World Health Organization Model List of Essential Medicines

21st List
2019

World Health Organization

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21st edition

WHO Model List of Essential Medicines (2019)

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.

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

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.

Where the ***[c]*** symbol is placed next to an individual medicine or strength of medicine on 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.

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.

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.

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	
☐ 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.
☐ 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.
Complementary List	
ephedrine	***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.
☐ 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*	Inhalation For use in the management of hypoxaemia. *No more than 30% oxygen should be used to initiate resuscitation of neonates less than or equal to 32 weeks of gestation.
2. MEDICINES FOR PAIN AND PALLIATIVE CARE	
2.1 Non-opioids and non-steroidal anti-inflammatory medicines (NSAIMs)	
acetylsalicylic acid	**Suppository:** 50 mg to 150 mg. **Tablet:** 100 mg to 500 mg.
ibuprofen a	**Oral liquid:** 200 mg/5 mL. **Tablet:** 200 mg; 400 mg; 600 mg. a Not in children less than 3 months.
paracetamol*	**Oral liquid:** 120 mg/5 mL; 125 mg/5 mL. **Suppository:** 100 mg. **Tablet:** 100 mg to 500 mg. * Not recommended for anti-inflammatory use due to lack of proven benefit to that effect.
2.2 Opioid analgesics	
codeine	**Tablet:** 30 mg (phosphate).
fentanyl*	**Transdermal patch:** 12 micrograms/hr; 25 micrograms/hr; 50 micrograms/hr; 75 micrograms/hr; 100 micrograms/hr *for the management of cancer pain
☐ morphine*	**Granules (slow-release; to mix with water):** 20 mg –200 mg (morphine sulfate). **Injection:** 10 mg (morphine hydrochloride **or** morphine sulfate) in 1- mL ampoule. **Oral liquid:** 10 mg (morphine hydrochloride **or** morphine sulfate)/5 mL. **Tablet (slow release):** 10 mg–200mg (morphine hydrochloride **or** morphine sulfate). **Tablet (immediate release):** 10 mg (morphine sulfate). *Alternatives limited to hydromorphone and oxycodone

Complementary list	
*methadone**	***Tablet:*** *5 mg; 10 mg (as hydrochloride)* ***Oral liquid:*** *5mg/ 5mL; 10mg/ 5mL (as hydrochloride)* ***Concentrate for oral liquid:*** *5 mg/ mL; 10mg/ mL (as hydrochloride)* **For the management of cancer pain.*
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	**Injection:** 2 mg base/ mL in 2- mL ampoule (as hydrochloride). **Oral liquid:** 4 mg base/5 mL.

	Solid oral dosage form: Eq 4 mg base; Eq 8 mg base. a >1 month.
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.
☐ loratadine *	**Oral liquid:** 1 mg/ mL. **Tablet:** 10 mg. **There may be a role for sedating antihistamines for limited indications (EMLc).*
☐ prednisolone	**Oral liquid:** 5 mg/ mL **[c]**. **Tablet:** 5 mg; 25 mg.
4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONINGS	
4.1 Non-specific	
charcoal, activated	**Powder.**
4.2 Specific	
acetylcysteine	**Injection:** 200 mg/ mL in 10- mL ampoule. **Oral liquid:** 10% **[c]**; 20% **[c]**.
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) - $2H_2O$(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.

Complementary List	
deferoxamine	***Powder for injection:*** *500 mg (mesilate) in vial.*
dimercaprol	***Injection in oil:*** *50 mg/ mL in 2- mL ampoule.*
fomepizole	***Injection:*** *5 mg/ mL (sulfate) in 20- mL ampoule or 1 g/ mL (base) in 1.5- mL ampoule.*
sodium calcium edetate	***Injection:*** *200 mg/ mL in 5- mL ampoule.*
succimer	***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)	**Oral liquid:** 200 mg/5 mL.

	Tablet (crushable): 100 mg. **Tablet (enteric-coated):** 200 mg; 500 mg (sodium valproate).
Complementary List	
ethosuximide	***Capsule:*** *250 mg.* ***Oral liquid:*** *250 mg/5 mL.*
valproic acid (sodium valproate)	***Injection:*** *100 mg/ mL in 4- mL ampoule; 100 mg/ mL in 10- mL ampoule.*
6. ANTI-INFECTIVE MEDICINES	
6.1 Anthelminthics	
6.1.1 Intestinal anthelminthics	
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	**Oral liquid:** 50 mg (as embonate **or** pamoate)/ mL. **Tablet (chewable):** 250 mg (as embonate **or** pamoate).
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 Antischistosomals and other antitrematode medicines	
praziquantel	**Tablet:** 600 mg.
triclabendazole	**Tablet:** 250 mg.

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

6.2 Antibacterials

To assist in the development of tools for antibiotic stewardship at local, national and global levels and to reduce antimicrobial resistance, the Access, Watch, Reserve (AWaRe) classification of antibiotics was developed – where antibiotics are classified into different groups to emphasize the importance of their appropriate use.

ACCESS GROUP ANTIBIOTICS

This group includes antibiotics that have activity against a wide range of commonly encountered susceptible pathogens while also showing lower resistance potential than antibiotics in the other groups. Selected Access group antibiotics are recommended as essential first or second choice empiric treatment options for infectious syndromes reviewed by the EML Expert Committee and are listed as individual medicines on the Model Lists to improve access and promote appropriate use. They are essential antibiotics that should be widely available, affordable and quality assured.

WATCH GROUP ANTIBIOTICS

This group includes antibiotic classes that have higher resistance potential and includes most of the highest priority agents among the Critically Important Antimicrobials for Human Medicine[1] and/or antibiotics that are at relatively high risk of selection of bacterial resistance. These medicines should be prioritized as key targets of stewardship programs and monitoring. Selected Watch group antibiotics are recommended as essential first or second choice empiric treatment options for a limited number of specific infectious syndromes and are listed as individual medicines on the Model Lists.

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

RESERVE GROUP ANTIBIOTICS

This group includes antibiotics and antibiotic classes that should be reserved for treatment of confirmed or suspected infections due to multi-drug-resistant organisms. Reserve group antibiotics should be treated as “last resort” options. Selected Reserve group antibiotics are listed as individual medicines on the Model Lists when they have a favourable risk-benefit profile and proven activity against “Critical Priority” or “High Priority” pathogens identified by the WHO Priority Pathogens List[1], notably carbapenem resistant *Enterobacteriaceae*. These antibiotics should be accessible, but their use should be tailored to highly specific patients and settings, when all alternatives have failed or are not suitable. 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.

[1] https://www.who.int/medicines/areas/rational_use/PPLreport_2017_09_19.pdf?ua=1

<table>
<tr><td colspan="3">6.2.1 Access group antibiotics</td></tr>
<tr><td rowspan="2">amikacin</td><td colspan="2">Injection: 250 mg (as sulfate)/mL in 2- mL vial</td></tr>
<tr><td>FIRST CHOICE

- pyelonephritis or prostatitis (severe)
- high-risk febrile neutropenia</td><td>SECOND CHOICE

- sepsis in neonates and children [c]</td></tr>
<tr><td rowspan="2">amoxicillin</td><td colspan="2">Powder for oral liquid: 125 mg (as trihydrate)/5 mL; 250 mg (as trihydrate)/5 mL [c].

Solid oral dosage form: 250 mg; 500 mg (as trihydrate).

Powder for injection: 250 mg; 500 mg; 1 g (as sodium) in vial.</td></tr>
<tr><td>FIRST CHOICE

- 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]
- progressive apical dental abscess</td><td>SECOND CHOICE

- acute bacterial meningitis</td></tr>
<tr><td rowspan="2">amoxicillin + clavulanic acid</td><td colspan="2">Oral liquid: 125 mg amoxicillin + 31.25 mg clavulanic acid/5 mL AND 250 mg amoxicillin + 62.5 mg clavulanic acid/5 mL [c].

Tablet: 500 mg (as trihydrate) + 125 mg (as potassium salt).

Powder for injection: 500 mg (as sodium) + 100 mg (as potassium salt); 1000 mg (as sodium) + 200 mg (as potassium salt) in vial.</td></tr>
<tr><td>FIRST CHOICE

- 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</td><td>SECOND CHOICE

- bone and joint infections
- community-acquired pneumonia (mild to moderate)
- community acquired pneumonia (severe)
- otitis media
- surgical prophylaxis</td></tr>
</table>

<table>
<tr><td rowspan="3">ampicillin</td><td colspan="2">Powder for injection: 500 mg; 1 g (as sodium salt) in vial.</td></tr>
<tr><td>FIRST CHOICE

- community acquired pneumonia (severe) [c]
- complicated severe acute malnutrition [c]
- sepsis in neonates and children [c]</td><td>SECOND CHOICE

- acute bacterial meningitis</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="3">benzathine benzylpenicillin</td><td colspan="2">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.</td></tr>
<tr><td>FIRST CHOICE

- syphilis</td><td>SECOND CHOICE</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="3">benzylpenicillin</td><td colspan="2">Powder for injection: 600 mg (= 1 million IU); 3 g (= 5 million IU) (sodium or potassium salt) in vial.</td></tr>
<tr><td>FIRST CHOICE

-community acquired pneumonia (severe) [c]
- complicated severe acute malnutrition [c]
- sepsis in neonates and children [c]
- syphilis</td><td>SECOND CHOICE
- acute bacterial meningitis[c]</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="3">cefalexin</td><td colspan="2">Powder for reconstitution with water: 125 mg/5 mL; 250 mg/5 mL (anhydrous).

Solid oral dosage form: 250 mg (as monohydrate).</td></tr>
<tr><td>FIRST CHOICE</td><td>SECOND CHOICE

- exacerbations of COPD
- pharyngitis
- skin and soft tissue infections</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="3">cefazolin [a]</td><td colspan="2">Powder for injection: 1 g (as sodium salt) in vial.

[a] >1 month.</td></tr>
<tr><td>FIRST CHOICE

- surgical prophylaxis</td><td>SECOND CHOICE

- bone and joint infections</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="3">chloramphenicol</td><td colspan="2">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.</td></tr>
<tr><td>FIRST CHOICE</td><td>SECOND CHOICE

- acute bacterial meningitis</td></tr>
<tr><td colspan="2"></td></tr>
</table>

<table>
<tr><td rowspan="2">clindamycin</td><td colspan="2">Capsule: 150 mg (as hydrochloride).
Injection: 150 mg (as phosphate)/ mL.
Oral liquid: 75 mg/5 mL (as palmitate) [c].</td></tr>
<tr><td>FIRST CHOICE</td><td>SECOND CHOICE
- bone and joint infections</td></tr>
<tr><td rowspan="2">☐ cloxacillin*</td><td colspan="2">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.</td></tr>
<tr><td>FIRST CHOICE
- bone and joint infections
- skin and soft tissue infections</td><td>SECOND CHOICE
- sepsis in neonates and children [c]</td></tr>
<tr><td rowspan="2">doxycycline a</td><td colspan="2">Oral liquid: 25 mg/5 mL [c]; 50 mg/5 mL (anhydrous) [c].
Solid oral dosage form: 50 mg [c]; 100 mg (as hyclate).
Powder for injection: 100 mg in vial
a Use in children <8 years only for life-threatening infections when no alternative exists.</td></tr>
<tr><td>FIRST CHOICE
- sexually transmitted infection due to Chlamydia trachomatis
- cholera</td><td>SECOND CHOICE
- cholera [c]
- community acquired pneumonia (mild to moderate)
- exacerbations of COPD</td></tr>
<tr><td rowspan="2">gentamicin</td><td colspan="2">Injection: 10 mg; 40 mg (as sulfate)/ mL in 2- mL vial.</td></tr>
<tr><td>FIRST CHOICE
- community acquired pneumonia (severe) [c]
- complicated severe acute malnutrition [c]
- sepsis in neonates and children [c]</td><td>SECOND CHOICE
- gonorrhoea
- surgical prophylaxis</td></tr>
<tr><td rowspan="2">metronidazole</td><td colspan="2">Injection: 500 mg in 100- mL vial.
Oral liquid: 200 mg (as benzoate)/5 mL.
Suppository: 500 mg; 1 g.
Tablet: 200 mg to 500 mg.</td></tr>
<tr><td>FIRST CHOICE
- C. difficile infection
- complicated intraabdominal infections (mild to moderate)
- complicated intrabdominal infections (severe)
- trichomoniasis
- surgical prophylaxis</td><td>SECOND CHOICE
- complicated intraabdominal infections (mild to moderate)</td></tr>
</table>

<table>
<tr><td rowspan="2">nitrofurantoin</td><td colspan="2">Oral liquid: 25 mg/5 mL [c].
Tablet: 100 mg.</td></tr>
<tr><td>FIRST CHOICE
- lower urinary tract infections</td><td>SECOND CHOICE</td></tr>
<tr><td rowspan="2">phenoxymethylpenicillin</td><td colspan="2">Powder for oral liquid: 250 mg (as potassium salt)/5 mL.
Tablet: 250 mg (as potassium salt).</td></tr>
<tr><td>FIRST CHOICE
- community acquired pneumonia (mild to moderate)
- pharyngitis
- progressive apical dental abscess</td><td>SECOND CHOICE</td></tr>
<tr><td rowspan="2">procaine benzylpenicillin*</td><td colspan="2">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.</td></tr>
<tr><td>FIRST CHOICE
- syphilis [c]</td><td>SECOND CHOICE
- syphilis</td></tr>
<tr><td rowspan="2">spectinomycin</td><td colspan="2">Powder for injection: 2 g (as hydrochloride) in vial.</td></tr>
<tr><td>FIRST CHOICE</td><td>SECOND CHOICE
- gonorrhoea</td></tr>
<tr><td rowspan="2">sulfamethoxazole + trimethoprim*</td><td colspan="2">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.</td></tr>
<tr><td>FIRST CHOICE
- lower urinary tract infections</td><td>SECOND CHOICE
- acute invasive diarrhoea / bacterial dysentery</td></tr>
<tr><td colspan="3">6.2.2 Watch group antibiotics</td></tr>
<tr><td rowspan="2">azithromycin*</td><td colspan="2">Capsule: 250 mg; 500 mg (anhydrous).
Oral liquid: 200 mg/5 mL.
* also listed for single-dose treatment of trachoma and yaws.</td></tr>
<tr><td>FIRST CHOICE
- sexually transmitted infection due to Chlamydia trachomatis
- cholera [c]
- gonorrhoea</td><td>SECOND CHOICE
- acute invasive bacterial diarrhoea / dysentery
- gonorrhoea</td></tr>
</table>

	- enteric fever	
cefixime	**Capsule or tablet:** 200 mg; 400 mg (as trihydrate). **Powder for oral liquid:** 100 mg /5 mL **[c]**	
	FIRST CHOICE	SECOND CHOICE *- acute invasive bacterial diarrhoea / dysentery* *- gonorrhoea*
cefotaxime*	**Powder for injection:** 250 mg per vial (as sodium salt) * 3rd generation cephalosporin of choice for use in hospitalized neonates.	
	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* a	**Powder for injection:** 250 mg; 1 g (as sodium salt) in vial. * Do not administer with calcium and avoid in infants with hyperbilirubinaemia. a >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* *- gonorrhoea* *-pyelonephritis or prostatitis (severe)* *- enteric fever*	SECOND CHOICE *- acute invasive bacterial diarrhoea / dysentery* *- bone and joint infections* *- pyelonephritis or prostatitis (mild to moderate)* *- sepsis in neonates and children* **[c]**
cefuroxime	**Powder for injection:** 250 mg, 750 mg, 1.5 g (as sodium salt) in vial	
	FIRST CHOICE	SECOND CHOICE *- surgical prophylaxis*
ciprofloxacin	**Oral liquid:** 250 mg/5 mL (anhydrous) **[c]**. **Solution for IV infusion:** 2 mg/ mL (as hyclate) **[c]**. **Tablet:** 250 mg (as hydrochloride).	

	FIRST CHOICE *- acute invasive bacterial diarrhoea / dysentery* *- low-risk febrile neutropenia* *- pyelonephritis or prostatitis (mild to moderate)* *- enteric fever*	SECOND CHOICE *-cholera* *- complicated intraabdominal infections (mild to moderate)*
clarithromycin*†	**Solid oral dosage form:** 500 mg. **Powder for oral liquid:** 125 mg/5 mL; 250 mg/5 mL **Powder for injection:** 500 mg in vial *erythromycin may be an alternative. †clarithromycin is also listed for use in combination regimens for eradication of *H. pylori* in adults.	
	FIRST CHOICE *-community acquired pneumonia (severe)*	SECOND CHOICE *- pharyngitis*
piperacillin + tazobactam	**Powder for injection:** 2 g (as sodium salt) + 250 mg (as sodium salt); 4 g (as sodium salt) + 500 mg (as sodium salt) in vial	
	FIRST CHOICE *- complicated intraabdominal infections (severe)* *- high-risk febrile neutropenia* *- hospital acquired pneumonia*	SECOND CHOICE
vancomycin	**Capsule:** 125 mg; 250 mg (as hydrochloride).	
		SECOND CHOICE *- C. difficile infection*
Complementary List		
ceftazidime	***Powder for injection:*** *250 mg or 1 g (as pentahydrate) in vial.*	
*meropenem** a	***Powder for injection:*** *500 mg (as trihydrate); 1 g (as trihydrate) in vial* a >3 months. **imipenem + cilastatin is an alternative except for acute bacterial meningitis where meropenem is preferred.*	
	FIRST CHOICE	SECOND CHOICE *- acute bacterial meningitis in neonates* ***[c]*** *- complicated intraabdominal infections (severe)* *- high-risk febrile neutropenia*
vancomycin	***Powder for injection:*** *250 mg (as hydrochloride) in vial.*	

	FIRST CHOICE	SECOND CHOICE *-high-risk febrile neutropenia*
6.2.3 Reserve group antibiotics		
Complementary List		
ceftazidime + avibactam	***Powder for injection:*** *2 g + 0.5 g in vial*	
colistin	***Powder for injection:*** *1 million I.U. (as colistemethate sodium) in vial*	
fosfomycin	***Powder for injection:*** *2 g; 4 g (as sodium) in vial*	
linezolid	***Injection for intravenous administration:*** *2 mg/ mL in 300 mL bag.* ***Powder for oral liquid****: 100 mg/5 mL.* ***Tablet:*** *400 mg; 600 mg.*	
meropenem + vaborbactam	***Powder for injection:*** *2 g + 2 g in vial*	
plazomicin	***Injection****: 500 mg/10 mL*	
polymyxin B	***Powder for injection:*** *500,000 I.U. in vial*	

6.2.4 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.
6.2.5 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). **Tablet (dispersible)**: 100 mg **[c]**
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. **Tablet (dispersible):** 100 mg **[c]**
isoniazid + pyrazinamide + rifampicin	**Tablet:** 75 mg + 400 mg + 150 mg. **Tablet (dispersible):** 50 mg + 150 mg + 75 mg **[c]**.
isoniazid + rifampicin	**Tablet:** 75 mg + 150 mg; 150 mg + 300 mg. **Tablet (dispersible):** 50 mg + 75 mg **[c].**
pyrazinamide	**Oral liquid:** 30 mg/ mL **[c]**. **Tablet:** 400 mg. **Tablet (dispersible):** 150 mg. **Tablet (scored):** 150 mg.
rifabutin	**Solid oral dosage form:** 150 mg.* * For use only in patients with HIV receiving protease inhibitors.
rifampicin	**Oral liquid:** 20 mg/ mL **[c]**. **Solid oral dosage form:** 150 mg; 300 mg.
rifapentine*	**Tablet:** 150 mg *For treatment of latent TB infection (LTBI) only
Complementary List	

Medicines for the treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in specialized centres adhering to WHO standards for TB control.	
amikacin	***Powder for injection:*** *100 mg; 500 mg; 1 g (as sulfate) in vial.*
*amoxicillin + clavulanic acid**	***Oral liquid:*** *125 mg amoxicillin + 31.25 mg clavulanic acid/5 mL; 250 mg amoxicillin + 62.5 mg clavulanic acid/5 mL* ***[c]****.* ***Tablet:*** *500 mg (as trihydrate) + 125 mg (as potassium salt).* **for use only in combination with meropenem or imipenem+cilastatin*
bedaquiline a	***Tablet:*** *100 mg.* a ≥6 years
clofazimine	***Solid oral dosage form:*** *50 mg; 100 mg.*
*cycloserine**	***Solid oral dosage form:*** *125 mg* ***[c]****; 250 mg.* **Terizidone may be an alternative*
delamanid a	***Tablet:*** *50 mg.* a ≥6 years
*ethionamide**	***Tablet:*** *125 mg; 250 mg.* ***Tablet (dispersible****): 125 mg* ***[c]*** **Protionamide may be an alternative.*
levofloxacin	***Tablet:*** *250mg; 500 mg; 750 mg.* ***Tablet (dispersible****): 100 mg* ***[c]***
linezolid	***Injection for intravenous administration:*** *2 mg/ mL in 300 mL bag.* ***Powder for oral liquid****: 100 mg/5 mL.* ***Tablet:*** *400 mg; 600 mg.* ***Tablet (dispersible****): 150 mg* ***[c]***
*meropenem**	***Powder for injection:*** *500 mg (as trihydrate); 1 g (as trihydrate) in vial* **imipenem+cilastatin may be an alternatiave*
moxifloxacin	***Tablet:*** *400 mg.* ***Tablet (dispersible****): 100 mg* ***[c]***
p-aminosalicylic acid	***Granules:*** *4 g in sachet.* ***Tablet:*** *500 mg.*
streptomycin ***[c]***	***Powder for injection:*** *1 g (as sulfate) in vial.*
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, paracoccidiodomycosis, mycoses caused by *T. marneffei* and chromoblastomycosis; and prophylaxis of histoplasmosis and infections caused by *T. marneffei* 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.
Complementary List	
potassium iodide	***Saturated solution.***

6.4 Antiviral medicines	
6.4.1 Antiherpes medicines	
☐ aciclovir	**Oral liquid:** 200 mg/5 mL **[c]**. **Powder for injection:** 250 mg (as sodium salt) in vial. **Tablet:** 200 mg.
6.4.2 Antiretrovirals	
Based on current evidence and experience of use, medicines in the following 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. Scored tablets can be used in children and therefore can be considered for inclusion in the listing of tablets, provided that adequate quality products are available.	
6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors	
abacavir (ABC)	**Tablet:** 300 mg (as sulfate). **Tablet (dispersible, scored):** 60 mg (as sulfate) **[c]**.
lamivudine (3TC)	**Oral liquid:** 50 mg/5 mL **[c]**. **Tablet:** 150 mg.
tenofovir disoproxil fumarate† (TDF)	**Tablet:** 300 mg (tenofovir disoproxil fumarate – equivalent to 245 mg tenofovir disoproxil). †also indicated for pre-exposure prophylaxis.
zidovudine (ZDV **or** AZT)	**Capsule:** 250 mg. **Oral liquid:** 50 mg/5 mL. **Solution for IV infusion injection:** 10 mg/ mL in 20- mL vial. **Tablet:** 300 mg.
6.4.2.2 Non-nucleoside reverse transcriptase inhibitors	
efavirenz (EFV **or** EFZ) [a]	**Tablet:** 200 mg (scored); 600 mg. [a] >3 years **or** >10 kg weight.
nevirapine (NVP) [a]	**Oral liquid:** 50 mg/5 mL. **Tablet:** 50 mg (dispersible); 200 mg. [a] > 6 weeks

6.4.2.3 Protease inhibitors	
Selection of protease inhibitor(s) from the Model List will need to be determined by each country after consideration of international and national treatment guidelines and experience. Ritonavir is recommended for use in combination as a pharmacological booster, and not as an antiretroviral in its own right. All other protease inhibitors should be used in boosted forms (e.g. with ritonavir).	
atazanavir a	**Solid oral dosage form:** 100 mg; 300 mg (as sulfate). a >25 kg.
atazanavir + ritonavir	**Tablet (heat stable):** 300 mg (as sulfate) + 100 mg.
darunavira	**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. **Solid oral dosage form:** 40 mg + 10 mg **[c]**.
ritonavir	**Oral liquid:** 400 mg/5 mL. **Tablet (heat stable):** 25 mg; 100 mg. **Oral powder:** 100 mg in sachet **[c]**.
6.4.2.4 Integrase inhibitors	
dolutegravir a	**Tablet**: 50 mg a ≥25 kg
raltegravir*	**Tablet (chewable):** 25 mg; 100 mg. **Tablet:** 400 mg **Granules for oral suspension**: 100 mg in sachet *for use in pregnant women and in second-line regimens in accordance with WHO treatemnt guidelines.
FIXED-DOSE COMBINATIONS	
abacavir + lamivudine	**Tablet (dispersible, scored):** 120 mg (as sulfate) + 60 mg.
dolutegravir + lamivudine + tenofovir	**Tablet:** 50 mg + 300 mg + 300 mg (disoproxil fumarate equivalent to 245 mg tenofovir disoproxil)
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).
Complementary list	
*oseltamivir**	***Capsule:*** *30 mg; 45 mg; 75 mg (as phosphate).* ***Oral powder:*** *12 mg/ mL.* * *severe illness due to confirmed or suspected influenza virus infection in critically ill hospitalized patients*
*valganciclovir** ***[c]***	***Powder for oral solution:*** *50 mg/mL* ***Tablet:*** *450 mg.* **For the treatment of cytomegalovirus retinitis (CMVr).*
6.4.4 Antihepatitis medicines	
6.4.4.1 Medicines for hepatitis B	
6.4.4.1.1 Nucleoside/Nucleotide reverse transcriptase inhibitors	
entecavir	**Oral liquid:** 0.05 mg/ mL **Tablet:** 0.5 mg; 1 mg
tenofovir disoproxil fumarate (TDF)	**Tablet:** 300 mg (tenofovir disoproxil fumarate – equivalent to 245 mg tenofovir disoproxil).

6.4.4.2 Medicines for hepatitis C	
WHO guidelines recommend the use of pangenotypic direct-acting antiviral (DAA) regimens for the treatment of persons with chronic HCV infection aged 18 years and above. WHO recommended treatment regimens for adolescents aged 12-17 years or weighing at least 35 kg with chronic HCV infection are genotype-specific. **Pangenotypic DAAs should be considered as therapeutically equivalent for the purposes of selection and procurement at national level.**	
6.4.4.2.1 ☐ Pangenotypic direct-acting antiviral combinations	
daclatasvir*	**Tablet:** 30 mg; 60 mg (as hydrochloride) *pangenotypic when used in combination with sofosbuvir
glecaprevir + pibrentasvir	**Tablet:** 100 mg + 40 mg
sofosbuvir*	**Tablet:** 400 mg *pangenotypic when used in combination with daclatasvir
sofosbuvir + velpatasvir	**Tablet:** 400 mg + 100 mg
6.4.4.2.2 Non-pangenotypic direct-acting antiviral combinations	
dasabuvir	**Tablet:** 250 mg
ledipasvir + sofosbuvir	**Tablet:** 90 mg + 400 mg.
ombitasvir + paritaprevir + ritonavir	**Tablet:** 12.5 mg + 75 mg + 50 mg
6.4.4.2.3 Other antivirals for hepatitis C	
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 hepatitis C, in combination with direct acting anti-viral medicines
Complementary list	
*pegylated interferon alfa (2a or 2b) **	***Vial or prefilled syringe:*** *180 micrograms (peginterferon alfa-2a),* *80 microgram, 100 microgram (peginterferon alfa-2b).* ** To be used in combination with ribavirin.*

6.5 Antiprotozoal medicines	
6.5.1 Antiamoebic and antigiardiasis medicines	
diloxanide [a]	**Tablet:** 500 mg (furoate). [a] >25 kg.
☐ metronidazole	**Injection:** 500 mg in 100- mL vial. **Oral liquid:** 200 mg (as benzoate)/5 mL. **Tablet:** 200 mg to 500 mg.
6.5.2 Antileishmaniasis medicines	
amphotericin B	**Powder for injection:** 50 mg in vial (as sodium deoxycholate **or** liposomal complex).
miltefosine	**Solid oral dosage form:** 10 mg; 50 mg.
paromomycin	**Solution for intramuscular injection:** 750 mg of paromomycin base (as the sulfate).
sodium stibogluconate **or** meglumine antimoniate	**Injection:** 100 mg/ mL, 1 vial = 30 mL **or** 30%, equivalent to approximately 8.1% antimony (pentavalent) in 5- mL ampoule.
6.5.3 Antimalarial medicines	
6.5.3.1 For curative treatment	
Medicines for the treatment of *P. falciparum* 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 *P.vivax* infection.
dihydroartemisinin + piperaquine phosphate [a]	**Tablet:** 20 mg + 160 mg; 40 mg + 320 mg [a] > 5 kg
doxycycline*	**Capsule:** 100 mg (as hydrochloride **or** hyclate). **Tablet (dispersible):** 100 mg (as monohydrate). * For use only in combination with quinine.
mefloquine*	**Tablet:** 250 mg (as hydrochloride). * To be used in combination with artesunate 50 mg.
primaquine*	**Tablet:** 7.5 mg; 15 mg (as diphosphate). * Only for use to achieve radical cure of *P.vivax* and *P.ovale* infections, given for 14 days.
quinine*	**Injection:** 300 mg quinine hydrochloride/ mL in 2- mL ampoule. **Tablet:** 300 mg (quinine sulfate) **or** 300 mg (quinine bisulfate). * For use only in the management of severe malaria, and should be used in combination with doxycycline.
sulfadoxine + pyrimethamine*	**Tablet:** 500 mg + 25 mg. * Only in combination with artesunate 50 mg.
6.5.3.2 For prophylaxis	
amodiaquine – sulfadoxine + pyrimethamine **[c]**	**Co-packaged dispersible tablets:** amodiaquine 76.5 mg (as hydrochloride) [3] and sulfadoxine + pyrimethamine 250 mg + 12.5 mg [1]; amodiaquine 153 mg (as hydrochloride) [3] and sulfadoxine + pyrimethamine 500 mg + 25 mg [1];
chloroquine*	**Oral liquid:** 50 mg (as phosphate **or** sulfate)/5 mL. **Tablet:** 150 mg (as phosphate **or** sulfate). * For use only in central American regions, for *P.vivax* infections.
doxycycline [a]	**Solid oral dosage form:** 100 mg (as hydrochloride **or** hyclate). [a] >8 years.
mefloquine [a]	**Tablet:** 250 mg (as hydrochloride).

	[a] >5 kg **or** >3 months.
proguanil*	**Tablet:** 100 mg (as hydrochloride). * For use only in combination with chloroquine.
sulfadoxine + pyrimethamine	**Tablet:** 250 mg + 12.5 mg **[c]**; 500 mg + 25 mg.
6.5.4 Antipneumocystosis and antitoxoplasmosis medicines	
pyrimethamine	**Tablet:** 25 mg.
sulfadiazine	**Tablet:** 500 mg.
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 **[c]**. **Tablet:** 100 mg + 20 mg; 400 mg + 80 mg **[c]**; 800 mg + 160 mg
Complementary List	
pentamidine	***Tablet:** 200 mg; 300 mg (as isethionate).*
6.5.5 Antitrypanosomal medicines	
6.5.5.1 African trypanosomiasis	
fexinidazole*	**Tablet:** 600 mg * For the treatment of 1st and 2nd stage of human African trypanosomiasis due to *Trypanosoma brucei gambiense* infection.
Medicines for the treatment of 1st stage African trypanosomiasis	
pentamidine*	**Powder for injection:** 200 mg (as isetionate) in vial. * To be used for the treatment of *Trypanosoma brucei gambiense* infection.
suramin sodium*	**Powder for injection:** 1 g in vial. * To be used for the treatment of the initial phase of *Trypanosoma brucei rhodesiense* infection.
Medicines for the treatment of 2nd stage African trypanosomiasis	
eflornithine*	**Injection:** 200 mg (hydrochloride)/ mL in 100- mL bottle. * To be used for the treatment of *Trypanosoma brucei gambiense* 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 *Trypanosoma brucei gambiense* infection.
Complementary List	
*melarsoprol **[c]***	***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.
6.6 Medicines for ectoparasitic infections	
ivermectin	**Tablet (scored):** 3 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	
☐ propranolol	**Tablet:** 20 mg; 40 mg (hydrochloride).

8. IMMUNOMODULATORS AND ANTINEOPLASTICS	
8.1 Immunomodulators for non-malignant disease	
Complementary List	
☐ *adalimumab**	***Injection:*** *40 mg/0.8 mL; 40 mg/0.4 mL* ** certolizumab pegol, etanercept, golimumab and infliximab are alternatives, including quality-assured biosimilars.*
azathioprine	***Powder for injection:*** *100 mg (as sodium salt) in vial.* ***Tablet (scored):*** *50 mg.*
ciclosporin	***Capsule:*** *25 mg.* ***Concentrate for injection:*** *50 mg/ mL in 1- mL ampoule for organ transplantation.*
8.2 Antineoplastics and supportive medicines Medicines listed below should be used according to protocols for treatment of the diseases.	
8.2.1 Cytotoxic medicines	
Complementary List	
arsenic trioxide	***Concentrate for solution for infusion:*** *1 mg/mL* *– Acute promyelocytic leukaemia*
asparaginase	***Powder for injection:*** *10 000 IU in vial.* *– Acute lymphoblastic leukaemia.*
bendamustine	***Injection:*** *45 mg/0.5 mL; 180 mg/2 mL.* *– Chronic lymphocytic leukaemia* *– Follicular lymphoma*
bleomycin	***Powder for injection:*** *15 mg (as sulfate) in vial.* *– Hodgkin lymphoma* *– Kaposi sarcoma* *– Ovarian germ cell tumour* *– Testicular germ cell tumour*
calcium folinate	***Injection:*** *3 mg/ mL in 10- mL ampoule.* ***Tablet:*** *5 mg, 15 mg, 25 mg.* *– Early stage colon cancer* *– Early stage rectal cancer* *– Gestational trophoblastic neoplasia* *– Metastatic colorectal cancer* *– Osteosarcoma* *– Burkitt lymphoma*
capecitabine	***Tablet:*** *150 mg; 500 mg.* *– Early stage colon cancer* *– Early stage rectal cancer* *– Metastatic breast cancer* *– Metastatic colorectal cancer*

carboplatin	***Injection:*** *50 mg/5 mL; 150 mg/15 mL; 450 mg/45 mL; 600 mg/60 mL.* – *Early stage breast cancer* – *Epithelial ovarian cancer* – *Nasopharyngeal cancer* – *Non-small cell lung cancer* – *Osteosarcoma* – *Retinoblastoma* – *Cervical cancer*
chlorambucil	***Tablet:*** *2 mg.* – *Chronic lymphocytic leukaemia.*
cisplatin	***Injection:*** *50 mg/50 mL; 100 mg/100 mL.* – *Cervical cancer* – *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*
cyclophosphamide	***Powder for injection:*** *500 mg in vial.* ***Tablet:*** *25 mg, 50 mg.* – *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* – *Multiple myeloma.*
cytarabine	***Powder for injection:*** *100 mg in vial.* – *Acute myeloid leukaemia* – *Acute lymphoblastic leukaemia* – *Acute promyelocytic leukaemia* – *Burkitt lymphoma.*
dacarbazine	***Powder for injection:*** *100 mg in vial.* – *Hodgkin lymphoma*
dactinomycin	***Powder for injection:*** *500 micrograms in vial.* – *Gestational trophoblastic neoplasia* – *Rhabdomyosarcoma* – *Nephroblastoma (Wilms tumour)*
daunorubicin	***Powder for injection:*** *50 mg (hydrochloride) in vial.* – *Acute lymphoblastic leukaemia* – *Acute myeloid leukaemia*

	– *Acute promyelocytic leukaemia*
docetaxel	***Injection:*** *20 mg/ mL; 40 mg/ mL.* – *Early stage breast cancer* – *Metastatic breast cancer* – *Metastatic prostate cancer*
doxorubicin	***Powder for injection:*** *10 mg; 50 mg (hydrochloride) in vial.* – *Diffuse large B-cell lymphoma* – *Early stage breast cancer* – *Hodgkin lymphoma* – *Kaposi sarcoma* – *Follicular lymphoma* – *Metastatic breast cancer* – *Osteosarcoma* – *Ewing sarcoma* – *Acute lymphoblastic leukaemia* – *Nephroblastoma (Wilms tumour)* – *Burkitt lymphoma* – *Multiple myeloma.*
etoposide	***Capsule:*** *50 mg, 100 mg.* ***Injection:*** *20 mg/ mL in 5- mL ampoule.* – *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*
fludarabine	***Powder for injection:*** *50 mg (phosphate) in vial.* ***Tablet:*** *10 mg* – *Chronic lymphocytic leukaemia.*
fluorouracil	***Injection:*** *50 mg/ mL in 5- mL ampoule.* – *Early stage breast cancer* – *Early stage colon cancer* – *Early stage rectal cancer* – *Metastatic colorectal cancer* – *Nasopharyngeal cancer*
gemcitabine	***Powder for injection:*** *200 mg in vial, 1 g in vial.* – *Epithelial ovarian cancer* – *Non-small cell lung cancer*
hydroxycarbamide	***Solid oral dosage form:*** *200 mg; 250 mg; 300 mg; 400 mg; 500 mg; 1 g.* – *Chronic myeloid leukaemia.*
ifosfamide	***Powder for injection:*** *500 mg vial**;** 1-g vial; 2-g vial.* – *Testicular germ cell tumour*

	– *Ovarian germ cell tumour* – *Osteosarcoma* – *Rhabdomyosarcoma* – *Ewing sarcoma*
irinotecan	***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.* – *Metastatic colorectal cancer.*
melphalan	***Tablet:*** *2 mg* ***Powder for injection:*** *50 mg in vial* – *Multiple myeloma.*
mercaptopurine	***Tablet:*** *50 mg.* – *Acute lymphoblastic leukaemia* – *Acute promyelocytic leukaemia.*
methotrexate	***Powder for injection:*** *50 mg (as sodium salt) in vial.* ***Tablet:*** *2.5 mg (as sodium salt).* – *Early stage breast cancer* – *Gestational trophoblastic neoplasia* – *Osteosarcoma* – *Acute lymphoblastic leukaemia* – *Acute promyelocytic leukaemia*
oxaliplatin	***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.* ***Powder for injection:*** *50 mg, 100 mg in vial.* – *Early stage colon cancer* – *Metastatic colorectal cancer*
paclitaxel	***Powder for injection:*** *6 mg/ mL.* – *Epithelial ovarian cancer* – *Early stage breast cancer* – *Metastatic breast cancer* – *Kaposi sarcoma* – *Nasopharyngeal cancer* – *Non-small cell lung cancer* – *Ovarian germ cell tumour* – *Cervical cancer*
*pegaspargase**	***Injection:*** *3,750 units/5 mL in vial.* – *Acute lymphoblastic leukaemia* ** including quality-assured biosimilars*
procarbazine ***[c]***	***Capsule:*** *50 mg (as hydrochloride).* – *Hodgkin lymphoma*
realgar-Indigo naturalis formulation	***Tablet:*** *270 mg (containing tetra-arsenic tetra-sulfide 30 mg).* – *Acute promyelocytic leukaemia*
tioguanine ***[c]***	***Solid oral dosage form:*** *40 mg.* – *Acute lymphoblastic leukaemia*

vinblastine	***Powder for injection:*** *10 mg (sulfate) in vial.* – *Hodgkin lymphoma* – *Kaposi sarcoma.* – *Testicular germ cell tumour* – *Ovarian germ cell tumour*
vincristine	***Powder for injection:*** *1 mg; 5 mg (sulfate) in vial.* – *Diffuse large B-cell lymphoma* – *Gestational trophoblastic neoplasia* – *Hodgkin lymphoma* – *Kaposi sarcoma* – *Follicular lymphoma* – *Retinoblastoma* – *Rhabdomyosarcoma* – *Ewing sarcoma* – *Acute lymphoblastic leukaemia* – *Nephroblastoma (Wilms tumour)* – *Burkitt lymphoma*
vinorelbine	***Injection:*** *10 mg/mL in 1- mL vial; 50 mg/5 mL in 5- mL vial.* – *Non-small cell lung cancer* – *Metastatic breast cancer*
8.2.2 Targeted therapies	
Complementary List	
all-trans retinoid acid (ATRA)	***Capsule:*** *10 mg.* – *Acute promyelocytic leukaemia.*
bortezomib	***Powder for injection:*** *3.5 g in vial.* – *Multiple myeloma*
dasatinib	***Tablet:*** *20 mg; 50 mg; 70 mg; 80 mg; 100 mg; 140 mg.* – *Imatinib-resistant chronic myeloid leukaemia*
☐ *erlotinib**	***Tablet:*** *100 mg, 150 mg* – *EGFR mutation-positive advanced non-small cell lung cancer* * *gefitinb and afatinb are alternatives*
imatinib	***Tablet:*** *100 mg; 400 mg.* – *Chronic myeloid leukaemia* – *Gastrointestinal stromal tumour*
nilotinib	***Capsule:*** *150 mg; 200 mg.* – *Imatinib-resistant chronic myeloid leukaemia*
*rituximab**	***Injection (intravenous):*** *100 mg/10 mL in 10- mL vial; 500 mg/50 mL in 50- mL vial.* – *Diffuse large B-cell lymphoma* – *Chronic lymphocytic leukaemia* – *Follicular lymphoma.* * *including quality-assured biosimilars*

*trastuzumab**	***Powder for injection:*** *60 mg; 150 mg; 440 mg in vial* – *Early stage HER2 positive breast cancer* – *Metastatic HER2 positive breast cancer.* * *including quality-assured biosimilars*
8.2.3 Immunomodulators	
Complementary List	
filgrastim	***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 micrograms/1.6 mL in 1.6-mL vial.* – *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*
lenalidomide	***Capsule: 25 mg*** – *Multiple myeloma*
☐ *nivolumab**	***Concentrate solution for infusion: 10 mg/mL*** – ***Metastatic melanoma*** *** pembrolizumab is an alternative***
thalidomide	***Capsule: 50 mg*** – *Multiple myeloma*
8.2.4 Hormones and antihormones	
Complementary List	
abiraterone	***Tablet:*** *250 mg; 500 mg* – *Metastatic castration-resistant prostate cancer.*
☐ *anastrozole*	***Tablet:*** *1 mg.* – *Early stage breast cancer* – *Metastatic breast cancer.*
☐ *bicalutamide*	***Tablet:*** *50 mg.* – *Metastatic prostate cancer.*
dexamethasone	***Injection:*** *4 mg/ mL in 1- mL ampoule (as disodium phosphate salt).* ***Oral liquid:*** *2 mg/5 mL* ***[c]****.* ***Tablet:*** *2 mg* ***[c]****; 4 mg.* – *Acute lymphoblastic leukaemia* – *Multiple myeloma.*
hydrocortisone	***Powder for injection: 100 mg (as sodium succinate) in vial.***

	– *Acute lymphoblastic leukaemia.*
☐ *leuprorelin*	***Injection:*** *7.5 mg; 22.5 mg in pre-filled syringe* – *Early stage breast cancer* – *Metastatic prostate cancer.*
methylprednisolone ***[c]***	***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.* – *Acute lymphoblastic leukamia.*
☐ *prednisolone*	***Oral liquid:*** *5 mg/ mL* ***[c]****.* ***Tablet:*** *5 mg; 25 mg.* – *Chronic lymphocytic leukaemia* – *Diffuse large B-cell lymphoma* – *Hodgkin lymphoma* – *Follicular lymphoma* – *Acute lymphoblastic leukaemia* – *Burkitt lymphoma* – *Metastatic castration-resitsant prostate cancer* – *Multiple myeloma.*
tamoxifen	***Tablet:*** *10 mg; 20 mg (as citrate).* – *Early stage breast cancer* – *Metastatic breast cancer.*
8.2.5 Supportive medicines	
Complementary List	
allopurinol ***[c]***	***Tablet:*** *100 mg; 300 mg.* – *Tumour lysis syndrome*
mesna	***Injection:*** *100 mg/ mL in 4- mL and 10- mL ampoules.* ***Tablet:*** *400 mg; 600 mg.* – *Testicular germ cell tumour* – *Ovarian germ cell tumour* – *Osteosarcoma* – *Rhabdomyosarcoma* – *Ewing sarcoma.*
zoledronic acid	***Concentrate solution for infusion:*** *4 mg/5 mL in 5- mL vial.* ***Solution for infusion****: 4 mg/100 mL in 100- mL bottle.* – *Malignancy-related bone disease*
9. ANTIPARKINSONISM MEDICINES	
☐ biperiden	**Injection:** 5 mg (lactate) in 1- mL ampoule. **Tablet:** 2 mg (hydrochloride).
levodopa + ☐ 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	**Oral liquid:** equivalent to 25 mg iron (as sulfate)/ mL. **Tablet:** equivalent to 60 mg iron.
ferrous salt + folic acid	**Tablet:** equivalent to 60 mg iron + 400 micrograms folic acid (nutritional supplement for use during pregnancy).
folic acid	**Tablet:** 400 micrograms*; 1 mg; 5 mg. *periconceptual use for prevention of first occurrence of neural tube defects
hydroxocobalamin	**Injection:** 1 mg (as acetate, as hydrochloride **or** as sulfate) in 1-mL ampoule.
Complementary List	
☐ *erythropoiesis-stimulating agents**	***Injection: pre-filled syringe*** *1000IU/ 0.5 mL; 2000IU/ 0.5 mL; 3000IU/ 0.3 mL; 4000IU/ 0.4 mL; 5000IU/ 0.5 mL; 6000IU/ 0.6 mL; 8000IU/ 0.8mL; 10 000IU/ 1 mL; 20 000IU/ 0.5 mL; 40 000IU/ 1 mL* ** the square box applies to epoetin alfa, beta and theta, darbepoetin alfa, methoxy polyethylene glycol-epoetin beta,and their respective biosimilars.*
10.2 Medicines affecting coagulation	
☐ dabigatran*	**Capsule:** 110 mg; 150 mg ***** apixaban, edoxaban and rivaroxaban are alternatives
☐ enoxaparin*	**Injection: ampoule or pre-filled syringe** 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 *Alternatives are limited to nadroparin and dalteparin
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 ampoule. **Tablet:** 10 mg.
protamine sulfate	**Injection:** 10 mg/ mL in 5- mL ampoule.
tranexamic acid	**Injection:** 100 mg/ mL in 10- mL ampoule.
☐ warfarin	**Tablet:** 1 mg; 2 mg; 5 mg (sodium salt).
Complementary List	
desmopressin ***[c]***	***Injection**: 4 micrograms/ mL (as acetate) in 1- mL ampoule.* ***Nasal spray:** 10 micrograms (as acetate) per dose*
heparin sodium ***[c]***	***Injection:** 1000 IU/ mL; 5000 IU/ mL in 1- mL ampoule.*
protamine sulfate ***[c]***	***Injection:** 10 mg/ mL in 5- mL ampoule.*
☐ *warfarin* ***[c]***	***Tablet:** 0.5 mg; 1 mg; 2 mg; 5 mg (sodium salt).*
10.3 Other medicines for haemoglobinopathies	
Complementary List	

*deferoxamine**	***Powder for injection:*** *500 mg (mesilate) in vial.* ** Deferasirox oral form may be an alternative, depending on cost and availability.*
hydroxycarbamide	***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	
normal immunoglobulin	***Intramuscular administration:*** *16% protein solution.** ***Intravenous administration:*** *5%; 10% protein solution.*** ***Subcutaneous administration:*** *15%; 16% protein solution.** ** Indicated for primary immune deficiency.* ***Indicated for primary immune deficiency and Kawasaki disease.*
11.2.2 Blood coagulation factors	
Complementary List	
☐ *coagulation factor VIII*	***Powder for injection:*** *500 IU/vial.*
☐ *coagulation factor IX*	***Powder for injection:*** *500 IU/vial, 1000 IU/vial.*
11.3 Plasma substitutes	
☐ dextran 70*	**Injectable solution:** 6%. * Polygeline, injectable solution, 3.5% is considered as equivalent.
12. CARDIOVASCULAR MEDICINES	
12.1 Antianginal medicines	
☐ bisoprolol*	**Tablet:** 1.25 mg; 5 mg. * ☐ includes metoprolol and carvedilol as alternatives.

glyceryl trinitrate	**Tablet (sublingual):** 500 micrograms.
☐ isosorbide dinitrate	**Tablet (sublingual):** 5 mg.
verapamil	**Tablet:** 40 mg; 80 mg (hydrochloride).
12.2 Antiarrhythmic medicines	
☐ bisoprolol*	**Tablet:** 1.25 mg; 5 mg. * ☐ 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.
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	**Injection:** 2.5 mg (hydrochloride)/ mL in 2- mL ampoule. **Tablet:** 40 mg; 80 mg (hydrochloride).
Complementary List	
amiodarone	***Injection:*** *50 mg/ mL in 3- mL ampoule (hydrochloride).* ***Tablet:*** *100 mg; 200 mg; 400 mg (hydrochloride).*
12.3 Antihypertensive medicines	
☐ amlodipine	**Tablet:** 5 mg (as maleate, mesylate **or** besylate).
☐ 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
☐ 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.
☐ hydrochlorothiazide	**Oral liquid:** 50 mg/5 mL. **Solid oral dosage form:** 12.5 mg; 25 mg.
☐ lisinopril + ☐ amlodipine	**Tablet:** 10 mg + 5 mg; 20 mg + 5 mg; 20 mg + 10 mg
☐ lisinopril + ☐ hydrochlorothiazide	**Tablet:** 10 mg + 12.5 mg; 20 mg + 12.5 mg; 20 mg + 25 mg
☐ losartan	**Tablet:** 25 mg; 50 mg; 100 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.
☐ telmisartan + ☐ amlodipine	**Tablet:** 40 mg + 5 mg; 80 mg + 5 mg; 80 mg + 10 mg
☐ telmisartan + ☐ hydrochlorothiazide	**Tablet:** 40 mg + 12.5 mg; 80 mg + 12.5 mg; 80 mg + 25 mg
Complementary List	
sodium nitroprusside	***Powder for infusion:*** *50 mg in ampoule.*
12.4 Medicines used in heart failure	
☐ bisoprolol*	**Tablet:** 1.25 mg; 5 mg. *☐ 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.
☐ enalapril	**Tablet:** 2.5 mg; 5 mg (as hydrogen maleate).
☐ furosemide	**Injection:** 10 mg/ mL in 2- mL ampoule. **Oral liquid:** 20 mg/5 mL **[c]**. **Tablet:** 40 mg.
☐ hydrochlorothiazide	**Oral liquid:** 50 mg/5 mL. **Solid oral dosage form:** 25 mg.
☐ losartan	**Tablet:** 25 mg; 50 mg; 100 mg
spironolactone	**Tablet:** 25 mg.
Complementary List	
dopamine	***Injection:*** *40 mg/ mL (hydrochloride) in 5- mL vial.*
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	
Complementary List	
alteplase	***Powder for injection:*** *10 mg; 20 mg; 50 mg in vial*
streptokinase	***Powder for injection:*** *1.5 million IU in vial.*
12.6 Lipid-lowering agents	
☐ simvastatin*	**Tablet:** 5 mg; 10 mg; 20 mg; 40 mg. * For use in high-risk patients.
13. DERMATOLOGICAL MEDICINES (topical)	
13.1 Antifungal medicines	
☐ 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 [a]	**Cream:** 1%. [a] >2 months.
13.3 Anti-inflammatory and antipruritic medicines	
☐ betamethasone [a]	**Cream or ointment:** 0.1% (as valerate). [a] Hydrocortisone preferred in neonates.
☐ calamine	**Lotion.**
☐ hydrocortisone	**Cream or ointment:** 1% (acetate).
13.4 Medicines affecting skin differentiation and proliferation	
benzoyl peroxide	**Cream or lotion:** 5%.
coal tar	**Solution:** 5%.
fluorouracil	**Ointment:** 5%.
☐ podophyllum resin	**Solution:** 10% to 25%.
salicylic acid	**Solution:** 5%.
urea	**Cream or ointment:** 5%; 10%.
13.5 Scabicides and pediculicides	
☐ 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).
☐ tropicamide	**Eye drops:** 0.5%.
14.2 Radiocontrast media	
☐ amidotrizoate	**Injection:** 140 mg to 420 mg iodine (as sodium **or** meglumine salt)/ mL in 20- mL ampoule.
barium sulfate	**Aqueous suspension.**
☐ iohexol	**Injection:** 140 mg to 350 mg iodine/ mL in 5- mL; 10- mL; 20- mL ampoules.

Complementary List	
barium sulfate ***[c]***	***Aqueous suspension.***
☐ *meglumine iotroxate*	***Solution:*** *5 g to 8 g iodine in 100 mL to 250 mL.*
15. DISINFECTANTS AND ANTISEPTICS	
15.1 Antiseptics	
☐ chlorhexidine	**Solution:** 5% (digluconate).
☐ ethanol	**Solution:** 70% (denatured).
☐ 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
☐ chlorine base compound	**Powder:** (0.1% available chlorine) for solution.
☐ chloroxylenol	**Solution:** 4.8%.
glutaral	**Solution:** 2%.
16. DIURETICS	
amiloride	**Tablet:** 5 mg (hydrochloride).
☐ 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.
☐ hydrochlorothiazide	**Solid oral dosage form:** 25 mg.
mannitol	**Injectable solution:** 10%; 20%.
spironolactone	**Tablet:** 25 mg.
Complementary List	
☐ *hydrochlorothiazide* ***[c]***	***Tablet (scored):*** *25 mg.*
mannitol ***[c]***	***Injectable solution:*** *10%; 20%.*
spironolactone ***[c]***	***Oral liquid:*** *5 mg/5 mL; 10 mg/5 mL; 25 mg/5 mL.* ***Tablet:*** *25 mg.*
17. GASTROINTESTINAL MEDICINES	
Complementary List	
☐ *pancreatic enzymes* ***[c]***	*Age-appropriate formulations and doses including lipase, protease and amylase.*
17.1 Antiulcer medicines	
☐ 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.
☐ ranitidine	**Injection:** 25 mg/ mL (as hydrochloride) in 2- mL ampoule. **Oral liquid:** 75 mg/5 mL (as hydrochloride). **Tablet:** 150 mg (as hydrochloride).
17.2 Antiemetic medicines	
dexamethasone	**Injection:** 4 mg/ mL in 1- mL ampoule (as disodium phosphate salt). **Oral liquid:** 0.5 mg/5 mL; 2 mg/5 mL. **Solid oral dosage form:** 0.5 mg; 0.75 mg; 1.5 mg; 4 mg.
metoclopramide a	**Injection:** 5 mg (hydrochloride)/ mL in 2- mL ampoule. **Oral liquid:** 5 mg/5 mL **[c]**. **Tablet:** 10 mg (hydrochloride). a Not in neonates.
☐ ondansetron a	**Injection:** 2 mg base/ mL in 2- mL ampoule (as hydrochloride). **Oral liquid:** 4 mg base/5 mL. **Solid oral dosage form:** Eq 4 mg base; Eq 8 mg base; Eq 24 mg base. a >1 month.
Complementary list	
aprepitant	***Capsule:*** *80 mg; 125 mg; 165 mg* ***Powder for oral susupension:*** *125 mg in sachet*
17.3 Anti-inflammatory medicines	
☐ sulfasalazine	**Retention enema.** **Suppository:** 500 mg. **Tablet:** 500 mg.
Complementary List	
☐ *hydrocortisone*	***Retention enema.*** ***Suppository:*** *25 mg (acetate).* (the ☐ only applies to hydrocortisone retention enema).
17.4 Laxatives	
☐ senna	**Tablet:** 7.5 mg (sennosides) (or traditional dosage forms).
17.5 Medicines used in diarrhoea	
oral rehydration salts – zinc sulfate **[c]**	**Co-package containing:** **ORS powder for dilution** (see Section 17.5.1) – zinc sulfate **solid oral dosage form** 20 mg (see Section 17.5.2)
17.5.1 Oral rehydration	
oral rehydration salts	**Powder for dilution** in 200 mL; 500 mL; 1 L.

	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 *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.

17.5.2 Medicines for diarrhoea	
zinc sulfate*	**Solid oral dosage form:** 20 mg. * In acute diarrhoea zinc sulfate should be used as an adjunct to oral rehydration salts.
18. MEDICINES FOR ENDOCRINE DISORDERS	
18.1 Adrenal hormones and synthetic substitutes	
fludrocortisone	**Tablet:** 100 micrograms (acetate).
hydrocortisone	**Tablet:** 5 mg; 10 mg; 20 mg.
18.2 Androgens	
Complementary List	
testosterone	***Injection:*** *200 mg (enanthate) in 1- mL ampoule.*
18.3 Estrogens	
18.4 Progestogens	
☐ medroxyprogesterone acetate	**Tablet:** 5 mg.
18.5 Medicines for diabetes	
18.5.1 Insulins	
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).
18.5.2 Oral hypoglycaemic agents	
☐ gliclazide*	**Solid oral dosage form:** (controlled-release tablets) 30 mg; 60 mg; 80 mg. * glibenclamide not suitable above 60 years.
metformin	**Tablet:** 500 mg (hydrochloride).
Complementary List	
metformin ***[c]***	***Tablet:*** *500 mg (hydrochloride).*
18.6 Medicines for hypoglycaemia	
glucagon	**Injection:** 1 mg/ mL.
Complementary List	
diazoxide ***[c]***	***Oral liquid:*** *50 mg/mL* ***Tablet:*** *50 mg*
18.7 Thyroid hormones and antithyroid medicines	
levothyroxine	**Tablet:** 25 micrograms **[c]**; 50 micrograms; 100 micrograms (sodium salt).
potassium iodide	**Tablet:** 60 mg.
☐ methimazole*	**Tablet:** 5mg, 10mg, 20mg.

	* carbimazole is an alternative depending on local availability.
propylthiouracil*	**Tablet:** 50 mg. *for use when alternative first-line treatment is not appropriate or available; and in patients during the first trimester of pregnancy.
Complementary List	
Lugol's solution ***[c]***	***Oral liquid:*** *about 130 mg total iodine/ mL.*
□ *methimazole** ***[c]***	*Tablet: 5mg, 10mg, 20mg.* ** carbimazole is an alternative depending on local availability.*
potassium iodide ***[c]***	***Tablet:*** *60 mg.*
*propylthiouracil** ***[c]***	***Tablet:*** *50 mg.* **for use when alternative first-line treatment is not appropriate or available*
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 **December 2018**. 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.

Recommendations for all	
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	
Recommendations for certain regions	
Japanese encephalitis vaccine	
yellow fever vaccine	
tick-borne encephalitis vaccine	
Recommendations for some high-risk populations	
cholera vaccine	
dengue vaccine	

hepatitis A vaccine	
meningococcal meningitis vaccine	
rabies vaccine	
typhoid vaccine	
Recommendations for immunization programmes with certain characteristics	
influenza vaccine (seasonal)	
mumps vaccine	
varicella vaccine	
20. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) AND CHOLINESTERASE INHIBITORS	
☐ 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.
☐ vecuronium [c]	**Powder for injection:** 10 mg (bromide) in vial.
Complementary List	
pyridostigmine	***Injection:*** *1 mg in 1- mL ampoule.* ***Tablet:*** *60 mg (bromide).*
☐ *vecuronium*	***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 Chlamydia trachomatis or Neisseria gonorrhoea.*
☐ gentamicin	**Solution (eye drops):** 0.3% (sulfate).
natamycin	**Suspension: (eye drops):** 5%
☐ ofloxacin	**Solution (eye drops):** 0.3%.
☐ tetracycline	**Eye ointment:** 1% (hydrochloride).
21.2 Anti-inflammatory agents	
☐ prednisolone	**Solution (eye drops):** 0.5% (sodium phosphate).

21.3 Local anaesthetics	
☐ 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
☐ pilocarpine	**Solution (eye drops):** 2%; 4% (hydrochloride **or** nitrate).
☐ 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.
Complementary List	
epinephrine (adrenaline)	***Solution (eye drops):** 2% (as hydrochloride).*
21.6 Anti-vascular endothelial growth factor (VEGF) preparations	
Complementary List	
bevacizumab	***Injection:** 25 mg/ mL.*
22. MEDICINES FOR REPRODUCTIVE HEALTH AND PERINATAL CARE	
22.1 Contraceptives	
22.1.1 Oral hormonal contraceptives	
☐ ethinylestradiol + ☐ levonorgestrel	**Tablet:** 30 micrograms + 150 micrograms.
☐ ethinylestradiol + ☐ norethisterone	**Tablet:** 35 micrograms + 1 mg.
levonorgestrel	**Tablet:** 30 micrograms; 750 micrograms (pack of two); 1.5 mg.
ulipristal	**Tablet:** 30 mg (as acetate)
22.1.2 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.
22.1.3 Intrauterine devices	
copper-containing device	
levonorgestrel-releasing intrauterine system	Intrauterine system with reservoir containing 52 mg of levonorestrel
22.1.4 Barrier methods	

condoms	
diaphragms	
22.1.5 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).
22.1.6 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
22.2 Ovulation inducers	
Complementary List	
clomifene	***Tablet:*** *50 mg (citrate).*
22.3 Uterotonics	
carbetocin	**Injection (heat stable):** 100 micrograms/mL
☐ ergometrine	**Injection:** 200 micrograms (hydrogen maleate) in 1- mL ampoule.
mifepristone – misoprostol Where permitted under national law and where culturally acceptable.	**Tablet** 200 mg – **tablet** 200 micrograms. **Co-package containing:** mifepristone 200 mg tablet [1] and misoprostol 200 microgram tablet [4]
misoprostol	**Tablet:** 200 micrograms. – Management of incomplete abortion and miscarriage; – Prevention and treatment of postpartum haemorrhage where oxytocin is not available or cannot be safely used **Vaginal tablet:** 25 micrograms.* * Only for use for induction of labour where appropriate facilities are available.
oxytocin	**Injection:** 10 IU in 1- mL.
22.4 Antioxytocics (tocolytics)	
nifedipine	**Immediate-release capsule:** 10 mg.
22.5 Other medicines administered to the mother	
dexamethasone	**Injection:** 4 mg/ mL dexamethasone phosphate (as disodium salt)
tranexamic acid	**Injection:** 100 mg/mL in 10-mL ampoule
22.6 Medicines administered to the neonate [c]	
caffeine citrate **[c]**	**Injection:** 20 mg/ mL (equivalent to 10 mg caffeine base/ mL). **Oral liquid:** 20 mg/ mL (equivalent to 10 mg caffeine base/ mL).

chlorhexidine [c]	**Solution or gel:** 7.1% (digluconate) delivering 4% chlorhexidine (for umbilical cord care).
Complementary List	
☐ *ibuprofen [c]*	***Solution for injection***: 5 mg/ mL.
☐ *prostaglandin E [c]*	***Solution for injection:*** ***Prostaglandin E1:*** 0.5 mg/ mL in alcohol. ***Prostaglandin E 2:*** 1 mg/ mL.
surfactant [c]	***Suspension for intratracheal instillation:*** *25 mg/ mL* **or** *80 mg/ mL.*
23. PERITONEAL DIALYSIS SOLUTION	
Complementary List	
intraperitoneal dialysis solution (of appropriate composition)	***Parenteral solution.***
24. MEDICINES FOR MENTAL AND BEHAVIOURAL DISORDERS	
24.1 Medicines used in psychotic disorders	
☐ chlorpromazine	**Injection:** 25 mg (hydrochloride)/ mL in 2- mL ampoule. **Oral liquid:** 25 mg (hydrochloride)/5 mL. **Tablet:** 100 mg (hydrochloride).
☐ fluphenazine	**Injection:** 25 mg (decanoate **or** enantate) in 1- mL ampoule.
☐ haloperidol	**Injection:** 5 mg in 1- mL ampoule. **Tablet:** 2 mg; 5 mg.
risperidone	**Solid oral dosage form:** 0.25 mg to 6.0 mg.
Complementary List	
chlorpromazine [c]	***Injection:*** *25 mg (hydrochloride)/ mL in 2- mL ampoule.* ***Oral liquid:*** *25 mg (hydrochloride)/5 mL.* ***Tablet:*** *10 mg; 25 mg; 50 mg; 100 mg (hydrochloride).*
clozapine	***Solid oral dosage form:*** *25 to 200 mg.*
haloperidol [c]	***Injection:*** *5 mg in 1- mL ampoule.* ***Oral liquid:*** *2 mg/ mL.* ***Solid oral dosage form:*** *0.5 mg; 2 mg; 5 mg.*
24.2 Medicines used in mood disorders	
24.2.1 Medicines used in depressive disorders	
☐ amitriptyline	**Tablet:** 25 mg; 75mg. (hydrochloride).
☐ fluoxetine	**Solid oral dosage form:** 20 mg (as hydrochloride).
Complementary List	
fluoxetine a *[c]*	***Solid oral dosage form:*** *20 mg (as hydrochloride).* a >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	
☐ 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.
Complementary List	
☐ *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 medicines and medicines for chronic obstructive pulmonary disease	
☐ beclometasone	**Inhalation (aerosol):** 50 micrograms (dipropionate) per dose; 100 micrograms (dipropionate) per dose (as CFC free forms).
☐ budesonide [c]	**Inhalation (aerosol):** 100 micrograms per dose; 200 micrograms per dose.
☐ 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.
☐ salbutamol	**Inhalation (aerosol):** 100 micrograms (as sulfate) per dose. **Injection:** 50 micrograms (as sulfate)/ mL in 5- mL ampoule. **Metered dose inhaler (aerosol):** 100 micrograms (as sulfate) per dose. **Respirator solution for use in nebulizers:** 5 mg (as sulfate)/ mL.
☐ tiotropium	**Powder for inhalaton, capsule:** 18 micrograms **Inhalation solution:** 1.25 micrograms; 2.5 micrograms per actuation
26. SOLUTIONS CORRECTING WATER, ELECTROLYTE AND ACID–BASE DISTURBANCES	
26.1 Oral	
oral rehydration salts	See section 17.5.1.

potassium chloride	**Powder for solution.**
26.2 Parenteral	
glucose	**Injectable solution:** 5% (isotonic); 10% (hypertonic); 50% (hypertonic).
glucose with sodium chloride	**Injectable solution:** 4% glucose, 0.18% sodium chloride (equivalent to Na+ 30 mmol/L, Cl- 30 mmol/L). **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]**.
potassium chloride	**Solution:** 11.2% in 20- mL ampoule (equivalent to K+ 1.5 mmol/ mL, Cl- 1.5 mmol/ mL). **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]**.
sodium chloride	**Injectable solution:** 0.9% isotonic (equivalent to Na+ 154 mmol/L, Cl- 154 mmol/L).
sodium hydrogen carbonate	**Injectable solution:** 1.4% isotonic (equivalent to Na+ 167 mmol/L, HCO_3- 167 mmol/L). **Solution:** 8.4% in 10- mL ampoule (equivalent to Na+ 1000 mmol/L, HCO_3-1000 mmol/L).
☐ 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).
colecalciferol* **[c]**	**Oral liquid:** 400 IU/ mL. **Solid oral dosage form:** 400 IU; 1000 IU. * Ergocalciferol can be used as an alternative.
☐ ergocalciferol	**Oral liquid:** 250 micrograms/ mL (10 000 IU/ mL). **Solid oral dosage form:** 1.25 mg (50 000 IU).
iodine	**Capsule:** 190 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.
multiple micronutrient powder **[c]**	**Sachets containing:** - iron (elemental) 12.5 mg (as coated ferrous fumarate) - zinc (elemental) 5 mg - vitamin A 300 micrograms - with or without other micronutrients at recommended daily values

☐ 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).
Complementary List	
calcium gluconate	***Injection:*** *100 mg/ mL in 10- mL ampoule.*
28. EAR, NOSE AND THROAT MEDICINES	
acetic acid **[c]**	**Topical:** 2%, in alcohol.
☐ budesonide **[c]**	**Nasal spray:** 100 micrograms per dose.
☐ ciprofloxacin **[c]**	**Topical:** 0.3% drops (as hydrochloride).
☐ xylometazoline [a] **[c]**	**Nasal spray:** 0.05%. [a] Not in children less than 3 months.
29. MEDICINES FOR DISEASES OF JOINTS	
29.1 Medicines used to treat gout	
allopurinol	**Tablet:** 100 mg.
29.2 Disease-modifying agents used in rheumatoid disorders (DMARDs)	
chloroquine	**Tablet:** 100 mg; 150 mg (as phosphate **or** sulfate).
Complementary List	
azathioprine	***Tablet:*** *50 mg.*
*hydroxychloroquine **[c]***	***Solid oral dosage form:*** *200 mg (as sulfate).*
methotrexate	***Tablet:*** *2.5 mg (as sodium salt).*
penicillamine	***Solid oral dosage form:*** *250 mg.*
sulfasalazine	***Tablet:*** *500 mg.*
29.3 Juvenile joint diseases	
acetylsalicylic acid (acute or chronic use)*	***Suppository:*** *50 mg to 150 mg.* ***Tablet:*** *100 mg to 500 mg.* ** For use for rheumatic fever, juvenile arthritis, Kawasaki disease.*

Table 1.1: Medicines with age or weight restrictions

artesunate + pyronaridine tetraphosphate	> 5 kg
atazanavir	>25 kg
atropine	>3 months
bedaquiline	≥ 6 years
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
dolutegravir	≥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
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	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. The term 'solid oral dosage form' is *never* intended to allow any type of modified-release tablet.
Tablets	Refers to: • 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. The term 'tablet' without qualification is *never* intended to allow any type of modified-release tablet.
Tablets (qualified)	Refers to a specific type of tablet: **chewable** - tablets that are intended to be chewed before being swallowed; **dispersible** - tablets that are intended to be dispersed in water or another suitable liquid before being swallowed; **soluble** - tablets that are intended to be dissolved in water or another suitable liquid before being swallowed; **crushable** - tablets that are intended to be crushed before being swallowed; **scored** - tablets bearing a break mark or marks where sub-division is intended in order to provide doses of less than one tablet; **sublingual** - tablets that are intended to be placed beneath the tongue. The term 'tablet' is *always* 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.

* 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 *never* 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 *never* 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 *swallowed* i.e. oral solutions, suspensions, emulsions and oral drops, including those constituted from powders or granules, but *not* those preparations intended for *oromucosal administration* 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