

## Essential Medicines

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# WHO Model List (revised April 2002)

## Core List

### 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.

When the strength of a drug is specified in terms of a selected salt or ester, this is mentioned in brackets; when it refers to the active moiety, the name of the salt or ester in brackets is preceded by the word "as". Many drugs included in the list are preceded by a box (□) to indicate that they represent an example of a therapeutic group and that various drugs could serve as alternatives. It is imperative that this is understood when drugs are selected at national level, since choice is then influenced by the comparative cost and availability of equivalent products. Examples of acceptable substitutions include:

- ▣ Hydrochlorothiazide: any other thiazide-type diuretic currently in broad clinical use.
- ▣ Hydralazine: any other peripheral vasodilator having an antihypertensive effect.
- ▣ Senna: any stimulant laxative (either synthetic or of plant origin).

Numbers in parentheses following drug names indicate:

- (1) Drugs subject to international control under: (a) the Single Convention on Narcotic Drugs (1961); (b) the Convention on Psychotropic Substances (1971); or (c) the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988).
- (2) Specific expertise, diagnostic precision, individualization of dosage or special equipment required for proper use.
- (3) Greater potency or efficacy.
- (4) In renal insufficiency, contraindicated or dosage adjustments necessary.
- (5) To improve compliance.
- (6) Special pharmacokinetic properties.
- (7) Adverse effects diminish benefit/risk ratio.
- (8) Limited indications or narrow spectrum of activity.
- (9) For epidural anaesthesia.
- (10) Sustained-release preparations are available. A proposal to include such a product in a national list of essential drugs should be supported by adequate documentation.
- (11) Monitoring of therapeutic concentrations in plasma can improve safety and efficacy.

Drugs are listed in alphabetical order.

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<b>1. ANAESTHETICS</b>		
<b>1.1 General anaesthetics and oxygen</b>		
ether, anaesthetic	(1c, 2)	inhalation
halothane	(2)	inhalation
ketamine	(2)	injection, 50 mg (as hydrochloride)/ml in 10-ml vial
nitrous oxide	(2)	inhalation
oxygen		inhalation (medicinal gas)
<input type="checkbox"/> thiopental	(2)	powder for injection, 0.5 g, 1.0 g (sodium salt) in ampoule
<b>1.2 Local anaesthetics</b>		
<input type="checkbox"/> bupivacaine	(2, 9)	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)
<input type="checkbox"/> lidocaine + epinephrine (adrenaline)		injection 1%, 2% (hydrochloride)+ epinephrine 1:200 000 in vial; dental cartridge 2% (hydrochloride) + epinephrine 1:80 000
<b>1.3 Preoperative medication and sedation for short-term procedures</b>		
atropine		injection, 1 mg (sulfate) in 1-ml ampoule
chloral hydrate		syrup, 200 mg/5ml
<input type="checkbox"/> diazepam	(1b)	injection, 5 mg/ml in 2-ml ampoule; tablet, 5 mg
<input type="checkbox"/> morphine	(1a)	injection, 10 mg (sulfate or hydrochloride) in 1-ml ampoule
<input type="checkbox"/> promethazine		elixir or syrup, 5 mg (hydrochloride)/5ml
<b>2. ANALGESICS, ANTIPYRETICS, NON-STEROIDAL ANTI-INFLAMMATORY MEDICINES (NSAIDs), 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 (NSAIDs)</b>		
acetylsalicylic acid		tablet, 100-500 mg; suppository, 50-150 mg
<input type="checkbox"/> ibuprofen		tablet, 200 mg, 400 mg
paracetamol		tablet, 100-500 mg; suppository, 100 mg; syrup, 125 mg/5ml

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<b>2.2 Opioid analgesics</b>		
<input type="checkbox"/> codeine	(1a)	tablet, 30 mg (phosphate)
<input type="checkbox"/> morphine	(1a)	injection, 10 mg in 1-ml ampoule (sulfate or hydrochloride); oral solution, 10 mg (hydrochloride or sulfate)/5 ml; tablet, 10 mg (sulfate)
<b>2.3 Medicines used to treat gout</b>		
allopurinol	(4)	tablet, 100 mg
colchicine	(7)	tablet, 500 micrograms
<b>2.4 Disease modifying agents used in rheumatoid disorders (DMARDs)</b>		
azathioprine	(2)	tablet, 50 mg
chloroquine	(2)	tablet, 100 mg, 150 mg (as phosphate or sulfate)
cyclophosphamide	(2)	tablet, 25 mg
methotrexate	(2)	tablet, 2.5 mg (as sodium salt)
penicillamine	(2)	capsule or tablet, 250 mg
sulfasalazine	(2)	tablet, 500 mg
<b>3. ANTIALLERGICS AND MEDICINES USED IN ANAPHYLAXIS</b>		
<input type="checkbox"/> chlorphenamine		tablet, 4 mg (hydrogen maleate); injection, 10 mg (hydrogen maleate) in 1-ml ampoule
<input type="checkbox"/> dexamethasone		tablet, 500 micrograms, 4 mg; 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		tablet, 5 mg
<b>4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONING</b>		
<b>4.1 Non-specific</b>		
<input type="checkbox"/> charcoal, activated		powder
ipecacuanha		syrup, containing 0.14% ipecacuanha alkaloids calculated as emetine

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<b>4.2 Specific</b>		
acetylcysteine		injection, 200 mg/ml in 10-ml ampoule
atropine		injection, 1 mg (sulfate) in 1-ml ampoule
calcium gluconate	(2, 8)	injection, 100 mg/ml in 10-ml ampoule
deferoxamine		powder for injection, 500 mg (mesilate) in vial
dimercaprol	(2)	injection in oil, 50 mg/ml in 2-ml ampoule
□DL-methionine		tablet, 250 mg
methylthioninium chloride (methylene blue)		injection, 10 mg/ml in 10-ml ampoule
naloxone		injection, 400 micrograms (hydrochloride) in 1-ml ampoule
penicillamine	(2)	capsule or tablet, 250 mg
potassium ferric hexacyano-ferrate(II) ·2H <sub>2</sub> O (Prussian blue)		powder for oral administration
sodium calcium edetate	(2)	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
<b>5. ANTICONVULSANTS/ANTIEPILEPTICS</b>		
carbamazepine	(10,11)	scored tablet, 100 mg, 200 mg
□diazepam	(1b)	injection, 5 mg/ml in 2-ml ampoule (intravenous or rectal)
ethosuximide		capsule, 250 mg; syrup, 250 mg/5ml
magnesium sulfate		injection, 500 mg/ml in 2-ml ampoule; 500mg/ml in 10-ml ampoule
phenobarbital	(1b, 11)	tablet, 15-100 mg; elixir, 15 mg/5ml
phenytoin	(7, 11)	capsule or tablet, 25 mg, 50 mg, 100 mg (sodium salt); injection, 50 mg/ml in 5-ml vial (sodium salt)
valproic acid	(7, 11)	enteric coated tablet, 200 mg, 500 mg (sodium salt)

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<b>6. ANTI-INFECTIVE MEDICINES</b>		
<b>6.1 Anthelmintics</b>		
<i>6.1.1 Intestinal anthelmintics</i>		
albendazole		chewable tablet, 400 mg
levamisole		tablet, 50 mg; 150 mg (as hydrochloride)
<input type="checkbox"/> mebendazole		chewable tablet, 100 mg, 500 mg
niclosamide		chewable tablet, 500 mg
praziquantel		tablet, 150 mg, 600 mg
pyrantel		chewable tablet 250 mg (as embonate); oral suspension, 50 mg (as embonate)/ml
<i>6.1.2 Antifilarials</i>		
diethylcarbamazine		tablet, 50 mg, 100 mg ( dihydrogen citrate)
ivermectin		scored tablet, 3 mg, 6 mg
<i>6.1.3 Antischistosomal and antitremitode medicines</i>		
praziquantel		tablet, 600 mg
triclabendazole		tablet, 250 mg
<b>6.2 Antibacterials</b>		
<i>6.2.1 Beta Lactam medicines</i>		
<input type="checkbox"/> amoxicillin		capsule or tablet, 250 mg, 500 mg (anhydrous); powder for oral suspension, 125 mg (anhydrous)/5 ml
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
<input type="checkbox"/> cloxacillin		capsule, 500 mg, 1 g (as sodium salt); powder for oral solution, 125 mg (as sodium salt)/5 ml; powder for injection, 500 mg (as sodium salt) in vial
phenoxymethylpenicillin		tablet, 250 mg (as potassium salt); powder for oral suspension, 250 mg (as potassium salt)/5 ml
procaine benzylpenicillin		powder for injection, 1 g (=1 million IU), 3 g (=3 million IU) in vial

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6.2.2 Other antibacterials		
<input type="checkbox"/> chloramphenicol	(7)	capsule, 250 mg; oral suspension, 150 mg (as palmitate)/5 ml; powder for injection, 1 g (sodium succinate) in vial
<input type="checkbox"/> ciprofloxacin		tablet 250 mg (as hydrochloride)
<input type="checkbox"/> doxycycline	(5, 6)	capsule or tablet, 100 mg (hydrochloride)
<input type="checkbox"/> erythromycin		capsule or tablet, 250 mg (as stearate or ethyl succinate) ; powder for oral suspension, 125 mg (as stearate or ethyl succinate); powder for injection, 500 mg (as lactobionate) in vial
<input type="checkbox"/> gentamicin	(2, 4, 7, 11)	injection, 10 mg, 40 mg (as sulfate)/ml in 2-ml vial
<input type="checkbox"/> metronidazole		tablet, 200-500 mg; injection, 500 mg in 100-ml vial; suppository, 500 mg, 1 g; oral suspension, 200 mg (as benzoate)/5 ml
nalidixic acid	(8)	tablet 250 mg, 500 mg
nitrofurantoin	(4, 8)	tablet, 100 mg
spectinomycin	(8)	powder for injection, 2 g (as hydrochloride) in vial
<input type="checkbox"/> sulfadiazine	(4)	tablet, 500 mg; injection, 250 mg (sodium salt) in 4-ml ampoule
<input type="checkbox"/> sulfamethoxazole + trimethoprim	(4)	tablet, 100 mg + 20 mg, 400 mg + 80 mg; oral suspension, 200 mg + 40 mg/5 ml; injection, 80 mg + 16 mg/ml in 5-ml and 10-ml ampoules
trimethoprim	(8)	tablet, 100 mg, 200 mg; injection 20 mg/ml in 5-ml ampoule
6.2.3 Antileprosy medicines		
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	(4)	tablet, 100 mg-400 mg (hydrochloride)
isoniazid		tablet, 100 -300 mg
isoniazid + ethambutol	(5)	tablet, 150 mg + 400 mg
pyrazinamide		tablet, 400 mg
rifampicin		capsule or tablet, 150 mg, 300 mg
rifampicin + isoniazid	(5)	tablet, 60 mg + 30 mg; 150 mg + 75 mg; 300 mg + 150 mg; 60 mg + 60 mg ( <i>For intermittent use three times weekly</i> ); 150 mg + 150 mg ( <i>For intermittent use three times weekly</i> )

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rifampicin + isoniazid + pyrazinamide	(5)	tablet, 60 mg + 30 mg + 150 mg; 150 mg + 75 mg + 400 mg 150 mg + 150 mg + 500 mg ( <i>For intermittent use three times weekly.</i> )
rifampicin + isoniazid + pyrazinamide + ethambutol		tablet, 150 mg + 75 mg + 400 mg + 275 mg
streptomycin	(4)	powder for injection, 1 g (as sulfate) in vial
<b>6.3 Antifungal medicines</b>		
amphotericin B	(4)	powder for injection, 50 mg in vial
□ fluconazole		capsule 50 mg; injection 2 mg/ml in vial; oral suspension 50 mg/5-ml
griseofulvin	(7)	capsule or tablet, 125 mg, 250 mg
nystatin		tablet, 100 000, 500 000 IU; lozenge 100 000 IU; pessary, 100 000 IU
<b>6.4 Antiviral medicines</b>		
<i>6.4.1 Antiherpes medicines</i>		
aciclovir	(8)	tablet, 200 mg; powder for injection 250 mg (as sodium salt) in vial
<i>6.4.2 Antiretrovirals</i>		
<p>Adequate resources and specialist oversight are a pre-requisite for the introduction of this class of drugs. The antiretroviral drugs do not cure the HIV infection, they only temporarily suppress viral replication and improve symptoms. They have various adverse effects and patients receiving these drugs require careful monitoring by adequately trained health professionals. For these reasons, continued rigorous promotion of measures to prevent new infections is essential and the need for this has not been diminished in any way by the addition of antiretroviral drugs to the Model List. Adequate resources and trained health professionals are a prerequisite for the introduction of this class of drugs. Effective therapy requires commencement of three or four drugs simultaneously, and alternative regimens are necessary to meet specific requirements at start-up, to substitute for first-line regimens in the case of toxicity, or to replace failing regimens. The Committee strongly recommends the use of three- or four-drug combinations as specifically recommended in the WHO treatment guidelines. The use of fixed dose preparations for these combinations is also recommended, with assured pharmaceutical quality and interchangeability with the single products as approved by the relevant drug regulatory authority.</p>		
<i>6.4.2.1 Nucleoside reverse transcriptase inhibitors</i>		
abacavir (ABC)		tablet, 300mg (as sulfate), oral solution, 100mg (as sulfate)/5ml
didanosine (ddI)		buffered chewable, dispersible tablet, 25mg, 50mg, 100mg, 150mg, 200mg buffered powder for oral solution, 100mg, 167mg, 250mg packets unbuffered enteric coated capsule, 125mg, 200mg, 250mg, 400mg
lamivudine (3TC)		tablet, 150mg, oral solution 50 mg/5ml
stavudine (d4T)		capsule 15mg, 20mg, 30mg, 40mg, powder for oral solution, 5mg/5ml

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zidovudine (ZDV or AZT)		tablet, 300mg capsule 100 mg, 250 mg oral solution or syrup, 50mg/5ml solution for IV infusion injection, 10 mg/ml in 20-ml vial
<i>6.4.2.2 Non-nucleoside reverse transcriptase inhibitors</i>		
efavirenz (EFV or EFZ)		capsule, 50mg, 100mg, 200mg oral solution, 150mg/5ml
nevirapine (NVP)		tablet 200 mg; oral suspension 50 mg/5-ml
<i>6.4.2.3 Protease inhibitors</i>		
Selection of two or three protease inhibitors from the Model List will need to be determined by each country after consideration of local treatment guidelines and experience, as well as the comparative costs of available products. Ritonavir is recommended for use in combination with indinavir, lopinavir and saquinavir as a booster, and not as a drug in its own right.		
indinavir (IDV)		capsule, 200mg, 333mg, 400mg (as sulfate)
ritonavir		capsule, 100mg, oral solution 400mg/5ml
lopinavir + ritonavir (LPV/r)		capsule, 133.3mg + 33.3mg, oral solution, 400mg + 100mg/5ml
nelfinavir (NFV)		tablet, 250mg (as mesilate), oral powder 50mg/g
saquinavir (SQV)		capsule, 200mg
<b>6.5 Antiprotozoal medicines</b>		
<i>6.5.1 Antiamoebic and anti giardiasis medicines</i>		
<input type="checkbox"/> diloxanide		tablet, 500 mg (furoate)
<input type="checkbox"/> metronidazole		tablet, 200-500 mg; injection, 500 mg in 100-ml vial; oral suspension 200 mg (as benzoate)/5 ml
<i>6.5.2 Antileishmaniasis medicines</i>		
<input type="checkbox"/> meglumine antimoniate		injection, 30%, equivalent to approximately 8.1% antimony, in 5-ml ampoule
pentamidine	(5)	powder for injection, 200 mg, 300 mg (isetionate) in vial
<i>6.5.3 Antimalarial medicines</i>		
<i>6.5.3.1 For curative treatment</i>		
artemether + lumefantrine*		tablet, 20 mg + 120 mg  * Recommended for use in areas with significant drug resistance and not in pregnancy or in children below 10kg



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<input type="checkbox"/> chloroquine		tablet 100 mg, 150 mg (as phosphate or sulfate); syrup, 50 mg (as phosphate or sulfate)/5 ml; injection 40 mg (as hydrochloride, phosphate or sulfate)/ml in 5-ml ampoule
primaquine		tablet, 7.5 mg, 15 mg (as diphosphate)
<input type="checkbox"/> quinine		tablet, 300 mg (as bisulfate or sulfate); injection, 300 mg (as dihydrochloride)/ml in 2-ml ampoule
<i>6.5.3.2 For prophylaxis</i>		
chloroquine		tablet, 150 mg (as phosphate or sulfate); syrup, 50 mg (as phosphate or sulfate)/5 ml
doxycycline		capsule or tablet, 100 mg (hydrochloride)
mefloquine		tablet, 250 mg (as hydrochloride)
proguanil		tablet, 100 mg (hydrochloride) ( <i>For use only in combination with chloroquine.</i> )
<i>6.5.4 Anti-pneumocystosis and antitoxoplasmosis medicines</i>		
pentamidine	(2)	tablet 200 mg, 300 mg
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>6.5.5. Antitrypanosomal medicines</i>		
<i>6.5.5.1 African trypanosomiasis</i>		
melarsoprol	(2)	injection, 3.6% solution
pentamidine	(2)	powder for injection, 200 mg, 300 mg (isetionate) in vial
suramin sodium		powder for injection, 1 g in vial
<i>6.5.5.2 American trypanosomiasis</i>		
benznidazole	(7)	tablet, 100 mg
nifurtimox	(2, 8)	tablet, 30 mg; 120 mg; 250 mg
<b>6.6 Insect repellents</b>		
diethyltoluamide		topical solution, 50%, 75%
<b>7. ANTIMIGRAINE MEDICINES</b>		
<b>7.1 For treatment of acute attack</b>		
acetylsalicylic acid		tablet, 300 -500 mg
ergotamine	(7)	tablet, 1 mg (tartrate)

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paracetamol		tablet, 300-500 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 (please see complementary list)</b>		
<b>8.2 Cytotoxic medicines (please see complementary list)</b>		
<b>8.3 Hormones and antihormones (please see complementary list)</b>		
<b>8.4 Medicines used in palliative care</b>		
<i>The WHO Expert Committee on the Use of Essential Drugs recommended that all the drugs mentioned in the WHO publication Cancer Pain Relief: with a Guide to Opioid Availability, second edition, be considered essential. The drugs are included in the relevant sections of the Model List, according to their therapeutic use, e.g. analgesics.</i>		
<b>9. ANTIPARKINSONISM MEDICINES</b>		
<input type="checkbox"/> biperiden		tablet, 2 mg (hydrochloride); injection, 5 mg (lactate) in 1-ml ampoule
levodopa + <input type="checkbox"/> carbidopa	(5, 6)	tablet, 100 mg + 10 mg; 250 mg + 25 mg
<b>10. MEDICINES AFFECTING THE BLOOD</b>		
<b>10.1 Antianaemia medicines</b>		
ferrous salt		tablet, equivalent to 60 mg iron; oral solution equivalent to 25 mg iron (as sulfate)/ml
ferrous salt + folic acid		tablet equivalent to 60 mg iron + 400 micrograms folic acid ( <i>Nutritional supplement for use during pregnancy.</i> )
folic acid	(2)	tablet 1mg, 5mg; injection, 1 mg (as sodium salt) in 1-ml ampoule
hydroxocobalamin	(2)	injection, 1 mg in 1-ml ampoule
<b>10.2 Medicines affecting coagulation</b>		
desmopressin	(8)	injection, 4 micrograms (acetate)/ml in 1-ml ampoule; nasal spray 10 micrograms (acetate)/metered dose
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	(2, 6)	tablet, 1 mg, 2 mg and 5 mg (sodium salt)

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<b>11. BLOOD PRODUCTS AND PLASMA SUBSTITUTES</b>		
<b>11.1 Plasma substitutes</b>		
<input type="checkbox"/> dextran 70		injectable solution, 6%
<input type="checkbox"/> polygeline		injectable solution, 3.5%
<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).		
<b>12. CARDIOVASCULAR MEDICINES</b>		
<b>12.1 Antianginal medicines</b>		
<input type="checkbox"/> atenolol		tablet, 50 mg, 100 mg
glyceryl trinitrate		tablet (sublingual), 500 micrograms
<input type="checkbox"/> isosorbide dinitrate		tablet (sublingual), 5 mg
<input type="checkbox"/> verapamil	(10)	tablet, 40 mg, 80 mg (hydrochloride)
<b>12.2 Antiarrhythmic medicines</b>		
<input type="checkbox"/> atenolol		tablet, 50 mg, 100 mg
digoxin	(4, 11)	tablet, 62.5 micrograms, 250 micrograms; oral solution 50 micrograms/ml; injection 250 micrograms/ml in 2-ml ampoule
lidocaine		injection, 20 mg (hydrochloride)/ml in 5-ml ampoule
verapamil	(8, 10)	tablet, 40 mg, 80 mg (hydrochloride); injection, 2.5 mg (hydrochloride)/ml in 2-ml ampoule
<b>12.3 Antihypertensive medicines</b>		
<input type="checkbox"/> atenolol		tablet, 50 mg, 100 mg
<input type="checkbox"/> captopril		scored tablet, 25 mg
<input type="checkbox"/> hydralazine		tablet, 25 mg, 50 mg (hydrochloride); powder for injection, 20 mg (hydrochloride) in ampoule
<input type="checkbox"/> hydrochlorothiazide		scored tablet, 25 mg
methyldopa	(7)	tablet, 250 mg
<input type="checkbox"/> nifedipine	(10)	sustained release formulations, tablet 10 mg
<input type="checkbox"/> reserpine		tablet, 100 micrograms, 250 micrograms; injection, 1 mg in 1-ml ampoule

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12.4 Medicines used in heart failure		
<input type="checkbox"/> captopril		scored tablet, 25 mg
digoxin	(4, 11)	tablet, 62.5 micrograms, 250 micrograms; oral solution, 50 micrograms/ml; injection, 250 micrograms/ml in 2-ml ampoule
dopamine		injection, 40 mg (hydrochloride) in 5-ml vial
<input type="checkbox"/> hydrochlorothiazide		tablet, 25 mg, 50 mg
12.5 Antithrombotic medicines		
acetylsalicylic acid		tablet, 100 mg
12.6 Lipid-lowering agents		
<p><i>The WHO Expert Committee on Use of Essential Drugs recognizes the value of lipid-lowering drugs in treating patients with hyperlipidaemia. HMG-CoA reductase inhibitors, often referred to as "statins", are a family of potent and effective lipid-lowering drugs with a good tolerability profile. Several of these drugs have been shown to reduce the incidence of fatal and non-fatal myocardial infarction, stroke and mortality (all causes), as well as the need for coronary by-pass surgery. All remain very costly but may be cost effective for secondary prevention of cardiovascular disease as well as for primary prevention in some very high-risk patients. Since no single drug has been shown to be significantly more effective or less expensive than others in the group, none is included in the Model List; the choice of drug for use in patients at highest risk should be decided at the national level.</i></p>		
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%
13.2 Anti-infective medicines		
<input type="checkbox"/> methylrosanilinium chloride (gentian violet)		aqueous solution, 0.5%; tincture, 0.5%
neomycin sulfate + <input type="checkbox"/> bacitracin	(7)	ointment, 5 mg neomycin sulfate + 500 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	(3)	ointment or cream, 0.1% (as valerate)
<input type="checkbox"/> calamine lotion		lotion
<input type="checkbox"/> hydrocortisone		ointment or cream, 1% (acetate)

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<b>13.4 Astringent medicines</b>		
aluminium diacetate		solution, 13% for dilution
<b>13.5 Medicines affecting skin differentiation and proliferation</b>		
benzoyl peroxide		lotion or cream, 5%
coal tar		solution, 5%
dithranol		ointment, 0.1%-2%
fluorouracil		ointment, 5%
<input type="checkbox"/> podophyllum resin	(7)	solution, 10-25%
salicylic acid		solution 5%
urea		ointment or cream, 10%
<b>13.6 Scabicides and pediculicides</b>		
<input type="checkbox"/> benzyl benzoate		lotion, 25%
permethrin		cream 5%; lotion 1%
<b>13.7 Ultraviolet blocking agents (please see complementary list)</b>		
<b>14. DIAGNOSTIC AGENTS</b>		
<b>14.1 Ophthalmic medicines</b>		
fluorescein		eye drops, 1% (sodium salt)
<input type="checkbox"/> tropicamide		eye drops, 0.5%
<b>14.2 Radiocontrast media</b>		
<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 and 20-ml ampoule
<input type="checkbox"/> iopanoic acid		tablet, 500 mg
<input type="checkbox"/> propylidone		oily suspension, 500-600 mg/ml in 20-ml ampoule ( <i>For administration only into the bronchial tree.</i> )

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<b>15. DISINFECTANTS AND ANTISEPTICS</b>		
<b>15.1 Antiseptics</b>		
<input type="checkbox"/> chlorhexidine		solution, 5% ( digluconate) for dilution
<input type="checkbox"/> ethanol		solution, 70% (denatured)
<input type="checkbox"/> polyvidone iodine		solution, 10%
<b>15.2 Disinfectants</b>		
<input type="checkbox"/> chlorine base compound		powder (0.1% available chlorine) for solution
<input type="checkbox"/> chloroxylenol		solution, 4.8%
glutaral		solution, 2%
<b>16. DIURETICS</b>		
<input type="checkbox"/> amiloride	(4, 7, 8)	tablet, 5 mg (hydrochloride)
<input type="checkbox"/> furosemide		tablet, 40 mg; injection, 10 mg/ml in 2-ml ampoule
<input type="checkbox"/> hydrochlorothiazide		tablet, 25 mg, 50 mg
spironolactone	(8)	tablet, 25 mg
<b>17. GASTROINTESTINAL MEDICINES</b>		
<b>17.1 Antacids and other antiulcer medicines</b>		
aluminium hydroxide		tablet, 500 mg; oral suspension, 320 mg/5 ml
<input type="checkbox"/> cimetidine		tablet, 200 mg; injection, 200 mg in 2-ml ampoule
magnesium hydroxide		oral suspension, equivalent to 550 mg magnesium oxide/10 ml
<b>17.2 Antiemetic medicines</b>		
metoclopramide		tablet, 10 mg (hydrochloride); injection, 5 mg (hydrochloride)/ml in 2-ml ampoule
<input type="checkbox"/> promethazine		tablet, 10 mg, 25 mg (hydrochloride); elixir or syrup, 5 mg (hydrochloride)/5 ml; injection, 25 mg (hydrochloride)/ml in 2-ml ampoule
<b>17.3 Antihaemorrhoidal medicines</b>		
<input type="checkbox"/> local anaesthetic, astringent and anti-inflammatory drug		ointment or suppository

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<b>17.4 Anti-inflammatory medicines</b>		
<input type="checkbox"/> hydrocortisone		suppository 25 mg (acetate); retention enema ( <i>The <input type="checkbox"/> only applies to hydrocortisone retention enema</i> )
<input type="checkbox"/> sulfasalazine	(2)	tablet, 500 mg; suppository 500 mg; retention enema
<b>17.5 Antispasmodic medicines</b>		
<input type="checkbox"/> atropine		tablet, 1 mg (sulfate); injection, 1 mg (sulfate) in 1-ml ampoule
<b>17.6 Laxatives</b>		
<input type="checkbox"/> senna		tablet, 7.5 mg (sennosides) (or traditional dosage forms)
<b>17.7 Medicines used in diarrhoea</b>		
<i>17.7.1 Oral rehydration</i>		
oral rehydration salts (for glucose-electrolyte solution)		powder, 27.9 g/l; Components to reconstitute 1 litre of glucose-electrolyte solution: sodium chloride 3.5 g/l; trisodium citrate dihydrate* 2.9 g/l; potassium chloride 1.5 g/l; glucose, 20.0 g/l
<i>*Trisodium citrate dihydrate may be replaced by sodium bicarbonate (sodium hydrogen carbonate) 2.5g/l. However, as the stability of this latter formulation is very poor under tropical conditions, it is only recommended when manufactured for immediate use.</i>		
<b>17.7.2 Antidiarrhoeal (symptomatic) medicines</b>		
<input type="checkbox"/> codeine	(1a)	tablet, 30 mg (phosphate)
<b>18. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES</b>		
<b>18.1 Adrenal hormones and synthetic substitutes</b>		
<input type="checkbox"/> dexamethasone		tablet 500 micrograms, 4 mg; injection 4 mg dexamethasone phosphate (as disodium salt) in 1-ml ampoule
hydrocortisone		powder for injection, 100 mg (as sodium succinate) in vial
<input type="checkbox"/> prednisolone		tablet 1 mg, 5 mg
<b>18.2 Androgens</b>		
<b>18.3 Contraceptives</b>		
<i>18.3.1 Hormonal contraceptives</i>		
<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> levonorgestrel		tablet, 30 micrograms + 150 micrograms tablet, 50 micrograms + 250 micrograms (pack of four)

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<input type="checkbox"/> ethinylestradiol + <input type="checkbox"/> norethisterone		tablet, 35 micrograms + 1.0 mg
levonorgestrel		tablet, 750 micrograms (pack of two)
<i>18.3.2 Intrauterine devices</i>		
copper-containing device		
<i>18.3.3 Barrier methods</i>		
condoms with or without spermicide (nonoxinol)		
diaphragms with spermicide (nonoxinol)		
<b>18.4 Estrogens</b>		
<input type="checkbox"/> ethinylestradiol		tablet, 10 micrograms, 50 micrograms
<b>18.5 Insulins and other antidiabetic agents</b>		
<input type="checkbox"/> 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)
<b>18.6 Ovulation inducers</b>		
<input type="checkbox"/> clomifene	(2, 8)	tablet, 50 mg (citrate)
<b>18.7 Progestogens</b>		
norethisterone		tablet, 5 mg
<b>18.8 Thyroid hormones and antithyroid medicines</b>		
levothyroxine		tablet, 50 micrograms, 100 micrograms (sodium salt)
potassium iodide		tablet, 60 mg
<input type="checkbox"/> propylthiouracil		tablet, 50 mg



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<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)		injection
<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)		injection, 250 micrograms in single-dose vial
<input type="checkbox"/> antitetanus immunoglobulin (human)		injection, 500 IU in vial
antivenom serum		injection
diphtheria antitoxin		injection, 10 000 IU, 20 000 IU in vial
immunoglobulin, human normal	(2)	injection (intramuscular)
immunoglobulin, human normal	(2, 8)	injection (intravenous)
<input type="checkbox"/> rabies immunoglobulin		injection, 150 IU/ml in vial
<b>19.3 Vaccines</b>		
All vaccines should comply with the WHO Requirements for Biological Substances.		
<i>19.3.1 For universal immunization</i>		
BCG vaccine		
diphtheria vaccine		
hepatitis B vaccine		
measles vaccine		
pertussis vaccine		
poliomyelitis vaccine		
tetanus vaccine		

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<i>19.3.2 For specific groups of individuals</i>		
influenza vaccine		
meningococcal meningitis vaccine		
mumps vaccine		
rabies vaccine (inactivated: prepared in cell culture)		
rubella vaccine		
typhoid vaccine		
yellow fever vaccine		
<b>20. MUSCLE RELAXANTS (PERIPHERALLY ACTING) AND CHOLINESTERASE INHIBITORS</b>		
<input type="checkbox"/> alcuronium	(2)	injection, 5 mg (chloride)/ml in 2-ml ampoule
<input type="checkbox"/> neostigmine		tablet, 15 mg (bromide); injection, 500 micrograms in 1-ml ampoule; 2.5 mg (metilsulfate) in 1-ml ampoule
pyridostigmine	(2, 8)	tablet, 60 mg (bromide); injection, 1 mg in 1-ml ampoule
suxamethonium	(2)	injection, 50 mg (chloride)/ml in 2-ml ampoule; powder for injection (chloride), in vial
<b>21. OPHTHALMOLOGICAL PREPARATIONS</b>		
<b>21.1 Anti-infective agents</b>		
<input type="checkbox"/> gentamicin		solution (eye drops), 0.3% (sulfate)
<input type="checkbox"/> idoxuridine		solution (eye drops), 0.1%; eye ointment, 0.2%
silver nitrate		solution (eye drops), 1%
<input type="checkbox"/> tetracycline		eye ointment, 1% (hydrochloride)
<b>21.2 Anti-inflammatory agents</b>		
<input type="checkbox"/> prednisolone		solution (eye drops), 0.5% (sodium phosphate)
<b>21.3 Local anaesthetics</b>		
<input type="checkbox"/> tetracaine		solution (eye drops), 0.5% (hydrochloride)

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<b>21.4 Miotics and antiglaucoma medicines</b>		
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)
<b>21.5 Mydriatics</b>		
atropine		solution (eye drops), 0.1%; 0.5%, 1% (sulfate)
<b>22. OXYTOCICS AND ANTIOXYTOCICS</b>		
<b>22.1 Oxytocics</b>		
<input type="checkbox"/> ergometrine		tablet, 200 micrograms (hydrogen maleate); injection, 200 micrograms (hydrogen maleate) in 1-ml ampoule
oxytocin		injection, 10 IU in 1-ml ampoule
<b>22.2 Antioxytocics</b>		
<input type="checkbox"/> salbutamol	(2)	tablet, 4 mg (as sulfate); injection, 50 micrograms (as sulfate)/ml in 5-ml ampoule
<b>23. PERITONEAL DIALYSIS SOLUTION</b>		
intraperitoneal dialysis solution (of appropriate composition)		parenteral solution
<b>24. PSYCHOTHERAPEUTIC MEDICINES</b>		
<b>24.1 Medicines used in psychotic disorders</b>		
<input type="checkbox"/> chlorpromazine		tablet, 100 mg (hydrochloride); syrup, 25 mg (hydrochloride)/5ml; injection, 25 mg (hydrochloride)/ml in 2-ml ampoule
<input type="checkbox"/> fluphenazine	(5)	injection, 25 mg (decanoate or enantate) in 1-ml ampoule
<input type="checkbox"/> haloperidol		tablet, 2 mg, 5 mg; injection, 5 mg in 1-ml ampoule
<b>24.2 Medicines used in mood disorders</b>		
<i>24.2.1 Medicines used in depressive disorders</i>		
<input type="checkbox"/> amitriptyline		tablet, 25 mg (hydrochloride)
<i>24.2.2 Medicines used in bipolar disorders</i>		
carbamazepine	(10, 11)	scored tablet, 100 mg, 200 mg
lithium carbonate	(2, 4)	capsule or tablet, 300 mg
valproic acid	(7, 11)	enteric coated tablet, 200 mg, 500 mg (sodium salt)

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<b>24.3 Medicines used in generalized anxiety and sleep disorders</b>		
<input type="checkbox"/> diazepam	(1b)	scored tablet, 2 mg, 5 mg
<b>24.4 Medicines used for obsessive compulsive disorders and panic attacks</b>		
clomipramine		capsules, 10 mg, 25 mg (hydrochloride)
<b>25. MEDICINES ACTING ON THE RESPIRATORY TRACT</b>		
<b>25.1 Antiasthmatic medicines</b>		
<input type="checkbox"/> aminophylline	(2)	injection, 25 mg/ml in 10 ml ampoule
<input type="checkbox"/> beclometasone		inhalation (aerosol), 50 micrograms per dose (dipropionate); 250 micrograms (dipropionate) per dose
<input type="checkbox"/> 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		tablet, 2 mg, 4 mg (as sulfate); inhalation (aerosol), 100 micrograms (as sulfate) per dose; syrup, 2 mg/5 ml; injection, 50 micrograms (as sulfate)/ml in 5-ml ampoule; respirator solution for use in nebulizers, 5 mg (as sulfate)/ml
theophylline	(10, 11)	tablet, 100 mg, 200 mg, 300 mg
<b>25.2 Antitussives</b>		
<input type="checkbox"/> dextromethorphan		oral solution, 3.5 mg (bromide)/5 ml
<b>26. SOLUTIONS CORRECTING WATER, ELECTROLYTE AND ACID-BASE DISTURBANCES</b>		
<b>26.1 Oral</b>		
oral rehydration salts (for glucose-electrolyte solution)		see section 17.7.1
potassium chloride		powder for solution
<b>26.2 Parenteral</b>		
glucose		injectable solution, 5%, 10% isotonic; 50% hypertonic
glucose with sodium chloride		injectable solution, 4% glucose, 0.18% sodium chloride (equivalent to Na <sup>+</sup> 30 mmol/l, Cl <sup>-</sup> 30 mmol/l)
potassium chloride	(2)	solution, 11.2% in 20-ml ampoule, (equivalent to K <sup>+</sup> 1.5 mmol/ml, Cl <sup>-</sup> 1.5 mmol/ml)
sodium chloride		injectable solution, 0.9% isotonic (equivalent to Na <sup>+</sup> 154 mmol/l, Cl <sup>-</sup> 154 mmol/l)

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sodium hydrogen carbonate		injectable solution, 1.4% isotonic (equivalent to Na <sup>+</sup> 167 mmol/l, HCO <sub>3</sub> <sup>-</sup> 167 mmol/l); solution, 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		injectable solution
<b>26.3 Miscellaneous</b>		
water for injection		2-ml, 5-ml, 10-ml ampoules
<b>27. VITAMINS AND MINERALS</b>		
ascorbic acid		tablet, 50 mg
<input type="checkbox"/> ergocalciferol		capsule or tablet, 1.25 mg (50 000 IU); oral solution, 250 micrograms/ml (10 000 IU/ml)
iodine	(8)	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; capsule, 200 mg.
<input type="checkbox"/> nicotinamide		tablet, 50 mg
pyridoxine		tablet, 25 mg (hydrochloride)
<input type="checkbox"/> retinol		sugar-coated tablet, 10 000 IU (as palmitate) (5.5 mg); capsule, 200 000 IU (as palmitate) (110 mg); oral oily solution 100 000 IU (as palmitate)/ml in multidose dispenser; water-miscible injection 100 000 IU (as palmitate) (55 mg) in 2-ml ampoule
riboflavin		tablet, 5 mg
<input type="checkbox"/> sodium fluoride		in any appropriate formulation
thiamine		tablet, 50 mg (hydrochloride)