mg adult tabs bd		1x200 mg cap/tab + 2 x 50 mg caps/tabs nocte		11-13.9		
14-14.9	10 ml bd OR 3x60 mg tabs bd		1x300 mg tab + 1x60 mg tab od OR 1x300 mg tab + 2x60 mg tabs od		1x150 mg tab bd OR 15 ml bd		2x150 mg tab od OR 30 ml od		2x100 mg tabs OR 20 ml bd		200 mg (2 packets) bd		OR		2x200/50 mg adult tabs bd		ATV 1x200 mg cap od + RTV 1x100 mg tab od		14-14.9		
15-16.9	2.5x60 mg tabs bd		1x300 mg tab od OR 15 ml od		8 ml bd OR 15 ml od		Choose only one option: 3 ml bd OR 2x100/25 mg paed tabs bd OR 1x200/50 mg adult tab bd		2.5 ml bd		6x100/25 mg paed tabs bd		OR		3x200/50 mg adult tabs bd		1x50 mg tab od		15-16.9		
17-19.9	1x300 mg tab bd		2x300 mg tabs od		1x150 mg tab bd		2x150 mg tabs od		1x300 mg tab bd		3 ml bd		300 mg (3 packets) bd		OR		3x200/50 mg adult tabs bd		1x50 mg tab bd		17-19.9
20-22.9	1x300 mg tab bd		1xABC/3TC 600/300 mg tab od		1x150 mg tab bd		1xABC/3TC 600/300 mg tab od		1xAZT/3TC 300/150 mg tab bd		3 ml bd		400 mg (4 packets) bd		OR		4x200/50 mg adult tabs bd		2 x 200 mg caps/tabs nocte		20-22.9
23-24.9	1x300 mg tab bd		1xABC/3TC 600/300 mg tab od		1x150 mg tab bd		1xABC/3TC 600/300 mg tab od		1xAZT/3TC 300/150 mg tab bd		3 ml bd		400 mg (4 packets) bd		OR		4x200/50 mg adult tabs bd		2 x 200 mg caps/tabs nocte		23-24.9
25-29.9	1x300 mg tab bd		1xABC/3TC 600/300 mg tab od		1x150 mg tab bd		1xABC/3TC 600/300 mg tab od		1xAZT/3TC 300/150 mg tab bd		3 ml bd		400 mg (4 packets) bd		OR		4x200/50 mg adult tabs bd		2 x 200 mg caps/tabs nocte		25-29.9
30-34.9	1x300 mg tab bd		1xABC/3TC 600/300 mg tab od		1x150 mg tab bd		1xABC/3TC 600/300 mg tab od		1xAZT/3TC 300/150 mg tab bd		3 ml bd		400 mg (4 packets) bd		OR		4x200/50 mg adult tabs bd		2 x 200 mg caps/tabs nocte		30-34.9
35-39.9	1x300 mg tab bd		1xABC/3TC 600/300 mg tab od		1x150 mg tab bd		1xABC/3TC 600/300 mg tab od		1xAZT/3TC 300/150 mg tab bd		3 ml bd		400 mg (4 packets) bd		OR		4x200/50 mg adult tabs bd		2 x 200 mg caps/tabs nocte		35-39.9
≥40	1x300 mg tab bd		1xABC/3TC 600/300 mg tab od		1x150 mg tab bd		1xABC/3TC 600/300 mg tab od		1xAZT/3TC 300/150 mg tab bd		4 ml bd		400 mg (4 packets) bd		OR		4x200/50 mg adult tabs bd		1x600 mg tab nocte OR FDC: TEE if eligible od		≥40

Avoid LPV/r solution in any full-term infant <14 days of age and any premature infant <42 weeks post conceptual age (corrected gestational age) or obtain expert advice.
 * Children weighing 25-29.9 kg may also be dosed with LPV/r 200/50 mg adult tabs: 2 tabs am + 1 tab pm.
 † Atazanavir + ritonavir should not be used in children/adolescents on treatment with Rifampicin, obtain expert advice.
 No dosage adjustments are required for children receiving treatment with Efavirenz and Rifampicin.

od = once a day; nocte = at night; bd = twice a day; am = in the morning; pm = in the evening; std = standard; FDC = fixed dose combination; TLD = tenofovir/lamivudine/dolutegravir; TEE = tenofovir/emtricitabine/efavirenz

Weight (kg)	3-5.9	6-13.9	14-24.9	≥25
Cotrimoxazole Dose	2.5 ml od	5 ml or ½ tab	10 ml or 1 tab	2 tabs od
Multivitamin Dose	2.5 ml od	2.5 ml od	5 ml od	10 ml od

ARV DOSING CHART FROM BIRTH TO 28 DAYS OF AGE[‡]

Birth weight ≥ 2.5 kg and gestational age ≥ 35 weeks*

	Lamivudine (3TC)		Zidovudine (AZT)		Nevirapine (NVP)	
Target dose	2 mg/kg/dose TWICE daily (BD)		4 mg/kg/dose TWICE daily (BD)		6 mg/kg/dose TWICE daily (BD)	
Available formulation	10mg/ml		10mg/ml		10mg/ml	
Weight (kg)	Dose in ml	Dose in mg	Dose in ml	Dose in mg	Dose in ml	Dose in mg
≥ 2.5 - <3	0.5 ml BD	5 mg BD	1 ml BD	10 mg BD	1.5 ml BD	15 mg BD
≥ 3 - <4	0.8 ml BD	8 mg BD	1.5 ml BD	15 mg BD	2 ml BD	20 mg BD
≥ 4 - <5	1 ml BD	10 mg BD	2 ml BD	20 mg BD	3 ml BD	30 mg BD

- Dosing is based on the birth weight of the child. It is not necessary to change the dose before 28 days of age if for example if the weight decreases in the first week or two of life.
- Caregivers administering ARV medication to the child must be supplied with a syringe (2 ml or 5 ml) for each of the 3 ARVs and shown how to prepare and administer the prescribed dose. If required, bottles and syringes should be colour coded with stickers and a sticker of the relevant colour used to mark the correct dose on the syringe.

[‡]Refer to the protocol for initiation of ART in HIV-infected neonates in the NDOH 2019 ART Clinical Guidelines which includes guidance on ARV management after 28 days of age
*Consult with a clinician experienced in paediatric ARV prescribing or the National HIV & TB Health Care Worker Hotline for neonates with birth weight <2.5 kg or gestational age <35 weeks

PRACTICAL ADVICE ON ADMINISTRATION OF ARV DRUGS

ARV Drug	Formulations (as used in dosing chart)	Can tablets be split/crushed if unable to swallow?	Comment
Abacavir (ABC)	Oral solution: 20 mg/ml Tablets: 60 mg, 300 mg FDC tablet: ABC/3TC 600/300 mg	Tablets: YES	Hypersensitivity reaction (fever, rash, GIT & respiratory symptoms) may occur during first 6 weeks of therapy, very uncommon in black African patients. Symptoms typically worsen in the hours immediately after the dose and after each subsequent dose. Caregivers or patients should discuss symptoms early with the clinician rather than stopping therapy. Stop ABC permanently if hypersensitivity reaction has occurred.
Lamivudine (3TC)	Oral solution: 10 mg/ml Tablets: 150 mg; FDC tablets: ABC/3TC 600/300 mg, TLD 300/300/50 mg	Limited data on FDC, preferably swallow whole or use individual drugs.	Well tolerated, adverse-effects uncommon. Pure red cell aplasia causing anaemia can occur but is very rare.
Zidovudine (AZT)	Oral solution: 10 mg/ml Tablets: 100 mg, 300 mg Capsules: 100 mg FDC tablet: AZT/3TC 300/150 mg	Tablets & FDC: YES Capsules: YES . Open and add to a small amount of soft food/liquid and ingest immediately.	Avoid or use with caution in neonates or children with anaemia (Hb <8 g/dl) due to potential to cause bone marrow suppression.
Tenofovir (TDF)	Tablets: 300 mg FDC tablets: TDF/FTC 300/200 mg, TEE 300/200/600 mg, TDF/3TC/EFV 300/300/600 mg, TLD 300/300/50 mg	Data is lacking: preferably swallow whole or use individual drugs.	TDF may be prescribed for adolescents ≥ 10 years of age AND ≥ 35 kg body weight after ensuring adequate renal function by checking eGFR/creatinine using the appropriate formula (refer to 2019 ART Clinical Guidelines). TDF is usually prescribed as part of an FDC tablet: TDF/FTC, TDF/FTC/EFV, TDF/3TC/EFV or TDF/3TC/DTG. To assess for TDF-induced nephrotoxicity, do creatinine and eGFR at months 3, 6 and 12 and thereafter repeat every 12 months.
Lopinavir/ritonavir (LPV/r)	Oral solution: 80/20 mg/ml Tablets: 200/50 mg, 100/25 mg	Tablets: NO	Oral solution should be refrigerated/stored at room temperature (if $<25^{\circ}\text{C}$) for up to 6 weeks. Preferably administer oral solution with food as increases absorption. Strategies to improve tolerance and palatability of oral solution: coat mouth with peanut butter, dull taste buds with ice, follow dose with sweet foods. Many drug-drug interactions. [#]
Ritonavir (RTV)	Oral solution: 80 mg/ml Oral powder: 100 mg/packet Tablets: 100 mg	Must be swallowed whole and not divided, crushed or chewed.	Ritonavir oral solution should be stored at room temperature, shelf-life is approximately 6 months. Strategies to improve tolerance and palatability of oral solution: coat mouth with peanut butter, dull taste buds with ice, follow dose with sweet foods. Each 100 mg packet of RTV powder should be mixed with a small amount of water or soft food and immediately ingested. Many drug-drug interactions. [#]
Atazanavir (ATV)	Capsules: 150 mg, 200 mg	Capsules: NO Must be swallowed whole and not divided, crushed or chewed.	ATV is used in combination with RTV which must be dosed separately as a co-formulation is not available. May cause unconjugated hyperbilirubinaemia resulting in jaundice but this does not indicate hepatic toxicity and not a reason to discontinue the drug unless it is worrying the patient. Consider drug-drug interactions. [#]
Dolutegravir (DTG)	Tablets: 50 mg FDC tablet: TLD 300/300/50 mg	Tablet: YES Data on crushing FDC tablet is lacking: swallow whole or use individual drugs.	Iron supplements decrease DTG concentrations if taken together on an empty stomach. To prevent this, DTG and iron supplements can be taken at the same time if taken with food. May be helpful to administer as a morning dose rather than an evening dose if insomnia occurs with evening dosing. May raise creatinine levels by up to 15% without affecting renal function. Consider drug-drug interactions. [#]
Efavirenz (EFV)	Capsules: 50 mg, 200 mg Tablets: 50 mg, 200 mg, 600 mg FDC tablet: TEE 300/200/600 mg	Tablets: NO Must be swallowed whole and not divided, crushed or chewed. Capsules: YES . Open and add to small amount of soft food and ingest immediately.	Best given at bedtime to reduce CNS side-effects, especially during first 2 weeks. Consider drug-drug interactions. [#]

FDC = fixed dose combination; eGFR = estimated glomerular filtration rate; GIT = gastrointestinal tract; TEE = Tenofovir/Emtricitabine/Efavirenz; TLD = Tenofovir/Lamivudine/Dolutegravir;

#EML-Antiretroviral interactions table (<http://www.mic.uct.ac.za>) OR www.hiv-druginteractions.org/checker OR the Liverpool HIV iChart application for smart phones, or any of the helplines: National HIV and TB Health Care Worker Hotline: 0800 212 506 or Right to Care Paediatric and Adolescent HIV Helpline: 082 352 6642 and KZN Paediatric Hotline: 0800 006 630

NEED HELP?

Contact the TOLL-FREE National HIV & TB Health Care Worker Hotline at
0800 212 506 / 021 406 6782
Alternatively "whatsapp" or send an SMS or "Please Call Me" to 071 840 1572

