

WHO Model List of Essential Medicines

20th 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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Explanatory notes

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. Not all square boxes are applicable to medicine selection for children — see the second EMLC for details.

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 **a** symbol indicates that there is an age or weight restriction on use of the medicine; details for each medicine can be found in Table 1.1.

Where the **[c]** symbol is placed next to the complementary list it signifies that the medicine(s) require(s) specialist diagnostic or monitoring facilities, and/or specialist medical care, and/or specialist training for their use in children.

Where the **[c]** symbol is placed next to an individual medicine or strength of medicine it signifies that there is a specific indication for restricting its use to children.

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.

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.
<i>Complementary List</i>	
<i>ephedrine</i>	Injection: 30 mg (hydrochloride)/ mL in 1- mL ampoule. (For use in spinal anaesthesia during delivery, to prevent hypotension).
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 [C]. 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 (NSAIDs)	
acetylsalicylic acid	<p>Suppository: 50 mg to 150 mg.</p> <p>Tablet: 100 mg to 500 mg.</p>
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	
codeine	Tablet: 30 mg (phosphate).
fentanyl*	<p>Transdermal patch: 12 micrograms/hr; 25 micrograms/hr; 50 micrograms/hr; 75 micrograms/hr; 100 micrograms/hr</p> <p>*for the management of cancer pain</p>
<input type="checkbox"/> morphine*	<p>Granules (slow-release; to mix with water): 20 mg –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><i>Tablet: 5 mg; 10 mg (as hydrochloride)</i></p> <p><i>Oral liquid: 5mg/ 5mL; 10mg/ 5mL (as hydrochloride)</i></p> <p><i>Concentrate for oral liquid: 5 mg/ mL; 10mg/ mL (as hydrochloride)</i></p> <p><i>*For the management of cancer pain.</i></p>
2.3 Medicines for other common symptoms in palliative care	
amitriptyline	Tablet: 10 mg; 25 mg; 75 mg.
cyclizine [c]	Injection: 50 mg/ mL. Tablet: 50 mg.
dexamethasone	Injection: 4 mg/ mL in 1- mL ampoule (as disodium phosphate salt). Oral liquid: 2 mg/5 mL. Tablet: 2 mg [c] ; 4 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 [a]	Solid oral dosage form: 20 mg (as hydrochloride). [a] >8 years.
haloperidol	Injection: 5 mg in 1- mL ampoule. Oral liquid: 2 mg/ mL. Solid oral dosage form: 0.5 mg; 2mg; 5 mg.
hyoscine butylbromide	Injection: 20 mg/ mL.
hyoscine hydrobromide [c]	Injection: 400 micrograms/ mL; 600 micrograms/ mL. Transdermal patches: 1 mg/72 hours.
lactulose [c]	Oral liquid: 3.1–3.7 g/5 mL.
loperamide	Solid oral dosage form: 2 mg.
metoclopramide	Injection: 5 mg (hydrochloride)/mL in 2-mL ampoule. Oral liquid: 5 mg/5 mL. Solid oral form: 10 mg (hydrochloride).
midazolam	Injection: 1 mg/ mL; 5 mg/ mL. Solid oral dosage form: 7.5 mg; 15 mg. Oral liquid: 2mg/ mL [c] .

ondansetron [c] ^a	<p>Injection: 2 mg base/ mL in 2- mL ampoule (as hydrochloride).</p> <p>Oral liquid: 4 mg base/5 mL.</p> <p>Solid oral dosage form: Eq 4 mg base; Eq 8 mg base.</p> <p>^a >1 month.</p>
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 *	<p>Oral liquid: 1 mg/ mL.</p> <p>Tablet: 10 mg.</p> <p><i>*There may be a role for sedating antihistamines for limited indications (EMLc).</i></p>
<input type="checkbox"/> prednisolone	<p>Oral liquid: 5 mg/ mL [c].</p> <p>Tablet: 5 mg; 25 mg.</p>
4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONINGS	
4.1 Non-specific	
charcoal, activated	Powder.
4.2 Specific	
acetylcysteine	<p>Injection: 200 mg/ mL in 10- mL ampoule.</p> <p>Oral liquid: 10% [c]; 20% [c].</p>
atropine	Injection: 1 mg (sulfate) in 1- mL ampoule.
calcium gluconate	Injection: 100 mg/ mL in 10- mL ampoule.
methylthioninium chloride (methylene blue)	Injection: 10 mg/ mL in 10- mL ampoule.
naloxone	Injection: 400 micrograms (hydrochloride) in 1- mL ampoule.
penicillamine	Solid oral dosage form: 250 mg.
potassium ferric hexacyano-ferrate(II) - 2H ₂ O (Prussian blue)	Powder for oral administration.
sodium nitrite	Injection: 30 mg/ mL in 10- mL ampoule.
sodium thiosulfate	Injection: 250 mg/ mL in 50- 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.
□ lorazepam	Parenteral formulation: 2 mg/ mL in 1- mL ampoule; 4 mg/ mL in 1- mL ampoule.
magnesium sulfate*	Injection: 0.5g/ mL in 2- mL ampoule (equivalent to 1 g in 2 mL; 50% weight/volume); 0.5g/ mL in 10- mL ampoule (equivalent to 5 g in 10 mL; 50% weight/volume). * For use in eclampsia and severe pre-eclampsia and not for other convulsant disorders.
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	Injection: 200 mg/ mL (sodium). Oral liquid: 15 mg/5 mL. Tablet: 15 mg to 100 mg.
phenytoin	Injection: 50 mg/ mL in 5- mL vial (sodium salt). Oral liquid: 25 mg to 30 mg/5 mL.* Solid oral dosage form: 25 mg; 50 mg; 100 mg (sodium salt). Tablet (chewable): 50 mg. * 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.

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 antitrepatode medicines	
praziquantel	Tablet: 600 mg.
triclabendazole	Tablet: 250 mg.

<i>Complementary List</i>	
<i>oxamniquine*</i>	<i>Capsule: 250 mg.</i> <i>Oral liquid: 250 mg/5 mL.</i> <i>* Oxamniquine is listed for use when praziquantel treatment fails.</i>

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

	<p>Powder for oral liquid: 125 mg (as trihydrate)/5 mL; 250 mg (as trihydrate)/5 mL [c].</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>	
amoxicillin	<p>FIRST CHOICE</p> <ul style="list-style-type: none"> - community acquired pneumonia (mild to moderate) - community acquired pneumonia (severe) [c] - complicated severe acute malnutrition [c] - exacerbations of COPD - lower urinary tract infections - otitis media - pharyngitis - sepsis in neonates and children [c] - sinusitis - uncomplicated severe acute malnutrition [c] 	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - acute bacterial meningitis
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 [c].</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"> - community acquired pneumonia (severe) [c] - complicated intraabdominal infections (mild to moderate) - exacerbations of COPD - hospital acquired pneumonia - low-risk febrile neutropenia - lower urinary tract infections - sinusitis - skin and soft tissue infections 	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - bone and joint infections - community-acquired pneumonia (mild to moderate) - community acquired pneumonia (severe) - otitis media
ampicillin	<p>Powder for injection: 500 mg; 1 g (as sodium salt) in vial.</p>	
	<p>FIRST CHOICE</p> <ul style="list-style-type: none"> - community acquired pneumonia (severe) [c] - complicated severe acute malnutrition [c] - sepsis in neonates and children [c] 	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - acute bacterial meningitis
benzathine benzylpenicillin	<p>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.</p>	
	<p>FIRST CHOICE</p> <ul style="list-style-type: none"> - syphilis 	<p>SECOND CHOICE</p>
benzylpenicillin	<p>Powder for injection: 600 mg (= 1 million IU); 3 g (= 5 million IU) (sodium or potassium salt) in vial.</p>	
	<p>FIRST CHOICE</p> <ul style="list-style-type: none"> -community acquired pneumonia (severe) [c] - complicated severe acute malnutrition [c] - sepsis in neonates and children [c] - syphilis 	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - acute bacterial meningitis [c]
cefalexin	<p>Powder for reconstitution with water: 125 mg/5 mL; 250 mg/5 mL (anhydrous).</p> <p>Solid oral dosage form: 250 mg (as monohydrate).</p>	
	<p>FIRST CHOICE</p>	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - exacerbations of COPD - pharyngitis - skin and soft tissue infections
cefazolin* a	<p>Powder for injection: 1 g (as sodium salt) in vial.</p> <p>* also indicated for surgical prophylaxis.</p> <p>a > 1 month.</p>	
	<p>FIRST CHOICE</p>	<p>SECOND CHOICE</p> <ul style="list-style-type: none"> - bone and joint infections

cefixime WATCH GROUP	Capsule or tablet: 200 mg; 400 mg (as trihydrate). Powder for oral liquid: 100 mg /5 mL [c]	
cefotaxime* WATCH GROUP	FIRST CHOICE - acute bacterial meningitis -community acquired pneumonia (severe) - complicated intraabdominal infections (mild to moderate) - complicated intrabdominal infections (severe) - hospital acquired pneumonia -pyelonephritis or prostatitis (severe)	SECOND CHOICE - bone and joint infections -pyelonephritis or prostatitis (mild to moderate) - sepsis in neonates and children [c]
ceftriaxone*  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.  >41 weeks corrected gestational age.	
	FIRST CHOICE - acute bacterial meningitis -community acquired pneumonia (severe) - complicated intraabdominal infections (mild to moderate) - complicated intrabdominal infections (severe) - hospital acquired pneumonia - Neisseria gonorrhoeae -pyelonephritis or prostatitis (severe)	SECOND CHOICE - acute invasive bacterial diarrhoea / dysentery - bone and joint infections - pyelonephritis or prostatitis (mild to moderate) - sepsis in neonates and children [c]
 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 - bone and joint infections - skin and soft tissue infections	SECOND CHOICE - sepsis in neonates and children [c]



phenoxymethylpenicillin	Powder for oral liquid: 250 mg (as potassium salt)/5 mL. Tablet: 250 mg (as potassium salt).	
	FIRST CHOICE <i>- community acquired pneumonia (mild to moderate)</i> <i>- pharyngitis</i>	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 <i>- complicated intraabdominal infections (severe)</i> <i>- high-risk febrile neutropenia</i> <i>- hospital acquired pneumonia</i>	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 except in settings with high neonatal mortality, when given by trained health workers in cases where hospital care is not achievable.	
	FIRST CHOICE <i>- syphilis [c]</i>	SECOND CHOICE <i>- syphilis</i>
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 <i>- acute bacterial meningitis in neonates [c]</i> <i>- complicated intraabdominal infections (severe)</i> <i>- high-risk febrile neutropenia</i>
Complementary List – RESERVE GROUP		
aztreonam	Powder for injection: 1 g; 2 g in vial	
fifth generation cephalosporins <i>(with or without beta-lactamase inhibitor)</i> <i>e.g, ceftaroline</i>	Powder for injection: 400 mg; 600 mg (as fosamil) in vial	

<p><i>fourth generation cephalosporins</i> <i>(with or without beta-lactamase inhibitor)</i> <i>e.g., cefepime</i></p>	<p>Powder for injection: 500 mg; 1g; 2g (as hydrochloride) in vial</p>			
<p>6.2.2 Other antibacterials</p>				
<p>amikacin</p>	<p>Injection: 250 mg (as sulfate)/mL in 2- mL vial</p> <table border="1" data-bbox="454 450 1441 611"> <tr> <td data-bbox="454 450 970 611"> <p>FIRST CHOICE <i>-pyelonephritis or prostatitis (severe)</i></p> </td> <td data-bbox="970 450 1441 611"> <p>SECOND CHOICE <i>- high-risk febrile neutropenia</i> <i>- sepsis in neonates and children [c]</i></p> </td> </tr> </table>		<p>FIRST CHOICE <i>-pyelonephritis or prostatitis (severe)</i></p>	<p>SECOND CHOICE <i>- high-risk febrile neutropenia</i> <i>- sepsis in neonates and children [c]</i></p>
<p>FIRST CHOICE <i>-pyelonephritis or prostatitis (severe)</i></p>	<p>SECOND CHOICE <i>- high-risk febrile neutropenia</i> <i>- sepsis in neonates and children [c]</i></p>			
<p>azithromycin* WATCH GROUP</p>	<p>Capsule: 250 mg; 500 mg (anhydrous). Oral liquid: 200 mg/5 mL. * also listed for single-dose treatment of trachoma and yaws.</p> <table border="1" data-bbox="454 779 1441 960"> <tr> <td data-bbox="454 779 970 960"> <p>FIRST CHOICE <i>- Chlamydia trachomatis</i> <i>- cholera [c]</i> <i>- Neisseria gonorrhoeae</i></p> </td> <td data-bbox="970 779 1441 960"> <p>SECOND CHOICE <i>- acute invasive bacterial diarrhoea / dysentery</i> <i>- Neisseria gonorrhoeae</i></p> </td> </tr> </table>		<p>FIRST CHOICE <i>- Chlamydia trachomatis</i> <i>- cholera [c]</i> <i>- Neisseria gonorrhoeae</i></p>	<p>SECOND CHOICE <i>- acute invasive bacterial diarrhoea / dysentery</i> <i>- Neisseria gonorrhoeae</i></p>
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<p>chloramphenicol</p>	<p>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 and in adults. Oral liquid: 150 mg (as palmitate)/5 mL. Powder for injection: 1 g (sodium succinate) in vial.</p> <table border="1" data-bbox="454 1308 1441 1431"> <tr> <td data-bbox="454 1308 970 1431"> <p>FIRST CHOICE</p> </td> <td data-bbox="970 1308 1441 1431"> <p>SECOND CHOICE <i>- acute bacterial meningitis</i></p> </td> </tr> </table>		<p>FIRST CHOICE</p>	<p>SECOND CHOICE <i>- acute bacterial meningitis</i></p>
<p>FIRST CHOICE</p>	<p>SECOND CHOICE <i>- acute bacterial meningitis</i></p>			
<p>ciprofloxacin WATCH GROUP</p>	<p>Oral liquid: 250 mg/5 mL (anhydrous) [c]. Solution for IV infusion: 2 mg/ mL (as hyclate) [c]. Tablet: 250 mg (as hydrochloride).</p> <table border="1" data-bbox="454 1592 1441 1861"> <tr> <td data-bbox="454 1592 970 1861"> <p>FIRST CHOICE <i>- acute invasive bacterial diarrhoea / dysentery</i> <i>- low-risk febrile neutropenia</i> <i>- pyelonephritis or prostatitis (mild to moderate)</i></p> </td> <td data-bbox="970 1592 1441 1861"> <p>SECOND CHOICE <i>- cholera</i> <i>- complicated intraabdominal infections (mild to moderate)</i></p> </td> </tr> </table>		<p>FIRST CHOICE <i>- acute invasive bacterial diarrhoea / dysentery</i> <i>- low-risk febrile neutropenia</i> <i>- pyelonephritis or prostatitis (mild to moderate)</i></p>	<p>SECOND CHOICE <i>- cholera</i> <i>- complicated intraabdominal infections (mild to moderate)</i></p>
<p>FIRST CHOICE <i>- acute invasive bacterial diarrhoea / dysentery</i> <i>- low-risk febrile neutropenia</i> <i>- pyelonephritis or prostatitis (mild to moderate)</i></p>	<p>SECOND CHOICE <i>- cholera</i> <i>- complicated intraabdominal infections (mild to moderate)</i></p>			

clarithromycin*† WATCH GROUP	<p>Solid oral dosage form: 500 mg.</p> <p>Powder for oral liquid: 125 mg/5 mL; 250 mg/5 mL</p> <p>Powder for injection: 500 mg in vial</p> <p>*erythromycin may be an alternative.</p> <p>†clarithromycin is also listed for use in combination regimens for eradication of <i>H. pylori</i> in adults.</p>	
	<p>FIRST CHOICE</p> <p>-community acquired pneumonia (severe)</p>	<p>SECOND CHOICE</p> <p>- pharyngitis</p>
clindamycin	<p>Capsule: 150 mg (as hydrochloride).</p> <p>Injection: 150 mg (as phosphate)/ mL.</p> <p>Oral liquid: 75 mg/5 mL (as palmitate) [c].</p>	
	<p>FIRST CHOICE</p>	<p>SECOND CHOICE</p> <p>- bone and joint infections</p>
doxycycline [a]	<p>Oral liquid: 25 mg/5 mL [c]; 50 mg/5 mL (anhydrous) [c].</p> <p>Solid oral dosage form: 50 mg [c]; 100 mg (as hyclate).</p> <p>Powder for injection: 100 mg in vial</p> <p>[a] Use in children <8 years only for life-threatening infections when no alternative exists.</p>	
	<p>FIRST CHOICE</p> <p>- <i>Chlamydia trachomatis</i></p> <p>- cholera</p>	<p>SECOND CHOICE</p> <p>- cholera [c]</p> <p>-community acquired pneumonia (mild to moderate)</p> <p>- exacerbations of COPD</p>
gentamicin	<p>Injection: 10 mg; 40 mg (as sulfate)/ mL in 2- mL vial.</p>	
	<p>FIRST CHOICE</p> <p>- community acquired pneumonia (severe) [c]</p> <p>- complicated severe acute malnutrition [c]</p> <p>- sepsis in neonates and children [c]</p>	<p>SECOND CHOICE</p> <p>- <i>Neisseria gonorrhoeae</i></p>
metronidazole	<p>Injection: 500 mg in 100- mL vial.</p> <p>Oral liquid: 200 mg (as benzoate)/5 mL.</p> <p>Suppository: 500 mg; 1 g.</p> <p>Tablet: 200 mg to 500 mg.</p>	

	FIRST CHOICE - <i>C. difficile</i> infection - complicated intraabdominal infections (mild to moderate) - complicated intrabdominal infections (severe) - <i>Trichomonas vaginalis</i>	SECOND CHOICE - complicated intraabdominal infections (mild to moderate)
nitrofurantoin	Oral liquid: 25 mg/5 mL [c]. Tablet: 100 mg.	
	FIRST CHOICE - lower urinary tract infections	SECOND CHOICE
spectinomycin	Powder for injection: 2 g (as hydrochloride) in vial.	
	FIRST CHOICE	SECOND CHOICE - <i>Neisseria gonorrhoeae</i>
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; 800 mg + 160 mg. *single agent trimethoprim may be an alternative for lower urinary tract infection.	
	FIRST CHOICE - lower urinary tract infections	SECOND CHOICE - acute invasive diarrhoea / bacterial 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	<i>Injection for intravenous administration:</i> 2 mg/ mL in 300 mL bag. <i>Powder for oral liquid:</i> 100 mg/5 mL. <i>Tablet:</i> 400 mg; 600 mg.
polymyxins e.g., colistin	<i>Powder for injection:</i> 1 million I.U. (as colistmethate sodium) in vial
tigecycline	<i>Powder for injection:</i> 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 [c]. Tablet: 100 mg to 400 mg (hydrochloride).
ethambutol + isoniazid	Tablet: 400 mg + 150 mg.
ethambutol + isoniazid + pyrazinamide + rifampicin	Tablet: 275 mg + 75 mg + 400 mg + 150 mg.
ethambutol + isoniazid + rifampicin	Tablet: 275 mg + 75 mg + 150 mg.
isoniazid	Oral liquid: 50 mg/5 mL [c]. Tablet: 100 mg to 300 mg. Tablet (scored): 50 mg.
isoniazid + pyrazinamide + rifampicin	Tablet: 75 mg + 400 mg + 150 mg. 150 mg + 500 mg + 150 mg (For intermittent use three times weekly). Tablet (dispersible): 50 mg + 150 mg + 75 mg [c].
isoniazid + rifampicin	Tablet: 75 mg + 150 mg; 150 mg + 300 mg. 60 mg + 60 mg (For intermittent use three times weekly). 150 mg + 150 mg (For intermittent use three times weekly). Tablet (dispersible): 50 mg + 75 mg [c].

pyrazinamide	<p>Oral liquid: 30 mg/ mL [c].</p> <p>Tablet: 400 mg.</p> <p>Tablet (dispersible): 150 mg.</p> <p>Tablet (scored): 150 mg.</p>
rifabutin	<p>Capsule: 150 mg.*</p> <p>* For use only in patients with HIV receiving protease inhibitors.</p>
rifampicin	<p>Oral liquid: 20 mg/ mL [c].</p> <p>Solid oral dosage form: 150 mg; 300 mg.</p>
rifapentine*	<p>Tablet: 150 mg</p> <p>*For treatment of latent TB infection (LTBI) only</p>
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>	
<i>amikacin</i>	<i>Powder for injection: 100 mg; 500 mg; 1 g (as sulfate) in vial.</i>
<i>bedaquiline</i>	<i>Tablet: 100 mg.</i>
<i>capreomycin</i>	<i>Powder for injection: 1 g (as sulfate) in vial.</i>
<i>clofazimine</i>	<i>Capsule: 50 mg; 100 mg.</i>
<i>cycloserine*</i>	<p><i>Solid oral dosage form: 250 mg.</i></p> <p><i>*Terizidone may be an alternative</i></p>
<i>delamanid</i> 	<p><i>Tablet: 50 mg.</i></p> <p> >6 years</p>
<i>ethionamide*</i>	<p><i>Tablet: 125 mg; 250 mg.</i></p> <p><i>*Protionamide may be an alternative.</i></p>
<i>kanamycin</i>	<i>Powder for injection: 1 g (as sulfate) in vial.</i>
<i>levofloxacin</i>	<i>Tablet: 250mg; 500 mg; 750 mg.</i>
<i>linezolid</i>	<p><i>Injection for intravenous administration: 2 mg/ mL in 300 mL bag.</i></p> <p><i>Powder for oral liquid: 100 mg/5 mL.</i></p> <p><i>Tablet: 400 mg; 600 mg.</i></p>
<i>moxifloxacin</i>	<i>Tablet: 400 mg.</i>
<i>p-aminosalicylic acid</i>	<p><i>Granules: 4 g in sachet.</i></p> <p><i>Tablet: 500 mg.</i></p>
<i>streptomycin</i> [c]	<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).
clotrimazole	Vaginal cream: 1%; 10%. Vaginal tablet: 100 mg; 500 mg.
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 [c] . Solid oral dosage form: 125 mg; 250 mg.
itraconazole*	Capsule: 100 mg. Oral liquid: 10 mg/mL. * For treatment of chronic pulmonary 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 [c] ; 100 000 IU/ mL [c] . Pessary: 100 000 IU. 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>	
<i>potassium iodide</i>	<i>Saturated solution.</i>

6.4 Antiviral medicines	
6.4.1 Antiherpes medicines	
□ aciclovir	<p>Oral liquid: 200 mg/5 mL [c].</p> <p>Powder for injection: 250 mg (as sodium salt) in vial.</p> <p>Tablet: 200 mg.</p>
6.4.2 Antiretrovirals	
<p>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, pre-exposure prophylaxis (where indicated) 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.</p> <p>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.</p>	
6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors	
abacavir (ABC)	<p>Tablet: 300 mg (as sulfate).</p> <p>Tablet (dispersible, scored): 60 mg (as sulfate) [c].</p>
lamivudine (3TC)	<p>Oral liquid: 50 mg/5 mL [c].</p> <p>Tablet: 150 mg.</p>
tenofovir disoproxil fumarate† (TDF)	<p>Tablet: 300 mg (tenofovir disoproxil fumarate – equivalent to 245 mg tenofovir disoproxil).</p> <p>†also indicated for pre-exposure prophylaxis.</p>
zidovudine (ZDV or AZT)	<p>Capsule: 250 mg.</p> <p>Oral liquid: 50 mg/5 mL.</p> <p>Solution for IV infusion injection: 10 mg/ mL in 20- mL vial.</p> <p>Tablet: 300 mg.</p> <p>Tablet (dispersible, scored): 60 mg [c].</p>
6.4.2.2 Non-nucleoside reverse transcriptase inhibitors	
efavirenz (EFV or EFZ) ^a	<p>Tablet: 200 mg (scored); 600 mg.</p> <p>^a >3 years or >10 kg weight.</p>
nevirapine (NVP) ^a	<p>Oral liquid: 50 mg/5 mL.</p> <p>Tablet: 50 mg (dispersible); 200 mg.</p> <p>^a > 6 weeks</p>

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; 300 mg (as sulfate). ^a >25 kg.
atazanavir + ritonavir	Tablet (heat stable): 300 mg (as sulfate) + 100 mg.
darunavir ^a	Tablet: 75 mg; 400 mg; 600 mg; 800 mg ^a >3 years
lopinavir + ritonavir (LPV/r)	Oral liquid: 400 mg + 100 mg/5 mL. Tablet (heat stable): 100 mg + 25 mg; 200 mg + 50 mg. Capsule containing oral pellets: 40 mg + 10 mg [c] .
ritonavir	Oral liquid: 400 mg/5 mL. Tablet (heat stable): 25 mg; 100 mg.
6.4.2.4 Integrase inhibitors	
dolutegravir	Tablet: 50 mg
raltegravir*	Tablet (chewable): 25 mg; 100 mg. Tablet: 400 mg *for use in pregnant women and in second-line regimens in accordance with WHO treatment guidelines.
FIXED-DOSE COMBINATIONS	
abacavir + lamivudine	Tablet (dispersible, scored): 60 mg (as sulfate) + 30 mg; 120 mg (as sulfate) + 60 mg.
efavirenz + emtricitabine* + tenofovir	Tablet: 600 mg + 200 mg + 300 mg (disoproxil fumarate equivalent to 245 mg tenofovir disoproxil). *Emtricitabine (FTC) is an acceptable alternative to 3TC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.
efavirenz + lamivudine + tenofovir	Tablet: 400 mg + 300 mg + 300 mg (disoproxil fumarate equivalent to 245 mg tenofovir disoproxil)
emtricitabine* + tenofovir†	Tablet: 200 mg + 300 mg (disoproxil fumarate equivalent to 245 mg tenofovir disoproxil). *Emtricitabine (FTC) is an acceptable alternative to 3TC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals. † combination also indicated for pre-exposure prophylaxis
lamivudine + nevirapine + zidovudine	Tablet: 30 mg + 50 mg + 60 mg [c] ; 150 mg + 200 mg + 300 mg.

lamivudine + zidovudine	Tablet: 30 mg + 60 mg [c]; 150 mg + 300 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
valganciclovir*	Tablet: 450 mg. *For the treatment of cytomegalovirus retinitis (CMVr).
<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
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
tenofovir disoproxil fumarate (TDF)	Tablet: 300 mg (tenofovir disoproxil fumarate – equivalent to 245 mg tenofovir disoproxil).
6.4.4.2 Medicines for hepatitis C	
Based on current evidence, medicines in the following classes of direct acting antiviral medicines are included as essential medicines for treatment of hepatitis C virus infection. WHO guidelines recommend specific combination therapy utilizing medicines from different classes.	
6.4.4.2.1 Nucleotide polymerase inhibitors	
sofosbuvir	Tablet: 400 mg
6.4.4.2.2 Protease inhibitors	
simeprevir	Capsule 150 mg
6.4.4.2.3 NS5A inhibitors	
daclatasvir	Tablet: 30 mg; 60 mg (as hydrochloride)
6.4.4.2.4 Non-nucleoside polymerase inhibitors	
dasabuvir	Tablet: 250 mg
6.4.4.2.5 Other antivirals	

ribavirin*	<p>Injection for intravenous administration: 800 mg and 1 g in 10-mL phosphate buffer solution.</p> <p>Solid oral dosage form: 200 mg; 400 mg; 600 mg.</p> <p>* For the treatment of hepatitis C, in combination with peginterferon and/or direct acting anti-viral medicines</p>
<i>Complementary List</i>	
pegylated interferon alfa (2a or 2b) *	<p>Vial or prefilled syringe:</p> <p>180 micrograms (peginterferon alfa-2a), 80 microgram, 100 microgram (peginterferon alfa-2b).</p> <p>* To be used in combination with ribavirin.</p>
FIXED-DOSE COMBINATIONS	
<i>Alternative combinations of DAAs from different pharmacological classes are possible.</i>	
ledipasvir + sofosbuvir	Tablet: 90 mg + 400 mg.
ombitasvir + paritaprevir + ritonavir	Tablet: 12.5 mg + 75 mg + 50 mg
sofosbuvir + velpatasvir	Tablet: 400 mg + 100 mg
6.5 Antiprotozoal medicines	
6.5.1 Antiamoebic and anti giardiasis medicines	
diloxanide <input type="checkbox"/>	<p>Tablet: 500 mg (furoate).</p> <p><input type="checkbox"/> >25 kg.</p>
<input type="checkbox"/> metronidazole	<p>Injection: 500 mg in 100- mL vial.</p> <p>Oral liquid: 200 mg (as benzoate)/5 mL.</p> <p>Tablet: 200 mg to 500 mg.</p>
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 [c]. * 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 [c]; 100 mg [c]; 200 mg capsules (for pre-referral treatment of severe malaria only; patients should be taken to an appropriate health facility for follow-up care) [c]. 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 [c]. 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*	<p>Capsule: 100 mg (as hydrochloride or hyclate).</p> <p>Tablet (dispersible): 100 mg (as monohydrate).</p> <p>* For use only in combination with quinine.</p>
mefloquine*	<p>Tablet: 250 mg (as hydrochloride).</p> <p>* To be used in combination with artesunate 50 mg.</p>
primaquine*	<p>Tablet: 7.5 mg; 15 mg (as diphosphate).</p> <p>* Only for use to achieve radical cure of <i>P.vivax</i> and <i>P.ovale</i> infections, given for 14 days.</p>
quinine*	<p>Injection: 300 mg quinine hydrochloride/ mL in 2- mL ampoule.</p> <p>Tablet: 300 mg (quinine sulfate) or 300 mg (quinine bisulfate).</p> <p>* For use only in the management of severe malaria, and should be used in combination with doxycycline.</p>
sulfadoxine + pyrimethamine*	<p>Tablet: 500 mg + 25 mg.</p> <p>* Only in combination with artesunate 50 mg.</p>
6.5.3.2 For prophylaxis	
chloroquine*	<p>Oral liquid: 50 mg (as phosphate or sulfate)/5 mL.</p> <p>Tablet: 150 mg (as phosphate or sulfate).</p> <p>* For use only in central American regions, for <i>P.vivax</i> infections.</p>
doxycycline a	<p>Solid oral dosage form: 100 mg (as hydrochloride or hyclate).</p> <p>a >8 years.</p>
mefloquine a	<p>Tablet: 250 mg (as hydrochloride).</p> <p>a >5 kg or >3 months.</p>
proguanil*	<p>Tablet: 100 mg (as hydrochloride).</p> <p>* For use only in combination with chloroquine.</p>
6.5.4 Antipneumocystosis and antitoxoplasmosis medicines	
pyrimethamine	Tablet: 25 mg.
sulfadiazine	Tablet: 500 mg.
sulfamethoxazole + trimethoprim	<p>Injection:</p> <p>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 [c].</p> <p>Tablet: 100 mg + 20 mg; 400 mg + 80 mg [c].</p>
<i>Complementary List</i>	
pentamidine	Tablet: 200 mg; 300 mg (as isethionate).

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

8. ANTINEOPLASTICS AND IMMUNOSUPPRESSIVES	
Medicines listed below should be used according to protocols for treatment of the diseases.	
8.1 Immunosuppressive medicines	
<i>Complementary List</i>	
<i>azathioprine</i>	<i>Powder for injection: 100 mg (as sodium salt) in vial.</i> <i>Tablet (scored): 50 mg.</i>
<i>ciclosporin</i>	<i>Capsule: 25 mg.</i> <i>Concentrate for injection: 50 mg/ mL in 1- mL ampoule for organ transplantation.</i>
8.2 Cytotoxic and adjuvant medicines	
<i>Complementary List</i>	
<i>all-trans retinoid acid (ATRA)</i>	<i>Capsule: 10 mg.</i> – <i>Acute promyelocytic leukaemia.</i>
<i>allopurinol [c]</i>	<i>Tablet: 100 mg; 300 mg.</i>
<i>asparaginase</i>	<i>Powder for injection: 10 000 IU in vial.</i> – <i>Acute lymphoblastic leukaemia.</i>
<i>bendamustine</i>	<i>Injection: 45 mg/0.5 mL; 180 mg/2 mL.</i> – <i>Chronic lymphocytic leukaemia</i> – <i>Follicular lymphoma</i>
<i>bleomycin</i>	<i>Powder for injection: 15 mg (as sulfate) in vial.</i> – <i>Hodgkin lymphoma</i> – <i>Kaposi sarcoma</i> – <i>Ovarian germ cell tumour</i> – <i>Testicular germ cell tumour</i>
<i>calcium folinate</i>	<i>Injection: 3 mg/ mL in 10- mL ampoule.</i> <i>Tablet: 15 mg.</i> – <i>Early stage colon cancer</i> – <i>Early stage rectal cancer</i> – <i>Gestational trophoblastic neoplasia</i> – <i>Metastatic colorectal cancer</i> – <i>Osteosarcoma</i> – <i>Burkitt lymphoma</i>
<i>capecitabine</i>	<i>Tablet: 150 mg; 500 mg.</i> – <i>Early stage colon cancer</i> – <i>Early stage rectal cancer</i> – <i>Metastatic breast cancer</i> – <i>Metastatic colorectal cancer</i>

<i>carboplatin</i>	<p>Injection: 50 mg/5 mL; 150 mg/15 mL; 450 mg/45 mL; 600 mg/60 mL.</p> <ul style="list-style-type: none"> – Early stage breast cancer – Epithelial ovarian cancer – Nasopharyngeal cancer – Non-small cell lung cancer – Osteosarcoma – Retinoblastoma
<i>chlorambucil</i>	<p>Tablet: 2 mg.</p> <ul style="list-style-type: none"> – Chronic lymphocytic leukaemia.
<i>cisplatin</i>	<p>Injection: 50 mg/50 mL; 100 mg/100 mL.</p> <ul style="list-style-type: none"> – Cervical cancer (as a radio-sensitizer) – Head and neck cancer (as a radio-sensitizer) – Nasopharyngeal cancer (as a radio-sensitizer) – Non-small cell lung cancer – Osteosarcoma – Ovarian germ cell tumour – Testicular germ cell tumour
<i>cyclophosphamide</i>	<p>Powder for injection: 500 mg in vial.</p> <p>Tablet: 25 mg.</p> <ul style="list-style-type: none"> – Chronic lymphocytic leukaemia – Diffuse large B-cell lymphoma – Early stage breast cancer – Gestational trophoblastic neoplasia – Hodgkin lymphoma – Follicular lymphoma – Rhabdomyosarcoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Burkitt lymphoma – Metastatic breast cancer.
<i>cytarabine</i>	<p>Powder for injection: 100 mg in vial.</p> <ul style="list-style-type: none"> – Acute myelogenous leukaemia – Acute lymphoblastic leukaemia – Acute promyelocytic 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"> – Gestational trophoblastic neoplasia – Rhabdomyosarcoma – Wilms tumour

<p><i>dasatinib</i></p>	<p>Tablet: 20 mg; 50 mg; 70 mg; 80 mg; 100 mg; 140 mg.</p> <ul style="list-style-type: none"> – Imatinib-resistant chronic myeloid leukaemia
<p><i>daunorubicin</i></p>	<p>Powder for injection: 50 mg (hydrochloride) in vial.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia – Acute myelogenous leukaemia – Acute promyelocytic leukaemia
<p><i>docetaxel</i></p>	<p>Injection: 20 mg/ mL; 40 mg/ mL.</p> <ul style="list-style-type: none"> – Early stage breast cancer – Metastatic breast cancer – Metastatic prostate cancer
<p><i>doxorubicin</i></p>	<p>Powder for injection: 10 mg; 50 mg (hydrochloride) in vial.</p> <ul style="list-style-type: none"> – Diffuse large B-cell lymphoma – Early stage breast cancer – Hodgkin lymphoma – Kaposi sarcoma – Follicular lymphoma – Metastatic breast cancer – Osteosarcoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Wilms tumour – Burkitt lymphoma
<p><i>etoposide</i></p>	<p>Capsule: 100 mg.</p> <p>Injection: 20 mg/ mL in 5- mL ampoule.</p> <ul style="list-style-type: none"> – Testicular germ cell tumour – Gestational trophoblastic neoplasia – Hodgkin lymphoma – Non-small cell lung cancer – Ovarian germ cell tumour – Retinoblastoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Burkitt lymphoma
<p><i>filgrastim</i></p>	<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>fludarabine</i>	<p>Powder for injection: 50 mg (phosphate) in vial.</p> <p>Tablet: 10 mg</p> <ul style="list-style-type: none"> – Chronic lymphocytic leukaemia.
<i>fluorouracil</i>	<p>Injection: 50 mg/ mL in 5- mL ampoule.</p> <ul style="list-style-type: none"> – Early stage breast cancer – Early stage colon cancer – Early stage rectal cancer – Metastatic colorectal cancer – Nasopharyngeal cancer.
<i>gemcitabine</i>	<p>Powder for injection: 200 mg in vial, 1 g in vial.</p> <ul style="list-style-type: none"> – Epithelial ovarian cancer – Non-small cell lung cancer
<i>hydroxycarbamide</i>	<p>Solid oral dosage form: 200 mg; 250 mg; 300 mg; 400 mg; 500 mg; 1 g.</p> <ul style="list-style-type: none"> – Chronic myeloid leukaemia.
<i>ifosfamide</i>	<p>Powder for injection: 500 mg vial; 1-g vial; 2-g vial.</p> <ul style="list-style-type: none"> – Testicular germ cell tumour – Ovarian germ cell tumour – Osteosarcoma – Rhabdomyosarcoma – Ewing sarcoma
<i>imatinib</i>	<p>Tablet: 100 mg; 400 mg.</p> <ul style="list-style-type: none"> – Chronic myeloid leukaemia – Gastrointestinal stromal tumour
<i>irinotecan</i>	<p>Injection: 40 mg/2 mL in 2- mL vial; 100 mg/5 mL in 5- mL vial; 500 mg/25 mL in 25- mL vial.</p> <ul style="list-style-type: none"> – Metastatic colorectal cancer.
<i>mercaptopurine</i>	<p>Tablet: 50 mg.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia – Acute promyelocytic leukaemia.
<i>mesna</i>	<p>Injection: 100 mg/ mL in 4- mL and 10- mL ampoules.</p> <p>Tablet: 400 mg; 600 mg.</p> <ul style="list-style-type: none"> – Testicular germ cell tumour – Ovarian germ cell tumour – Osteosarcoma – Rhabdomyosarcoma – Ewing sarcoma.

<i>methotrexate</i>	<p>Powder for injection: 50 mg (as sodium salt) in vial.</p> <p>Tablet: 2.5 mg (as sodium salt).</p> <ul style="list-style-type: none"> – Early stage breast cancer – Gestational trophoblastic neoplasia – Osteosarcoma – Acute lymphoblastic leukaemia – Acute promyelocytic leukaemia
<i>nilotinib</i>	<p>Capsule: 150 mg; 200 mg.</p> <ul style="list-style-type: none"> – Imatinib-resistant chronic myeloid leukaemia
<i>oxaliplatin</i>	<p>Injection: 50 mg/10 mL in 10- mL vial; 100 mg/20 mL in 20- mL vial; 200 mg/40 mL in 40- mL vial.</p> <p>Powder for injection: 50 mg, 100 mg in vial.</p> <ul style="list-style-type: none"> – Early stage colon cancer – Metastatic colorectal cancer
<i>paclitaxel</i>	<p>Powder for injection: 6 mg/ mL.</p> <ul style="list-style-type: none"> – Epithelial ovarian cancer – Early stage breast cancer – Metastatic breast cancer – Kaposi sarcoma – Nasopharyngeal cancer – Non-small cell lung cancer – Ovarian germ cell tumour
<i>procarbazine</i>	<p>Capsule: 50 mg (as hydrochloride).</p>
<i>rituximab</i>	<p>Injection: 100 mg/10 mL in 10- mL vial; 500 mg/50 mL in 50- mL vial.</p> <ul style="list-style-type: none"> – Diffuse large B-cell lymphoma – Chronic lymphocytic leukaemia – Follicular lymphoma.
<i>tioguanine [c]</i>	<p>Solid oral dosage form: 40 mg.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia.
<i>trastuzumab</i>	<p>Powder for injection: 60 mg; 150 mg; 440 mg in vial</p> <ul style="list-style-type: none"> – Early stage HER2 positive breast cancer – Metastatic HER2 positive breast cancer.
<i>vinblastine</i>	<p>Powder for injection: 10 mg (sulfate) in vial.</p> <ul style="list-style-type: none"> – Hodgkin lymphoma – Kaposi sarcoma. – Testicular germ cell tumour – Ovarian germ cell tumour

<i>vincristine</i>	<p>Powder for injection: 1 mg; 5 mg (sulfate) in vial.</p> <ul style="list-style-type: none"> – Diffuse large B-cell lymphoma – Gestational trophoblastic neoplasia – Hodgkin lymphoma – Kaposi sarcoma – Follicular lymphoma – Retinoblastoma – Rhabdomyosarcoma – Ewing sarcoma – Acute lymphoblastic leukaemia – Wilms tumour – Burkitt lymphoma.
<i>vinorelbine</i>	<p>Injection: 10 mg/mL in 1- mL vial; 50 mg/5 mL in 5- mL vial.</p> <ul style="list-style-type: none"> – Non-small cell lung cancer – Metastatic breast cancer
<i>zoledronic acid</i>	<p>Concentrate solution for infusion: 4 mg/5 mL in 5- mL vial.</p> <p>Solution for infusion: 4 mg/100 mL in 100- mL bottle.</p> <ul style="list-style-type: none"> – Malignancy-related bone disease
8.3 Hormones and antihormones	
<i>Complementary List</i>	
<input type="checkbox"/> <i>anastrozole</i>	<p>Tablet: 1 mg.</p> <ul style="list-style-type: none"> – Early stage breast cancer – Metastatic breast cancer.
<input type="checkbox"/> <i>bicalutamide</i>	<p>Tablet: 50 mg.</p> <ul style="list-style-type: none"> – Metastatic prostate cancer.
<i>dexamethasone</i>	<p>Injection: 4 mg/ mL in 1- mL ampoule (as disodium phosphate salt).</p> <p>Oral liquid: 2 mg/5 mL [c].</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia.
<input type="checkbox"/> <i>leuprorelin</i>	<p>Dose form</p> <ul style="list-style-type: none"> – Early stage breast cancer – Metastatic prostate cancer
<i>hydrocortisone</i>	<p>Powder for injection: 100 mg (as sodium succinate) in vial.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukaemia.
<i>methylprednisolone [c]</i>	<p>Injection: 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.</p> <ul style="list-style-type: none"> – Acute lymphoblastic leukamia.

<input type="checkbox"/> prednisolone	<p>Oral liquid: 5 mg/ mL [c].</p> <p>Tablet: 5 mg; 25 mg.</p> <ul style="list-style-type: none"> – Chronic lymphocytic leukaemia – Diffuse large B-cell lymphoma – Hodgkin lymphoma – Follicular lymphoma – Acute lymphoblastic leukaemia – Burkitt lymphoma
tamoxifen	<p>Tablet: 10 mg; 20 mg (as citrate).</p> <ul style="list-style-type: none"> – Early stage breast cancer – Metastatic breast cancer
9. ANTIPARKINSONISM MEDICINES	
<input type="checkbox"/> biperiden	<p>Injection: 5 mg (lactate) in 1- mL ampoule.</p> <p>Tablet: 2 mg (hydrochloride).</p>
levodopa + <input type="checkbox"/> carbidopa	Tablet: 100 mg + 10 mg; 100 mg + 25 mg; 250 mg + 25 mg
10. MEDICINES AFFECTING THE BLOOD	
10.1 Antianaemia medicines	
ferrous salt	<p>Oral liquid: equivalent to 25 mg iron (as sulfate)/ mL.</p> <p>Tablet: equivalent to 60 mg iron.</p>
ferrous salt + folic acid	Tablet: equivalent to 60 mg iron + 400 micrograms folic acid (nutritional supplement for use during pregnancy).
folic acid	<p>Tablet: 400 micrograms*; 1 mg; 5 mg.</p> <p>*periconceptual use for prevention of first occurrence of neural tube defects</p>
hydroxocobalamin	Injection: 1 mg (as acetate, as hydrochloride or as sulfate) in 1- mL ampoule.
<i>Complementary List</i>	
<input type="checkbox"/> erythropoiesis-stimulating agents*	<p>Injection: pre-filled syringe</p> <p>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</p> <p>* the square box applies to epoetin alfa, beta and theta, darbepoetin alfa, methoxy polyethylene glycol-epoetin beta, and their respective biosimilars.</p>
10.2 Medicines affecting coagulation	
<input type="checkbox"/> enoxaparin*	<p>Injection: ampoule or pre-filled syringe</p> <p>20 mg/0.2 mL; 40 mg/0.4 mL; 60 mg/0.6 mL; 80 mg/0.8 mL; 100 mg/1 mL; 120 mg/0.8 mL; 150 mg/1 mL</p> <p>*Alternatives are limited to nadroparin and dalteparin</p>

heparin sodium	Injection: 1000 IU/ mL; 5000 IU/ mL; 20 000 IU/ mL in 1- mL ampoule.
phytomenadione	Injection: 1 mg/ mL [c] ; 10 mg/ mL in 5- mL ampoule. Tablet: 10 mg.
protamine sulfate	Injection: 10 mg/ mL in 5- mL ampoule.
tranexamic acid	Injection: 100 mg/ mL in 10- mL ampoule.
<input type="checkbox"/> warfarin	Tablet: 1 mg; 2 mg; 5 mg (sodium salt).
Complementary List [c]	
<i>desmopressin</i>	Injection: 4 micrograms/ mL (as acetate) in 1- mL ampoule. Nasal spray: 10 micrograms (as acetate) per dose
<i>heparin sodium</i>	Injection: 1000 IU/ mL; 5000 IU/ mL in 1- mL ampoule.
<i>protamine sulfate</i>	Injection: 10 mg/ mL in 5- mL ampoule.
<input type="checkbox"/> <i>warfarin</i>	Tablet: 0.5 mg; 1 mg; 2 mg; 5 mg (sodium salt).
10.3 Other medicines for haemoglobinopathies	
Complementary List	
<i>deferoxamine*</i>	Powder for injection: 500 mg (mesilate) in vial. * <i>Deferasirox oral form may be an alternative, depending on cost and availability.</i>
<i>hydroxycarbamide</i>	Solid oral dosage form: 200 mg; 500 mg; 1 g.
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	
platelets	
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-D immunoglobulin	Injection: 250 micrograms in single-dose vial.
Anti-rabies immunoglobulin	Injection: 150 IU/ mL in vial.
Anti-tetanus immunoglobulin	Injection: 500 IU in vial.
Complementary List	

<i>normal immunoglobulin</i>	<p>Intramuscular administration: 16% protein solution.*</p> <p>Intravenous administration: 5%; 10% protein solution.**</p> <p>Subcutaneous administration: 15%; 16% protein solution.*</p> <p>* Indicated for primary immune deficiency.</p> <p>**Indicated for primary immune deficiency and Kawasaki disease.</p>
11.2.2 Blood coagulation factors	
<i>Complementary List</i>	
<input type="checkbox"/> coagulation factor VIII	Powder for injection: 500 IU/vial.
<input type="checkbox"/> coagulation factor IX	Powder for injection: 500 IU/vial, 1000 IU/vial.
11.3 Plasma substitutes	
<input type="checkbox"/> dextran 70*	<p>Injectable solution: 6%.</p> <p>* Polygeline, injectable solution, 3.5% is considered as equivalent.</p>
12. CARDIOVASCULAR MEDICINES	
<i>Fixed-dose combinations for non-communicable diseases may have advantages over the single medicines given concomitantly, including increased adherence and reduced pill burden. The potential value of fixed-dose combinations of currently listed essential medicines, with regulatory approval and demonstrated bioavailability for the management of chronic non-communicable diseases, is recognized.</i>	
12.1 Antianginal medicines	
<input type="checkbox"/> bisoprolol*	<p>Tablet: 1.25 mg; 5 mg.</p> <p>* <input type="checkbox"/> includes metoprolol and carvedilol as alternatives.</p>
glyceryl trinitrate	Tablet (sublingual): 500 micrograms.
<input type="checkbox"/> isosorbide dinitrate	Tablet (sublingual): 5 mg.
verapamil	Tablet: 40 mg; 80 mg (hydrochloride).
12.2 Antiarrhythmic medicines	
<input type="checkbox"/> bisoprolol*	<p>Tablet: 1.25 mg; 5 mg.</p> <p>* <input type="checkbox"/> includes metoprolol and carvedilol as alternatives.</p>
digoxin	<p>Injection: 250 micrograms/ mL in 2- mL ampoule.</p> <p>Oral liquid: 50 micrograms/ mL.</p> <p>Tablet: 62.5 micrograms; 250 micrograms.</p>
epinephrine (adrenaline)	Injection: 100 micrograms/ mL (as acid tartrate or hydrochloride) in 10- mL ampoule.
lidocaine	Injection: 20 mg (hydrochloride)/ mL in 5- mL ampoule.
verapamil	<p>Injection: 2.5 mg (hydrochloride)/ mL in 2- mL ampoule.</p> <p>Tablet: 40 mg; 80 mg (hydrochloride).</p>
<i>Complementary List</i>	

<i>amiodarone</i>	<i>Injection: 50 mg/ mL in 3- mL ampoule (hydrochloride).</i> <i>Tablet: 100 mg; 200 mg; 400 mg (hydrochloride).</i>
12.3 Antihypertensive medicines	
<input type="checkbox"/> amlodipine	Tablet: 5 mg (as maleate, mesylate or besylate).
<input type="checkbox"/> bisoprolol*	Tablet: 1.25 mg; 5 mg. * includes atenolol, metoprolol and carvedilol as alternatives. Atenolol should not be used as a first-line agent in uncomplicated hypertension in patients >60 years
<input type="checkbox"/> enalapril	Tablet: 2.5 mg; 5 mg (as hydrogen maleate).
hydralazine*	Powder for injection: 20 mg (hydrochloride) in ampoule. Tablet: 25 mg; 50 mg (hydrochloride). * Hydralazine is listed for use only in the acute management of severe pregnancy-induced hypertension. Its use in the treatment of essential hypertension is not recommended in view of the evidence of greater efficacy and safety of other medicines.
<input type="checkbox"/> hydrochlorothiazide	Oral liquid: 50 mg/5 mL. Solid oral dosage form: 12.5 mg; 25 mg.
methyldopa*	Tablet: 250 mg. * Methyldopa is listed for use only in the management of pregnancy-induced hypertension. Its use in the treatment of essential hypertension is not recommended in view of the evidence of greater efficacy and safety of other medicines.
<input type="checkbox"/> losartan	Tablet: 25 mg; 50 mg; 100 mg.
<i>Complementary List</i>	
<i>sodium nitroprusside</i>	<i>Powder for infusion: 50 mg in ampoule.</i>
12.4 Medicines used in heart failure	
<input type="checkbox"/> bisoprolol*	Tablet: 1.25 mg; 5 mg. * <input type="checkbox"/> includes metoprolol and carvedilol as alternatives.
digoxin	Injection: 250 micrograms/ mL in 2- mL ampoule. Oral liquid: 50 micrograms/ mL. Tablet: 62.5 micrograms; 250 micrograms.
<input type="checkbox"/> enalapril	Tablet: 2.5 mg; 5 mg (as hydrogen maleate).
<input type="checkbox"/> furosemide	Injection: 10 mg/ mL in 2- mL ampoule. Oral liquid: 20 mg/5 mL [c] . Tablet: 40 mg.
<input type="checkbox"/> hydrochlorothiazide	Oral liquid: 50 mg/5 mL. Solid oral dosage form: 25 mg.

<input type="checkbox"/> losartan	Tablet: 25 mg; 50 mg; 100 mg
spironolactone	Tablet: 25 mg.
<i>Complementary List</i>	
<i>dopamine</i>	<i>Injection: 40 mg/ mL (hydrochloride) in 5- mL vial.</i>
12.5 Antithrombotic medicines	
12.5.1 Anti-platelet medicines	
acetylsalicylic acid	Tablet: 100 mg.
clopidogrel	Tablet: 75 mg; 300 mg
12.5.2 Thrombolytic medicines	
<i>Complementary List</i>	
<i>streptokinase</i>	<i>Powder for injection: 1.5 million IU in vial.</i>
12.6 Lipid-lowering agents	
<input type="checkbox"/> simvastatin*	Tablet: 5 mg; 10 mg; 20 mg; 40 mg. * For use in high-risk patients.
13. DERMATOLOGICAL MEDICINES (topical)	
13.1 Antifungal medicines	
<input type="checkbox"/> miconazole	Cream or ointment: 2% (nitrate).
selenium sulfide	Detergent-based suspension: 2%.
sodium thiosulfate	Solution: 15%.
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 [a]	Cream or ointment: 0.1% (as valerate). [a] Hydrocortisone preferred in neonates.
<input type="checkbox"/> calamine	Lotion.
<input type="checkbox"/> hydrocortisone	Cream or ointment: 1% (acetate).
13.4 Medicines affecting skin differentiation and proliferation	
benzoyl peroxide	Cream or lotion: 5%.
coal tar	Solution: 5%.
fluorouracil	Ointment: 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 [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	
<input type="checkbox"/> amidotrizoate	Injection: 140 mg to 420 mg iodine (as sodium or meglumine salt)/ mL in 20- mL ampoule.
barium sulfate	Aqueous suspension.
<input type="checkbox"/> iohexol	Injection: 140 mg to 350 mg iodine/ mL in 5- mL; 10- mL; 20- mL ampoules.
<i>Complementary List</i>	
<i>barium sulfate [c]</i>	<i>Aqueous suspension.</i>
<input type="checkbox"/> meglumine iotroxate	<i>Solution:</i> 5 g to 8 g iodine in 100 mL to 250 mL.
15. DISINFECTANTS AND ANTISEPTICS	
15.1 Antiseptics	
<input type="checkbox"/> chlorhexidine	Solution: 5% (digluconate).
<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"/> chloroxylenol	Solution: 4.8%.
glutaral	Solution: 2%.
16. DIURETICS	
amiloride	Tablet: 5 mg (hydrochloride).
<input type="checkbox"/> furosemide	Injection: 10 mg/ mL in 2- mL ampoule. Oral liquid: 20 mg/5 mL [c]. Tablet: 10 mg [c]; 20 mg [c]; 40 mg.
<input type="checkbox"/> hydrochlorothiazide	Solid oral dosage form: 25 mg.
mannitol	Injectable solution: 10%; 20%.
spironolactone	Tablet: 25 mg.
<i>Complementary List [c]</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 [c]</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 injection: 40 mg in vial 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	<p>Injection: 4 mg/ mL in 1- mL ampoule (as disodium phosphate salt).</p> <p>Oral liquid: 0.5 mg/5 mL; 2 mg/5 mL.</p> <p>Solid oral dosage form: 0.5 mg; 0.75 mg; 1.5 mg; 4 mg.</p>
metoclopramide <input type="checkbox"/> a	<p>Injection: 5 mg (hydrochloride)/ mL in 2- mL ampoule.</p> <p>Oral liquid: 5 mg/5 mL [c].</p> <p>Tablet: 10 mg (hydrochloride).</p> <p><input type="checkbox"/> a Not in neonates.</p>
ondansetron <input type="checkbox"/> a	<p>Injection: 2 mg base/ mL in 2- mL ampoule (as hydrochloride).</p> <p>Oral liquid: 4 mg base/5 mL.</p> <p>Solid oral dosage form: Eq 4 mg base; Eq 8 mg base; Eq 24 mg base.</p> <p><input type="checkbox"/> a > 1 month.</p>
17.3 Anti-inflammatory medicines	
<input type="checkbox"/> sulfasalazine	<p>Retention enema.</p> <p>Suppository: 500 mg.</p> <p>Tablet: 500 mg.</p>
<i>Complementary List</i>	
<input type="checkbox"/> hydrocortisone	<p><i>Retention enema.</i></p> <p><i>Suppository:</i> 25 mg (acetate). (the <input type="checkbox"/> only applies to hydrocortisone retention enema).</p>
17.4 Laxatives	
<input type="checkbox"/> senna	Tablet: 7.5 mg (sennosides) (or traditional dosage forms).

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.</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	
<i>Complementary List</i>	
<i>testosterone</i>	Injection: 200 mg (enanthate) in 1- mL ampoule.
18.3 Contraceptives	
18.3.1 Oral hormonal contraceptives	
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> levonorgestrel	Tablet: 30 micrograms + 150 micrograms.
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> norethisterone	Tablet: 35 micrograms + 1 mg.
levonorgestrel	Tablet: 30 micrograms; 750 micrograms (pack of two); 1.5 mg.
ulipristal	Tablet: 30 mg (as acetate)

18.3.2 Injectable hormonal contraceptives	
estradiol cypionate + medroxyprogesterone acetate	Injection: 5 mg + 25 mg.
medroxyprogesterone acetate	Injection (intramuscular): 150 mg/ mL in 1- mL vial. Injection (subcutaneous): 104 mg/0.65 mL in pre-filled syringe or single-dose injection delivery system.
norethisterone enantate	Oily solution: 200 mg/ mL in 1- mL ampoule.
18.3.3 Intrauterine devices	
copper-containing device	
levonorgestrel-releasing intrauterine system	Intrauterine system with reservoir containing 52 mg of levonorelrel
18.3.4 Barrier methods	
condoms	
diaphragms	
18.3.5 Implantable contraceptives	
etonogestrel-releasing implant	Single-rod etonogestrel-releasing implant, containing 68 mg of etonogestrel.
levonorgestrel-releasing implant	Two-rod levonorgestrel-releasing implant, each rod containing 75 mg of levonorgestrel (150 mg total).
18.3.6 Intravaginal contraceptives	
progesterone vaginal ring*	Progesterone-releasing vaginal ring containing 2.074 g of micronized progesterone. *For use in women actively breastfeeding at least 4 times per day
18.4 Estrogens	
18.5 Insulins and other medicines used for diabetes	
<input type="checkbox"/> gliclazide*	Solid oral dosage form: (controlled-release tablets) 30 mg; 60 mg; 80 mg. * glibenclamide not suitable above 60 years.
glucagon	Injection: 1 mg/ mL.
insulin injection (soluble)	Injection: 40 IU/ mL in 10- mL vial; 100 IU/ mL in 10- mL vial.
intermediate-acting insulin	Injection: 40 IU/ mL in 10- mL vial; 100 IU/ mL in 10- mL vial (as compound insulin zinc suspension or isophane insulin).
metformin	Tablet: 500 mg (hydrochloride).
Complementary List [c]	
metformin	Tablet: 500 mg (hydrochloride).

18.6 Ovulation inducers	
<i>Complementary List</i>	
<i>clomifene</i>	<i>Tablet: 50 mg (citrate).</i>
18.7 Progestogens	
<input type="checkbox"/> medroxyprogesterone acetate	Tablet: 5 mg.
18.8 Thyroid hormones and antithyroid medicines	
levothyroxine	Tablet: 25 micrograms [c]; 50 micrograms; 100 micrograms (sodium salt).
potassium iodide	Tablet: 60 mg.
<input type="checkbox"/> propylthiouracil	Tablet: 50 mg.
<i>Complementary List [c]</i>	
<i>Lugol's solution</i>	<i>Oral liquid: about 130 mg total iodine/ mL.</i>
<i>potassium iodide</i>	<i>Tablet: 60 mg.</i>
<i>propylthiouracil</i>	<i>Tablet: 50 mg.</i>
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

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).

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:

<http://www.who.int/immunization/documents/positionpapers/en/index.html>.

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:

http://www.who.int/immunization/policy/immunization_tables/en/index.html.

Selection of vaccines from the Model List will need to be determined by each country after consideration of international recommendations, epidemiology and national priorities.

All vaccines should comply with the WHO requirements for biological substances.

WHO noted the need for vaccines used in children to be polyvalent.

<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	
<input type="checkbox"/> atracurium	Injection: 10 mg/ mL (besylate).
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 [c]	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).
<input type="checkbox"/> <i>vecuronium</i>	Powder for injection: 10 mg (bromide) in vial.

21. OPHTHALMOLOGICAL PREPARATIONS	
21.1 Anti-infective agents	
aciclovir	Ointment: 3% W/W.
azithromycin	Solution (eye drops): 1.5%.
erythromycin*	Ointment: 0.5% [c] *Infections due to <i>Chlamydia trachomatis</i> or <i>Neisseria gonorrhoea</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	
acetazolamide	Tablet: 250 mg.
latanoprost	Solution (eye drops): latanoprost 50 micrograms/mL
<input type="checkbox"/> pilocarpine	Solution (eye drops): 2%; 4% (hydrochloride or nitrate).
<input type="checkbox"/> timolol	Solution (eye drops): 0.25%; 0.5% (as hydrogen maleate).
21.5 Mydriatics	
atropine* [a]	Solution (eye drops): 0.1%; 0.5%; 1% (sulfate). * [c] Or homatropine (hydrobromide) or cyclopentolate (hydrochloride). [a] >3 months.
<i>Complementary List</i>	
<i>epinephrine (adrenaline)</i>	<i>Solution (eye drops): 2% (as hydrochloride).</i>
21.6 Anti-vascular endothelial growth factor (VEGF) preparations	
<i>Complementary List</i>	
<i>bevacizumab</i>	<i>Injection: 25 mg/ mL.</i>
22. OXYTOCICS AND ANTIOXYTOCICS	
22.1 Oxytocics	
<input type="checkbox"/> ergometrine	Injection: 200 micrograms (hydrogen maleate) in 1- mL ampoule.

misoprostol	<p>Tablet: 200 micrograms.</p> <ul style="list-style-type: none"> – Management of incomplete abortion and miscarriage; – Prevention and treatment of postpartum haemorrhage where oxytocin is not available or cannot be safely used <p>Vaginal tablet: 25 micrograms.*</p> <p>* Only for use for induction of labour where appropriate facilities are available.</p>
oxytocin	Injection: 10 IU in 1- mL.
<i>Complementary List</i>	
<p>mifepristone* – misoprostol*</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p><i>Where permitted under national law and where culturally acceptable.</i></p> </div>	<p>Tablet 200 mg – tablet 200 micrograms.</p> <p>* Requires close medical supervision.</p>
22.2 Antioxytocics (tocolytics)	
nifedipine	Immediate-release capsule: 10 mg.
23. PERITONEAL DIALYSIS SOLUTION	
<i>Complementary List</i>	
<p>intraperitoneal dialysis solution (of appropriate composition)</p>	<i>Parenteral solution.</i>
24. MEDICINES FOR MENTAL AND BEHAVIOURAL DISORDERS	
24.1 Medicines used in psychotic disorders	
<input type="checkbox"/> chlorpromazine	<p>Injection: 25 mg (hydrochloride)/ mL in 2- mL ampoule.</p> <p>Oral liquid: 25 mg (hydrochloride)/5 mL.</p> <p>Tablet: 100 mg (hydrochloride).</p>
<input type="checkbox"/> fluphenazine	Injection: 25 mg (decanoate or enantate) in 1- mL ampoule.
<input type="checkbox"/> haloperidol	<p>Injection: 5 mg in 1- mL ampoule.</p> <p>Tablet: 2 mg; 5 mg.</p>
risperidone	Solid oral dosage form: 0.25 mg to 6.0 mg.
<i>Complementary List</i>	
chlorpromazine [c]	<p>Injection: 25 mg (hydrochloride)/ mL in 2- mL ampoule.</p> <p>Oral liquid: 25 mg (hydrochloride)/5 mL.</p> <p>Tablet: 10 mg; 25 mg; 50 mg; 100 mg (hydrochloride).</p>
clozapine	Solid oral dosage form: 25 to 200 mg.
haloperidol [c]	<p>Injection: 5 mg in 1- mL ampoule.</p> <p>Oral liquid: 2 mg/ mL.</p> <p>Solid oral dosage form: 0.5 mg; 2 mg; 5 mg.</p>
24.2 Medicines used in mood disorders	

24.2.1 Medicines used in depressive disorders	
<input type="checkbox"/> amitriptyline	Tablet: 25 mg; 75mg. (hydrochloride).
fluoxetine	Solid oral dosage form: 20 mg (as hydrochloride).
<i>Complementary List [c]</i>	
<i>fluoxetine</i> <input type="checkbox"/>	Solid oral dosage form: 20 mg (as hydrochloride). <input type="checkbox"/> >8 years.
24.2.2 Medicines used in bipolar disorders	
carbamazepine	Tablet (scored): 100 mg; 200 mg.
lithium carbonate	Solid oral dosage form: 300 mg.
valproic acid (sodium valproate)	Tablet (enteric-coated): 200 mg; 500 mg (sodium valproate).
24.3 Medicines for anxiety disorders	
<input type="checkbox"/> diazepam	Tablet (scored): 2 mg; 5 mg.
24.4 Medicines used for obsessive compulsive disorders	
clomipramine	Capsule: 10 mg; 25 mg (hydrochloride).
24.5 Medicines for disorders due to psychoactive substance use	
nicotine replacement therapy (NRT)	Chewing gum: 2 mg; 4 mg (as polacrilex). Transdermal patch: 5 mg to 30 mg/16 hrs; 7 mg to 21 mg/24 hrs.
<i>Complementary List</i>	
<input type="checkbox"/> methadone*	Concentrate for oral liquid: 5 mg/ mL; 10 mg/ mL (hydrochloride). Oral liquid: 5 mg/5 mL; 10 mg/5 mL (hydrochloride). * The square box is added to include buprenorphine. The medicines should only be used within an established support programme.
25. MEDICINES ACTING ON THE RESPIRATORY TRACT	
25.1 Antiasthmatic and medicines for chronic obstructive pulmonary disease	
<input type="checkbox"/> beclometasone	Inhalation (aerosol): 50 micrograms (dipropionate) per dose; 100 micrograms (dipropionate) per dose (as CFC free forms).
<input type="checkbox"/> budesonide [c]	Inhalation (aerosol): 100 micrograms per dose; 200 micrograms per dose.
<input type="checkbox"/> budesonide + formoterol	Dry powder inhaler: 100 micrograms + 6 micrograms per dose; 200 micrograms + 6 micrograms per dose
epinephrine (adrenaline)	Injection: 1 mg (as hydrochloride or hydrogen tartrate) in 1- mL ampoule.
ipratropium bromide	Inhalation (aerosol): 20 micrograms/metered dose.

<input type="checkbox"/> salbutamol	<p>Inhalation (aerosol): 100 micrograms (as sulfate) per dose.</p> <p>Injection: 50 micrograms (as sulfate)/ mL in 5- mL ampoule.</p> <p>Metered dose inhaler (aerosol): 100 micrograms (as sulfate) per dose.</p> <p>Respirator solution for use in nebulizers: 5 mg (as sulfate)/ mL.</p>
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	<p>Injectable solution: 4% glucose, 0.18% sodium chloride (equivalent to Na⁺ 30 mmol/L, Cl⁻ 30 mmol/L).</p> <p>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) [c].</p>
potassium chloride	<p>Solution: 11.2% in 20- mL ampoule (equivalent to K⁺ 1.5 mmol/ mL, Cl⁻ 1.5 mmol/ mL).</p> <p>Solution for dilution: 7.5% (equivalent to K 1 mmol/ mL and Cl 1 mmol/ mL) [c]; 15% (equivalent to K 2 mmol/ mL and Cl 2 mmol/ mL) [c].</p>
sodium chloride	Injectable solution: 0.9% isotonic (equivalent to Na ⁺ 154 mmol/L, Cl ⁻ 154 mmol/L).
sodium hydrogen carbonate	<p>Injectable solution: 1.4% isotonic (equivalent to Na⁺ 167 mmol/L, HCO₃⁻ 167 mmol/L).</p> <p>Solution: 8.4% in 10- mL ampoule (equivalent to Na⁺ 1000 mmol/L, HCO₃⁻ 1000 mmol/L).</p>
<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.
calcium	Tablet: 500 mg (elemental).
colecalfiferol [c]	<p>Oral liquid: 400 IU/ mL.</p> <p>Solid oral dosage form: 400 IU; 1000 IU.</p> <p>* Ergocalciferol can be used as an alternative.</p>

<input type="checkbox"/> ergocalciferol	Oral liquid: 250 micrograms/ mL (10 000 IU/ mL). Solid oral dosage form: 1.25 mg (50 000 IU).
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.
<input type="checkbox"/> nicotinamide	Tablet: 50 mg.
pyridoxine	Tablet: 25 mg (hydrochloride).
retinol	Capsule: 50 000 IU; 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>	<i>Injection:</i> 100 mg/ mL in 10- mL ampoule.
28. EAR, NOSE AND THROAT MEDICINES [c]	
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 [c]	
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) [c] .
<i>Complementary List</i>	
<input type="checkbox"/> ibuprofen	<i>Solution for injection:</i> 5 mg/ mL.
<input type="checkbox"/> prostaglandin E	<i>Solution for injection:</i> <i>Prostaglandin E1:</i> 0.5 mg/ mL in alcohol. <i>Prostaglandin E 2:</i> 1 mg/ mL.
surfactant	<i>Suspension for intratracheal instillation:</i> 25 mg/ mL or 80 mg/ mL.

29.2 Medicines administered to the mother	
dexamethasone	Injection: 4 mg/ mL dexamethasone phosphate (as disodium salt)
30. MEDICINES FOR DISEASES OF JOINTS	
30.1 Medicines used to treat gout	
allopurinol	Tablet: 100 mg.
30.2 Disease-modifying agents used in rheumatoid disorders (DMARDs)	
chloroquine	Tablet: 100 mg; 150 mg (as phosphate or sulfate).
<i>Complementary List</i>	
<i>azathioprine</i>	Tablet: 50 mg.
<i>hydroxychloroquine [c]</i>	Solid oral dosage form: 200 mg (as sulfate).
<i>methotrexate</i>	Tablet: 2.5 mg (as sodium salt).
<i>penicillamine</i>	Solid oral dosage form: 250 mg.
<i>sulfasalazine</i>	Tablet: 500 mg.
30.3 Juvenile joint diseases	
<i>acetylsalicylic acid* (acute or chronic use)</i>	Suppository: 50 mg to 150 mg. Tablet: 100 mg to 500 mg. <i>* For use for rheumatic fever, juvenile arthritis, Kawasaki disease.</i>

Table 1.1: Medicines with age or weight restrictions

artesunate + pyronaridine tetraphosphate	> 5 kg
atazanavir	>25 kg
atropine	>3 months
benzyl benzoate	>2 years
betamethasone topical preparations	hydrocortisone preferred in neonates
cefazolin	>1 month
ceftriaxone	>41 weeks corrected gestational age
darunavir	> 3 years
delamanid	> 6 years
dihydroartemisinin + piperaquine phosphate	> 5 kg
diloxanide	>25 kg
doxycycline	>8 years (except for serious infections e.g. cholera)
efavirenz	>3 years or >10 kg
fluoxetine	>8 years
ibuprofen	>3 months (except IV form for patent ductus arteriosus)
mefloquine	>5 kg or >3 months
metoclopramide	Not in neonates
nevirapine	> 6 weeks
ondansetron	>1 month
silver sulfadiazine	>2 months
tetracaine	Not in preterm neonates
trimethoprim	>6 months
xylometazoline	>3 months

Table 1.2: Explanation of dosage forms**A. Principal dosage forms used in EML – oral administration**

Term	Definition
Solid oral dosage form	<p>Refers to tablets or capsules or other solid dosage forms such as 'melts' that are immediate-release preparations. It implies that there is no difference in clinical efficacy or safety between the available dosage forms, and countries should therefore choose the form(s) to be listed depending on quality and availability.</p> <p>The term 'solid oral dosage form' is <i>never</i> intended to allow any type of modified-release tablet.</p>
Tablets	<p>Refers to:</p> <ul style="list-style-type: none"> • uncoated or coated (film-coated or sugar-coated) tablets that are intended to be swallowed whole; • unscored and scored*; • tablets that are intended to be chewed before being swallowed; • tablets that are intended to be dispersed or dissolved in water or another suitable liquid before being swallowed; • tablets that are intended to be crushed before being swallowed. <p>The term 'tablet' without qualification is <i>never</i> intended to allow any type of modified-release tablet.</p>
Tablets (qualified)	<p>Refers to a specific type of tablet:</p> <p>chewable - tablets that are intended to be chewed before being swallowed;</p> <p>dispersible - tablets that are intended to be dispersed in water or another suitable liquid before being swallowed;</p> <p>soluble - tablets that are intended to be dissolved in water or another suitable liquid before being swallowed;</p> <p>crushable - tablets that are intended to be crushed before being swallowed;</p> <p>scored - tablets bearing a break mark or marks where sub-division is intended in order to provide doses of less than one tablet;</p> <p>sublingual - tablets that are intended to be placed beneath the tongue.</p> <p>The term 'tablet' is <i>always</i> qualified with an additional term (in parentheses) in entries where one of the following types of tablet is intended: gastro-resistant (such tablets may sometimes be described as enteric-coated or as delayed-release), prolonged-release or another modified-release form.</p>

* Scored tablets may be divided for ease of swallowing, provided that dose is a whole number of tablets.

Capsules	Refers to hard or soft capsules. The term 'capsule' without qualification is <i>never</i> intended to allow any type of modified-release capsule.
Capsules (qualified)	The term 'capsule' with qualification refers to gastro-resistant (such capsules may sometimes be described as enteric-coated or as delayed-release), prolonged-release or another modified-release form.
Granules	Preparations that are issued to patient as granules to be swallowed without further preparation, to be chewed, or to be taken in or with water or another suitable liquid. The term 'granules' without further qualification is <i>never</i> intended to allow any type of modified-release granules.
Oral powder	Preparations that are issued to patient as powder (usually as single-dose) to be taken in or with water or another suitable liquid.
Oral liquid	Liquid preparations intended to be <i>swallowed</i> i.e. oral solutions, suspensions, emulsions and oral drops, including those constituted from powders or granules, but <i>not</i> those preparations intended for <i>oromucosal administration</i> e.g. gargles and mouthwashes. Oral liquids presented as powders or granules may offer benefits in the form of better stability and lower transport costs. If more than one type of oral liquid is available on the same market (e.g. solution, suspension, granules for reconstitution), they may be interchanged and in such cases should be bioequivalent. It is preferable that oral liquids do not contain sugar and that solutions for children do not contain alcohol.

B. Principal dosage forms used in EML – parenteral administration

Term	Definition
Injection	Refers to solutions, suspensions and emulsions including those constituted from powders or concentrated solutions.
Injection (qualified)	Route of administration is indicated in parentheses where relevant.
Injection (oily)	The term 'injection' is qualified by '(oily)' in relevant entries.
Intravenous infusion	Refers to solutions and emulsions including those constituted from powders or concentrated solutions.

C. Other dosage forms

Mode of administration	Term to be used
To the eye	Eye drops, eye ointments.
Topical	For liquids: lotions, paints. For semi-solids: cream, ointment.
Rectal	Suppositories, gel or solution.
Vaginal	Pessaries or vaginal tablets.
Inhalation	Powder for inhalation, pressurized inhalation, nebulizer.

Index

abacavir (ABC)	19	<i>carboplatin</i>	27
abacavir + lamivudine	20	cefalexin	10
acetazolamide	45	cefazolin	10
acetic acid	49	<i>cefepime</i>	13
acetylcysteine	4	cefixime	11
acetylsalicylic acid	2, 25, 36, 50	cefotaxime	11
aciclovir	19, 45	<i>ceftaroline</i>	12
albendazole	6	<i>ceftazidime</i>	12
alcohol based hand rub	38	ceftriaxone	11
<i>allopurinol</i>	26, 50	charcoal, activated	4
all-trans retinoic acid (ATRA)	26	<i>chlorambucil</i>	27
amidotrizoate	37	chloramphenicol	13
amikacin	13, 17	chlorhexidine	37, 49
amiloride	38	chlorine base compound	38
<i>amiodarone</i>	35	chloroquine	23, 24, 50
amitriptyline	3, 47	chloroxylenol	38
amlodipine	35	chlorpromazine	46
amodiaquine	23	<i>chlorpromazine</i>	46
amoxicillin	9	cholera vaccine	44
amoxicillin + clavulanic acid	9	<i>ciclosporin</i>	26
amphotericin B	18, 22	ciprofloxacin	13, 49
ampicillin	10	<i>cisplatin</i>	27
anti-D immunoglobulin	33	clarithromycin	14
antitetanus immunoglobulin	34	clindamycin	14
antivenom immunoglobulin	42	clofazimine	16, 17
artemether	23	<i>clomifene</i>	42
artemether + lumefantrine	23	clomipramine	47
artesunate	23	clopidogrel	36
artesunate + amodiaquine	23	clotrimazole	18
artesunate + mefloquine	23	cloxacillin	11
artesunate + pyronaridine tetraphosphate	23	<i>clozapine</i>	46
ascorbic acid	48	<i>coagulation factor IX</i>	34
<i>asparaginase</i>	26	<i>coagulation factor VIII</i>	34
atazanavir	20	coal tar	37
atazanavir + ritonavir	20	codeine	2
atracurium	44	colecalfiferol	49
atropine	1, 4, 45	<i>colistin</i>	16
<i>azathioprine</i>	26, 50	condoms	41
azithromycin	13, 45	copper-containing device	41
<i>aztreonam</i>	12	cyclizine	3
barium sulfate	37	<i>cyclophosphamide</i>	27
BCG vaccine	43	<i>cycloserine</i>	17
beclometasone	47	<i>cytarabine</i>	27
<i>bedaquiline</i>	17	<i>dacarbazine</i>	27
<i>bendamustine</i>	26	daclatasvir	21
benzathine benzylpenicillin	10	<i>dactinomycin</i>	27
benznidazole	25	dapsone	16
benzoyl peroxide	37	<i>daptomycin</i>	15
benzyl benzoate	37	darunavir	20
benzylpenicillin	10	dasabuvir	22
betamethasone	37	<i>dasatinib</i>	28
<i>bevacizumab</i>	45	<i>daunorubicin</i>	28
<i>bicalutamide</i>	31	<i>deferoxamine</i>	5, 33
biperiden	32	<i>delamanid</i>	17
bisoprolol	34, 35	desmopressin	33
<i>bleomycin</i>	26	dexamethasone	3, 4, 31, 39, 50
budesonide	47, 49	dextran 70	34
budesonide + formoterol	47	diaphragms	41
bupivacaine	1	diazepam	3, 5, 47
caffeine citrate	49	diethylcarbazine	6
calamine	37	digoxin	34, 35
calcium	48	dihydroartemisinin + piperaquine phosphate	23
<i>calcium folinate</i>	26	diloxanide	22
calcium gluconate	4, 49	<i>dimercaprol</i>	5
<i>capecitabine</i>	26	diphtheria antitoxin	42
<i>capreomycin</i>	17	diphtheria vaccine	43
carbamazepine	5, 47	<i>docetaxel</i>	28

docusate sodium	3	hydroxocobalamin	32
dolutegravir	20	<i>hydroxycarbamide</i>	29, 33
<i>dopamine</i>	36	<i>hydroxychloroquine</i>	50
<i>doxorubicin</i>	28	hyoscine butylbromide	3
doxycycline	14, 24	hyoscine hydrobromide	3
efavirenz (EFV or EFZ)	19	ibuprofen	2, 25, 49
efavirenz + emtricitabine + tenofovir	20	<i>ifosfamide</i>	29
efavirenz + lamivudine + tenofovir	20	<i>imatinib</i>	29
eflornithine	25	influenza vaccine	44
emtricitabine + tenofovir	20	insulin injection (soluble)	41
enalapril	35	intermediate-acting insulin	41
enoxaparin	32	<i>intraperitoneal dialysis solution (of appropriate composition)</i>	46
entecavir	21		49
<i>ephedrine</i>	1	iohexol	37
epinephrine (adrenaline)	4, 34, 45, 47	ipratropium bromide	48
ergocalciferol	49	<i>irinotecan</i>	29
ergometrine	45	isoflurane	1
erythromycin	45	isoniazid	16
<i>erythropoiesis-stimulating agents</i>	32	isoniazid + pyrazinamide + rifampicin	16
estradiol cypionate + medroxyprogesterone acetate	41	isoniazid + pyridoxine + sulfamethoxazole + trimethoprim	21
ethambutol	16	isoniazid + rifampicin	17
ethambutol + isoniazid	16	isosorbide dinitrate	34
ethambutol + isoniazid + pyrazinamide + rifampicin	16	itraconazole	18
ethambutol + isoniazid + rifampicin	16	ivermectin	6
ethanol	37	Japanese encephalitis vaccine	43
ethinylestradiol + levonorgestrel	40	<i>kanamycin</i>	17
ethinylestradiol + norethisterone	40	ketamine	1
<i>ethionamide</i>	17	lactulose	3
<i>ethosuximide</i>	6	lamivudine (3TC)	19
etonogestrel-releasing implant	41	lamivudine + nevirapine + zidovudine	21
<i>etoposide</i>	28	lamivudine + zidovudine	21
fentanyl	2	lamotrigine	5
ferrous salt	32	latanoprost	45
ferrous salt + folic acid	32	ledipasvir + sofosbuvir	22
<i>fifth generation cephalosporins</i>	12	<i>leuprorelin</i>	31
<i>filgrastim</i>	28	levamisole	6
fluconazole	18	levodopa + carbidopa	32
flucytosine	18	<i>levofloxacin</i>	17
<i>fludarabine</i>	29	levonorgestrel	40
fludrocortisone	40	levonorgestrel-releasing implant	41
fluorescein	37	levonorgestrel-releasing intrauterine system	41
<i>fluorouracil</i>	29, 37	levothyroxine	42
fluoxetine	3, 47	lidocaine	1, 34
fluphenazine	46	lidocaine + epinephrine (adrenaline)	1
folic acid	32	<i>linezolid</i>	16, 17
<i>fomepizole</i>	5	lithium carbonate	47
<i>fosfomycin</i>	15	loperamide	3
<i>fourth generation cephalosporins</i>	13	lopinavir + ritonavir (LPV/r)	20
fresh frozen plasma	33	loratadine	4
furosemide	36, 38	lorazepam	5
<i>gemcitabine</i>	29	losartan	35, 36
gentamicin	14, 45	<i>Lugol's solution</i>	42
gliclazide	41	magnesium sulfate	5
glucagon	41	mannitol	38
glucose	48	measles vaccine	43
glucose with sodium chloride	48	mebendazole	6
glutaral	38	medroxyprogesterone acetate	41, 42
glyceryl trinitrate	34	mefloquine	24
griseofulvin	18	<i>meglumine iotroxate</i>	37
Haemophilus influenzae type b vaccine	43	melarsoprol	25
haloperidol	3, 46, 47	meningococcal meningitis vaccine	44
halothane	1	<i>mercaptapurine</i>	29
heparin sodium	33	<i>meropenem</i>	12
hepatitis A vaccine	44	<i>mesna</i>	29
hepatitis B vaccine	43	metformin	42
HPV vaccine	43	<i>methadone</i>	3, 47
hydralazine	35	<i>methotrexate</i>	30, 50
hydrochlorothiazide	35, 36, 38	methyl dopa	35
hydrocortisone	4, 31, 37, 39, 40		

<i>methylprednisolone</i>	31	procaine benzylpenicillin	12
methylthionium chloride (methylene blue)	4	<i>procarbazine</i>	30
metoclopramide	3, 39	progesterone vaginal ring	41
metronidazole	14, 22	proguanil	24
miconazole	36	propofol	1
midazolam	1, 3, 5	propranolol	25
<i>mifepristone</i>	46	propylthiouracil	42
miltefosine	22	<i>prostaglandin E</i>	50
misoprostol	46	protamine sulfate	33
morphine	1, 2	pyrantel	6
<i>moxifloxacin</i>	17	pyrazinamide	17
mumps vaccine	44	<i>pyridostigmine</i>	44
mupirocin	36	pyridoxine	49
naloxone	4	pyrimethamine	24
natamycin	45	quinine	24
neostigmine	44	rabies immunoglobulin	33
nevirapine (NVP)	19	rabies vaccine	44
niclosamide	6	raltegravir	20
nicotinamide	49	ranitidine	38
nicotine replacement therapy (NRT)	47	retinol	49
nifedipine	46	ribavirin	21, 22
nifurtimox	25	riboflavin	49
<i>nilotinib</i>	30	rifabutin	17
nitrofurantoin	15	rifampicin	16, 17
nitrous oxide	1	rifapentine	17
norethisterone enantate	41	risperidone	46
<i>normal immunoglobulin</i>	34	ritonavir	20
nystatin	18	<i>rituximab</i>	30
ofloxacin	45	rotavirus vaccine	43
ombitasvir + paritaprevir + ritonavir	22	rubella vaccine	43
omeprazole	38	salbutamol	48
ondansetron	4, 39	salicylic acid	37
oral rehydration salts	40, 48	selenium sulfide	36
<i>oseltamivir</i>	21	senna	4, 39
<i>oxaliplatin</i>	30	silver sulfadiazine	36
<i>oxamniquine</i>	7	simeprevir	21
<i>oxazolindinones</i>	16	simvastatin	36
oxygen	1, 2	<i>sodium calcium edetate</i>	5
oxytocin	46	sodium chloride	48
packed red blood cells	33	sodium fluoride	49
<i>paclitaxel</i>	30	sodium hydrogen carbonate	48
<i>p-aminosalicylic acid</i>	18	sodium lactate	48
<i>pancreatic enzymes</i>	38	sodium nitrite	4
paracetamol	2, 25	<i>sodium nitroprusside</i>	35
paromomycin	22	sodium stibogluconate or meglumine antimoniate	22
<i>pegylated interferon alfa 2a</i>	22	sodium thiosulfate	5, 36
penicillamine	4, 50	sofosbuvir + velpatasvir	22
<i>pentamidine</i>	24, 25	sofosbuvir	21
permethrin	37	spectinomycin	15
pertussis vaccine	43	spironolactone	36, 38
phenobarbital	5	<i>streptokinase</i>	36
phenoxyethylpenicillin	12	<i>streptomycin</i>	18
phenytoin	6	<i>succimer</i>	5
phytomenadione	33	sulfadiazine	24
pilocarpine	45	sulfadoxine + pyrimethamine	24
piperacillin + tazobactam	12	sulfamethoxazole + trimethoprim	15, 24
platelet concentrates	33	sulfasalazine	39, 50
pneumococcal vaccine	43	suramin sodium	25
podophyllum resin	37	<i>surfactant</i>	50
poliomyelitis vaccine	43	suxamethonium	44
<i>polymyxins</i>	16	<i>tamoxifen</i>	32
potassium chloride	48	tenofovir disoproxil fumarate	19, 21
potassium ferric hexacyano-ferrate(II) $-2H_2O$ (Prussian blue)	4	terbinafine	36
<i>potassium iodide</i>	18, 42	<i>testosterone</i>	40
potassium permanganate	36	tetanus vaccine	43
povidone iodine	38	tetracaine	45
praziquantel	6	tetracycline	45
prednisolone	4, 32, 45	thiamine	49
primaquine	24	<i>thioguanine</i>	30

tick-borne encephalitis vaccine	44	vecuronium	44
<i>tigecycline</i>	16	verapamil	34, 35
timolol	45	<i>vinblastine</i>	30
tranexamic acid	33	<i>vincristine</i>	31
<i>trastuzumab</i>	30	<i>vinorelbine</i>	31
triclabendazole	6	voriconazole	18
tropicamide	37	warfarin	33
tuberculin, purified protein derivative (PPD)	42	water for injection	48
typhoid vaccine	44	whole blood	33
ulipristal	40	xylometazoline	49
urea	37	yellow fever vaccine	43
valganciclovir	21	zidovudine (ZDV or AZT)	19
valproic acid (sodium valproate)	6, 47	zinc sulfate	40
vancomycin	15	<i>zoledronic acid</i>	31
varicella vaccine	44		