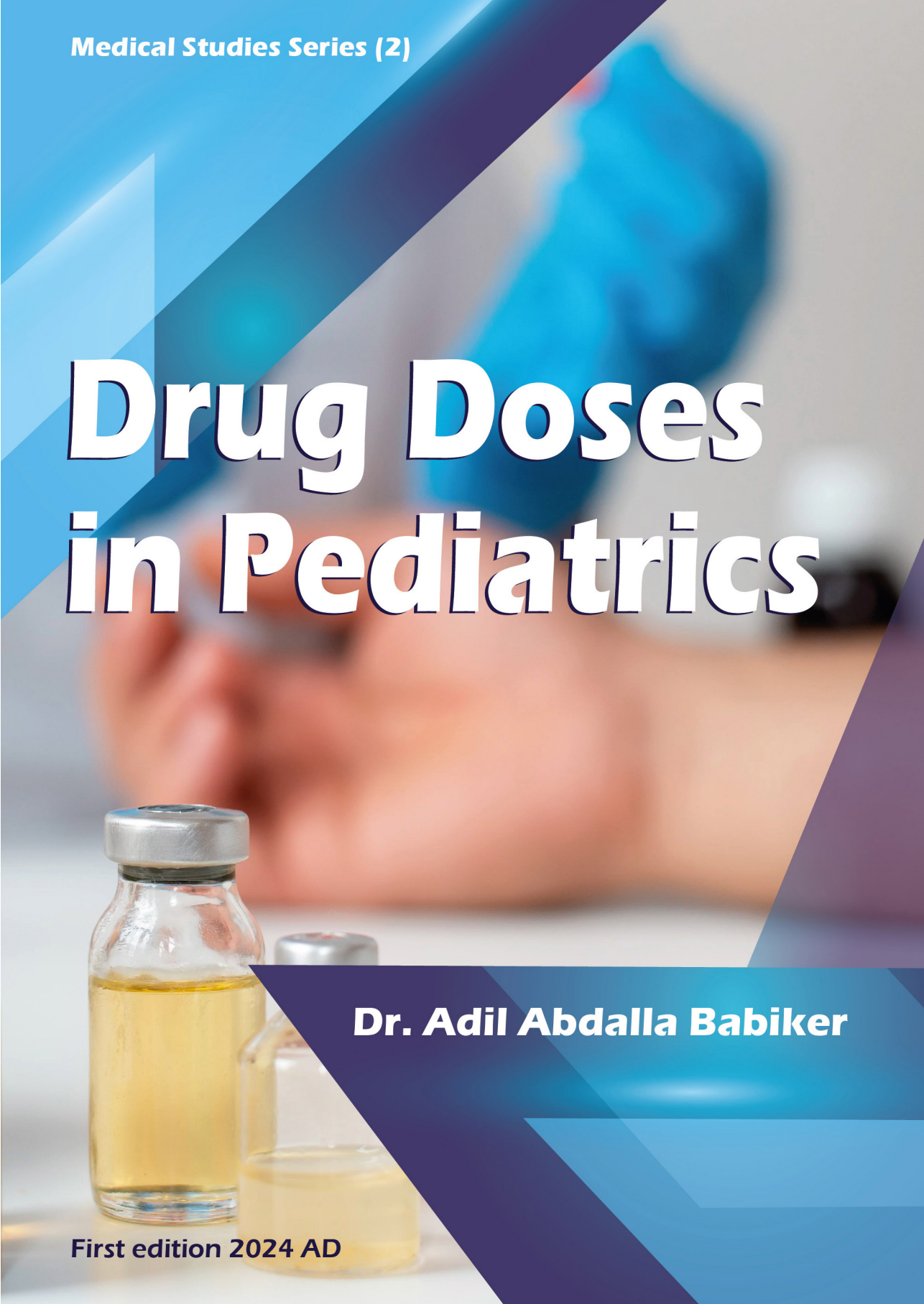
Medical Studies Series (2)

Drug Doses in Pediatrics



Dr. Adil Abdalla Babiker

First edition 2024 AD

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Dr. Adil Abdalla Babiker

Associate professor Pediatrics and child health

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اسم الكتاب

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الإيداع القانوني

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Dedication

To my family who support me through all stages of writing this book.

To my students who need this book.

To young doctors who need this book.

Table of contents

Abbreviations

ACT	artemisinin-based combination therapy
BA	Bronchial Asthma
BD	Twice a day
BNF	British National Formulary
g	Gram
G6PD	glucose 6-phosphate dehydrogenase
Hb	Haemoglobin
h/hr	Hour
IMCI	integrated management of childhood illnesses
IO	Intraosseous
ID	Intradermal
IM	intramuscular injection
IV	intravenous injection
Kg	Kilogram
LD	loading dose
MD	maintenance dose
Mcg	Microgram
Mg	Milligram
Min	Minute
MUAC	Middle upper arm circumference
NGT	Naso gastric tube
NB	Newborn
NS	Normal Saline
NSAID	Nonsteroidal Anti-inflammatory Drug
ORS	oral Rehydration Salts

OD	Once a day
QID	Four times per day
PR	per rectum
PO	Per Oral
SC	subcutaneous injection
TB	Tuberculosis
TDS	Thrice a day
WHO	World Health Organization
<	Less than
>	Greater than
≤	Less than or equal to
≥	Greater than or equal to

Preface

This pocket book, drug doses in pediatrics is important for medical students and young doctors to calculate doses for children , It intended to cover drugs that commonly used in casualty, inpatient and health centers ,It organized alphabetically to make search easily and calculate the doses per kilogram body weight, To calculate doses accurately to avoid overdose and toxicity and make a better response

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Joune 2024

chapter I

Introduction

Children are not mini adults, although doses of drugs in adults are fixed you need to calculate doses in children.usually we use the weight in kilogram (Kg) to calculate the dose but surface area (SA) is more accurate .

To calculate surface area by using the Mosteller formula:

1. Take your height in centimeters, e.g., 170.
2. Take your weight in kilograms, e.g., 60.
3. Multiply your height by your weight, 170 × 60 = 10200.
4. Divide the result by 3600, 10200/ 3600 = 2.8.
5. Find the square root of the result, SQRT 2.8 = 1.67.

$$\text{BSA [m2]} = \text{square root of } \frac{\text{height [cm]} \times \text{weight [kg]}}{3600}$$

The average body surface area for:

- Infants: 0.25 m^2
- Children of 2 years: 0.5 m^2
- Children of 10 years: 1.14 m^2
- Women: 1.6 m^2
- Men: 1.9m^2

pediatric stages of development are:

Preterm neonate Born < 37 weeks gestation

Term neonate Born at 37 to 42 weeks gestation

Post-term neonate Born at 42 weeks gestation

Neonate From 0 up to 28 days of age

Infant From 28 days up to 24 months of age

Child From 2 years up to 12 years of age

Adolescent From 12 years up to 18 years of age

Description of the frequency of side-effects

Very common	greater than 1 in 10
Common	1 in 100 to 1 in 10
Uncommon	1 in 1000 to 1 in 100
Rare	1 in 10 000 to 1 in 1000
Very rare	less than 1 in 10 000

Drug	Oral	Dose/ Day	Dose	Formula
Acetylsalicylic Acid (Aspirin)	Oral	6 hour-ly	80-120 mg/kg/ Day	Tab 100,300 mg
Adrenaline	IM/SC	Single	0.01-o.o2 mg/kg	Vial 1 mg/1 ml
Atropine	IV / IM	Single	2 < years 200 my 2 > years 400 my	200 , 400 mg vial 1mg / 1ml
Acycolovir	Oral/ IV	8 hour-ly	10 mg / kg/Day	Tab /200/400 mg Susp 200 mg Vial 200 mg
Allopurinol	Oral		10-20 mg/kg/D	200, 400 tab
albendazole	chew-able tablet, 400mg		200 mg (half tab-let) 12-24 months 400 mg (one tablet) over 24 months	
Albumin	IV		0.5-1 g/kg/dose (5% for hypovo-lemia, 25% for fluid restriction)	
Amlodipine	O	OD	0.05 - 0.1 mg/kg/ day	

Amoxicillin	Oral	8 hourly	20-50 mg/kg/D	Cap 250 , 500 Susp 125 , 250 Drops 100 mg /ml
Ampiclox	Oral / IV/IM	6 hourly	25 mg /kg/Dose 20-50mg/kg / Dose	Susp 250 mg /5 ml Vial 500 mg
Amocxicillin + Clavulanic acid Megamox, Amoclan	Oral I.v	8 hourly 12 hourly	12.5 mg/kg 22.5 mg/kg 15 mg /ks /Day	Sup 156/228 312/457 tas 625 / 375 vial 600 / 1.2g
Azithromycin	Oral	Single 3 ×	6/12 3y 10 mg/kg 3-7y 5 mg/kg 8-11 y 7.5 mg/kg 12 -10 mg/kg	Susp 200 mg Caps 250 mg Tab 500 mg
Artemether	IM	1.6 mg / kg	Initialy after 12hrs then daily for 6 days	80 mg, 40mg vial
Aminophylline	slow I.v	5mg/kg/ Dose in 200 ml NS	8 hourly	vial 250 mg 10ml

First Line

Artmether 20 mg + Lumefantrine 120 mg

Age in year	Wt in ks	Day 1		Day 2		Day 3		Total No of tas
		Ini-tially	8 hrs	M	E	M	E	
1 <	5 <	Not recommended						-
1-3 <	5-14 <	1	1	1	1	1	1	6
3-8 < 14	10 -24	2	2	2	2	2	2	12
8 – 10 25	25 – 34	3	3	3	3	3	3	18
11+	35+	4	4	4	4	4	4	24

Second Line

Dihydroartemisinin + piperaquine (DHAP)

DHAP Tablet sterngth	body weight (Kg)	Day 1	Day 2	Day 3	Total No of tablets
20/160 tablet	<5	Adjust the dose considering the weight			
	5 to <7	½	½	½	1½
	7 to <13	1	1	1	3
40/320 tablet	13 to <24	1	1	1	3
	24 to <36	2	2	2	6
	36 to <75	3	3	3	9
	>75	4	4	4	12

Drug	Route	Dose	Dose/Day	Formula
Benzyl Pencilin	IV/IM	U/kg/ 100.000 Day up 2/12 ¼ million million ½ 2-6/12 1 6/12 > million	6 hourly	Vial 1 million
Benza-thine Pencilin	I M	1-3 yr 600.000 /u dissolve in 2-5-3 ml 3-11yr 1.200.000IU dissolve in 5-6 ml 11 >yr 2.400.000IU dissolve in 10-12ml	Every 3-4 weeks	Vial 600.000 IU 1.200.000 IU 1.400.000 IU
Blood transfu-sion	10-20mg/ kg	Over 3-4 hr.		

Drug	Route	Dose	Dose/ Day	Formula
Calcium gluconate	1.v	1-2 ml/kg of 10%	Single	Amp. 10%10 ml
Captopril	Oral	0.1 – 0.4 mg/kg	1-4	
Carbamaze-pine	Oral	10-20 ml/kg/ Day	8-12	Tab 100, 200mg Sus 100mg/ 5ml
Carbencillin	IM/IV	50– 400mg/kg /D	6	

Cefalexin	Oral	25 – 100 mg/ kg/D	4	Syrp125,250 mg Cap 250,500 mg
Cefaloridine	IM/IV	15-30mg/kg /D	2-3	
Cefazolin 1st generation	IM/IV	25-100mg/kg /D	2-4	
Cefotaxime 3rd genera-zetax	IM/IV	50-200mg/kg /D	2-4	250, 500 mg, 1g
Cefixim 3rd (suprax)	oral	8-10 mg/kg/D 7-12 y 200 mg 12> y 400 mg	1-2	Sus 100mg/ 5ml Cap 200.400
Ceftriaxone 3rd g Samixon , onecef	IM/IV	20-80mg/kg /D	once	Vial 250-500 mg 1g
Cefuroxime 2rd g Maxil , zin-nacef Zinnat = oral	IM/IV oral	20-60 mg/kg / Day 7.5-15 mg /Day	12 hourly 8 hour-ly	Vi-al250,750mg Tabs125,250-500 mg
Ceftazidine 3rd g Fortun , negacif	IM/IV	100-150 mg/ kg/D	6-8 hourly	Vial 250-500 mg
Cefodoxine 3rd g Cefodor	oral	10 mg/kg/D	12 hourly	Tab :100, 200 Susp 50, 100 mg/ 5ml
Ceftazoxin 3rd g Cefizox	oral	100-150 mg/ kg/D	6-8 hourly	

Drug	Route	Dose	Dose/ Day	Formula
Chloramphen-icol	Oral 1.v	50-100 mg/kg/D	6 hourly	Cap 250 mg Vial 1g Susp 125 mg/5ml
Chlorpheni-ramine	Oral sc	0.1 – 0 35mg/kg / dose	4	
chlorothiazide	PO IV	10 - 20 mg/kg/ dose 5 - 10 mg/kg/dose	2	
Chlorproma-zine largactil	O/IM	0.5 – 1mg/kg /D	4	
Cloaxacillin	O/IM/IV	50-100 mgl/ kg/D	8 hourly	Vial 50 mg/2 ml Tab 50-100 mg
cotrimoxazole	Oral	8mg/kg/D Tmp 40mg/kg/D Smx	2	Susp 240mg/5ml Tab 80mg
Cifaclor 2nd gener mi-docef,cloracef	Oral	20-40mg/kg/ D	8 hourly	Tab
cyclophos-phamide		3 mg/kg/D		

Diazepam	IV/IR Oral	0.3mg/kg /dose 0.5mg/kg /dose (1 mg / 1 year)		Vial 10 mg /2ml Tab 2mg/ 5mg
Diclofenac Na	Oral IM	0.5- 3mg/kg /dose	8 hourly	Vial 75 mg/3ml Susp
dexametham-zone	I.V O	0.1mg/kg initially then 0.5 mgl/kg/ dose	6 hourly	Vial 4 mg / ml Tab 0.1g,1.5g
glucose (dextrose)				
Digoxin	O	0.04-0.0 8mg/kg ½ initially then ¼ given 8 hourly	2-3	Tab: 0.125 mg 0.25 mg
Dopamine	IV	Renal dose 2mg/ kg/min Cardiac dose 5-15 mg/kg/min		Vial 200 mg/5ml

Drug	Route	Dose	Dose/ Day	Formula
Enalapril	O	0.8 - 0.5 mg/kg/day	DAI-LY-BID	
Erythromycin	O	30-50mg/kg / D	8 hourly	Susp125/250mg Tab 250 mg
Ethambutol	O	15-25mg/ kg/ D	single	Tab 100,400
Ethosaximide	O	20-40 mg/ kg/D		
Ferglobin Fe , Zn , vit B,folic Acid	O	1-2yr. 2.5ml 3-5yr. 5ml	12 hourly	
Fe sulphate ferrum	O	6 mg/kg/D	8-12 hourly	Syrup 50 mg / 5ml
Folic acid	O	0.25 mg/ kg/D	once	Tab 5mg
Frusemide lasix	O/IV	0.5-2mg/kg / D	8-12 hourly	Tab 40 mg Vial/20 mg
Factor V111	1.v	miner bleeds 20U/ kg/Dose major bleeds 30U/ kg/Dose		
Fresh frozen plasma	1.v	10-20 mg/ kg		
Gentamycin	IM/IV	2.5 mg/kg/ dose	8 hourly	vail 80 mg 20 mg

glucose (dextrose)		5 ml/kg of 10%, or 1 ml/kg of 50% by slow push		injectable solution 10% isotonic injectable solution 50% hypertonic
Hydralazine	O IV	0.75 - 3 mg/kg/day 0.1 - 0.2 mg/kg/dose		Q6-12 Q4-6
Haloperidol	O	0.05 mg/kg/ Day	single	Tab 0.5 mg
Hyocine	IM/IV	0. 01 mg/ kg/dose	single	Vial 20 mg Tab 10mg
Heparine	IV	150 units/ kg /D		5000,25000 u/ml
morphine	O Im lv	oral 0.2-0.4 mg/kg 4-6 hourly, increase if necessary 0.1-0.2 mg/ kg 4-6 hourly 0.05-0.1 mg/kg 4-6 hourlyIV		solution 10 mg/5 ml; injection 10 mg in 5 ml ampoule
Nitrofurantion	O	5-7 mg/kg/ Day	4	Tab 100 mg

Naproxen	O	10mg/kg/ Day	2	
Nifedipine Adalat	O	0.2-0.7 mg/ kg/dose		Tab10mg-20mg Cap10mg-20mg
Nystatin	O drop		4	Bottle of / 30 ml
Na valproate Depakin	O	10-15 mg/ kg/Day	3	Cap 200/500 Sup 200mg/5ml Inj 100mg / 1ml Bottle 100ml (0.05mg/5ml

Drug	Route	Dose	Dose/ Day	Formula
Insulin	Sc	1U/kg/Day	1-2	100 /u/ml
Ibuprofen	O	20mg/kg/ Day	2-4	Tab 200-400 Susp 100 mg/5ml
Indometha-cin	O	3 mg/kg/ Day	3	
Isoniazide	O	10-20 mg/kg/ Day	1	Tab 50/100/150 300 mg
Lactulose	O	1 mg/kg/ Day	2	Syrp 3.3 5g/ 5 ml
Manitol	IV	LD 0.5-1g/kg/ dose MD 0.25-0.5 g/kg Over 20-30 min	1	Vial 200mg/1ml20%
Mefenac	O	0.5 mg/kg/dose	3	Susp50mg/5ml
Mebendozde	O	2> y 100 mg/dose Repeat after 2 Weeks if not cured	2 For 3 day	Tab250,500 mg
Meropenem	IV	20 mg/kg/dose (Max: 1 g/dose)		Q8
Metronida-zole Flagyl	O/1.V	7-8 mg/ kg/dose	3	Susp 125-200 mg / 5ml Tab : 250 mg Inf: 500mg/1ml
Metoclopro-mide	O/lM/ IV	0.5 mg/kg/Day	3	
Morphine	IM/IV	0.1- 0.2 mg/kg/ dose	1	Amp10mg/ 1ml
Multivita-min	O	2-4 y 2.5 ml 4> y 5 ml	1	
Ketotifen	O	6/12-3 y 2 5 ml 3> y 5 ml	2 For 3 day	Syrp 1 mg /5ml

Nitrofurantion	O	5-7 mg/kg/ Day	4	Tab 100 mg
Naproxen	O	10mg/kg/ Day	2	
Nifedipine Adalat	O	0.2-0.7 mg/kg/ dose		Tab10mg-20mg Cap10mg-20mg
Nystatin	O drop		4	Bottle of / 30 ml
Na valproate Depakin	O	10-15 mg/kg/ Day	3	Cap 200/500 Sup 200mg/5ml Inj 100mg / 1ml Bottle 100ml(0.05mg/5ml
Paracetamole	O	10-12 mg/kg Day	64-	Tab 500 mg Syrp 120mg/5ml Drops 100mg/1ml supp 125,250 Infusion
Pencillin	O	50.000 U/Kg/ dose	4	
	IM/ IV	25.000- 50.000U/Kg D	4- 6	
Pethidine	IM/ IV	1-2 mg/kg/ Day	1	50 mg in 1/m
Phenobarbi-tone	O	15-20 mg/ks/ Day ld 3-5 mg/ Day	1	15,30 mg tab
Phenytion	O	5 mg/kg/dose	2-3 5	Vial 250mg/5ml Susp 30 mg/5ml
prazequantil	O	40 mg/kg/dose	1	Tab 600 mg
Primaquine	O	0.15 mg/kg/ dose	12 hour-ly For 14/7	Tab 7.5 mg
Propranolol	O	0.5 mg/kg/dose	2-4	Tab 10,20 mg Cap 10,20 mg

Piracetam Norcetam	O	30 -160 mg/kg/ Day		2-4	Cap 400 mg Tab 800 mg Sup 200 mg/ml	
Orazon		Day 1	Day 2	Day 3	Day 4	
Orazon	1 y	41 ×	31 ×	21 ×	11 ×	Belle 100 ml
	2 y	42 ×	32 ×	22 ×	12 ×	0.05 mg/5ml
	3 y	44 ×	34 ×	24 ×	14 ×	
Omeprazol 20 mg 5 tablets in 500 ml sodium bicarbonate 1ml=2 mg	O		0.7-3.3 mg/ kg/day (Max 20mg)	5 mg bd	OD	
Nalidixic acid	O	55 mg/kg/ Day		4	Tab 500 mg	
Nystatin (100,000 units/mL)	O	Neonates: 1 mL/dose Infants: 2 mL/ dose Children & Adolescents: 5 mL/dose			QID	

Drug	Route	Dose	Dose/ Day	Formula
Predniso-lone	O	1-2 mg/kg/Day	2-4	Tab 5 mg
Potassium chloride	O / slow I.V	1-4 meq/kg/dose 0.5-1 meq/kg/ dose Rate 0.5 meq/kg/ hour	2-4	Tab 600 mg Syrp 1mmol/ml Vial : 10%; 6.7 meq/5ml 15%; 10 meq/5ml 2013.3;% meq/5ml
Procaine Penicillin	IM	50 000U/kg/Dose	1	Vial=1million
Prometh-azine Sedative	O	1 mg/kg/Day		Syrup 5 mg / 5 ml
Pyrazina-mide	O	10-15 mg/kg/Day	1	Tab 500
Quinine	O/IV	10mg/kg/dose 1ml fluid/1mg	8hour-ly	Tab 300 mg amp 600 / 2ml
Rifampicin	O	10-20 mg/kg/dose	single	Tab 150,300
Reserpine	IM O	0.07 mg/kg/dose 0.02 mg/kg/dose	3-4	
Rabies Vaccin	IM	Dose 0,3,7,14,28		
Salbuta-mol	O	0.1-0.15 mg/kg/ dose	8hour-ly	Tabs 2, 4 mg Syrup 2mg /5ml Neb 5mg /ml
Sprianol-actone	O	2-3 mg/kg/dose		Tab 25 mg 50mg
Streptomy-cin	IM	20-40 mg/kg/dose	single	Vial 1g
Sulfadox-ine Ryrimeth-amine Fansidor	O	25 mg/kg/dose sulph 1.25 mg/kg/dose 0.5 tab for 10 kg		Tab sulph 500 pyri 25 mg

Drug	Route	Dose	Dose/ Day	Formula
Turbutaline	O	0.02mg/kg/ dose	3	Tab 2.5 mg Susp 0.3 mg/5ml
Thiacetazon	O	5 mg/ks/dose	1	Tab 50,100,150,300 mg
Thiabendazole	O	50 mg/kg/dose	1	
Tinidazol Giardasis	O	50 mg/kg/dose	1	Tab 500 mg
Ameobiasis Thyroxin	O	60 mg/kg/dose	For 3 day	
Tetanus anti-toxin	IM	50-70 iu/kg/ dose	1	1500IU/I ml
Vancomycin	IV	15-20 mg/kg/ dose Meningitis: 20 mg/kg/dose	Q6-8	
Vitamin A	O	6/12 1 >yr 50.000 u 7> y		Cap 50 , 100 200.000 U
Vitamin B 12 microgram	O IM	15-30mi-crog3-5 time / wk 100microg monthly perni-cious Anaemia		
Vitamin B6	IM Slow/ IV	5 mg/kg/Day	1	Vial 100 mg /2ml Tab 40 mg
Vitamin C	Oral I.V	100-300mg daily		Tab 100 mg

Vitamin D	>	Neonate 50-100 nanog/kg daily Child 20 <kg 1microg daily Mainte-nance0.25-mi-crog Daily		0.25 microg tab 1 microg Drop 2 microg

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