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**BREASTFEEDING AND MATERNAL MEDICATION**  
**Recommendations for Drugs in the**  
**Eleventh WHO Model List of Essential Drugs**

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**Department of Child and Adolescent Health and Development**

**UNICEF**

**World Health Organization**

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## INTRODUCTION

Often there is a need to decide whether a mother who is breastfeeding and who needs treatment with drugs can take the necessary medication and still continue breastfeeding safely. There are very few kinds of treatment during which breastfeeding is absolutely contraindicated. However, there are some drugs which a mother may need to take which sometimes cause side-effects in the baby. The summary box “**Breastfeeding and Mother’s Medication**” on page 3 provides a preliminary guide. This document gives more detailed information about specific drugs from the Eleventh Model List of Essential Drugs.

## HOW TO USE THE LIST

The drugs are listed in groups according to how they are used and the groups are listed alphabetically, in the same way as in the Eleventh Model List of Essential Drugs.

In order to find a particular drug, first look in the index and find the numbers of the sections in which the drug is listed. Some drugs appear in several sections under separate headings because they are used for different conditions. Find the section under the appropriate heading (for example, atropine is mentioned as a solution under **21.5 mydriatics** and as an injection under **1.3 preoperative medication**).

Read the text related to breastfeeding and compare the drug with others listed under the same heading. Decide whether the drug that you have selected is the best choice. For example, if you want to give a pain-killer, you will find under **2.1 non-opioids** that ibuprofen is a better choice for a breastfeeding mother than acetylsalicylic acid for long term therapy.

Letters in parentheses after 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.

## HOW DRUGS ARE CLASSIFIED FOR BREASTFEEDING

The following classifications are used in the list:

### 1. Compatible with breastfeeding

Drugs are classified as compatible with breastfeeding if there are no known or theoretical contraindications for their use, and it is considered safe for the mother to take the drug and continue to breastfeed.

### 2. Compatible with breastfeeding. Monitor infant for side-effects

Drugs are classified in this way if they could theoretically cause side-effects in the infant but have either not been observed to do so or have only occasionally caused mild side-effects. Inform the mother about any possible side-effects, reassure her that they are unusual, and ask her to return if they occur or if she is worried.

If side-effects do occur, stop giving the drug to the mother, and if necessary find an alternative. If the mother cannot stop taking the drug, she may need to stop breastfeeding and feed her baby artificially until her treatment is completed. Help her to express her breastmilk to keep up the supply so that she can breastfeed again after she stops taking the drug.

### **3. Avoid if possible. Monitor infant for side-effects**

Drugs are classified in this way if they have been reported to cause side-effects in the infant, especially if the side-effects could be serious. Use these drugs only when they are really essential for the mother's treatment and when no safer alternative is available. Allow the mother to continue breastfeeding but give her clear instructions about observing the baby and arrange for frequent follow-up. If side-effects occur, stop the drug. If it is not possible to stop giving the drug, stop breastfeeding and feed the baby artificially until treatment is completed. Help her to express her breastmilk to keep up the supply so that she can breastfeed again after stops taking the drug.

### **4. Avoid if possible. May inhibit lactation**

Drugs classified this way may reduce breastmilk production and, if possible, they should be avoided. However, if a mother has to take one of these drugs for a short period, she does not need to give artificial milk to her baby. She can off set the possible decrease in milk production by encouraging her baby to suckle more frequently.

### **5. Avoid**

Drugs are classified in this way if they can have dangerous side-effects on the baby. They should not be given to a mother while she is breastfeeding. If they are essential for treating the mother, she should stop breastfeeding until treatment is completed. If treatment is prolonged, she may need to stop breastfeeding altogether. There are very few drugs in this category apart from anticancer drugs and radioactive substances.

## **SOME ADDITIONAL CONSIDERATIONS**

The safety of certain drugs also depends on the age of the infant. Premature babies and infants less than 1 month of age have a different capacity to absorb and excrete drugs than older infants. Thus, in general, extra caution is needed for these infants. For some drugs, specific information is available with respect to age and you will find this mentioned in the list.

You may need to give a breastfeeding mother a drug that is not included in this list. Unless the drug falls into a category with clear contraindications (for example cytotoxic drugs), advise the mother to continue breastfeeding and ask her to come back if she notices anything worrying about her infant.

### Breastfeeding and Mother's Medication

<b><i>Breastfeeding contraindicated:</i></b>	Anticancer drugs (antimetabolites); Radioactive substances (stop breastfeeding temporarily)
<b><i>Continue breastfeeding :</i></b>	
<i>Side-effects possible Monitor baby for drowsiness.</i>	Selected psychiatric drugs and anticonvulsants (see individual drug)
<i>Use alternative drug if possible</i>	Chloramphenicol, tetracyclines, metronidazole, quinolone antibiotics (e.g. ciprofloxacin)
<i>Monitor baby for jaundice.</i>	Sulfonamides, dapsone, sulfamethoxazole+trimethoprim (cotrimoxazole) sulfadoxine+pyrimethamine (fansidar)
<i>Use alternative drug (may inhibit lactation)</i>	Estrogens, including estrogen-containing contraceptives, thiazide diuretics, ergometrine
<i>Safe in usual dosage Monitor baby</i>	Most commonly used drugs: analgesics and antipyretics: short courses of paracetamol, acetylsalicylic acid, ibuprofen; occasional doses of morphine and pethidine. antibiotics: ampicillin, amoxicillin, cloxacillin and other penicillins, erythromycin, antituberculosis drugs, anti-leprosy drugs (see dapsone above). antimalarials (except mefloquine, Fansidar), anthelmintics, antifungals. bronchodilators (e.g. salbutamol), corticosteroids, antihistamines, antacids, drugs for diabetes, most antihypertensives, digoxin nutritional supplements of iodine, iron, vitamins.

(Adapted from "Breastfeeding counselling: A training course", WHO/CDR/93.3-6)

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## 1. ANAESTHETICS

**General information:** If a procedure requires anaesthesia, help the mother to express her breastmilk in advance and store it in a refrigerator so that her baby can be fed her expressed breastmilk by cup while she is undergoing the operation and recovering from the anaesthesia.

### 1.1 General anaesthetics and oxygen

ether	<input type="checkbox"/>	Compatible with breastfeeding
halothane	<input type="checkbox"/>	Compatible with breastfeeding
ketamine	<input type="checkbox"/>	Compatible with breastfeeding
nitrous oxide	<input type="checkbox"/>	Compatible with breastfeeding
oxygen	<input type="checkbox"/>	Compatible with breastfeeding
thiopental	<input type="checkbox"/>	Compatible with breastfeeding

### 1.2 Local anaesthetics

bupivacaine	<input type="checkbox"/>	Compatible with breastfeeding
lidocaine	<input type="checkbox"/>	Compatible with breastfeeding
<i>Complementary drug:</i> ephedrine (C)	<input type="checkbox"/>	Compatible with breastfeeding. Monitor infant for side effects (irritability and disturbed sleep)

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

atropine	<input type="checkbox"/>	Compatible with breastfeeding. Monitor infant for side-effects (drying of secretions, temperature elevation and CNS disturbance)
chloral hydrate	<input type="checkbox"/>	Compatible with breastfeeding in single dose. Monitor infant for drowsiness
diazepam	<input type="checkbox"/>	Compatible with breastfeeding in single dose. Avoid giving repeated doses, if possible. Monitor infant for drowsiness. Short-acting benzodiazepines preferred*
morphine	<input type="checkbox"/>	Compatible with breastfeeding in single dose. Avoid giving repeated doses, if possible. Monitor infant for side-effects (apnoea and bradycardia)
promethazine	<input type="checkbox"/>	Compatible with breastfeeding in single dose. Avoid giving repeated doses, if possible. Monitor infant for drowsiness

\*See section 24.3 page 25

**2. ANALGESICS, ANTIPYRETICS, NONSTEROIDAL ANTI-INFLAMMATORY DRUGS, DRUGS USED TO TREAT GOUT AND DISEASE-MODIFYING AGENTS USED IN RHEUMATIC DISORDERS**

**2.1 Non-opioids analgesics and antipyretics and nonsteroidal anti-inflammatory drugs**

**General information:** ibuprofen and paracetamol have the best documentation on safety during breastfeeding.

- |                      |  |
|----------------------|--|
| acetylsalicylic acid | <input type="checkbox"/> Compatible with breastfeeding in occasional doses. Avoid long-term therapy, if possible. Monitor infant for side-effects (haemolysis, prolonged bleeding time and metabolic acidosis) |
| ibuprofen            | <input type="checkbox"/> Compatible with breastfeeding   |
| paracetamol          | <input type="checkbox"/> Compatible with breastfeeding   |

**2.2 Opioid analgesics**

**General information :** Single doses of most opioids are excreted in breastmilk only in small amounts. Repeated doses may result in accumulation in the infant. Avoid repeated doses, especially if the infant is premature or less than 4 weeks old. Avoid drugs from this category if the infant has had an episode of apnoea, bradycardia or cyanosis. If given during delivery, the infant may be drowsy at birth, which may interfere with the initiation of breastfeeding.

- |  |  |
|--|--|
| codeine                                    | <input type="checkbox"/> Compatible with breastfeeding in occasional doses. Avoid repeated doses, if possible. Monitor infant for side-effects (apnoea, bradycardia and cyanosis)  |
| morphine                                   | <input type="checkbox"/> Compatible with breastfeeding in occasional doses. Avoid repeated doses, if possible. Monitor infant for side-effects (apnoea, bradycardia and cyanosis)  |
| <i>Complementary drug</i><br>pethidine (A) | <input type="checkbox"/> Compatible with breastfeeding in occasional doses. Avoid repeated doses, if possible. Monitor infant for side-effects (apnoea, bradycardia and cyanosis). Side-effects occur more commonly than with morphine |

**2.3 Drugs used to treat gout**

- |             |  |
|-------------|--|
| allopurinol | <input type="checkbox"/> Compatible with breastfeeding |
| colchicine  | <input type="checkbox"/> Compatible with breastfeeding |

## 2.4. Disease-modifying agents used in rheumatic disorders

- |                  |   |
|------------------|---|
| azathioprine     | <input type="checkbox"/> Avoid breastfeeding  |
| chloroquine      | <input type="checkbox"/> Compatible with breastfeeding.<br>Monitor infant for side-effects (haemolysis and jaundice), especially if the infant is premature or less than 1 month old. Avoid in G-6-PD deficient infants       |
| cyclophosphamide | <input type="checkbox"/> Use alternative medicine   |
| methotrexate     | <input type="checkbox"/> Avoid breastfeeding  |
| penicillamine    | <input type="checkbox"/> No data available  |
| sulfasalazine    | <input type="checkbox"/> Avoid if possible, especially if the Infant is premature or less than 1 month old. Monitor the infant for side-effects (bloody diarrhea, haemolysis and jaundice). Avoid in G-6-PD deficient infants |

## 3. ANTIALLERGENICS AND DRUGS USED IN ANAPHYLAXIS

- |                          |   |
|--------------------------|---|
| chlorphenamine           | <input type="checkbox"/> Avoid if possible.<br>Monitor infant for side-effects (drowsiness, irritability).<br>May inhibit lactation |
| dexamethasone            | <input type="checkbox"/> Compatible with breastfeeding in single dose.<br>No data available about prolonged usage                   |
| epinephrine (adrenaline) | <input type="checkbox"/> No data available  |
| hydrocortisone           | <input type="checkbox"/> Compatible with breastfeeding in single dose.<br>No data available about prolonged usage                   |
| prednisolone             | <input type="checkbox"/> Compatible with breastfeeding  |

## 4. ANTIDOTES AND OTHER SUBSTANCES USED IN POISONINGS

### 4.1 Non-specific

- |                     |  |
|---------------------|--|
| charcoal, activated | <input type="checkbox"/> Compatible with breastfeeding |
| ipecacuanha         | <input type="checkbox"/> Compatible with breastfeeding |

### 4.2 Specific

- |                   |  |
|-------------------|--|
| acetylcysteine    | <input type="checkbox"/> No data available   |
| atropine          | <input type="checkbox"/> Compatible with breastfeeding. Monitor infant for side-effects (drying of secretions, temperature elevation and CNS disturbance)  |
| calcium gluconate | <input type="checkbox"/> No data available   |
| deferoxamine      | <input type="checkbox"/> No data available   |
| dimercaprol       | <input type="checkbox"/> Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor infant for side-effects (haemolysis and jaundice). Avoid in G-6-PD deficient infants |

DL-methionine	<input type="checkbox"/> No data available
methylthioninium chloride (methylene blue)	<input type="checkbox"/> Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor infant for side-effects (haemolysis and jaundice)
naloxone	<input type="checkbox"/> No data available
penicillamine	<input type="checkbox"/> No data available
potassium ferric hexacyanoferrate (II) 2H <sub>2</sub> O (Prussian blue)	<input type="checkbox"/> No data available
sodium calcium edetate	<input type="checkbox"/> No data available
sodium nitrite	<input type="checkbox"/> No data available
sodium thiosulfate	<input type="checkbox"/> No data available

## 5. ANTICONVULSANTS/ ANTIPILEPTICS

**General information:** Breastfed infants of mothers who are taking anticonvulsants sometimes develop drowsiness. For mothers who need anticonvulsants there is often little alternative. It is essential that they take their medication and it can be dangerous to change antiepileptic medicines suddenly. Breastfeeding is usually possible, but the infant must be monitored. It helps if the dose is kept as low as possible within the effective therapeutic range.

carbamazepine	<input type="checkbox"/> Compatible with breastfeeding. Monitor infant for side-effects (jaundice, drowsiness, poor suckling, vomiting and poor weight gain)
diazepam	<input type="checkbox"/> Compatible with breastfeeding in single dose. Avoid repeated doses, if possible.* Monitor infant for drowsiness
ethosuximide	<input type="checkbox"/> Avoid if possible. Monitor infant for side-effects (drowsiness, poor suckling and poor weight gain)
magnesium sulfate	<input type="checkbox"/> Compatible with breastfeeding
phenobarbital	<input type="checkbox"/> Compatible with breastfeeding. Monitor infant for side-effects (drowsiness, poor suckling and poor weight gain)
phenytoin	<input type="checkbox"/> Compatible with breastfeeding. Monitor infant for side-effects (cyanosis and methaemoglobinaemia)
valproic acid	<input type="checkbox"/> Compatible with breastfeeding. Monitor infant for side-effects (jaundice)
<i>Complementary drug:</i> clonazepam (B)	<input type="checkbox"/> Compatible with breastfeeding. The mother should receive only normal dose

\* See section 24.3 page 25



## 6. ANTI-INFECTIVE DRUGS

### 6.1 Anthelmintics

#### 6.1.1 *Intestinal anthelmintics*

**General information :** There are limited data available on the use of drugs in this category. However, they act mainly in the intestinal system of the mother and little is absorbed into the general system. They can be considered compatible with breastfeeding.

albendazole	<input type="checkbox"/>	Compatible with breastfeeding
levamisole	<input type="checkbox"/>	Compatible with breastfeeding
mebendazole	<input type="checkbox"/>	Compatible with breastfeeding
niclosamide	<input type="checkbox"/>	Compatible with breastfeeding
praziquantel	<input type="checkbox"/>	Compatible with breastfeeding
pyrantel	<input type="checkbox"/>	Compatible with breastfeeding

#### 6.1.2 *Antifilarials*

diethylcarbamazine	<input type="checkbox"/>	No data available
ivermectin	<input type="checkbox"/>	No data available
<i>Complementary drug</i> suramin sodium (B)	<input type="checkbox"/>	No data available

#### 6.1.3 *Antischistosomes and other antitremitode drugs*

praziquantel	<input type="checkbox"/>	Compatible with breastfeeding
triclabendazole	<input type="checkbox"/>	No data available
<i>Complementary drug</i> oxamniquine (C)	<input type="checkbox"/>	Compatible with breastfeeding

### 6.2 Antibacterials

**General information:** If the drug is excreted in breastmilk, there is a possibility of altering the infant's intestinal flora. Monitor the infant for gastrointestinal disturbances, such as thrush and diarrhoea. If they occur, stop the drug and choose an alternative if necessary. Continue breastfeeding.

#### 6.2.1 *$\beta$ -Lactam drugs*

**General information:** Breastfeeding is generally safe. Theoretically, penicillins can cause an allergic reaction in the infant. If the infant develops a rash, it could be a sign of allergy. Stop the drug and choose an alternative if necessary. Continue breastfeeding. Warn the mother that the infant should not be given the drug in the future.

amoxicillin	<input type="checkbox"/>	Compatible with breastfeeding
ampicillin	<input type="checkbox"/>	Compatible with breastfeeding
benzathine benzylpenicillin	<input type="checkbox"/>	Compatible with breastfeeding
benzylpenicillin	<input type="checkbox"/>	Compatible with breastfeeding
cloxacillin	<input type="checkbox"/>	Compatible with breastfeeding
phenoxymethylpenicillin	<input type="checkbox"/>	Compatible with breastfeeding
procaine benzylpenicillin	<input type="checkbox"/>	Compatible with breastfeeding

*Restricted indications:*

amoxicillin+clavulanic acid	<input type="checkbox"/> Compatible with breastfeeding
ceftazidime	<input type="checkbox"/> Compatible with breastfeeding
ceftriaxone	<input type="checkbox"/> Compatible with breastfeeding
imipenem+cilastatin	<input type="checkbox"/> No data available

6.2.2 *Other antibacterials*

chloramphenicol	<input type="checkbox"/> Avoid if possible, especially if the infant is less than 1 month old. Monitor the infant for side-effects (haemolysis and jaundice). Theoretically, there is a risk of bone-marrow depression, but this has never been reported
ciprofloxacin	<input type="checkbox"/> Avoid if possible, until more data are available
doxycycline	<input type="checkbox"/> Avoid if possible. Possibility of staining the infant's teeth. Single dose is probably safe
erythromycin	<input type="checkbox"/> Compatible with breastfeeding
gentamicin	<input type="checkbox"/> Compatible with breastfeeding. Monitor infant for thrush and diarrhoea
metronidazole	<input type="checkbox"/> Avoid if possible. Animal data suggest it may be carcinogenic. If given in single dose of 2 grams, discontinue breastfeeding for 12 hours. Help the mother to express her breastmilk in advance and store it in a refrigerator so that her baby can be fed by cup during that time
nalidixic acid	<input type="checkbox"/> Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor the infant for side-effects (haemolysis and jaundice). Avoid in G-6-PD deficient infants
nitrofurantoin	<input type="checkbox"/> Compatible with breastfeeding for healthy full-term infants. Avoid if possible if the infant is premature or less than 1 month old. Monitor the infant for side-effects (haemolysis and jaundice). Avoid in infants with G-6-PD deficiency
spectinomycin	<input type="checkbox"/> No data available
sulfadiazine	<input type="checkbox"/> Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor the infant for side-effects (bloody diarrhea, haemolysis and jaundice). Avoid in G-6-PD deficient infants
sulfamethoxazole+ trimethoprim (cotrimoxazole)	<input type="checkbox"/> Compatible with breastfeeding for older, healthy full-term infants. Avoid if possible if the infant is premature or less than 1 month old. Monitor the infant for side-effects (haemolysis and jaundice). Avoid in infant with G-6-PD deficiency
trimethoprim	<input type="checkbox"/> Compatible with breastfeeding
<i>Complementary drugs</i> chloramphenicol (C)	<input type="checkbox"/> Avoid if possible, especially if the infant is less than 1 month old. Monitor the infant for side-effects (haemolysis and jaundice). Theoretically, there is a risk of bone-marrow depression, but this has never been reported
clindamycin (B)	<input type="checkbox"/> Avoid if possible. Monitor infant for diarrhoea or bloody stools
<i>Restricted indications:</i> vancomycin	<input type="checkbox"/> No data available

### 6.2.3 Antileprosy drugs

- |             |                          |  |
|-------------|--------------------------|--|
| clofazimine | <input type="checkbox"/> | May cause skin discoloration, which is reversible  |
| dapsone     | <input type="checkbox"/> | Compatible with breastfeeding. Monitor for side-effects (haemolysis and jaundice), especially if the infant is premature or less than 1 month old. Avoid in infants with G-6-PD deficiency |
| rifampicin  | <input type="checkbox"/> | Compatible with breastfeeding  |

### 6.2.4 Antituberculosis drugs

**General information:** If the baby develops significant jaundice, stop or change the drug if possible. If this is not possible, it may be necessary to consider feeding the baby artificially.

- |   |                          |  |
|---|--------------------------|--|
| ethambutol  | <input type="checkbox"/> | Compatible with breastfeeding. Monitor the infant for jaundice             |
| isoniazid   | <input type="checkbox"/> | Compatible with breastfeeding. Monitor the infant for jaundice             |
| isoniazid + ethambutol                            | <input type="checkbox"/> | Compatible with breastfeeding. Monitor infant for possible toxicity        |
| pyrazinamide                                      | <input type="checkbox"/> | Compatible with breastfeeding. Monitor the infant for jaundice             |
| rifampicin  | <input type="checkbox"/> | Compatible with breastfeeding. Monitor the infant for jaundice             |
| rifampicin + isoniazid                            | <input type="checkbox"/> | Compatible with breastfeeding. Monitor the infant for jaundice             |
| rifampicin + isoniazid + pyrazinamide,            | <input type="checkbox"/> | Compatible with breastfeeding*   |
| rifampicin + isoniazid + pyrazinamide+ ethambutol | <input type="checkbox"/> | Compatible with breastfeeding *  |
| streptomycin                                      | <input type="checkbox"/> | Compatible with breastfeeding. Monitor the infant for thrush and diarrhoea |

*Complementary drug*

- |                               |                          |                                 |
|-------------------------------|--------------------------|---------------------------------|
| thioacetazone + isoniazid (A) | <input type="checkbox"/> | Compatible with breastfeeding * |
|-------------------------------|--------------------------|---------------------------------|

*Restricted indications*

For drugs used in treatment of multidrug-resistant tuberculosis, see section 9 of the main text of the Ninth report of the WHO Expert Committee.

\* A woman who is breastfeeding and has TB should receive a full course of anti-TB chemotherapy. Timely and properly applied chemotherapy is the best way to prevent transmission of tubercle bacilli to her baby. All the anti-TB drugs are compatible with breastfeeding and a woman taking them can safely continue to breastfeed her baby. The mother and baby should stay together and the baby should continue to breastfeed in the normal way. The baby should receive isoniazid prophylaxis and BCG immunization.. ( Quote from : Maher D, Chaulet P, Spinaci S, Harries A. Treatment of tuberculosis: Guidelines for national programmes. 2<sup>nd</sup> edition 1997 *Global Tuberculosis Programme, World Health Organization. Geneva, Switzerland.*)

### 6.3 Antifungal drugs

- |                            |  |
|----------------------------|--|
| amphotericin B             | <input type="checkbox"/> No data available   |
| fluconazole                | <input type="checkbox"/> Compatible with breastfeeding   |
| griseofulvin               | <input type="checkbox"/> No data available   |
| nystatin                   | <input type="checkbox"/> Compatible with breastfeeding   |
| <i>Complementary drugs</i> |  |
| flucytosine (B)            | <input type="checkbox"/> No data available   |
| potassium iodide (A)       | <input type="checkbox"/> Compatible with breastfeeding. However, iodine-containing drugs for systemic administration are a cause for concern. Monitor the infant for side-effects (hypothyroidism) |

### 6.4 Antiviral drugs

#### 6.4.1 Antiherpes drugs

- |           |  |
|-----------|--|
| aciclovir | <input type="checkbox"/> Compatible with breastfeeding |
|-----------|--|

#### 6.4.2 Antiretroviral drugs

- |            |  |
|------------|--|
| nevirapine | <input type="checkbox"/> With the exception of mild anaemia with AZT prophylaxis, short-term effects of prophylaxis on infants are minimal, and serious early long-term toxicity in children secondary to <i>in utero</i> AZT exposure, if it occurs, is likely to be rare (Quote from: Mofenson KM, Munderi P. Safety of anti-retroviral prophylaxis of perinatal transmission on HIV-infected pregnant women and their infants. UNAIDS 2002) |
| zidovudine | <input type="checkbox"/> With the exception of mild anaemia with AZT prophylaxis, short-term effects of prophylaxis on infants are minimal, and serious early long-term toxicity in children secondary to <i>in utero</i> AZT exposure, if it occurs, is likely to be rare (Quote from: Mofenson KM, Munderi P. Safety of anti-retroviral prophylaxis of perinatal transmission on HIV-infected pregnant women and their infants. UNAIDS 2002) |

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Drugs for the treatment of human immunodeficiency virus (HIV) infection/acquired immunodeficiency syndrome (AIDS) include nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors and protease inhibitors. The drugs zidovudine and nevirapine have been shown to reduce or prevent mother-to-child transmission of HIV. *This is the only indication for which they are 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 Antiamoebic and anti giardiasis drugs

- |               |   |
|---------------|---|
| diloxanide    | <input type="checkbox"/> No data available  |
| metronidazole | <input type="checkbox"/> Avoid if possible. Animal data suggest it may be carcinogenic. If given in single dose of 2 grams, discontinue breastfeeding for 12 hours. Help the mother to express her breastmilk in advance and store it in a refrigerator so that the baby can be fed by cup during that time |

### 6.5.2 Antileishmaniasis drugs

- |   |  |
|---|--|
| meglumine antimoniate                           | <input type="checkbox"/> Compatible with breastfeeding |
| pentamidine                                     | <input type="checkbox"/> Compatible with breastfeeding |
| <i>Complementary drug</i><br>amphotericin B (B) | <input type="checkbox"/> No data available             |

### 6.5.3 Antimalarial drugs

#### (a) For curative treatment

- |   |  |
|---|--|
| chloroquine                                   | <input type="checkbox"/> Compatible with breastfeeding. Monitor for side-effects (haemolysis and jaundice), especially if the infant is premature or less than 1 month old. Avoid in G-6-PD deficient infants  |
| primaquine                                    | <input type="checkbox"/> Compatible with breastfeeding. Monitor for haemolysis and jaundice, especially if the infant is premature or less than 1 month old. Avoid in G-6-PD deficient infants   |
| quinine                                       | <input type="checkbox"/> Compatible with breastfeeding. Monitor for haemolysis and jaundice, especially if the infant is premature or less than 1 month old. Avoid in G-6-PD deficient infants   |
| <i>Complementary drugs</i><br>doxycycline (B) | <input type="checkbox"/> Compatible with breastfeeding<br>Theoretically, dental staining and inhibition of bone growth could occur, especially with long-period use  |
| mefloquine (B)                                | <input type="checkbox"/> Avoid if possible until more data are available   |
| sulfadoxine+pyrimethamine (B) (fansidar)      | <input type="checkbox"/> Compatible with breastfeeding for older, healthy, full-term infants. Avoid if possible if the infant is premature or less than 1 month old. Monitor for side-effects (haemolysis and jaundice). Avoid in G-6-PD deficient infants |
| <i>Restricted indications</i><br>artemether   | <input type="checkbox"/> The drug has been used in lactating mothers, no toxic effects have been found in their breastfed infants (Report from RBM Department/WHO)   |
| artesunate                                    | <input type="checkbox"/> The drug has been used in lactating mothers, no toxic effects have been found in their breastfed infants (Report from RBM Department/WHO)   |

(b) *For prophylaxis*

- |             |                          |  |
|-------------|--------------------------|--|
| chloroquine | <input type="checkbox"/> | Compatible with breastfeeding. Monitor for side-effects (haemolysis and jaundice), especially if the infant is premature or less than 1 month old. Avoid in G-6-PD deficient infants |
| doxycycline | <input type="checkbox"/> | Compatible with breastfeeding. Theoretically, dental staining and inhibition of bone growth could occur, especially with long- period use  |
| mefloquine  | <input type="checkbox"/> | Avoid if possible until more data are available  |
| proguanil   | <input type="checkbox"/> | Compatible with breastfeeding  |

6.5.4 *Antipneumocystosis and antitoxoplasmosis drugs*

- |   |                          |  |
|---|--------------------------|--|
| pentamidine                                   | <input type="checkbox"/> | No data available  |
| pyrimethamine                                 | <input type="checkbox"/> | Compatible with breastfeeding. The infant should not receive any other anti-folate agent   |
| sulfamethoxazole+<br>trimethoprim (injection) | <input type="checkbox"/> | Compatible with breastfeeding for older, healthy full-term infants. Avoid if possible if the infant is premature or less than 1 month old. Monitor the infant for side-effects (haemolysis and jaundice). Avoid in infant with G-6-PD deficiency |

6.5.5 *Antitrypanosomal drugs*

(a) *African trypanosomiasis*

- |                           |                          |                   |
|---------------------------|--------------------------|-------------------|
| melarsoprol               | <input type="checkbox"/> | No data available |
| pentamidine               | <input type="checkbox"/> | No data available |
| suramin sodium            | <input type="checkbox"/> | No data available |
| <i>Complementary drug</i> |                          |                   |
| eflornithine (C)          | <input type="checkbox"/> | No data available |

(b) *American trypanosomiasis*

- |              |                          |                   |
|--------------|--------------------------|-------------------|
| benznidazole | <input type="checkbox"/> | No data available |
| nifurtimox   | <input type="checkbox"/> | No data available |

**6.6 Insect repellents**

- |                  |                          |  |
|------------------|--------------------------|--|
| diethyltoluamide | <input type="checkbox"/> | Compatible with breastfeeding. Avoid direct contact of the infant with the repellent |
|------------------|--------------------------|--|

**7. ANTIMIGRAINE DRUGS**

**7.1. For treatment of acute attack**

- |                      |                          |   |
|----------------------|--------------------------|---|
| acetylsalicylic acid | <input type="checkbox"/> | Compatible with breastfeeding in occasional doses. Avoid long term therapy, if possible. Monitor the infant for side-effects (haemolysis, prolonged bleeding time and metabolic acidosis) |
| ergotamine           | <input type="checkbox"/> | Avoid if possible. Monitor the infant for side-effects (ergotism)   |
| paracetamol          | <input type="checkbox"/> | Compatible with breastfeeding   |

## 7.2 For prophylaxis

- propranolol  Compatible with breastfeeding. Monitor the infant for side-effects (bradycardia, hypoglycaemia and cyanosis)

## 8. ANTINEOPLASTIC AND IMMUNOSUPPRESSIVE DRUGS AND DRUGS USED IN PALLIATIVE CARE

**General information:** Breastfeeding is contraindicated when a mother has to take a drug which belongs to this category.

### 8.1 Immunosuppressive drugs

- azathioprine  Avoid breastfeeding  
ciclosporin  Avoid breastfeeding

### 8.2 Cytotoxic drugs

**General information:** Breastfeeding is contraindicated when a mother has to take a drug which belongs to this category.

- asparaginase  Avoid breastfeeding  
bleomycin  Avoid breastfeeding  
calcium folinate  Compatible with breastfeeding  
chlorambucil  Avoid if possible  
chlormethine  Avoid breastfeeding  
cisplatin  Avoid breastfeeding  
cyclophosphamide  Avoid breastfeeding  
cytarabine  Avoid breastfeeding  
dacarbazine  Avoid breastfeeding  
dactinomycin  Avoid breastfeeding  
daunorubicin  Avoid breastfeeding  
doxorubicin  Avoid breastfeeding  
etoposide  Avoid breastfeeding  
fluorouracil  Avoid breastfeeding  
levamisole  Avoid breastfeeding  
mercaptopurine  Avoid breastfeeding  
methotrexate  Avoid breastfeeding  
procarbazine  Avoid breastfeeding  
vinblastine  Avoid breastfeeding  
vincristine  Avoid breastfeeding

### 8.3. Hormones and antihormones

- prednisolone  Compatible with breastfeeding  
tamoxifen  Avoid breastfeeding

### 8.4 Drugs used in palliative care

The Committee recommended that all drugs mentioned in the WHO publication *Cancer pain relief: with a guide to opioid availability*, second ed 1996 be considered essential. The drugs are included in the relevant sections of the model list, according to their therapeutic use, e.g. analgesics.

## 9. ANTIPARKINSONISM DRUGS

- |                      |  |
|----------------------|--|
| biperiden            | <input type="checkbox"/> No data available                                 |
| levodopa + carbidopa | <input type="checkbox"/> Avoid if possible. Levodopa may inhibit lactation |

## 10. DRUGS AFFECTING THE BLOOD

### 10.1 Antianaemia drugs

- |                           |  |
|---------------------------|--|
| ferrous salt              | <input type="checkbox"/> Compatible with breastfeeding |
| ferrous salt +folic acid  | <input type="checkbox"/> Compatible with breastfeeding |
| folic acid                | <input type="checkbox"/> Compatible with breastfeeding |
| hydroxocobalamin          | <input type="checkbox"/> Compatible with breastfeeding |
| <i>Complementary drug</i> |  |
| iron dextran (B)          | <input type="checkbox"/> Compatible with breastfeeding |

### 10.2 Drugs affecting coagulation

- |                   |  |
|-------------------|--|
| desmopressin      | <input type="checkbox"/> Compatible with breastfeeding |
| heparin sodium    | <input type="checkbox"/> Compatible with breastfeeding |
| phytomenadione    | <input type="checkbox"/> Compatible with breastfeeding |
| protamine sulfate | <input type="checkbox"/> No data available             |
| warfarin          | <input type="checkbox"/> Compatible with breastfeeding |

## 11. BLOOD PRODUCTS AND PLASMA SUBSTITUTES

### 11.1 Plasma substitutes

- |            |  |
|------------|--|
| dextran 70 | <input type="checkbox"/> Compatible with breastfeeding |
| polygeline | <input type="checkbox"/> Compatible with breastfeeding |

### 11.2 Plasma fractions for specific uses

- |  |  |
|--|--|
| <i>Complementary drugs</i>   |  |
| factor VIII concentrate (C)  | <input type="checkbox"/> Compatible with breastfeeding |
| factor IX complex<br>(coagulation factors II, VII,<br>IX, X) concentrate (C) | <input type="checkbox"/> Compatible with breastfeeding |

## 12. CARDIOVASCULAR DRUGS

### 12.1 Antianginal drugs

- |                      |   |
|----------------------|---|
| atenolol             | <input type="checkbox"/> Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor the infant for side-effects (bradycardia, hypotension and cyanosis) |
| glyceryl trinitrate  | <input type="checkbox"/> No data available  |
| isosorbide dinitrate | <input type="checkbox"/> No data available  |
| verapamil            | <input type="checkbox"/> Compatible with breastfeeding  |



## 12.2 Antiarrhythmic drugs

atenolol	<input type="checkbox"/>	Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor the infant for side-effects (bradycardia, hypotension and cyanosis)
digoxin	<input type="checkbox"/>	Compatible with breastfeeding
lidocaine	<input type="checkbox"/>	Compatible with breastfeeding
lerapamil	<input type="checkbox"/>	Compatible with breastfeeding
<i>Complementary drugs</i>		
epinephrine (adrenaline)(C)	<input type="checkbox"/>	Compatible with breastfeeding
isoprenaline (C)	<input type="checkbox"/>	No data available
procainamide (B)	<input type="checkbox"/>	Compatible with breastfeeding. However, insufficient data available on side-effects of long-term use
quinidine (A)	<input type="checkbox"/>	Compatible with breastfeeding

## 12.3 Antihypertensive drugs

atenolol	<input type="checkbox"/>	Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor the infant for side-effects (bradycardia, hypotension and cyanosis)
captopril	<input type="checkbox"/>	Compatible with breastfeeding
hydralazine	<input type="checkbox"/>	Compatible with breastfeeding. However, insufficient data available on long-term use
hydrochlorothiazide	<input type="checkbox"/>	Compatible with breastfeeding
methyldopa	<input type="checkbox"/>	Compatible with breastfeeding
nifedipine	<input type="checkbox"/>	Compatible with breastfeeding. However, insufficient data available on long-term use
reserpine	<input type="checkbox"/>	Use alternative medicine
<i>Complementary drugs</i>		
prazosin (B)	<input type="checkbox"/>	No data available
sodium nitroprusside (C)	<input type="checkbox"/>	No data available

## 12.4 Drugs used in heart failure

captopril	<input type="checkbox"/>	Compatible with breastfeeding
digoxin	<input type="checkbox"/>	Compatible with breastfeeding
dopamine	<input type="checkbox"/>	Compatible with breastfeeding
hydrochlorothiazide	<input type="checkbox"/>	Compatible with breastfeeding

## 12.5 Antithrombotic drugs

acetylsalicylic acid	<input type="checkbox"/>	Compatible with breastfeeding in small doses used for anti-thrombosis. Avoid repeated administration in normal doses if possible. Monitor the infant for side-effects (haemolysis, prolonged bleeding time and metabolic acidosis)
<i>Complementary drug</i>		
streptokinase (C)	<input type="checkbox"/>	No data available

## 12.6 Lipid-lowering agents

The Committee recognizes the value of lipid-lowering drugs in treating patients with hyperlipidaemia.  $\beta$ -Hydroxy- $\beta$ -methylglutaryl-coenzyme A (HMG CoA) reductase inhibitors, often

referred to as “statins”, are a family of potent and effective lipid-lowering drugs with a good tolerability profile. Several of these drugs have been shown to reduce the incidence of fatal and non-fatal myocardial infarction, stroke and mortality (all causes), as well as the need for coronary by-pass surgery. All remain very costly but maybe cost-effective for secondary prevention of cardiovascular disease as well as for primary prevention in some very high-risk patients. Since no single drug has been shown to be significantly more effective or less expensive than others in the group, none is included in the model list; the choice of drug for use in patients at highest risk should be decided at the national level.

### 13. DERMATOLOGICAL DRUGS ( TOPICAL)

**General information :** Topical preparations are not usually absorbed in significant amounts and can usually be used safely during breastfeeding.

#### 13.1 Antifungal drugs

benzoic acid + salicylic acid	<input type="checkbox"/>	Compatible with breastfeeding
miconazole	<input type="checkbox"/>	Compatible with breastfeeding
sodium thiosulfate	<input type="checkbox"/>	Compatible with breastfeeding
<i>Complementary drug</i>		
selenium sulfide (C)	<input type="checkbox"/>	Compatible with breastfeeding

#### 13.2 Anti-infective drugs

methylrosanilinium chloride (gentian violet)	<input type="checkbox"/>	Compatible with breastfeeding
neomycin + bacitracin	<input type="checkbox"/>	Compatible with breastfeeding
potassium permanganate	<input type="checkbox"/>	Compatible with breastfeeding
silver sulfadiazine	<input type="checkbox"/>	Compatible with breastfeeding

#### 13.3 Anti-inflammatory and antipruritic drugs

betamethasone	<input type="checkbox"/>	Compatible with breastfeeding
calamine lotion	<input type="checkbox"/>	Compatible with breastfeeding
hydrocortisone	<input type="checkbox"/>	Compatible with breastfeeding

#### 13.4 Astringent drugs

aluminium diacetate	<input type="checkbox"/>	Compatible with breastfeeding
---------------------	--------------------------	-------------------------------

#### 13.5 Drugs affecting skin differentiation and proliferation

benzoyl peroxide	<input type="checkbox"/>	Compatible with breastfeeding
coal tar	<input type="checkbox"/>	Compatible with breastfeeding
dithranol	<input type="checkbox"/>	Compatible with breastfeeding
fluorouracil	<input type="checkbox"/>	Use alternative medicine
podophyllum resin	<input type="checkbox"/>	Compatible with breastfeeding
salicylic acid	<input type="checkbox"/>	Compatible with breastfeeding
urea	<input type="checkbox"/>	No data available

### 13.6 Scabicides and pediculicides

- |                 |                          |                               |
|-----------------|--------------------------|-------------------------------|
| benzyl benzoate | <input type="checkbox"/> | Compatible with breastfeeding |
| permethrin      | <input type="checkbox"/> | Compatible with breastfeeding |

### 13.7 Ultraviolet-blocking agents

- |  |                          |                               |
|--|--------------------------|-------------------------------|
| <i>Complementary drug</i><br>topical sun protection agent<br>with activity against<br>ultraviolet A and ultraviolet<br>B (C) | <input type="checkbox"/> | Compatible with breastfeeding |
|--|--------------------------|-------------------------------|

## 14. DIAGNOSTIC AGENTS

### 14.1 Ophthalmic drugs

- |             |                          |  |
|-------------|--------------------------|--|
| fluorescein | <input type="checkbox"/> | Avoid if possible when the infant is premature or less than 1 month old, especially when undergoing phototherapy |
| tropicamide | <input type="checkbox"/> | No data available  |

### 14.2 Radiocontrast media

- |  |                          |   |
|--|--------------------------|---|
| amidotrizoate  | <input type="checkbox"/> | Compatible with breastfeeding   |
| barium sulfate                                       | <input type="checkbox"/> | Compatible with breastfeeding   |
| iohexol  | <input type="checkbox"/> | No data available   |
| iopanoic acid  | <input type="checkbox"/> | Compatible with breastfeeding   |
| propylidone  | <input type="checkbox"/> | Compatible with breastfeeding. However, iodine-containing drugs for systemic administration are a cause for concern. Monitor the infant for side-effects (hypothyroidism) |
| <i>Complementary drug</i><br>meglumine iotroxate (C) | <input type="checkbox"/> | Compatible with breastfeeding   |

## 15. DISINFECTANTS AND ANTISEPTICS

### 15.1 Antiseptics

- |                   |                          |  |
|-------------------|--------------------------|--|
| chlorhexidine     | <input type="checkbox"/> | Compatible with breastfeeding  |
| ethanol           | <input type="checkbox"/> | Compatible with breastfeeding  |
| polyvidone iodine | <input type="checkbox"/> | Avoid if possible repeated topical application. Monitor the infant for side-effects (hypothyroidism) |

**Note :** Substances for topical application that contain iodine should be used with caution during lactation because iodine can be absorbed and concentrated in breastmilk and reach levels which are toxic for the infant. Nutritional supplements of iodine given to the mother on appropriate indications are, however, safe.

## 15.2 Disinfectants

- |                        |  |
|------------------------|--|
| chlorine base compound | <input type="checkbox"/> No data available             |
| chloroxylenol          | <input type="checkbox"/> No data available             |
| glutaral               | <input type="checkbox"/> Compatible with breastfeeding |

## 16. DIURETICS

**General information:** Large doses of short-acting thiazide diuretics and usual doses of loop diuretics or long-acting thiazide diuretics can inhibit lactation and should be avoided, if possible.

- |                           |   |
|---------------------------|---|
| amiloride                 | <input type="checkbox"/> Avoid if possible. May inhibit lactation |
| furosemide                | <input type="checkbox"/> Avoid if possible. May inhibit lactation |
| hydrochlorothiazide       | <input type="checkbox"/> Avoid if possible. May inhibit lactation |
| spironolactone            | <input type="checkbox"/> Compatible with breastfeeding            |
| <i>Complementary drug</i> |   |
| mannitol (C)              | <input type="checkbox"/> Compatible with breastfeeding            |

## 17. GASTROINTESTINAL DRUGS

### 17.1 Antacids and other antiulcer drugs

- |                     |   |
|---------------------|---|
| aluminium hydroxide | <input type="checkbox"/> Compatible with breastfeeding                                  |
| cimetidine          | <input type="checkbox"/> Avoid if possible. Insufficient data on long-term side-effects |
| magnesium hydroxide | <input type="checkbox"/> Compatible with breastfeeding                                  |

### 17.2 Antiemetic drugs

- |                |  |
|----------------|--|
| metoclopramide | <input type="checkbox"/> Avoid if possible. Insufficient data on long-term side-effects (possible defects in neural development in newborn animals). Increases breastmilk production |
| promethazine   | <input type="checkbox"/> Compatible with breastfeeding in single dose. Avoid repeated doses, if possible. Monitor the infant for drowsiness  |

### 17.3 Antihemorrhoidal drugs

- |  |  |
|--|--|
| local anaesthetic, astringent and anti-inflammatory drug | <input type="checkbox"/> Compatible with breastfeeding |
|--|--|

### 17.4 Anti-inflammatory drugs

- |                |  |
|----------------|--|
| hydrocortisone | <input type="checkbox"/> Compatible with breastfeeding in single dose. No data available on prolonged use  |
| sulfasalazine  | <input type="checkbox"/> Avoid if possible, especially if the infant is premature or less than 1 month old. Monitor the infant for side-effects (bloody diarrhoea, haemolysis and jaundice). Avoid in G-6-PD deficient infants |

### 17.5 Antispasmodic drugs

- atropine  Compatible with breastfeeding. Monitor the infant for side-effects (drying of secretions, temperature elevation and CNS disturbance)

### 17.6 Laxatives

- senna  Compatible with breastfeeding. However, it is only advisable to use the drug if dietary measures for treating constipation fail

### 17.7 Drugs used in diarrhoea

#### 17.7.1 Oral hydration

- oral rehydration salts (for glucose-electrolyte solution)  Compatible with breastfeeding

#### 17.7.2 Antidiarrhoeal (symptomatic) drugs

- codeine  Compatible with breastfeeding in occasional doses. Avoid repeated doses if possible. Monitor the infant for side-effects (apnoea, bradycardia and cyanosis)

## 18. HORMONES, OTHER ENDOCRINE DRUGS AND CONTRACEPTIVES

### 18.1 Adrenal hormones and synthetic substitutes

- dexamethasone  Compatible with breastfeeding in single dose. No data available on prolonged use
- hydrocortisone  Compatible with breastfeeding in single dose. No data available on prolonged use
- prednisolone  Compatible with breastfeeding
- Complementary drug*  
fludrocortisone (C)  No data available

### 18.2 Androgens

- Complementary drug*  
testosterone (C)  Avoid breastfeeding

### 18.3 Contraceptives

**General information:** The provision of hormonal contraceptives (including progestogen-only contraceptives) is discouraged during the first 6 weeks post-partum, in order to avoid exposing infants to them. If a contraceptive method is desired, a non-hormonal method should be the first choice.

### 18.3.1 Hormonal contraceptives

- |                                      |   |
|--------------------------------------|---|
| ethinylestradiol +<br>levonorgestrel | <input type="checkbox"/> Avoid, if possible. May inhibit lactation              |
| ethinylestradiol +<br>norethisterone | <input type="checkbox"/> Avoid, if possible. May inhibit lactation              |
| levonorgestrel                       | <input type="checkbox"/> Compatible with breastfeeding from 6 weeks post-partum |
| <i>Complementary drugs</i>           |   |
| levonorgestrel (B)                   | <input type="checkbox"/> Compatible with breastfeeding from 6 weeks post-partum |
| medroxyprogesterone acetate (B)      | <input type="checkbox"/> Compatible with breastfeeding from 6 weeks post-partum |
| norethisterone enantate (B)          | <input type="checkbox"/> Compatible with breastfeeding from 6 weeks post-partum |

### 18.3.2 Intrauterine devices

- |                          |  |
|--------------------------|--|
| copper-containing device | <input type="checkbox"/> Compatible with breastfeeding |
|--------------------------|--|

### 18.3.3 Barrier methods

- |   |  |
|---|--|
| condoms with or without<br>spermicide (nonoxinol) | <input type="checkbox"/> Compatible with breastfeeding |
| diaphragms with spermicide<br>(nonoxinol)         | <input type="checkbox"/> Compatible with breastfeeding |

## 18.4 Estrogens

- |                  |  |
|------------------|--|
| ethinylestradiol | <input type="checkbox"/> Avoid, if possible. May inhibit lactation |
|------------------|--|

## 18.5 Insulins and other antidiabetic agents

**General information:** Some women require reduced doses of drugs in this category while breastfeeding.

- |                             |  |
|-----------------------------|--|
| glibenclamide               | <input type="checkbox"/> Compatible with breastfeeding. Monitor the infant for hypoglycaemia           |
| insulin injection (soluble) | <input type="checkbox"/> Compatible with breastfeeding. Dosage may need to be reduced during lactation |
| intermediate-acting insulin | <input type="checkbox"/> Compatible with breastfeeding. Dosage may need to be reduced during lactation |
| metformin                   | <input type="checkbox"/> No data available   |

## 18.6 Ovulation inducers

- |           |  |
|-----------|--|
| clomifene | <input type="checkbox"/> Avoid (unlikely to be needed) |
|-----------|--|

## 18.7 Progestogens

- |   |   |
|---|---|
| norethisterone<br><i>Complementary drug</i> | <input type="checkbox"/> Compatible with breastfeeding                          |
| medroxyprogesterone acetate<br>(B)          | <input type="checkbox"/> Compatible with breastfeeding from 6 weeks post-partum |

## 18.8 Thyroid hormones and antithyroid drugs

- |                  |   |
|------------------|---|
| levothyroxine    | <input type="checkbox"/> Compatible with breastfeeding  |
| potassium iodide | <input type="checkbox"/> Avoid, if possible. Monitor the infant for side-effects (hypothyroidism) |
| propylthiouracil | <input type="checkbox"/> Compatible with breastfeeding  |

## 19. IMMUNOLOGICALS

### 19.1 Diagnostic agents

- |   |  |
|---|--|
| tuberculin, purified protein derivative (PPD) | <input type="checkbox"/> Compatible with breastfeeding |
|---|--|

### 19.2 Sera and immunoglobulins

- |  |  |
|--|--|
| anti-D immunoglobulin (human)          | <input type="checkbox"/> Compatible with breastfeeding |
| antitetanus immunoglobulin (human)     | <input type="checkbox"/> Compatible with breastfeeding |
| antivenom sera                         | <input type="checkbox"/> No data available             |
| diphtheria antitoxin                   | <input type="checkbox"/> Compatible with breastfeeding |
| immunoglobulin, human, normal (IM, IV) | <input type="checkbox"/> Compatible with breastfeeding |
| rabies immunoglobulin                  | <input type="checkbox"/> Compatible with breastfeeding |

### 19.3 Vaccines

#### 19.3.1 *For universal immunization*

- |                       |  |
|-----------------------|--|
| BCG vaccine           | <input type="checkbox"/> Compatible with breastfeeding |
| diphtheria vaccine    | <input type="checkbox"/> Compatible with breastfeeding |
| hepatitis B vaccine   | <input type="checkbox"/> Compatible with breastfeeding |
| measles vaccine       | <input type="checkbox"/> Compatible with breastfeeding |
| pertussis vaccine     | <input type="checkbox"/> Compatible with breastfeeding |
| poliomyelitis vaccine | <input type="checkbox"/> Compatible with breastfeeding |
| tetanus vaccine       | <input type="checkbox"/> Compatible with breastfeeding |

19.3.2 For specific groups of individuals

influenza vaccine	<input type="checkbox"/> Compatible with breastfeeding
meningococcal meningitis vaccine	<input type="checkbox"/> Compatible with breastfeeding
mumps vaccine	<input type="checkbox"/> Compatible with breastfeeding
rabies vaccine (inactivated) (prepared in cell culture)	<input type="checkbox"/> Compatible with breastfeeding
rubella vaccine	<input type="checkbox"/> Compatible with breastfeeding
typhoid vaccine	<input type="checkbox"/> Compatible with breastfeeding
yellow fever vaccine	<input type="checkbox"/> Compatible with breastfeeding

**20. MUSCLE RELAXANTS (PERIPHERALLY ACTING) AND CHOLINESTERASE INHIBITORS**

alcuronium	<input type="checkbox"/> Compatible with breastfeeding
neostigmine	<input type="checkbox"/> Avoid if possible in combination with atropine. Theoretically side-effects may occur
pyridostigmine	<input type="checkbox"/> Compatible with breastfeeding
suxamethonium	<input type="checkbox"/> Compatible with breastfeeding
<i>Complementary drug</i> vecuronium (C)	<input type="checkbox"/> Compatible with breastfeeding

**21. OPHTHALMOLOGICAL PREPARATIONS**

**21.1 Anti-infective agents**

gentamicin	<input type="checkbox"/> Compatible with breastfeeding
Idoxuridine	<input type="checkbox"/> Compatible with breastfeeding
silver nitrate	<input type="checkbox"/> Compatible with breastfeeding
tetracycline	<input type="checkbox"/> Compatible with breastfeeding

**21.2 Anti-inflammatory agents**

prednisolone	<input type="checkbox"/> Compatible with breastfeeding
--------------	--

**21.3 Local anaesthetics**

tetracaine	<input type="checkbox"/> Compatible with breastfeeding
------------	--

**21.4 Miotics and antiglaucoma drugs**

acetazolamide	<input type="checkbox"/> Compatible with breastfeeding
pilocarpine	<input type="checkbox"/> Compatible with breastfeeding
timolol	<input type="checkbox"/> Compatible with breastfeeding

**21.5 Mydriatics**

atropine	<input type="checkbox"/> Compatible with breastfeeding
<i>Complementary drug</i> epinephrine (adrenaline)(A)	<input type="checkbox"/> Compatible with breastfeeding



## 22. OXYTOCICS AND ANTIOXYTOCICS

### 22.1 Oxytocics

- |             |                          |   |
|-------------|--------------------------|---|
| ergometrine | <input type="checkbox"/> | Compatible with breastfeeding in single dose. Avoid repeated doses if possible. May inhibit lactation   |
| oxytocin    | <input type="checkbox"/> | Compatible with breastfeeding during short term use. Avoid prolonged use. May cause physiological dependence of the oxytocin reflex in the mother |

### 22.2 Antioxytocics

- |            |                          |                               |
|------------|--------------------------|-------------------------------|
| salbutamol | <input type="checkbox"/> | Compatible with breastfeeding |
|------------|--------------------------|-------------------------------|

## 23. PERITONEAL DIALYSIS SOLUTION

- |  |                          |                               |
|--|--------------------------|-------------------------------|
| intraperitoneal dialysis solution (of appropriate composition) | <input type="checkbox"/> | Compatible with breastfeeding |
|--|--------------------------|-------------------------------|

## 24. PSYCHOTHERAPEUTIC DRUGS

### 24.1 Drugs used in psychotic disorders

- |                |                          |  |
|----------------|--------------------------|--|
| chlorpromazine | <input type="checkbox"/> | Avoid if possible. Monitor the infant for drowsiness |
| fluphenazine   | <input type="checkbox"/> | Avoid if possible. Monitor the infant for drowsiness |
| haloperidol    | <input type="checkbox"/> | Avoid if possible. Monitor the infant for drowsiness |

### 24.2 Drugs used in mood disorders

#### 24.2.1 Drugs used in depressive disorders

- |               |                          |   |
|---------------|--------------------------|---|
| amitriptyline | <input type="checkbox"/> | Compatible with breastfeeding in doses up to 150 mg/day |
|---------------|--------------------------|---|

#### 24.2.2 Drugs used in bipolar disorders

- |                   |                          |  |
|-------------------|--------------------------|--|
| carbamazepine     | <input type="checkbox"/> | Compatible with breastfeeding. Monitor infant for side-effects ( jaundice, drowsiness, poor suckling, vomiting and poor weight gain) |
| lithium carbonate | <input type="checkbox"/> | Avoid if possible. Monitor the infant for side-effects (restlessness or weakness). Monitor lithium levels in mother's blood          |
| valproic acid     | <input type="checkbox"/> | Compatible with breastfeeding. Monitor infant for side-effects (jaundice)  |

### 24.3 Drugs used in generalized anxiety and sleep disorders

- |          |                          |  |
|----------|--------------------------|--|
| diazepam | <input type="checkbox"/> | Compatible with breastfeeding in single dose. Avoid repeated doses, if possible. Monitor the infant for drowsiness. Short-acting benzodiazepines preferred * |
|----------|--------------------------|--|

\* Suitable short-acting benzodiazepines include oxazepam and lorazepam. However, these are not included in the Model List of Essential Drugs

#### 24.4 Drugs used in obsessive-compulsive disorders and panic attacks

clomipramine  Compatible with breastfeeding

### 25. DRUGS ACTING ON THE RESPIRATORY TRACT

#### 25.1 Antiasthmatic drugs

aminophylline  Compatible with breastfeeding  
beclometasone  Compatible with breastfeeding  
epinephrine (adrenaline)  Compatible with breastfeeding  
ipratropium bromide  No data available  
salbutamol  Compatible with breastfeeding  
theophylline  Compatible with breastfeeding  
*Complementary drug*  
cromoglicic acid (B)  Compatible with breastfeeding

#### 25.2 Antitussive

dextromethorphan  No data available

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

#### 26.1 Oral

oral rehydration salts (for  
glucose-electrolyte solution)  Compatible with breastfeeding  
potassium chloride  Compatible with breastfeeding

#### 26.2 Parenteral

glucose  Compatible with breastfeeding  
glucose with sodium chloride  Compatible with breastfeeding  
potassium chloride  Compatible with breastfeeding  
sodium chloride  Compatible with breastfeeding  
sodium hydrogen carbonate  Compatible with breastfeeding  
compound solution of sodium  Compatible with breastfeeding  
lactate

#### 26.3 Miscellaneous

water for injection  Compatible with breastfeeding

## 27. VITAMINS AND MINERALS

- |  |                          |  |
|--|--------------------------|--|
| ascorbic acid                                      | <input type="checkbox"/> | Compatible with breastfeeding in usual doses. If large doses are used, monitor for side-effects (haemolysis and jaundice), especially if the infant is premature                 |
| ergocalciferol                                     | <input type="checkbox"/> | Compatible with breastfeeding in doses used as nutritional supplements. If pharmacological doses are required, monitor the calcium levels of the infant                          |
| iodine   | <input type="checkbox"/> | Compatible with breastfeeding in doses used as nutritional supplements and standard treatment of iodine deficient mothers.* Monitor the infant for side-effects (hypothyroidism) |
| nicotinamide                                       | <input type="checkbox"/> | Compatible with breastfeeding  |
| pyridoxine   | <input type="checkbox"/> | Compatible with breastfeeding  |
| retinol  | <input type="checkbox"/> | Compatible with breastfeeding  |
| riboflavin   | <input type="checkbox"/> | Compatible with breastfeeding  |
| sodium fluoride                                    | <input type="checkbox"/> | Compatible with breastfeeding in doses used as nutritional supplements. Long term, excessive exposure may cause mottling of teeth  |
| thiamine   | <input type="checkbox"/> | Compatible with breastfeeding  |
| <i>Complementary drug</i><br>calcium gluconate (C) | <input type="checkbox"/> | Compatible with breastfeeding  |

\* See section 15.1, page 19

**ALPHABETICAL LIST OF ESSENTIAL DRUGS**

Drug	Section	Page
<b>A</b>		
acetazolamide	21.4	25
acetylcysteine	4.2	7
acetylsalicylic acid	2.1, 7.1, 12.5	
aciclovir	6.4.1	6, 14, 17
adrenaline ( <i>see</i> epinephrine)	3, 12.2, 21.5, 25.1	7, 17, 24, 26
albendazole	6.1.1	9
alcuronium	20	24
allopurinol	2.3	6
aluminium diacetate	13.4	18
aluminium hydroxide	17.1	20
amidotrizoate	14.2	19
amiloride	16	20
aminophylline	25.1	26
amitriptyline	24.2.1	25
amoxicillin	6.2.1	9
amoxicillin + clavulanic acid	6.2.1	9
amphotericin B	6.3, 6.5.2	12, 13
ampicillin	6.2.1	9
anti-D immunoglobulin (human)	19.2	23
antihaemophilic fraction ( <i>see</i> factor VIII concentrate)	11.2	16
antihaemorrhoidal preparation: local anaesthetic, astringent, and anti-inflammatory drug	17.3	20
antitetanus immunoglobulin (human)	19.2	23
antivenom sera	19.2	23
artemether	6.5.3	13
artesunate	6.5.3	13
ascorbic acid	27	27
asparaginase	8.2	15
atenolol	12.1, 12.3	16, 17
atropine	1.3, 4.2, 17.5, 21.5	5, 7, 21, 24
azathioprine	2.4, 8.1	7, 15
<b>B</b>		
bacitracin + neomycin	13.2	18
barium sulfate	14.2	19
BCG vaccine	19.3.1	23
Beclometasone	25.1	26
benzathine benzylpenicillin	6.2.1	9
benznidazole	6.5.5	14
benzoic acid + salicylic acid	13.1	18
benzoyl peroxide	13.5	19
benzyl benzoate	13.6	19
benzylpenicillin	6.2.1	9
betamethasone	13.3	18

biperiden	9	16
bleomycin	8.2	15
bupivacaine	1.2	5
<b>C</b>		
calamine lotion	13.3	18
calcium folinate	8.2	15
calcium gluconate	4.2, 27	7, 27
captopril	12.3, 12.4	17
carbamazepine	5	8
carbidopa + levodopa	9	16
ceftazidime	6.2.1	10
ceftriaxone	6.2.1	10
charcoal, activated	4.1	7
chloral hydrate	1.3	5
chlorambucil	8.2	15
chloramphenicol	6.2.2	10
chlorhexidine	15.1	19
chlorine base compound	15.2	20
chlormethine	8.2	15
chloroquine	2.4, 6.5.3	7, 13
chloroxylenol	15.2	20
chlorphenamine	3	7
chlorpromazine	24.1	25
ciclosporin	8.1	15
cilastatin + imipenem	6.2.1	10
cimetidine	17.1	20
ciprofloxacin	6.2.2	10
cisplatin	8.2	15
clavulanic acid + amoxicillin	6.2.1	10
clindamycin	6.2.2	10
clofazimine	6.2.3	11
clomifene	18.6	22
clomipramine	24.4	26
clonazepam	5	8
cloxacillin	6.2.1	9
coal tar	13.5	19
codeine	2.2, 17.7.2	6, 21
colchicine	2.3	6
condoms	18.3.3	22
copper-containing intrauterine device	18.3.2	22
cromoglicic acid	25.1	26
cyclophosphamide	2.4, 8.2	7, 15
cytarabine	8.2	15
<b>D</b>		
dacarbazine	8.2	15
dactinomycin	8.2	15
dapsone	6.2.3	11
daunorubicin	8.2	15
deferoxamine	4.2	7

desmopressin	10.2	16
dexamethasone	3, 18.1	7, 21
dextran 70	11.1	16
dextromethorphan	25.2	26
diaphragms	18.3.3	21
diazepam	1.3, 5, 24.3	5, 8, 25
diethylcarbamazine	6.1.2	9
diethyltoluamide	6.6	14
digoxin	12.2, 12.4	17
diloxanide	6.5.1	13
dimercaprol	4.2	7
diphtheria antitoxin	19.2	23
diphtheria vaccine	19.3	23
dithranol	13.5	19
dopamine	12.4	17
doxorubicin	8.2	15
doxycycline	6.2.2, 6.5.3	10, 13

**E**

eflornithine	6.5.5	14
ephedrine	1.2	5
epinephrine (adrenaline)	3, 12.2, 21.5, 25.1	7, 17, 24, 26
ergocalciferol	27	27
ergometrine	22.1	25
ergotamine	7.1	14
erythromycin	6.2.2	10
ethambutol	6.2.4	11
ethambutol + isoniazid	6.2.4	11
ethambutol + rifampicin + isoniazid + pyrazinamide	6.2.4	11
ethanol	15.1	19
ether, anaesthetic	1.1	5
ethinylestradiol	18.4	22
ethinylestradiol + levonorgestrel	18.3.1	22
ethinylestradiol + norethisterone	18.3.1	22
ethosuximide	5	8
etoposide	8.2	15

**F**

factor VIII concentrate	11.2	16
factor IX complex (coagulation factors II, VII, IX, X) concentrate	11.2	16
ferrous salt	10.1	16
ferrous salt+ folic acid	10.1	16
fluconazole	6.3	12
flucytosine	6.3	12
fludrocortisone	18.1	21
fluorescein	14.1	19
fluorouracil	8.2, 13.5	15, 18
fluphenazine	24.1	25
folic acid	10.1	16

folic acid + ferrous salt	10.1	16
furosemide	16	20
<b>G</b>		
gentamicin	6.2.2, 21.1	10, 24
gentian violet (see methylrosanilinium chloride)	13.2	18
glibenclamide	18.5	22
glucose	26.2	26
glucose with sodium chloride	26.2	26
glutaral	15.2	20
glyceryl trinitrate	12.1	16
griseofulvin	6.3	12
<b>H</b>		
haloperidol	24.1	25
halothane	1.1	5
heparin sodium	10.2	16
hepatitis B vaccine	19.3.1	23
hydralazine	12.3	17
hydrochlorothiazide	12.3, 12.4, 16	17, 20
hydrocortisone	3, 13.3, 17.4, 18.1	7, 18, 20, 21
hydroxocobalamin	10.1	16
<b>I</b>		
ibuprofen	2.1	6
idoxuridine	21.1	24
imipenem + cilastatin	6.2.1	10
immunoglobulin, human normal	19.2	23
influenza vaccine	19.3.2	24
insulin injection, soluble	18.5	22
insulin, intermediate – acting	18.5	22
intraperitoneal dialysis solution	23	25
iodine	27	27
iohexol	14.2	19
iopanoic acid	14.2	19
iotroxate (see meglumin iotroxate)	14.2	19
ipecacuanha	4.1	7
ipratropium bromide	25.1	26
iron dextran	10.1	16
isoniazid	6.2.4	11
isoniazid + ethambutol	6.2.4	11
isoniazid + rifampicin	6.2.4	11
isoniazid + rifampicin + pyrazinamide	6.2.4	11
isoniazid + rifampicin + pyrazinamide + ethambutol	6.2.4	11
isoniazid + thioacetazone	6.2.4	11
isoprenaline	12.2	17
isosorbide dinitrate	12.1	16
ivermectin	6.1.2	9

**K**

ketamine 1.1 5

**L**

levamisole 6.1.1, 8.2 9, 15  
 levodopa+carbidopa 9 16  
 levonorgestrel 18.3.1 22  
 levonorgestrel + ethinylestradiol 18.3.1 22  
 levothyroxine 18.8 23  
 lidocaine 1.2, 12.2 5, 17  
 lithium carbonate 24.2.2 25

**M**

magnesium hydroxide 17.1 20  
 magnesium sulfate 5 8  
 mannitol 16 20  
 measles vaccine 19.3.1 23  
 mebendazole 6.1.1 9  
 medroxyprogesterone acetate 18.3.1, 18.7 22, 23  
 mefloquine 6.5.2, 6.5.3 13  
 meglumine amidotrizoate (*see* amidotrizoate) 14.2 19  
 meglumine antimoniate 6.5.2 13  
 meglumine iotroxate 14.2 19  
 melarsoprol 6.5.5 14  
 meningitis vaccine 19.3.2 24  
 mercaptopurine 8.2 15  
 metformin 18.5 22  
 DL\_methionine 4.2 8  
 methotrexate 2.4, 8.2 7, 15  
 methyl dopa 12.3 17  
 methylene blue (*see* methylthioninium chloride) 4.2 8  
 methylrosanilinium chloride (gentian violet) 13.2 18  
 methylthioninium chloride (methylene blue) 4.2 8  
 metoclopramide 17.2 20  
 metronidazole 6.2.2, 6.5.1 10, 13  
 miconazole 13.1 18  
 morphine 2.2 6  
 mumps vaccine 19.3.2 24  
 mustine (*see* chlormethine) 8.2 15

**N**

nalidixic acid 6.2.2 10  
 naloxone 4.2 7  
 neomycin + bacitracin 13.2 18  
 neostigmine 20 24  
 nevirapine 6.4.2 12  
 niclosamide 6.1.1 9  
 nicotinamide 27 27  
 nifedipine 12.3 17



nifurtimox	6.5.5	14
nitrofurantoin	6.2.2	10
nitrous oxide	1.1	5
nonoxinol	18.3.3	22
norethisterone	18.7	23
norethisterone enantate	18.3.1	22
norethisterone + ethinylestradiol	18.3.1	22
nystatin	6.3	12
<b>O</b>		
oral rehydration salts (for glucosa -electrolyte solution)	17.7.1, 26.1	21, 26
oxamniquine	6.1.3	9
oxygen	1.1	5
oxytocin	22.1	25
<b>P</b>		
Paracetamol	2.1, 7.1	6, 14
penicillamine	2.4, 4.2	7
pentamidine	6.5.2, 6.5.4	13, 14
permethrin	13.6	19
pertussis vaccine	19.3.1	23
pethidine	2.2	6
phenobarbital	5	8
phenoxymethylpenicillin	6.2.1	9
phenytoin	5	8
phytomenadione	10.2	16
pilocarpine	21.4	24
podophyllum resin	13.5	18
poliomyelitis vaccine	19.3.1	23
polygeline	11.1	16
polyvidone iodine	15.1	19
potassium chloride	26.2	26
potassium ferric hexacyanoferrate (II). 2H <sub>2</sub> O (Prussian blue)	4.2	8
potassium iodide	6.3, 18.8	12, 23
potassium permanganate	13.2	18
praziquantel	6.1.3	9
prazosin	12.3	17
prednisolone	3, 8.3, 18.1, 21.2	7, 15, 21, 24
primaquine	6.5.2	13
procainamide	12.2	17
procaine benzylpenicillin	6.2.1	9
procarbazine	8.2	15
proguanil	6.5.3	14
promethazine	1.3, 17.2	5, 20
propranolol	7.2	15
propylidone	14.2	19
propylthiouracil	18.8	23
protamine sulfate	10.2	16

prussian blue ( <i>see</i> potassium ferric hexacyanoferrate (II).2H <sub>2</sub> O)	4.2	8
pyrantel	6.1.1	9
pyrazinamide	6.2.4	11
pyrazinamide + rifampicin + isoniazid	6.2.4	11
pyrazinamide + rifampicin + isoniazid + ethambutol	6.2.4	11
pyridostigmine	20	24
pyridoxine	27	27
pyrimethamine	6.5.4	14
pyrimethamine + sulfadoxine	6.5.3	13
<b>Q</b>		
quinidine	12.2	17
quinine	6.5.3	13
<b>R</b>		
rabies immunoglobulin	19.2	23
rabies vaccine	19.3.2	24
reserpine	12.3	17
retinol	27	27
riboflavin	27	27
rifampicin	6.2.4	11
rifampicin + isoniazid	6.2.4	11
rifampicin + isoniazid + pyrazinamide	6.2.4	11
rifampicin + isoniazid + pyrazinamide + ethambutol	6.2.4	11
rubella vaccine	19.3.2	24
<b>S</b>		
salbutamol	22.2, 25.1	25, 26
salicylic acid	13.5	18
salicylic acid + benzoic acid	13.1	18
selenium sulfide	13.1	18
senna	17.6	21
silver nitrate	21.1	24
silver sulfadiazine	13.2	18
sodium amidotrizoate ( <i>see</i> amidotrizoate)	14.2	19
sodium bicarbonate ( <i>see</i> sodium hydrogen carbonate)	26.2	26
sodium calcium edetate	4.2	8
sodium chloride	26.2	26
sodium chloride with glucose	26.2	26
sodium fluoride	27	27
sodium hydrogen carbonate	26.2	26
sodium lactate, compound solution	26.2	26
sodium nitrite	4.2	7
sodium nitroprusside	12.3	17
sodium thiosulfate	4.2, 13.1	8, 18
spectinomycin	6.2.2	10
spironolactone	16	20
streptokinase	12.5	17
streptomycin	6.2.4	11

sulfadiazine	6.2.2	10
sulfadoxine + pyrimethamine	6.5.3	13
sulfamethoxazole + trimethoprim	6.2.2, 6.5.4	10, 14
sulfasalazine	2.4, 17.4	7, 20
sunscreen for ultraviolet A and ultraviolet B	13.7	19
suramin sodium	6.1.2, 6.5.5	9, 14
suxamethonium	20	24
<b>T</b>		
tamoxifen	8.3	15
testosterone	18.2	21
tetanus vaccine	19.3.1	23
tetracaine	21.3	24
tetracycline	21.1	24
theophylline	25.1	26
thiamine	27	27
thioacetazone + isoniazid	6.2.4	11
thiopental	1.1	5
timolol	21.4	24
triclabendazole	6.1.3	9
trimethoprim	6.2.2	10
trimethoprim + sulfamethoxazole	6.2.2, 6.5.4	10, 14
tropicamide	14.1	19
tuberculin, purified protein derivative (PPD)	19.1	23
typhoid vaccine	19.3.2	24
<b>U</b>		
urea	13.5	18
<b>V</b>		
valproic acid	5, 24.2.2	8, 25
vancomycin	6.2.2	10
vecuronium	20	24
verapamil	12.1, 12.2	16, 17
vinblastine	8.2	15
vincristine	8.2	15
<b>W</b>		
warfarin	10.2	16
water for injection	26.3	26
<b>Y</b>		
yellow fever vaccine	19.3.2	24
<b>Z</b>		
zidovudine	6.4.2	12