WHO Model List (revised March 2005) 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.

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".

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.

Drugs are listed in alphabetical order, within sections.

1.1 General anaesthetics and oxyger	1
□ halothane	inhalation
ketamine	injection, 50 mg (as hydrochloride)/ml in 10-ml vial
nitrous oxide	inhalation
oxygen	inhalation (medicinal gas)
thiopental	powder for injection, 0.5 g, 1.0 g (sodium salt) in ampoule
1.2 Local anaesthetics	·
□ bupivacaine	injection, 0.25%, 0.5% (hydrochloride) in vial injection for spinal anaesthesia, 0.5% (hydrochloride) in 4-ml ampoule to be mixed with 7.5% glucose solution
□ lidocaine	injection, 1%, 2% (hydrochloride) in vial injection for spinal anaesthesia, 5% (hydrochloride) in 2-ml ampoule to be mixed with 7.5% glucose solution topical forms, 2-4% (hydrochloride)
lidocaine + epinephrine (adrenaline)	injection 1%, 2% (hydrochloride)+ epinephrine 1:200 000 in vial; dental cartridge 2% (hydrochloride) + epinephrine 1:80 000
Complementary List	
ephedrine	injection, 30 mg (hydrochloride)/ml in 1-ml ampoule (For use in spinal anaesthesia during delivery, to prevent hypotension)
1.3 Preoperative medication and sec	lation for short-term procedures
atropine	injection, 1 mg (sulfate) in 1-ml ampoule
🗆 diazepam	injection, 5 mg/ml in 2-ml ampoule; tablet, 5 mg
morphine	injection, 10 mg (sulfate or hydrochloride) in 1-ml ampoule
promethazine	elixir or syrup, 5 mg (hydrochloride)/5ml
MEDICINES (NSAIMs), N	ETICS, NON-STEROIDAL ANTI-INFLAMMATORY IEDICINES USED TO TREAT GOUT AND DISEASE NRHEUMATOID DISORDERS (DMARDs)
2.1 Non-opioids and non-steroidal a	nti-inflammatory medicines (NSAIMs)
acetylsalicylic acid	tablet, 100-500 mg; suppository, 50-150 mg
ibuprofen	tablet, 200 mg, 400 mg
paracetamol*	tablet, 100-500 mg; suppository, 100 mg; syrup, 125 mg/5ml * not recommended for anti-inflammatory use due to lack of proven benefit to that effect
2.2 Opioid analgesics	
codeine	tablet 30 mg (phosphate)

codeine	tablet, 30 mg (phosphate)
morphine	injection, 10 mg in 1-ml ampoule (sulfate or hydrochloride); oral solution, 10 mg (hydrochloride or sulfate)/5 ml; tablet, 10 mg (sulfate)

2.3 Medicines used to treat go	ut
allopurinol	tablet, 100 mg
2.4 Disease modifying agents u	used in rheumatoid disorders (DMARDs)
chloroquine	tablet, 100 mg, 150 mg (as phosphate or sulfate)
Complementary List	
azathioprine	tablet, 50 mg
methotrexate	tablet, 2.5 mg (as sodium salt)
penicillamine	capsule or tablet, 250 mg
sulfasalazine	tablet, 500 mg
3. ANTIALLERGICS AN	ND MEDICINES USED IN ANAPHYLAXIS
□ chlorphenamine	tablet, 4 mg (hydrogen maleate); injection, 10 mg (hydrogen maleate) in 1-ml ampoule
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
□ prednisolone*	tablet, 5 mg, 25 mg * there is no evidence for complete clinical similarity between prednisolone and dexamethasone at high doses.
4. ANTIDOTES AND OT	THER SUBSTANCES USED IN POISONINGS
Section 4 will be reviewed at the	e next meeting of the Expert Committee.
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
methylthioninium 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 0 (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/A	NTIEPILEPTICS
carbamazepine	scored tablet, 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; 500mg/ml in 10-ml ampoule * for use in eclampsia and severe pre-eclampsia and not for other convulsant disorders.
phenobarbital	tablet, 15-100 mg; elixir, 15 mg/5ml
phenytoin	capsule or tablet, 25 mg, 50 mg, 100 mg (sodium salt); injection, 50 mg/ml in 5-ml vial (sodium salt)
valproic acid	enteric coated tablet, 200 mg, 500 mg (sodium salt)
Complementary List	
ethosuximide	capsule, 250 mg; syrup, 250 mg/5ml
6. ANTI-INFECTIVE MED	ICINES
6.1 Anthelminthics	
6.1.1 Intestinal anthelminthics	
albendazole	chewable tablet, 400 mg
levamisole	tablet, 50 mg; 150 mg (as hydrochloride)
mebendazole	chewable tablet, 100 mg, 500 mg
niclosamide*	chewable tablet, 500 mg * niclosamide is listed for use when praziquantel treatment fails
praziquantel	tablet, 150 mg, 600 mg
pyrantel	chewable tablet 250 mg (as embonate); oral suspension, 50 mg (as embonate)/ml
6.1.2 Antifilarials	
ivermectin	scored tablet, 3 mg, 6 mg
Complementary List	
diethylcarbamazine	tablet, 50 mg, 100 mg (dihydrogen citrate)
suramin sodium	powder for injection, 1 g in vial

6.1.3 Antischistosomals and antitre	matode medicine
praziquantel	tablet, 600 mg
triclabendazole	tablet, 250 mg
Complementary List	
oxamniquine*	capsule, 250 mg; syrup, 250 mg/5ml * oxamniquine is listed for use when praziquantel treatment fails.
6.2 Antibacterials	
6.2.1 Beta Lactam medicines	
Applications for cefalexin and cefazo	olin are anticipated for the next meeting of the Expert Committee.
amoxicillin	capsule or tablet, 250 mg, 500 mg (anhydrous); powder for oral suspension, 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
cefixime*	capsule 400mg * only listed for single dose treatment of uncomplicated ano-genital gonorrhoea
□ 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
Complementary List	
ceftazidime	powder for injection, 250 mg (as pentahydrate) in vial
🗆 ceftriaxone	powder for injection, 250 mg, 1 g (as sodium salt) in vial
imipenem* + cilastatin*	powder for injection 250 mg (as monohydrate) + 250 mg (as sodium salt), 500 mg (as monohydrate) + 500 mg (as sodium salt) in vial * only listed for the treatment of life-threatening hospital-based infection due to suspected or proven multidrug resistant infection
6.2.2 Other antibacterials	
azithromycin*	capsule, 250 mg or 500 mg; suspension 200 mg/5 ml * only listed for single dose treatment of genital <i>C. trachomatis</i> and of trachoma
chloramphenicol	capsule, 250 mg; oral suspension, 150 mg (as palmitate)/5 ml; powder for injection, 1 g (sodium succinate) in vial; oily suspension for injection 0.5 g (as sodium succinate)/ml in 2-ml ampoule

□ 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
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
□ gentamicin*	injection, 10 mg, 40 mg (as sulfate)/ml in 2-ml vial * final selection depends on indication for use
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
nitrofurantoin	tablet, 100 mg
spectinomycin	powder for injection, 2 g (as hydrochloride) in vial
sulfamethoxazole + trimethoprim	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	tablet, 100 mg, 200 mg
Complementary List	
clindamycin	capsule, 150 mg; injection, 150 mg (as phosphate)/ml
sulfadiazine	tablet, 500 mg; injection, 250 mg (sodium salt) in 4-ml ampoule
vancomycin	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.

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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 mg-400 mg (hydrochloride)
isoniazid	tablet, 100-300 mg
isoniazid + ethambutol	tablet, 150 mg + 400 mg
pyrazinamide	tablet, 400 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 (<i>For intermittent use three times weekly</i>); 150 mg + 150 mg (<i>For intermittent use three times weekly</i>)
rifampicin + isoniazid + pyrazinamide	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	powder for injection, 1 g (as sulfate) in vial
Complementary List	
0.0	treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in HO standards for TB control. These medicines will be reviewed at the next
amikacin	powder for injection, 1000 mg in vial
p-aminosalicylic acid	tablet, 500 mg; granules, 4 g in sachet
capreomycin	powder for injection, 1000 mg in vial
ciprofloxacin	tablet, 250 mg, 500 mg
cycloserine	capsule or tablet, 250 mg
ethionamide	tablet, 125 mg, 250 mg
kanamycin	powder for injection, 1000 mg in vial
levofloxacin	tablet, 250 mg, 500 mg
ofloxacin	tablet, 200 mg, 400 mg
6.3 Antifungal medicines	· · ·
clotrimazole	vaginal tablet, 100 mg, 500 mg, vaginal cream 1%, 10%
□ fluconazole	capsule 50 mg; injection 2 mg/ml in vial; oral suspension 50 mg/5-ml
griseofulvin	capsule or tablet, 125 mg, 250 mg
nystatin	tablet, 100 000, 500 000 IU; lozenge 100 000 IU; pessary, 100 000 IU
Complementary List	
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

 \Box aciclovir

tablet, 200 mg; powder for injection 250 mg (as sodium salt) in vial

6.4.2 Antiretrovirals

Adequate resources and specialist oversight are prerequisites 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. In order to simplify treatment, facilitate storage and distribution, and improve patients' adherence to the treatment plan, the Committee recommends and endorses the use of fixed-dose combinations and the development of appropriate new fixed-dose combinations. These include modified dosage forms, non-refrigerated formulations and paediatric formulations with assured pharmaceutical quality and interchangeability with the single products as approved by the relevant drug regulatory authority.

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abacavir (ABC)	tablet, 300 mg (as sulphate), oral solution, 100 mg (as sulphate)/5ml
didanosine (ddI)	buffered chewable, dispersible tablet, 25mg, 50mg, 100mg, 150mg, 200mg buffered powder for oral solution, 100 mg, 167 mg, 250 mg packets unbuffered enteric coated capsule, 125 mg, 200 mg, 250 mg, 400 mg
lamivudine (3TC)	tablet, 150mg, oral solution 50 mg/5ml
stavudine (d4T)	capsule 15mg, 20 mg, 30 mg, 40 mg, powder for oral solution, 5 mg/5ml
zidovudine (ZDV or AZT)	tablet, 300 mg capsule 100 mg, 250 mg oral solution or syrup, 50 mg/5ml solution for IV infusion injection, 10 mg/ml in 20-ml vial

6.4.2.1 Nucleoside reverse transcriptase inhibitors

6.4.2.2 Non-nucleoside reverse transcriptase inhibitors

efavirenz (EFV or EFZ)	capsule, 50 mg, 100 mg, 200 mg oral solution, 150 mg/5ml
nevirapine (NVP)	tablet 200 mg; oral suspension 50 mg/5-ml

6.4.2.3 Protease inhibitors

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, 200 mg, 333 mg, 400 mg (as sulfate)
ritonavir	capsule, 100 mg, oral solution 400 mg/5ml
lopinavir + ritonavir (LPV/r)	capsule, 133.3 mg + 33.3 mg, oral solution, 400 mg + 100 mg/5ml

nelfinavir (NFV)	tablet, 250 mg (as mesilate), oral powder 50 mg/g
saquinavir (SQV)	capsule, 200 mg
6.5 Antiprotozoal medicines	
6.5.1 Antiamoebic and antigiard	iasis medicines
diloxanide	tablet, 500 mg (furoate)
metronidazole	tablet, 200-500 mg; injection, 500 mg in 100-ml vial; oral suspension 200 mg (as benzoate)/5 ml
6.5.2 Antileishmaniasis medicin	es
meglumine antimoniate	injection, 30%, equivalent to approximately 8.1% antimony in 5-ml ampoule
Complementary List	· ·
amphotericin B	powder for injection, 50 mg in vial
pentamidine	powder for injection, 200 mg, 300 mg (isetionate) in vial
6.5.3 Antimalarial medicines	· ·
6.5.3.1 For curative treatment	
Medicines for the treatment of <i>P</i> .	falciparum malaria cases should be used in combination.
amodiaquine*	tablet, 153 mg or 200 mg (base) * amodiaquine should preferably be used as part of combination therapy
artemether + lumefantrine*	tablet, 20 mg + 120 mg * recommended for use in areas with significant drug resistance and not in pregnancy or in children below 10 kg
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)
quinine	tablet, 300 mg (as bisulfate or sulfate); injection, 300 mg (as dihydrochloride)/ml in 2-ml ampoule
Complementary List	
artemether	injection, 80 mg/ml in 1-ml ampoule
artesunate	tablet, 50 mg
doxycycline	capsule or tablet, 100 mg (hydrochloride) (for use only in combination with quinine)
mefloquine	tablet, 250 mg (as hydrochloride)
sulfadoxine + pyrimethamine	tablet, 500 mg + 25 mg

6.5.3.2 For prophylaxis	
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) (for use only in combination with chloroquine)
6.5.4 Anti-pneumocystosis and antit	oxoplasmosis 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
Complementary List	
pentamidine	tablet 200 mg, 300 mg
6.5.5. Antitrypanosomal medicines	
6.5.5.1 African trypanosomiasis	
melarsoprol	injection, 3.6% solution
suramin sodium	powder for injection, 1 g in vial
Complementary List	
eflornithine	injection, 200 mg (hydrochloride)/ml in 100-ml bottles
pentamidine	powder for injection, 200 mg, 300 mg (isetionate) in vial
6.5.5.2 American tripanosomiasis	
benznidazole	tablet, 100 mg
nifurtimox	tablet, 30 mg; 120 mg; 250 mg
7. ANTIMIGRAINE MEDIC	CINES
7.1 For treatment of acute attack	
acetylsalicylic acid	tablet, 300-500 mg
paracetamol	tablet, 300-500 mg
7.2 For prophylaxis	
🗆 propranolol	tablet, 20 mg, 40 mg (hydrochloride)

8. ANTINEOPLASTIC, IMMUNOSUPPRESSIVES AND MEDICINES USED IN PALLIATIVE CARE

8.1 Immunosuppressive medicines

Complementary List	
azathioprine	tablet, 50 mg; powder for injection, 100 mg (as sodium salt) in vial
ciclosporin	capsule, 25 mg; concentrate for injection 50 mg/ml in 1-ml ampoule for organ transplantation
8.2 Cytotoxic medicines	
Complementary List	

powder for injection, 10 000 IU in vial
powder for injection, 15 mg (as sulfate) in vial
tablet, 15 mg; injection, 3 mg/ml in 10-ml ampoule
tablet 2 mg
powder for injection, 10 mg (hydrochloride) in vial
powder for injection, 10 mg, 50 mg in vial
tablet, 25 mg; powder for injection, 500 mg in vial
powder for injection, 100 mg in vial
powder for injection, 100 mg in vial
powder for injection, 500 micrograms in vial
powder for injection, 50 mg (as hydrochloride)
powder for injection, 10 mg, 50 mg (hydrochloride) in vial
capsule, 100 mg; injection, 20 mg/ml in 5-ml ampoule
injection, 50 mg/ml in 5-ml ampoule
tablet, 50 mg (as hydrochloride)
tablet, 50 mg
tablet, 2.5 mg (as sodium salt); powder for injection, 50 mg (as sodium salt) in vial
capsule, 50 mg (as hydrochloride)
powder for injection, 10 mg (sulfate) in vial
powder for injection, 1 mg, 5 mg (sulfate) in vial

8.3 Hormones and antihormon	es
Complementary List	
dexamethasone	injection, 4 mg dexamethasone phosphate (as disodium salt) in 1-ml ampoule
hydrocortisone	powder for injection, 100 mg (as sodium succinate) in vial
□ prednisolone*	tablet, 5 mg, 25 mg * there is no evidence for complete clinical similarity between prednisolone and dexamethasone at high doses.
tamoxifen	tablet, 10 mg, 20 mg (as citrate)

8.4 Medicines used in palliative care

The WHO Expert Committee on the Selection and Use of Essential Medicines 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.

9. ANTIPARKINSONISM MEDICINES

biperiden	tablet, 2 mg (hydrochloride); injection, 5 mg (lactate) in 1-ml ampoule
levodopa + 🗆 carbidopa	tablet, 100 mg + 10 mg; 250 mg + 25 mg

10. MEDICINES AFFECTING THE BLOOD

10.1 Antianaemia medicines	
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</i> supplement for use during pregnancy.)
folic acid	tablet 1 mg, 5 mg
hydroxocobalamin	injection, 1 mg in 1-ml ampoule
10.2 Medicines affecting coagulatio	n
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
🗆 warfarin	tablet, 1 mg, 2 mg and 5 mg (sodium salt)
11. BLOOD PRODUCTS AN	D PLASMA SUBSTITUTES
11.1 Plasma substitutes	
□ 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).

Complementary List	
☐ factor VIII concentrate	dried
□ factor IX complex (coagulation factors, II, VII, IX, X) concentrate	dried
12. CARDIOVASCULAR ME	DICINES
12.1 Antianginal medicines	
□ atenolol	tablet, 50 mg, 100 mg
glyceryl trinitrate	tablet (sublingual), 500 micrograms
□ isosorbide dinitrate	tablet (sublingual), 5 mg
verapamil	tablet, 40 mg, 80 mg (hydrochloride)
12.2 Antiarrhythmic medicines	
This subsection will be reviewed at the applications for amiodarone and sotale	e next meeting of the Expert Committee when it is anticipated that of will be received.
□ atenolol	tablet, 50 mg, 100 mg
digoxin	tablet, 62.5 micrograms, 250 micrograms; oral solution 50 micrograms/ml; injection 250 micrograms/ml in 2-ml ampoule
epinephrine (adrenaline)	injection, 1 mg (as hydrochloride)/ml in ampoule
lidocaine	injection, 20 mg (hydrochloride)/ml in 5-ml ampoule
verapamil	tablet, 40 mg, 80 mg (hydrochloride); injection, 2.5 mg (hydrochloride)/ml in 2-ml ampoule
Complementary List	
🗆 procainamide	injection, 100 mg (hydrochloride)/ml in 10-ml ampoule
🗆 quinidine	tablet, 200 mg (sulfate)
12.3 Antihypertensive medicines	
□ amlodipine	tablet, 5mg
□ atenolol	tablet, 50 mg, 100 mg
🗆 enalapril	tablet, 2.5 mg
hydralazine*	tablet, 25 mg, 50 mg (hydrochloride); powder for injection, 20 mg (hydrochloride) in ampoule
	* 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.

□ hydrochlorothiazide	scored tablet, 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.
Complementary List	
sodium nitroprusside	powder for infusion, 50 mg in ampoule
12.4 Medicines used in heart fail	ure
This subsection will be reviewed a	t the next meeting of the Expert Committee.
digoxin	tablet, 62.5 micrograms, 250 micrograms; oral solution, 50 micrograms/ml; injection, 250 micrograms/ml in 2-ml ampoule
🗆 enalapril	tablet, 2.5 mg
□ furosemide	tablet, 40 mg; injection, 10 mg/ml in 2-ml ampoule
□ hydrochlorothiazide	scored tablet, 25 mg
Complementary List	
dopamine	injection, 40 mg (hydrochloride)in 5-ml vial
12.5 Antithrombotic medicines	
acetylsalicylic acid	tablet, 100 mg
Complementary List	
streptokinase	powder for injection, 1.5 million IU in vial
12.6 Lipid-lowering agents	

The WHO Expert Committee on the Selection and Use of Essential Medicines recognizes the value of lipidlowering 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.

13. DERMATOLOGICAL M	MEDICINES (topical)
13.1 Antifungal medicines	
benzoic acid + salicylic acid	ointment or cream, 6% + 3%
□ miconazole	ointment or cream, 2% (nitrate)
sodium thiosulfate	solution, 15%
Complementary List	
selenium sulfide	detergent-based suspension, 2%
13.2 Anti-infective medicines	
methylrosanilinium chloride (gentian violet)	aqueous solution, 0.5%; tincture, 0.5%
neomycin sulfate + 🗆 bacitracin	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 antip	ruritic medicines
□ betamethasone	ointment or cream, 0.1% (as valerate)
□ calamine lotion	lotion
□ hydrocortisone	ointment or cream, 1% (acetate)
13.4 Astringent medicines	
aluminium diacetate	solution, 13% for dilution
13.5 Medicines affecting skin diffe	rentiation and proliferation
benzoyl peroxide	lotion or cream, 5%
coal tar	solution, 5%
dithranol	ointment, 0.1%-2%
fluorouracil	ointment, 5%
□ podophyllum resin	solution, 10-25%
salicylic acid	solution 5%
urea	ointment or cream, 10%
13.6 Scabicides and pediculicides	
🗆 benzyl benzoate	lotion, 25%
permethrin	cream 5%; lotion 1%

14. DIAGNOSTIC AGENTS 14.1 Ophthalmic medicines	
□ tropicamide	eye drops, 0.5%
14.2 Radiocontrast media	
□ amidotrizoate	injection, 140-420 mg iodine (as sodium or meglumine salt)/ml in 20-ml ampoule
barium sulfate	aqueous suspension
□ iohexol	injection 140 –350 mg iodine/ml in 5-ml, 10-ml and 20-ml ampoule
□ iopanoic acid	tablet, 500 mg
□ propyliodone	oily suspension, 500-600 mg/ml in 20-ml ampoule (For administration only into the bronchial tree.)
Complementary List	
meglumine iotroxate	solution, 5-8 g iodine in 100-250 ml
15. DISINFECTANTS AND	ANTISEPTICS
15.1 Antiseptics	
□ chlorhexidine	solution, 5% (digluconate) for dilution
□ ethanol	solution, 70% (denatured)
□ polyvidone iodine	solution, 10%
15.2 Disinfectants	
□ chlorine base compound	powder (0.1% available chlorine) for solution
□ chloroxylenol	solution, 4.8%
glutaral	solution, 2%
16. DIURETICS	
amiloride	tablet, 5 mg (hydrochloride)
□ furosemide	tablet, 40 mg; injection, 10 mg/ml in 2-ml ampoule
□ hydrochlorothiazide	scored tablet, 25 mg
mannitol	injectable solution, 10%, 20%
spironolactone	tablet, 25 mg

17.1 Antacids and other antiulcer m	edicines
aluminium hydroxide	tablet, 500 mg; oral suspension, 320 mg/5 ml
□ ranitidine	tablet, 150 mg (as hydrochloride); oral solution 75 mg/5-ml; injection, 25 mg/ml in 2-ml ampoule
magnesium hydroxide	oral suspension, equivalent to 550 mg magnesium oxide/10 ml
17.2 Antiemetic medicines	·
metoclopramide	tablet, 10 mg (hydrochloride); injection, 5 mg (hydrochloride)/ml in 2-m ampoule
promethazine	tablet, 10 mg, 25 mg (hydrochloride); elixir or syrup, 5 mg (hydrochloride)/5 ml; injection, 25 mg (hydrochloride)/ml in 2-ml ampoule
17.3 Anti-inflammatory medicines	
🗆 sulfasalazine	tablet, 500 mg; suppository 500 mg; retention enema
Complementary List	
□ hydrocortisone	suppository 25 mg (acetate); retention enema (the \Box only applies to hydrocortisone retention enema)
17.4 Laxatives	·
senna	tablet, 7.5 mg (sennosides) (or traditional dosage forms)
17.5 Medicines used in diarrhoea	
17.5.1 Oral rehydration	
oral rehydration salts * (for glucose- electrolyte solution)	glucose:75 mEqsodium:75 mEq or mmol/lchloride:65 mEq or mmol/lpotassium:20 mEq or mmol/lcitrate:10 mmol/losmolarity:245 mOsm/lglucose:13.5 g/lsodium chloride:2.6 g/lpotassium chloride:1.5 g/ltrisodium citrate dihydrate may be replaced by sodium hydrogencarbonate (sodium bicarbonate) 2.5 g/l. However, as the stability of thislatter formulation is very poor under tropical conditions, it is onlyrecommended when manufactured for immediate use.* in cases of cholera a higher concentration of sodium may be required
17.5.2 Medicines for diarrhoea in chi	ildren
zinc sulfate*	tablet or syrup in 10 mg per unit dosage forms * in acute diarrhoea zinc sulphate should be used as an adjunct to oral rehydration salts

17.5.3 Antidiarrhoeal (symptomatic)	nedicines in adults
codeine*	tablet, 30 mg (phosphate) * the therapeutic efficacy 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. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES	
18.1 Adrenal hormones and syntheti	c substitutes
Addison's disease is a rare condition; a	adrenal hormones are already included in section 3.
18.2 Androgens	
Complementary List	
testosterone	injection, 200 mg (enantate) in 1-ml ampoule
18.3 Contraceptives	
This subsection will be reviewed at the	e next meeting of the Expert Committee.
18.3.1 Oral hormonal contraceptives	
□ ethinylestradiol + □ levonorgestrel	tablet, 30 micrograms + 150 micrograms
□ ethinylestradiol + □ norethisterone	tablet, 35 micrograms + 1.0 mg
levonorgestrel	tablet, 30 micrograms, 750 micrograms (pack of two), 1.5 mg
18.3.2 Injectable hormonal contracep	tives
medroxyprogesterone acetate	depot injection, 150 mg/ml in 1-ml vial
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	
18.4 Estrogens	
□ 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	
Complementary List	
clomifene	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
Complementary List	
medroxyprogesterone acetate*	<i>tablet, 5 mg</i> * 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 antithyr	roid medicines
levothyroxine	tablet, 50 micrograms, 100 micrograms (sodium salt)
potassium iodide	tablet, 60 mg
□ propylthiouracil	tablet, 50 mg
19. IMMUNOLOGICALS	
19.1 Diagnostic agents	
	e WHO Requirements for Tuberculins (Revised 1985). WHO Expert ion Thirty-sixth report, (WHO Technical Report Series, No. 745, 1987,
tuberculin, purified protein derivative (PPD)	injection
19.2 Sera and immunoglobulins	
Control of Blood, Blood Components a	th the WHO Requirements for the Collection, Processing and Quality and Plasma Derivatives (Revised 1992). WHO Expert Committee on 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 serum*	injection * exact type to be defined locally
1.1.4	injection, 10 000 IU, 20 000 IU in vial
diphtheria antitoxin	

19.3 Vaccines		
All vaccines should comply with the WHO Requirements for Biological Substances.		
19.3.1 For universal immunization		
BCG vaccine		
diphtheria vaccine		
hepatitis B vaccine		
measles vaccine		
pertussis vaccine		
poliomyelitis vaccine		
tetanus vaccine		
19.3.2 For specific groups of individuals		
influenza vaccine		
meningococcal meningitis vaccine		
mumps vaccine		
rabies vaccine (inactivated: prepared in cell culture)		
rubella vaccine		
typhoid vaccine		
yellow fever vaccine		
20. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) AND CHOLINESTERASE INHIBITORS		
□ alcuronium*	injection, 5 mg (chloride)/ml in 2-ml ampoule * It is likely that alcuronium will be replaced and that similar products, including atracurium and/or pancuronium, will be added at the next meeting of the Expert Committee.	
neostigmine	tablet, 15 mg (bromide); injection, 500 micrograms in 1-ml ampoule; 2.5 mg (metilsulfate) in 1-ml ampoule	
suxamethonium	injection, 50 mg (chloride)/ml in 2-ml ampoule; powder for injection (chloride), in vial	
Complementary List		
pyridostigmine	tablet, 60 mg (bromide); injection, 1 mg in 1-ml ampoule	
🗆 vecuronium	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 □ gentamicin * solution (eye drops), 0.3% (sulfate) * final selection depends on indication for use □ idoxuridine solution (eye drops), 0.1%; eye ointment, 0.2% □ tetracycline eye ointment, 1% (hydrochloride) 21.2 Anti-inflammatory agents □ prednisolone solution (eye drops), 0.5% (sodium phosphate) 21.3 Local anaesthetics □ tetracaine solution (eye drops), 0.5% (hydrochloride) 21.4 Miotics and antiglaucoma medicines acetazolamide tablet, 250 mg solution (eye drops), 2%, 4% (hydrochloride or nitrate) □ pilocarpine □ timolol solution (eye drops), 0.25%, 0.5% (as maleate) **21.5 Mydriatics** solution (eye drops), 0.1%; 0.5%, 1% (sulfate) atropine Complementary List epinephrine (adrenaline) solution (eye drops), 2% (as hydrochloride) 22. OXYTOCICS AND ANTIOXYTOCICS 22.1 Oxytocics injection, 200 micrograms (hydrogen maleate) in 1-ml ampoule \Box ergometrine injection, 10 IU in 1-ml ampoule oxytocin Complementary List misoprostol vaginal tablet, 25 micrograms mifepristone* tablet 200 mg - tablet 200 micrograms misoprostol * * requires close medical supervision Where permitted under national law and where culturally acceptable. 22.2 Antioxytocics nifedipine immediate release capsule, 10 mg

23. PERITONEAL DIALYS	IS SOLUTION	
Complementary List		
intraperitoneal dialysis solution (of appropriate composition)	parenteral solution	
24. PSYCHOTHERAPEUTI	IC MEDICINES	
24.1 Medicines used in psychotic d	isorders	
chlorpromazine	tablet, 100 mg (hydrochloride); syrup, 25 mg (hydrochloride)/5ml; injection, 25 mg (hydrochloride)/ml in 2-ml ampoule	
□ fluphenazine	injection, 25 mg (decanoate or enantate) in 1-ml ampoule	
□ haloperidol	tablet, 2 mg, 5 mg; injection, 5 mg in 1-ml ampoule	
24.2 Medicines used in mood disor	rders	
24.2.1 Medicines used in depressive	disorders	
□ amitriptyline	tablet, 25 mg (hydrochloride)	
24.2.2 Medicines used in bipolar dis	sorders	
carbamazepine	scored tablet, 100 mg, 200 mg	
lithium carbonate	capsule or tablet, 300 mg	
valproic acid	enteric coated tablet, 200 mg, 500 mg (sodium salt)	
24.3 Medicines used in generalized	l anxiety and sleep disorders	
🗆 diazepam	scored tablet, 2 mg, 5 mg	
24.4 Medicines used for obsessive	compulsive disorders and panic attacks	
clomipramine	capsules, 10 mg, 25 mg (hydrochloride)	
24.5 Medicines used in substance of	lependence programmes	
Complementary List		
□ methadone*	oral solution 5 mg/5ml, 10 mg/5ml, concentrate for oral solution 5 mg/ml, 10 mg/ml (hydrochloride) * the square box is added to include buprenorphine. The medicines should only be used within an established support programme	

25. MEDICINES ACTING ON THE RESPIRATORY TRACT

Antiasthmatic and medicines for chronic obstructive pulmonary disease

□ beclometasone	inhalation (aerosol), 50 micrograms per dose (dipropionate); 250 micrograms (dipropionate) per dose
epinephrine (adrenaline)	injection, 1 mg (as hydrochloride or hydrogen tartrate) in 1-ml ampoule
ipratropium bromide	inhalation (aerosol), 20 micrograms/metered dose
🗆 salbutamol	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

26. SOLUTIONS CORRECTING WATER, ELECTROLYTE AND ACID-BASE DISTURBANCES

26.1 Oral	
oral rehydration salts (for glucose- electrolyte solution)	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)
□ 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
ergocalciferol	capsule or tablet, 1.25 mg (50 000 IU); oral solution, 250 micrograms/ml (10 000 IU/ml)
iodine	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.
🗆 nicotinamide	tablet, 50 mg
pyridoxine	tablet, 25 mg (hydrochloride)
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
sodium fluoride	in any appropriate topical formulation
thiamine	tablet, 50 mg (hydrochloride)
Complementary List	
calcium gluconate	injection, 100 mg/ml in 10-ml ampoule