

WHO Model List of Essential Medicines for Children

6th List

(March 2017)

(Amended August 2017)

Status of this document

This is a reprint of the text on the WHO Medicines website

<http://www.who.int/medicines/publications/essentialmedicines/en/>

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6th edition

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Explanatory notes

This Model List is intended for use for children up to 12 years of age.

The **core list** presents a list of minimum medicine needs for a basic health-care system, listing the most efficacious, safe and cost-effective medicines for priority conditions. Priority conditions are selected on the basis of current and estimated future public health relevance, and potential for safe and cost-effective treatment.

The **complementary list** presents essential medicines for priority diseases, for which specialized diagnostic or monitoring facilities, and/or specialist medical care, and/or specialist training are needed. In case of doubt medicines may also be listed as complementary on the basis of consistent higher costs or less attractive cost-effectiveness in a variety of settings.

The **square box symbol** (□) is primarily intended to indicate similar clinical performance within a pharmacological class. The listed medicine should be the example of the class for which there is the best evidence for effectiveness and safety. In some cases, this may be the first medicine that is licensed for marketing; in other instances, subsequently licensed compounds may be safer or more effective. Where there is no difference in terms of efficacy and safety data, the listed medicine should be the one that is generally available at the lowest price, based on international drug price information sources.

Therapeutic equivalence is indicated only on the basis of reviews of efficacy and safety and when consistent with WHO clinical guidelines. National lists should not use a similar symbol and should be specific in their final selection, which would depend on local availability and price.

The format and numbering of the 20th WHO Model List of Essential Medicines have been retained but, as indicated in the text, some sections have been deleted because they contain medicines that are not relevant for children.

a indicates that there is an age or weight restriction on use of the medicines; the details for each medicine are in Table 1.1 of Annex 1.

The presence of an entry on the Essential Medicines List carries no assurance as to pharmaceutical quality. It is the responsibility of the relevant national or regional drug regulatory authority to ensure that each product is of appropriate pharmaceutical quality (including stability) and that when relevant, different products are interchangeable.

For recommendations and advice concerning all aspects of the quality assurance of medicines see the WHO Medicines website http://www.who.int/medicines/areas/quality_safety/quality_assurance/en/.

Medicines and dosage forms are listed in alphabetical order within each section and there is no implication of preference for one form over another. Standard treatment guidelines should be consulted for information on appropriate dosage forms.

The main terms used for dosage forms in the Essential Medicines List can be found in Table 1.2 of Annex 1.

Definitions of many of these terms and pharmaceutical quality requirements applicable to the different categories are published in the current edition of *The International Pharmacopoeia* <http://www.who.int/medicines/publications/pharmacopoeia>.

1. ANAESTHETICS, PREOPERATIVE MEDICINES AND MEDICAL GASES	
1.1 General anaesthetics and oxygen	
1.1.1 Inhalational medicines	
halothane	Inhalation.
isoflurane	Inhalation.
nitrous oxide	Inhalation.
oxygen	Inhalation (medical gas).
1.1.2 Injectable medicines	
ketamine	Injection: 50 mg (as hydrochloride)/mL in 10-mL vial.
propofol *	Injection: 10 mg/mL; 20 mg/mL. * Thiopental may be used as an alternative depending on local availability and cost.
1.2 Local anaesthetics	
<input type="checkbox"/> bupivacaine	Injection: 0.25%; 0.5% (hydrochloride) in vial. Injection for spinal anaesthesia: 0.5% (hydrochloride) in 4-mL ampoule to be mixed with 7.5% glucose solution.
<input type="checkbox"/> lidocaine	Injection: 1%; 2% (hydrochloride) in vial. Injection for spinal anaesthesia: 5% (hydrochloride) in 2-mL ampoule to be mixed with 7.5% glucose solution. Topical forms: 2% to 4% (hydrochloride).
lidocaine + epinephrine (adrenaline)	Dental cartridge: 2% (hydrochloride) + epinephrine 1:80 000. Injection: 1%; 2% (hydrochloride or sulfate) + epinephrine 1:200 000 in vial.
1.3 Preoperative medication and sedation for short-term procedures	
atropine	Injection: 1 mg (sulfate) in 1-mL ampoule.
<input type="checkbox"/> midazolam	Injection: 1 mg/mL. Oral liquid: 2 mg/mL. Tablet: 7.5 mg; 15 mg.
morphine	Injection: 10 mg (sulfate or hydrochloride) in 1-mL ampoule.

1.4 Medical gases	
oxygen*	<p>Inhalation</p> <p>For use in the management of hypoxaemia.</p> <p>*No more than 30% oxygen should be used to initiate resuscitation of neonates less than or equal to 32 weeks of gestation.</p>
2. MEDICINES FOR PAIN AND PALLIATIVE CARE	
2.1 Non-opioids and non-steroidal anti-inflammatory medicines (NSAIMs)	
ibuprofen <input type="checkbox"/>	<p>Oral liquid: 200 mg/5 mL.</p> <p>Tablet: 200 mg; 400 mg; 600 mg.</p> <p><input type="checkbox"/> Not in children less than 3 months.</p>
paracetamol*	<p>Oral liquid: 120 mg/5 mL; 125 mg/5 mL.</p> <p>Suppository: 100 mg.</p> <p>Tablet: 100 mg to 500 mg.</p> <p>* Not recommended for anti-inflammatory use due to lack of proven benefit to that effect.</p>
2.2 Opioid analgesics	
<input type="checkbox"/> morphine*	<p>Granules (slow release; to mix with water): 20 mg to 200 mg (morphine sulfate).</p> <p>Injection: 10 mg (morphine hydrochloride or morphine sulfate) in 1-mL ampoule.</p> <p>Oral liquid: 10 mg (morphine hydrochloride or morphine sulfate)/5 mL.</p> <p>Tablet (slow release): 10 mg – 200mg (morphine hydrochloride or morphine sulfate).</p> <p>Tablet (immediate release): 10 mg (morphine sulfate).</p> <p>*Alternatives limited to hydromorphone and oxycodone.</p>
<i>Complementary list</i>	
methadone*	<p>Tablet: 5 mg; 10 mg (as hydrochloride).</p> <p>Oral liquid: 5mg/ 5mL; 10mg/ 5mL (as hydrochloride).</p> <p>Concentrate for oral liquid: 5 mg/ mL; 10mg/ mL (as hydrochloride)</p> <p>*For the management of cancer pain.</p>
2.3 Medicines for other symptoms common in palliative care	
amitriptyline	Tablet: 10 mg; 25 mg.
cyclizine	<p>Injection: 50 mg/mL.</p> <p>Tablet: 50 mg.</p>

dexamethasone	Injection: 4 mg/mL in 1-mL ampoule (as disodium phosphate salt). Oral liquid: 2 mg/5 mL. Tablet: 2 mg.
diazepam	Injection: 5 mg/mL. Oral liquid: 2 mg/5 mL. Rectal solution: 2.5 mg; 5 mg; 10 mg. Tablet: 5 mg; 10 mg.
docusate sodium	Capsule: 100 mg. Oral liquid: 50 mg/5 mL.
fluoxetine <input type="checkbox"/>	Solid oral dosage form: 20 mg (as hydrochloride). <input type="checkbox"/> >8 years.
hyoscine hydrobromide	Injection: 400 micrograms/mL; 600 micrograms/mL. Transdermal patches: 1 mg/72 hours.
lactulose	Oral liquid: 3.1–3.7 g/5 mL.
midazolam	Injection: 1 mg/mL; 5 mg/mL. Oral liquid: 2mg/mL. Solid oral dosage form: 7.5 mg; 15 mg.
ondansetron <input type="checkbox"/>	Injection: 2 mg base/mL in 2-mL ampoule (as hydrochloride). Oral liquid: 4 mg base/5 mL. Solid oral dosage form: Eq 4 mg base; Eq 8 mg base. <input type="checkbox"/> >1 month.
senna	Oral liquid: 7.5 mg/5 mL.
3. ANTIALLERGICS AND MEDICINES USED IN ANAPHYLAXIS	
dexamethasone	Injection: 4 mg/mL in 1-mL ampoule (as disodium phosphate salt).
epinephrine (adrenaline)	Injection: 1 mg (as hydrochloride or hydrogen tartrate) in 1-mL ampoule.
hydrocortisone	Powder for injection: 100 mg (as sodium succinate) in vial.
<input type="checkbox"/> loratadine *	Oral liquid: 1 mg/mL. Tablet: 10 mg. *There may be a role for sedating antihistamines for limited indications.
<input type="checkbox"/> prednisolone	Oral liquid: 5 mg/mL. Tablet: 5 mg; 25 mg.

4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONINGS	
4.1 Non-specific	
charcoal, activated	Powder.
4.2 Specific	
acetylcysteine	Injection: 200 mg/mL in 10-mL ampoule. Oral liquid: 10%; 20%.
atropine	Injection: 1 mg (sulfate) in 1-mL ampoule.
calcium gluconate	Injection: 100 mg/mL in 10-mL ampoule.
naloxone	Injection: 400 micrograms (hydrochloride) in 1-mL ampoule.
<i>Complementary List</i>	
<i>deferoxamine</i>	Powder for injection: 500 mg (mesilate) in vial.
<i>dimercaprol</i>	Injection in oil: 50 mg/mL in 2-mL ampoule.
<i>fomepizole</i>	Injection: 5 mg/mL (sulfate) in 20-mL ampoule or 1 g/mL (base) in 1.5-mL ampoule.
<i>sodium calcium edetate</i>	Injection: 200 mg/mL in 5-mL ampoule.
<i>succimer</i>	Solid oral dosage form: 100 mg.
5. ANTICONVULSANTS/ANTIEPILEPTICS	
carbamazepine	Oral liquid: 100 mg/5 mL. Tablet (chewable): 100 mg; 200 mg. Tablet (scored): 100 mg; 200 mg.
diazepam	Gel or rectal solution: 5 mg/mL in 0.5 mL; 2-mL; 4-mL tubes.
lamotrigine*	Tablet: 25 mg; 50 mg; 100 mg; 200 mg. Tablet (chewable, dispersible): 2 mg; 5 mg; 25 mg; 50 mg; 100 mg; 200 mg. *as adjunctive therapy for treatment-resistant partial or generalized seizures.
<input type="checkbox"/> lorazepam	Parenteral formulation: 2 mg/mL in 1-mL ampoule; 4 mg/mL in 1-mL ampoule.
midazolam	Solution for oromucosal administration: 5 mg/mL; 10 mg/mL Ampoule*: 1 mg/ mL; 10 mg/mL *for buccal administration when solution for oromucosal administration is not available

phenobarbital	<p>Injection: 200 mg/mL (sodium).</p> <p>Oral liquid: 15 mg/5 mL.</p> <p>Tablet: 15 mg to 100 mg.</p>
phenytoin	<p>Injection: 50 mg/mL in 5-mL vial (sodium salt).</p> <p>Oral liquid: 25 mg to 30 mg/5 mL.*</p> <p>Solid oral dosage form: 25 mg; 50 mg; 100 mg (sodium salt).</p> <p>Tablet (chewable): 50 mg.</p> <p>* The presence of both 25 mg/5 mL and 30 mg/5 mL strengths on the same market would cause confusion in prescribing and dispensing and should be avoided.</p>
valproic acid (sodium valproate)	<p>Oral liquid: 200 mg/5 mL.</p> <p>Tablet (crushable): 100 mg.</p> <p>Tablet (enteric-coated): 200 mg; 500 mg (sodium valproate).</p>
<i>Complementary List</i>	
<i>ethosuximide</i>	<p>Capsule: 250 mg.</p> <p>Oral liquid: 250 mg/5 mL.</p>
<i>valproic acid (sodium valproate)</i>	<p>Injection: 100 mg/ mL in 4- mL ampoule; 100 mg/ mL in 10-mL ampoule.</p>
6. ANTI-INFECTIVE MEDICINES	
6.1 Anthelmintics	
6.1.1 Intestinal anthelmintics	
albendazole	Tablet (chewable): 400 mg.
ivermectin	Tablet (scored): 3 mg.
levamisole	Tablet: 50 mg; 150 mg (as hydrochloride).
mebendazole	Tablet (chewable): 100 mg; 500 mg.
niclosamide	Tablet (chewable): 500 mg.
praziquantel	Tablet: 150 mg; 600 mg.
pyrantel	<p>Oral liquid: 50 mg (as embonate or pamoate)/mL.</p> <p>Tablet (chewable): 250 mg (as embonate or pamoate).</p>

6.1.2 Antifilarials	
albendazole	Tablet (chewable): 400 mg.
diethylcarbamazine	Tablet: 50 mg; 100 mg (dihydrogen citrate).
ivermectin	Tablet (scored): 3 mg.
6.1.3 Antischistosomes and other antitremitode medicines	
praziquantel	Tablet: 600 mg.
triclabendazole	Tablet: 250 mg.
<i>Complementary List</i>	
<i>oxamniquine*</i>	<p><i>Capsule: 250 mg.</i></p> <p><i>Oral liquid: 250 mg/5 mL.</i></p> <p><i>* Oxamniquine is listed for use when praziquantel treatment fails.</i></p>

6.2 Antibacterials

To assist in the development of tools for antibiotic stewardship at local, national and global levels and to reduce antimicrobial resistance, three different categories were developed – ACCESS, WATCH and RESERVE groups.

Group 1 - KEY ACCESS ANTIBIOTICS

To improve both access and clinical outcomes antibiotics that were first or second choice antibiotics in at least one of the reviewed syndromes are designated as key ACCESS antibiotics, emphasizing their role as the antibiotics that should be widely available, affordable and quality-assured. ACCESS antibiotics are listed below. Selected ACCESS antibiotics may also be included in the WATCH group.

6.2.1 Beta-lactam medicines		6.2.2 Other antibacterials	
amoxicillin	cefotaxime*	amikacin	gentamicin
amoxicillin + clavulanic acid	ceftriaxone*	azithromycin*	metronidazole
ampicillin	cloxacillin	chloramphenicol	nitrofurantoin
benzathine benzylpenicillin	phenoxymethylpenicillin	ciprofloxacin*	spectinomycin (EML only)
benzylpenicillin	piperacillin + tazobactam*	clarithromycin*	sulfamethoxazole + trimethoprim
cefalexin	procaine benzyl penicillin	clindamycin	vancomycin (oral)*
cefazolin	<i>meropenem</i>	doxycycline	<i>vancomycin (parenteral)*</i>
cefixime*			

Italics = complementary list

*Watch group antibiotics included in the EML/EMLC only for specific, limited indications

The 2017 Expert Committee identified the following antibiotics or antibiotic classes that should be the subject of a specific stewardship focus. Antibiotics or antibiotic classes in these groups are designated accordingly in the EML/EMLC. The “WATCH” and “RESERVE” stewardship groups could assist in activities such as local, national and global monitoring of use; development of guidelines and educational activities.

Group 2 - WATCH GROUP ANTIBIOTICS

This group includes antibiotic classes that have higher resistance potential and so are recommended as first or second choice treatments only for a specific, limited number of indications. These medicines should be prioritized as key targets of stewardship programs and monitoring.

This group includes most of the highest priority agents among the Critically Important Antimicrobials for Human Medicine¹ and/or antibiotics that are at relatively high risk of selection of bacterial resistance.

Watch group antibiotics
Quinolones and fluoroquinolones e.g. ciprofloxacin, levofloxacin, moxifloxacin, norfloxacin
3rd-generation cephalosporins (with or without beta-lactamase inhibitor) e.g. cefixime, ceftriaxone, cefotaxime, ceftazidime
Macrolides e.g. azithromycin, clarithromycin, erythromycin
Glycopeptides e.g. teicoplanin, vancomycin
Antipseudomonal penicillins + beta-lactamase inhibitor e.g. piperacillin-tazobactam
Carbapenems e.g. meropenem, imipenem + cilastatin
Penems e.g. faropenem

¹ <http://apps.who.int/iris/bitstream/10665/251715/1/9789241511469-eng.pdf?ua=1>

Group 3 - RESERVE GROUP ANTIBIOTICS

This group includes antibiotics that should be treated as “last resort” options that should be accessible, but whose use should be tailored to highly specific patients and settings, when all alternatives have failed (e.g., serious, life-threatening infections due to multi-drug resistant bacteria). These medicines could be protected and prioritized as key targets of national and international stewardship programs involving monitoring and utilization reporting, to preserve their effectiveness.

Reserve group antibiotics	
Aztreonam	Fosfomycin (IV)
4th generation cephalosporins e.g. cefepime	Oxazolidinones e.g. linezolid
5th generation cephalosporins e.g. ceftaroline	Tigecycline
Polymyxins e.g. polymyxin B, colistin	Daptomycin

6.2.1 Beta-lactam medicines

amoxicillin	<p>Powder for oral liquid: 125 mg (as trihydrate)/5 mL; 250 mg (as trihydrate)/5 mL .</p> <p>Solid oral dosage form: 250 mg; 500 mg (as trihydrate).</p> <p>Powder for injection: 250 mg; 500 mg; 1 g (as sodium) in vial.</p>	
	<p>FIRST CHOICE</p> <ul style="list-style-type: none"> - <i>community acquired pneumonia (mild to moderate)</i> - <i>community acquired pneumonia (severe)</i> - <i>complicated severe acute malnutrition</i> - <i>lower urinary tract infections</i> - <i>otitis media</i> - <i>pharyngitis</i> - <i>sepsis in neonates and children</i> - <i>sinusitis</i> - <i>uncomplicated severe acute malnutrition</i> 	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - <i>acute bacterial meningitis</i>
amoxicillin + clavulanic acid	<p>Oral liquid: 125 mg amoxicillin + 31.25 mg clavulanic acid/5 mL AND 250 mg amoxicillin + 62.5 mg clavulanic acid/5 mL .</p> <p>Tablet: 500 mg (as trihydrate) + 125 mg (as potassium salt).</p> <p>Powder for injection: 500 mg (as sodium) + 100 mg (as potassium salt); 1000 mg (as sodium) + 200 mg (as potassium salt) in vial.</p>	
	<p>FIRST CHOICE</p> <ul style="list-style-type: none"> - <i>community acquired pneumonia (severe)</i> - <i>complicated intraabdominal infections (mild to moderate)</i> - <i>hospital acquired pneumonia</i> - <i>low-risk febrile neutropenia</i> - <i>lower urinary tract infections</i> - <i>sinusitis</i> - <i>skin and soft tissue infections</i> 	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - <i>bone and joint infections</i> - <i>community acquired pneumonia (mild to moderate)</i> - <i>community acquired pneumonia (severe)</i> - <i>otitis media</i>

ampicillin	Powder for injection: 500 mg; 1 g (as sodium salt) in vial.	
	FIRST CHOICE - community acquired pneumonia (severe) - complicated severe acute malnutrition - sepsis in neonates and children	SECOND CHOICE - acute bacterial meningitis
benzathine benzylpenicillin	Powder for injection: 900 mg benzylpenicillin (= 1.2 million IU) in 5- mL vial [c] ; 1.44 g benzylpenicillin (= 2.4 million IU) in 5- mL vial.	
	FIRST CHOICE - syphilis (congenital)	SECOND CHOICE
benzylpenicillin	Powder for injection: 600 mg (= 1 million IU); 3 g (= 5 million IU) (sodium or potassium salt) in vial.	
	FIRST CHOICE - community acquired pneumonia (severe) - complicated severe acute malnutrition - sepsis in neonates and children - syphilis (congenital)	SECOND CHOICE - acute bacterial meningitis
cefalexin	Powder for reconstitution with water: 125 mg/5 mL; 250 mg/5 mL (anhydrous). Solid oral dosage form: 250 mg (as monohydrate).	
	FIRST CHOICE	SECOND CHOICE - pharyngitis - skin and soft tissue infections
cefazolin* a	Powder for injection: 1 g (as sodium salt) in vial. * also indicated for surgical prophylaxis. a >1 month.	
	FIRST CHOICE	SECOND CHOICE - bone and joint infections
cefixime WATCH GROUP	Capsules or tablets: 200 mg; 400 mg (as trihydrate) Powder for oral liquid: 100 mg /5 mL	
	FIRST CHOICE	SECOND CHOICE - acute invasive bacterial diarrhoea / dysentery
cefotaxime*	Powder for injection: 250 mg per vial (as sodium salt) * 3rd generation cephalosporin of choice for use in hospitalized neonates.	



WATCH GROUP	FIRST CHOICE <ul style="list-style-type: none"> - acute bacterial meningitis - community acquired pneumonia (severe) - complicated intraabdominal infections (mild to moderate) - complicated intrabdominal infections (severe) - hospital acquired pneumonia - pyelonephritis (severe) 	SECOND CHOICE <ul style="list-style-type: none"> - bone and joint infections - pyelonephritis (mild to moderate) - sepsis in neonates and children
ceftriaxone* <input type="checkbox"/> a WATCH GROUP	Powder for injection: 250 mg; 1 g (as sodium salt) in vial. * Do not administer with calcium and avoid in infants with hyperbilirubinaemia. <input type="checkbox"/> a >41 weeks corrected gestational age.	
	FIRST CHOICE <ul style="list-style-type: none"> - acute bacterial meningitis - community acquired pneumonia (severe) - complicated intraabdominal infections (mild to moderate) - complicated intraabdominal infections (severe) - hospital acquired pneumonia - pyelonephritis (severe) 	SECOND CHOICE <ul style="list-style-type: none"> - acute invasive bacterial diarrhoea / dysentery - bone and joint infections - pyelohepnritis or prostatitis (mild to moderate) - sepsis in neonates and children
<input type="checkbox"/> cloxacillin*	Capsule: 500 mg; 1 g (as sodium salt). Powder for injection: 500 mg (as sodium salt) in vial. Powder for oral liquid: 125 mg (as sodium salt)/5 mL. *cloxacillin, dicloxacillin and flucloxacillin are preferred for oral administration due to better bioavailability.	
	FIRST CHOICE <ul style="list-style-type: none"> - bone and joint infections - skin and soft tissue infections 	SECOND CHOICE <ul style="list-style-type: none"> - sepsis in neonates and children
phenoxymethylpenicillin	Powder for oral liquid: 250 mg (as potassium salt)/5 mL. Tablet: 250 mg (as potassium salt).	
	FIRST CHOICE <ul style="list-style-type: none"> - community acquired pneumonia (mild to moderate) - pharyngitis 	SECOND CHOICE

piperacillin + tazobactam WATCH GROUP	Powder for injection: 2 g (as sodium salt) + 250 mg (as sodium salt); 4 g (as sodium salt) + 500 mg (as sodium salt) in vial	
	FIRST CHOICE - complicated intraabdominal infections (severe) -high-risk febrile neutropenia -hospital acquired pneumonia	SECOND CHOICE
procaine benzylpenicillin*	Powder for injection: 1 g (=1 million IU); 3 g (=3 million IU) in vial. * Procaine benzylpenicillin is not recommended as first-line treatment for neonatal sepsis / sepsis except in settings with high neonatal mortality, when given by trained health workers in cases where hospital care is not achievable.	
	FIRST CHOICE -syphilis (congenital)	SECOND CHOICE
Complementary List		
ceftazidime WATCH GROUP	Powder for injection: 250 mg or 1 g (as pentahydrate) in vial.	
meropenem* ^a WATCH GROUP	Powder for injection: 500 mg (as trihydrate); 1 g (as trihydrate) in vial ^a >3 months. *imipenem + cilastatin is an alternative except for acute bacterial meningitis where meropenem is preferred.	
	FIRST CHOICE	SECOND CHOICE - acute bacterial meningitis in neonates - complicated intraabdominal infections (severe) - high-risk febrile neutropenia
Complementary List – RESERVE GROUP		
aztreonam	Powder for injection: 1 g; 2 g in vial	
fifth generation cephalosporins (with or without beta-lactamase inhibitor) e.g, ceftaroline	Powder for injection: 400 mg; 600 mg (as fosamil) in vial	
fourth generation cephalosporins (with or without beta-lactamase inhibitor) e.g., cefepime	Powder for injection: 500 mg; 1g; 2g (as hydrochloride) in vial	

6.2.2 Other antibacterials		
amikacin	Injection: 250 mg (as sulfate)/mL in 2- mL vial	
	FIRST CHOICE - <i>pyelonephritis (severe)</i>	SECOND CHOICE - <i>high-risk febrile neutropenia</i> - <i>sepsis in neonates and children</i>
azithromycin* WATCH GROUP	Capsule: 250 mg; 500 mg (anhydrous). Oral liquid: 200 mg/5 mL. * also listed for single-dose treatment of trachoma and yaws.	
	FIRST CHOICE - <i>cholera</i>	SECOND CHOICE - <i>acute invasive bacterial diarrhoea / dysentery</i>
chloramphenicol	Capsule: 250 mg. Oily suspension for injection*: 0.5 g (as sodium succinate)/ mL in 2- mL ampoule. * Only for the presumptive treatment of epidemic meningitis in children older than 2 years. Oral liquid: 150 mg (as palmitate)/5 mL. Powder for injection: 1 g (sodium succinate) in vial.	
	FIRST CHOICE	SECOND CHOICE - <i>acute bacterial meningitis</i>
ciprofloxacin WATCH GROUP	Oral liquid: 250 mg/5 mL (anhydrous) . Solution for IV infusion: 2 mg/ mL (as hyclate) . Tablet: 250 mg (as hydrochloride).	
	FIRST CHOICE - <i>acute invasive bacterial diarrhoea / dysentery</i> - <i>low-risk febrile neutropenia</i> - <i>pyelonephritis (mild to moderate)</i>	SECOND CHOICE - <i>cholera</i> - <i>complicated intraabdominal infections (mild to moderate)</i>
clarithromycin* WATCH GROUP	Solid oral dosage form: 500 mg. Powder for oral liquid: 125 mg/5 mL; 250 mg/5 mL Powder for injection: 500 mg in vial *erythromycin may be an alternative	
	FIRST CHOICE	SECOND CHOICE - <i>pharyngitis</i>

clindamycin	Capsule: 150 mg (as hydrochloride). Injection: 150 mg (as phosphate)/ mL. Oral liquid: 75 mg/5 mL (as palmitate) .	
	FIRST CHOICE	SECOND CHOICE <i>-bone and joint infections</i>
doxycycline ^a	Oral liquid: 25 mg/5 mL ; 50 mg/5 mL (anhydrous) . Solid oral dosage form: 50 mg ; 100 mg (as hyclate). Powder for injection: 100 mg in vial ^a Use in children <8 years only for life-threatening infections when no alternative exists.	
	FIRST CHOICE	SECOND CHOICE <i>- cholera</i> <i>-community acquired pneumonia (mild to moderate)</i>
gentamicin	Injection: 10 mg; 40 mg (as sulfate)/ mL in 2- mL vial.	
	FIRST CHOICE <i>- community acquired pneumonia (severe)</i> <i>- complicated severe acute malnutrition</i> <i>- sepsis in neonates and children</i>	SECOND CHOICE
metronidazole	Injection: 500 mg in 100- mL vial. Oral liquid: 200 mg (as benzoate)/5 mL. Tablet: 200 mg to 500 mg.	
	FIRST CHOICE <i>- C. difficile infection</i> <i>- complicated intra-abdominal infections (mild to moderate)</i> <i>- complicated intra-abdominal infections (severe)</i>	SECOND CHOICE <i>- complicated intra-abdominal infections (mild to moderate)</i>
nitrofurantoin	Oral liquid: 25 mg/5 mL. Tablet: 100 mg.	
	FIRST CHOICE <i>- lower urinary tract infections</i>	SECOND CHOICE

sulfamethoxazole + trimethoprim*	Injection: 80 mg + 16 mg/ mL in 5- mL ampoule; 80 mg + 16 mg/ mL in 10- mL ampoule. Oral liquid: 200 mg + 40 mg/5 mL. Tablet: 100 mg + 20 mg; 400 mg + 80 mg *single agent trimethoprim may be an alternative for lower urinary tract infection.	
	FIRST CHOICE - lower urinary tract infections	SECOND CHOICE - acute invasive bacterial diarrhoea / dysentery
vancomycin WATCH GROUP	Capsule: 125 mg; 250 mg (as hydrochloride).	
		SECOND CHOICE - <i>C. difficile</i> infection
Complementary List		
vancomycin WATCH GROUP	Powder for injection: 250 mg (as hydrochloride) in vial.	
	FIRST CHOICE	SECOND CHOICE -high-risk febrile neutropenia
Complementary List – RESERVE GROUP		
daptomycin	Powder for injection: 350 mg; 500 mg in vial	
fosfomycin	Powder for injection: 2 g; 4 g (as sodium) in vial	
oxazolindinones e.g., linezolid	Injection for intravenous administration: 2 mg/ mL in 300 mL bag. Powder for oral liquid: 100 mg/5 mL. Tablet: 400 mg; 600 mg.	
polymyxins e.g., colistin	Powder for injection: 1 million I.U. (as colistemetate sodium) in vial	
tigecycline	Powder for injection: 50 mg in vial	
6.2.3 Antileprosy medicines		
Medicines used in the treatment of leprosy should never be used except in combination. Combination therapy is essential to prevent the emergence of drug resistance. Colour-coded blister packs (MDT blister packs) containing standard two-medicine (paucibacillary leprosy) or three-medicine (multibacillary leprosy) combinations for adult and childhood leprosy should be used. MDT blister packs can be supplied free of charge through WHO.		
clofazimine	Capsule: 50 mg; 100 mg.	
dapsone	Tablet: 25 mg; 50 mg; 100 mg.	
rifampicin	Solid oral dosage form: 150 mg; 300 mg.	

6.2.4 Antituberculosis medicines	
WHO recommends and endorses the use of fixed-dose combinations and the development of appropriate new fixed-dose combinations, including modified dosage forms, non-refrigerated products and paediatric dosage forms of assured pharmaceutical quality.	
ethambutol	Oral liquid: 25 mg/mL. Tablet: 100 mg; 400 mg (hydrochloride).
isoniazid	Oral liquid: 50 mg/5 mL. Tablet: 100 mg to 300 mg. Tablet (scored): 50 mg.
isoniazid + pyrazinamide + rifampicin	Tablet (dispersible): 50 mg + 150 mg + 75 mg.
isoniazid + rifampicin	Tablet (dispersible): 50 mg + 75 mg.
pyrazinamide	Oral liquid: 30 mg/mL. Tablet: 400 mg. Tablet (dispersible): 150 mg. Tablet (scored): 150 mg.
rifampicin	Oral liquid: 20 mg/mL. Solid oral dosage form: 150 mg; 300 mg.
rifapentine*	Tablet: 150 mg *For treatment of latent TB infection (LTBI) only
Complementary List	
<i>Reserve second-line drugs for the treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in specialized centres adhering to WHO standards for TB control.</i>	
amikacin	Powder for injection: 100 mg; 500 mg; 1 g (as sulfate) in vial.
capreomycin	Powder for injection: 1 g (as sulfate) in vial.
clofazimine	Capsule: 50 mg; 100 mg.
cycloserine	Solid oral dosage form: 250 mg.
delamanid 	Tablet: 50 mg.  >6 years
ethionamide*	Tablet: 125 mg; 250 mg. *Protionamide may be used as an alternative.
kanamycin	Powder for injection: 1 g (as sulfate) in vial.
levofloxacin	Tablet: 250 mg; 500 mg.
linezolid	Injection for intravenous administration: 2 mg/mL in 300 mL bag Powder for oral liquid: 100 mg/5 mL, Tablet: 400 mg; 600 mg
moxifloxacin	Tablet: 400 mg

<i>p</i> -aminosalicylic acid	<i>Granules: 4 g in sachet.</i> <i>Tablet: 500 mg.</i>
streptomycin	<i>Powder for injection: 1 g (as sulfate) in vial.</i>
6.3 Antifungal medicines	
amphotericin B	Powder for injection: 50 mg in vial (as sodium deoxycholate or liposomal complex).
fluconazole	Capsule: 50 mg. Injection: 2 mg/mL in vial. Oral liquid: 50 mg/5 mL.
flucytosine	Capsule: 250 mg. Infusion: 2.5 g in 250 mL.
griseofulvin	Oral liquid: 125 mg/5 mL. Solid oral dosage form: 125 mg; 250 mg.
itraconazole*	Capsule: 100 mg. Oral liquid: 10 mg/mL. *For treatment of chronic pulmonary aspergillosis, acute invasive aspergillosis, histoplasmosis, sporotrichosis, paracoccidioidomycosis, mycoses caused by <i>T. marneffe</i> and chromoblastomycosis; and prophylaxis of histoplasmosis and infections caused by <i>T. marneffe</i> in AIDS patients.
nystatin	Lozenge: 100 000 IU. Oral liquid: 50 mg/5 mL; 100 000 IU/mL. Tablet: 100 000 IU; 500 000 IU.
voriconazole*	Tablet: 50 mg; 200 mg. Powder for injection: 200 mg in vial. Powder for oral liquid: 40 mg/mL. * For treatment of chronic pulmonary aspergillosis and acute invasive aspergillosis.
<i>Complementary List</i>	
potassium iodide	<i>Saturated solution.</i>
6.4 Antiviral medicines	
6.4.1 Antiherpes medicines	
aciclovir	Oral liquid: 200 mg/5 mL. Powder for injection: 250 mg (as sodium salt) in vial. Tablet: 200 mg.

6.4.2 Antiretrovirals

Based on current evidence and experience of use, medicines in the following three classes of antiretrovirals are included as essential medicines for treatment and prevention of HIV (prevention of mother-to-child transmission and post-exposure prophylaxis). WHO emphasizes the importance of using these products in accordance with global and national guidelines. WHO recommends and endorses the use of fixed-dose combinations and the development of appropriate new fixed-dose combinations, including modified dosage forms, non-refrigerated products and paediatric dosage forms of assured pharmaceutical quality.

Scored tablets can be used in children and therefore can be considered for inclusion in the listing of tablets, provided that adequate quality products are available.

6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors

abacavir (ABC)	Tablet (dispersible, scored): 60 mg (as sulfate).
lamivudine (3TC)	Oral liquid: 50 mg/5 mL. Tablet: 150 mg.
zidovudine (ZDV or AZT)	Oral liquid: 50 mg/5 mL. Tablet (dispersible, scored): 60 mg .

6.4.2.2 Non-nucleoside reverse transcriptase inhibitors

efavirenz ^a (EFV or EFZ)	Tablet: 200 mg (scored). ^a >3 years or >10 kg.
nevirapine (NVP) ^a	Oral liquid: 50 mg/5 mL. Tablet: 50 mg (dispersible). ^a > 6 weeks

6.4.2.3 Protease inhibitors

Selection of protease inhibitor(s) from the Model List will need to be determined by each country after consideration of international and national treatment guidelines and experience. Ritonavir is recommended for use in combination as a pharmacological booster, and not as an antiretroviral in its own right. All other protease inhibitors should be used in boosted forms (e.g. with ritonavir).

atazanavir ^a	Solid oral dosage form: 100 mg; (as sulfate). ^a >25 kg.
darunavir ^a	Tablet: 75 mg. ^a >3 years
lopinavir + ritonavir (LPV/r)	Oral liquid: 400 mg + 100 mg/5 mL. Tablet (heat stable): 100 mg + 25 mg- Capsule containing oral pellets: 40 mg + 10 mg.
ritonavir	Oral liquid: 400 mg/5 mL. Tablet (heat stable): 25 mg; 100 mg.

6.4.2.4 Integrase inhibitors

raltegravir*	<p>Tablet (chewable): 25 mg; 100 mg.</p> <p>Tablet: 400 mg.</p> <p>*for use in second-line regimens in accordance with WHO treatment guidelines</p>
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FIXED-DOSE COMBINATIONS	
abacavir + lamivudine	Tablet (dispersible, scored): 60 mg (as sulfate) + 30 mg; 120 mg (as sulfate) + 60 mg.
lamivudine + nevirapine + zidovudine	Tablet: 30 mg + 50 mg + 60 mg.
lamivudine + zidovudine	Tablet: 30 mg + 60 mg.
6.4.2.5 Medicines for prevention of HIV-related opportunistic infections	
isoniazid + pyridoxine + sulfamethoxazole + trimethoprim	Tablet (scored): 300 mg + 25 mg + 800 mg + 160 mg
6.4.3 Other antivirals	
ribavirin*	Injection for intravenous administration: 800 mg and 1 g in 10-mL phosphate buffer solution. Solid oral dosage form: 200 mg; 400 mg; 600 mg. * For the treatment of viral haemorrhagic fevers only.
<i>Complementary List</i>	
oseltamivir*	Capsule: 30 mg; 45 mg; 75 mg (as phosphate). Oral powder: 12 mg/ mL. * Severe illness due to confirmed or suspected influenza virus infection in critically ill hospitalized patients
valganciclovir*	Powder for oral solution: 50 mg/mL Tablet: 450 mg. *For the treatment of cytomegalovirus retinitis (CMVr).
6.4.4 Antihepatitis medicines	
6.4.4.1 Medicines for hepatitis B	
6.4.4.1.1 Nucleoside/Nucleotide reverse transcriptase inhibitors	
entecavir	Oral liquid: 0.05 mg/ mL Tablet: 0.5 mg; 1 mg
6.4.4.2 Medicines for hepatitis C	
6.5 Antiprotozoal medicines	
6.5.1 Antiamoebic and anti giardiasis medicines	
diloxanide <input type="checkbox"/> a	Tablet: 500 mg (furoate). <input type="checkbox"/> a >25 kg.
<input type="checkbox"/> metronidazole	Injection: 500 mg in 100-mL vial. Oral liquid: 200 mg (as benzoate)/5 mL. Tablet: 200 mg to 500 mg.
6.5.2 Antileishmaniasis medicines	

amphotericin B	Powder for injection: 50 mg in vial. As sodium deoxycholate or liposomal complex.
miltefosine	Solid oral dosage form: 10 mg; 50 mg.
paromomycin	Solution for intramuscular injection: 750 mg of paromomycin base (as the sulfate).
sodium stibogluconate or meglumine antimoniate	Injection: 100 mg/mL, 1 vial = 30 mL or 30%, equivalent to approximately 8.1% antimony (pentavalent) in 5-mL ampoule.
6.5.3 Antimalarial medicines	
6.5.3.1 For curative treatment	
Medicines for the treatment of <i>P. falciparum</i> malaria cases should be used in combination. The list currently recommends combinations according to treatment guidelines. WHO recognizes that not all of the fixed dose combinations (FDCs in the WHO treatment guidelines exist, and encourages their development and rigorous testing. WHO also encourages development and testing of rectal dosage formulations.	
amodiaquine*	Tablet: 153 mg or 200 mg (as hydrochloride). * To be used in combination with artesunate 50 mg.
artemether*	Oily injection: 80 mg/mL in 1-mL ampoule. * For use in the management of severe malaria.
artemether + lumefantrine*	Tablet: 20 mg + 120 mg. Tablet (dispersible): 20 mg + 120 mg. * Not recommended in the first trimester of pregnancy or in children below 5 kg.
artesunate*	Injection: ampoules, containing 60 mg anhydrous artesunic acid with a separate ampoule of 5% sodium bicarbonate solution. For use in the management of severe malaria. Rectal dosage form: 50 mg; 100 mg; 200 mg capsules (for pre-referral treatment of severe malaria only; patients should be taken to an appropriate health facility for follow-up care). Tablet: 50 mg. * To be used in combination with either amodiaquine, mefloquine or sulfadoxine + pyrimethamine.
artesunate + amodiaquine *	Tablet: 25 mg + 67.5 mg; 50 mg + 135 mg; 100 mg + 270 mg. * Other combinations that deliver the target doses required such as 153 mg or 200 mg (as hydrochloride) with 50 mg artesunate can be alternatives.
artesunate + mefloquine	Tablet: 25 mg + 55 mg; 100 mg + 220 mg.
artesunate + pyronaridine tetraphosphate a	Tablet: 60 mg + 180 mg Granules: 20 mg + 60 mg a > 5 kg

chloroquine*	Oral liquid: 50 mg (as phosphate or sulfate)/5 mL. Tablet: 100 mg; 150 mg (as phosphate or sulfate). * For use only for the treatment of <i>P.vivax</i> infection.
dihydroartemisinin + piperaquine phosphate a	Tablet: 20 mg + 160 mg; 40 mg + 320 mg a > 5 kg
doxycycline*	Capsule: 100 mg (as hydrochloride or hyclate). Tablet (dispersible): 100 mg (as monohydrate). * For use only in combination with quinine.
mefloquine*	Tablet: 250 mg (as hydrochloride). * To be used in combination with artesunate 50 mg.
primaquine*	Tablet: 7.5 mg; 15 mg (as diphosphate). * Only for use to achieve radical cure of <i>P.vivax</i> and <i>P.ovale</i> infections, given for 14 days.
quinine*	Injection: 300 mg quinine hydrochloride/mL in 2-mL ampoule. Tablet: 300 mg (quinine sulfate) or 300 mg (quinine bisulfate). * For use only in the management of severe malaria, and should be used in combination with doxycycline.
sulfadoxine + pyrimethamine*	Tablet: 500 mg + 25 mg. * Only in combination with artesunate 50 mg.
6.5.3.2 For prophylaxis	
chloroquine*	Oral liquid: 50 mg (as phosphate or sulfate)/5 mL. Tablet: 150 mg (as phosphate or sulfate). * For use only for the treatment of <i>P.vivax</i> infection.
doxycycline a	Solid oral dosage form: 100 mg (as hydrochloride or hyclate). a > 8 years.
mefloquine a	Tablet: 250 mg (as hydrochloride). a > 5 kg or > 3 months.
proguanil*	Tablet: 100 mg (as hydrochloride). * For use only in combination with chloroquine.
6.5.4 Antipneumocystosis and antitoxoplasmosis medicines	
pyrimethamine	Tablet: 25 mg.
sulfadiazine	Tablet: 500 mg.

sulfamethoxazole + trimethoprim	<p>Injection: 80 mg + 16 mg/mL in 5-mL ampoule; 80 mg + 16 mg/mL in 10-mL ampoule.</p> <p>Oral liquid: 200 mg + 40 mg/5 mL.</p> <p>Tablet: 100 mg + 20 mg; 400 mg + 80 mg.</p>
6.5.5 Antitrypanosomal medicines	
6.5.5.1 African trypanosomiasis	
Medicines for the treatment of 1 st stage African trypanosomiasis.	
pentamidine*	<p>Powder for injection: 200 mg (as isetionate) in vial.</p> <p>* To be used for the treatment of <i>Trypanosoma brucei gambiense</i> infection.</p>
suramin sodium*	<p>Powder for injection: 1 g in vial.</p> <p>* To be used for the treatment of the initial phase of <i>Trypanosoma brucei rhodesiense</i> infection.</p>
Medicines for the treatment of 2 nd stage African trypanosomiasis	
eflornithine*	<p>Injection: 200 mg (hydrochloride)/mL in 100-mL bottle.</p> <p>* To be used for the treatment of <i>Trypanosoma brucei gambiense</i> infection.</p>
nifurtimox*	<p>Tablet: 120 mg.</p> <p>* Only to be used in combination with eflornithine, for the treatment of <i>Trypanosoma brucei gambiense</i> infection.</p>
<i>Complementary List</i>	
<i>melarsoprol</i>	<p>Injection: 3.6% solution in 5-mL ampoule (180 mg of active compound).</p>
6.5.5.2 American trypanosomiasis	
benznidazole	<p>Tablet: 12.5 mg; 100 mg.</p> <p>Tablet (scored): 50 mg.</p>
nifurtimox	Tablet: 30 mg; 120 mg; 250 mg.
7. ANTIMIGRAINE MEDICINES	
7.1 For treatment of acute attack	
ibuprofen	Tablet: 200 mg; 400 mg.
paracetamol	<p>Oral liquid: 120 mg/5 mL; 125 mg/5 mL.</p> <p>Tablet: 300 mg to 500 mg.</p>
7.2 For prophylaxis	
propranolol	Tablet: 20 mg; 40 mg (hydrochloride).

8. ANTINEOPLASTICS AND IMMUNOSUPPRESSIVES	
8.1 Immunosuppressive medicines	
<i>Complementary List</i>	
<i>azathioprine</i>	Powder for injection: 100 mg (as sodium salt) in vial. Tablet (scored): 50 mg.
<i>ciclosporin</i>	Capsule: 25 mg. Concentrate for injection: 50 mg/mL in 1-mL ampoule for organ transplantation.
8.2 Cytotoxic and adjuvant medicines	
Medicines listed below should be used according to protocols for treatment of the diseases.	
<i>Complementary List</i>	
<i>allopurinol</i>	Tablet: 100 mg; 300 mg.
<i>asparaginase</i>	Powder for injection: 10 000 IU in vial. – Acute lymphoblastic leukaemia.
<i>bleomycin</i>	Powder for injection: 15 mg (as sulfate) in vial. – Hodgkin lymphoma – Testicular germ cell tumours – Ovarian germ cell tumours
<i>calcium folinate</i>	Injection: 3 mg/ mL in 10- mL ampoule. Tablet: 15 mg. – Osteosarcoma – Burkitt lymphoma
<i>carboplatin</i>	Injection: 50 mg/5 mL; 150 mg/15 mL; 450 mg/45 mL; 600 mg/60 mL. – Osteosarcoma – Retinoblastoma
<i>cisplatin</i>	Injection: 50 mg/50 mL; 100 mg/100 mL. – Osteosarcoma – Testicular germ cell tumours – Ovarian germ cell tumours
<i>cyclophosphamide</i>	Powder for injection: 500 mg in vial. Tablet: 25 mg. – Rhabdomyosarcoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Burkitt lymphoma – Hodgkin lymphoma

<i>cytarabine</i>	<p>Powder for injection: 100 mg in vial.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia – Burkitt lymphoma.
<i>dacarbazine</i>	<p>Powder for injection: 100 mg in vial.</p> <ul style="list-style-type: none"> – Hodgkin lymphoma
<i>dactinomycin</i>	<p>Powder for injection: 500 micrograms in vial.</p> <ul style="list-style-type: none"> – Rhabdomyosarcoma – Wilms tumour
<i>daunorubicin</i>	<p>Powder for injection: 50 mg (hydrochloride) in vial.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia
<i>doxorubicin</i>	<p>Powder for injection: 10 mg; 50 mg (hydrochloride) in vial.</p> <ul style="list-style-type: none"> – Osteosarcoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Wilms tumour – Burkitt lymphoma – Hodgkin lymphoma
<i>etoposide</i>	<p>Capsule: 100 mg.</p> <p>Injection: 20 mg/ mL in 5- mL ampoule.</p> <ul style="list-style-type: none"> – Retinoblastoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Burkitt lymphoma – Hodgkin lymphoma – Testicular germ cell tumours – Ovarian germ cell tumours
<i>filgrastim</i>	<p>Injection: 120 micrograms/0.2 mL; 300 micrograms/0.5 mL; 480 micrograms/0.8 mL in pre-filled syringe 300 micrograms/mL in 1- mL vial, 480 mg/1.6 mL in 1.6- mL vial.</p> <ul style="list-style-type: none"> – Primary prophylaxis in patients at high risk for developing febrile neutropenia associated with myelotoxic chemotherapy. – Secondary prophylaxis for patients who have experienced neutropenia following prior myelotoxic chemotherapy – To facilitate administration of dose dense chemotherapy regimens
<i>ifosfamide</i>	<p>Powder for injection: 500 mg vial 1-g vial; 2-g vial.</p> <ul style="list-style-type: none"> – Osteosarcoma – Rhabdomyosarcoma – Ewing sarcoma – Testicular germ cell tumours – Ovarian germ cell tumours

<i>mercaptopurine</i>	Tablet: 50 mg. – Acute lymphoblastic leukaemia
<i>mesna</i>	Injection: 100 mg/ mL in 4- mL and 10- mL ampoules. Tablet: 400 mg; 600 mg. – Osteosarcoma – Rhabdomyosarcoma – Ewing sarcoma. – Testicular germ cell tumours – Ovarian germ cell tumours
<i>methotrexate</i>	Powder for injection: 50 mg (as sodium salt) in vial. Tablet: 2.5 mg (as sodium salt). – Osteosarcoma – Acute lymphoblastic leukaemia
<i>paclitaxel</i>	Powder for injection: 6 mg/ mL. – Ovarian germ cell tumours
<i>tioguanine</i>	Solid oral dosage form: 40 mg. – Acute lymphoblastic leukaemia.
<i>vinblastine</i>	Powder for injection: 10 mg (sulfate) in vial. – Testicular germ cell tumours – Ovarian germ cell tumours – Hodgkin lymphoma
<i>vincristine</i>	Powder for injection: 1 mg; 5 mg (sulfate) in vial. – Retinoblastoma – Rhabdomyosarcoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Wilms tumour – Burkitt lymphoma. – Hodgkin lymphoma
8.3 Hormones and antihormones	
Complementary List	
<i>dexamethasone</i>	Oral liquid: 2 mg/5 mL – Acute lymphoblastic leukaemia
<i>hydrocortisone</i>	Powder for injection: 100 mg (as sodium succinate) in vial. – Acute lymphoblastic leukaemia.

methylprednisolone [c]	<i>Injection:</i> 40 mg/ mL (as sodium succinate) in 1- mL single-dose vial and 5- mL multi-dose vials; 80 mg/ mL (as sodium succinate) in 1- mL single-dose vial. – Acute lymphoblastic leukamia.
<input type="checkbox"/> prednisolone	<i>Oral liquid:</i> 5 mg/ mL [c] . <i>Tablet:</i> 5 mg; 25 mg. – Acute lymphoblastic leukaemia – Burkitt lymphoma – Hodgkin lymphoma
9. ANTIPARKINSONISM MEDICINES	
10. MEDICINES AFFECTING THE BLOOD	
10.1 Antianaemia medicines	
ferrous salt	<i>Oral liquid:</i> equivalent to 25 mg iron (as sulfate)/mL. <i>Tablet:</i> equivalent to 60 mg iron.
folic acid	<i>Tablet:</i> 1 mg; 5 mg.
hydroxocobalamin	<i>Injection:</i> 1 mg (as acetate, as hydrochloride or as sulfate) in 1-mL ampoule.
<i>Complementary List</i>	
<input type="checkbox"/> erythropoiesis-stimulating agents*	<i>Injection: pre-filled syringe</i> 1000IU/ 0.5 mL; 2000IU/ 0.5 mL; 3000IU/ 0.3 mL; 4000IU/ 0.4 mL; 5000IU/ 0.5 mL; 6000IU/ 0.6 mL; 8000IU/ 0.8mL; 10 000IU/ 1 mL; 20 000IU/ 0.5 mL; 40 000IU/ 1 mL * the square box applies to epoetin alfa, beta and theta, darbepoetin alfa, and their respective biosimilars
10.2 Medicines affecting coagulation	
phytomenadione	<i>Injection:</i> 1 mg/mL; 10 mg/mL in 5-mL ampoule. <i>Tablet:</i> 10 mg.
<i>Complementary List</i>	
desmopressin	<i>Injection:</i> 4 micrograms/ mL (as acetate) in 1- mL ampoule. <i>Nasal spray:</i> 10 micrograms (as acetate) per dose
heparin sodium	<i>Injection:</i> 1000 IU/mL; 5000 IU/mL in 1-mL ampoule.
protamine sulfate	<i>Injection:</i> 10 mg/mL in 5-mL ampoule.
<input type="checkbox"/> warfarin	<i>Tablet:</i> 0.5 mg; 1 mg; 2 mg; 5 mg (sodium salt).

10.3 Other medicines for haemoglobinopathies	
<i>Complementary list</i>	
<i>deferoxamine*</i>	<i>Powder for injection: 500 mg (mesilate) in vial. * Deferasirox oral form may be an alternative, depending on cost and availability.</i>
<i>hydroxycarbamide</i>	<i>Solid oral dosage form: 200 mg; 500 mg; 1 g.</i>
11. BLOOD PRODUCTS OF HUMAN ORIGIN AND PLASMA SUBSTITUTES	
11.1 Blood and blood components	
In accordance with the World Health Assembly resolution WHA63.12, WHO recognizes that achieving self-sufficiency, unless special circumstances preclude it, in the supply of safe blood components based on voluntary, non-remunerated blood donation, and the security of that supply are important national goals to prevent blood shortages and meet the transfusion requirements of the patient population. All preparations should comply with the WHO requirements.	
fresh-frozen plasma	
platelet	
red blood cells	
whole blood	
11.2 Plasma-derived medicines	
All human plasma-derived medicines should comply with the WHO requirements.	
11.2.1 Human immunoglobulins	
anti-rabies immunoglobulin	Injection: 150 IU/ mL in vial.
anti-tetanus immunoglobulin	Injection: 500 IU in vial.
<i>Complementary List</i>	
<i>normal immunoglobulin</i>	<i>Intramuscular administration: 16% protein solution.* Intravenous administration: 5%; 10% protein solution.** Subcutaneous administration: 15%; 16% protein solution.* * Indicated for primary immune deficiency. **Indicated for primary immune deficiency and Kawasaki disease.</i>
11.2.2 Blood coagulation factors	
<i>Complementary List</i>	
<input type="checkbox"/> coagulation factor VIII	<i>Powder for injection: 500 IU/vial.</i>
<input type="checkbox"/> coagulation factor IX	<i>Powder for injection: 500 IU/vial, 1000 IU/vial.</i>

11.3 Plasma substitutes	
<input type="checkbox"/> dextran 70*	Injectable solution: 6%. * Polygeline, injectable solution, 3.5% is considered as equivalent.
12. CARDIOVASCULAR MEDICINES	
12.1 Antianginal medicines	
12.2 Antiarrhythmic medicines	
12.3 Antihypertensive medicines	
<input type="checkbox"/> enalapril	Tablet: 2.5 mg; 5 mg (as hydrogen maleate).
12.4 Medicines used in heart failure	
digoxin	Injection: 250 micrograms/mL in 2-mL ampoule. Oral liquid: 50 micrograms/mL. Tablet: 62.5 micrograms; 250 micrograms.
furosemide	Injection: 10 mg/mL in 2-mL ampoule. Oral liquid: 20 mg/5 mL. Tablet: 40 mg.
<i>Complementary List</i>	
<i>dopamine</i>	<i>Injection: 40 mg (hydrochloride) in 5-mL vial.</i>
12.5 Antithrombotic medicines	
12.6 Lipid lowering agents	
12.7 Fixed dose combinations of cardiovascular medicines	
13. DERMATOLOGICAL MEDICINES (topical)	
13.1 Antifungal medicines	
<input type="checkbox"/> miconazole	Cream or ointment: 2% (nitrate).
terbinafine	Cream: 1% or Ointment: 1% terbinafine hydrochloride.
13.2 Anti-infective medicines	
mupirocin	Cream (as mupirocin calcium): 2%. Ointment: 2%.
potassium permanganate	Aqueous solution: 1:10 000.
silver sulfadiazine <input type="checkbox"/> a	Cream: 1%. <input type="checkbox"/> a >2 months.
13.3 Anti-inflammatory and antipruritic medicines	
<input type="checkbox"/> betamethasone <input type="checkbox"/> a	Cream or ointment: 0.1% (as valerate). <input type="checkbox"/> a Hydrocortisone preferred in neonates.
calamine	Lotion.
hydrocortisone	Cream or ointment: 1% (acetate).

13.4 Medicines affecting skin differentiation and proliferation	
benzoyl peroxide	Cream or lotion: 5%.
coal tar	Solution: 5%.
<input type="checkbox"/> podophyllum resin	Solution: 10% to 25%.
salicylic acid	Solution: 5%.
urea	Cream or ointment: 5%; 10%.
13.5 Scabicides and pediculicides	
<input type="checkbox"/> benzyl benzoate <input type="checkbox"/> a	Lotion: 25%. a >2 years.
permethrin	Cream: 5%. Lotion: 1%.
14. DIAGNOSTIC AGENTS	
14.1 Ophthalmic medicines	
fluorescein	Eye drops: 1% (sodium salt).
<input type="checkbox"/> tropicamide	Eye drops: 0.5%.
14.2 Radiocontrast media	
<i>Complementary List</i>	
<i>barium sulfate</i>	<i>Aqueous suspension.</i>
15. DISINFECTANTS AND ANTISEPTICS	
15.1 Antiseptics	
<input type="checkbox"/> chlorhexidine	Solution: 5% (digluconate). Gel: 4%.
<input type="checkbox"/> ethanol	Solution: 70% (denatured).
<input type="checkbox"/> povidone iodine	Solution: 10% (equivalent to 1% available iodine).
15.2 Disinfectants	
alcohol based hand rub	Solution containing ethanol 80% volume /volume Solution containing isopropyl alcohol 75% volume/volume
<input type="checkbox"/> chlorine base compound	Powder: (0.1% available chlorine) for solution.
<input type="checkbox"/> chloroxylonol	Solution: 4.8%.
glutaral	Solution: 2%.

16. DIURETICS	
furosemide	Injection: 10 mg/mL in 2-mL ampoule. Oral liquid: 20 mg/5 mL. Tablet: 10 mg; 20 mg; 40 mg.
<i>Complementary List</i>	
<input type="checkbox"/> hydrochlorothiazide	Tablet (scored): 25 mg.
mannitol	Injectable solution: 10%; 20%.
spironolactone	Oral liquid: 5 mg/5 mL; 10 mg/5 mL; 25 mg/5 mL. Tablet: 25 mg.
17. GASTROINTESTINAL MEDICINES	
<i>Complementary List</i>	
<input type="checkbox"/> pancreatic enzymes	<i>Age-appropriate formulations and doses including lipase, protease and amylase.</i>
17.1 Antiulcer medicines	
<input type="checkbox"/> omeprazole	Powder for oral liquid: 20-mg; 40-mg sachets. Solid oral dosage form: 10 mg; 20 mg; 40 mg.
<input type="checkbox"/> ranitidine	Injection: 25 mg/mL (as hydrochloride) in 2-mL ampoule. Oral liquid: 75 mg/5 mL (as hydrochloride). Tablet: 150 mg (as hydrochloride).
17.2 Antiemetic medicines	
dexamethasone	Injection: 4 mg/mL in 1-mL ampoule (as disodium phosphate salt). Oral liquid: 0.5 mg/5 mL; 2 mg/5 mL. Solid oral dosage form: 0.5 mg; 0.75 mg; 1.5 mg; 4 mg.
metoclopramide ^a	Injection: 5 mg (hydrochloride)/mL in 2-mL ampoule. Oral liquid: 5 mg/5 mL. Tablet: 10 mg (hydrochloride). ^a Not in neonates.
ondansetron ^a	Injection: 2 mg base/mL in 2-mL ampoule (as hydrochloride). Oral liquid: 4 mg base/5 mL. Solid oral dosage form: Eq 4 mg base; Eq 8 mg base. ^a >1 month.
17.3 Anti-inflammatory medicines	
17.4 Laxatives	
17.5 Medicines used in diarrhoea	

17.5.1 Oral rehydration	
oral rehydration salts	<p>Powder for dilution in 200 mL; 500 mL; 1 L.</p> <p>glucose: 75 mEq sodium: 75 mEq or mmol/L chloride: 65 mEq or mmol/L potassium: 20 mEq or mmol/L citrate: 10 mmol/L osmolarity: 245 mOsm/L glucose: 13.5 g/L sodium chloride: 2.6 g/L potassium chloride: 1.5 g/L trisodium citrate dihydrate*: 2.9 g/L</p> <p>* trisodium citrate dihydrate may be replaced by sodium hydrogen carbonate (sodium bicarbonate) 2.5 g/L. However, as the stability of this latter formulation is very poor under tropical conditions, it is recommended only when manufactured for immediate use.</p>
17.5.2 Medicines for diarrhoea	
zinc sulfate*	<p>Solid oral dosage form: 20 mg. [c].</p> <p>* In acute diarrhoea, zinc sulfate should be used as an adjunct to oral rehydration salts.</p>
18. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES	
18.1 Adrenal hormones and synthetic substitutes	
fludrocortisone	Tablet: 100 micrograms (acetate).
hydrocortisone	Tablet: 5 mg; 10 mg; 20 mg.
18.2 Androgens	
18.3 Contraceptives	
18.3.1 Oral hormonal contraceptives	
18.3.2 Injectable hormonal contraceptives	
18.3.3 Intrauterine devices	
18.3.4 Barrier methods	
18.3.5 Implantable contraceptives	
18.4 Estrogens	
18.5 Insulins and other medicines used for diabetes	
glucagon	Injection: 1 mg/mL.
insulin injection (soluble)	Injection: 100 IU/mL in 10-mL vial.
intermediate-acting insulin	Injection: 100 IU/mL in 10-mL vial (as compound insulin zinc suspension or isophane insulin).
<i>Complementary List</i>	
metformin	Tablet: 500 mg (hydrochloride).

18.6 Ovulation inducers	
18.7 Progestogens	
18.8 Thyroid hormones and antithyroid medicines	
levothyroxine	Tablet: 25 micrograms; 50 micrograms; 100 micrograms (sodium salt).
<i>Complementary List</i>	
<i>Lugol's solution</i>	Oral liquid: about 130 mg total iodine/mL.
<i>potassium iodide</i>	Tablet: 60 mg.
<i>propylthiouracil</i>	Tablet: 50 mg.
19. IMMUNOLOGICALS	
19.1 Diagnostic agents	
All tuberculins should comply with the WHO requirements for tuberculins.	
tuberculin, purified protein derivative (PPD)	Injection.
19.2 Sera and immunoglobulins	
All plasma fractions should comply with the WHO requirements.	
Anti-venom immunoglobulin*	Injection. * Exact type to be defined locally.
diphtheria antitoxin	Injection: 10 000 IU; 20 000 IU in vial.

19.3 Vaccines	
<p>WHO immunization policy recommendations are published in vaccine position papers on the basis of recommendations made by the Strategic Advisory Group of Experts on Immunization (SAGE).</p> <p>WHO vaccine position papers are updated three to four times per year. The list below details the vaccines for which there is a recommendation from SAGE and a corresponding WHO position paper as at 10 February 2017. The most recent versions of the WHO position papers, reflecting the current evidence related to a specific vaccine and the related recommendations, can be accessed at any time on the WHO website at:</p> <p>http://www.who.int/immunization/documents/positionpapers/en/index.html.</p> <p>Vaccine recommendations may be universal or conditional (e.g., in certain regions, in some high-risk populations or as part of immunization programmes with certain characteristics). Details are available in the relevant position papers, and in the Summary Tables of WHO Routine Immunization Recommendations available on the WHO website at:</p> <p>http://www.who.int/immunization/policy/immunization_tables/en/index.html.</p> <p>Selection of vaccines from the Model List will need to be determined by each country after consideration of international recommendations, epidemiology and national priorities.</p> <p>All vaccines should comply with the WHO requirements for biological substances.</p> <p>WHO noted the need for vaccines used in children to be polyvalent.</p>	
<i>Recommendations for all</i>	
BCG vaccine	
diphtheria vaccine	
Haemophilus influenzae type b vaccine	
hepatitis B vaccine	
HPV vaccine	
measles vaccine	
pertussis vaccine	
pneumococcal vaccine	
poliomyelitis vaccine	
rotavirus vaccine	
rubella vaccine	
tetanus vaccine	
<i>Recommendations for certain regions</i>	
Japanese encephalitis vaccine	
yellow fever vaccine	
tick-borne encephalitis vaccine	
<i>Recommendations for some high-risk populations</i>	
cholera vaccine	

hepatitis A vaccine	
meningococcal meningitis vaccine	
rabies vaccine	
typhoid vaccine	
<i>Recommendations for immunization programmes with certain characteristics</i>	
influenza vaccine (seasonal)	
mumps vaccine	
varicella vaccine	
20. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) AND CHOLINESTERASE INHIBITORS	
neostigmine	Injection: 500 micrograms in 1-mL ampoule; 2.5 mg (metilsulfate) in 1-mL ampoule. Tablet: 15 mg (bromide).
suxamethonium	Injection: 50 mg (chloride)/mL in 2-mL ampoule. Powder for injection: (chloride), in vial.
<input type="checkbox"/> vecuronium	Powder for injection: 10 mg (bromide) in vial.
<i>Complementary List</i>	
<i>pyridostigmine</i>	Injection: 1 mg in 1-mL ampoule. Tablet: 60 mg (bromide).
21. OPHTHALMOLOGICAL PREPARATIONS	
21.1 Anti-infective agents	
aciclovir	Ointment: 3% W/W.
azithromycin	Solution (eye drops): 1.5%
erythromycin*	Ointment: 0.5% <i>*Infections due to Chlamydia trachomatis or Neisseria gonorrhoeae.</i>
<input type="checkbox"/> gentamicin	Solution (eye drops): 0.3% (sulfate).
natamycin	Suspension: (eye drops): 5%
<input type="checkbox"/> ofloxacin	Solution (eye drops): 0.3%.
<input type="checkbox"/> tetracycline	Eye ointment: 1% (hydrochloride).
21.2 Anti-inflammatory agents	
<input type="checkbox"/> prednisolone	Solution (eye drops): 0.5% (sodium phosphate).
21.3 Local anaesthetics	
<input type="checkbox"/> tetracaine a	Solution (eye drops): 0.5% (hydrochloride). a Not in preterm neonates.

21.4 Miotics and antiglaucoma medicines	
21.5 Mydriatics	
atropine* ^a	Solution (eye drops): 0.1%; 0.5%; 1% (sulfate). * Or homatropine (hydrobromide) or cyclopentolate (hydrochloride). ^a >3 months.
<i>Complementary List</i>	
epinephrine (adrenaline)	Solution (eye drops): 2% (as hydrochloride).
22. OXYTOCICS AND ANTIOXYTOCICS	
22.1 Oxytocics	
22.2 Antioxytocics (tocolytics)	
23. PERITONEAL DIALYSIS SOLUTION	
<i>Complementary List</i>	
intraperitoneal dialysis solution (of appropriate composition)	Parenteral solution.
24. MEDICINES FOR MENTAL AND BEHAVIOURAL DISORDERS	
24.1 Medicines used in psychotic disorders	
<i>Complementary List</i>	
chlorpromazine	Injection: 25 mg (hydrochloride)/mL in 2-mL ampoule. Oral liquid: 25 mg (hydrochloride)/5 mL. Tablet: 10 mg; 25 mg; 50 mg; 100 mg (hydrochloride).
haloperidol	Injection: 5 mg in 1-mL ampoule. Oral liquid: 2 mg/mL. Solid oral dosage form: 0.5 mg; 2 mg; 5 mg.
24.2 Medicines used in mood disorders	
24.2.1 Medicines used in depressive disorders	
<i>Complementary List</i>	
fluoxetine ^a	Solid oral dosage form: 20 mg (as hydrochloride). ^a >8 years.
24.2.2 Medicines used in bipolar disorders	
24.3 Medicines for anxiety disorders	
24.4 Medicines used for obsessive compulsive disorders	
24.5 Medicines for disorders due to psychoactive substance use	
25. MEDICINES ACTING ON THE RESPIRATORY TRACT	
25.1 Antiasthmatic medicines	

<input type="checkbox"/> budesonide	Inhalation (aerosol): 100 micrograms per dose; 200 micrograms per dose.
epinephrine (adrenaline)	Injection: 1 mg (as hydrochloride or hydrogen tartrate) in 1-mL ampoule.
<input type="checkbox"/> salbutamol	Injection: 50 micrograms (as sulfate)/mL in 5-mL ampoule. Metered dose inhaler (aerosol): 100 micrograms (as sulfate) per dose. Respirator solution for use in nebulizers: 5 mg (as sulfate)/mL.
26. SOLUTIONS CORRECTING WATER, ELECTROLYTE AND ACID-BASE DISTURBANCES	
26.1 Oral	
oral rehydration salts	See section 17.5.1.
potassium chloride	Powder for solution.
26.2 Parenteral	
glucose	Injectable solution: 5% (isotonic); 10% (hypertonic); 50% (hypertonic).
glucose with sodium chloride	Injectable solution: 5% glucose, 0.9% sodium chloride (equivalent to Na ⁺ 150 mmol/L and Cl ⁻ 150 mmol/L); 5% glucose, 0.45% sodium chloride (equivalent to Na ⁺ 75 mmol/L and Cl ⁻ 75 mmol/L).
potassium chloride	Solution for dilution: 7.5% (equivalent to K ⁺ 1 mmol/mL and Cl ⁻ 1 mmol/mL); 15% (equivalent to K ⁺ 2 mmol/mL and Cl ⁻ 2 mmol/mL).
sodium chloride	Injectable solution: 0.9% isotonic (equivalent to Na ⁺ 154 mmol/L, Cl ⁻ 154 mmol/L).
sodium hydrogen carbonate	Injectable solution: 1.4% isotonic (equivalent to Na ⁺ 167 mmol/L, HCO ₃ ⁻ 167 mmol/L). Solution: 8.4% in 10-mL ampoule (equivalent to Na ⁺ 1000 mmol/L, HCO ₃ ⁻ 1000 mmol/L).
<input type="checkbox"/> sodium lactate, compound solution	Injectable solution.
26.3 Miscellaneous	
water for injection	2-mL; 5-mL; 10-mL ampoules.
27. VITAMINS AND MINERALS	
ascorbic acid	Tablet: 50 mg.
colecalfiferol*	Oral liquid: 400 IU/mL. Solid oral dosage form: 400 IU; 1000 IU. * Ergocalciferol can be used as an alternative.

iodine	Capsule: 200 mg. Iodized oil: 1 mL (480 mg iodine); 0.5 mL (240 mg iodine) in ampoule (oral or injectable); 0.57 mL (308 mg iodine) in dispenser bottle.
pyridoxine	Tablet: 25 mg (hydrochloride).
retinol	Capsule: 100 000 IU; 200 000 IU (as palmitate). Oral oily solution: 100 000 IU (as palmitate)/mL in multidose dispenser. Tablet (sugar-coated): 10 000 IU (as palmitate). Water-miscible injection: 100 000 IU (as palmitate) in 2-mL ampoule.
riboflavin	Tablet: 5 mg.
sodium fluoride	In any appropriate topical formulation.
thiamine	Tablet: 50 mg (hydrochloride).
<i>Complementary List</i>	
<i>calcium gluconate</i>	Injection: 100 mg/mL in 10-mL ampoule.
28. EAR, NOSE AND THROAT MEDICINES	
acetic acid	Topical: 2%, in alcohol.
<input type="checkbox"/> budesonide	Nasal spray: 100 micrograms per dose.
<input type="checkbox"/> ciprofloxacin	Topical: 0.3% drops (as hydrochloride).
<input type="checkbox"/> xylometazoline ^a	Nasal spray: 0.05%. ^a Not in children less than 3 months.
29. SPECIFIC MEDICINES FOR NEONATAL CARE	
29.1 Medicines administered to the neonate	
caffeine citrate	Injection: 20 mg/mL (equivalent to 10 mg caffeine base/mL). Oral liquid: 20 mg/mL (equivalent to 10 mg caffeine base/mL).
chlorhexidine	Solution or gel: 7.1% (digluconate) delivering 4% chlorhexidine (for umbilical cord care).
<i>Complementary List</i>	
<input type="checkbox"/> ibuprofen	Solution for injection: 5 mg/mL.
<input type="checkbox"/> prostaglandin E	Solution for injection: Prostaglandin E1: 0.5 mg/mL in alcohol. Prostaglandin E2: 1 mg/mL.
surfactant	Suspension for intratracheal instillation: 25 mg/mL or 80 mg/mL.
30. MEDICINES FOR DISEASES OF JOINTS	

30.1 Medicines used to treat gout	
30.2 Disease-modifying agents used in rheumatoid disorders (DMARDs)	
<i>Complementary List</i>	
<i>hydroxychloroquine</i>	<i>Solid oral dosage form: 200 mg (as sulfate).</i>
<i>methotrexate</i>	<i>Tablet: 2.5 mg (as sodium salt).</i>
30.3 Juvenile joint diseases	
<i>acetylsalicylic acid* (acute or chronic use)</i>	<i>Suppository: 50 mg to 150 mg.</i> <i>Tablet: 100 mg to 500 mg.</i> <i>* For use for rheumatic fever, juvenile arthritis, Kawasaki disease.</i>

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