

## Essential Medicines

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# WHO Model List (revised April 2002)

## Complementary List

### Explanatory Notes

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The **complementary list** presents essential medicines for priority diseases which are efficacious, safe and cost-effective but not necessarily affordable, or for which specialised health care facilities or services may be needed.

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.

Letters in parentheses following the drug names indicate the reasons for the inclusion:

- (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

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| <b>1. ANAESTHETICS</b>   |             |  |
| <b>1.2 Local anaesthetics</b>  |             |  |
| ephedrine  | (C)         | injection, 30 mg (hydrochloride)/ml in 1-ml ampoule ( <i>For use in spinal anaesthesia during delivery, to prevent hypotension</i> ) |
| <b>2. ANALGESICS, ANTIPYRETICS, NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDs), MEDICINES USED TO TREAT GOUT AND DISEASE MODIFYING AGENTS IN RHEUMATOID DISORDERS (DMARDs)</b> |             |  |
| <b>2.2 Opioid analgesics</b>   |             |  |
| <input type="checkbox"/> pethidine   | (A) (1a, 4) | injection, 50 mg (hydrochloride) in 1-ml ampoule; tablet, 50 mg, 100 mg (hydrochloride)  |
| <b>5. ANTICONVULSANTS/ANTIEPILEPTICS</b>   |             |  |
| <input type="checkbox"/> clonazepam  | (B) (1b)    | scored tablet 500 micrograms   |
| <b>6. ANTI-INFECTIVE MEDICINES</b>   |             |  |
| <b>6.1 Anthelmintics</b>   |             |  |
| <i>6.1.2 Antifilarials</i>   |             |  |
| suramin sodium   | (B) (2, 7)  | powder for injection, 1 g in vial  |
| <i>6.1.3 Antischistosomes and antitrepanematode medicines</i>  |             |  |
| oxamniquine  | (C) (8)     | capsule, 250 mg; syrup, 250 mg/5ml   |
| <b>6.2 Antibacterials</b>  |             |  |
| <i>6.2.1 Beta Lactam medicines</i>   |             |  |
| <i>Restricted indications</i>  |             |  |
| <input type="checkbox"/> amoxicillin + <input type="checkbox"/> clavulanic acid  | (D)         | tablet, 500 mg + 125 mg  |
| ceftazidime  | (D)         | powder for injection, 250 mg (as pentahydrate) in vial   |
| <input type="checkbox"/> ceftriaxone   | (D)         | powder for injection, 250 mg (as sodium salt) in vial  |
| imipenem + cilastatin  | (D)         | powder for injection 250 mg (as monohydrate) + 250 mg (as sodium salt), 500 mg (as monohydrate) + 500 mg (as sodium salt) in vial    |
| <i>6.2.2 Other antibacterials</i>  |             |  |
| 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   |

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| <i>Restricted indications</i>   |            |  |
| vancomycin  | (D)        | powder for injection, 250 mg (as hydrochloride) in vial  |
| <b>6.2.4 Antituberculosis medicines</b>   |            |  |
| thioacetazone + isoniazid   | (A) (5, 7) | tablet, 50 mg + 100 mg; 150 mg + 300 mg  |
| <i>Reserve second-line drugs for the treatment of multidrug-resistant tuberculosis (MDR-TB) should be used in specialized centres adhering to WHO standards for TB control. (D)</i> |            |  |
| amikacin  | (D)        | powder for injection, 1000 mg in vial  |
| <i>p</i> -aminosalicylic acid   | (D)        | tablet, 500 mg; granules, 4 g in sachet  |
| capreomycin   | (D)        | powder for injection, 1000 mg in vial  |
| ciprofloxacin   | (D)        | tablet, 250 mg, 500 mg   |
| <input type="checkbox"/> cycloserine  | (D)        | capsule or tablet, 250 mg  |
| <input type="checkbox"/> ethionamide  | (D)        | tablet, 125 mg, 250 mg   |
| kanamycin   | (D)        | powder for injection, 1000 mg in vial  |
| levofloxacin  | (D)        | tablet, 250 mg, 500 mg   |
| ofloxacin   | (D)        | tablet, 200 mg, 400 mg   |
| <b>6.3 Antifungal medicines</b>   |            |  |
| flucytosine   | (B) (4, 8) | capsule, 250 mg; infusion, 2.5 g in 250 ml   |
| potassium iodide  | (A)        | saturated solution   |
| <b>6.5 Antiprotozoal medicines</b>  |            |  |
| <b>6.5.2 Antileishmaniasis medicines</b>  |            |  |
| amphotericin B  | (B) (4)    | powder for injection, 50 mg in vial  |
| <b>6.5.3 Antimalarial medicines</b>   |            |  |
| <b>6.5.3.1 For curative treatment</b>   |            |  |
| <input type="checkbox"/> doxycycline  | (B)        | capsule or tablet, 100 mg (hydrochloride) ( <i>For use only in combination with quinine.</i> ) |
| mefloquine  | (B)        | tablet, 250 mg (as hydrochloride)  |
| <input type="checkbox"/> sulfadoxine + pyrimethamine  | (B)        | tablet, 500 mg + 25 mg   |
| <i>Restricted indications</i>   |            |  |
| artemether  | (D)        | injection, 80 mg/ml in 1-ml ampoule  |

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| artesunate  | (D) | tablet, 50 mg  |
| <i>6.5.5. Antitrypanosomal medicines</i>  |     |  |
| <i>6.5.5.1 African trypanosomiasis</i>  |     |  |
| eflornithine  | (C) | injection, 200 mg ( hydrochloride)/ml in 100-ml bottles                                      |
| <b>8. ANTINEOPLASTIC, IMMUNOSUPPRESSIVES AND MEDICINES USED IN PALLIATIVE CARE</b>      |     |  |
| <b>8.1 Immunosuppressive medicines</b>  |     |  |
| <i>For use only when adequate resources and specialist care are available.</i>          |     |  |
| <input type="checkbox"/> azathioprine   | (2) | tablet, 50 mg; powder for injection, 100 mg (as sodium salt) in vial                         |
| <input type="checkbox"/> ciclosporin  | (2) | capsule, 25 mg; concentrate for injection 50 mg/ml in 1-ml ampoule for organ transplantation |
| <b>8.2 Cytotoxic medicines</b>  |     |  |
| Adequate resources and specialist oversight are a prerequisite for this class of 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   |
| chlorambucil  | (2) | tablet 2 mg  |
| 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 micrograms in vial   |
| daunorubicin  | (2) | powder for injection, 50 mg (as hydrochloride)   |
| <input type="checkbox"/> 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  |

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| 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   |
| <b>8.3 Hormones and antihormones</b>  |            |  |
| <input type="checkbox"/> 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)  |
| <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>10. MEDICINES AFFECTING THE BLOOD</b>  |            |  |
| <b>10.1 Anti-anaemia medicines</b>  |            |  |
| <input type="checkbox"/> iron dextran   | (B) (5)    | injection, equivalent to 50 mg iron/ml in 2-ml ampoule   |
| <b>11. BLOOD PRODUCTS AND PLASMA SUBSTITUTES</b>  |            |  |
| <b>11.2 Plasma fractions for specific use</b>   |            |  |
| <input type="checkbox"/> factor VIII concentrate  | (C) (2, 8) | dried  |
| <input type="checkbox"/> factor IX complex<br>(coagulation factors, II, VII, IX, X) concentrate   | (C) (2, 8) | dried  |
| <b>12. CARDIOVASCULAR MEDICINES</b>   |            |  |
| <b>12.2 Antiarrhythmic medicines</b>  |            |  |
| epinephrine (adrenaline)  | (C)        | injection, 1 mg (as hydrochloride)/ml in ampoule   |
| isoprenaline  | (C)        | injection, 20 micrograms (hydrochloride)/ml in ampoule   |
| <input type="checkbox"/> procainamide   | (B)        | injection, 100 mg (hydrochloride)/ml in 10-ml ampoule  |
| <input type="checkbox"/> quinidine  | (A) (7)    | tablet, 200 mg (sulfate)   |

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| <b>12.3 Antihypertensive medicines</b>   |            |  |
| <input type="checkbox"/> prazosin  | (B)        | tablet, 500 micrograms, 1 mg                         |
| <input type="checkbox"/> sodium nitroprusside                                      | (C) (2, 8) | powder for infusion, 50 mg in ampoule                |
| <b>12.5 Antithrombotic medicines</b>   |            |  |
| streptokinase  | (C)        | powder for injection, 100 000 IU, 750 000 IU in vial |
| <b>13. DERMATOLOGICAL MEDICINES (topical)</b>                                      |            |  |
| <b>13.1 Antifungal medicines</b>   |            |  |
| selenium sulfide   | (C)        | detergent-based suspension, 2%                       |
| <b>13.7 Ultraviolet-blocking agents</b>  |            |  |
| topical sun protection agent with activity against ultraviolet A and ultraviolet B | (C)        | cream, lotion or gel                                 |
| <b>14. DIAGNOSTIC AGENTS</b>   |            |  |
| <b>14.2 Radiocontrast media</b>  |            |  |
| <input type="checkbox"/> meglumine iotroxate                                       | (C)        | solution, 5-8 g iodine in 100-250 ml                 |
| <b>16. DIURETICS</b>   |            |  |
| <input type="checkbox"/> mannitol  | (C)        | injectable solution, 10%, 20%                        |
| <b>18. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES</b>                  |            |  |
| <b>18.1 Adrenal hormones and synthetic substitutes</b>                             |            |  |
| fludrocortisone  | (C)        | tablet, 100 micrograms (acetate)                     |
| <b>18.2 Androgens</b>  |            |  |
| testosterone   | (C) (2)    | injection, 200 mg (enantate) in 1-ml ampoule         |
| <b>18.3 Contraceptives</b>   |            |  |
| <i>18.3.1 Hormonal contraceptives</i>  |            |  |
| levonorgestrel   | (B)        | tablet, 30 micrograms                                |
| medroxyprogesterone acetate  | (B) (7, 8) | depot injection, 150 mg/ml in 1-ml vial              |
| norethisterone enantate  | (B) (7, 8) | oily solution, 200 mg/ml in 1-ml ampoule             |

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| <b>18.7 Progestogens</b>  |             |  |
| medroxyprogesterone acetate   | (B)         | tablet, 5 mg                                       |
| <b>20. MUSCLE RELAXANTS (PERIPHERALLY ACTING) AND CHOLINESTERASE INHIBITORS</b> |             |  |
| vecuronium  | (C)         | powder for injection, 10 mg (bromide) in vial      |
| <b>21. OPHTHALMOLOGICAL PREPARATIONS</b>  |             |  |
| <b>21.5 Mydriatics</b>  |             |  |
| epinephrine (adrenaline)  | (A)         | solution (eye drops), 2% (as hydrochloride)        |
| <b>25. MEDICINES ACTING ON THE RESPIRATORY TRACT</b>                            |             |  |
| <b>25.1 Antiasthmatic medicines</b>   |             |  |
| □ cromoglicic acid  | (B)         | inhalation (aerosol), 20 mg (sodium salt) per dose |
| <b>27. VITAMINS AND MINERALS</b>  |             |  |
| calcium gluconate   | (C), (2, 8) | injection, 100 mg/ml in 10-ml ampoule              |