

# Essential Drugs

## WHO Model List (revised in December 1997)

### Section 1: Anaesthetics

#### 1.1 GENERAL ANAESTHETICS AND OXYGEN

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)
*thiopental (2)	powder for injection, 0.5 g, 1.0 g (sodium salt) in ampoule

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, 1%, 2% (hydrochloride) + epinephrine 1:200 000 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)

dental cartridge, 2% (hydrochloride) + epinephrine 1:80 000

#### 1.2 LOCAL ANAESTHETICS

*bupivacaine (2, 9)	injection, 0.25%, 0.5% (hydrochloride) in vial
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#### Complementary drug

ephedrine (C)  
(To prevent hypotension in spinal anaesthesia during delivery)

injection, 30 mg (hydrochloride)/ml in 1-ml ampoule

\* Example of a therapeutic group. Various drugs can serve as alternatives.

#### Explanatory Notes

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 an asterisk (\*) 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).

\* Sulfadiazine: any other short-acting systemically-active sulfonamide unlikely to cause crystalluria.

Numbers, in parentheses, following the 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); and (c) the Convention on

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. The fact of proper sustained release of the dosage form should be documented;

(11) Therapeutic drug monitoring, i.e. plasma concentration, can improve safety and efficacy.

Letters in parentheses following the drug names indicate the reasons for the inclusion of *complementary drugs*:

(A) When drugs in the main list cannot be made available;

(B) When drugs in the main list are known to be ineffective or inappropriate for a given individual;

(C) For use in rare disorders or in exceptional circumstances.

(D) Reserve antimicrobials to be used only when there is significant resistance to other drugs on the list.

Drugs are listed in alphabetical order.

**1.3 PREOPERATIVE MEDICATION & SEDATION FOR SHORT-TERM PROCEDURES**

atropine	injection, 1 mg (sulfate) in 1-ml ampoule
chloral hydrate	syrup, 200 mg/5 ml
*diazepam (1b)	injection, 5 mg/ml in 2-ml ampoule tablet, 5 mg
*morphine (1a)	injection, 10 mg (sulfate or hydrochloride) in 1-ml ampoule
*promethazine	elixir or syrup, 5 mg (hydrochloride)/5 ml

**Section 2: Analgesics, Antipyretics, Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), Drugs Used to Treat Gout and Disease-Modifying Agents in Rheumatic Disorders (DMARDs)****2.1 NON-OPIOID ANALGESICS & NSAIDs**

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/5 ml

**2.2 OPIOID ANALGESICS**

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

**Complementary drug**

*pethidine (A) (1a, 4)	injection, 50 mg (hydrochloride) in 1-ml ampoule tablet, 50 mg, 100 mg (hydrochloride)
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**2.3 DRUGS USED TO TREAT GOUT**

allopurinol (4)	tablet, 100 mg
colchicine (7)	tablet, 500 µg

**2.4 DISEASE MODIFYING AGENTS IN RHEUMATIC DISORDERS**

chloroquine (2)	tablet, 100 mg, 150 mg (as phosphate or sulfate)
methotrexate (2)	tablet, 2.5 mg (as sodium salt)
penicillamine (2)	capsule or tablet, 250 mg
sulfasalazine (2)	tablet, 500 mg
azathioprine (2)	tablet, 50 mg
cyclophosphamide (2)	tablet, 25 mg

**Section 3: Antiallergics and Drugs Used in Anaphylaxis**

*chlorphenamine	tablet, 4 mg (hydrogen maleate) injection, 10 mg (hydrogen maleate) in 1-ml ampoule
*dexamethasone	tablet, 500 µg, 4 mg injection, 4 mg dexamethasone phosphate (as disodium) in 1-ml ampoule
epinephrine	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

**Section 4: Antidotes and Other Substances Used in Poisonings****4.1 NON-SPECIFIC**

*charcoal, activated	powder
ipecacuanha	syrup, containing 0.14% ipecacuanha alkaloids calculated as emetine

**4.2 SPECIFIC**

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

\* Example of a therapeutic group. Various drugs can serve as alternatives.

methylthioninium chloride (methylene blue)	injection, 10 mg/ml in 10-ml ampoule
naloxone	injection, 400 µg (hydrochloride) in 1-ml ampoule
penicillamine (2)	capsule or tablet, 250 mg
potassium ferric hexacyano-ferrate(II) (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

## Section 5: Anticonvulsants/ Antiepileptics

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/5 ml
phenobarbital (1b, 11)	tablet, 15 – 100 mg elixir, 15 mg/5 ml
phenytoin (7, 11)	capsule or tablet, 25 mg, 50 mg, 100 mg (sodium salt) injection, 50 mg (sodium salt)/ml in 5-ml vial
valproic acid (7, 11)	enteric coated tablet, 200 mg, 500 mg (sodium salt)
<i>Complementary drugs</i>	
*clonazepam (B) (1b)	scored tablets, 500 µg
magnesium sulfate (C)	injection, 500 mg/ml in 2-ml ampoule, 5 g in 10-ml ampoule

## Section 6: Anti-infective Drugs

### 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
praziquantel	tablet, 150 mg, 600 mg
pyrantel	chewable tablet, 250 mg (as embonate) oral suspension, 50 mg (as embonate)/ml

### 6.1.2 ANTIFILARIALS

diethylcarbamazine	tablet, 50 mg, 100 mg (dihydrogen citrate)
ivermectin	scored tablet, 3 mg, 6 mg
<i>Complementary drug</i>	
suramin sodium (B) (2, 7)	powder for injection, 1 g in vial

### 6.1.3 ANTISCHISTOSOMALS AND OTHER ANTITREMATODE DRUGS

praziquantel	tablet, 600 mg
triclabendazole	tablet, 250 mg
<i>Complementary drug</i>	
oxamniquine (C) (8)	capsule, 250 mg syrup, 250 mg/5 ml

## 6.2 ANTIBACTERIALS

### 6.2.1 BETA LACTAM DRUGS

*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
*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

\* Example of a therapeutic group. *Various drugs can serve as alternatives.*

procaine benzylpenicillin	powder for injection, 1 g (= 1 million IU), 3 g (= 3 million IU)	*sulfamethoxazole + trimethoprim (4)	tablet, 100 mg + 20 mg, 400 mg + 80 mg oral suspension, 200 mg + 40 mg/5 ml
<i>Reserve antibacterials</i>			
*amoxicillin + *clavulanic acid (D)	tablet, 500 mg + 125 mg,		injection, 80 mg + 16 mg/ml in 5-ml and 10-ml ampoule
ceftazidime (D)	powder for injection, 250 mg (as pentahydrate) in vial	trimethoprim (8)	tablet, 100 mg, 200 mg injection, 20 mg/ml in 5-ml ampoule
*ceftriaxone (D)	powder for injection, 250 mg (as sodium salt) in vial	<i>Complementary drugs</i>	
imipenem + cilastatin (D)	powder for injection, 250 mg (as monohydrate) + 250 mg, (as sodium salt) 500 mg (as monohydrate) + 500 mg in vial (as sodium salt)	chloramphenicol (C)	oily suspension for injection, 0.5 g (as sodium succinate)/ml in 2-ml ampoule
		clindamycin (B) (8)	capsule, 150 mg injection, 150 mg (as phosphate)/ml
<b>6.2.2 OTHER ANTIBACTERIALS</b>			
*chloramphenicol (7)	capsule, 250 mg oral suspension, 150 mg (as palmitate)/5 ml powder for injection, 1 g (sodium succinate) in vial	<i>Reserve antibacterial</i> vancomycin (D) powder for injection 250 mg (as hydrochloride) in vial	
*ciprofloxacin	tablet, 250 mg (as hydrochloride)	<b>6.2.3 ANTILEPROSY DRUGS</b>	
*doxycycline (5, 6)	capsule or tablet, 100 mg (hyclate)	clofazimine	capsule, 50 mg, 100 mg
*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	dapsone	tablet, 25 mg, 50 mg, 100 mg
*gentamicin (2, 4, 7, 11)	injection, 10 mg, 40 mg (as sulfate)/ml in 2-ml vial	rifampicin	capsule or tablet, 150 mg, 300 mg
*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	<b>6.2.4 ANTITUBERCULOSIS DRUGS</b>	
nalidixic acid (8)	tablet, 250 mg, 500 mg	ethambutol (4)	tablet, 100 – 400 mg (hydrochloride)
nitrofurantoin (4, 8)	tablet, 100 mg	isoniazid	tablet, 100 – 300 mg
spectinomycin (8)	powder for injection, 2 g (as hydrochloride) in vial	isoniazid + ethambutol (5)	tablet, 150 mg + 400 mg (hydrochloride)
*sulfadiazine (4)	tablet, 500 mg injection, 250 mg (sodium salt) in 4-ml ampoule	pyrazinamide	tablet, 400 mg
		rifampicin	capsule or tablet, 150 mg, 300 mg
		rifampicin + isoniazid (5)	tablet, 150 mg + 75 mg, 300 mg + 150 mg, 150 mg + 150 mg (for intermittent use 3 times weekly)
		rifampicin + isoniazid + pyrazinamide	tablet, 150 mg + 75 mg + 400 mg, 150 mg + 150 mg + 500 mg (for intermittent use 3 times weekly)
		streptomycin (4)	powder for injection, 1 g (as sulfate) in vial
		<i>Complementary drug</i>	
		thioacetazone + isoniazid (A) (5, 7)	tablet, 50 mg + 100 mg, 150 mg + 300 mg

\* Example of a therapeutic group. Various drugs can serve as alternatives.

## 6.3 ANTIFUNGAL DRUGS

amphotericin B (4)	powder for injection, 50 mg in vial
griseofulvin (8)	capsule or tablet, 125 mg, 250 mg
*ketoconazole (2)	tablet, 200 mg oral suspension, 100 mg/5 ml
nystatin	tablet, 100 000, 500 000 IU lozenge, 100 000 IU pessary, 100 000 IU

*Complementary drugs*

flucytosine (B) (4, 8)	capsule, 250 mg infusion, 2.5 g in 250 ml
potassium iodide (A)	saturated solution

## 6.4 ANTIVIRALS

## 6.4.1 ANTIHERPES

aciclovir (8)	tablet, 200 mg powder for injection, 250 mg (as sodium salt)
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## 6.4.2 ANTIRETROVIRALS

zidovudine (8)	capsule, 100 mg, 250 mg injection, 10 mg/ml in 20-ml vial oral solution, 50 mg/5 ml
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Drugs for treatment of HIV/AIDS include nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs). The prototype drug, zidovudine, has been shown to reduce or prevent mother-to-child transmission. **This is the only indication for which it is included here.** Single drug use with zidovudine, except in pregnancy, is now regarded as obsolete because of the development of resistance. Triple therapy is beyond the budgets of most national drug programmes and therefore HIV/AIDS treatment policies must be decided at country or institutional level.

## 6.5 ANTIPROTOZOAL DRUGS

## 6.5.1 ANTIAMOEBIAC AND ANTIGIARDIASIS DRUGS

* 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 DRUGS

*meglumine antimonate	injection, 30%, equivalent to approx. 8.5% antimony, in 5-ml ampoule
pentamidine (5)	powder for injection, 200 mg, 300 mg (isetionate) in vial

*Complementary drug*

amphotericin B (4) (B)	powder for injection, 50 mg in vial
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## 6.5.3 ANTIMALARIAL DRUGS

## (a) FOR CURATIVE TREATMENT

*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 (bisulfate or sulfate) injection, 300 mg (as dihydrochloride)/ml in 2-ml ampoule

*Complementary drugs*

*doxycycline (B) (for use only with quinine)	capsule or tablet, 100 mg (hyclate)
mefloquine (B)	tablet, 250 mg (as hydrochloride)
*sulfadoxine + pyrimethamine (B)	tablet, 500 mg + 25 mg
<i>Reserve antimalarial</i> artemether (D)	injection, 80 mg/ml in 1-ml ampoule

## (b) FOR PROPHYLAXIS

chloroquine	tablet, 150 mg (as phosphate or sulfate) syrup, 50 mg (as phosphate or sulfate)/5 ml
mefloquine	tablet, 250 mg (as hydrochloride)
proguanil (for use only in combination with chloroquine)	tablet, 100 mg (hydrochloride)

## 6.5.4 ANTIPNEUMOCYSTOSIS AND ANTITOXOPLASMOSIS DRUGS

pyrimethamine	tablet, 25 mg
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\* Example of a therapeutic group. *Various drugs can serve as alternatives.*

sulfamethoxazole + trimethoprim	injection, 80 mg + 16 mg/ml in 5-ml ampoule
pentamidine (2)	tablet, 200 mg, 300 mg (isetionate)

### 6.5.5 ANTITRYPANOSOMAL DRUGS

#### (a) AFRICAN TRYPANOSOMIASIS

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

#### *Complementary drug*

eflornithine (C)	injection, 200 mg (hydrochloride)/ml in 100-ml bottles
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#### (b) AMERICAN TRYPANOSOMIASIS

benznidazole (7)	tablet, 100 mg
nifurtimox (2, 8)	tablet, 30 mg, 120 mg, 250 mg

### 6.6 INSECT REPELLENTS

diethyltoluamide	topical solution, 50%, 75%
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## Section 7: Antimigraine Drugs

### 7.1 FOR TREATMENT OF ACUTE ATTACK

acetylsalicylic acid	tablet, 300 – 500 mg
ergotamine (7)	tablet, 1 mg (tartrate)
paracetamol	tablet, 300 – 500 mg

### 7.2 FOR PROPHYLAXIS

*propranolol	tablet, 20 mg, 40 mg (hydrochloride)
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## Section 8: Antineoplastics, Immunosuppressives and Drugs Used in Palliative Care

### 8.1 IMMUNOSUPPRESSIVE DRUGS

*azathioprine (2)	tablet, 50 mg powder for injection, 100 mg (as sodium salt) in vial
ciclosporin (2) (for organ transplantation)	capsule, 25 mg concentrate for injection 50 mg/ml in 1-ml ampoule

### 8.2 CYTOTOXIC DRUGS

asparaginase (2)	powder for injection 10 000 IU in vial
bleomycin (2)	powder for injection, 15 mg (as sulfate) in vial
calcium folinate (2)	tablet, 15 mg injection, 3 mg/ml in 10-ml ampoule
chlormethine (2)	powder for injection 10 mg (hydrochloride) in vial
cisplatin (2)	powder for injection, 10 mg, 50 mg in vial
cyclophosphamide (2)	tablet, 25 mg powder for injection, 500 mg in vial
cytarabine (2)	powder for injection, 100 mg in vial
dacarbazine (2)	powder for injection, 100 mg in vial
dactinomycin (2)	powder for injection 500 µg in vial
*doxorubicin (2)	powder for injection, 10 mg, 50 mg (hydrochloride) in vial
etoposide (2)	capsule, 100 mg injection, 20 mg/ml in 5-ml ampoule
fluorouracil (2)	injection, 50 mg/ml in 5-ml ampoule
levamisole (2)	tablet, 50 mg (as hydrochloride)
mercaptopurine (2)	tablet, 50 mg
methotrexate (2)	tablet, 2.5 mg (as sodium salt) powder for injection, 50 mg (as sodium salt) in vial
procarbazine	capsule, 50 mg (as hydrochloride)
vinblastine (2)	powder for injection, 10 mg (sulfate) in vial
vincristine (2)	powder for injection, 1 mg, 5 mg (sulfate) in vial

### 8.3 HORMONES AND ANTIHORMONES

*prednisolone	tablet, 5 mg powder for injection, 20 mg, 25 mg, (as sodium phosphate or sodium succinate) in vial
tamoxifen	tablet, 10 mg, 20 mg (as citrate)

\* Example of a therapeutic group. Various drugs can serve as alternatives.

**8.4 DRUGS USED IN PALLIATIVE CARE**

It is recommended that all the drugs mentioned in the WHO publication *Cancer Pain Relief with a Guide to Opioid Availability, 2nd. edition*, be considered essential. The drugs are included in the relevant section of the model list according to their therapeutic use, e.g. analgesics.

**Section 9: Antiparkinsonism Drugs**

*biperiden	tablet, 2 mg (hydrochloride) injection, 5 mg (lactate) in 1-ml ampoule
levodopa + *carbidopa (5, 6)	tablet, 100 mg + 10 mg, 250 mg + 25 mg

**Section 10: Drugs affecting the Blood****10.1 ANTIANAEMIA DRUGS**

ferrous salt	tablet, equivalent to 60 mg iron oral solution, equivalent to 25 mg iron (as sulfate)/ml
ferrous salt + folic acid (nutritional supplement for use during pregnancy)	tablet, equivalent to 60 mg iron + 400 µg
folic acid (2)	tablet, 1 mg, 5 mg injection, 1 mg (as sodium salt) in 1-ml ampoule
hydroxocobalamin (2)	injection, 1 mg in 1-ml ampoule
<i>Complementary drug</i>	
*iron dextran (B) (5)	injection, equivalent to 50 mg iron (as complex of iron(III) hydroxide with dextrans)/ ml in 2-ml ampoule

**10.2 DRUGS AFFECTING COAGULATION**

desmopressin (8)	injection, 4 µg (acetate)/ml in 1-ml ampoule nasal spray 10 µg (acetate)/ metered dose
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\* Example of a therapeutic group. *Various drugs can serve as alternatives.*

<sup>1</sup> All plasma fractions should comply with the 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.

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 (2, 6)	tablet, 1, 2 and 5 mg (sodium salt)

**Section 11: Blood Products and Plasma Substitutes****11.1 PLASMA SUBSTITUTES**

*dextran 70	injectable solution, 6%
*polygeline	injectable solution, 3.5%

**11.2 PLASMA FRACTIONS FOR SPECIFIC USE<sup>1</sup>**

*albumin, human (2, 8)	injectable solution, 5%, 25%
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*Complementary drugs*

*factor VIII concentrate (C) (2, 8)	(dried)
*factor IX complex (coagulation factors II, VII, IX, X) concentrate (C) (2, 8)	(dried)

**Section 12: Cardiovascular Drugs****12.1 ANTIANGINAL DRUGS**

*atenolol	tablet, 50 mg, 100 mg
glyceryl trinitrate	tablet (sublingual), 500 µg
*isosorbide dinitrate	tablet (sublingual), 5 mg
*verapamil (10)	tablet, 40 mg, 80 mg (hydrochloride)

**12.2 ANTIARRHYTHMIC DRUGS**

*atenolol	tablet, 50 mg, 100 mg
digoxin (4, 11)	tablet, 62.5 µg, 250 µg oral solution, 50 µg/ml injection, 250 µg/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

*Complementary drugs*

isoprenaline (C)	injection 20 µg (hydrochloride)/ml
epinephrine (C)	injection, 1 mg (as hydrochloride)/ml
*procainamide (B)	tablet, 250 mg, 500 mg (hydrochloride)
	injection, 100 mg (hydrochloride)/ml in 10-ml ampoule
*quinidine (A) (7)	tablet, 200 mg (sulfate)

**12.3 ANTIHYPERTENSIVE DRUGS**

*atenolol	tablet, 50 mg, 100 mg
*captopril	scored tablet, 25 mg
*hydralazine	tablet, 25 mg, 50 mg (hydrochloride)
	powder for injection, 20 mg (hydrochloride) in ampoule
*hydrochlorothiazide	scored tablet, 25 mg
methyldopa (7)	tablet, 250 mg
*nifedipine (10)	modified release formulations tablet, 10 mg
*reserpine	tablet, 100 µg, 250 µg
	injection, 1 mg in 1-ml ampoule

*Complementary drugs*

doxazosin (B)	tablet, 1 mg, 2 mg, 4 mg (mesilate)
*sodium nitroprusside (C) (2, 8)	powder for infusion, 50 mg in ampoule

**12.4 DRUGS USED IN HEART FAILURE**

*captopril	scored tablet, 25 mg
digoxin (4, 11)	tablet, 62.5 µg, 250 µg
	oral solution, 50 µg/ml
	injection, 250 µg/ml in 2-ml ampoule
dopamine	injection, 40 mg (hydrochloride)/ml in 5-ml vial
*hydrochlorothiazide	tablet 25 mg, 50 mg

**12.5 ANTITHROMBOTIC DRUGS**

acetylsalicylic acid	tablet, 100 mg
<i>Complementary drug</i>	
streptokinase (C)	powder for injection, 100 000 IU, 750 000 IU in vial

\* Example of a therapeutic group. *Various drugs can serve as alternatives.*

**12.6 LIPID-LOWERING AGENTS**

*The Committee recognizes the value of lipid-lowering drugs in treating patients with hyperlipidaemia. However, there are many other risk factors for atherosclerosis and its complications including tobacco smoking and inadequately controlled hypertension. Most hyper-lipidaemias can be controlled by diet.*

*HMG CoA reductase inhibitors, often referred to as "statins" are potent and effective lipid-lowering drugs with a good tolerability profile. Several of them have now been shown to reduce fatal and non-fatal myocardial infarction, stroke, need for coronary by-pass surgery and all-cause mortality. All remain very costly but for primary prevention in some very high risk patients and secondary prevention they may be cost effective. Since no drug stands out for greater efficacy or lower cost, none is included in the List; each country should make its own decisions for use in highest risk patients.*

**Section 13:  
Dermatological Drugs (topical)****13.1 ANTIFUNGAL DRUGS**

benzoic acid + salicylic acid	ointment or cream, 6% + 3%
*miconazole	ointment or cream, 2% (nitrate)
sodium thiosulfate	solution, 15%

*Complementary drug*

selenium sulfide (C)	detergent-based suspension, 2%
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**13.2 ANTI-INFECTIVE DRUGS**

*methylrosanilinium chloride (gentian violet)	aqueous solution, 0.5% tincture, 0.5%
neomycin + *bacitracin (7)	ointment, 5 mg (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 DRUGS**

*betamethasone (3)	ointment or cream, 0.1% (as valerate)
*calamine lotion	lotion
*hydrocortisone	ointment or cream, 1% (acetate)

**13.4 ASTRINGENT DRUGS**

aluminium diacetate solution, 13% for dilution

**13.5 DRUGS AFFECTING SKIN  
DIFFERENTIATION AND PROLIFERATION**

benzoyl peroxide lotion or cream, 5%

coal tar solution, 5%

dithranol ointment, 0.1 – 2%

fluorouracil ointment, 5%

\*podophyllum resin (7) solution, 10 – 25%

salicylic acid solution, topical 5%

urea ointment or cream, 10%

**13.6 SCABICIDES AND PEDICULICIDES**

\*benzyl benzoate lotion, 25%

permethrin cream, 5%,  
lotion, 1%**13.7 ULTRAVIOLET BLOCKING AGENTS***Complementary drugs*topical sun protection agent with  
activity against UVA and UVB (C) cream, lotion or gel**Section 14: Diagnostic Agents****14.1 OPHTHALMIC DRUGS**

fluorescein eye drops, 1% (sodium salt)

\*tropicamide eye drops, 0.5%

**14.2 RADIOCONTRAST MEDIA**\*amidotrizoate injection, 140 – 420 mg iodine  
(as sodium or meglumine  
amidotrizoate)/ml in 20-ml ampoule

barium sulfate aqueous suspension

\*iopanoic acid tablet, 500 mg

\*propylidone oily suspension,  
(This suspension is for  
administration only into  
the bronchial tree.) 500-600 mg/ml  
in 20-ml ampoule*Complementary drug*\*meglumine iotroxate (C) solution, 5 – 8 g iodine  
in 100–250 ml**Section 15:  
Disinfectants and Antiseptics****15.1 ANTISEPTICS**\*chlorhexidine solution, 5%  
(diguconate) for dilution

\*povidone-iodine solution, 10%

**15.2 DISINFECTANTS**\*chlorine base compound powder (0.1% available  
chlorine) for solution

\*chloroxylenol solution, 4.8%

glutaral solution, 2%

**Section 16: Diuretics**

\*amiloride (4, 7, 8) tablet, 5 mg (hydrochloride)

\*furosemide tablet, 40 mg  
injection, 10 mg/ml in  
2-ml ampoule

\*hydrochlorothiazide tablet, 25 mg, 50 mg

spironolactone (8) tablet, 25 mg

*Complementary drugs*

\*mannitol (C) injectable solution, 10%, 20%

**Section 17: Gastrointestinal Drugs****17.1 ANTACIDS AND OTHER ANTIULCER  
DRUGS**aluminium hydroxide tablet, 500 mg  
oral suspension, 320 mg/5 ml\*cimetidine tablet, 200 mg  
injection, 200 mg in 2-ml ampoulemagnesium hydroxide oral suspension,  
equivalent to 550 mg  
magnesium oxide/10 ml**17.2 ANTIEMETIC DRUGS**

metoclopramide tablet, 10 mg (hydrochloride)

injection, 5 mg (hydrochloride)/ml  
in 2-ml ampoule

\* Example of a therapeutic group. Various drugs can serve as alternatives.



**18.4 ESTROGENS**

\*ethinylestradiol tablet, 10 µg, 50 µg

**18.5 INSULINS AND OTHER ANTIDIABETIC AGENTS**

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)

\*glibenclamide tablet, 2.5 mg, 5 mg

metformin tablet, 500 mg

**18.6 OVULATION INDUCERS**

\*clomifene (2, 8) tablet, 50 mg (citrate)

**18.7 PROGESTOGENS**

norethisterone tablet, 5 mg

*Complementary drug*

medroxyprogesterone acetate (B) tablet, 5 mg

**18.8 THYROID HORMONES AND ANTITHYROID DRUGS**

levothyroxine tablet, 50 µg, 100 µg (sodium salt)

potassium iodide tablet, 60 mg

\*propylthiouracil tablet, 50 mg

**Section 19: Immunologicals****19.1 DIAGNOSTIC AGENTS**tuberculin,<sup>3</sup> injection  
purified protein derivative (PPD)**19.2 SERA AND IMMUNOGLOBULINS<sup>4</sup>**

anti-D immunoglobulin, injection, 250 µg in single-dose vial (human)

antiscorpion sera injection

\*antitetanus immunoglobulin, injection, 500 IU (human) in vial

antivenom serum injection

diphtheria antitoxin injection, 10 000 IU, 20 000 IU in vial

immunoglobulin, injection (intramuscular) human normal (2)

immunoglobulin, injection (intravenous) human normal (2, 8)

\*rabies immunoglobulin injection, 150 IU/ml

**19.3 VACCINES<sup>5</sup>****19.3.1 FOR UNIVERSAL IMMUNIZATION**

BCG vaccine (dried) injection

diphtheria-pertussis-tetanus vaccine injection

diphtheria-tetanus vaccine injection

hepatitis B vaccine injection

measles-mumps-rubella vaccine injection

measles vaccine injection

poliomyelitis vaccine (inactivated) injection

poliomyelitis vaccine (live attenuated) oral solution

tetanus vaccine injection

tetanus-diphtheria (Td) injection

**19.3.2 FOR SPECIFIC GROUPS OF INDIVIDUALS**

influenza vaccine injection

meningococcal vaccine injection

rabies vaccine injection (in cell culture)

rubella vaccine injection

typhoid vaccine injection

yellow fever vaccine injection

\* Example of a therapeutic group. *Various drugs can serve as alternatives.*<sup>3</sup> All tuberculin should comply with the WHO requirements for tuberculin (Revised 1985). WHO Technical Report Series, No. 745, 1987. Annex 1.<sup>4</sup> 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.<sup>5</sup> All vaccines should comply with the WHO requirements for biological substances.

## Section 20: Muscle Relaxants (peripherally acting) and Cholinesterase Inhibitors

*alcuronium chloride (2)	injection, 5 mg/ml in 2-ml ampoule
*neostigmine	tablet, 15 mg (bromide) injection, 500 µg, 2.5 mg (metilsulfate) in 1-ml ampoule
pyridostigmine bromide (2, 8)	tablet, 60 mg injection, 1 mg in 1-ml ampoule
suxamethonium chloride (2)	injection, 50 mg/ml in 2-ml ampoule powder for injection
<i>Complementary drug</i>	
vecuronium bromide (C)	powder for injection, 10 mg in vial

## Section 21: Ophthalmological Preparations

### 21.1 ANTI-INFECTIVE AGENTS

*gentamicin	solution (eye drops), 0.3% (as sulfate)
*idoxuridine	solution (eye drops), 0.1% eye ointment, 0.2%
silver nitrate	solution (eye drops), 1%
*tetracycline	eye ointment, 1% (hydrochloride)

### 21.2 ANTI-INFLAMMATORY AGENTS

*prednisolone	eye drops, 0.5% (sodium phosphate)
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### 21.3 LOCAL ANAESTHETICS

*tetracaine	solution (eye drops), 0.5% (hydrochloride)
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### 21.4 MIOTICS AND ANTIGLAUCOMA DRUGS

acetazolamide	tablet, 250 mg
*pilocarpine	solution (eye drops), 2%, 4% (hydrochloride or nitrate)
*timolol	solution (eye drops), 0.25%, 0.5% (as maleate)

### 21.5 MYDRIATICS

atropine	solution (eye drops), 0.1%, 0.5%, 1% (sulfate)
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#### *Complementary drug*

epinephrine (A)	solution (eye drops), 2% (as hydrochloride)
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## Section 22: Oxytocics and Antioxytocics

### 22.1 OXYTOCICS

*ergometrine	tablet, 200 µg (hydrogen maleate) injection, 200 µg (hydrogen maleate) in 1-ml ampoule
oxytocin	injection, 10 IU in 1-ml ampoule

### 22.2 ANTIOXYTOCICS

*salbutamol (2)	tablet, 4 mg (as sulfate) injection, 50 µg (as sulfate)/ml in 5-ml ampoule
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## Section 23: Peritoneal Dialysis Solution

intraperitoneal dialysis solution (of appropriate composition)	parenteral solution
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## Section 24: Psychotherapeutic Drugs

### 24.1 DRUGS USED IN PSYCHOTIC DISORDERS

*chlorpromazine	tablet, 100 mg (hydrochloride) syrup, 25 mg (hydrochloride)/5 ml injection, 25 mg (hydrochloride)/ml in 2-ml ampoule
*fluphenazine (5)	injection, 25 mg (decanoate or enantate) in 1-ml ampoule
*haloperidol	tablet, 2 mg, 5 mg injection, 5 mg in 1-ml ampoule

\* Example of a therapeutic group. *Various drugs can serve as alternatives.*

**24.2 DRUGS USED IN MOOD DISORDERS****24.2.1 DRUGS USED IN DEPRESSIVE DISORDERS**

\*amitriptyline tablet, 25 mg (hydrochloride)

**24.2.2 DRUGS USED IN BIPOLAR DISORDERS**

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)**24.3 DRUGS USED FOR GENERALIZED ANXIETY AND SLEEP DISORDERS**

\*diazepam (1b) scored tablet, 2 mg, 5 mg

**24.4 DRUGS USED FOR OBSESSIVE COMPULSIVE DISORDERS AND PANIC ATTACKS**clomipramine capsules, 10 mg, 25 mg  
(hydrochloride)**Section 25: Drugs Acting on the Respiratory Tract****25.1 ANTI-ASTHMATIC DRUGS**\*aminophylline (2) injection, 25 mg/ml  
in 10-ml ampoule\*beclometasone inhalation (aerosol), 50 µg, 250 µg,  
(dipropionate) per dose\*epinephrine injection, 1 mg (as hydrochloride  
or hydrogen tartrate) in 1-ml ampoule

ipratropium bromide inhalation, 20 µg/metered dose

\*salbutamol tablet, 2 mg, 4 mg (as sulfate)  
inhalation (aerosol), 100 µg  
(as sulfate) per dose

syrup, 2 mg (as sulfate)/5 ml

injection, 50 µg (as sulfate)/ml  
in 5-ml ampoulerespirator solution for use in nebulizers,  
5 mg (as sulfate)/ml

theophylline (10, 11) tablet, 100 mg, 200 mg

*Complementary drug*\*cromoglicic acid (B) inhalation (aerosol),  
20 mg (sodium salt) per dose**25.2 ANTITUSSIVES**

\*dextromethorphan oral solution, 3.5 mg/5 ml

**Section 26:****Solutions correcting Water, Electrolyte and Acid-base Disturbances****26.1 ORAL**oral rehydration salts (for glucose-  
electrolyte solution) see section  
17.7.1

potassium chloride powder for solution

**26.2 PARENTERAL**\* compound solution of  
sodium lactate injectable solutionglucose injectable solution,  
5% isotonic, 50% hypertonicglucose 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) 11.2% solution 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)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)8.4% solution in 10-ml ampoule  
(equivalent to Na<sup>+</sup> 1000 mmol/l,  
HCO<sub>3</sub><sup>-</sup> 1000 mmol/l)**26.3 MISCELLANEOUS**

water for injection 2-ml, 5-ml, 10-ml ampoules

**Section 27: Vitamins and Minerals**

ascorbic acid tablet, 50 mg

\*ergocalciferol capsule or tablet, 1.25 mg  
(50 000 IU)oral solution,  
250 µg/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)

\* Example of a therapeutic group. Various drugs can serve as alternatives.

	solution, 0.57 ml, (308 mg iodine) in dispenser bottle		dispenser (as palmitate)
	capsule, 200 mg		water-miscible injection, 100 000 IU (as palmitate) (55 mg) in 2-ml ampoule
*nicotinamide	tablet, 50 mg		
pyridoxine	tablet, 25 mg (hydrochloride)	riboflavin	tablet, 5 mg
*retinol	sugar-coated tablet, 10 000 IU (as palmitate) (5.5 mg)	*sodium fluoride	in any appropriate formulation
	capsule, 200 000 IU (as palmitate) (110 mg)	thiamine	tablet, 50 mg (hydrochloride)
	oral oily solution, 100 000 IU/ml in multidose	<i>Complementary drug</i>	
		calcium gluconate (C), (2, 8)	injection, 100 mg/ml in 10-ml ampoule

**The following changes in the WHO Model List were approved by the WHO Expert Committee on the Use of Essential Drugs which met in December 1997. The report of the meeting will be published in the WHO Technical Report Series.**

**Deletions:** hydrogen peroxide; metrifonate.

**Additions:** aciclovir for use in herpes infections; amoxicillin + clavulanic acid for treatment of infections resistant to the production of beta lactamase; dextromethorphan for treatment of cough; ephedrine for treatment of hypotension in spinal anaesthesia during delivery; imipenem + cilastatin for treatment of *Pseudomonas* and *Acinetobacter* spp.; ipratropium bromide for the treatment of asthma; metformin for the treatment of non-insulin dependent diabetes; triclabendazole for treatment of liver and lung flukes; zidovudine to reduce or prevent mother-to-child transmission of HIV infection.

**Replacements:** chloroxylonol to replace phenol disinfectant; chlorine (NaDCC) for calcium hypochlorite; glibenclamide for tolbutamide; sulfadiazine for sulfadimidine; topical sunscreen for benzophenones and zinc oxide.

\* Example of a therapeutic group. *Various drugs can serve as alternatives.*