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Therapeutics Bulletin

Oral amoxicillin-clavulanate dosing guidance for children >3 months with normal renal function

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KEY POINTS TO REMEMBER

- Oral amoxicillin-clavulanate exists in various formulations of varying amoxicillin-to-clavulanate ratios (liquid – 14:1 & 4:1; tablet – 7:1)
- Medication errors may occur if the different formulations are not considered.
- Look up the amoxicillin dose in the tables below against the patient's weight for the various formulations, given the specific indication.

Oral amoxicillin-clavulanate dosing guidance for children >3 months with normal renal function

Amoxicillin-clavulanate is a commonly prescribed antibiotic for paediatric bacterial infections with multiple formulations of varying amoxicillin-to-clavulanate ratios (liquid – 14:1 & 4:1; tablet – 7:1) and dosing regimens.

Currently there are several formulations of oral amoxicillin-clavulanate available at Tygerberg Hospital (TBH). The differences in dosing guidelines and formulations increases the risk of medication errors, particularly in paediatric patients.

This bulletin aims to provide clear, standardised dosing guidance tailored for children >3 months at TBH with normal renal function.

Dosing and dose interval should be guided by the following:

1. **Indication** – What is the indication for amoxicillin/clavulanate?
2. **Formulation prescribed** – What formulation has been prescribed (liquid or tablet)?
3. **Adverse effects** – Consider the upper limit of clavulanate dose (<10 mg/kg/day or 250 mg/day) to minimise gastrointestinal adverse effects.

ALWAYS indicate the **formulation** when you prescribe amoxicillin-clavulanate to ensure that nursing and pharmacy staff dispense and dose correctly.

Table 1: Available LIQUID formulations

Formulation	Dosing interval	Dose of amoxicillin per day in patients with normal renal function
4:1 125 mg/31 mg per 5 mL	8-hourly orally	45-75 mg/kg/**day*** divided in 3 doses
4:1 250 mg/62.5 per 5 mL		
14:1 600 mg/42.9 mg per 5 mL	12-hourly orally	80-90 mg/kg/**day*** divided in 2 doses
*Calculate the daily dose based on the amoxicillin component and on actual weight, then ***divide the daily dose*** to determine the dose to be given per the recommended dosing interval. Weight banded dosing is provided in Tables 3, 4, and 5 below. Additional amoxicillin can be prescribed if higher amoxicillin doses are needed. Do not the clavulanate dose limit of 10 mg/kg/day or 250 mg, as gastrointestinal side effects will increase with no efficacy benefit.		

Table 2: Available TABLET formulations

Formulation	Dosing interval	Dose of amoxicillin per day in patients with normal renal function
7:1 875 mg/125 mg per tablet	12-hourly orally	40-45 mg/kg/**day*** divided in 2 doses
*Note: 45 mg/kg/**day** of the 7:1 formulation has the same amount of clavulanic acid as 90 mg/kg/**day** of the 14:1 formulation. - Additional amoxicillin can be prescribed if higher amoxicillin doses are needed. - **Do NOT** use the 2:1 tablet formulation (250 mg/125 mg tablets) in children <40 kg.		

The 4:1 (or 7:1) formulation should be prescribed, including for UTIs, expect for the following indications where the 14:1 (high-dose) formulation is recommended:

- Pneumonia (only indicated in selected children as per the TBH guideline)
- ENT-related infections:
  - Otitis media (amoxicillin only is first choice in uncomplicated otitis media)
  - Sinusitis
  - Orbital and preorbital cellulitis

USE THE TABLES 3, 4, & 5 BELOW TO PRESCRIBE WEIGHT-BANDED DOSES WHERE POSSIBLE

Table 3: Weight-banded dosing for 4:1 formulation (125 mg/31 mg per 5 mL or 250 mg/62.5 mg per 5 mL):

Weight (kg)	**mL per dose 3 THREE times a day (8-hourly)** (15-25 mg/kg/dose)			Weight (kg)
	125 mg/31 mg per 5 mL	250 mg/62.5 mg per 5 mL	Amoxicillin/dose (mg) of either formulation	
3 – 3.9	2.5	1.3	62.5	3 – 3.9
4 – 4.9	3	1.5	75	4 – 4.9
5 – 6.9	4	2	100	5 – 6.9
7 – 8.9	6	3	150	7 – 8.9
9 – 10.9	8	4	200	9 – 10.9
11 – 13.9	10	5	250	11 – 13.9
14 –16.9	12	6	300	14 – 16.9
17 –24.9	15	7.5	375	17 – 24.9

Table 4: Weight-banded dosing for 14:1 (high-dose) liquid and 7:1 tablet formulations:

Weight (kg)	**14:1 formulation** 600 mg/42.9 mg per 5 mL		**7:1 formulation** 875 mg/125 mg tablet		Weight (kg)
	mL TWICE a day (12-hourly)	Amoxicillin/ dose (mg)	Tablets TWICE a day (12-hourly)	Amoxicillin/dose (mg)*	
3 – 3.9	1	120			3 – 3.9
4 – 4.9	1.5	180			4 – 4.9
5 – 5.9	2	240			5 – 5.9
6 – 6.9	2	240			6 – 6.9
7 – 7.9	2.5	300			7 – 7.9
8 – 8.9	3	360			8 – 8.9
9 – 9.9	3	360			9 – 9.9
10 –10.9	4	480			10 – 10.9
11 – 11.9	4	480			11 – 11.9
12 – 12.9	4.5	540			12 – 12.9
13 – 13.9	5	600			13 – 13.9
14 – 14.9	5	600			14 – 14.9
15 – 15.9	5.5	660			15 – 15.9
16 – 16.9	6	720			16 – 16.9
17 – 17.9	6	720	1	875	17 – 17.9
18 – 18.9	7	840	1	875	18 – 18.9
19 – 19.9	7	840	1	875	19 – 19.9
20 – 24.9	7.5	900	1	875	20 – 24.9
25 – 29.9	10	1200	1	875	25 – 29.9
30 – 39.9	12.5	1500	2	1750	30 – 39.9
*This is the usual dose, if additional amoxicillin is needed, add as amoxicillin-only tablets.					

What should you do if the 14:1 (high-dose) formulation is not available but indicated?

- Approximate the dose of the 14:1 (high-dose) formulation by adding amoxicillin to the 4:1 amoxicillin-clavulanate formulation.

Table 5: Weight-banded dosing for 4:1 (250 mg/62.5 mg per 5 mL) formulation with additional amoxicillin to approximate the 14:1 (high-dose) formulation:

Weight (kg)	**4:1 amoxicillin-clavulanate (250 mg/62.5 mg per 5 mL)**		**Amoxicillin only (250 mg per 5 mL)**		TOTAL Amoxicillin /dose (mg)	Weight (kg)
	mL TWICE a day (12-hourly)	Amoxicillin/ dose (mg)	mL TWICE a day (12-hourly)	Amoxicillin/ dose (mg)		
3 – 3.9	1	50	1.5	75	125	3 – 3.9
4 – 4.9	1	50	2.5	125	175	4 – 4.9
5 – 5.9	2	100	2.5	125	225	5 – 5.9
6 – 6.9	2	100	3.5	175	275	6 – 6.9
7 – 7.9	2.5	125	3.5	175	300	7 – 7.9
8 – 8.9	2.5	125	4.5	225	350	8 – 8.9
9 – 9.9	3	150	5	250	400	9 – 9.9
10 – 10.9	3.5	175	6	300	475	10 – 10.9
11 – 11.9	3.5	175	7	350	525	11 – 11.9
12 – 12.9	3.5	175	7.5	375	550	12 – 12.9
13 – 13.9	4	200	8	400	600	13 – 13.9
14 – 14.9	4	200	8	400	600	14 – 14.9
15 – 15.9	4.5	225	9	450	675	15 – 15.9
16 – 16.9	4.5	225	10	500	725	16 – 16.9
17 – 17.9	5	250	11	550	800	17 – 17.9
18 – 18.9	5	250	12	600	850	18 – 18.9
19 – 19.9	5	250	12	600	850	19 – 19.9
20 – 20.9	6	300	12	600	900	20 – 24.9
21 – 21.9	6	300	12	600	900	21 – 21.9
22 – 22.9	6	300	12	600	900	22 – 22.9
23 – 23.9	6	300	15	750	1050	23 – 23.9
24 – 24.9	6	300	15	750	1050	24 – 24.9

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