

WHO Model List of Essential Medicines

15th list, March 2007

Status of this document

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

<http://www.who.int/medicines/publications/EML15.pdf>

Essential Medicines

WHO Model List (revised March 2007)

Explanatory Notes

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

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

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

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. Medicines are listed in alphabetical order, within sections.

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

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

Entries of the type *oral liquid* are intended to permit any solution, suspension or other form of liquid. Granules for reconstitution as an oral liquid may substitute for oral liquids, and typically carry 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.

Entries of the type *tablet* are intended to allow various forms of immediate-release tablet such as uncoated, film-coated, crushable, chewable, dispersible etc. Enteric coating, on the other hand, modifies drug release, and enteric-coated products are a modified release dosage form. Crushable, chewable and dispersible tablets may be easier to administer to paediatric populations and to the elderly.

1. ANAESTHETICS	
1.1 General anaesthetics and oxygen	
<input type="checkbox"/> halothane	Inhalation.
ketamine	Injection: 50 mg (as hydrochloride)/ml in 10-ml vial.
nitrous oxide	Inhalation.
oxygen	Inhalation (medicinal gas).
<input type="checkbox"/> thiopental	Powder for injection: 0.5 g; 1.0 g (sodium salt) in ampoule.
1.2 Local anaesthetics	
<input type="checkbox"/> bupivacaine	Injection: 0.25%; 0.5% (hydrochloride) in vial. Injection for spinal anaesthesia: 0.5% (hydrochloride) in 4-ml ampoule to be mixed with 7.5% glucose solution.
<input type="checkbox"/> lidocaine	Injection: 1%; 2% (hydrochloride) in vial. Injection for spinal anaesthesia: 5% (hydrochloride) in 2-ml ampoule to be mixed with 7.5% glucose solution. Topical forms: 2-4% (hydrochloride).
lidocaine + epinephrine (adrenaline)	Dental cartridge: 2% (hydrochloride) + epinephrine 1:80 000. Injection: 1%; 2% (hydrochloride) + epinephrine 1:200 000 in vial.
<i>Complementary List</i>	
<i>ephedrine</i>	Injection: 30 mg (hydrochloride)/ml in 1-ml ampoule. <i>(For use in spinal anaesthesia during delivery, to prevent hypotension).</i>
1.3 Preoperative medication and sedation for short-term procedures	
atropine	Injection: 1 mg (sulfate) in 1-ml ampoule.
<input type="checkbox"/> diazepam	Injection: 5 mg/ml in 2-ml ampoule. Tablet: 5 mg.
morphine	Injection: 10 mg (sulfate or hydrochloride) in 1-ml ampoule.
promethazine	Oral liquid: 5 mg (hydrochloride)/5 ml.
2. ANALGESICS, ANTIPYRETICS, NON-STEROIDAL ANTI-INFLAMMATORY MEDICINES (NSAIDs), MEDICINES USED TO TREAT GOUT AND DISEASE MODIFYING AGENTS IN RHEUMATOID DISORDERS (DMARDs)	
2.1 Non-opioids and non-steroidal anti-inflammatory medicines (NSAIDs)	
acetylsalicylic acid	Suppository: 50-150 mg. Tablet: 100-500 mg.
ibuprofen	Tablet: 200 mg; 400 mg.

paracetamol*	<p>Oral liquid: 125 mg/5 ml.</p> <p>Suppository: 100 mg.</p> <p>Tablet: 100-500 mg.</p> <p>* Not recommended for anti-inflammatory use due to lack of proven benefit to that effect.</p>
2.2 Opioid analgesics	
codeine	Tablet: 30 mg (phosphate).
morphine	<p>Injection: 10 mg (morphine hydrochloride or morphine sulfate) in 1-ml ampoule.</p> <p>Oral liquid: 10 mg (morphine hydrochloride or morphine sulfate)/5 ml.</p> <p>Tablet: 10 mg (morphine sulfate).</p> <p>Tablet (prolonged release): 10 mg; 30 mg; 60 mg (morphine sulfate).</p>
2.3 Medicines used to treat gout	
allopurinol	Tablet: 100 mg.
2.4 Disease modifying agents used in rheumatoid disorders (DMARDs)	
chloroquine	Tablet: 100 mg; 150 mg (as phosphate or sulfate).
<i>Complementary List</i>	
<i>azathioprine</i>	Tablet: 50 mg.
<i>methotrexate</i>	Tablet: 2.5 mg (as sodium salt).
<i>penicillamine</i>	Capsule or tablet: 250 mg.
<i>sulfasalazine</i>	Tablet: 500 mg.
3. ANTIALLERGICS AND MEDICINES USED IN ANAPHYLAXIS	
<input type="checkbox"/> chlorphenamine	<p>Injection: 10 mg (hydrogen maleate) in 1-ml ampoule.</p> <p>Tablet: 4 mg (hydrogen maleate).</p>
dexamethasone	Injection: 4 mg dexamethasone phosphate (as disodium salt) in 1-ml ampoule.
epinephrine (adrenaline)	Injection: 1 mg (as hydrochloride or hydrogen tartrate) in 1-ml ampoule.
hydrocortisone	Powder for injection: 100 mg (as sodium succinate) in vial.
<input type="checkbox"/> prednisolone*	<p>Tablet: 5 mg; 25 mg</p> <p>* There is no evidence for complete clinical similarity between prednisolone and dexamethasone at high doses.</p>

WHO Model List

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.
atropine	Injection: 1 mg (sulfate) in 1-ml ampoule.
calcium gluconate	Injection: 100 mg/ml in 10-ml ampoule.
deferoxamine	Powder for injection: 500 mg (mesilate) in vial.
dimercaprol	Injection in oil: 50 mg/ml in 2-ml ampoule.
DL-methionine	Tablet: 250 mg.
methylthionium chloride (methylene blue)	Injection: 10 mg/ml in 10-ml ampoule.
naloxone	Injection: 400 micrograms (hydrochloride) in 1-ml ampoule.
penicillamine	Capsule or tablet: 250 mg.
potassium ferric hexacyano-ferrate(II) - 2H ₂ O (Prussian blue)	Powder for oral administration.
sodium calcium edetate	Injection: 200 mg/ml in 5-ml ampoule.
sodium nitrite	Injection: 30 mg/ml in 10-ml ampoule.
sodium thiosulfate	Injection: 250 mg/ml in 50-ml ampoule.
5. ANTICONVULSANTS/ANTIEPILEPTICS	
carbamazepine	Oral liquid: 100 mg/5 ml. Tablet (chewable): 100 mg; 200 mg. Tablet (scored): 100 mg; 200 mg.
□ diazepam	Injection: 5 mg/ml in 2-ml ampoule (intravenous or rectal).
magnesium sulfate*	Injection: 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	Injection: 200 mg/ml (phenobarbital sodium). Oral liquid: 15 mg/5 ml (as phenobarbital or phenobarbital sodium). Tablet: 15-100 mg (phenobarbital).

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

<i>Complementary List</i>	
<i>oxamniquine*</i>	Capsule: 250 mg. Oral liquid: 250 mg/5 ml. <i>* Oxamniquine is listed for use when praziquantel treatment fails.</i>
6.2 Antibacterials	
6.2.1 Beta Lactam medicines	
amoxicillin	Capsule or tablet: 250 mg; 500 mg (anhydrous). Powder for oral liquid: 125 mg (anhydrous)/5 ml.
amoxicillin + clavulanic acid	Tablet: 500 mg + 125 mg.
ampicillin	Powder for injection: 500 mg; 1 g (as sodium salt) in vial.
benzathine benzylpenicillin	Powder for injection: 1.44 g benzylpenicillin (=2.4 million IU) in 5-ml vial.
benzylpenicillin	Powder for injection: 600 mg (= 1 million IU); 3 g (= 5 million IU) (sodium or potassium salt) in vial.
cefazolin*	Powder for injection: 1 g (as sodium salt) in vial. <i>* For surgical prophylaxis.</i>
cefixime*	Capsule: 400 mg. <i>* Only listed for single-dose treatment of uncomplicated anogenital gonorrhoea.</i>
<input type="checkbox"/> cloxacillin	Capsule: 500 mg; 1 g (as sodium salt). Powder for injection: 500 mg (as sodium salt) in vial. Powder for oral liquid: 125 mg (as sodium salt)/5 ml.
phenoxymethylpenicillin	Powder for oral liquid: 250 mg (as potassium salt)/5 ml. Tablet: 250 mg (as potassium salt).
procaine benzylpenicillin	Powder for injection: 1 g (=1 million IU); 3 g (=3 million IU) in vial.
<i>Complementary List</i>	
<i>ceftazidime</i>	Powder for injection: 250 mg (as pentahydrate) in vial.
<input type="checkbox"/> <i>ceftriaxone</i>	Powder for injection: 250 mg, 1 g (as sodium salt) in vial.
<i>imipenem* + cilastatin *</i>	Powder for injection: 250 mg (as monohydrate) + 250 mg (as sodium salt); 500 mg (as monohydrate) + 500 mg (as sodium salt) in vial. <i>* Only listed for the treatment of life-threatening hospital-based infection due to suspected or proven multidrug-resistant infection.</i>

6.2.2 Other antibacterials	
azithromycin*	Capsule: 250 mg or 500 mg. Oral liquid: 200 mg/5 ml. * Only listed for single-dose treatment of genital <i>Chlamydia trachomatis</i> and of trachoma.
chloramphenicol	Capsule: 250 mg. Oily suspension for injection: 0.5 g (as sodium succinate)/ml in 2-ml ampoule. Oral liquid: 150 mg (as palmitate)/5 ml. Powder for injection: 1 g (sodium succinate) in vial.
<input type="checkbox"/> ciprofloxacin*	Tablet: 250 mg (as hydrochloride). * Final selection depends on indication for use.
doxycycline*	Capsule or tablet: 100 mg (hydrochloride). * Final selection depends on indication for use.
<input type="checkbox"/> erythromycin	Capsule or tablet: 250 mg (as stearate or ethyl succinate). Powder for injection: 500 mg (as lactobionate) in vial. Powder for oral liquid: 125 mg (as stearate or ethyl succinate).
<input type="checkbox"/> gentamicin*	Injection: 10 mg; 40 mg (as sulfate)/ml in 2-ml vial. * Final selection depends on indication for use.
<input type="checkbox"/> metronidazole	Injection: 500 mg in 100-ml vial. Oral liquid: 200 mg (as benzoate)/5 ml. Suppository: 500 mg; 1 g. Tablet: 200-500 mg.
nitrofurantoin	Tablet: 100 mg.
spectinomycin	Powder for injection: 2 g (as hydrochloride) in vial.
sulfamethoxazole + trimethoprim	Injection: 80 mg + 16 mg/ml in 5-ml and 10-ml ampoules. Oral liquid: 200 mg + 40 mg/5 ml. Tablet: 100 mg + 20 mg; 400 mg + 80 mg.
trimethoprim	Tablet: 100 mg; 200 mg.
Complementary List	
<i>clindamycin</i>	Capsule: 150 mg. Injection: 150 mg (as phosphate)/ml.
<i>sulfadiazine</i>	Injection: 250 mg (sodium salt) in 4-ml ampoule. Tablet: 500 mg.

WHO Model List

<i>vancomycin</i>	Powder for injection: 250 mg (as hydrochloride) in vial.
6.2.3 Antileprosy medicines	
Medicines used in the treatment of leprosy should never be used except in combination. Combination therapy is essential to prevent the emergence of drug resistance. Colour coded blister packs (MDT blister packs) containing standard two medicine (paucibacillary leprosy) or three medicine (multibacillary leprosy) combinations for adult and childhood leprosy should be used. MDT blister packs can be supplied free of charge through WHO.	
clofazimine	Capsule: 50 mg; 100 mg.
dapsone	Tablet: 25 mg; 50 mg; 100 mg.
rifampicin	Capsule or tablet: 150 mg; 300 mg.
6.2.4 Antituberculosis medicines	
ethambutol	Tablet: 100-400 mg (hydrochloride).
isoniazid	Tablet: 100-300 mg. Tablet (scored): 50 mg.
isoniazid + ethambutol	Tablet: 150 mg + 400 mg.
pyrazinamide	Tablet: 400 mg. Tablet (dispersible): 150 mg. Tablet (scored): 150 mg.
rifampicin	Capsule or tablet: 150 mg; 300 mg.
rifampicin + isoniazid	Tablet: 60 mg + 30 mg; 150 mg + 75 mg; 300 mg + 150 mg. 60 mg + 60 mg (For intermittent use three times weekly). 150 mg + 150 mg (For intermittent use three times weekly).
rifampicin + isoniazid + ethambutol	Tablet: 150 mg + 75 mg + 275 mg.
rifampicin + isoniazid + pyrazinamide	Tablet: 60 mg + 30 mg + 150 mg; 150 mg + 75 mg + 400 mg. 150 mg + 150 mg + 500 mg (For intermittent use three times weekly).
rifampicin + isoniazid + pyrazinamide + ethambutol	Tablet: 150 mg + 75 mg + 400 mg + 275 mg.
streptomycin	Powder for injection: 1 g (as sulfate) in vial.
Complementary List	
<i>Reserve second-line drugs for the treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in specialized centres adhering to WHO standards for TB control.</i>	
<i>amikacin</i>	Powder for injection: 1000 mg in vial.

<i>p</i> -aminosalicylic acid	Granules: 4 g in sachet. Tablet: 500 mg.
capreomycin	Powder for injection: 1000 mg in vial.
cycloserine	Capsule or tablet: 250 mg.
ethionamide	Tablet: 125 mg; 250 mg.
kanamycin	Powder for injection: 1000 mg in vial.
ofloxacin*	Tablet: 200 mg; 400 mg. * Levofloxacin may be an alternative based on availability and programme considerations.
6.3 Antifungal medicines	
clotrimazole	Vaginal cream: 1%; 10%. Vaginal tablet: 100 mg; 500 mg.
<input type="checkbox"/> fluconazole	Capsule: 50 mg. Injection: 2 mg/ml in vial. Oral liquid: 50 mg/5 ml.
griseofulvin	Capsule or tablet: 125 mg; 250 mg.
nystatin	Lozenge: 100 000 IU. Pessary: 100 000 IU. Tablet: 100 000 IU; 500 000 IU.
<i>Complementary List</i>	
amphotericin B	Powder for injection: 50 mg in vial.
flucytosine	Capsule: 250 mg. Infusion: 2.5 g in 250 ml.
potassium iodide	Saturated solution.
6.4 Antiviral medicines	
6.4.1 Antiherpes medicines	
<input type="checkbox"/> aciclovir	Powder for injection: 250 mg (as sodium salt) in vial. Tablet: 200 mg.

WHO Model List

6.4.2 Antiretrovirals	
Based on current evidence and experience of use, medicines in the following three classes of antiretrovirals are included as essential medicines for treatment and prevention of HIV (prevention of mother-to-child transmission and post exposure prophylaxis). 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 with assured pharmaceutical quality.	
6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors	
abacavir (ABC)	Oral liquid: 100 mg (as sulfate)/5 ml. Tablet: 300 mg (as sulfate).
didanosine (ddI)	Buffered powder for oral liquid: 100 mg; 167 mg; 250 mg packets. Capsule (unbuffered enteric-coated): 125 mg; 200 mg; 250 mg; 400 mg. Tablet (buffered chewable, dispersible): 25 mg; 50 mg; 100 mg; 150 mg; 200 mg.
emtricitabine (FTC)*	Capsule: 200 mg. Oral liquid: 10 mg/ml. * 3TC is an acceptable alternative to FTC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.
lamivudine (3TC)	Oral liquid: 50 mg/5 ml. Tablet: 150 mg.
stavudine (d4T)	Capsule: 15 mg; 20 mg; 30 mg; 40 mg.* * The Committee expects this dosage form to be reviewed for possible deletion at the next meeting. Powder for oral liquid: 5 mg/5 ml.
tenofovir disoproxil fumarate (TDF)	Tablet: 300 mg (tenofovir disoproxil fumarate - equivalent to 245 mg tenofovir disoproxil).
zidovudine (ZDV or AZT)	Capsule: 100 mg; 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)	Capsule: 50 mg; 100 mg; 200 mg. Oral liquid: 150 mg/5 ml. Tablet: 600 mg.

WHO Model List

nevirapine (NVP)	Oral liquid: 50 mg/5 ml. Tablet: 200 mg.
6.4.2.3 Protease inhibitors	
<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.</p> <p>This section will be reviewed by the Committee as a priority at its next meeting. It is expected that application for a heat stable tablet formulation containing 200/50 mg lopinavir + ritonavir will be submitted for the next meeting.</p>	
indinavir (IDV)	Capsule: 200 mg; 333 mg; 400 mg (as sulfate).
lopinavir + ritonavir (LPV/r)	Capsule: 133.3 mg + 33.3 mg. Oral liquid: 400 mg + 100 mg/5 ml.
nelfinavir (NFV)	Oral powder: 50 mg/g. Tablet: 250 mg (as mesilate).
ritonavir	Oral liquid: 400 mg/5 ml. Oral solid dosage form: 100 mg.
saquinavir (SQV)	Capsule: 200 mg.
FIXED-DOSE COMBINATIONS	
efavirenz + emtricitabine* + tenofovir	Tablet: 600 mg + 200 mg + 300 mg. * 3TC is an acceptable alternative to FTC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.
emtricitabine* + tenofovir	Tablet: 200 mg + 300 mg. * 3TC is an acceptable alternative to FTC, based on knowledge of the pharmacology, the resistance patterns and clinical trials of antiretrovirals.
stavudine + lamivudine + nevirapine	Tablet: 30 mg + 150 mg + 200 mg.
zidovudine + lamivudine	Tablet: 300 mg + 150 mg.
zidovudine + lamivudine + nevirapine	Tablet: 300 mg + 150 mg + 200 mg.
6.4.3 Other antivirals	
ribavirin	Injection for intravenous administration: 1000 mg and 800 mg in 10-ml phosphate buffer solution. Oral solid dosage forms: 200 mg; 400 mg; 600 mg.
6.5 Antiprotozoal medicines	
6.5.1 Antiamoebic and anti giardiasis medicines	
diloxanide	Tablet: 500 mg (furoate).

<input type="checkbox"/> metronidazole	<p>Injection: 500 mg in 100-ml vial.</p> <p>Oral liquid: 200 mg (as benzoate)/5 ml.</p> <p>Tablet: 200-500 mg.</p>
6.5.2 Antileishmaniasis medicines	
<input type="checkbox"/> meglumine antimoniate	Injection, 30%, equivalent to approximately 8.1% antimony in 5-ml ampoule.
paromomycin	Solution for intramuscular injection: 750 mg/2 ml (as sulfate).
<i>Complementary List</i>	
<i>amphotericin B</i>	<i>Powder for injection: 50 mg in vial.</i>
<i>pentamidine</i>	<i>Powder for injection: 200 mg; 300 mg (isetionate) in vial.</i>
6.5.3 Antimalarial medicines	
6.5.3.1 For curative treatment	
Medicines for the treatment of <i>P. falciparum</i> malaria cases should be used in combination. The list currently recommends combinations according to treatment guidelines. 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*	<p>Tablet: 153 mg or 200 mg (as hydrochloride).</p> <p>* 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.</p>
artemether	<p>Oily injection: 80 mg/ml in 1-ml ampoule.</p> <p>For use in the management of severe malaria.</p>
artemether + lumefantrine*	<p>Tablet: 20 mg + 120 mg.</p> <p>* Not recommended in the first trimester of pregnancy or in children below 5 kg.</p>
artesunate*	<p>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.</p> <p>Tablet: 50 mg.</p> <p>* To be used in combination with either amodiaquine, mefloquine or sulfadoxine + pyrimethamine.</p>
chloroquine*	<p>Oral liquid: 50 mg (as phosphate or sulfate)/5 ml.</p> <p>Tablet: 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>Capsule: 100 mg (as hydrochloride).</p> <p>Tablet (dispersible): 100 mg (as monohydrate).</p> <p>* For use only in combination with quinine.</p>

WHO Model List

mefloquine*	Tablet: 250 mg (as hydrochloride). * To be used in combination with artesunate 50 mg.
primaquine*	Tablet: 7.5 mg; 15 mg (as diphosphate) * Only for use to achieve radical cure of <i>P.vivax</i> and <i>P.ovale</i> infections, given for 14 days.
quinine*	Injection: 300 mg quinine hydrochloride/ml in 2-ml ampoule. Tablet: 300 mg (quinine sulfate) or 300 mg (quinine bisulfate). * For use only in the management of severe malaria, and should be used in combination with doxycycline.
sulfadoxine + pyrimethamine*	Tablet: 500 mg + 25 mg. * Only in combination with artesunate 50 mg.
6.5.3.2 For prophylaxis	
chloroquine*	Oral liquid: 50 mg (as phosphate or sulfate)/5 ml. Tablet: 150 mg (as phosphate or sulfate). * For use only in central American regions, for use for <i>P.vivax</i> .
doxycycline	Capsule or tablet: 100 mg (hydrochloride).
mefloquine	Tablet: 250 mg (as hydrochloride).
proguanil*	Tablet: 100 mg (hydrochloride). * For use only in combination with chloroquine.
6.5.4 Antipneumocystosis and antitoxoplasmosis medicines	
pyrimethamine	Tablet: 25 mg.
sulfamethoxazole + trimethoprim	Injection: 80 mg + 16 mg/ml in 5-ml ampoule; 80 mg + 16 mg/ml in 10-ml ampoule.
<i>Complementary List</i>	
<i>pentamidine</i>	Tablet: 200 mg; 300 mg.
6.5.5 Antitrypanosomal medicines	
6.5.5.1 African trypanosomiasis	
Medicines for the treatment of 1 st stage African trypanosomiasis	
pentamidine*	Powder for injection: 200 mg (pentamidine isetionate) in vial. * To be used for the treatment of <i>Trypanosoma brucei gambiense</i> infection.
suramin sodium*	Powder for injection: 1 g in vial. * To be used exclusively for the treatment of the initial phase of <i>Trypanosoma brucei rhodesiense</i> infection.
Medicines for the treatment of 2 nd stage African trypanosomiasis	
eflornithine	Injection: 200 mg (hydrochloride)/ml in 100-ml bottle.

melarsoprol	Injection: 3.6% solution, 5-ml ampoule (180 mg of active compound).
6.5.5.2 American trypanosomiasis	
benznidazole	Tablet: 100 mg.
nifurtimox	Tablet: 30 mg; 120 mg; 250 mg.
7. ANTIMIGRAINE MEDICINES	
7.1 For treatment of acute attack	
acetylsalicylic acid	Tablet: 300-500 mg.
paracetamol	Tablet: 300-500 mg.
7.2 For prophylaxis	
<input type="checkbox"/> propranolol	Tablet: 20 mg; 40 mg (hydrochloride).
8. ANTINEOPLASTIC, IMMUNOSUPPRESSIVES AND MEDICINES USED IN PALLIATIVE CARE	
8.1 Immunosuppressive medicines	
<i>Complementary List</i>	
<i>azathioprine</i>	<i>Powder for injection: 100 mg (as sodium salt) in vial. Tablet: 50 mg.</i>
<i>ciclosporin</i>	<i>Capsule: 25 mg. Concentrate for injection: 50 mg/ml in 1-ml ampoule for organ transplantation.</i>
8.2 Cytotoxic medicines	
This section is expected to be reviewed at the next meeting.	
<i>Complementary List</i>	
<i>asparaginase</i>	<i>Powder for injection: 10 000 IU in vial.</i>
<i>bleomycin</i>	<i>Powder for injection: 15 mg (as sulfate) in vial.</i>
<i>calcium folinate</i>	<i>Injection: 3 mg/ml in 10-ml ampoule. Tablet: 15 mg.</i>
<i>chlorambucil</i>	<i>Tablet: 2 mg.</i>
<i>cisplatin</i>	<i>Powder for injection: 10 mg; 50 mg in vial.</i>
<i>cyclophosphamide</i>	<i>Powder for injection: 500 mg in vial. Tablet: 25 mg.</i>
<i>cytarabine</i>	<i>Powder for injection: 100 mg in vial.</i>
<i>dacarbazine</i>	<i>Powder for injection: 100 mg in vial.</i>
<i>dactinomycin</i>	<i>Powder for injection: 500 micrograms in vial.</i>
<i>daunorubicin</i>	<i>Powder for injection: 50 mg (as hydrochloride).</i>

WHO Model List

<i>doxorubicin</i>	<i>Powder for injection: 10 mg; 50 mg (hydrochloride) in vial.</i>
<i>etoposide</i>	<i>Capsule: 100 mg.</i> <i>Injection: 20 mg/ml in 5-ml ampoule.</i>
<i>fluorouracil</i>	<i>Injection: 50 mg/ml in 5-ml ampoule.</i>
<i>mercaptopurine</i>	<i>Tablet: 50 mg.</i>
<i>methotrexate</i>	<i>Powder for injection: 50 mg (as sodium salt) in vial.</i> <i>Tablet: 2.5 mg (as sodium salt).</i>
<i>procarbazine</i>	<i>Capsule: 50 mg (as hydrochloride).</i>
<i>vinblastine</i>	<i>Powder for injection: 10 mg (sulfate) in vial.</i>
<i>vincristine</i>	<i>Powder for injection: 1 mg; 5 mg (sulfate) in vial.</i>
8.3 Hormones and antihormones	
<i>Complementary List</i>	
<i>dexamethasone</i>	<i>Injection: 4 mg dexamethasone phosphate (as disodium salt) in 1-ml ampoule.</i>
<i>hydrocortisone</i>	<i>Powder for injection: 100 mg (as sodium succinate) in vial.</i>
<input type="checkbox"/> <i>prednisolone*</i>	<i>Tablet: 5 mg; 25 mg.</i> <i>* There is no evidence for complete clinical similarity between prednisolone and dexamethasone at high doses.</i>
<i>tamoxifen</i>	<i>Tablet: 10 mg; 20 mg (as citrate).</i>
8.4 Medicines used in palliative care	
<p>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.</p>	
9. ANTIPARKINSONISM MEDICINES	
<i>biperiden</i>	<i>Injection: 5 mg (lactate) in 1-ml ampoule.</i> <i>Tablet: 2 mg (hydrochloride).</i>
<i>levodopa + <input type="checkbox"/> carbidopa</i>	<i>Tablet: 100 mg + 10 mg; 250 mg + 25 mg.</i>
10. MEDICINES AFFECTING THE BLOOD	
10.1 Antianaemia medicines	
<i>ferrous salt</i>	<i>Oral liquid: equivalent to 25 mg iron (as sulfate)/ml.</i> <i>Tablet: equivalent to 60 mg iron.</i>
<i>ferrous salt + folic acid</i>	<i>Tablet equivalent to 60 mg iron + 400 micrograms folic acid (Nutritional supplement for use during pregnancy).</i>
<i>folic acid</i>	<i>Tablet: 1 mg; 5 mg.</i>

WHO Model List

hydroxocobalamin	Injection: 1 mg in 1-ml ampoule.
10.2 Medicines affecting coagulation	
heparin sodium	Injection: 1000 IU/ml; 5000 IU/ml; 20,000 IU/ml in 1-ml ampoule.
phytomenadione	Injection: 10 mg/ml in 5-ml ampoule. Tablet: 10 mg.
protamine sulfate	Injection: 10 mg/ml in 5-ml ampoule.
<input type="checkbox"/> warfarin	Tablet: 1 mg; 2 mg; 5 mg (sodium salt).
11. BLOOD PRODUCTS AND PLASMA SUBSTITUTES	
11.1 Plasma substitutes	
<input type="checkbox"/> dextran 70*	Injectable solution: 6%. * Polygeline, injectable solution, 3.5% is considered as equivalent.
11.2 Plasma fractions for specific use	
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>	
<i>human normal immunoglobulin</i>	Intramuscular administration: 16% protein solution. Intravenous administration: 5%, 10% protein solution.
<input type="checkbox"/> <i>factor VIII concentrate</i>	Dried.
<input type="checkbox"/> <i>factor IX complex (coagulation factors, II, VII, IX, X) concentrate</i>	Dried.
12. CARDIOVASCULAR MEDICINES	
12.1 Antianginal medicines	
<input type="checkbox"/> atenolol	Tablet: 50 mg; 100 mg.
glyceryl trinitrate	Tablet (sublingual): 500 micrograms.
<input type="checkbox"/> isosorbide dinitrate	Tablet (sublingual): 5 mg.
verapamil	Tablet: 40 mg; 80 mg (hydrochloride).
12.2 Antiarrhythmic medicines	
This subsection will be reviewed at the next meeting of the Expert Committee.	
<input type="checkbox"/> atenolol	Tablet: 50 mg; 100 mg.
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).
<i>Complementary List</i>	
<input type="checkbox"/> procainamide	Injection: 100 mg (hydrochloride)/ml in 10-ml ampoule.
<input type="checkbox"/> quinidine	Tablet: 200 mg (sulfate).
12.3 Antihypertensive medicines	
<input type="checkbox"/> amlodipine	Tablet: 5 mg.
<input type="checkbox"/> atenolol	Tablet: 50 mg; 100 mg.
<input type="checkbox"/> enalapril	Tablet: 2.5 mg.
hydralazine*	Powder for injection: 20 mg (hydrochloride) in ampoule. Tablet: 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	Tablet (scored): 25 mg.
methyldopa*	Tablet: 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>	Powder for infusion: 50 mg in ampoule.
12.4 Medicines used in heart failure	
This subsection will be reviewed at the next meeting of the Expert Committee.	
digoxin	Injection: 250 micrograms/ml in 2-ml ampoule. Oral liquid: 50 micrograms/ml. Tablet: 62.5 micrograms; 250 micrograms.
<input type="checkbox"/> enalapril	Tablet: 2.5 mg.
<input type="checkbox"/> furosemide	Injection: 10 mg/ml in 2-ml ampoule. Tablet: 40 mg.
<input type="checkbox"/> hydrochlorothiazide	Tablet (scored): 25 mg.
<i>Complementary List</i>	
<i>dopamine</i>	Injection: 40 mg (hydrochloride) in 5-ml vial.

12.5 Antithrombotic medicines	
acetylsalicylic acid	Tablet: 100 mg.
<i>Complementary List</i>	
<i>streptokinase</i>	<i>Powder for injection: 1.5 million IU in vial.</i>
12.6 Lipid-lowering agents	
<input type="checkbox"/> simvastatin*	Tablet: 5 mg; 10 mg; 20 mg; 40 mg. * For use in high-risk patients.
13. DERMATOLOGICAL MEDICINES (topical)	
13.1 Antifungal medicines	
benzoic acid + salicylic acid	Ointment or cream: 6% + 3%.
<input type="checkbox"/> miconazole	Ointment or cream: 2% (nitrate).
sodium thiosulfate	Solution: 15%.
<i>Complementary List</i>	
<i>selenium sulfide</i>	<i>Detergent-based suspension: 2%.</i>
13.2 Anti-infective medicines	
<input type="checkbox"/> methylosanilinium chloride (gentian violet)	Aqueous solution: 0.5%. Tincture: 0.5%.
neomycin sulfate + <input type="checkbox"/> bacitracin	Ointment: 5 mg neomycin sulfate + 250 IU bacitracin zinc/g.
potassium permanganate	Aqueous solution: 1:10 000.
silver sulfadiazine	Cream: 1%, in 500-g container.
13.3 Anti-inflammatory and antipruritic medicines	
<input type="checkbox"/> betamethasone	Ointment or cream: 0.1% (as valerate).
<input type="checkbox"/> calamine lotion	Lotion.
<input type="checkbox"/> hydrocortisone	Ointment or cream: 1% (acetate).
13.4 Astringent medicines	
aluminium diacetate	Solution: 5%.
13.5 Medicines affecting skin differentiation and proliferation	
benzoyl peroxide	Lotion or cream: 5%.
coal tar	Solution: 5%.
dithranol	Ointment: 0.1%-2%.
fluorouracil	Ointment: 5%.
<input type="checkbox"/> podophyllum resin	Solution: 10-25%.
salicylic acid	Solution: 5%.

urea	Ointment or cream: 10%.
13.6 Scabicides and pediculicides	
<input type="checkbox"/> benzyl benzoate	Lotion: 25%.
permethrin	Cream: 5%. Lotion: 1%.
14. DIAGNOSTIC AGENTS	
14.1 Ophthalmic medicines	
fluorescein	Eye drops: 1% (sodium salt).
<input type="checkbox"/> tropicamide	Eye drops: 0.5%.
14.2 Radiocontrast media	
<input type="checkbox"/> amidotrizoate	Injection: 140-420 mg iodine (as sodium or meglumine salt)/ml in 20-ml ampoule.
barium sulfate	Aqueous suspension.
<input type="checkbox"/> iohexol	Injection: 140-350 mg iodine/ml in 5-ml; 10-ml; 20-ml ampoules.
<i>Complementary List</i>	
<input type="checkbox"/> meglumine iotroxate	Solution: 5-8 g iodine in 100-250 ml.
15. DISINFECTANTS AND ANTISEPTICS	
15.1 Antiseptics	
<input type="checkbox"/> chlorhexidine	Solution: 5% (digluconate) for dilution.
<input type="checkbox"/> ethanol	Solution: 70% (denatured).
<input type="checkbox"/> polyvidone iodine	Solution: 10%.
15.2 Disinfectants	
<input type="checkbox"/> chlorine base compound	Powder: (0.1% available chlorine) for solution.
<input type="checkbox"/> chloroxylenol	Solution: 4.8%.
glutaral	Solution: 2%.
16. DIURETICS	
amiloride	Tablet: 5 mg (hydrochloride).
<input type="checkbox"/> furosemide	Injection: 10 mg/ml in 2-ml ampoule. Tablet: 40 mg.
<input type="checkbox"/> hydrochlorothiazide	Tablet (scored): 25 mg.
mannitol	Injectable solution: 10%; 20%.
spironolactone	Tablet: 25 mg.

17. GASTROINTESTINAL MEDICINES	
17.1 Antacids and other antiulcer medicines	
aluminium hydroxide	Oral liquid: 320 mg/5 ml. Tablet: 500 mg.
<input type="checkbox"/> ranitidine	Injection: 25 mg/ml in 2-ml ampoule. Oral liquid: 75 mg/5 ml. Tablet: 150 mg (as hydrochloride).
magnesium hydroxide	Oral liquid: equivalent to 550 mg magnesium oxide/10 ml.
17.2 Antiemetic medicines	
metoclopramide	Injection: 5 mg (hydrochloride)/ml in 2-ml ampoule. Tablet: 10 mg (hydrochloride).
promethazine	Injection: 25 mg (hydrochloride)/ml in 2-ml ampoule. Oral liquid: 5 mg (hydrochloride)/5 ml. Tablet: 10 mg; 25 mg (hydrochloride).
17.3 Anti-inflammatory medicines	
<input type="checkbox"/> sulfasalazine	Retention enema. Suppository: 500 mg. Tablet: 500 mg.
<i>Complementary List</i>	
<input type="checkbox"/> <i>hydrocortisone</i>	Retention enema. Suppository: 25 mg (acetate). (the <input type="checkbox"/> only applies to hydrocortisone retention enema).
17.4 Laxatives	
<input type="checkbox"/> senna	Tablet: 7.5 mg (sennosides) (or traditional dosage forms).

17.5 Medicines used in diarrhoea	
17.5.1 Oral rehydration	
oral rehydration salts*	<p>glucose: 75 mEq sodium: 75 mEq or mmol/l chloride: 65 mEq or mmol/l potassium: 20 mEq or mmol/l citrate: 10 mmol/l osmolarity: 245 mOsm/l glucose: 13.5 g/l sodium chloride: 2.6 g/l potassium chloride: 1.5 g/l trisodium citrate dihydrate+: 2.9 g/l</p> <p>+ trisodium citrate dihydrate may be replaced by sodium hydrogen carbonate (sodium bicarbonate) 2.5 g/l. However, as the stability of this latter formulation is very poor under tropical conditions, it is only recommended when manufactured for immediate use.</p> <p>* In cases of cholera a higher concentration of sodium may be required.</p>
17.5.2 Medicines for diarrhoea in children	
zinc sulfate*	<p>Oral liquid: in 10 mg per unit dosage forms. Tablet: 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>
17.5.3 Antidiarrhoeal (symptomatic) medicines in adults	
codeine*	<p>Tablet: 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>
18. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES	
18.1 Adrenal hormones and synthetic substitutes	
Addison's disease is a rare condition; adrenal hormones are already included in section 3.	
18.2 Androgens	
<i>Complementary List</i>	
testosterone	Injection: 200 mg (enantate) in 1-ml ampoule.
18.3 Contraceptives	
18.3.1 Oral hormonal contraceptives	
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> levonorgestrel	Tablet: 30 micrograms + 150 micrograms.
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> norethisterone	Tablet: 35 micrograms + 1.0 mg.
levonorgestrel	Tablet: 30 micrograms; 750 micrograms (pack of two); 1.5 mg.

WHO Model List

18.3.2 Injectable hormonal contraceptives	
medroxyprogesterone acetate	Depot injection: 150 mg/ml in 1-ml vial.
medroxyprogesterone acetate + estradiol cypionate	Injection: 25 mg + 5 mg.
norethisterone enantate	Oily solution: 200 mg/ml in 1-ml ampoule.
18.3.3 Intrauterine devices	
copper-containing device	
18.3.4 Barrier methods	
condoms	
diaphragms	
18.3.5 Implantable contraceptives	
levonorgestrel-releasing implant	Two-rod levonorgestrel-releasing implant, each rod containing 75 mg of levonorgestrel (150 mg total).
18.4 Estrogens	
<input type="checkbox"/> ethinylestradiol*	Tablet: 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.
18.5 Insulins and other antidiabetic agents	
glibenclamide	Tablet: 2.5 mg; 5 mg.
insulin injection (soluble)	Injection: 40 IU/ml in 10-ml vial; 100 IU/ml in 10-ml vial.
intermediate-acting insulin	Injection: 40 IU/ml in 10-ml vial; 100 IU/ml in 10-ml vial (as compound insulin zinc suspension or isophane insulin).
metformin	Tablet: 500 mg (hydrochloride).
18.6 Ovulation inducers	
<i>Complementary List</i>	
<i>clomifene</i>	Tablet: 50 mg (citrate).
18.7 Progestogens	
norethisterone*	Tablet: 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.

WHO Model List

<i>Complementary List</i>	
<i>medroxyprogesterone acetate*</i>	Tablet: 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.
18.8 Thyroid hormones and antithyroid medicines	
levothyroxine	Tablet: 50 micrograms; 100 micrograms (sodium salt).
potassium iodide	Tablet: 60 mg.
<input type="checkbox"/> propylthiouracil	Tablet: 50 mg.
19. IMMUNOLOGICALS	
19.1 Diagnostic agents	
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)	Injection.
19.2 Sera and immunoglobulins	
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)	Injection: 250 micrograms in single-dose vial.
antitetanus immunoglobulin (human)	Injection: 500 IU in vial.
antivenom immunoglobulin*	Injection. * Exact type to be defined locally.
diphtheria antitoxin	Injection: 10 000 IU; 20 000 IU in vial.
<input type="checkbox"/> rabies immunoglobulin	Injection: 150 IU/ml in vial.
19.3 Vaccines	
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) (http://www.who.int/immunization/sage_conclusions/en/index.html) and/or a WHO position paper (http://www.who.int/immunization/documents/positionpapers/en/index.html). 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	

WHO Model List

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	
20. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) AND CHOLINESTERASE INHIBITORS	
□ alcuronium	Injection: 5 mg (chloride)/ml in 2-ml ampoule.
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.
<i>Complementary List</i>	
<i>pyridostigmine</i>	Injection: 1 mg in 1-ml ampoule. Tablet: 60 mg (bromide).
□ <i>vecuronium</i>	Powder for injection: 10 mg (bromide) in vial.

21. OPHTHALMOLOGICAL PREPARATIONS	
This section will be reviewed at the next meeting of the Expert Committee.	
21.1 Anti-infective agents	
aciclovir	Ointment: 3% W/W.
<input type="checkbox"/> gentamicin*	Solution (eye drops): 0.3% (sulfate). * Final selection depends on indication for use.
<input type="checkbox"/> tetracycline	Eye ointment: 1% (hydrochloride).
21.2 Anti-inflammatory agents	
<input type="checkbox"/> prednisolone	Solution (eye drops): 0.5% (sodium phosphate).
21.3 Local anaesthetics	
<input type="checkbox"/> tetracaine	Solution (eye drops): 0.5% (hydrochloride).
21.4 Miotics and antiglaucoma medicines	
acetazolamide	Tablet: 250 mg.
<input type="checkbox"/> pilocarpine	Solution (eye drops): 2%; 4% (hydrochloride or nitrate).
<input type="checkbox"/> timolol	Solution (eye drops): 0.25%; 0.5% (as maleate).
21.5 Mydriatics	
atropine	Solution (eye drops): 0.1%; 0.5%, 1% (sulfate).
<i>Complementary List</i>	
<i>epinephrine (adrenaline)</i>	Solution (eye drops): 2% (as hydrochloride).
22. OXYTOCICS AND ANTIOXYTOCICS	
22.1 Oxytocics	
<input type="checkbox"/> ergometrine	Injection: 200 micrograms (hydrogen maleate) in 1-ml ampoule.
oxytocin	Injection: 10 IU in 1-ml ampoule.
<i>Complementary List</i>	
<i>misoprostol</i>	Vaginal tablet: 25 micrograms.
<i>mifepristone* – misoprostol*</i>	Tablet 200 mg – tablet 200 micrograms. * Requires close medical supervision.
Where permitted under national law and where culturally acceptable.	
22.2 Antioxytocics (tocolytics)	
nifedipine	Immediate release capsule: 10 mg.

23. PERITONEAL DIALYSIS SOLUTION	
<i>Complementary List</i>	
<i>intraperitoneal dialysis solution (of appropriate composition)</i>	<i>Parenteral solution.</i>
24. PSYCHOTHERAPEUTIC MEDICINES	
24.1 Medicines used in psychotic disorders	
<input type="checkbox"/> chlorpromazine	Injection: 25 mg (hydrochloride)/ml in 2-ml ampoule. Oral liquid: 25 mg (hydrochloride)/5 ml. Tablet: 100 mg (hydrochloride).
<input type="checkbox"/> fluphenazine	Injection: 25 mg (decanoate or enantate) in 1-ml ampoule.
<input type="checkbox"/> haloperidol	Injection: 5 mg in 1-ml ampoule. Tablet: 2 mg; 5 mg.
24.2 Medicines used in mood disorders	
24.2.1 Medicines used in depressive disorders	
<input type="checkbox"/> amitriptyline	Tablet: 25 mg (hydrochloride).
fluoxetine	Capsule or tablet: 20 mg (present as hydrochloride).
24.2.2 Medicines used in bipolar disorders	
carbamazepine	Tablet (scored): 100 mg; 200 mg.
lithium carbonate	Capsule or tablet: 300 mg.
valproic acid	Tablet (enteric-coated): 200 mg; 500 mg (sodium valproate).
24.3 Medicines used in generalized anxiety and sleep disorders	
<input type="checkbox"/> diazepam	Tablet (scored): 2 mg; 5 mg.
24.4 Medicines used for obsessive compulsive disorders and panic attacks	
clomipramine	Capsule: 10 mg; 25 mg (hydrochloride).
24.5 Medicines used in substance dependence programmes	
<i>Complementary List</i>	
<input type="checkbox"/> methadone*	Concentrate for oral liquid: 5 mg/ml; 10 mg/ml (hydrochloride). Oral liquid: 5 mg/5 ml; 10 mg/5 ml. * The square box is added to include buprenorphine. The medicines should only be used within an established support programme.
25. MEDICINES ACTING ON THE RESPIRATORY TRACT	
25.1 Antiasthmatic and medicines for chronic obstructive pulmonary disease	
<input type="checkbox"/> beclometasone	Inhalation (aerosol): 50 micrograms per dose (dipropionate); 250 micrograms (dipropionate) per dose.

WHO Model List

epinephrine (adrenaline)	Injection: 1 mg (as hydrochloride or hydrogen tartrate) in 1-ml ampoule.
ipratropium bromide	Inhalation (aerosol): 20 micrograms/metered dose.
<input type="checkbox"/> salbutamol	Inhalation (aerosol): 100 micrograms (as sulfate) per dose. Injection: 50 micrograms (as sulfate)/ml in 5-ml ampoule. Oral liquid: 2 mg/5 ml. Respirator solution for use in nebulizers: 5 mg (as sulfate)/ml. Tablet: 2 mg; 4 mg (as sulfate).
25.2 Other medicines acting on the respiratory tract	
caffeine citrate	Injection: 20 mg/ml (equivalent to 10 mg caffeine base/ml). Oral liquid: 20 mg/ml (equivalent to 10 mg caffeine base/ml).
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%; 10% isotonic; 50% hypertonic.
glucose with sodium chloride	Injectable solution: 4% glucose, 0.18% sodium chloride (equivalent to Na ⁺ 30 mmol/l, Cl ⁻ 30 mmol/l).
potassium chloride	Solution: 11.2% in 20-ml ampoule (equivalent to K ⁺ 1.5 mmol/ml, Cl ⁻ 1.5 mmol/ml).
sodium chloride	Injectable solution: 0.9% isotonic (equivalent to Na ⁺ 154 mmol/l, Cl ⁻ 154 mmol/l).
sodium hydrogen carbonate	Injectable solution: 1.4% isotonic (equivalent to Na ⁺ 167 mmol/l, HCO ₃ ⁻ 167 mmol/l). Solution: 8.4% in 10-ml ampoule (equivalent to Na ⁺ 1000 mmol/l, HCO ₃ ⁻ 1000 mmol/l).
<input type="checkbox"/> sodium lactate, compound solution	Injectable solution.
26.3 Miscellaneous	
water for injection	2-ml; 5-ml; 10-ml ampoules.
27. VITAMINS AND MINERALS	
ascorbic acid	Tablet: 50 mg.
<input type="checkbox"/> ergocalciferol	Capsule or tablet: 1.25 mg (50 000 IU). Oral liquid: 250 micrograms/ml (10 000 IU/ml).

Essential Medicines
WHO Model List

15th edition (March 2007)

iodine	<p>Capsule: 200 mg.</p> <p>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.</p>
☐ nicotinamide	Tablet: 50 mg.
pyridoxine	Tablet: 25 mg (hydrochloride).
retinol	<p>Capsule: 50 000 IU; 100 000 IU; 200 000 IU (as palmitate).</p> <p>Oral oily solution: 100 000 IU (as palmitate)/ml in multidose dispenser.</p> <p>Tablet (sugar-coated): 10 000 IU (as palmitate).</p> <p>Water-miscible injection: 100 000 IU (as palmitate) in 2-ml ampoule.</p>
riboflavin	Tablet: 5 mg.
sodium fluoride	In any appropriate topical formulation.
thiamine	Tablet: 50 mg (hydrochloride).
<i>Complementary List</i>	
<i>calcium gluconate</i>	<i>Injection:</i> 100 mg/ml in 10-ml ampoule.

WHO Model List

Index

abacavir (ABC)	9	calcium gluconate	3, 27
acetazolamide	24	<i>capreomycin</i>	8
acetylcysteine	3	carbamazepine.....	3, 25
acetylsalicylic acid	1, 13, 17	carbidopa.....	14
aciclovir	8, 24	cefazolin.....	5
albendazole.....	4	cefixime.....	5
alcuronium.....	23	<i>ceftazidime</i>	5
allopurinol	2	<i>ceftriaxone</i>	5
aluminium diacetate.....	17	charcoal, activated.....	3
aluminium hydroxide	19	<i>chlorambucil</i>	13
amidotrizoate	18	chloramphenicol.....	6
<i>amikacin</i>	7	chlorhexidine	18
amiloride	18	chlorine base compound	18
amitriptyline.....	25	chloroquine	2, 11, 12
amlodipine.....	16	chloroxylenol	18
amodiaquine.....	11	chlorphenamine.....	2
amoxicillin	5	chlorpromazine	25
amoxicillin + clavulanic acid	5	cholera vaccine	22
<i>amphotericin B</i>	8, 11	<i>ciclosporin</i>	13
ampicillin	5	<i>cilastatin</i>	5
anti-D immunoglobulin (human).....	22	ciprofloxacin	6
antitetanus immunoglobulin (human).....	22	<i>cisplatin</i>	13
antivenom immunoglobulin	22	clavulanic acid	5
artemether	11	<i>clindamycin</i>	6
artemether + lumefantrine	11	clofazimine.....	7
artesunate.....	11	<i>clomifene</i>	21
ascorbic acid	26	clomipramine.....	25
<i>asparaginase</i>	13	clotrimazole	8
atenolol.....	15, 16	cloxacillin	5
atropine	1, 3, 24	coal tar	17
<i>azathioprine</i>	2, 13	codeine.....	2, 20
azithromycin.....	6	condoms	21
bacitracin.....	17	copper-containing device.....	21
barium sulfate	18	<i>cyclophosphamide</i>	13
BCG vaccine.....	22	<i>cycloserine</i>	8
beclometasone	25	<i>cytarabine</i>	13
benzathine benzylpenicillin	5	<i>dacarbazine</i>	13
benznidazole.....	13	<i>dactinomycin</i>	13
benzoic acid	17	dapsone	7
benzoic acid + salicylic acid.....	17	<i>daunorubicin</i>	13
benzoyl peroxide.....	17	deferroxamine	3
benzyl benzoate.....	18	dexamethasone.....	2, 14
benzylpenicillin.....	5	dextran 70.....	15
betamethasone.....	17	diaphragms	21
biperiden.....	14	diazepam	1, 3, 25
<i>bleomycin</i>	13	didanosine (ddI).....	9
bupivacaine.....	1	<i>diethylcarbamazine</i>	4
caffeine citrate	26	digoxin.....	15, 16
calamine lotion.....	17	diloxanide.....	10
<i>calcium folinate</i>	13	dimercaprol.....	3

WHO Model List

diphtheria antitoxin.....	22	hepatitis B vaccine.....	23
diphtheria vaccine	23	<i>human normal immunoglobulin</i>	15
dithranol.....	17	hydralazine	16
DL-methionine	3	hydrochlorothiazide	16, 18
<i>dopamine</i>	16	hydrocortisone.....	2, 14, 17, 19
<i>doxorubicin</i>	14	hydroxocobalamin	15
doxycycline.....	6, 11, 12	ibuprofen.....	1
efavirenz.....	9, 10	<i>imipenem + cilastatin</i>	5
efavirenz + emtricitabine + tenofovir	10	immunoglobulin	22
eflornithine	12	indinavir (IDV).....	10
emtricitabine.....	9, 10	influenza vaccine.....	23
emtricitabine + tenofovir.....	10	insulin injection (soluble).....	21
enalapril	16	intermediate-acting insulin.....	21
<i>ephedrine</i>	1	<i>intra-peritoneal dialysis solution (of appropriate composition)</i>	25
epinephrine (adrenaline)	1, 2, 15, 24, 26	iodine	18, 27
ergocalciferol	26	iohexol	18
ergometrine.....	24	ipratropium bromide.....	26
erythromycin.....	6	isoniazid	7
estradiol cypionate.....	21	isoniazid + ethambutol	7
ethambutol.....	7	isosorbide dinitrate	15
ethanol.....	18	ivermectin	4
ethinylestradiol	20, 21	Japanese encephalitis vaccine.....	23
ethinylestradiol + levonorgestrel	20	<i>kanamycin</i>	8
ethinylestradiol + norethisterone.....	20	ketamine	1
<i>ethionamide</i>	8	lamivudine	9, 10
<i>ethosuximide</i>	4	lamivudine (3TC)	9
<i>etoposide</i>	14	levamisole	4
<i>factor IX complex (coagulation factors, II, VII, IX, X) concentrate</i>	15	levodopa.....	14
<i>factor VIII concentrate</i>	15	levodopa + carbidopa	14
ferrous salt	14	levonorgestrel	20, 21
ferrous salt + folic acid	14	levonorgestrel-releasing implant	21
fluconazole.....	8	levothyroxine.....	22
<i>flucytosine</i>	8	lidocaine	1, 15
fluorescein.....	18	lidocaine + epinephrine (adrenaline).....	1
<i>fluorouracil</i>	14, 17	lithium carbonate	25
fluoxetine	25	lopinavir	10
fluphenazine.....	25	lopinavir + ritonavir (LPV/r).....	10
folic acid	14	lumefantrine	11
furosemide	16, 18	magnesium hydroxide	19
gentamicin	6, 24	magnesium sulfate	3
gentian violet.....	17	mannitol	18
glibenclamide	21	measles vaccine	23
glucose.....	1, 20, 26	mebendazole.....	4
glutaral	18	medroxyprogesterone acetate	21, 22
glyceryl trinitrate	15	medroxyprogesterone acetate + estradiol cypionate	21
griseofulvin.....	8	mefloquine	12
<i>Haemophilus influenzae</i> type b vaccine	23	meglumine antimoniate	11
haloperidol.....	25	<i>meglumine iotroxate</i>	18
halothane.....	1	melarsoprol	13
heparin sodium	15	meningococcal meningitis vaccine	23
hepatitis A vaccine.....	23		

WHO Model List

<i>mercaptopurine</i>	14	potassium ferric hexacyano-ferrate(II) -2H ₂ O (Prussian blue).....	3
metformin.....	21	<i>potassium iodide</i>	8, 22
<i>methadone</i>	25	potassium permanganate.....	17
<i>methotrexate</i>	2, 14	praziquantel.....	4
methyl dopa.....	16	prednisolone.....	2, 14, 24
methylene blue.....	3	primaquine.....	12
methylrosanilinium chloride (gentian violet).....	17	<i>procainamide</i>	16
methylthioninium chloride (methylene blue).....	3	procaine benzylpenicillin.....	5
metoclopramide.....	19	<i>procarbazine</i>	14
metronidazole.....	6, 11	proguanil.....	12
miconazole.....	17	promethazine.....	1, 19
<i>mifepristone</i>	24	propranolol.....	13
<i>misoprostol</i>	24	propylthiouracil.....	22
morphine.....	1, 2	protamine sulfate.....	15
mumps vaccine.....	23	Prussian blue.....	3
naloxone.....	3	pyrantel.....	4
nelfinavir (NFV).....	10	pyrazinamide.....	7
neomycin sulfate.....	17	<i>pyridostigmine</i>	23
neomycin sulfate + bacitracin.....	17	pyridoxine.....	27
neostigmine.....	23	pyrimethamine.....	11, 12
nevirapine.....	10	<i>quinidine</i>	16
niclosamide.....	4	quinine.....	12
nicotinamide.....	27	rabies immunoglobulin.....	22
nifedipine.....	24	rabies vaccine.....	23
nifurtimox.....	13	ranitidine.....	19
nitrofurantoin.....	6	retinol.....	27
nitrous oxide.....	1	ribavirin.....	10
norethisterone.....	20, 21	riboflavin.....	27
nystatin.....	8	rifampicin.....	7
<i>ofloxacin</i>	8	rifampicin + isoniazid.....	7
oral rehydration salts.....	20, 26	rifampicin + isoniazid + ethambutol.....	7
<i>oxamniquine</i>	5	rifampicin + isoniazid + pyrazinamide.....	7
oxygen.....	1	rifampicin + isoniazid + pyrazinamide + ethambutol.....	7
oxytocin.....	24	ritonavir.....	10
<i>p-aminosalicylic acid</i>	8	rotavirus vaccine.....	23
paracetamol.....	2, 13	rubella vaccine.....	23
paromomycin.....	11	salbutamol.....	26
<i>penicillamine</i>	2, 3	salicylic acid.....	17
<i>pentamidine</i>	11, 12	saquinavir (SQV).....	10
permethrin.....	18	<i>selenium sulfide</i>	17
pertussis vaccine.....	23	senna.....	19
phenobarbital.....	3	silver sulfadiazine.....	17
phenoxymethylpenicillin.....	5	simvastatin.....	17
phenytoin.....	4	sodium calcium edetate.....	3
phytomenadione.....	15	sodium chloride.....	20, 26
pilocarpine.....	24	sodium fluoride.....	27
pneumococcal vaccine.....	23	sodium hydrogen carbonate.....	20, 26
podophyllum resin.....	17	sodium lactate.....	26
poliomyelitis vaccine.....	23	sodium nitrite.....	3
polyvidone iodine.....	18	<i>sodium nitroprusside</i>	16
potassium chloride.....	20, 26		

WHO Model List

sodium thiosulfate	3, 17	thiopental	1
sodium valproate	4, 25	timolol.....	24
spectinomycin	6	triclabendazole	4
spironolactone	18	trimethoprim	6
stavudine.....	9, 10	tropicamide	18
stavudine + lamivudine + nevirapine.....	10	tuberculin, purified protein derivative (PPD).....	22
<i>streptokinase</i>	17	typhoid vaccine	23
streptomycin.....	7	urea	18
<i>sulfadiazine</i>	6	valproic acid.....	4, 25
sulfadoxine	11, 12	<i>vancomycin</i>	7
sulfadoxine + pyrimethamine	12	varicella vaccine	23
sulfamethoxazole	6, 12	<i>vecuronium</i>	23
sulfamethoxazole + trimethoprim	6, 12	verapamil	15, 16
<i>sulfasalazine</i>	2, 19	<i>vinblastine</i>	14
<i>suramin sodium</i>	4, 12	<i>vincristine</i>	14
suxamethonium	23	warfarin	15
<i>tamoxifen</i>	14	water for injection	26
tenofovir disoproxil fumarate	9, 10	yellow fever vaccine	23
<i>testosterone</i>	20	zidovudine	9, 10
tetanus vaccine	23	zidovudine + lamivudine.....	10
tetracaine.....	24	zidovudine + lamivudine + nevirapine.....	10
tetracycline.....	24	zinc sulfate	20
thiamine	27		