WHO Model List of Essential Medicines for Children

5th List
(April 2015)
(Last amended August 2015)

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WHO Model List of Essential Medicines for Children (April 2015)

Explanatory notes

This Model List is intended for use for children up to 12 years of age.

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

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

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

Therapeutic equivalence is indicated only 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.

The format and numbering of the 18th WHO Model List of Essential Medicines have been retained but, as indicated in the text, some sections have been deleted because they contain medicines that are not relevant for children.

[a] indicates that there is an age or weight restriction on use of the medicines; the details for each medicine are in Table 1.1 of Annex 1.

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

For recommendations and advice concerning all aspects of the quality assurance of medicines see the WHO Medicines website http://www.who.int/medicines/areas/quality_assurance.

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

The main terms used for dosage forms in the Essential Medicines List can be found in Table 1.2 of Annex 1.
Definitions of many of these terms and pharmaceutical quality requirements applicable to the different categories are published in the current edition of *The International Pharmacopoeia* [http://www.who.int/medicines/publications/pharmacopoeia](http://www.who.int/medicines/publications/pharmacopoeia).
### 1. ANAESTHETICS

#### 1.1 General anaesthetics and oxygen

##### 1.1.1 Inhalational medicines

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>halothane</td>
<td>Inhalation.</td>
</tr>
<tr>
<td>isoflurane</td>
<td>Inhalation.</td>
</tr>
<tr>
<td>nitrous oxide</td>
<td>Inhalation.</td>
</tr>
<tr>
<td>oxygen</td>
<td>Inhalation (medicinal gas).</td>
</tr>
</tbody>
</table>

##### 1.1.2 Injectable medicines

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>ketamine</td>
<td>Injection: 50 mg (as hydrochloride)/mL in 10-mL vial.</td>
</tr>
</tbody>
</table>
| propofol * | Injection: 10 mg/mL; 20 mg/mL.  
* Thiopental may be used as an alternative depending on local availability and cost. |

#### 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% to 4% (hydrochloride).

- **lidocaine + epinephrine (adrenaline)**  
  *Dental cartridge:* 2% (hydrochloride) + epinephrine 1:80 000.  
  *Injection:* 1%; 2% (hydrochloride or sulfate) + epinephrine 1:200 000 in vial.

#### 1.3 Preoperative medication and sedation for short-term procedures

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>atropine</td>
<td>Injection: 1 mg (sulfate) in 1-mL ampoule.</td>
</tr>
</tbody>
</table>
| midazolam | Injection: 1 mg/mL.  
  **Oral liquid:** 2 mg/mL.  
  **Tablet:** 7.5 mg; 15 mg. |
| morphine | Injection: 10 mg (sulfate or hydrochloride) in 1-mL ampoule. |
### 2. MEDICINES FOR PAIN AND PALLIATIVE CARE

#### 2.1 Non-opioids and non-steroidal anti-inflammatory medicines (NSAIMs)

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulations</th>
</tr>
</thead>
</table>
| ibuprofen      | **Oral liquid:** 200 mg/5 mL.  
                  | **Tablet:** 200 mg; 400 mg; 600 mg.  
                  | ![Not in children less than 3 months.] |
| paracetamol*   | **Oral liquid:** 125 mg/5 mL.  
                  | **Suppository:** 100 mg.  
                  | **Tablet:** 100 mg to 500 mg.  
                  | *Not recommended for anti-inflammatory use due to lack of proven benefit to that effect.* |

#### 2.2 Opioid analgesics

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulations</th>
</tr>
</thead>
</table>
| morphine*      | **Granules (slow release; to mix with water):** 20 mg to 200 mg (morphine sulfate).  
                  | **Injection:** 10 mg (morphine hydrochloride or morphine sulfate) in 1-mL ampoule.  
                  | **Oral liquid:** 10 mg (morphine hydrochloride or morphine sulfate)/5 mL.  
                  | **Tablet (slow release):** 10 mg – 200 mg (morphine hydrochloride or morphine sulfate).  
                  | **Tablet (immediate release):** 10 mg (morphine sulfate).  
                  | *Alternatives limited to hydromorphone and oxycodone.* |

#### 2.3 Medicines for other symptoms common in palliative care

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>amitriptyline</td>
<td><strong>Tablet:</strong> 10 mg; 25 mg.</td>
</tr>
</tbody>
</table>
| cyclizine      | **Injection:** 50 mg/mL.  
                  | **Tablet:** 50 mg. |
| dexamethasone  | **Injection:** 4 mg/mL in 1-mL ampoule (as disodium phosphate salt).  
                  | **Oral liquid:** 2 mg/5 mL.  
                  | **Tablet:** 2 mg. |
| diazepam       | **Injection:** 5 mg/mL.  
                  | **Oral liquid:** 2 mg/5 mL.  
                  | **Rectal solution:** 2.5 mg; 5 mg; 10 mg.  
                  | **Tablet:** 5 mg; 10 mg. |
| docusate sodium | **Capsule:** 100 mg.  
                  | **Oral liquid:** 50 mg/5 mL. |
### WHO Model List of Essential Medicines for Children

**5th edition**

#### 3. ANTIALLERGICS AND MEDICINES USED IN ANAPHYLAXIS

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose and Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluoxetine</strong></td>
<td>Solid oral dosage form: 20 mg (as hydrochloride). &lt;sup&gt;a&lt;/sup&gt; &gt;8 years.</td>
</tr>
<tr>
<td><strong>Hyoscine hydrobromide</strong></td>
<td>Injection: 400 micrograms/mL; 600 micrograms/mL. Transdermal patches: 1 mg/72 hours.</td>
</tr>
<tr>
<td><strong>Lactulose</strong></td>
<td>Oral liquid: 3.1–3.7 g/5 mL.</td>
</tr>
<tr>
<td><strong>Midazolam</strong></td>
<td>Oral liquid: 2 mg/mL. Solid oral dosage form: 7.5 mg; 15 mg.</td>
</tr>
<tr>
<td><strong>Ondansetron</strong></td>
<td>Injection: 2 mg base/mL in 2-mL ampoule (as hydrochloride). Oral liquid: 4 mg base/5 mL. Solid oral dosage form: Eq 4 mg base; Eq 8 mg base. &lt;sup&gt;a&lt;/sup&gt; &gt;1 month.</td>
</tr>
<tr>
<td><strong>Senna</strong></td>
<td>Oral liquid: 7.5 mg/5 mL.</td>
</tr>
</tbody>
</table>

#### 4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONINGS

##### 4.1 Non-specific

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose and Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charcoal, activated</td>
<td>Powder.</td>
</tr>
</tbody>
</table>

##### 4.2 Specific

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose and Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylcysteine</td>
<td>Injection: 200 mg/mL in 10-mL ampoule. Oral liquid: 10%; 20%.</td>
</tr>
<tr>
<td>Atropine</td>
<td>Injection: 1 mg (sulfate) in 1-mL ampoule.</td>
</tr>
<tr>
<td>Calcium gluconate</td>
<td>Injection: 100 mg/mL in 10-mL ampoule.</td>
</tr>
</tbody>
</table>
### 5. ANTICONVULSANTS/ANTIEPILEPTICS

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>naloxone</strong></td>
<td><strong>Injection:</strong> 400 micrograms (hydrochloride) in 1-mL ampoule.</td>
</tr>
<tr>
<td><strong>Complementary List</strong></td>
<td></td>
</tr>
<tr>
<td><strong>deferoxamine</strong></td>
<td><strong>Powder for injection:</strong> 500 mg (mesilate) in vial.</td>
</tr>
<tr>
<td><strong>dimercaprol</strong></td>
<td><strong>Injection in oil:</strong> 50 mg/mL in 2-mL ampoule.</td>
</tr>
<tr>
<td><strong>fomepizole</strong></td>
<td><strong>Injection:</strong> 5 mg/mL (sulfate) in 20-mL ampoule or 1 g/mL (base) in 1.5-mL ampoule.</td>
</tr>
<tr>
<td><strong>sodium calcium edetate</strong></td>
<td><strong>Injection:</strong> 200 mg/mL in 5-mL ampoule.</td>
</tr>
<tr>
<td><strong>succimer</strong></td>
<td><strong>Solid oral dosage form:</strong> 100 mg.</td>
</tr>
</tbody>
</table>

**5. ANTICONVULSANTS/ANTIEPILEPTICS**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Description</th>
</tr>
</thead>
</table>
| **carbamazepine** | **Oral liquid:** 100 mg/5 mL.  
**Tablet (chewable):** 100 mg; 200 mg.  
**Tablet (scored):** 100 mg; 200 mg. |
| **diazepam**      | **Gel or rectal solution:** 5 mg/mL in 0.5 mL; 2-mL; 4-mL tubes. |
| **lorazepam**     | **Parenteral formulation:** 2 mg/mL in 1-mL ampoule; 4 mg/mL in 1-mL ampoule. |
| **midazolam**     | **Solution for oromucosal administration:** 5 mg/mL; 10 mg/mL  
**Ampoule*: 1 mg/mL; 10 mg/mL  
*for buccal administration when solution for oromucosal administration is not available |
| **phenobarbital** | **Injection:** 200 mg/mL (sodium).  
**Oral liquid:** 15 mg/5 mL.  
**Tablet:** 15 mg to 100 mg. |
| **phenytoin**     | **Injection:** 50 mg/mL in 5-mL vial (sodium salt).  
**Oral liquid:** 25 mg to 30 mg/5 mL.*  
**Solid oral dosage form:** 25 mg; 50 mg; 100 mg (sodium salt).  
**Tablet (chewable):** 50 mg.  
* The presence of both 25 mg/5 mL and 30 mg/5 mL strengths on the same market would cause confusion in prescribing and dispensing and should be avoided. |
### 6. ANTI-INFECTIVE MEDICINES

#### 6.1 Anthelmintics

##### 6.1.1 Intestinal anthelmintics

- **albendazole**
  - Tablet (chewable): 400 mg.
- **levamisole**
  - Tablet: 50 mg; 150 mg (as hydrochloride).
- **mebendazole**
  - Tablet (chewable): 100 mg; 500 mg.
- **niclosamide**
  - Tablet (chewable): 500 mg.
- **praziquantel**
  - Oral liquid: 50 mg (as embonate or pamoate)/mL.
  - Tablet (chewable): 250 mg (as embonate or pamoate).

##### 6.1.2 Antifilarials

- **albendazole**
  - Tablet (chewable): 400 mg.
- **diethylcarbamazine**
  - Tablet: 50 mg; 100 mg (dihydrogen citrate).
- **ivermectin**
  - Tablet (scored): 3 mg.

##### 6.1.3 Antischistosomals and other antitrematode medicines

- **praziquantel**
  - Tablet: 600 mg.
- **triclabendazole**
  - Tablet: 250 mg.

**Complementary List**

- **oxamniquine**
  - Capsule: 250 mg.
  - Oral liquid: 250 mg/5 mL.

* Oxamniquine is listed for use when praziquantel treatment fails.

#### 6.2 Antibacterials

##### 6.2.1 Beta-lactam medicines
<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
</table>
| amoxicillin                    | **Powder for oral liquid:** 125 mg (as trihydrate)/5 mL; 250 mg (as trihydrate)/5 mL.  
Solid oral dosage form: 250 mg; 500 mg (as trihydrate). |
| amoxicillin + clavulanic acid | **Oral liquid:** 125 mg amoxicillin + 31.25 mg clavulanic acid/5 mL AND 250 mg amoxicillin + 62.5 mg clavulanic acid/5 mL.  
**Tablet:** 500 mg (as trihydrate) + 125 mg (as potassium salt). |
| ampicillin                     | **Powder for injection:** 500 mg; 1 g (as sodium salt) in vial. |
| benzathine benzylpenicillin    | **Powder for injection:** 900 mg benzylpenicillin (= 1.2 million IU) in 5-mL vial; 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. |
| cefalexin                      | **Powder for reconstitution with water:** 125 mg/5 mL; 250 mg/5 mL (anhydrous).  
Solid oral dosage form: 250 mg (as monohydrate). |
| cefazolin*                     | **Powder for injection:** 1 g (as sodium salt) in vial.  
* For surgical prophylaxis.  
**>1 month.** |
| ceftriaxone*                   | **Powder for injection:** 250 mg; 1 g (as sodium salt) in vial.  
* Do not administer with calcium and avoid in infants with hyperbilirubinaemia.  
**>41 weeks corrected gestational age.** |
| cloxacillin                    | **Capsule:** 500 mg; 1 g (as sodium salt).  
**Powder for injection:** 500 mg (as sodium salt) in vial.  
**Powder for oral liquid:** 125 mg (as sodium salt)/5 mL. |
| phenoxymethylpenicillin        | **Powder for oral liquid:** 250 mg (as potassium salt)/5 mL.  
**Tablet:** 250 mg (as potassium salt). |
| procaine benzylpenicillin*     | **Powder for injection:** 1 g (=1 million IU); 3 g (=3 million IU) in vial.  
* Procaine benzylpenicillin is not recommended as first-line treatment for neonatal sepsis except in settings with high neonatal mortality, when given by trained health workers in cases where hospital care is not achievable. |

Complementary List
### 6.2.2 Other antibacterials

<table>
<thead>
<tr>
<th>Drug</th>
<th>Formulation</th>
</tr>
</thead>
</table>
| cefotaxime*           | **Powder for injection:** 250 mg per vial (as sodium salt).  
  * 3rd generation cephalosporin of choice for use in hospitalized neonates. |
| ceftazidime           | **Powder for injection:** 250 mg or 1 g (as pentahydrate) 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. Meropenem is indicated for the treatment of meningitis and is licensed for use in children over the age of 3 months. |
| azithromycin*         | **Capsule:** 250 mg; 500 mg (anhydrous).  
  **Oral liquid:** 200 mg/5 mL.  
  * Listed only for trachoma. |
| chloramphenicol       | **Capsule:** 250 mg.  
  **Oily suspension for injection:** 0.5 g (as sodium succinate)/mL in 2-mL ampoule.  
  * Only for the presumptive treatment of epidemic meningitis in children older than 2 years.  
  **Oral liquid:** 150 mg (as palmitate)/5 mL.  
  **Powder for injection:** 1 g (sodium succinate) in vial. |
| ciprofloxacin         | **Oral liquid:** 250 mg/5 mL (anhydrous).  
  **Solution for IV infusion:** 2 mg/mL (as hyclate).  
  **Tablet:** 250 mg (as hydrochloride). |
| doxycycline[a]        | **Oral liquid:** 25 mg/5 mL; 50 mg/5 mL (anhydrous).  
  **Solid oral dosage form:** 50 mg; 100 mg (as hyclate).  
  [a] Use in children <8 years only for life-threatening infections when no alternative exists. |
| erythromycin          | **Powder for oral liquid:** 125 mg/5 mL (as stearate or estolate or ethyl succinate).  
  **Solid oral dosage form:** 250 mg (as stearate or estolate or ethyl succinate). |
| gentamicin            | **Injection:** 10 mg; 40 mg (as sulfate)/mL in 2-mL vial. |
### metronidazole

- **Injection**: 500 mg in 100-mL vial.
- **Oral liquid**: 200 mg (as benzoate)/5 mL.
- **Tablet**: 200 mg to 500 mg.

### nitrofurantoin

- **Oral liquid**: 25 mg/5 mL.
- **Tablet**: 100 mg.

### sulfamethoxazole + trimethoprim

- **Injection**: 80 mg + 16 mg/mL in 5-mL ampoule; 80 mg + 16 mg/mL in 10-mL ampoule.
- **Oral liquid**: 200 mg + 40 mg/5 mL.
- **Tablet**: 100 mg + 20 mg; 400 mg + 80 mg.

### trimethoprim

- **Oral liquid**: 50 mg/5 mL.
- **Tablet**: 100 mg; 200 mg.  
  >6 months.

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#### Complementary List

- **clindamycin**: Capsule: 150 mg (as hydrochloride).
  - **Injection**: 150 mg (as phosphate)/mL.
  - **Oral liquid**: 75 mg/5 mL (as palmitate).

- **vancomycin**: Powder for injection: 250 mg (as hydrochloride) in vial.

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### 6.2.3 Antileprosy medicines

Medicines used in the treatment of leprosy should never be used except in combination. Combination therapy is essential to prevent the emergence of drug resistance. Colour-coded blister packs (MDT blister packs) containing standard two-medicine (paucibacillary leprosy) or three-medicine (multibacillary leprosy) combinations for adult and childhood leprosy should be used. MDT blister packs can be supplied free of charge through WHO.

- **clofazimine**: Capsule: 50 mg; 100 mg.
- **dapsone**: Tablet: 25 mg; 50 mg; 100 mg.
- **rifampicin**: Solid oral dosage form: 150 mg; 300 mg.

### 6.2.4 Antituberculosis medicines

WHO recommends and endorses the use of fixed-dose combinations and the development of appropriate new fixed-dose combinations, including modified dosage forms, non-refrigerated products and paediatric dosage forms of assured pharmaceutical quality.

- **ethambutol**: Oral liquid: 25 mg/mL.
  - **Tablet**: 100 mg; 400 mg (hydrochloride).
- **isoniazid**: Oral liquid: 50 mg/5 mL.
  - **Tablet**: 100 mg to 300 mg.
  - **Tablet (scored)**: 50 mg.
### pyrazinamide

- **Oral liquid:** 30 mg/mL.
- **Tablet:** 400 mg.
- **Tablet (dispersible):** 150 mg.
- **Tablet (scored):** 150 mg.

### rifampicin

- **Oral liquid:** 20 mg/mL.
- **Solid oral dosage form:** 150 mg; 300 mg.

### rifapentine*

- **Tablet:** 150 mg

*For treatment of latent TB infection (LTBI) only

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**Complementary List**

*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.*

### amikacin

- **Powder for injection:** 100 mg; 500 mg; 1 g (as sulfate) in vial.

### capreomycin

- **Powder for injection:** 1 g (as sulfate) in vial.

### cycloserine

- **Solid oral dosage form:** 250 mg.

### ethionamide*

- **Tablet:** 125 mg; 250 mg.

*Prolionamide may be used as an alternative.

### kanamycin

- **Powder for injection:** 1 g (as sulfate) in vial.

### levofloxacin*

- **Tablet:** 250 mg; 500 mg.

*Ofloxacin and moxifloxacin may be used as alternatives based on availability and programme considerations.

### linezolid

- **Injection for intravenous administration:** 2 mg/mL in 300 mL bag
- **Powder for oral liquid:** 100 mg/5 mL.
- **Tablet:** 400 mg; 600 mg

### p-aminosalicylic acid

- **Granules:** 4 g in sachet.
- **Tablet:** 500 mg.

### streptomycin

- **Powder for injection:** 1 g (as sulfate) in vial.

---

### 6.3 Antifungal medicines

#### amphotericin B

- **Powder for injection:** 50 mg in vial (as sodium deoxycholate or liposomal complex).

#### fluconazole

- **Capsule:** 50 mg.
- **Injection:** 2 mg/mL in vial.
- **Oral liquid:** 50 mg/5 mL.

#### flucytosine

- **Capsule:** 250 mg.
- **Infusion:** 2.5 g in 250 mL.
### 6.4 Antiviral medicines

#### 6.4.1 Antiherpes medicines

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>aciclovir</td>
<td>Oral liquid: 200 mg/5 mL. Powder for injection: 250 mg (as sodium salt) in vial. Tablet: 200 mg.</td>
</tr>
</tbody>
</table>

#### 6.4.2 Antiretrovirals

Based on current evidence and experience of use, medicines in the following three classes of antiretrovirals are included as essential medicines for treatment and prevention of HIV (prevention of mother-to-child transmission and post-exposure prophylaxis). WHO emphasizes the importance of using these products in accordance with global and national guidelines. WHO recommends and endorses the use of fixed-dose combinations and the development of appropriate new fixed-dose combinations, including modified dosage forms, non-refrigerated products and paediatric dosage forms of assured pharmaceutical quality.

Scored tablets can be used in children and therefore can be considered for inclusion in the listing of tablets, provided that adequate quality products are available.

##### 6.4.2.1 Nucleoside/Nucleotide reverse transcriptase inhibitors

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>abacavir (ABC)</td>
<td>Oral liquid: 100 mg (as sulfate)/5 mL.</td>
</tr>
<tr>
<td>lamivudine (3TC)</td>
<td>Oral liquid: 50 mg/5 mL. Tablet: 150 mg.</td>
</tr>
<tr>
<td>stavudine (d4T)</td>
<td>Capsule: 15 mg; 20 mg; 30 mg. Powder for oral liquid: 5 mg/5 mL.</td>
</tr>
<tr>
<td>zidovudine (ZDV or AZT)</td>
<td>Capsule: 100 mg. Oral liquid: 50 mg/5 mL.</td>
</tr>
</tbody>
</table>

##### 6.4.2.2 Non-nucleoside reverse transcriptase inhibitors

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>efavirenz (EFV or EFZ)</td>
<td>Capsule: 50 mg; 100 mg; 200 mg. Tablet: 200 mg (scored).</td>
</tr>
<tr>
<td></td>
<td>&gt;3 years or &gt;10 kg.</td>
</tr>
</tbody>
</table>

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nevirapine (NVP)  

**Oral liquid:** 50 mg/5 mL.  
**Tablet:** 50 mg (dispersible); 200 mg.  
<br/> <br/>\( >6 \text{ weeks} \)

### 6.4.2.3 Protease inhibitors

Selection of protease inhibitor(s) from the Model List will need to be determined by each country after consideration of international and national treatment guidelines and experience. Ritonavir is recommended for use in combination as a pharmacological booster, and not as an antiretroviral in its own right. All other protease inhibitors should be used in boosted forms (e.g. with ritonavir).

- **atazanavir**  
  **Solid oral dosage form:** 100 mg; 150 mg (as sulfate).  
  <br/> <br/>\( >25 \text{ kg} \)

- **darunavir**  
  **Tablet:** 75 mg;  
  <br/> <br/>\( >3 \text{ years} \)

- **lopinavir + ritonavir (LPV/r)**  
  **Oral liquid:** 400 mg + 100 mg/5 mL.  
  **Tablet (heat stable):** 100 mg + 25 mg.  

- **ritonavir**  
  **Oral liquid:** 400 mg/5 mL.  
  **Tablet (heat stable):** 25 mg; 100 mg.

### FIXED-DOSE COMBINATIONS

- **abacavir + lamivudine**  
  **Tablet (dispersible, scored):** 60 mg (as sulfate) + 30 mg

- **lamivudine + nevirapine + stavudine**  
  **Tablet (dispersible):** 30 mg + 50 mg + 6 mg.

- **lamivudine + nevirapine + zidovudine**  
  **Tablet:** 30 mg + 50 mg + 60 mg.

- **lamivudine + zidovudine**  
  **Tablet:** 30 mg + 60 mg.

### 6.4.3 Other antivirals

- **oseltamivir**  
  **Capsule:** 30 mg; 45 mg; 75 mg (as phosphate).  
  **Oral powder:** 12 mg/mL.  
  * potentially severe or complicated illness due to confirmed or suspected influenza virus infection in accordance with WHO treatment guidelines.

- **ribavirin**  
  **Injection for intravenous administration:** 800 mg and 1 g in 10-mL phosphate buffer solution.  
  **Solid oral dosage form:** 200 mg; 400 mg; 600 mg.  
  * For the treatment of viral haemorrhagic fevers only.
Complementary List

<table>
<thead>
<tr>
<th>valganciclovir*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder for oral solution: 50 mg/mL.</td>
</tr>
<tr>
<td>Tablet: 450 mg.</td>
</tr>
<tr>
<td>*For the treatment of cytomegalovirus retinitis (CMVr).</td>
</tr>
</tbody>
</table>

6.4.4 Antihepatitis medicines

6.4.4.1 Medicines for hepatitis B

6.4.4.1.1 Nucleoside/Nucleotide reverse transcriptase inhibitors

entecavir

| Oral liquid: 0.05 mg/mL. |
| Tablet: 0.5 mg; 1 mg |

6.4.4.2 Medicines for hepatitis C

6.5 Antiprotozoal medicines

6.5.1 Antiamoebic and antiigiardiasis medicines

diloxanide

| Tablet: 500 mg (furoate). |
| >25 kg. |

☐ metronidazole

| Injection: 500 mg in 100-mL vial. |
| Oral liquid: 200 mg (as benzoate)/5 mL. |
| Tablet: 200 mg to 500 mg. |

6.5.2 Antileishmaniasis medicines

amphotericin B

| Powder for injection: 50 mg in vial. |
| As sodium deoxycholate or liposomal complex. |

miltefosine

| Solid oral dosage form: 10 mg; 50 mg. |

paromomycin

| Solution for intramuscular injection: 750 mg of paromomycin base (as the sulfate). |

sodium stibogluconate or meglumine antimoniate

| Injection: 100 mg/mL, 1 vial = 30 mL or 30%, equivalent to approximately 8.1% antimony (pentavalent) in 5-mL ampoule. |

6.5.3 Antimalarial medicines

6.5.3.1 For curative treatment

Medicines for the treatment of *P. falciparum* malaria cases should be used in combination. The list currently recommends combinations according to treatment guidelines. WHO recognizes that not all of the fixed dose combinations (FDCs in the WHO treatment guidelines exist, and encourages their development and rigorous testing. WHO also encourages development and testing of rectal dosage formulations.

amodiaquine*

<p>| Tablet: 153 mg or 200 mg (as hydrochloride). |
| * To be used in combination with artesunate 50 mg. |</p>
<table>
<thead>
<tr>
<th>Medication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>artemether</em></td>
<td><strong>Oily injection</strong>: 80 mg/mL in 1-mL ampoule. <em>For use in the management of severe malaria.</em></td>
</tr>
</tbody>
</table>
| *artemether + lumefantrine*       | **Tablet**: 20 mg + 120 mg.  
**Tablet (dispersible)**: 20 mg + 120 mg.  
*Not recommended in the first trimester of pregnancy or in children below 5 kg.* |
| artemesunate*                     | **Injection**: ampoules, containing 60 mg anhydrous artesunic acid with a separate ampoule of 5% sodium bicarbonate solution.  
For use in the management of severe malaria.  
**Rectal dosage form**: 50 mg; 200 mg capsules (for pre-referral treatment of severe malaria only; patients should be taken to an appropriate health facility for follow-up care).  
**Tablet**: 50 mg.  
*To be used in combination with either amodiaquine, mefloquine or sulfadoxine + pyrimethamine.* |
| *artesunate + amodiaquine*        | **Tablet**: 25 mg + 67.5 mg; 50 mg + 135 mg; 100 mg + 270 mg.  
*Other combinations that deliver the target doses required such as 153 mg or 200 mg (as hydrochloride) with 50 mg artesunate can be alternatives.* |
| artemesunate + mefloquine         | **Tablet**: 25 mg + 55 mg; 100 mg + 220 mg. |
| chloroquine*                      | **Oral liquid**: 50 mg (as phosphate or sulfate)/5 mL.  
**Tablet**: 100 mg; 150 mg (as phosphate or sulfate).  
*For use only for the treatment of *P.vivax* infection.* |
| doxycycline*                      | **Capsule**: 100 mg (as hydrochloride or hyclate).  
**Tablet (dispersible)**: 100 mg (as monohydrate).  
*For use only in combination with quinine.* |
| mefloquine*                       | **Tablet**: 250 mg (as hydrochloride).  
*To be used in combination with artemesunate 50 mg.* |
| primaquine*                       | **Tablet**: 7.5 mg; 15 mg (as diphosphate).  
*Only for use to achieve radical cure of *P.vivax* and *P.ovale* infections, given for 14 days.* |
### quinine*

**Injection:** 300 mg quinine hydrochloride/mL in 2-mL ampoule.

**Tablet:** 300 mg (quinine sulfate) or 300 mg (quinine bisulfate).

* For use only in the management of severe malaria, and should be used in combination with doxycycline.

### sulfadoxine + pyrimethamine*

**Tablet:** 500 mg + 25 mg.

* Only in combination with artesunate 50 mg.

### 6.5.3.2 For prophylaxis

#### chloroquine*

**Oral liquid:** 50 mg (as phosphate or sulfate)/5 mL.

**Tablet:** 150 mg (as phosphate or sulfate).

* For use only for the treatment of *P.vivax* infection.

#### doxycycline

**Solid oral dosage form:** 100 mg (as hydrochloride or hyclate).

>8 years.

#### mefloquine

**Tablet:** 250 mg (as hydrochloride).

>5 kg or >3 months.

#### proguanil*

**Tablet:** 100 mg (as hydrochloride).

* For use only in combination with chloroquine.

### 6.5.4 Antipneumocystosis and antitoxoplasmosis medicines

#### pyrimethamine

**Tablet:** 25 mg.

#### sulfadiazine

**Tablet:** 500 mg.

#### sulfamethoxazole + trimethoprim

**Injection:**

- 80 mg + 16 mg/mL in 5-mL ampoule;
- 80 mg + 16 mg/mL in 10-mL ampoule.

**Oral liquid:** 200 mg + 40 mg/5 mL.

**Tablet:** 100 mg + 20 mg; 400 mg + 80 mg.

### 6.5.5 Antitrypanosomal medicines

#### 6.5.5.1 African trypanosomiasis

Medicines for the treatment of 1st stage African trypanosomiasis.

#### pentamidine*

**Powder for injection:** 200 mg (as isetionate) in vial.

* To be used for the treatment of *Trypanosoma brucei gambiense* infection.

#### suramin sodium*

**Powder for injection:** 1 g in vial.

* To be used for the treatment of the initial phase of *Trypanosoma brucei rhodesiense* infection.
**Medicines for the treatment of 2nd stage African trypanosomiasis**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>eflornithine*</td>
<td>Injection: 200 mg (hydrochloride)/mL in 100-mL bottle.</td>
</tr>
<tr>
<td></td>
<td>* To be used for the treatment of <em>Trypanosoma brucei gambiense</em> infection.</td>
</tr>
<tr>
<td>nifurtimox*</td>
<td>Tablet: 120 mg.</td>
</tr>
<tr>
<td></td>
<td>* Only to be used in combination with eflornithine, for the treatment of <em>Trypanosoma brucei gambiense</em> infection.</td>
</tr>
</tbody>
</table>

**Complementary List**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>melarsoprol</td>
<td>Injection: 3.6% solution in 5-mL ampoule (180 mg of active compound).</td>
</tr>
</tbody>
</table>

**6.5.5.2 American trypanosomiasis**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>benznidazole</td>
<td>Tablet: 12.5 mg; 100 mg.</td>
</tr>
<tr>
<td></td>
<td>Tablet (scored): 50 mg.</td>
</tr>
<tr>
<td>nifurtimox</td>
<td>Tablet: 30 mg; 120 mg; 250 mg.</td>
</tr>
</tbody>
</table>

**7. ANTIMIGRAINE MEDICINES**

**7.1 For treatment of acute attack**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ibuprofen</td>
<td>Tablet: 200 mg; 400 mg.</td>
</tr>
<tr>
<td>paracetamol</td>
<td>Oral liquid: 125 mg/5 mL.</td>
</tr>
<tr>
<td></td>
<td>Tablet: 300 mg to 500 mg.</td>
</tr>
</tbody>
</table>

**7.2 For prophylaxis**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>propranolol</td>
<td>Tablet: 20 mg; 40 mg (hydrochloride).</td>
</tr>
</tbody>
</table>

**8. ANTINEOPLASTICS AND IMMUNOSUPPRESSIVES**

**8.1 Immunosuppressive medicines**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>azathioprine</td>
<td>Powder for injection: 100 mg (as sodium salt) in vial.</td>
</tr>
<tr>
<td></td>
<td>Tablet (scored): 50 mg.</td>
</tr>
<tr>
<td>ciclosporin</td>
<td>Capsule: 25 mg.</td>
</tr>
<tr>
<td></td>
<td>Concentrate for injection: 50 mg/mL in 1-mL ampoule for organ transplantation.</td>
</tr>
</tbody>
</table>

**8.2 Cytotoxic and adjuvant medicines**

Medicines listed below should be used according to protocols for treatment of the diseases.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>allopurinol</td>
<td>Tablet: 100 mg; 300 mg.</td>
</tr>
<tr>
<td>asparaginase</td>
<td>Powder for injection: 10 000 IU in vial.</td>
</tr>
<tr>
<td></td>
<td>– Acute lymphoblastic leukaemia.</td>
</tr>
<tr>
<td>Medicine</td>
<td>Formulation and Uses</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>bleomycin</td>
<td><strong>Powder for injection:</strong> 15 mg (as sulfate) in vial.</td>
</tr>
<tr>
<td></td>
<td>- Hodgkin lymphoma</td>
</tr>
<tr>
<td></td>
<td>- Testicular germ cell tumours</td>
</tr>
<tr>
<td></td>
<td>- Ovarian germ cell tumours</td>
</tr>
<tr>
<td>calcium folinate</td>
<td><strong>Injection:</strong> 3 mg/mL in 10-ml ampoule.</td>
</tr>
<tr>
<td></td>
<td><strong>Tablet:</strong> 15 mg.</td>
</tr>
<tr>
<td></td>
<td>- Osteosarcoma</td>
</tr>
<tr>
<td></td>
<td>- Burkitt lymphoma</td>
</tr>
<tr>
<td>carboplatin</td>
<td><strong>Injection:</strong> 50 mg/5 mL; 150 mg/15 mL; 450 mg/45 mL; 600 mg/60 mL.</td>
</tr>
<tr>
<td></td>
<td>- Osteosarcoma</td>
</tr>
<tr>
<td></td>
<td>- Retinoblastoma</td>
</tr>
<tr>
<td>cisplatin</td>
<td><strong>Injection:</strong> 50 mg/50 mL; 100 mg/100 mL.</td>
</tr>
<tr>
<td></td>
<td>- Osteosarcoma</td>
</tr>
<tr>
<td></td>
<td>- Testicular germ cell tumours</td>
</tr>
<tr>
<td></td>
<td>- Ovarian germ cell tumours</td>
</tr>
<tr>
<td>cyclophosphamide</td>
<td><strong>Powder for injection:</strong> 500 mg in vial.</td>
</tr>
<tr>
<td></td>
<td><strong>Tablet:</strong> 25 mg.</td>
</tr>
<tr>
<td></td>
<td>- Rhabdomyosarcoma</td>
</tr>
<tr>
<td></td>
<td>- Ewing sarcoma</td>
</tr>
<tr>
<td></td>
<td>- Acute lymphoblastic leukaemia</td>
</tr>
<tr>
<td></td>
<td>- Burkitt lymphoma</td>
</tr>
<tr>
<td></td>
<td>- Hodgkin lymphoma</td>
</tr>
<tr>
<td>cytarabine</td>
<td><strong>Powder for injection:</strong> 100 mg in vial.</td>
</tr>
<tr>
<td></td>
<td>- Acute lymphoblastic leukaemia</td>
</tr>
<tr>
<td></td>
<td>- Burkitt lymphoma</td>
</tr>
<tr>
<td>dacarbazine</td>
<td><strong>Powder for injection:</strong> 100 mg in vial.</td>
</tr>
<tr>
<td></td>
<td>- Hodgkin lymphoma</td>
</tr>
<tr>
<td>dactinomycin</td>
<td><strong>Powder for injection:</strong> 500 micrograms in vial.</td>
</tr>
<tr>
<td></td>
<td>- Rhabdomyosarcoma</td>
</tr>
<tr>
<td></td>
<td>- Wilms tumour</td>
</tr>
<tr>
<td>daunorubicin</td>
<td><strong>Powder for injection:</strong> 50 mg (hydrochloride) in vial.</td>
</tr>
<tr>
<td></td>
<td>- Acute lymphoblastic leukaemia</td>
</tr>
</tbody>
</table>
### doxorubicin

**Powder for injection:** 10 mg; 50 mg (hydrochloride) in vial.
- Osteosarcoma
- Ewing sarcoma
- Acute lymphoblastic leukaemia
- Wilms tumour
- Burkitt lymphoma
- Hodgkin lymphoma

### etoposide

**Capsule:** 100 mg.

**Injection:** 20 mg/mL in 5-mL ampoule.
- Retinoblastoma
- Ewing sarcoma
- Acute lymphoblastic leukaemia
- Burkitt lymphoma
- Hodgkin lymphoma
- Testicular germ cell tumours
- Ovarian germ cell tumours

### filgrastim

**Injection:** 120 micrograms/0.2 mL; 300 micrograms/0.5 mL; 480 micrograms/0.8 mL in pre-filled syringe; 300 micrograms/mL in 1-mL vial, 480 mg/1.6 mL in 1.6-mL vial.
- Primary prophylaxis in patients at high risk for developing febrile neutropenia associated with myelotoxic chemotherapy.
- Secondary prophylaxis for patients who have experienced neutropenia following prior myelotoxic chemotherapy.
- To facilitate administration of dose dense chemotherapy regimens.

### ifosfamide

**Powder for injection:** 500 mg vial 1-g vial; 2-g vial.
- Osteosarcoma
- Rhabdomyosarcoma
- Ewing sarcoma
- Testicular germ cell tumours
- Ovarian germ cell tumours

### mercaptopurine

**Tablet:** 50 mg.
- Acute lymphoblastic leukaemia
### 5th Edition WHO Model List of Essential Medicines for Children

<table>
<thead>
<tr>
<th>Drug</th>
<th>Injection</th>
<th>Tablet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>mesna</strong></td>
<td>100 mg/mL in 4- mL and 10- mL ampoules.</td>
<td>400 mg; 600 mg.</td>
</tr>
<tr>
<td></td>
<td>- Osteosarcoma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Rhabdomyosarcoma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Ewing sarcoma.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Testicular germ cell tumours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Ovarian germ cell tumours</td>
<td></td>
</tr>
</tbody>
</table>

| **methotrexate** | Powder for injection: 50 mg (as sodium salt) in vial. | Table: 2.5 mg (as sodium salt). |
|                 | - Osteosarcoma | - Acute lymphoblastic leukaemia |

| **paclitaxel** | Powder for injection: 6 mg/mL. | - Ovarian germ cell tumours |

| **tioguanine [c]** | Solid oral dosage form: 40 mg. | - Acute lymphoblastic leukaemia. |

| **vinblastine** | Powder for injection: 10 mg (sulfate) in vial. | - Testicular germ cell tumours |
|                | - Ovarian germ cell tumours | - Hodgkin lymphoma |

| **vincristine** | Powder for injection: 1 mg; 5 mg (sulfate) in vial. | - Retinoblastoma |
|                | - Rhabdomyosarcoma | - Acute lymphoblastic leukaemia |
|                | - Ewing sarcoma. | - Wilms tumour |
|                | - Burkin lymphoma. | - Hodgkin lymphoma |

### 8.3 Hormones and antihormones

#### Complementary List

<table>
<thead>
<tr>
<th>Drug</th>
<th>Oral liquid: 2 mg/5 mL.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>dexamethasone</strong></td>
<td>- Acute lymphoblastic leukaemia</td>
</tr>
</tbody>
</table>

| **hydrocortisone** | Powder for injection: 100 mg (as sodium succinate) in vial. |
|                   | - Acute lymphoblastic leukaemia. |
## methylprednisolone [c]

*Injection:* 40 mg/mL (as sodium succinate) in 1-mL single-dose vial and 5-mL multi-dose vials; 80 mg/mL (as sodium succinate) in 1-mL single-dose vial.

- Acute lymphoblastic leukemia.

## prednisolone

*Oral liquid:* 5 mg/mL [c].

*Tablet:* 5 mg; 25 mg.

- Acute lymphoblastic leukaemia
- Burkitt lymphoma
- Hodgkin lymphoma

### 9. ANTI-PARKINSONISM MEDICINES

### 10. MEDICINES AFFECTING THE BLOOD

#### 10.1 Antianaemia medicines

- **ferrous salt**
  - *Oral liquid:* equivalent to 25 mg iron (as sulfate)/mL.
  - *Tablet:* equivalent to 60 mg iron.

- **folic acid**
  - *Tablet:* 1 mg; 5 mg.

- **hydroxocobalamin**
  - *Injection:* 1 mg (as acetate, as hydrochloride or as sulfate) in 1-mL ampoule.

#### 10.2 Medicines affecting coagulation

- **phytomenadione**
  - *Injection:* 1 mg/mL; 10 mg/mL in 5-mL ampoule.
  - *Tablet:* 10 mg.

  **Complementary List**

- **desmopressin**
  - *Injection:* 4 micrograms/mL (as acetate) in 1-mL ampoule.
  - *Nasal spray:* 10 micrograms (as acetate) per dose

- **heparin sodium**
  - *Injection:* 1000 IU/mL; 5000 IU/mL in 1-mL ampoule.

- **protamine sulfate**
  - *Injection:* 10 mg/mL in 5-mL ampoule.

- **warfarin**
  - *Tablet:* 0.5 mg; 1 mg; 2 mg; 5 mg (sodium salt).

#### 10.3 Other medicines for haemoglobinopathies

**Complementary list**

- **deferoxamine**
  - *Powder for injection:* 500 mg (mesilate) in vial.
  - *Deferasirox oral form may be an alternative, depending on cost and availability.*

- **hydroxycarbamide**
  - *Solid oral dosage form:* 200 mg; 500 mg; 1 g.
11. BLOOD PRODUCTS OF HUMAN ORIGIN AND PLASMA SUBSTITUTES

11.1 Blood and blood components

In accordance with the World Health Assembly resolution WHA63.12, WHO recognizes that achieving self-sufficiency, unless special circumstances preclude it, in the supply of safe blood components based on voluntary, non-remunerated blood donation, and the security of that supply are important national goals to prevent blood shortages and meet the transfusion requirements of the patient population. All preparations should comply with the WHO requirements.

- fresh-frozen plasma
- platelet
- red blood cells
- whole blood

11.2 Plasma-derived medicines

All human plasma-derived medicines should comply with the WHO requirements.

11.2.1 Human immunoglobulins

- anti-rabies immunoglobulin
  - Injection: 150 IU/mL in vial.
- anti-tetanus immunoglobulin
  - Injection: 500 IU in vial.

  Complementary List

  - normal immunoglobulin
    - Intramuscular administration: 16% protein solution.*
    - Intravenous administration: 5%; 10% protein solution.**
    - Subcutaneous administration: 15%; 16% protein solution.*
    - * Indicated for primary immune deficiency.
    - **Indicated for primary immune deficiency and Kawasaki disease.

11.2.2 Blood coagulation factors

  Complementary List

  - coagulation factor VIII
    - Powder for injection: 500 IU/vial.
  - coagulation factor IX
    - Powder for injection: 500 IU/vial, 1000 IU/vial.

11.3 Plasma substitutes

- dextran 70*
  - Injectable solution: 6%.
  - * Polygeline, injectable solution, 3.5% is considered as equivalent.

12. CARDIOVASCULAR MEDICINES

12.1 Antianginal medicines

12.2 Antiarrhythmic medicines
### 12.3 Antihypertensive medicines
- **enalapril**
  - **Tablet:** 2.5 mg; 5 mg (as hydrogen maleate).

### 12.4 Medicines used in heart failure
- **digoxin**
  - **Injection:** 250 micrograms/mL in 2-mL ampoule.
  - **Oral liquid:** 50 micrograms/mL.
  - **Tablet:** 62.5 micrograms; 250 micrograms.

- **furosemide**
  - **Injection:** 10 mg/mL in 2-mL ampoule.
  - **Oral liquid:** 20 mg/5 mL.
  - **Tablet:** 40 mg.

#### Complementary List
- **dopamine**
  - **Injection:** 40 mg (hydrochloride) in 5-mL vial.

### 12.5 Antithrombotic medicines

### 12.6 Lipid-lowering agents

### 13. DERMATOLOGICAL MEDICINES (topical)

#### 13.1 Antifungal medicines
- **miconazole**
  - **Cream or ointment:** 2% (nitrate).
- **terbinafine**
  - **Cream:** 1% or **Ointment:** 1% terbinafine hydrochloride.

#### 13.2 Anti-infective medicines
- **mupirocin**
  - **Cream (as mupirocin calcium):** 2%.
  - **Ointment:** 2%.
- **potassium permanganate**
  - **Aqueous solution:** 1:10 000.
- **silver sulfadiazine**
  - **Cream:** 1%.
  - **>2 months:**

#### 13.3 Anti-inflammatory and antipruritic medicines
- **betamethasone**
  - **Cream or ointment:** 0.1% (as valerate).
  - **Hydrocortisone preferred in neonates.**
- **calamine**
  - **Lotion.**
- **hydrocortisone**
  - **Cream or ointment:** 1% (acetate).

#### 13.4 Medicines affecting skin differentiation and proliferation
- **benzoyl peroxide**
  - **Cream or lotion:** 5%.
- **coal tar**
  - **Solution:** 5%.
- **podophyllum resin**
  - **Solution:** 10% to 25%.
- **salicylic acid**
  - **Solution:** 5%.
<table>
<thead>
<tr>
<th><strong>13.5 Scabicides and pediculicides</strong></th>
<th></th>
</tr>
</thead>
</table>
| □ benzyl benzoinolate | Lotion: 25%.
| □ >2 years. |  |
| permethrin | Cream: 5%.
| | Lotion: 1%. |

**14. DIAGNOSTIC AGENTS**

**14.1 Ophthalmic medicines**

| fluorescein | Eye drops: 1% (sodium salt). |
| tropicamide | Eye drops: 0.5%.

**14.2 Radiocontrast media**

*Complementary List*

| barium sulfate | *Aqueous suspension.* |

**15. DISINFECTANTS AND ANTISEPTICS**

**15.1 Antiseptics**

| chlorhexidine | Solution: 5% (digluconate).
| Gel: 4%.
| ethanol | Solution: 70% (denatured).
| povidone iodine | Solution: 10% (equivalent to 1% available iodine).

**15.2 Disinfectants**

| alcohol based hand rub | Solution containing ethanol 80% volume/volume
| Solution containing isopropyl alcohol 75% volume/volume |
| □ chlorine base compound | Powder: (0.1% available chlorine) for solution. |
| □ chloroxylenol | Solution: 4.8%.
| glutaral | Solution: 2%. |
### 16. DIURETICS

<table>
<thead>
<tr>
<th>Drug</th>
<th>Formulations and Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>furosemide</strong></td>
<td><strong>Injection:</strong> 10 mg/mL in 2-mL ampoule. <strong>Oral liquid:</strong> 20 mg/5 mL. <strong>Tablet:</strong> 10 mg; 20 mg; 40 mg.</td>
</tr>
</tbody>
</table>

**Complementary List**

- **hydrochlorothiazide** | **Tablet (scored):** 25 mg. |
- **mannitol** | **Injectable solution:** 10%; 20%. |
- **spironolactone** | **Oral liquid:** 5 mg/5 mL; 10 mg/5 mL; 25 mg/5 mL. **Tablet:** 25 mg. |

### 17. GASTROINTESTINAL MEDICINES

**Complementary List**

- **pancreatic enzymes** | **Age-appropriate formulations and doses including lipase, protease and amylase.** |

#### 17.1 Antiulcer medicines

- **omeprazole** | **Powder for oral liquid:** 20-mg; 40-mg sachets. **Solid oral dosage form:** 10 mg; 20 mg; 40 mg. |

- **ranitidine** | **Injection:** 25 mg/mL (as hydrochloride) in 2-mL ampoule. **Oral liquid:** 75 mg/5 mL (as hydrochloride). **Tablet:** 150 mg (as hydrochloride). |

#### 17.2 Antiemetic medicines

- **dexamethasone** | **Injection:** 4 mg/mL in 1-mL ampoule (as disodium phosphate salt). **Oral liquid:** 0.5 mg/5 mL; 2 mg/5 mL. **Solid oral dosage form:** 0.5 mg; 0.75 mg; 1.5 mg; 4 mg. |

- **metoclopramide** | **Injection:** 5 mg (hydrochloride)/mL in 2-mL ampoule. **Oral liquid:** 5 mg/5 mL. **Tablet:** 10 mg (hydrochloride). |

- **ondansetron** | **Injection:** 2 mg base/mL in 2-mL ampoule (as hydrochloride). **Oral liquid:** 4 mg base/5 mL. **Solid oral dosage form:** Eq 4 mg base; Eq 8 mg base. |

#### 17.3 Anti-inflammatory medicines

- **Not in neonates.**

- **>1 month.**
### 17.4 Laxatives

### 17.5 Medicines used in diarrhoea

#### 17.5.1 Oral rehydration

<table>
<thead>
<tr>
<th>Oral rehydration salts</th>
<th>Powder for dilution in 200 mL; 500 mL; 1 L.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>glucose: 75 mEq, sodium: 75 mEq or mmol/L, chloride: 65 mEq or mmol/L, potassium: 20 mEq or mmol/L, citrate: 10 mmol/L, osmolarity: 245 mOsm/L, glucose: 13.5 g/L, sodium chloride: 2.6 g/L, potassium chloride: 1.5 g/L, trisodium citrate dihydrate*: 2.9 g/L</td>
</tr>
</tbody>
</table>

* trisodium citrate dihydrate may be replaced by sodium hydrogen carbonate (sodium bicarbonate) 2.5 g/L. However, as the stability of this latter formulation is very poor under tropical conditions, it is recommended only when manufactured for immediate use.

#### 17.5.2 Medicines for diarrhoea

<table>
<thead>
<tr>
<th>Zinc sulfate*</th>
<th>Solid oral dosage form: 20 mg. [c].</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* In acute diarrhoea zinc sulfate should be used as an adjunct to oral rehydration salts.</td>
</tr>
</tbody>
</table>

### 18. HORMONES, OTHER ENDOCRINE MEDICINES AND CONTRACEPTIVES

#### 18.1 Adrenal hormones and synthetic substitutes

<table>
<thead>
<tr>
<th>Fludrocortisone</th>
<th>Tablet: 100 micrograms (acetate).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocortisone</td>
<td>Tablet: 5 mg; 10 mg; 20 mg.</td>
</tr>
</tbody>
</table>

#### 18.2 Androgens

#### 18.3 Contraceptives

##### 18.3.1 Oral hormonal contraceptives

##### 18.3.2 Injectable hormonal contraceptives

##### 18.3.3 Intrauterine devices

##### 18.3.4 Barrier methods

##### 18.3.5 Implantable contraceptives

#### 18.4 Estrogens

#### 18.5 Insulins and other medicines used for diabetes

| Glucagon | Injection: 1 mg/mL. |
### insulin injection (soluble)
**Injection:** 100 IU/mL in 10-mL vial.

### intermediate-acting insulin
**Injection:** 100 IU/mL in 10-mL vial (as compound insulin zinc suspension or isophane insulin).

### Complementary List

- **metformin**
  **Tablet:** 500 mg (hydrochloride).

### 18.6 Ovulation-inducers

### 18.7 Progestogens

### 18.8 Thyroid hormones and antithyroid medicines

- **levothyroxine**
  **Tablet:** 25 micrograms; 50 micrograms; 100 micrograms (sodium salt).

### Complementary List

- **Lugol’s solution**
  **Oral liquid:** about 130 mg total iodine/mL.

- **potassium iodide**
  **Tablet:** 60 mg.

- **propylthiouracil**
  **Tablet:** 50 mg.

### 19. IMMUNOLOGICALS

#### 19.1 Diagnostic agents

All tuberculins should comply with the WHO requirements for tuberculins.

- **tuberculin, purified protein derivative (PPD)**
  **Injection.**

#### 19.2 Sera and immunoglobulins

All plasma fractions should comply with the WHO requirements.

- **Anti-venom immunoglobulin***
  **Injection.**
  * Exact type to be defined locally.

- **diphtheria antitoxin**
  **Injection:** 10 000 IU; 20 000 IU in vial.
19.3 Vaccines

WHO immunization policy recommendations are published in vaccine position papers on the basis of recommendations made by the Strategic Advisory Group of Experts on Immunization (SAGE).

WHO vaccine position papers are updated three to four times per year. The list below details the vaccines for which there is a recommendation from SAGE and a corresponding WHO position paper as at 27 February 2015. The most recent versions of the WHO position papers, reflecting the current evidence related to a specific vaccine and the related recommendations, can be accessed at any time on the WHO website at:


Vaccine recommendations may be universal or conditional (e.g., in certain regions, in some high-risk populations or as part of immunization programmes with certain characteristics). Details are available in the relevant position papers, and in the Summary Tables of WHO Routine Immunization Recommendations available on the WHO website at:


Selection of vaccines from the Model List will need to be determined by each country after consideration of international recommendations, epidemiology and national priorities.

All vaccines should comply with the WHO requirements for biological substances.

WHO noted the need for vaccines used in children to be polyvalent.

<table>
<thead>
<tr>
<th>Recommendations for all</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG vaccine</td>
</tr>
<tr>
<td>diphtheria vaccine</td>
</tr>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
</tr>
<tr>
<td>hepatitis B vaccine</td>
</tr>
<tr>
<td>HPV vaccine</td>
</tr>
<tr>
<td>measles vaccine</td>
</tr>
<tr>
<td>pertussis vaccine</td>
</tr>
<tr>
<td>pneumococcal vaccine</td>
</tr>
<tr>
<td>poliomyelitis vaccine</td>
</tr>
<tr>
<td>rotavirus vaccine</td>
</tr>
<tr>
<td>rubella vaccine</td>
</tr>
<tr>
<td>tetanus vaccine</td>
</tr>
</tbody>
</table>
### Recommendations for certain regions

- Japanese encephalitis vaccine
- yellow fever vaccine
- tick-borne encephalitis vaccine

### Recommendations for some high-risk populations

- cholera vaccine
- hepatitis A vaccine
- meningococcal meningitis vaccine
- rabies vaccine
- typhoid vaccine

### Recommendations for immunization programmes with certain characteristics

- influenza vaccine (seasonal)
- mumps vaccine
- varicella vaccine

#### 20. MUSCLE RELAXANTS (PERIPHERALLY-ACTING) AND CHOLINESTERASE INHIBITORS

<table>
<thead>
<tr>
<th>Medication</th>
<th>Formulation</th>
</tr>
</thead>
</table>
| neostigmine         | Injection: 500 micrograms in 1-mL ampoule; 2.5 mg (metilsulfate) in 1-mL ampoule.  
                        Tablet: 15 mg (bromide).                                                  |
| suxamethonium       | Injection: 50 mg (chloride)/mL in 2-mL ampoule.                              
                        Powder for injection: (chloride), in vial.                              |
| vecuronium          | Powder for injection: 10 mg (bromide) in vial.                              |

**Complementary List**

- *pyridostigmine*  
  Injection: 1 mg in 1-mL ampoule.  
  Tablet: 60 mg (bromide).

#### 21. OPHTHALMOLOGICAL PREPARATIONS

##### 21.1 Anti-infective agents

<table>
<thead>
<tr>
<th>Medication</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>aciclovir</td>
<td>Ointment: 3% W/W.</td>
</tr>
<tr>
<td>azithromycin</td>
<td>Solution (eye drops): 1.5%</td>
</tr>
<tr>
<td>gentamicin</td>
<td>Solution (eye drops): 0.3% (sulfate).</td>
</tr>
<tr>
<td>ofloxacin</td>
<td>Solution (eye drops): 0.3%.</td>
</tr>
<tr>
<td>21.2 Anti-inflammatory agents</td>
<td></td>
</tr>
<tr>
<td>tetracycline</td>
<td>Eye ointment: 1% (hydrochloride).</td>
</tr>
</tbody>
</table>

| 21.3 Local anaesthetics |  
| tetracaine | Solution (eye drops): 0.5% (hydrochloride).  
| Not in preterm neonates. |

| 21.4 Miotics and antiglaucoma medicines |  
| atropine | Solution (eye drops): 0.1%; 0.5%; 1% (sulfate).  
* Or homatropine (hydrobromide) or cyclopentolate (hydrochloride).  
>3 months. |

| 21.5 Mydriatics |  
| epinephrine (adrenaline) | Solution (eye drops): 2% (as hydrochloride). |

| 22. OXYTOCICS AND ANTIOXYTOCICS |  
| 22.2 Antioxytocics (tocolytics) |  
| 23. PERITONEAL DIALYSIS SOLUTION |  
| 24. MEDICINES FOR MENTAL AND BEHAVIOURAL DISORDERS |  
| 24.1 Medicines used in psychotic disorders |  
| chlorpromazine | Injection: 25 mg (hydrochloride)/mL in 2-mL ampoule.  
Oral liquid: 25 mg (hydrochloride)/5 mL.  
Tablet: 10 mg; 25 mg; 50 mg; 100 mg (hydrochloride). |

| 24.2 Medicines used in mood disorders |  
| haloperidol | Injection: 5 mg in 1-mL ampoule.  
Oral liquid: 2 mg/mL.  
Solid oral dosage form: 0.5 mg; 2 mg; 5 mg. |
24.2.2 Medicines used in bipolar disorders

24.3 Medicines for anxiety disorders

24.4 Medicines used for obsessive compulsive disorders

24.5 Medicines for disorders due to psychoactive substance use

25. MEDICINES ACTING ON THE RESPIRATORY TRACT

25.1 Antiasthmatic medicines

- **budesonide**
  - *Inhalation (aerosol):* 100 micrograms per dose; 200 micrograms per dose.

- **epinephrine (adrenaline)**
  - *Injection:* 1 mg (as hydrochloride or hydrogen tartrate) in 1-mL ampoule.

- **salbutamol**
  - *Injection:* 50 micrograms (as sulfate)/mL in 5-mL ampoule.
  - *Metered dose inhaler (aerosol):* 100 micrograms (as sulfate) per dose.
  - *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**
  - See section 17.5.1.

- **potassium chloride**
  - Powder for solution.

26.2 Parenteral

- **glucose**
  - *Injectable solution:* 5% (isotonic); 10% (hypertonic); 50% (hypertonic).

- **glucose with sodium chloride**
  - *Injectable solution:* 5% glucose, 0.9% sodium chloride (equivalent to Na+ 150 mmol/L and Cl- 150 mmol/L); 5% glucose, 0.45% sodium chloride (equivalent to Na+ 75 mmol/L and Cl- 75 mmol/L).

- **potassium chloride**
  - *Solution for dilution:* 7.5% (equivalent to K+ 1 mmol/mL and Cl- 1 mmol/mL); 15% (equivalent to K+ 2 mmol/mL and Cl- 2 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, HCO3- 167 mmol/L).

**Solution:** 8.4% in 10-mL ampoule (equivalent to Na+ 1000 mmol/L, HCO3-1000 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.

**cholecalciferol**

**Oral liquid:** 400 IU/mL.

**Solid oral dosage form:** 400 IU; 1000 IU.

* Ergocalciferol can be used as an alternative.

**iodine**

**Capsule:** 200 mg.

**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.

**pyridoxine**

**Tablet:** 25 mg (hydrochloride).

**retinol**

**Capsule:** 100 000 IU; 200 000 IU (as palmitate).

**Oral oily solution:** 100 000 IU (as palmitate)/mL in multidose dispenser.

**Tablet (sugar-coated):** 10 000 IU (as palmitate).

**Water-miscible injection:** 100 000 IU (as palmitate) 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.

### 28. EAR, NOSE AND THROAT MEDICINES

**acetic acid**

**Topical:** 2%, in alcohol.

☐ **budesonide**

**Nasal spray:** 100 micrograms per dose.

☐ **ciprofloxacin**

**Topical:** 0.3% drops (as hydrochloride).

☐ **xylometazoline**

**Nasal spray:** 0.05%.

☐ Not in children less than 3 months.

### 29. SPECIFIC MEDICINES FOR NEONATAL CARE

### 29.1 Medicines administered to the neonate
<table>
<thead>
<tr>
<th>Medicine</th>
<th>Formulation</th>
</tr>
</thead>
</table>
| caffeine citrate         | **Injection:** 20 mg/mL (equivalent to 10 mg caffeine base/mL).  
                          | **Oral liquid:** 20 mg/mL (equivalent to 10 mg caffeine base/mL). |
| chlorhexidine            | **Solution or gel:** 7.1% (digluconate) delivering 4% chlorhexidine (for umbilical cord care). |

**Complementary List**

- **ibuprofen**
  - **Solution for injection:** 5 mg/mL.

- **prostaglandin E**
  - **Solution for injection:**  
    - Prostaglandin E1: 0.5 mg/mL in alcohol.  
    - Prostaglandin E2: 1 mg/mL.

- **surfactant**
  - **Suspension for intratracheal instillation:** 25 mg/mL or 80 mg/mL.

### 30. MEDICINES FOR DISEASES OF JOINTS

#### 30.2 Disease-modifying agents used in rheumatoid disorders (DMARDs)

**Complementary List**

- **hydroxychloroquine**
  - **Solid oral dosage form:** 200 mg (as sulfate).

- **methotrexate**
  - **Tablet:** 2.5 mg (as sodium salt).

#### 30.3 Juvenile joint diseases

- **acetylsalicylic acid** (acute or chronic use)
  - **Suppository:** 50 mg to 150 mg.  
  - **Tablet:** 100 mg to 500 mg.  
  - *For use for rheumatic fever, juvenile arthritis, Kawasaki disease.*
### Table 1.1: Medicines with age and weight restrictions

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>atazanavir</td>
<td>&gt;25 kg</td>
</tr>
<tr>
<td>atropine</td>
<td>&gt;3 months</td>
</tr>
<tr>
<td>benzyl benzoate</td>
<td>&gt;2 years</td>
</tr>
<tr>
<td>betamethasone topical preparations</td>
<td>Hydrocortisone preferred in neonates</td>
</tr>
<tr>
<td>cefazolin</td>
<td>&gt;1 month</td>
</tr>
<tr>
<td>ceftriaxone</td>
<td>&gt;41 weeks corrected gestational age</td>
</tr>
<tr>
<td>darunavir</td>
<td>&gt;3 years</td>
</tr>
<tr>
<td>diloxanide</td>
<td>&gt;25 kg</td>
</tr>
<tr>
<td>doxycycline</td>
<td>&gt;8 years (except for serious infections e.g. cholera)</td>
</tr>
<tr>
<td>efavirenz</td>
<td>&gt;3 years or &gt;10 kg</td>
</tr>
<tr>
<td>fluoxetine</td>
<td>&gt;8 years</td>
</tr>
<tr>
<td>ibuprofen</td>
<td>&gt;3 months (except IV form for patent ductus arteriosus)</td>
</tr>
<tr>
<td>mefloquine</td>
<td>&gt;5 kg or &gt;3 months</td>
</tr>
<tr>
<td>metoclopramide</td>
<td>Not in neonates</td>
</tr>
<tr>
<td>nevirapine</td>
<td>&gt;6 weeks</td>
</tr>
<tr>
<td>ondansetron</td>
<td>&gt;1 month</td>
</tr>
<tr>
<td>propofol</td>
<td>&gt;1 month</td>
</tr>
<tr>
<td>silver sulfadiazine</td>
<td>&gt;2 months</td>
</tr>
<tr>
<td>tetracaine</td>
<td>Not in preterm neonates</td>
</tr>
<tr>
<td>trimethoprim</td>
<td>&gt;6 months</td>
</tr>
<tr>
<td>xylometazoline</td>
<td>&gt;3 months</td>
</tr>
</tbody>
</table>
### Table 1.2: Explanation of dosage forms

#### A. Principal dosage forms used in EMLc - Oral administration

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid oral dosage form</td>
<td>Refers to tablets or capsules or other solid dosage forms such as ‘melts’ that are immediate-release preparations. It implies that there is no difference in clinical efficacy or safety between the available dosage forms, and countries should therefore choose the form(s) to be listed depending on quality and availability. The term ‘solid oral dosage form’ is never intended to allow any type of modified-release tablet.</td>
</tr>
<tr>
<td>Tablet</td>
<td>Refers to:</td>
</tr>
<tr>
<td></td>
<td>• uncoated or coated (film-coated or sugar-coated) tablets that are intended to be swallowed whole;</td>
</tr>
<tr>
<td></td>
<td>• unscored and scored’;</td>
</tr>
<tr>
<td></td>
<td>• tablets that are intended to be chewed before being swallowed;</td>
</tr>
<tr>
<td></td>
<td>• tablets that are intended to be dispersed or dissolved in water or another suitable liquid before being swallowed;</td>
</tr>
<tr>
<td></td>
<td>• tablets that are intended to be crushed before being swallowed.</td>
</tr>
<tr>
<td></td>
<td>The term ‘tablet’ without qualification is never intended to allow any type of modified-release tablet.</td>
</tr>
<tr>
<td>Tablet (qualified)</td>
<td>Refers to a specific type of tablet:</td>
</tr>
<tr>
<td></td>
<td><strong>chewable</strong> - tablets that are intended to be chewed before being swallowed;</td>
</tr>
<tr>
<td></td>
<td><strong>dispersible</strong> - tablets that are intended to be dispersed in water or another suitable liquid before being swallowed;</td>
</tr>
<tr>
<td></td>
<td><strong>soluble</strong> - tablets that are intended to be dissolved in water or another suitable liquid before being swallowed;</td>
</tr>
<tr>
<td></td>
<td><strong>crushable</strong> - tablets that are intended to be crushed before being swallowed;</td>
</tr>
<tr>
<td></td>
<td><strong>scored</strong> - tablets bearing a break mark or marks where sub-division is intended in order to provide doses of less than one tablet;</td>
</tr>
<tr>
<td></td>
<td><strong>sublingual</strong> - tablets that are intended to be placed beneath the tongue.</td>
</tr>
</tbody>
</table>

* Scored tablets may be divided for ease of swallowing, provided dose is a whole number of tablets.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tablet</td>
<td>The term ‘tablet’ is always qualified with an additional term (in parentheses) in entries where one of the following types of tablet is intended: gastro-resistant (such tablets may sometimes be described as enteric-coated or as delayed-release), prolonged-release or another modified-release form.</td>
</tr>
<tr>
<td>Capsule</td>
<td>Refers to hard or soft capsules.</td>
</tr>
<tr>
<td>Capsule (qualified)</td>
<td>The term ‘capsule’ without qualification is never intended to allow any type of modified-release capsule.</td>
</tr>
<tr>
<td>Granules</td>
<td>Preparations that are issued to patient as granules to be swallowed without further preparation, to be chewed, or to be taken in or with water or another suitable liquid.</td>
</tr>
<tr>
<td>Oral powder</td>
<td>Preparations that are issued to patient as powder (usually as single-dose) to be taken in or with water or another suitable liquid.</td>
</tr>
<tr>
<td>Oral liquid</td>
<td>Liquid preparations intended to be swallowed i.e. oral solutions, suspensions, emulsions and oral drops, including those constituted from powders or granules, but not those preparations intended for oromucosal administration e.g. gargles and mouthwashes.</td>
</tr>
<tr>
<td></td>
<td>Oral liquids presented as powders or granules may offer benefits in the form of better stability and lower transport costs. If more than one type of oral liquid is available on the same market (e.g. solution, suspension, granules for reconstitution), they may be interchanged and in such cases should be bioequivalent. It is preferable that oral liquids do not contain sugar and that solutions for children do not contain alcohol.</td>
</tr>
</tbody>
</table>
### B. Principal dosage forms used in EMLc - Parenteral administration

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection</td>
<td>Refers to solutions, suspensions and emulsions including those constituted from powders or concentrated solutions.</td>
</tr>
<tr>
<td>Injection (qualified)</td>
<td>Route of administration is indicated in parentheses where relevant.</td>
</tr>
<tr>
<td>Injection (oily)</td>
<td>The term <code>injection</code> is qualified by <code>(oily)</code> in relevant entries.</td>
</tr>
<tr>
<td>Intravenous infusion</td>
<td>Refers to solutions and emulsions including those constituted from powders or concentrated solutions.</td>
</tr>
</tbody>
</table>

### C. Other dosage forms

<table>
<thead>
<tr>
<th>Mode of administration</th>
<th>Term to be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>To the eye</td>
<td>Eye drops, eye ointments.</td>
</tr>
<tr>
<td>Topical</td>
<td>For liquids: lotions, paints. For semi-solids: cream, ointment.</td>
</tr>
<tr>
<td>Rectal</td>
<td>Suppositories, gel or solution.</td>
</tr>
<tr>
<td>Vaginal</td>
<td>Pessaries or vaginal tablets.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Powder for inhalation, pressurized inhalation, nebulizer.</td>
</tr>
</tbody>
</table>
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## WHO Model List of Essential Medicines for Children

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<td>lactulose</td>
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<td>22</td>
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<tr>
<td>ethionamide</td>
<td>9</td>
<td>lamivudine + nevirapine + zidovudine</td>
</tr>
<tr>
<td>ethosuximide</td>
<td>5</td>
<td>lamivudine + zidovudine</td>
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<tr>
<td>etoposide</td>
<td>1</td>
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</tr>
<tr>
<td>ferrous salt</td>
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</tr>
<tr>
<td>filgrastim</td>
<td>17</td>
<td>levothyroxine</td>
</tr>
<tr>
<td>fluconazole</td>
<td>9</td>
<td>lidocaine</td>
</tr>
<tr>
<td>flucytosine</td>
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<td>lidocaine + epinephrine (adrenaline)</td>
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<tr>
<td>fluoroacetamide</td>
<td>24</td>
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<tr>
<td>fluoxetine</td>
<td>22</td>
<td>loxapine + ritonavir (LPV/r)</td>
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<tr>
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<tr>
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<tr>
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<td>hydroxychloroquine</td>
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