

# **WHO Model List of Essential Medicines**

**16th list, March 2009**

Status of this document

This is a reprint of the text on the WHO Medicines web site

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

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# 16th edition

## Essential Medicines

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### WHO Model List (revised March 2009)

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#### Explanatory Notes

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

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

The **square box symbol (□)** is primarily intended to indicate similar clinical performance within a pharmacological class. The listed medicine should be the example of the class for which there is the best evidence for effectiveness and safety. In some cases, this may be the first medicine that is licensed for marketing; in other instances, subsequently licensed compounds may be safer or more effective. Where there is no difference in terms of efficacy and safety data, the listed medicine should be the one that is generally available at the lowest price, based on international drug price information sources. Not all square boxes are applicable to medicine selection for children — see the second EMLC for details.

Therapeutic equivalence is only indicated 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.

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

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

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

For recommendations and advice concerning all aspects of the quality assurance of medicines see the WHO Medicines web site [http://www.who.int/medicines/areas/quality\\_assurance/en/index.html](http://www.who.int/medicines/areas/quality_assurance/en/index.html).

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 Annex 1.

Definitions of many of these terms and pharmaceutical quality requirements applicable to the different categories are published in the current edition of *The International Pharmacopoeia*

<http://www.who.int/medicines/publications/pharmacopoeia/en/index.html>.

<b>1. ANAESTHETICS</b>	
<b>1.1 General anaesthetics and oxygen</b>	
<input type="checkbox"/> halothane	<b>Inhalation.</b>
ketamine	<b>Injection:</b> 50 mg (as hydrochloride)/ml in 10-ml vial.
nitrous oxide	<b>Inhalation.</b>
oxygen	<b>Inhalation</b> (medicinal gas).
<input type="checkbox"/> thiopental	<b>Powder for injection:</b> 0.5 g; 1 g (sodium salt) in ampoule.
<b>1.2 Local anaesthetics</b>	
<input type="checkbox"/> bupivacaine	<b>Injection:</b> 0.25%; 0.5% (hydrochloride) in vial. <b>Injection for spinal anaesthesia:</b> 0.5% (hydrochloride) in 4-ml ampoule to be mixed with 7.5% glucose solution.
<input type="checkbox"/> lidocaine	<b>Injection:</b> 1%; 2% (hydrochloride) in vial. <b>Injection for spinal anaesthesia:</b> 5% (hydrochloride) in 2-ml ampoule to be mixed with 7.5% glucose solution. <b>Topical forms:</b> 2% to 4% (hydrochloride).
lidocaine + epinephrine (adrenaline)	<b>Dental cartridge:</b> 2% (hydrochloride) + epinephrine 1:80 000. <b>Injection:</b> 1%; 2% (hydrochloride) + epinephrine 1:200 000 in vial.
<i>Complementary List</i>	
<i>ephedrine</i>	<b>Injection:</b> 30 mg (hydrochloride)/ml in 1-ml ampoule. (For use in spinal anaesthesia during delivery, to prevent hypotension).
<b>1.3 Preoperative medication and sedation for short-term procedures</b>	
atropine	<b>Injection:</b> 1 mg (sulfate) in 1-ml ampoule.
<input type="checkbox"/> diazepam	<b>Injection:</b> 5 mg/ml in 2-ml ampoule. <b>Tablet:</b> 5 mg.
morphine	<b>Injection:</b> 10 mg (sulfate or hydrochloride) in 1-ml ampoule.
promethazine	<b>Oral liquid:</b> 5 mg (hydrochloride)/5 ml.
<b>2. ANALGESICS, ANTIPYRETICS, NON-STEROIDAL ANTI-INFLAMMATORY MEDICINES (NSAIMs), MEDICINES USED TO TREAT GOUT AND DISEASE MODIFYING AGENTS IN RHEUMATOID DISORDERS (DMARDs)</b>	
<b>2.1 Non-opioids and non-steroidal anti-inflammatory medicines (NSAIMs)</b>	
acetylsalicylic acid	<b>Suppository:</b> 50 mg to 150 mg. <b>Tablet:</b> 100 mg to 500 mg.
ibuprofen <input type="checkbox"/>	<b>Tablet:</b> 200 mg; 400 mg. <input type="checkbox"/> >3 months.

paracetamol*	<p><b>Oral liquid:</b> 125 mg/5 ml.</p> <p><b>Suppository:</b> 100 mg.</p> <p><b>Tablet:</b> 100 mg to 500 mg.</p> <p>* Not recommended for anti-inflammatory use due to lack of proven benefit to that effect.</p>
<i>Complementary List [c]</i>	
acetylsalicylic acid*	<p><b>Suppository:</b> 50 mg to 150 mg.</p> <p><b>Tablet:</b> 100 mg to 500 mg.</p> <p>* For use for rheumatic fever, juvenile arthritis, Kawasaki disease.</p>
<b>2.2 Opioid analgesics</b>	
codeine	<b>Tablet:</b> 15 mg (phosphate) [c]; 30 mg (phosphate).
morphine	<p><b>Injection:</b> 10 mg (morphine hydrochloride or morphine sulfate) in 1-ml ampoule.</p> <p><b>Oral liquid:</b> 10 mg (morphine hydrochloride or morphine sulfate)/5 ml.</p> <p><b>Tablet:</b> 10 mg (morphine sulfate).</p> <p><b>Tablet (prolonged release):</b> 10 mg; 30 mg; 60 mg (morphine sulfate).</p>
<b>2.3 Medicines used to treat gout</b>	
allopurinol	<b>Tablet:</b> 100 mg.
<b>2.4 Disease modifying agents used in rheumatoid disorders (DMARDs)</b>	
chloroquine	<b>Tablet:</b> 100 mg; 150 mg (as phosphate or sulfate).
<i>Complementary List</i>	
azathioprine	<b>Tablet:</b> 50 mg.
methotrexate	<b>Tablet:</b> 2.5 mg (as sodium salt).
penicillamine	<b>Solid oral dosage form:</b> 250 mg.
sulfasalazine	<b>Tablet:</b> 500 mg.
<b>3. ANTIALLERGICS AND MEDICINES USED IN ANAPHYLAXIS</b>	
□ chlorphenamine [a]	<p><b>Injection:</b> 10 mg (hydrogen maleate) in 1-ml ampoule.</p> <p><b>Oral liquid:</b> 2 mg/5 ml [c].</p> <p><b>Tablet:</b> 4 mg (hydrogen maleate).</p> <p>[a] &gt;1 year.</p>
dexamethasone	<b>Injection:</b> 4 mg dexamethasone phosphate (as disodium salt) in 1-ml ampoule.
epinephrine (adrenaline)	<b>Injection:</b> 1 mg (as hydrochloride or hydrogen tartrate) in 1-ml ampoule.

hydrocortisone	<b>Powder for injection:</b> 100 mg (as sodium succinate) in vial.
<input type="checkbox"/> prednisolone	<b>Oral liquid:</b> 5 mg/ml <b>[c]</b> . <b>Tablet:</b> 5 mg; 25 mg.
<b>4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONINGS</b>	
<b>4.1 Non-specific</b>	
charcoal, activated	<b>Powder.</b>
<b>4.2 Specific</b>	
acetylcysteine	<b>Injection:</b> 200 mg/ml in 10-ml ampoule. <b>Oral liquid:</b> 10% <b>[c]</b> ; 20% <b>[c]</b> .
atropine	<b>Injection:</b> 1 mg (sulfate) in 1-ml ampoule.
calcium gluconate	<b>Injection:</b> 100 mg/ml in 10-ml ampoule.
deferoxamine	<b>Powder for injection:</b> 500 mg (mesilate) in vial.
dimercaprol	<b>Injection in oil:</b> 50 mg/ml in 2-ml ampoule.
DL-methionine*	<b>Tablet:</b> 250 mg. * Will be reviewed for possible deletion.
methylthioninium chloride (methylene blue)	<b>Injection:</b> 10 mg/ml in 10-ml ampoule.
naloxone	<b>Injection:</b> 400 micrograms (hydrochloride) in 1-ml ampoule.
penicillamine	<b>Solid oral dosage form:</b> 250 mg.
potassium ferric hexacyano-ferrate(II) - 2H <sub>2</sub> O (Prussian blue)	<b>Powder for oral administration.</b>
sodium calcium edetate	<b>Injection:</b> 200 mg/ml in 5-ml ampoule.
sodium nitrite	<b>Injection:</b> 30 mg/ml in 10-ml ampoule.
sodium thiosulfate	<b>Injection:</b> 250 mg/ml in 50-ml ampoule.
<b>5. ANTICONVULSANTS/ANTIEPILEPTICS</b>	
carbamazepine	<b>Oral liquid:</b> 100 mg/5 ml. <b>Tablet (chewable):</b> 100 mg; 200 mg. <b>Tablet (scored):</b> 100 mg; 200 mg.
diazepam	<b>Gel or rectal solution:</b> 5 mg/ml in 0.5 ml; 2-ml and 4-ml tubes.
<input type="checkbox"/> lorazepam	<b>Parenteral formulation:</b> 2 mg/ml in 1-ml ampoule; 4 mg/ml in 1-ml ampoule.
magnesium sulfate*	<b>Injection:</b> 500 mg/ml in 2-ml ampoule; 500 mg/ml in 10-ml ampoule. * For use in eclampsia and severe pre-eclampsia and not for other convulsant disorders.

phenobarbital	<p><b>Injection:</b> 200 mg/ml (phenobarbital sodium).</p> <p><b>Oral liquid:</b> 15 mg/5 ml (phenobarbital).</p> <p><b>Tablet:</b> 15 mg to 100 mg (phenobarbital).</p>
phenytoin	<p><b>Capsule:</b> 25 mg; 50 mg; 100 mg (sodium salt).</p> <p><b>Injection:</b> 50 mg/ml in 5-ml vial (sodium salt).</p> <p><b>Oral liquid:</b> 25 mg to 30 mg/5 ml.*</p> <p><b>Tablet:</b> 25 mg; 50 mg; 100 mg (sodium salt).</p> <p><b>Tablet (chewable):</b> 50 mg.</p> <p>* The presence of both 25 mg/5 ml and 30 mg/5 ml strengths on the same market would cause confusion in prescribing and dispensing and should be avoided.</p>
valproic acid (sodium valproate)	<p><b>Oral liquid:</b> 200 mg/5 ml.</p> <p><b>Tablet (crushable):</b> 100 mg.</p> <p><b>Tablet (enteric-coated):</b> 200 mg; 500 mg (sodium valproate).</p>
<i>Complementary List</i>	
<i>ethosuximide</i>	<p><b>Capsule:</b> 250 mg.</p> <p><b>Oral liquid:</b> 250 mg/5 ml.</p>
<b>6. ANTI-INFECTIVE MEDICINES</b>	
<b>6.1 Anthelmintics</b>	
<b>6.1.1 Intestinal anthelmintics</b>	
albendazole	<b>Tablet (chewable):</b> 400 mg.
levamisole	<b>Tablet:</b> 50 mg; 150 mg (as hydrochloride).
☐ mebendazole	<b>Tablet (chewable):</b> 100 mg; 500 mg.
niclosamide*	<p><b>Tablet (chewable):</b> 500 mg.</p> <p>* Niclosamide is listed for use when praziquantel treatment fails.</p>
praziquantel	<b>Tablet:</b> 150 mg; 600 mg.
pyrantel	<p><b>Oral liquid:</b> 50 mg (as embonate)/ml.</p> <p><b>Tablet (chewable):</b> 250 mg (as embonate).</p>
<b>6.1.2 Antifilarials</b>	
ivermectin	<b>Tablet (scored):</b> 3 mg; 6 mg.
<i>Complementary List</i>	
<i>diethylcarbamazine</i>	<b>Tablet:</b> 50 mg; 100 mg (dihydrogen citrate).
<i>suramin sodium*</i>	<p><b>Powder for injection:</b> 1 g in vial.</p> <p>* Will be reviewed for possible deletion.</p>





<b>6.1.3 Antischistosomes and antitremitode medicines</b>	
praziquantel	<b>Tablet:</b> 600 mg.
triclabendazole	<b>Tablet:</b> 250 mg.
<i>Complementary List</i>	
oxamniquine*	<b>Capsule:</b> 250 mg. <b>Oral liquid:</b> 250 mg/5 ml. * Oxamniquine is listed for use when praziquantel treatment fails.
<b>6.2 Antibacterials</b>	
<b>6.2.1 Beta Lactam medicines</b>	
amoxicillin	<b>Powder for oral liquid:</b> 125 mg (anhydrous)/5 ml; 250 mg (anhydrous)/5 ml <b>[c]</b> . <b>Solid oral dosage form:</b> 250 mg; 500 mg (anhydrous).
amoxicillin + clavulanic acid	<b>Oral liquid:</b> 125 mg amoxicillin + 31.25 mg clavulanic acid/5 ml AND 250 mg amoxicillin + 62.5 mg clavulanic acid/5 ml <b>[c]</b> . <b>Tablet:</b> 500 mg + 125 mg.
ampicillin	<b>Powder for injection:</b> 500 mg; 1 g (as sodium salt) in vial.
benzathine benzylpenicillin	<b>Powder for injection:</b> 900 mg benzylpenicillin (=1.2 million IU) in 5-ml vial <b>[c]</b> ; 1.44 g benzylpenicillin (=2.4 million IU) in 5-ml vial.
benzylpenicillin	<b>Powder for injection:</b> 600 mg (= 1 million IU); 3 g (= 5 million IU) (sodium or potassium salt) in vial.
cefalexin <b>[c]</b>	<b>Powder for reconstitution with water:</b> 125 mg/5 ml; 250 mg/5 ml. <b>Solid oral dosage form:</b> 250 mg.
<input type="checkbox"/> cefazolin* <b>[a]</b>	<b>Powder for injection:</b> 1 g (as sodium salt) in vial. * For surgical prophylaxis. <b>[a]</b> >1 month.
cefixime*	<b>Capsule:</b> 400 mg. * Only listed for single-dose treatment of uncomplicated anogenital gonorrhoea.
ceftriaxone* <b>[a]</b>	<b>Powder for injection:</b> 250 mg; 1 g (as sodium salt) in vial. * Do not administer with calcium and avoid in infants with hyperbilirubinemia. <b>[a]</b> >41 weeks corrected gestational age.
<input type="checkbox"/> cloxacillin	<b>Capsule:</b> 500 mg; 1 g (as sodium salt). <b>Powder for injection:</b> 500 mg (as sodium salt) in vial. <b>Powder for oral liquid:</b> 125 mg (as sodium salt)/5 ml.

phenoxymethylpenicillin	<p><b>Powder for oral liquid:</b> 250 mg (as potassium salt)/5 ml.</p> <p><b>Tablet:</b> 250 mg (as potassium salt).</p>
procaine benzylpenicillin*	<p><b>Powder for injection:</b> 1 g (=1 million IU); 3 g (=3 million IU) in vial.</p> <p>* 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.</p>
<b>Complementary List</b>	
cefotaxime* <b>[c]</b>	<p><b>Powder for injection:</b> 250 mg per vial.</p> <p>* 3rd generation cephalosporin of choice for use in hospitalized neonates.</p>
ceftazidime	<b>Powder for injection:</b> 250 mg or 1 g (as pentahydrate) in vial.
imipenem* + cilastatin*	<p><b>Powder for injection:</b> 250 mg (as monohydrate) + 250 mg (as sodium salt); 500 mg (as monohydrate) + 500 mg (as sodium salt) in vial.</p> <p>* Only listed for the treatment of life-threatening hospital-based infection due to suspected or proven multidrug-resistant infection.</p> <p>Meropenem is indicated for the treatment of meningitis and is licensed for use in children over the age of 3 months.</p>
<b>6.2.2 Other antibacterials</b>	
azithromycin*	<p><b>Capsule:</b> 250 mg; 500 mg.</p> <p><b>Oral liquid:</b> 200 mg/5 ml.</p> <p>* Only listed for single-dose treatment of genital <i>Chlamydia trachomatis</i> and of trachoma.</p>
chloramphenicol	<p><b>Capsule:</b> 250 mg.</p> <p><b>Oily suspension for injection*:</b> 0.5 g (as sodium succinate)/ml in 2-ml ampoule.</p> <p>* Only for the presumptive treatment of epidemic meningitis in children older than 2 years.</p> <p><b>Oral liquid:</b> 150 mg (as palmitate)/5 ml.</p> <p><b>Powder for injection:</b> 1 g (sodium succinate) in vial.</p>
<input type="checkbox"/> ciprofloxacin	<p><b>Oral liquid:</b> 250 mg/5 ml <b>[c]</b>.</p> <p><b>Solution for IV infusion:</b> 2 mg/ml <b>[c]</b>.</p> <p><b>Tablet:</b> 250 mg (as hydrochloride).</p>
doxycycline <b>[a]</b>	<p><b>Oral liquid:</b> 25 mg/5 ml <b>[c]</b>; 50 mg/5 ml <b>[c]</b>.</p> <p><b>Solid oral dosage form:</b> 50 mg <b>[c]</b>; 100 mg (hydrochloride).</p> <p><b>[a]</b> Use in children &lt;8 years only for life-threatening infections when no alternative exists.</p>

<input type="checkbox"/> erythromycin	<p><b>Powder for injection:</b> 500 mg (as lactobionate) in vial.</p> <p><b>Powder for oral liquid:</b> 125 mg/5 ml (as stearate or ethyl succinate).</p> <p><b>Solid oral dosage form:</b> 250 mg (as stearate or ethyl succinate).</p>
<input type="checkbox"/> gentamicin	<p><b>Injection:</b> 10 mg; 40 mg (as sulfate)/ml in 2-ml vial.</p>
<input type="checkbox"/> metronidazole	<p><b>Injection:</b> 500 mg in 100-ml vial.</p> <p><b>Oral liquid:</b> 200 mg (as benzoate)/5 ml.</p> <p><b>Suppository:</b> 500 mg; 1 g.</p> <p><b>Tablet:</b> 200 mg to 500 mg.</p>
nitrofurantoin	<p><b>Oral liquid:</b> 25 mg/5 ml <b>[c]</b>.</p> <p><b>Tablet:</b> 100 mg.</p>
spectinomycin	<p><b>Powder for injection:</b> 2 g (as hydrochloride) in vial.</p>
sulfamethoxazole + trimethoprim	<p><b>Injection:</b> 80 mg + 16 mg/ml in 5-ml ampoule; 80 mg + 16 mg/ml in 10-ml ampoule.</p> <p><b>Oral liquid:</b> 200 mg + 40 mg/5 ml.</p> <p><b>Tablet:</b> 100 mg + 20 mg; 400 mg + 80 mg.</p>
trimethoprim <b>a</b>	<p><b>Oral liquid:</b> 50 mg/5 ml <b>[c]</b>.</p> <p><b>Tablet:</b> 100 mg; 200 mg.</p> <p><b>a</b> &gt;6 months.</p>
<b>Complementary List</b>	
clindamycin	<p><b>Capsule:</b> 150 mg.</p> <p><b>Injection:</b> 150 mg (as phosphate)/ml.</p> <p><b>Oral liquid:</b> 75 mg/5 ml <b>[c]</b>.</p>
vancomycin	<p><b>Powder for injection:</b> 250 mg (as hydrochloride) in vial.</p>
<b>6.2.3 Antileprosy medicines</b>	
<p>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.</p>	
clofazimine	<p><b>Capsule:</b> 50 mg; 100 mg.</p>
dapsone	<p><b>Tablet:</b> 25 mg; 50 mg; 100 mg.</p>
rifampicin	<p><b>Solid oral dosage form:</b> 150 mg; 300 mg.</p>

<b>6.2.4 Antituberculosis medicines</b>	
ethambutol	<b>Oral liquid:</b> 25 mg/ml <b>[c]</b> . <b>Tablet:</b> 100 mg to 400 mg (hydrochloride).
ethambutol + isoniazid	<b>Tablet:</b> 400 mg + 150 mg.
ethambutol + isoniazid + pyrazinamide + rifampicin	<b>Tablet:</b> 275 mg + 75 mg + 400 mg + 150 mg.
ethambutol + isoniazid + rifampicin	<b>Tablet:</b> 275 mg + 75 mg + 150 mg.
isoniazid	<b>Oral liquid:</b> 50 mg/5 ml <b>[c]</b> . <b>Tablet:</b> 100 mg to 300 mg. <b>Tablet (scored):</b> 50 mg.
isoniazid + pyrazinamide + rifampicin	<b>Tablet:</b> 75 mg + 400 mg + 150 mg. 150 mg + 500 mg + 150 mg ( <b>For intermittent use three times weekly</b> ).
isoniazid + rifampicin	<b>Tablet:</b> 75 mg + 150 mg; 150 mg + 300 mg. 60 mg + 60 mg ( <b>For intermittent use three times weekly</b> ). 150 mg + 150 mg ( <b>For intermittent use three times weekly</b> ).
pyrazinamide	<b>Oral liquid:</b> 30 mg/ml <b>[c]</b> . <b>Tablet:</b> 400 mg. <b>Tablet (dispersible):</b> 150 mg. <b>Tablet (scored):</b> 150 mg.
rifabutin	<b>Capsule:</b> 150 mg.* * For use only in patients with HIV receiving protease inhibitors.
rifampicin	<b>Oral liquid:</b> 20 mg/ml <b>[c]</b> . <b>Solid oral dosage form:</b> 150 mg; 300 mg.
streptomycin	<b>Powder for injection:</b> 1 g (as sulfate) in vial.
<b>Complementary List</b>	
<i>Reserve second-line drugs for the treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in specialized centres adhering to WHO standards for TB control.</i>	
<i>amikacin</i>	<i>Powder for injection: 100 mg; 500 mg; 1 g in vial.</i>
<i>capreomycin</i>	<i>Powder for injection: 1 g in vial.</i>
<i>cycloserine</i>	<i>Solid oral dosage form: 250 mg.</i>
<i>ethionamide</i>	<i>Tablet: 125 mg; 250 mg.</i>
<i>kanamycin</i>	<i>Powder for injection: 1 g in vial.</i>

<i>ofloxacin*</i>	<b>Tablet:</b> 200 mg; 400 mg.  <i>* Levofloxacin may be an alternative based on availability and programme considerations.</i>
<i>p-aminosalicylic acid</i>	<b>Granules:</b> 4 g in sachet. <b>Tablet:</b> 500 mg.
<b>6.3 Antifungal medicines</b>	
clotrimazole	<b>Vaginal cream:</b> 1%; 10%. <b>Vaginal tablet:</b> 100 mg; 500 mg.
<input type="checkbox"/> fluconazole	<b>Capsule:</b> 50 mg. <b>Injection:</b> 2 mg/ml in vial. <b>Oral liquid:</b> 50 mg/5 ml.
griseofulvin	<b>Oral liquid:</b> 125 mg/5 ml <b>[c]</b> . <b>Solid oral dosage form:</b> 125 mg; 250 mg.
nystatin	<b>Lozenge:</b> 100 000 IU. <b>Oral liquid:</b> 50 mg/5 ml <b>[c]</b> ; 100 000 IU/ml <b>[c]</b> . <b>Pessary:</b> 100 000 IU. <b>Tablet:</b> 100 000 IU; 500 000 IU.
<b>Complementary List</b>	
<i>amphotericin B</i>	<b>Powder for injection:</b> 50 mg in vial. <i>As deoxycholate or liposomal.</i>
<i>flucytosine</i>	<b>Capsule:</b> 250 mg. <b>Infusion:</b> 2.5 g in 250 ml.
<i>potassium iodide</i>	<b>Saturated solution.</b>
<b>6.4 Antiviral medicines</b>	
<b>6.4.1 Antiherpes medicines</b>	
<input type="checkbox"/> aciclovir	<b>Oral liquid:</b> 200 mg/5 ml <b>[c]</b> . <b>Powder for injection:</b> 250 mg (as sodium salt) in vial. <b>Tablet:</b> 200 mg.

<b>6.4.2 Antiretrovirals</b>	
<p>Based on current evidence and experience of use, medicines in the following three classes of antiretrovirals are included as essential medicines for treatment and prevention of HIV (prevention of mother-to-child transmission and post-exposure prophylaxis). The Committee emphasizes the importance of using these products in accordance with global and national guidelines. The Committee recommends and endorses the use of fixed-dose combinations and the development of appropriate new fixed-dose combinations, including modified dosage forms, non-refrigerated products and paediatric dosage forms of assured pharmaceutical quality.</p> <p>Scored tablets can be used in children and therefore can be considered for inclusion in the listing of tablets, provided adequate quality products are available.</p>	
<b>6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors</b>	
abacavir (ABC)	<p><b>Oral liquid:</b> 100 mg (as sulfate)/5 ml.</p> <p><b>Tablet:</b> 300 mg (as sulfate).</p>
didanosine (ddI)	<p><b>Buffered powder for oral liquid:</b> 100 mg; 167 mg; 250 mg packets.</p> <p><b>Capsule (unbuffered enteric-coated):</b> 125 mg; 200 mg; 250 mg; 400 mg.</p> <p><b>Tablet (buffered chewable, dispersible):</b> 25 mg; 50 mg; 100 mg; 150 mg; 200 mg.</p>
emtricitabine (FTC)* 	<p><b>Capsule:</b> 200 mg.</p> <p><b>Oral liquid:</b> 10 mg/ml.</p> <p>* FTC is an acceptable alternative to 3TC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.</p> <p> &gt;3 months.</p>
lamivudine (3TC)	<p><b>Oral liquid:</b> 50 mg/5 ml.</p> <p><b>Tablet:</b> 150 mg.</p>
stavudine (d4T)	<p><b>Capsule:</b> 15 mg; 20 mg; 30 mg.</p> <p><b>Powder for oral liquid:</b> 5 mg/5 ml.</p>
tenofovir disoproxil fumarate (TDF)	<p><b>Tablet:</b> 300 mg (tenofovir disoproxil fumarate – equivalent to 245 mg tenofovir disoproxil).</p>
zidovudine (ZDV or AZT)	<p><b>Capsule:</b> 100 mg; 250 mg.</p> <p><b>Oral liquid:</b> 50 mg/5 ml.</p> <p><b>Solution for IV infusion injection:</b> 10 mg/ml in 20-ml vial.</p> <p><b>Tablet:</b> 300 mg.</p>

<b>6.4.2.2 Non-nucleoside reverse transcriptase inhibitors</b>	
efavirenz (EFV or EFZ) <b>[a]</b>	<p><b>Capsule:</b> 50 mg; 100 mg; 200 mg.</p> <p><b>Oral liquid:</b> 150 mg/5 ml.</p> <p><b>Tablet:</b> 600 mg.</p> <p><b>[a]</b> &gt;3 years or &gt;10 kg weight.</p>
nevirapine (NVP)	<p><b>Oral liquid:</b> 50 mg/5 ml.</p> <p><b>Tablet:</b> 200 mg.</p>
<b>6.4.2.3 Protease inhibitors</b>	
<p>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).</p>	
atazanavir <b>[a]</b>	<p><b>Solid oral dosage form:</b> 100 mg; 150 mg; 300 mg.</p> <p><b>[a]</b> &gt;25 kg.</p>
indinavir (IDV)	<b>Solid oral dosage form:</b> 400 mg (as sulfate).
lopinavir + ritonavir (LPV/r)	<p><b>Capsule:</b> 133.3 mg + 33.3 mg.</p> <p><b>Oral liquid:</b> 400 mg + 100 mg/5 ml.</p> <p><b>Tablet (heat stable):</b> 100 mg + 25 mg; 200 mg + 50 mg.</p>
ritonavir	<p><b>Oral liquid:</b> 400 mg/5 ml.</p> <p><b>Solid oral dosage form:</b> 100 mg.</p> <p><b>Tablet (heat stable):</b> 25 mg; 100 mg.</p>
saquinavir (SQV) <b>[a]</b>	<p><b>Solid oral dosage form:</b> 200 mg; 500 mg.</p> <p><b>[a]</b> &gt;25 kg.</p>
<b>FIXED-DOSE COMBINATIONS</b>	
efavirenz + emtricitabine* + tenofovir	<p><b>Tablet:</b> 600 mg + 200 mg + 300 mg.</p> <p>* FTC is an acceptable alternative to 3TC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.</p>
emtricitabine* + tenofovir	<p><b>Tablet:</b> 200 mg + 300 mg.</p> <p>* FTC is an acceptable alternative to 3TC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.</p>
lamivudine + nevirapine + stavudine	<p><b>Tablet:</b> 150 mg + 200 mg + 30 mg.</p> <p><b>Tablet (dispersible):</b> 30 mg + 50 mg + 6 mg <b>[c]</b>; 60 mg + 100 mg + 12 mg <b>[c]</b>.</p>
lamivudine + nevirapine + zidovudine	<b>Tablet:</b> 30 mg + 50 mg + 60 mg <b>[c]</b> ; 150 mg + 200 mg + 300 mg.

lamivudine + zidovudine	Tablet: 30 mg + 60 mg [c]; 150 mg + 300 mg.
<b>6.4.3 Other antivirals</b>	
ribavirin*	Injection for intravenous administration: 800 mg and 1 g in 10-ml phosphate buffer solution. Solid oral dosage form: 200 mg; 400 mg; 600 mg. * For the treatment of viral haemorrhagic fevers only.
<b>6.5 Antiprotozoal medicines</b>	
<b>6.5.1 Antiamoebic and anti giardiasis medicines</b>	
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.
<b>6.5.2 Antileishmaniasis medicines</b>	
amphotericin B	Powder for injection: 50 mg in vial. As deoxycholate or liposomal.
paromomycin	Solution for intramuscular injection: 750 mg of paromomycin base present as the sulfate.
sodium stibogluconate or meglumine antimoniate	Injection: 100 mg/ml, 1 vial = 30 ml or 30%, equivalent to approximately 8.1% antimony in 5-ml ampoule.
<b>6.5.3 Antimalarial medicines</b>	
<b>6.5.3.1 For curative treatment</b>	
Medicines for the treatment of <i>P. falciparum</i> malaria cases should be used in combination. The list currently recommends combinations according to treatment guidelines. The Committee recognizes that not all of these FDCs exist and encourages their development and rigorous testing. The Committee also encourages development and testing of rectal dosage formulations.	
amodiaquine*	Tablet: 153 mg or 200 mg (as hydrochloride). * To be used (a) in combination with artesunate 50 mg OR (b) may be used alone for the treatment of <i>P. vivax</i> , <i>P. ovale</i> and <i>P. malariae</i> infections.
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*	<p><b>Injection:</b> ampoules, containing 60 mg anhydrous artesunic acid with a separate ampoule of 5% sodium bicarbonate solution. For use in the management of severe malaria.</p> <p><b>Rectal dosage form:</b> 50 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].</p> <p><b>Tablet:</b> 50 mg.</p> <p>* To be used in combination with either amodiaquine, mefloquine or sulfadoxine + pyrimethamine.</p>
chloroquine*	<p><b>Oral liquid:</b> 50 mg (as phosphate or sulfate)/5 ml.</p> <p><b>Tablet:</b> 100 mg; 150 mg (as phosphate or sulfate).</p> <p>* For use only for the treatment of <i>P.vivax</i> infection.</p>
doxycycline*	<p><b>Capsule:</b> 100 mg (as hydrochloride).</p> <p><b>Tablet (dispersible):</b> 100 mg (as monohydrate).</p> <p>* For use only in combination with quinine.</p>
mefloquine*	<p><b>Tablet:</b> 250 mg (as hydrochloride).</p> <p>* To be used in combination with artesunate 50 mg.</p>
primaquine*	<p><b>Tablet:</b> 7.5 mg; 15 mg (as diphosphate).</p> <p>* Only for use to achieve radical cure of <i>P.vivax</i> and <i>P.ovale</i> infections, given for 14 days.</p>
quinine*	<p><b>Injection:</b> 300 mg quinine hydrochloride/ml in 2-ml ampoule.</p> <p><b>Tablet:</b> 300 mg (quinine sulfate) or 300 mg (quinine bisulfate).</p> <p>* For use only in the management of severe malaria, and should be used in combination with doxycycline.</p>
sulfadoxine + pyrimethamine*	<p><b>Tablet:</b> 500 mg + 25 mg.</p> <p>* Only in combination with artesunate 50 mg.</p>
<b>6.5.3.2 For prophylaxis</b>	
chloroquine*	<p><b>Oral liquid:</b> 50 mg (as phosphate or sulfate)/5 ml.</p> <p><b>Tablet:</b> 150 mg (as phosphate or sulfate).</p> <p>* For use only in central American regions, for use for <i>P.vivax</i>.</p>
doxycycline [a]	<p><b>Solid oral dosage form:</b> 100 mg (as hydrochloride).</p> <p>[a] &gt;8 years.</p>
mefloquine [a]	<p><b>Tablet:</b> 250 mg (as hydrochloride).</p> <p>[a] &gt;5 kg or &gt;3 months.</p>
proguanil*	<p><b>Tablet:</b> 100 mg (as hydrochloride).</p> <p>* For use only in combination with chloroquine.</p>

<b>6.5.4 Antipneumocystosis and antitoxoplasmosis medicines</b>	
pyrimethamine	<b>Tablet:</b> 25 mg.
sulfadiazine	<b>Tablet:</b> 500 mg.
sulfamethoxazole + trimethoprim	<b>Injection:</b> 80 mg + 16 mg/ml in 5-ml ampoule; 80 mg + 16 mg/ml in 10-ml ampoule. <b>Oral liquid:</b> 200 mg + 40 mg/5 ml [c]. <b>Tablet:</b> 100 mg + 20 mg; 400 mg + 80 mg [c].
<i>Complementary List</i>	
pentamidine	<b>Tablet:</b> 200 mg; 300 mg.
<b>6.5.5 Antitrypanosomal medicines</b>	
<b>6.5.5.1 African trypanosomiasis</b>	
<b>Medicines for the treatment of 1st stage African trypanosomiasis</b>	
pentamidine*	<b>Powder for injection:</b> 200 mg (pentamidine isetionate) in vial. * To be used for the treatment of <i>Trypanosoma brucei gambiense</i> infection.
suramin sodium*	<b>Powder for injection:</b> 1 g in vial. * To be used for the treatment of the initial phase of <i>Trypanosoma brucei rhodesiense</i> infection.
<b>Medicines for the treatment of 2nd stage African trypanosomiasis</b>	
eflornithine*	<b>Injection:</b> 200 mg (hydrochloride)/ml in 100-ml bottle. * To be used for the treatment of <i>Trypanosoma brucei gambiense</i> infection.
melarsoprol	<b>Injection:</b> 3.6% solution, 5-ml ampoule (180 mg of active compound).
nifurtimox*	<b>Tablet:</b> 120 mg. * Only to be used in combination with eflornithine, for the treatment of <i>Trypanosoma brucei gambiense</i> infection.
<b>6.5.5.2 American trypanosomiasis</b>	
benznidazole	<b>Tablet:</b> 100 mg.
nifurtimox	<b>Tablet:</b> 30 mg; 120 mg; 250 mg.
<b>7. ANTIMIGRAINE MEDICINES</b>	
<b>7.1 For treatment of acute attack</b>	
acetylsalicylic acid	<b>Tablet:</b> 300 mg to 500 mg.
ibuprofen [c]	<b>Tablet:</b> 200 mg; 400 mg.
paracetamol	<b>Oral liquid:</b> 125 mg/5 ml [c]. <b>Tablet:</b> 300 mg to 500 mg.

<b>7.2 For prophylaxis</b>	
<input type="checkbox"/> propranolol	Tablet: 20 mg; 40 mg (hydrochloride).
<b>8. ANTINEOPLASTIC, IMMUNOSUPPRESSIVES AND MEDICINES USED IN PALLIATIVE CARE</b>	
<b>8.1 Immunosuppressive medicines</b>	
<i>Complementary List</i>	
azathioprine	<i>Powder for injection: 100 mg (as sodium salt) in vial. Tablet: 50 mg.</i>
ciclosporin	<i>Capsule: 25 mg. Concentrate for injection: 50 mg/ml in 1-ml ampoule for organ transplantation.</i>
<b>8.2 Cytotoxic medicines</b>	
<i>Complementary List</i>	
allopurinol <b>[c]</b>	<i>Tablet: 100 mg to 300 mg.</i>
asparaginase	<i>Powder for injection: 10 000 IU in vial.</i>
bleomycin	<i>Powder for injection: 15 mg (as sulfate) in vial.</i>
calcium folinate	<i>Injection: 3 mg/ml in 10-ml ampoule. Tablet: 15 mg.</i>
<input type="checkbox"/> carboplatin	<i>Injection: 50 mg/5 ml; 150 mg/15 ml; 450 mg/45 ml; 600 mg/60 ml.</i>
chlorambucil	<i>Tablet: 2 mg.</i>
cyclophosphamide	<i>Powder for injection: 500 mg in vial. Tablet: 25 mg.</i>
cytarabine	<i>Powder for injection: 100 mg in vial.</i>
dacarbazine	<i>Powder for injection: 100 mg in vial.</i>
dactinomycin	<i>Powder for injection: 500 micrograms in vial.</i>
daunorubicin	<i>Powder for injection: 50 mg (as hydrochloride) in vial.</i>
doxorubicin	<i>Powder for injection: 10 mg; 50 mg (hydrochloride) in vial.</i>
etoposide	<i>Capsule: 100 mg. Injection: 20 mg/ml in 5-ml ampoule.</i>
fluorouracil	<i>Injection: 50 mg/ml in 5-ml ampoule.</i>
hydroxycarbamide	<i>Solid oral dosage form: 200 mg; 250 mg; 300 mg; 400 mg; 500 mg; 1 g.</i>
ifosfamide	<i>Powder for injection: 1 g vial; 2 g vial.</i>
mercaptopurine	<i>Tablet: 50 mg.</i>

<i>mesna</i>	<i>Injection:</i> 100 mg/ml in 4-ml and 10-ml ampoules. <i>Tablet:</i> 400 mg; 600 mg.
<i>methotrexate</i>	<i>Powder for injection:</i> 50 mg (as sodium salt) in vial. <i>Tablet:</i> 2.5 mg (as sodium salt).
<i>procarbazine</i>	<i>Capsule:</i> 50 mg (as hydrochloride).
<i>vinblastine</i>	<i>Powder for injection:</i> 10 mg (sulfate) in vial.
<i>vincristine</i>	<i>Powder for injection:</i> 1 mg; 5 mg (sulfate) in vial.

### 8.3 Hormones and antihormones

#### Complementary List

<i>dexamethasone</i>	<i>Injection:</i> 4 mg dexamethasone phosphate (as disodium salt) in 1-ml ampoule. <i>Oral liquid:</i> 2 mg/5 ml <b>[c]</b> .
<i>hydrocortisone</i>	<i>Powder for injection:</i> 100 mg (as sodium succinate) in vial.
<input type="checkbox"/> <i>prednisolone</i>	<i>Oral liquid:</i> 5 mg/ml <b>[c]</b> . <i>Tablet:</i> 5 mg; 25 mg.
<i>tamoxifen</i>	<i>Tablet:</i> 10 mg; 20 mg (as citrate).

### 8.4 Medicines used in palliative care

The WHO Expert Committee recognizes the importance of listing specific medicines in the Palliative Care Section. Some medicines currently used in palliative care are included in the relevant sections of the Model List, according to their therapeutic use, e.g. analgesics. The Guidelines for Palliative Care that were referenced in the previous list are in need of update. The Committee expects applications for medicines needed for palliative care to be submitted for the next meeting. **For palliative care medicines in children, see the second EMLc.**

## 9. ANTIPARKINSONISM MEDICINES

biperiden	<i>Injection:</i> 5 mg (lactate) in 1-ml ampoule. <i>Tablet:</i> 2 mg (hydrochloride).
levodopa + <input type="checkbox"/> carbidopa	<i>Tablet:</i> 100 mg + 10 mg; 250 mg + 25 mg.

## 10. MEDICINES AFFECTING THE BLOOD

### 10.1 Antianaemia medicines

ferrous salt	<i>Oral liquid:</i> equivalent to 25 mg iron (as sulfate)/ml. <i>Tablet:</i> equivalent to 60 mg iron.
ferrous salt + folic acid	<i>Tablet</i> equivalent to 60 mg iron + 400 micrograms folic acid (Nutritional supplement for use during pregnancy).
folic acid	<i>Tablet:</i> 1 mg; 5 mg.
hydroxocobalamin	<i>Injection:</i> 1 mg in 1-ml ampoule.

<b>10.2 Medicines affecting coagulation</b>	
heparin sodium	<b>Injection:</b> 1000 IU/ml; 5000 IU/ml; 20 000 IU/ml in 1-ml ampoule.
phytomenadione	<b>Injection:</b> 1 mg/ml <b>[c]</b> ; 10 mg/ml in 5-ml ampoule. <b>Tablet:</b> 10 mg.
protamine sulfate	<b>Injection:</b> 10 mg/ml in 5-ml ampoule.
<input type="checkbox"/> warfarin	<b>Tablet:</b> 1 mg; 2 mg; 5 mg (sodium salt).
<i>Complementary List [c]</i>	
<i>heparin sodium</i>	<b>Injection:</b> 1000 IU/ml; 5000 IU/ml in 1-ml ampoule.
<i>protamine sulfate</i>	<b>Injection:</b> 10 mg/ml in 5-ml ampoule.
<input type="checkbox"/> <i>warfarin</i>	<b>Tablet:</b> 0.5 mg; 1 mg; 2 mg; 5 mg (sodium salt).
<b>11. BLOOD PRODUCTS AND PLASMA SUBSTITUTES</b>	
<b>11.1 Plasma substitutes</b>	
<input type="checkbox"/> dextran 70*	<b>Injectable solution:</b> 6%. * Polygeline, injectable solution, 3.5% is considered as equivalent.
<b>11.2 Plasma fractions for specific use</b>	
All plasma fractions should comply with the WHO Requirements for the Collection, Processing and Quality Control of Blood, Blood Components and Plasma Derivatives (Revised 1992). (WHO Technical Report Series, No. 840, 1994, Annex 2).	
<i>Complementary List</i>	
<input type="checkbox"/> <i>factor VIII concentrate</i>	<b>Dried.</b>
<input type="checkbox"/> <i>factor IX complex (coagulation factors, II, VII, IX, X) concentrate</i>	<b>Dried.</b>
<i>human normal immunoglobulin</i>	<b>Intramuscular administration:</b> 16% protein solution.* <b>Intravenous administration:</b> 5%; 10% protein solution.** <b>Subcutaneous administration:</b> 15%; 16% protein solution.* * Indicated for primary immune deficiency. ** Indicated for primary immune deficiency and Kawasaki disease.
<b>12. CARDIOVASCULAR MEDICINES</b>	
<b>12.1 Antianginal medicines</b>	
<input type="checkbox"/> atenolol	<b>Tablet:</b> 50 mg; 100 mg.
glyceryl trinitrate	<b>Tablet (sublingual):</b> 500 micrograms.
<input type="checkbox"/> isosorbide dinitrate	<b>Tablet (sublingual):</b> 5 mg.
verapamil	<b>Tablet:</b> 40 mg; 80 mg (hydrochloride).
<b>12.2 Antiarrhythmic medicines</b>	
<input type="checkbox"/> atenolol	<b>Tablet:</b> 50 mg; 100 mg.

digoxin	<b>Injection:</b> 250 micrograms/ml in 2-ml ampoule. <b>Oral liquid:</b> 50 micrograms/ml. <b>Tablet:</b> 62.5 micrograms; 250 micrograms.
epinephrine (adrenaline)	<b>Injection:</b> 100 micrograms/ml (as acid tartrate or hydrochloride) in 10-ml ampoule.
lidocaine	<b>Injection:</b> 20 mg (hydrochloride)/ml in 5-ml ampoule.
verapamil	<b>Injection:</b> 2.5 mg (hydrochloride)/ml in 2-ml ampoule. <b>Tablet:</b> 40 mg; 80 mg (hydrochloride).
<i>Complementary List</i>	
<i>amiodarone</i>	<b>Injection:</b> 50 mg/ml in 3-ml ampoule (hydrochloride). <b>Tablet (HCl):</b> 100 mg; 200 mg; 400 mg (hydrochloride).
<b>12.3 Antihypertensive medicines</b>	
<input type="checkbox"/> amlodipine	<b>Tablet:</b> 5 mg.
<input type="checkbox"/> atenolol	<b>Tablet:</b> 50 mg; 100 mg.
<input type="checkbox"/> enalapril	<b>Tablet:</b> 2.5 mg; 5 mg.
hydralazine*	<b>Powder for injection:</b> 20 mg (hydrochloride) in ampoule. <b>Tablet:</b> 25 mg; 50 mg (hydrochloride).  * Hydralazine is listed for use in the acute management of severe pregnancy-induced hypertension only. Its use in the treatment of essential hypertension is not recommended in view of the availability of more evidence of efficacy and safety of other medicines.
<input type="checkbox"/> hydrochlorothiazide	<b>Oral liquid:</b> 50 mg/5 ml. <b>Solid oral dosage form:</b> 12.5 mg; 25 mg.
methyldopa*	<b>Tablet:</b> 250 mg.  * Methyldopa is listed for use in the management of pregnancy-induced hypertension only. Its use in the treatment of essential hypertension is not recommended in view of the availability of more evidence of efficacy and safety of other medicines.
<i>Complementary List</i>	
<i>sodium nitroprusside</i>	<b>Powder for infusion:</b> 50 mg in ampoule.
<b>12.4 Medicines used in heart failure</b>	
digoxin	<b>Injection:</b> 250 micrograms/ml in 2-ml ampoule. <b>Oral liquid:</b> 50 micrograms/ml. <b>Tablet:</b> 62.5 micrograms; 250 micrograms.
<input type="checkbox"/> enalapril	<b>Tablet:</b> 2.5 mg; 5 mg.

<input type="checkbox"/> furosemide	<b>Injection:</b> 10 mg/ml in 2-ml ampoule. <b>Oral liquid:</b> 20 mg/5 ml [c]. <b>Tablet:</b> 40 mg.
<input type="checkbox"/> hydrochlorothiazide	<b>Oral liquid:</b> 50 mg/5 ml. <b>Solid oral dosage form:</b> 25 mg.
<i>Complementary List</i>	
<i>dopamine</i>	<b>Injection:</b> 40 mg/ml (hydrochloride) in 5-ml vial.
<b>12.5 Antithrombotic medicines</b>	
acetylsalicylic acid	<b>Tablet:</b> 100 mg.
<i>Complementary List</i>	
<i>streptokinase</i>	<b>Powder for injection:</b> 1.5 million IU in vial.
<b>12.6 Lipid-lowering agents</b>	
<input type="checkbox"/> simvastatin*	<b>Tablet:</b> 5 mg; 10 mg; 20 mg; 40 mg. * For use in high-risk patients.
<b>13. DERMATOLOGICAL MEDICINES (topical)</b>	
<b>13.1 Antifungal medicines</b>	
benzoic acid + salicylic acid	<b>Cream or ointment:</b> 6% + 3%.
<input type="checkbox"/> miconazole	<b>Cream or ointment:</b> 2% (nitrate).
sodium thiosulfate	<b>Solution:</b> 15%.
<i>Complementary List</i>	
<i>selenium sulfide</i>	<b>Detergent-based suspension:</b> 2%.
<b>13.2 Anti-infective medicines</b>	
<input type="checkbox"/> methylosanilinium chloride (gentian violet)	<b>Aqueous solution:</b> 0.5%. <b>Tincture:</b> 0.5%.
neomycin sulfate + <input type="checkbox"/> bacitracin	<b>Ointment:</b> 5 mg neomycin sulfate + 250 IU bacitracin zinc/g.
potassium permanganate	<b>Aqueous solution:</b> 1:10 000.
silver sulfadiazine [a]	<b>Cream:</b> 1%. [a] >2 months.
<b>13.3 Anti-inflammatory and antipruritic medicines</b>	
<input type="checkbox"/> betamethasone [a]	<b>Cream or ointment:</b> 0.1% (as valerate). [a] Hydrocortisone preferred in neonates.
<input type="checkbox"/> calamine lotion	<b>Lotion.</b>
<input type="checkbox"/> hydrocortisone	<b>Cream or ointment:</b> 1% (acetate).

<b>13.4 Astringent medicines</b>	
aluminium diacetate	<b>Solution:</b> 5%.
<b>13.5 Medicines affecting skin differentiation and proliferation</b>	
benzoyl peroxide	<b>Cream or lotion:</b> 5%.
coal tar	<b>Solution:</b> 5%.
dithranol	<b>Ointment:</b> 0.1% to 2%.
fluorouracil	<b>Ointment:</b> 5%.
<input type="checkbox"/> podophyllum resin	<b>Solution:</b> 10% to 25%.
salicylic acid	<b>Solution:</b> 5%.
urea	<b>Cream or ointment:</b> 10%.
<b>13.6 Scabicides and pediculicides</b>	
<input type="checkbox"/> benzyl benzoate <b>[a]</b>	<b>Lotion:</b> 25%. <b>[a]</b> >2 years.
permethrin	<b>Cream:</b> 5%. <b>Lotion:</b> 1%.
<b>14. DIAGNOSTIC AGENTS</b>	
<b>14.1 Ophthalmic medicines</b>	
fluorescein	<b>Eye drops:</b> 1% (sodium salt).
<input type="checkbox"/> tropicamide	<b>Eye drops:</b> 0.5%.
<b>14.2 Radiocontrast media</b>	
<input type="checkbox"/> amidotrizoate	<b>Injection:</b> 140 mg to 420 mg iodine (as sodium or meglumine salt)/ml in 20-ml ampoule.
barium sulfate	<b>Aqueous suspension.</b>
<input type="checkbox"/> iohexol	<b>Injection:</b> 140 mg to 350 mg iodine/ml in 5-ml; 10-ml; 20-ml ampoules.
<i>Complementary List</i>	
<i>barium sulfate</i> <b>[c]</b>	<i>Aqueous suspension.</i>
<input type="checkbox"/> meglumine iotroxate	<b>Solution:</b> 5g to 8 g iodine in 100 ml to 250 ml.
<b>15. DISINFECTANTS AND ANTISEPTICS</b>	
<b>15.1 Antiseptics</b>	
<input type="checkbox"/> chlorhexidine	<b>Solution:</b> 5% (digluconate); 20% (digluconate) (needs to be diluted prior to use for cord care) <b>[c]</b> .
<input type="checkbox"/> ethanol	<b>Solution:</b> 70% (denatured).
<input type="checkbox"/> polyvidone iodine	<b>Solution:</b> 10%.



<b>15.2 Disinfectants</b>	
<input type="checkbox"/> chlorine base compound	<b>Powder:</b> (0.1% available chlorine) for solution.
<input type="checkbox"/> chloroxylenol	<b>Solution:</b> 4.8%.
glutaral	<b>Solution:</b> 2%.
<b>16. DIURETICS</b>	
amiloride	<b>Tablet:</b> 5 mg (hydrochloride).
<input type="checkbox"/> furosemide	<b>Injection:</b> 10 mg/ml in 2-ml ampoule. <b>Oral liquid:</b> 20 mg/5 ml <b>[c]</b> . <b>Tablet:</b> 10 mg <b>[c]</b> ; 20 mg <b>[c]</b> ; 40 mg.
<input type="checkbox"/> hydrochlorothiazide	<b>Solid oral dosage form:</b> 25 mg.
mannitol	<b>Injectable solution:</b> 10%; 20%.
spironolactone	<b>Tablet:</b> 25 mg.
<i>Complementary List [c]</i>	
<input type="checkbox"/> hydrochlorothiazide	<i>Tablet (scored):</i> 25 mg.
mannitol	<i>Injectable solution:</i> 10%; 20%.
spironolactone	<i>Oral liquid:</i> 5 mg/5 ml; 10 mg/5 ml; 25 mg/5 ml. <i>Tablet:</i> 25 mg.
<b>17. GASTROINTESTINAL MEDICINES</b>	
<i>Complementary List [c]</i>	
<input type="checkbox"/> pancreatic enzymes	<i>Age-appropriate formulations and doses including lipase, protease and amylase.</i>
<b>17.1 Antacids and other antiulcer medicines</b>	
aluminium hydroxide	<b>Oral liquid:</b> 320 mg/5 ml. <b>Tablet:</b> 500 mg.
magnesium hydroxide	<b>Oral liquid:</b> equivalent to 550 mg magnesium oxide/10 ml.
<input type="checkbox"/> omeprazole	<b>Powder for oral liquid:</b> 20 mg; 40 mg sachets. <b>Solid oral dosage form:</b> 10 mg; 20 mg; 40 mg.
<input type="checkbox"/> ranitidine	<b>Injection:</b> 25 mg/ml in 2-ml ampoule. <b>Oral liquid:</b> 75 mg/5 ml. <b>Tablet:</b> 150 mg (as hydrochloride).
<b>17.2 Antiemetic medicines</b>	
dexamethasone	<b>Injection:</b> 4 mg/ml in 1-ml ampoule. <b>Oral liquid:</b> 0.5 mg/5 ml; 2 mg/5 ml. <b>Solid oral dosage form:</b> 0.5 mg; 0.75 mg; 1.5 mg; 4 mg.

metoclopramide <input checked="" type="checkbox"/>	<p><b>Injection:</b> 5 mg (hydrochloride)/ml in 2-ml ampoule.</p> <p><b>Tablet:</b> 10 mg (hydrochloride).</p> <p><input checked="" type="checkbox"/> Not in neonates.</p>																				
ondansetron <input checked="" type="checkbox"/>	<p><b>Injection:</b> 2 mg base/ml in 2-ml ampoule (as hydrochloride).</p> <p><b>Oral liquid:</b> 4 mg base/5 ml.</p> <p><b>Solid oral dosage form:</b> Eq 4 mg base; Eq 8 mg base; Eq 24 mg base.</p> <p><input checked="" type="checkbox"/> &gt;1 month.</p>																				
<b>17.3 Anti-inflammatory medicines</b>																					
<input type="checkbox"/> sulfasalazine	<p><b>Retention enema.</b></p> <p><b>Suppository:</b> 500 mg.</p> <p><b>Tablet:</b> 500 mg.</p>																				
<i>Complementary List</i>																					
<input type="checkbox"/> hydrocortisone	<p><b>Retention enema.</b></p> <p><b>Suppository:</b> 25 mg (acetate). (the <input type="checkbox"/> only applies to hydrocortisone retention enema).</p>																				
<b>17.4 Laxatives</b>																					
<input type="checkbox"/> senna	<b>Tablet:</b> 7.5 mg (sennosides) (or traditional dosage forms).																				
<b>17.5 Medicines used in diarrhoea</b>																					
<b>17.5.1 Oral rehydration</b>																					
oral rehydration salts	<table> <tr><td>glucose:</td><td>75 mEq</td></tr> <tr><td>sodium:</td><td>75 mEq or mmol/L</td></tr> <tr><td>chloride:</td><td>65 mEq or mmol/L</td></tr> <tr><td>potassium:</td><td>20 mEq or mmol/L</td></tr> <tr><td>citrate:</td><td>10 mmol/L</td></tr> <tr><td>osmolarity:</td><td>245 mOsm/L</td></tr> <tr><td>glucose:</td><td>13.5 g/L</td></tr> <tr><td>sodium chloride:</td><td>2.6 g/L</td></tr> <tr><td>potassium chloride:</td><td>1.5 g/L</td></tr> <tr><td>trisodium citrate dihydrate+:</td><td>2.9 g/L</td></tr> </table> <p>+ trisodium citrate dihydrate may be replaced by sodium hydrogen carbonate (sodium bicarbonate) 2.5 g/L. However, as the stability of this latter formulation is very poor under tropical conditions, it is only recommended when manufactured for immediate use.</p> <p><b>Powder for dilution</b> in 200 ml; 500 ml; 1 L.</p>	glucose:	75 mEq	sodium:	75 mEq or mmol/L	chloride:	65 mEq or mmol/L	potassium:	20 mEq or mmol/L	citrate:	10 mmol/L	osmolarity:	245 mOsm/L	glucose:	13.5 g/L	sodium chloride:	2.6 g/L	potassium chloride:	1.5 g/L	trisodium citrate dihydrate+:	2.9 g/L
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																				

<b>17.5.2 Medicines for diarrhoea in children</b>	
zinc sulfate*	<p><b>Oral liquid:</b> in 10 mg per unit dosage forms.</p> <p><b>Tablet:</b> in 10 mg per unit dosage forms.</p> <p>* In acute diarrhoea zinc sulfate should be used as an adjunct to oral rehydration salts.</p>
<b>17.5.3 Antidiarrhoeal (symptomatic) medicines in adults</b>	
codeine*	<p><b>Tablet:</b> 30 mg (phosphate).</p> <p>* The role of this item has been questioned and its continued inclusion on the list will be reviewed at the next meeting of the Expert Committee.</p>
<b>18. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES</b>	
<b>18.1 Adrenal hormones and synthetic substitutes</b>	
fludrocortisone	<b>Tablet:</b> 100 micrograms.
hydrocortisone	<b>Tablet:</b> 5 mg; 10 mg; 20 mg.
<b>18.2 Androgens</b>	
<i>Complementary List</i>	
testosterone	<b>Injection:</b> 200 mg (enantate) in 1-ml ampoule.
<b>18.3 Contraceptives</b>	
<b>18.3.1 Oral hormonal contraceptives</b>	
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> levonorgestrel	<b>Tablet:</b> 30 micrograms + 150 micrograms.
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> norethisterone	<b>Tablet:</b> 35 micrograms + 1 mg.
levonorgestrel	<b>Tablet:</b> 30 micrograms; 750 micrograms (pack of two); 1.5 mg.
<b>18.3.2 Injectable hormonal contraceptives</b>	
estradiol cypionate + medroxyprogesterone acetate	<b>Injection:</b> 5 mg + 25 mg.
medroxyprogesterone acetate	<b>Depot injection:</b> 150 mg/ml in 1-ml vial.
norethisterone enantate	<b>Oily solution:</b> 200 mg/ml in 1-ml ampoule.
<b>18.3.3 Intrauterine devices</b>	
copper-containing device	
<b>18.3.4 Barrier methods</b>	
condoms	
diaphragms	
<b>18.3.5 Implantable contraceptives</b>	
levonorgestrel-releasing implant	Two-rod levonorgestrel-releasing implant, each rod containing 75 mg of levonorgestrel (150 mg total).

<b>18.4 Estrogens</b>	
<input type="checkbox"/> ethinylestradiol*	<b>Tablet:</b> 10 micrograms; 50 micrograms.  * The public health relevance and/or comparative efficacy and/or safety of this item has been questioned and its continued inclusion on the list will be reviewed at the next meeting of the Expert Committee.
<b>18.5 Insulins and other antidiabetic agents</b>	
glibenclamide	<b>Tablet:</b> 2.5 mg; 5 mg.
insulin injection (soluble)	<b>Injection:</b> 40 IU/ml in 10-ml vial; 100 IU/ml in 10-ml vial.
intermediate-acting insulin	<b>Injection:</b> 40 IU/ml in 10-ml vial; 100 IU/ml in 10-ml vial (as compound insulin zinc suspension or isophane insulin).
metformin	<b>Tablet:</b> 500 mg (hydrochloride).
<i>Complementary List [c]</i>	
<i>metformin</i>	<b>Tablet:</b> 500 mg (hydrochloride).
<b>18.6 Ovulation inducers</b>	
<i>Complementary List</i>	
<i>clomifene</i>	<b>Tablet:</b> 50 mg (citrate).
<b>18.7 Progestogens</b>	
norethisterone*	<b>Tablet:</b> 5 mg.  * The public health relevance and/or comparative efficacy and/or safety of this item has been questioned and its continued inclusion on the list will be reviewed at the next meeting of the Expert Committee.
<i>Complementary List</i>	
<i>medroxyprogesterone acetate*</i>	<b>Tablet:</b> 5 mg.  * The public health relevance and/or comparative efficacy and/or safety of this item has been questioned and its continued inclusion on the list will be reviewed at the next meeting of the Expert Committee.
<b>18.8 Thyroid hormones and antithyroid medicines</b>	
levothyroxine	<b>Tablet:</b> 25 micrograms [c]; 50 micrograms; 100 micrograms (sodium salt).
potassium iodide	<b>Tablet:</b> 60 mg.
<input type="checkbox"/> propylthiouracil	<b>Tablet:</b> 50 mg.
<i>Complementary List [c]</i>	
<i>Lugol's solution</i>	<b>Oral liquid:</b> about 130 mg total iodine/ml.
<i>potassium iodide</i>	<b>Tablet:</b> 60 mg.
<i>propylthiouracil</i>	<b>Tablet:</b> 50 mg.

## WHO Model List

<b>19. IMMUNOLOGICALS</b>	
<b>19.1 Diagnostic agents</b>	
All tuberculins should comply with the WHO Requirements for Tuberculins (Revised 1985). WHO Expert Committee on Biological Standardization. Thirty-sixth report. (WHO Technical Report Series, No. 745, 1987, Annex 1).	
tuberculin, purified protein derivative (PPD)	<b>Injection.</b>
<b>19.2 Sera and immunoglobulins</b>	
All plasma fractions should comply with the WHO Requirements for the Collection, Processing and Quality Control of Blood, Blood Components and Plasma Derivatives (Revised 1992). WHO Expert Committee on Biological Standardization. Forty-third report. (WHO Technical Report Series, No. 840, 1994, Annex 2).	
anti-D immunoglobulin (human)	<b>Injection:</b> 250 micrograms in single-dose vial.
antitetanus immunoglobulin (human)	<b>Injection:</b> 500 IU in vial.
antivenom immunoglobulin*	<b>Injection.</b> * Exact type to be defined locally.
diphtheria antitoxin	<b>Injection:</b> 10 000 IU; 20 000 IU in vial.
□ rabies immunoglobulin	<b>Injection:</b> 150 IU/ml in vial.
<b>19.3 Vaccines</b>	
Selection of vaccines from the Model List will need to be determined by each country after consideration of international recommendations, epidemiology and national priorities. The list below details the vaccines for which there is either a recommendation from the Strategic Advisory Group of Experts on Immunization (SAGE) ( <a href="http://www.who.int/immunization/sage_conclusions/en/index.html">http://www.who.int/immunization/sage_conclusions/en/index.html</a> ) and/or a WHO position paper ( <a href="http://www.who.int/immunization/documents/positionpapers/en/index.html">http://www.who.int/immunization/documents/positionpapers/en/index.html</a> ). This site will be updated as new position papers are published and contains the most recent information and recommendations. All vaccines should comply with the WHO Requirements for Biological Substances.	
BCG vaccine	
cholera vaccine	
diphtheria vaccine	
hepatitis A vaccine	
hepatitis B vaccine	
<i>Haemophilus influenzae</i> type b vaccine	
influenza vaccine	
Japanese encephalitis vaccine	
measles vaccine	
meningococcal meningitis vaccine	
mumps vaccine	

pertussis vaccine	
pneumococcal vaccine	
poliomyelitis vaccine	
rabies vaccine	
rotavirus vaccine	
rubella vaccine	
tetanus vaccine	
typhoid vaccine	
varicella vaccine	
yellow fever vaccine	
<b>20. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) AND CHOLINESTERASE INHIBITORS</b>	
<input type="checkbox"/> alcuronium	<b>Injection:</b> 5 mg (chloride)/ml in 2-ml ampoule.
neostigmine	<b>Injection:</b> 500 micrograms in 1-ml ampoule; 2.5 mg (metilsulfate) in 1-ml ampoule. <b>Tablet:</b> 15 mg (bromide).
suxamethonium	<b>Injection:</b> 50 mg (chloride)/ml in 2-ml ampoule. <b>Powder for injection</b> (chloride), in vial.
<input type="checkbox"/> vecuronium <b>[c]</b>	<b>Powder for injection:</b> 10 mg (bromide) in vial.
<i>Complementary List</i>	
pyridostigmine	<b>Injection:</b> 1 mg in 1-ml ampoule. <b>Tablet:</b> 60 mg (bromide).
<input type="checkbox"/> vecuronium	<b>Powder for injection:</b> 10 mg (bromide) in vial.
<b>21. OPHTHALMOLOGICAL PREPARATIONS</b>	
This section will be reviewed at the next meeting of the Expert Committee.	
<b>21.1 Anti-infective agents</b>	
aciclovir	<b>Ointment:</b> 3% W/W.
<input type="checkbox"/> gentamicin	<b>Solution (eye drops):</b> 0.3% (sulfate).
<input type="checkbox"/> tetracycline	<b>Eye ointment:</b> 1% (hydrochloride).
<b>21.2 Anti-inflammatory agents</b>	
<input type="checkbox"/> prednisolone	<b>Solution (eye drops):</b> 0.5% (sodium phosphate).
<b>21.3 Local anaesthetics</b>	
<input type="checkbox"/> tetracaine <b>[a]</b>	<b>Solution (eye drops):</b> 0.5% (hydrochloride). <b>[a]</b> Not in preterm neonates.

<b>21.4 Miotics and antiglaucoma medicines</b>	
acetazolamide	<b>Tablet:</b> 250 mg.
<input type="checkbox"/> pilocarpine	<b>Solution (eye drops):</b> 2%; 4% (hydrochloride or nitrate).
<input type="checkbox"/> timolol	<b>Solution (eye drops):</b> 0.25%; 0.5% (as maleate).
<b>21.5 Mydriatics</b>	
atropine* <sup>a</sup>	<b>Solution (eye drops):</b> 0.1%; 0.5%; 1% (sulfate). * <b>[c]</b> OR homatropine OR cyclopentolate. <b>a</b> >3 months.
<i>Complementary List</i>	
epinephrine (adrenaline)	<b>Solution (eye drops):</b> 2% (as hydrochloride).
<b>22. OXYTOCICS AND ANTIOXYTOCICS</b>	
<b>22.1 Oxytocics</b>	
<input type="checkbox"/> ergometrine	<b>Injection:</b> 200 micrograms (hydrogen maleate) in 1-ml ampoule.
oxytocin	<b>Injection:</b> 10 IU in 1-ml ampoule.
<i>Complementary List</i>	
misoprostol	<b>Tablet:</b> 200 micrograms.* * For management of incomplete abortion and miscarriage. <b>Vaginal tablet:</b> 25 micrograms.
mifepristone* – misoprostol* <div style="border: 1px solid black; padding: 5px; width: fit-content;">Where permitted under national law and where culturally acceptable.</div>	<b>Tablet 200 mg – tablet 200 micrograms.</b> * Requires close medical supervision.
<b>22.2 Antioxytocics (tocolytics)</b>	
nifedipine	<b>Immediate-release capsule:</b> 10 mg.
<b>23. PERITONEAL DIALYSIS SOLUTION</b>	
<i>Complementary List</i>	
intraperitoneal dialysis solution (of appropriate composition)	<b>Parenteral solution.</b>
<b>24. PSYCHOTHERAPEUTIC MEDICINES</b>	
<b>24.1 Medicines used in psychotic disorders</b>	
<input type="checkbox"/> chlorpromazine	<b>Injection:</b> 25 mg (hydrochloride)/ml in 2-ml ampoule. <b>Oral liquid:</b> 25 mg (hydrochloride)/5 ml. <b>Tablet:</b> 100 mg (hydrochloride).
<input type="checkbox"/> fluphenazine	<b>Injection:</b> 25 mg (decanoate or enantate) in 1-ml ampoule.

<input type="checkbox"/> haloperidol	<b>Injection:</b> 5 mg in 1-ml ampoule. <b>Tablet:</b> 2 mg; 5 mg.
<i>Complementary List [c]</i>	
chlorpromazine	<b>Injection:</b> 25 mg (hydrochloride)/ml in 2-ml ampoule. <b>Oral liquid:</b> 25 mg (hydrochloride)/5 ml. <b>Tablet:</b> 10 mg; 25 mg; 50 mg; 100 mg (hydrochloride).
haloperidol	<b>Injection:</b> 5 mg in 1-ml ampoule. <b>Oral liquid:</b> 2 mg/ml. <b>Solid oral dosage form:</b> 0.5 mg; 2 mg; 5 mg.
<b>24.2 Medicines used in mood disorders</b>	
<b>24.2.1 Medicines used in depressive disorders</b>	
<input type="checkbox"/> amitriptyline	<b>Tablet:</b> 25 mg (hydrochloride).
fluoxetine	<b>Solid oral dosage form:</b> 20 mg (present as hydrochloride).
<i>Complementary List [c]</i>	
fluoxetine <input type="checkbox"/> <b>a</b>	<b>Solid oral dosage form:</b> 20 mg (present as hydrochloride). <b>a</b> >8 years.
<b>24.2.2 Medicines used in bipolar disorders</b>	
carbamazepine	<b>Tablet (scored):</b> 100 mg; 200 mg.
lithium carbonate	<b>Solid oral dosage form:</b> 300 mg.
valproic acid	<b>Tablet (enteric-coated):</b> 200 mg; 500 mg (sodium valproate).
<b>24.3 Medicines used in generalized anxiety</b>	
<input type="checkbox"/> diazepam	<b>Tablet (scored):</b> 2 mg; 5 mg.
<b>24.4 Medicines used for obsessive compulsive disorders and panic attacks</b>	
clomipramine	<b>Capsule:</b> 10 mg; 25 mg (hydrochloride).
<b>24.5 Medicines used in substance dependence programmes</b>	
nicotine replacement therapy (NRT)	<b>Chewing gum:</b> 2 mg; 4 mg. <b>Transdermal patch:</b> 5 mg to 30 mg/16 hrs; 7 mg to 21 mg/24 hrs.
<i>Complementary List</i>	
<input type="checkbox"/> methadone*	<b>Concentrate for oral liquid:</b> 5 mg/ml; 10 mg/ml (hydrochloride). <b>Oral liquid:</b> 5 mg/5 ml; 10 mg/5 ml.  * The square box is added to include buprenorphine. The medicines should only be used within an established support programme.



<b>25. MEDICINES ACTING ON THE RESPIRATORY TRACT</b>	
<b>25.1 Antiasthmatic and medicines for chronic obstructive pulmonary disease</b>	
<input type="checkbox"/> beclometasone	<b>Inhalation (aerosol):</b> 50 micrograms (dipropionate) per dose; 100 micrograms (dipropionate) per dose (as CFC free forms).
<input type="checkbox"/> budesonide <b>[c]</b>	<b>Inhalation (aerosol):</b> 100 micrograms per dose; 200 micrograms per dose.
epinephrine (adrenaline)	<b>Injection:</b> 1 mg (as hydrochloride or hydrogen tartrate) in 1-ml ampoule.
ipratropium bromide	<b>Inhalation (aerosol):</b> 20 micrograms/metered dose.
<input type="checkbox"/> salbutamol*	<p><b>Inhalation (aerosol):</b> 100 micrograms (as sulfate) per dose.</p> <p><b>Injection:</b> 50 micrograms (as sulfate)/ml in 5-ml ampoule.</p> <p><b>Metered dose inhaler (aerosol):</b> 100 micrograms (as sulfate) per dose.</p> <p><b>Oral liquid:</b> 2 mg/5 ml.</p> <p><b>Respirator solution for use in nebulizers:</b> 5 mg (as sulfate)/ml.</p> <p><b>Tablet:</b> 2 mg; 4 mg (as sulfate).</p> <p>* Oral salbutamol treatment should only be considered when inhaled asthma therapy is not feasible.</p>
<b>26. SOLUTIONS CORRECTING WATER, ELECTROLYTE AND ACID-BASE DISTURBANCES</b>	
<b>26.1 Oral</b>	
oral rehydration salts	See section 17.5.1.
potassium chloride	<b>Powder for solution.</b>
<b>26.2 Parenteral</b>	
glucose	<b>Injectable solution:</b> 5% (isotonic); 10% (hypertonic); 50% (hypertonic).
glucose with sodium chloride	<p><b>Injectable solution:</b> 4% glucose, 0.18% sodium chloride (equivalent to Na<sup>+</sup> 30 mmol/L, Cl<sup>-</sup> 30 mmol/L).</p> <p><b>Injectable solution:</b> 5% glucose, 0.9% sodium chloride (equivalent to 150 mmol/L Na<sup>+</sup> and 150 mmol/L Cl<sup>-</sup>); 5% glucose, 0.45% sodium chloride (equivalent to 75 mmol/L Na<sup>+</sup> and 75 mmol/L Cl<sup>-</sup>) <b>[c]</b>.</p>
potassium chloride	<p><b>Solution:</b> 11.2% in 20-ml ampoule (equivalent to K<sup>+</sup> 1.5 mmol/ml, Cl<sup>-</sup> 1.5 mmol/ml).</p> <p><b>Solution for dilution:</b> 7.5% (equivalent to K 1 mmol/ml and Cl 1 mmol/ml) <b>[c]</b>; 15% (equivalent to K 2 mmol/ml and Cl 2 mmol/ml) <b>[c]</b>.</p>
sodium chloride	<b>Injectable solution:</b> 0.9% isotonic (equivalent to Na <sup>+</sup> 154 mmol/L, Cl <sup>-</sup> 154 mmol/L).

sodium hydrogen carbonate	<b>Injectable solution:</b> 1.4% isotonic (equivalent to Na <sup>+</sup> 167 mmol/L, HCO <sub>3</sub> <sup>-</sup> 167 mmol/L). <b>Solution:</b> 8.4% in 10-ml ampoule (equivalent to Na <sup>+</sup> 1000 mmol/L, HCO <sub>3</sub> <sup>-</sup> 1000 mmol/L).
<input type="checkbox"/> sodium lactate, compound solution	<b>Injectable solution.</b>
<b>26.3 Miscellaneous</b>	
water for injection	2-ml; 5-ml; 10-ml ampoules.
<b>27. VITAMINS AND MINERALS</b>	
ascorbic acid	<b>Tablet:</b> 50 mg.
cholecalciferol* <b>[c]</b>	<b>Oral liquid:</b> 400 IU/ml. <b>Solid oral dosage form:</b> 400 IU; 1000 IU. * Ergocalciferol can be used as an alternative.
<input type="checkbox"/> ergocalciferol	<b>Oral liquid:</b> 250 micrograms/ml (10 000 IU/ml). <b>Solid oral dosage form:</b> 1.25 mg (50 000 IU).
iodine	<b>Capsule:</b> 200 mg. <b>Iodized oil:</b> 1 ml (480 mg iodine); 0.5 ml (240 mg iodine) in ampoule (oral or injectable); 0.57 ml (308 mg iodine) in dispenser bottle.
<input type="checkbox"/> nicotinamide	<b>Tablet:</b> 50 mg.
pyridoxine	<b>Tablet:</b> 25 mg (hydrochloride).
retinol	<b>Capsule:</b> 50 000 IU; 100 000 IU; 200 000 IU (as palmitate). <b>Oral oily solution:</b> 100 000 IU (as palmitate)/ml in multidose dispenser. <b>Tablet (sugar-coated):</b> 10 000 IU (as palmitate). <b>Water-miscible injection:</b> 100 000 IU (as palmitate) in 2-ml ampoule.
riboflavin	<b>Tablet:</b> 5 mg.
sodium fluoride	In any appropriate topical formulation.
thiamine	<b>Tablet:</b> 50 mg (hydrochloride).
<i>Complementary List</i>	
<i>calcium gluconate</i>	<b>Injection:</b> 100 mg/ml in 10-ml ampoule.
<b>28. EAR, NOSE AND THROAT CONDITIONS IN CHILDREN <b>[c]</b></b>	
acetic acid	<b>Topical:</b> 2%, in alcohol.
<input type="checkbox"/> budesonide	<b>Nasal spray:</b> 100 micrograms per dose.
<input type="checkbox"/> ciprofloxacin	<b>Topical:</b> 0.3% drops.
<input type="checkbox"/> xylometazoline <b>[a]</b>	<b>Nasal spray:</b> 0.05%. <b>[a]</b> Not in children less than 3 months.

<b>29. SPECIFIC MEDICINES FOR NEONATAL CARE [c]</b>	
caffeine citrate	<b>Injection:</b> 20 mg/ml (equivalent to 10 mg caffeine base/ml). <b>Oral liquid:</b> 20 mg/ml (equivalent to 10 mg caffeine base/ml).
<i>Complementary List</i>	
<input type="checkbox"/> <i>ibuprofen</i>	<i>Solution for injection:</i> 5 mg/ml.
<input type="checkbox"/> <i>prostaglandin E</i>	<i>Solution for injection:</i> <i>Prostaglandin E1:</i> 0.5 mg/ml in alcohol. <i>Prostaglandin E2:</i> 1 mg/ml.
<i>surfactant</i>	<i>Suspension for intratracheal instillation:</i> 25 mg/ml or 80 mg/ml.

**Table 1: Medicines with age or weight restrictions**

atazanavir	>25 kg
atropine	>3 months
benzyl benzoate	>2 years
betamethasone topical preparations	Hydrocortisone preferred in neonates
cefazolin	>1 month
ceftriaxone	>41 weeks corrected gestational age
chlorphenamine	>1 year
diloxanide	>25 kg
doxycycline	>8 years (except for serious infections e.g. cholera)
efavirenz	>3 years or >10 kg
emtricitabine	>3 months
fluoxetine	>8 years
ibuprofen	>3 months (except IV form for patent <i>ductus arteriosus</i> )
mefloquine	>5 kg or >3 months
metoclopramide	Not in neonates
ondansetron	>1 month
saquinavir	>25 kg
silver sulfadiazine	>2 months
tetracaine	Not in preterm neonates
trimethoprim	>6 months
xylometazoline	>3 months

**Annex 1: Explanation of dosage forms**

**A. Principal dosage forms used in EMLc - Oral administration**

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

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

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

### B. Principal dosage forms used in EMLc - Parenteral administration

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

**C. Other dosage forms**

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

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